

THE FRONTIER OF THE MIDDLE CLASS:
HOW FARMERS AND FISHERS PURSUE BETTER LIVES IN THE COASTAL LANDSCAPES
OF EASTERN INDONESIA

A thesis submitted for the degree of Doctor of Philosophy of
The Australian National University

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Declaration

I declare that this thesis is my own account of my research and contains as its main content work which has not previously been submitted for a degree at any tertiary education institution.

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Acknowledgments

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Abstract

The coastal landscapes of the outer islands of the Indonesian archipelago are places rich with biological and cultural diversity. The people who live in these remote and rural places are often comparatively poorer than Indonesians living in urban and regional areas, with limited access to infrastructure, government services and markets. They, like most Indonesians, have participated in the massive economic development that has taken place over recent decades. The places where they live are on the frontier of middle class Indonesia: a place where they can see the material benefits of a developed consumer society, but lack the means to live those types of lives in their rural settings. For the fishers, farmers and forest-dependent people who live in these coastal landscapes, what are the types of lives to which they aspire? How do these aspirations influence the decisions that rural households make about livelihood strategies and resource uses?

To answer these questions, three settlements from a coastal landscape in Buton Island, Southeast Sulawesi, Indonesia, were studied. The research, conducted from 2012 until 2014, explored household livelihood and expenditure decision making through household surveys and in-depth, semi-structured interviews. The results of the case studies point to a theory of decision making for rural households under changing standards of living. Living standards were shaped by structural factors known as opportunity structures, such as infrastructure and consumer markets. Social influences, including traditions and modern social influences such as television, and social integration also shaped household goals and living standards. Changes in these structural and social processes affected not only the types of goods and services that were possible in the settlements, but also what was expected of people. Achieving these rising living standards was constrained by the lack of support for rural livelihoods. With limited support for improving the productivity of existing livelihoods, rural households instead diversified, with migration a central part of that strategy. As the mismatch between rural livelihoods and aspirations increased, a new type of vulnerability for rural households and their landscapes emerged. In these cases, the immediate needs of maintaining a living standard are more important than the sustainability of their livelihoods and resources.

The research contributes to the literature on environmental and rural development policy in Indonesia by demonstrating how economic development and the expansion of consumer society has shaped rural household behaviour. I propose that theories of rural household behaviour should incorporate greater considerations of the goals of rural Indonesian

households and community living standards, beyond just subsistence, as these shape the livelihood strategies of rural households. Policies and interventions should address the aspirations, capabilities and learning strategies of rural Indonesian households. By doing this, there is greater potential for reducing the environmentally harmful practices of smallholder farmers, small-scale and artisanal fishers and forest-dependent people.

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Currency Conversion Table

United States dollar (USD)	Indonesian Rupiah (IDR)
1	9707
Australian dollar (AUD)	Indonesian Rupiah (IDR)
1	10099

* Currency conversion rates as of 15 March 2013 taken from XE (xe.com) on 13 August 2015.

‘You promise a road, the next thing people want is a car to drive on that road; you promote telecommunications, the next thing they want is a mobile phone. The reality is that people want comfort, they want the benefit of development,’

Sangay Khandu, a Member of Parliament in Bhutan’s national council.

Chapter 1 :

Simple Decisions in Diverse Transitions

1.1. Introduction

The village of Lawele sits on the northern coast of the central area of Buton Island. Buton Island is located in the southeastern part of the province of Southeast Sulawesi, in Eastern Indonesia. At first glance, the village itself is unremarkable, looking much like other villages throughout this part of the world. Beneath the hills rising to the south of the village is a long strip of irrigated rice fields that, at the edges, are covered by agroforests or tropical rainforests. To the northern edge of the village, behind the thin row of houses, tall trees from the mangrove forests can be seen, frequently with large birds flying above. The village was once bigger: during the 1960s, locals counted in the population in the tens of thousands. By 2011, however, the village population had declined and eventually split into two small villages, the new one being called Benteng. Aside from the local traffic of motorcycles and cars transporting people from the main city on the island, Bau Bau, every so often there is a line of trucks travelling to the asphalt mine in the neighbouring town. As the local people say: if you would like to learn more about the history, and the natural environment, you need to speak with someone in the village who knows, and one man in the village who knows is Bandrianto.¹

Bandrianto, aged in his early forties, is a man both steeped in the tradition of the village, and he derives most of his livelihood from products from the forests. His family comes from the indigenous people of the area, who once lived in the forested hills in the interior of central Buton. Every year, he prepares for the traditional festival by practicing his traditional instruments and mastering the different dances, in particular the knife dances, that he will display when the time for the celebrations begin. On a more regular basis, he ventures into the forest to collect wild honey, along with rattan when a company has been allocated a quota, or just to collect shellfish from the mangrove forests. He knows the names, places and importance of most parts of the landscape, from the mountains out into the bay. Guiding me through the ruins of an old fortress in the middle of the jungle, he explained the rules and institutions of the village and how they have changed over time. He is well versed in practising

¹ Pseudonyms have been used to preserve the anonymity of respondents

traditional culture and dependent on the natural environment, in particular forests, for his income.

In 2014, Bandrianto sold just over a hectare of his land to a mining company. The land was covered in mainly secondary forests, which was regrowth from old swidden fields. Lying just beneath the surface of the land, however, was Butonese rock asphalt. For the land, he received IDR 107 million (AUD 10,595), which he quickly spent on buying three motorcycles, IDR 40 million (AUD 3,961) for the wedding of his daughter, and the rest was distributed among his family. He was not the first, or the last for that matter, to sell their land in the east of the village to the mining company. Many more had, and many more would after him, voluntarily sell their parcels of land, some used for agroforests, others timber trees or, like Bandrianto's, old fallows. Although he understood the cultural and environmental values of the land, that was not enough to prevent him, or others, from selling the land. Despite being just one man living on an island in the remote parts of Indonesia, how he made decisions about the environment are indicative of many challenges facing Indonesia in the twenty-first century.

1.2. Environmental Policy, Rural Development and Rural Livelihoods in Indonesia

Economic development in recent decades has led to the massive degradation of the natural landscapes and seascapes of the Indonesian archipelago. Although rural households are not the primary causes of environmental degradation in Indonesia, they are the focus of many policies and interventions for addressing it. Commercial land uses (Busch et al., 2015; Carlson et al., 2013; Gaveau et al., 2014), enabled by the structural patterns of land use governance, are the primary causes of deforestation in Indonesia. Fisheries in Indonesia, in contrast, are dominated by small-scale and artisanal fishers fishing near shore waters (De Alessi, 2014), although commercial vessels, in particular foreign vessels, have contributed to overfishing (Heazle and Butcher, 2007). Typically, rural households are perceived to be responsible for environmental issues such as forest and peat fires (Russell-Smith et al., 2007; Vayda, 2006) or destructive fishing practices and overfishing (Elliott et al., 2001; Sievanen et al., 2005). The structural issues that drive environmental degradation in Indonesia are perceived as difficult to resolve (Irawan and Tacconi, 2016). The environmentally harmful behaviours of rural households, therefore, are perceived to be easier to address. Consequently, changing the

behaviour of rural households has been the objective of environmental policies and conservation interventions in Indonesia.

Rural households in the tropics, however, are generally poorer than urban and regional households. Many of the world's most biologically diverse places also have high levels of poverty, which is a significant constraint to conservation (Fisher and Christopher, 2007). Conservation policies and interventions bear the ethical responsibility of ensuring that conservation does not disadvantage poor households. Approaches such as providing alternative livelihoods (Roe et al., 2014) or integrated conservation and development (Blom et al., 2010) have been implemented with the goal of not only avoiding harm from conservation interventions, but also promoting rural development. Conservation interventions, however, have not been implemented in isolation, but often concurrently with poverty reduction or rural development interventions. Reducing poverty is achieved through ensuring rural households have access to their basic needs, such as water, electricity and roads, as well as increasing household income through improved livelihoods. To achieve these goals and outcomes, policies and interventions in Indonesia may be targeted at multiple scales including the district (Kristiansen et al., 2009), village (Bebbington et al., 2004) or household (Stanford et al., 2014).

The success or failure of these conservation and rural development policies and interventions is contingent on the engagement and participation of rural households. Interventions designed to *develop* rural households or make their practices more *environmentally sustainable* have faced significant challenges (Li, 2007; Scott, 1998). In Indonesia as well as more broadly in Southeast Asia, initiatives designed to develop rural people have historically been implemented unilaterally (Colfer, 2011), often coercively, with the intention of integrating rural populations into the post-colonial state. The results of these interventions were uneven at best, often resulting in the displacement of indigenous people from their livelihoods and landscapes (Fairbairn et al., 2014). As conservation and environmental protection grew in importance, they were often implemented in a similar manner with similar results for rural Indonesians (Li, 2007).

The failure of state interventions for rural development and conservation and their unjust effects on rural people led to a shift towards participatory and collaborative approaches. Beginning with approaches such as participatory rural appraisal (Chambers, 1994) and the sustainable livelihoods approach (Scoones, 2009), the aspirations and agency of the rural poor gained importance. Conservation and sustainable management initiatives also moved on from

coercive and restrictive measures, such as the gazetting of national parks and protected areas. In their place came participatory and co-operative approaches such as co-management (Carlsson and Berkes, 2005), integrated conservation and development projects (Blom et al., 2010), and more recently, landscape approaches (Sayer et al., 2013). These approaches rely on rural people, often poor, in developing countries, mostly in the tropics, to participate in management initiatives that are framed as means for achieving their aspirations. Other approaches, such as payments for reducing deforestation and degradation (REDD+), still rely on the participation or, at least, compliance, of the rural poor in conserving forests (Agrawal et al., 2011). With these new approaches, understanding the practices, aspirations and decision making of rural people in the tropics has increased in importance.

The dominant theories of rural household decision making are based on theories of the peasant household (Ellis, 1993) and more recently, the rural livelihoods approach (Ellis, 2000a; Scoones, 2009, 1998). The theories of the peasant household were roughly characterised as either the rational profit-maximising peasant or the drudgery-averse peasant (Ellis, 1993). In these theories, peasants either pursued strategies for maximising income or conversely, worked only enough to meet their needs (see Chapter 2 for a more detailed discussion). Other interpretations, in particular Marxist authors, emphasised the political economy of the peasant household, whose members lived on the frontiers of capitalist societies (Ellis, 1993). The concept of the peasant household was generally replaced by the livelihoods framework for analysing and understanding the behaviour of rural households (Ellis, 2000a; Scoones, 2009, 1998). The livelihood approach focuses on the 'assets-access-activities' framework. This framework argues rural livelihoods are determined by the ability of households to make use of their assets that are mediated through social processes, exogenous trends and by shocks (Ellis, 2000a, p. 232). The livelihood framework has become dominant among academics and rural development and conservation practitioners (Scoones, 2009).

The idea of the risk-averse, subsistence peasant has dominated the policy and practice of rural development and conservation. The concept of the subsistence ethic of peasants, popularised by Scott (1976), held that the comparative poverty and vulnerability of peasants meant they were averse to risks and prioritised survival over profit. This in turn led them to prefer existing, tried and tested practices and technologies over newer, potentially more profitable technologies. This essentialist view has been challenged by authors (Bernstein and Byres, 2001), including Popkin (1979), who characterised peasant households as self-interested rational problem solvers. Underpinning these competing conceptualisations of peasants was

the debate about whether peasants are a different, unique or exceptional class, whose motivations differ from other households (Bernstein, 2009; Bernstein and Byres, 2001).

In Indonesia, and more broadly in Southeast Asia, there have been several recent studies challenging the concept of the risk-averse, subsistence-oriented rural household. High (2014, 2008) has discussed the aspirations and motivations of rural households in Laos through the lens of desire. High discusses how the desires of rural people are formed in response to poverty alleviation and development programs. Her studies emphasise how rural people's desires for modernity are not always achieved through government and non-government initiatives for poverty alleviation and development. Li's (2014, 2007, 2002a), studies of Sulawesi, in particular those focusing on the effects of the cocoa boom, have explored how a smallholder commodity boom has transformed the landscapes and livelihoods of rural Indonesians. The studies have challenged the idealised notions of rural households, in particular, that of the subsistence-oriented, ecologically sustainable peasant. Li has also highlighted how these commodity booms have affected rural households unevenly, and those who lose out and are forced to sell their lands, have few non-farming livelihood options available (Li, 2014). Levang and others (Feintrenie et al., 2010b; Levang et al., 2007; Rival and Levang, 2014) have explored how rising aspirations have affected decisions about livelihoods and land uses among rural Indonesians. Across these studies, they have argued that the main reason that rural Indonesians adopt new livelihoods and land uses, such as oil palm, is their aspiration for a more modern standard of living. In these cases, single decisions, such as converting biologically diverse farming systems for lucrative monocultures, are seen as being instrumental for achieving higher living standards.

Although these authors have challenged the notions of the idealised subsistence peasant, living harmoniously with nature, they have not offered a substitute theory of rural households. In particular, what is missing is a theorisation of the aspirations and goals of rural households, and, how the pursuit of those aspirations shapes the livelihood choices of rural households. This gap has significant implications for the design and implementation of policies and interventions for conservation and rural development. Different normative conceptualisations of rural households will lead to different policy designs. The dominance of the livelihood approach has led to conservation interventions for providing alternative livelihoods (Roe et al., 2014; Sievanen et al., 2005), often as part of integrated conservation and development projects, which often failed to meet either of their goals of conservation or development (Blom et al., 2010). Aspirations, when they have been addressed, only focus on collective and participatory visioning exercises (Evans et al., 2010; IMM, 2008), rather than understanding

the aspirations of individuals and households. With many of the assumptions underpinning the livelihoods approach being challenged (Scoones, 2009), it seems probable these types of interventions will continue to fall short of their expectations.

My thesis contributes to the debate on the theorisations of rural households, in particular, by examining the relationship between the aspirations of rural households and their livelihood strategies and choices. Historically, there have been attempts to understand how household goals and community living standards determine production strategies. Although later interpretations of his work focused mainly on the 'consumer/worker ratio' as the determinant of production strategies (Ellis, 1993), Chayanov (Chāyanov, 1986) saw rural life as a trade-off between the drudgery of work and the needs of the household (Durrenberger and Tannenbaum, 1992; Tannenbaum, 1984). Or, expressed alternatively, drudgery is a measurement of people's aversion to working more than they find enjoyable (Durrenberger and Tannenbaum, 1992). And unlike firms, there was a cut-off point where households decided that they had enough (Durrenberger, 1997). The needs of the households were not simply subsistence, but included a range of household goals including ritual expenses (Durrenberger and Tannenbaum, 1992). And, in contrast to other theories of peasant household decision making: the goals of households determined their production strategies (Tannenbaum, 1984). Although Chayanov's work has been criticised for not theorising social relations (Bernstein, 2009), it remains the main theory of rural household behaviour that emphasises how consumption choices drive production strategies (Ellis, 1993).

In this context, this thesis aim to investigate how household goals and community living standards influence decisions about livelihoods and the use of natural resources in Indonesia. To understand these goals I build on the work of Chayanov and others (Chāyanov, 1986; Durrenberger and Tannenbaum, 1992; Tannenbaum, 1984). These authors, however, did address how livelihood strategies changed in response to changing household goals and community living standards. They also did explore what causes changes in household goals or community living standards. To address these issues relating to the formation and pursuit of household goals, I incorporate literature from social psychology, in particular relating to goals (Bagozzi and Dholakia, 1999; Fishbach and Ferguson, 2007) and goal systems (Kruglanski et al., 2002). I also draw upon other ethnographic literature on the pursuit of aspirations (Fischer, 2014) as well as studies on the economics of happiness (Frey and Stutzer, 2002).

The thesis centres on answering the following questions:

- What are the goals and community living standards of rural Indonesian households? and,
- How do they learn, develop strategies and make decisions about livelihoods and the use of resources in order to achieve these goals?

These questions are designed to explore and test the following proposition that:

As standards of living aspired to change, rural households adapt their livelihoods to meet the costs of these new living standards, and that the pursuit of higher standards of living by rural households will have adverse effects on the natural environment.

I situate my study in the broader political, social and economic changes that have affected Indonesia in recent decades. In particular, I discuss the effects of rapid economic growth, the rise of a large middle class and expanding markets for electronics and other consumer items. Economic growth in Indonesia since 1990 has led to the emergence of a large middle class (Chun, 2010), with Indonesia now ranked among middle income countries (Sumner, 2010).² Changes across Indonesia have led to increasing prosperity for many. Much of the country is serviced by infrastructure such as electricity and roads, with access to mobile phone signals and television broadcasts. A wealthy elite along with burgeoning middle class has emerged in both the major urban centres, such as Jakarta, but also regional towns throughout much of the outer islands (van Klinken and Berenschot, 2014).

The emergence of the new middle class has been accompanied by changes in living standards and consumer preferences, such as the emergence of 'mall culture' (Ansori, 2009). The wealthy and middle class are able to access a range of consumer goods and services, available through the mega-malls of Jakarta, to the department store franchises, such as Matahari, spread across the archipelago. Indonesian television, available through broadcast and subscription services, advertises products ranging from cosmetics, motorcycles and cars, to mass-produced herbal remedies. Indonesians are also exposed to the lives of wealthier Indonesians through television programs and soap operas (*sinetron*). More recently, Indonesians have become prolific users of social media such as Facebook and Twitter (Lim, 2013). Many Indonesians, especially in rural areas, however, remain comparatively poorer

² In developing countries, the middle class has been defined as having a daily income of USD2 to USD10 a day (Banerjee and Duflo, 2008) or USD20 a day (Chun, 2010).

than Indonesians in urban and regional areas (Suryahadi et al., 2009). Despite their relative poverty, rural Indonesians are exposed to similar influences as wealthier Indonesians. They are, however, unable to access the same goods and services due to low income and distance from markets. Although much of the focus of research on the middle class in Indonesia has focused on urban and regional centres (van Klinken and Berenschot, 2014), less attention has been given to how these changes are affecting rural Indonesians.

In this context, the thesis contributes to the literature by providing a more detailed understanding of the relationship between livelihoods and living standards. I discuss how the pursuit of household goals shapes, or is shaped by rural livelihood strategies. I also discuss how changing living standards affect rural livelihoods. I present the mechanisms by which community standards change and discuss how rural households adapt their livelihood strategies accordingly. Finally, I discuss the factors that enable or prevent rural households from achieving their goals or aspired living standards, in particular relating to how they are able to improve or learn new livelihoods.

1.3. Thesis outline

In this thesis, I explore the topic of changing livelihoods and living standards by examining the behaviour of rural Indonesian households through case studies from a coastal landscape in Southeastern Sulawesi. To make sense of these case studies, I explore the behaviour and decision making of rural households in the context of biologically and culturally diverse coastal landscapes. In contrast to traditional explanations of peasant household behaviour, which emphasise farming as the central domain, rural households in the coastal landscapes of Indonesia can choose from a diverse array of livelihoods and resource uses. Farming is only one, but important, choice among many that also include non-farming livelihoods and professional employment. The choices that rural households in these landscapes make, and why they make them, are consequently more important and require a different analytical approach.

In Chapter 2, through examining the literature on livelihoods and living standards, and incorporating literature from social psychology and consumer behaviour, I discuss how the pursuit of household goals influences livelihood choices. I then discuss the places where these decisions are made, using the concepts of the multifunctional landscape and subsistence

economies. I also discuss the social processes that shape the behaviour of households and how they are able to benefit from the resources in their landscapes.

In Chapter 3, I present the methodology for examining household decision making in biologically and culturally diverse coastal landscapes. I frame the case studies in the context of the literature on farming and fishing in Indonesia and, more broadly, in Southeast Asia. I then discuss the main political processes that have affected rural Indonesia in recent decades. I discuss the rationale for choosing the coastal landscape that was the location of the case studies. I frame the social trends in the landscape in the context of broader transitions in the Indonesian government that have shaped the behaviour and choices available to rural households. I then present the rationale for selecting the case studies, and the methods used for interviewing households and collecting data.

From Chapters 4 to 6, I explore the case studies from three different settlements in the coastal landscape. Chapter 4 explores the settlement at Tanjung Bunga, which is a settlement built on the mudflats in the bay on the edge of the mangrove forest. The residents of Tanjung Bunga are mainly Bajo fishers, whose livelihoods depend on the resources of the mangrove forests, coral reefs and waters surrounding the settlement. Chapter 5 looks at the settlement of Lawunta, which is a settlement located in the forested upland area to the south of the main village. The residents of Lawunta belong to the Kalende ethnic group: a people who were the original inhabitants of the area before being displaced by the government in the 1960s and 1970s. Many of the Kalende migrated to Maluku only to be forced to flee again during the civil unrest of the late 1990s. After returning to Buton, they decided to reclaim their historical lands and establish a new settlement in the upland area of the landscape. Chapter 6 discusses the larger, lowland settlement of Lawele, located next to the road. Lawele is the name of a more ethnically diverse sub-village (*dusun*), which is adjacent to other sub-villages in the main part of the village. Although most households are involved in irrigated rice farming, the livelihoods of the people in Lawele are diverse, including a large percentage of civil servants.

Each of these chapters is structured in a similar way. First, I discuss the history of the settlement, which usually begins around the time after Indonesian independence and around the time of the Kahar Muzakkar-led rebellion. I then discuss the natural environment surrounding each of the settlements, the infrastructure in the settlements and access to services, as well as local institutions. I then discuss the different types of livelihoods in the settlements, how people learned and chose to adopt these livelihoods. I also discuss how and why people diversify their livelihoods in each of the settlements. I then discuss the types of

goods and services that people have acquired and accessed. I discuss what factors influence the types of goods and services available to people in each of the settlements. I also explore expenditure choices that are sensitive to social pressures, such as clothing and ceremonies, and what influences these choices. These chapters describe three distinct case studies of rural household behaviour and decision making in a diverse, coastal landscape.

In Chapter 7, I explore the case study of the expansion of asphalt mining into the landscape. This chapter centres on the overarching question: why do farmers sell their land? I frame the discussion in the chapter in terms of the history of the landscape. A landscape that has changed from being a swidden farming landscape to the place where narratives of conservation and development compete. I discuss briefly the history of conservation initiatives in the area before discussing the reasons for the renewed expansion of asphalt mining. I then discuss in detail the process by which farmers sold, or received compensation payments for, their land. I explore what motivated farmers to sell their land as well as how they spent the money they received from compensation payments. I then locate this discussion in terms of the results of the three previous case studies, examining how existing patterns of household behaviour and decision making influenced the decisions made by landholders.

In Chapter 8, I compare the results from case studies and seek to answer how the pursuit of household goals and community living standards shapes livelihood strategies. In the chapter, I highlight three main trends that emerged from the case studies that have shaped the goals and living standards of rural households. First, I discuss how improvements in infrastructure, government services and social interaction with urban centres leads to increased aspirations and social pressures to maintain a higher standard of living. Second, I argue that although social learning has been an effective means for learning rural livelihoods, the productivity of rural livelihoods, in particular farming and fishing, was limited without technical and scientific support. Third, I argue that the mismatch between aspirations and means will most likely be met through the degradation of natural resources such as the overexploitation of fisheries or land sales.

Finally, in Chapter 9, I conclude by revisiting theories of rural household behaviour and explore the implications of the research. I discuss how the pursuit of household goals and community living standards influences the livelihood strategies of rural households in contrast to broader social, economic and political processes. I then discuss, based on the evidence presented, how the capabilities of rural Indonesian households can be improved so that they have greater freedom to choose the lives they want to lead, while protecting the natural environment. I

provide several policy recommendations that emphasise improving the institutional support for rural households, in particular focused on improving education for rural livelihoods and supporting adaptive learning.

Chapter 2 :

Livelihoods and Living Standards

2.1. Introduction

The theoretical linkages between livelihoods and living standards are discussed in this chapter. Underpinning these linkages are theorisations of rural household behaviour, which, when simplified, ask whether production decisions precede consumption decisions, or vice-versa. In the chapter, I argue that the pursuit of household goals drives choices about livelihood strategies. These household goals are embedded in community living standards, which in turn, are shaped by infrastructure, as well as natural and social, including economic, systems. By situating rural household decision making in the context of biologically and culturally diverse tropical landscapes, I argue that the pursuit of household goals by rural households radically differs from other consumer behaviour. These differences have implications for the use and management of natural resources.

2.2. The means for making a living

The choices that rural people make regarding their lives and livelihoods have been studied especially through their membership of rural households. Historically, the literature on agrarian change has studied the behaviour and economics of the peasant household (Bernstein and Byres, 2001). Peasants, a category broadly encompassing smallholder farmers (Netting, 1993) and swidden farmers, were differentiated from other forms of farming such as family farms or agribusinesses. Ellis (Ellis, 1993) defines the peasant household as:

‘Households which derive their livelihoods mainly from agriculture, utilise mainly family labour in farm production, and are characterised by partial engagement in input and output markets which are often imperfect or incomplete.’ (Ellis, 1993, p. 13)

The peasant household, in contrast to other households or firms, is both a unit of production and consumption. The peasant farming household will consume a proportion of the food it produces, as well as making other decisions about household consumption. In peasant households, production and consumption choices are closely related.

The economics and behaviour of peasant households have been studied as part of their role in agrarian change and as the subjects of development and broader political processes. The literature on the behaviour of peasant households has been roughly grouped into five theories:

- *The profit-maximising peasant*: peasants are profit-maximising economic agents who are thus efficient producers in the neoclassical sense.
- *The risk-averse peasant*: farmers face: uncertainty arising from natural hazards or yield uncertainty; market fluctuations or price uncertainty; uncertainty deriving from social relations in the rural economy; and uncertainty of state actions and wars. Risk-averse behaviour results in household decisions that do not lead to the optimum use of resources and inputs, and do not maximise profits.
- *The drudgery-averse peasant (Chayanov)*: The peasant is drudgery-averse, or dislikes farm labour, and will only work enough to meet the consumption needs of the household. In this theory, peasant households make decisions based on consumption and production, although focusing on subsistence.
- *The farm household peasant*: The new home economics treats the household as a production unit, in which the time of household members is combined with purchased goods or services to produce items of final consumption. All units of time, whether in housework, wage work, or leisure, are valued at their opportunity cost in terms of the market wage.
- *The sharecropping peasant*: Sharecropping is an agrarian institution or contract that is a means of reducing the transaction costs of exchanges in land, labour and credit markets. Under share tenancy, the rental payment for the use of land is a percentage share of the physical output of the farm. (Ellis, 1993, pp. 81–162)

The theory of the peasant household underpins how interventions were designed to improve the lives of the rural poor. During the period after the Second World War, improvements in farming technologies were seen as the central pathway for improving the wealth of rural households. The technologies for improving the productivity of peasant households relied on improved irrigation, fertilisers and seed varieties. The proposition underpinning these

interventions was that lack of access to technology prevented peasant households from realising the full potential of agricultural production. If peasant households were provided with the right technology, they would alter the way they farmed (Ellis and Biggs, 2001). An alternate theory, advocated by Boserup (1981, 1965) and developed by others (Netting, 1993), argued that agrarian change, in particular agricultural intensification, were driven by demographic pressures. When demographic pressures were alleviated, for instance European colonists on the frontier, people would then revert to extensive farming systems.

The concept of a farming, peasant household is both limited conceptually and empirically for understanding rural change in the tropics. Other rural households that rely on fishing, swidden or grazing do not fit as neatly into the theories as European peasant farmers. Fishers have long been considered as belonging to the peasant economy but with several differences (Firth, 1966). One of the main differences between fishing and farming households is the frequency of harvests. Where farmers harvest on a seasonal basis fishers rely on daily income. This affects not only how households plan and save for larger expenses, but also, the types of risks they face. Another central limitation of applying theories of peasant households more broadly is that the livelihoods of rural households in the tropics are generally diverse. Swidden households in Southeast Asia have traditionally mixed farming of staple crops such as rice with other livelihoods, including gathering wild products and circular migration (Cairns, 2015; Colfer, 2008). This diversity of incomes sources is common across most of the tropics, as demonstrated by a study of 8000 households in 24 developing countries that found that environmental income accounts for 28% of total household income (Angelsen et al., 2014). And although the trends towards diversification and non-agrarian livelihoods only received greater attention in the 1990s (Bryceson, 1996), these livelihood patterns had existed for much longer (Colfer, 2008).

The concepts of rural livelihoods and livelihood diversification became more widely used among scholars and practitioners than the economic and behavioural theories of the peasant household. The concept of livelihoods, and the livelihood framework, attempted to capture the complexity and diversity of rural households in developing countries. Livelihoods have been defined as follows:

‘A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its

capabilities and assets, while not undermining the natural resource base.’ (Scoones, 1998, p. 5)

Alternatively, livelihoods have been defined as follows:

‘A livelihood comprises the assets (natural, physical, human, financial and social capital), the activities, and the access to these (mediated by institutions and social relations) that together determine the living gained by the individual or household.’ (Ellis, 2000a, p. 10)

At the centre of these definitions of livelihoods is the ‘assets-access-activities’ framework: that rural livelihoods are determined by the ability of households to make use of their assets that are mediated through social processes, exogenous trends and by shocks (Ellis, 2000a, p. 232). Through the livelihood framework, assets were more broadly defined than access to land and incorporated natural, physical, human, financial and social capital. The livelihood framework departs from a stricter definition of household economics and behaviour, and instead, points to the range of factors and processes that can affect how rural households can earn a living.

Despite being used extensively for analytical and practical purposes, the livelihood framework has received various criticisms. De Haan and Zoomers (2005) pointed to two major weaknesses of the livelihood approach, both framed around the issue of access. First, access to livelihood opportunities are regulated by structural mechanisms, which are often overlooked by the livelihood approach. Second, is the relationship between access and livelihood decision making, where they evaluate the notion of the household as a single decision-making unit, and whether decision making is strategic or unintentional and reactive. Scoones (2009), evaluates both the livelihood framework in terms of use analytically and in development practice. The four major failures of the livelihood approach are framed as failures to engage. These include failures to engage economic globalization, politics and governance, environmental sustainability and changes in rural economies. Beyond these, he highlights four themes where the livelihoods could be improved: politics, scale, dynamics and knowledge. Politics in this case refers to not only power dynamics at the local level, but also how larger policy processes influence and shape the micro level. Scale refers to linking micro processes to macro or global processes such as networks or commodity chains. Dynamics refers to the ability of livelihoods to respond to changes, in particular environmental changes, in the long-term. Finally, in the context of knowledge, he referred to the need to challenge the normative assumptions that underpin much of the livelihood approach, asking:

‘What does the framing of livelihood analysis say about whether things are heading towards positive or negative ends? What is assumed to be a ‘good’ or a ‘bad’ livelihood? What needs transformation through the disciplining practices of ‘development’? These questions often remain unaddressed or only implicitly treated.’ (Scoones, 2009, p. 184)

Another aspect of rural livelihoods is that, in contrast to employment in developed countries, they are generally diversified. Diversified livelihoods include sources of income including from labour, business and migration. Livelihood diversification is the process:

‘by which rural families construct a diverse portfolio of activities and social support capabilities in their struggle for survival and in order to improve their standards of living.’ (Ellis, 1998, p. 4)

Ellis later discussed two general reasons for why people diversified their livelihoods that were roughly characterised as those by necessity and those by choice (Ellis, 2000b). Spread across these two categories are six determinants of diversification: seasonality, risk, labour markets, credit markets, asset strategies, and coping strategies. Seasonality refers to seasonal aspects of agricultural and other production, and the need for households to have stable income across the year. Diversification, in this context, refers to the process of adopting additional livelihoods during periods when less labour is needed for agricultural or other activities, and adopting livelihoods with higher returns for labour. Risk strategies involve adopting multiple activities that minimises the risk of failure from one livelihood or activity. This could involve planting different types of crops such as mixing tree crops with staple food crops. Labour markets refer to opportunities provided by other types of work, including non-farm work, which may complement farm, or other rural livelihood activities. These opportunities often require different skills, education or gender to access. Credit markets refer to the difficulties farmers and other producers, such as fishers, have in accessing credit for machinery or other inputs. Diversification means that without access to credit, producers can use an alternative source of income to pay for inputs into their farming or other activities. Asset strategies refer to households diversifying their livelihoods in order to improve their standard of living into the future and increasing future income-generating abilities. Finally, coping strategies, behaviour and adaptation refer to the strategies people adopt to deal with shocks or failures. These strategies differ from risk strategies, in that whereas in risk strategies households plan and make strategies to cope with failures, coping strategies also arise from unplanned or unintended events.

Diversified livelihood strategies, when not driven by necessity, emphasise the choices of rural households. As livelihoods are typically studied by researchers and practitioners interested in alleviating poverty, there is a greater emphasis placed on coping and risk management strategies. Less attention is given to the ways that rural households define and improve their living standards. According to these theories, in contrast to Chayanov-type theories, people make production decisions first and then consumption decisions (Angelsen, 1999; Ellis, 1993). In these type of decisions, people choose livelihoods and livelihood strategies rationally and in response to the constraints of rural settlements in developing countries.

Beyond meeting basic subsistence needs, however, it is unclear from these types of theories what motivates people to work more. Although later interpretations of his work focused mainly on the 'consumer/worker ratio' as the determinant of production strategies, Chayanov saw rural life as a trade-off between the drudgery of work and the needs of the household (Durrenberger and Tannenbaum, 1992; Tannenbaum, 1984). As he described it:

'The degree of self-exploitation is determined by a peculiar equilibrium between family demand satisfaction and the drudgery of labor itself. Each new ruble of the growing family labor product can be regarded from two angles: first, from its significance for consumption, for the satiation of family needs; second, from the point of view of the drudgery that earned it.'(Chayanov, 1986, p. 6)

Or, expressed alternatively, drudgery is a measurement of people's aversion to working more than they find enjoyable (Durrenberger and Tannenbaum, 1992). And unlike firms, there was a cut-off point where households decided that they had enough (Durrenberger, 1997):

'As soon as this equilibrium point is reached, however, continuing to work becomes pointless, as any further labor expenditure becomes harder for the peasant or artisan to endure than is foregoing its economic effects.' (Chayanov, 1986, p. 6)

The needs of the households were not simply subsistence but included:

'the number of consumers to feed, clothe, and house; taxes; debts; rents; ritual expenses; tools; plans to expand production to meet anticipated future needs; or other sources.' (Durrenberger and Tannenbaum, 1992, p. 76)

Households with fewer needs would have a lower level of production than households with higher demands. Alternatively, as was articulated by Tannenbaum while studying rural life in Thailand in the 1980s:

‘In Thongmakhsan, strategy choice reflects the household’s ability and willingness to support itself at the community’s standard of living. Households choose production strategies based on their goals. For most households these goals are to live at the community’ standard of living, able to produce enough rice to feed itself and enough money to buy necessary consumption items, some luxury goods, and to contribute to the local Buddhist temple. As long as the household members are healthy, have not had unexpected expenses, and have had sufficient rice yields, they can maintain themselves with the normal production strategy.’ (Tannenbaum, 1984, pp. 932–33)

Or more simply: ‘Households with different goals have different production strategies.’ (Tannenbaum, 1984) And to understand the production strategies of rural households, we need to understand the community’s standard of living (Tannenbaum, 1984). Living standards, however, change. And, as living standards change, livelihood strategies should be expected to meet the rising aspirations of rural households.

2.3.A standard of living

Is there a better definition for a standard of living, or quality of life, which more accurately reflects the aspirations of rural households? Although quantitative measures may provide comparisons across geographical units such as villages, districts or countries, they are unlikely to explain the practices and aspirations of rural households. Historically, the standard of living was not always considered in quantitative terms. Moskowitz, in looking at the history of the term of the ‘standard of living’ states:

‘The standard of living is a measure, but a qualitative rather than quantitative one. It is at once personal, applied to an individual or household, and collective, shared by groupings as large as a class or nation. It is felt or perceived more accurately than it can be enumerated or articulated. It changes over time, and sometimes from place to place. Yet, despite being such a vague entity, the standard of living retains a powerful hold on the culture and economy of the United States – most Americans would know it when they see it.’ (Moskowitz, 2004, p. 3)

Although the term was often used to describe a bundle of goods or the wages of workers, she argues, it was more frequently associated with the material culture of the middle class. It was a term separate from another similar term, the cost of living. The standard of living emerged

at the intersection of production and consumption, when standardised goods were being mass-produced, and people began to define themselves by their purchasing power, rather than just their income. People would purchase both material goods and standardised physical environments. Above all, the standard of living was an aspiration and an ideal, shaped around a shared cultural standard (Moskowitz, 2004).

Amartya Sen (Muellbauer, 1987; Sen, 1987a) has also argued against measures of standards of living that measure only opulence or bundles of goods. Sen argued against this type of measurement, saying that simply possessing the goods does not reflect people's ability to benefit from them. He argues that although opulence is a significant part of a standard of living, the measure of a standard of living should be in terms of the actual life a person leads. For instance, he uses the example of a person with a parasitic disease, who although they have access to food, is unable to gain the full nutrition from that food. Similarly, he argues against the use of utility as the measure of a standard of living. In his argument against utility, he states that very deprived people, for a variety of reasons such as religion or political propaganda, can find happiness in their situation. And that, if happiness or desire fulfilment is the sole measure of the standard of living, then many of these deprivations will be overlooked (Sen, 1987a). So, although happiness is valuable to the standard of living, it is not the most important measure. For instance, there will be people who have experienced constant deprivation, who in adapting to these situations, will take pleasure in small things, without substantially altering the quality of their lives. Or as Krishna describes:

'Low-level achievements in the past have produced low aspirations among individuals currently preparing for employment. In turn, low aspirations produce low achievements in the future. A low-level equilibrium is the result.' (Krishna, 2010, p. 125)

Instead of measuring the standard of living in terms of opulence and utility, Sen focuses on what he refers to as *functionings* and *capabilities* (Sen, 1993, 1987a, 1987b). Functionings are the 'life one leads' or the achievement of a person or their state. Functionings refers to the state of a person that can range from the basic physiological states, such as being well nourished and healthy, to the more complex such as being appreciated socially. A functioning refers to the use a person makes of the commodities that they have access to, for instance, being adequately nourished relies on being able to use a bundle of commodities, such as bread or rice. Another case that he cites, is bicycling, which requires the ability of a person to use

the bicycle that they possess. A disabled person, for example, although in possession of the same commodity, a bicycle, would not be able to achieve the same functioning.

A second part of his argument rests on the concept of capability (Sen, 1993, 1987a, 1987b). Capability refers to the ability of an individual to achieve different combinations of functionings. Capabilities represent the freedoms or valuable opportunities for people to choose the type of lives that they want to live: for example from having the basic choices to access basic staple foods, to choosing fast foods or organic foods. Capabilities not only rest on access to a range of commodities from which to choose, but also the ability to translate those commodities into desirable functionings. The capability of a person depends also on factors such as personal characteristics and social arrangements. Sen summarises functionings more simply as:

‘the various living conditions we can or cannot achieve... and our ability to achieve them, our “capabilities”.’ (Sen, 1987a, p. 16)

The combination of ‘doings’ and ‘beings’ that constitute the state of a person’s life is referred to as the ‘function n-tuple’ (Sen, 1993) or alternatively, as a lifestyle (Sen, 1999). Within this lifestyle, we can imagine a range of functionings from being well fed and clothed, well-educated and healthy among others. Sen also describes the capability set that refers to people’s abilities to choose between different commodity bundles and utilisations, or more simply, choose between possible lifestyles (Sen, 1993). To provide a scenario, it is easy to imagine the capability set of an IT worker in a developed country, who can choose a range of lifestyles, such as an organic, vegetarian who regularly attends yoga classes riding a bicycle. Alternatively, they could choose to eat fast food while watching motor racing, driving a SUV. For the rural poor in remote landscapes, the range of lifestyles possible is far more restricted. And, through later works, Sen emphasises expanding the freedoms of people to live the lives that they value (Sen, 1999). Through the emphasis on capabilities, he emphasises the need for people to have the freedom to choose, not necessarily focusing on the choices they make.

Following Sen’s work, Frey and Stutzer (Frey and Stutzer, 2002) examined the relationship between happiness and economics. Going beyond personality and demographic factors that determine happiness, they also identified other determinants such as the economy and institutions. The authors identify four psychological processes that affect happiness which are: adaptation, aspiration, social comparison and coping. Adaptation, similar to coping, refers to how people are able to adapt their current situation and adjust their subjective well-being. Coping, on the other hand, refers to people’s ability to adapt to misfortune, such as suffering

a disability, and then able to return to normal levels of happiness. Aspiration refers to how people evaluate their current situation in relation to an aspired to level, which, if they achieve, will satisfy them. Finally, social comparison refers to how happiness is determined in comparison with the lives of others: if they are doing better or have more than we do, we are less happy. Conversely, if everyone is equally poor or rich, people are likely to be happier. The authors emphasise that while income is important, relative income is more important to happiness. There is a point where people become caught on the 'hedonic treadmill', where increasing levels of consumption and income provide no real additional happiness.

Happiness and well-being are contingent on income to a certain extent but it does not account for everything. Fischer (Fischer, 2014) argues that although adequate material resources, physical health and safety, and family and social relations are core elements of wellbeing, they alone are insufficient. Rather, he argues, that three more domains are important which are: aspiration and opportunity, dignity and fairness, and commitment to a larger purpose (Fischer, 2014). Aspirations, both the capacity to aspire and the actual aspirations, are important components of wellbeing. There also has to be a way, however, that these aspirations can be achieved. These are referred to as the opportunity structures that are:

'the social norms, legal regulations, and market entry mechanisms that delimit, or facilitate, certain behaviors and aspirations.' (Fischer, 2014, p. 6)

Even the poor will make choices about not only survival and subsistence but also about achieving the types of lives they desire to live and make them happy. As Banerjee and Duflo noted, while researching slums in India:

'These three men all lived in small houses without water or sanitation. They struggled to find work, and to give their children a good education. But they all had a television, a parabolic antenna, a DVD player, and a cell phone.' (Banerjee and Duflo, 2011, p. 36)

Explaining why rural households make the choices and decisions that they do requires examining and understanding their goals. The fields of social and consumer psychology provide insight into the structure and use of goals. Goals 'are internal representations of desirable states that people try to attain and undesirable states that they try to avoid' (Baumgartner and Pieters, 2008, p. 368). Goals can be states of being, such as relationships,

places or activities, or objects to possess. Goals can either be an 'ought' goal defined as a duty or an obligation, and an 'ideal' goal defined as a hope or an aspiration (Higgins, 1987). The attainment of 'ought' related goals can produce emotions such as relief, calm and relaxation, whereas the attainment of 'ideal' goals produce emotions such as happiness, pride or enjoyment. Goals can be forced upon people, occur automatically because of biological emotional, moral or ethical forces, or through reasoned reactions to external or internal stimuli (Bagozzi and Dholakia, 1999; Oettingen and Gollwitzer, 2002).

The pursuit of goals occurs when people see a discrepancy from their current state and their ideal state, and they decide they need to change their behaviour in order to reach that goal (Vohs et al., 2008). That decision is framed in terms of people seeing themselves as motivated and capable of achieving that change in order for it to occur. People will hold multiple, and at times, conflicting goals. Competition among goals is thus normal: for instance, a goal of being healthy against the immediate goal of eating a chocolate bar. As goal pursuit is resource-depleting, people generally only have the ability to focus on one goal at a time, most often, that which is the most accessible. To overcome this, people will often pursue multiple goals via *multifinal* means, which enable people to attain several goals through a single means (Fishbach and Ferguson, 2007; Kruglanski et al., 2002). Multifinal means are scarce, but also highly preferred, and people place great effort in searching for them (Fishbach and Ferguson, 2007). However, if people are focused on a single goal, they are more likely to search for a means that is seen to be uniquely associated, instrumental, to that goal. And finally, and more critically, there is the importance of tried and tested means:

'The same means which proved to be instrumental in the past should be consequently valued highly in the present and repeatedly chosen (Kopetz et al., 2012, p. 213).'

Processes that influence the choices available to rural households and the decisions they make include social learning (Bandura, 1977) and social comparison (Festinger, 1954). Where there is an absence of formal education and other institutional mechanisms for learning and improving livelihoods, social learning is often the only way people can learn of alternatives. For individuals, learning as a process is expensive (Boyd and Richerson, 2005). The processes of trial and error are time consuming, and historically, it has been much quicker and easier to learn from peers and social groups, and imitate their livelihood strategies. Although people prefer social learning over individual learning, people still learn when necessary through experimentation and experience (Boyd and Richerson, 2005). Migration enhances and enriches these processes of social learning as people share their own knowledge and

technologies with other communities (Richerson and Boyd, 2008). The more recent literature on social learning, especially in the fields of natural resource management, has focused on the theorised value of social learning in adaptive management (Muro and Jeffrey, 2008; Schusler et al., 2003). In the context of the thesis, however, discussions of social learning focus on the actual processes of how individuals learn from each other, especially in relation to livelihoods and aspirations.

Social comparison, similar to social learning, involves processes where individuals compare themselves, their thoughts and behaviours with others (Festinger, 1954). In the context of this study, this particularly relates to how people's aspirations and evaluations of their own well-being (Frey and Stutzer, 2002; Reyes-García et al., 2015) and consumer behaviour (Bearden and Rose, 1990) are shaped by their comparison with others. These processes of social comparisons affect how people perceive their own situation in relation to that of others. When people compare themselves with those who are wealthier or have greater status and prestige than they do, they are likely to desire and aspire for the goods and services associated with that lifestyle (Stutzer, 2004). Aside from direct social interaction, television is another medium where people are exposed to different lifestyles and advertising that can lead to processes of social comparison and rising aspirations among viewers (Bruni and Stanca, 2006). The concept of the hedonic treadmill represents the absolute manifestation of social comparison in relation to human behaviour: where people never feel content with what they have through their continual comparison with others (Frey and Stutzer, 2002).

2.4. Decision making and rural households

The decisions of rural Indonesian households, which are the subject of this inquiry, about livelihoods and living standards are made in the remote, rural landscapes and seascapes of the Indonesian archipelago. The application of theories and frameworks from consumer behaviour and social psychology needs to be modified to account for the differences in settings between urban settings in developed countries and the rural landscapes of the tropics. Here, I discuss two main differences through the concepts of subsistence economies and multifunctional landscapes.

The places where rural Indonesians make their choices differ substantially with the shopping centres of Western Europe or North America. The marketplaces of the poor in developing

countries, whether in rural or urban settings, have been described as subsistence marketplaces (Viswanathan et al., 2010). These marketplaces are structured not only by the low incomes of those participating in them, but other factors such as low literacy, mixtures of formal and informal economies as well as stronger social relationships between buyers and sellers. These marketplaces are also directly targeted by companies through selling products specifically designed for the needs or purchasing power of subsistence consumers. These products include cosmetics such as shampoo that are sold in sachets rather than bottles and can be purchased more cheaply. The poor, whether in urban or rural centres, are not limited geographically to subsistence markets. In urban centres, subsistence markets may co-exist with larger commercial markets or shopping centres. Rural people in turn, may travel to make purchases from larger markets in regional or urban centres.

In subsistence economies, people often frame market decisions based on other factors including social relationships and trust (Viswanathan et al., 2010). And rather than being restricted to the rural poor, others such as Ostrom, have noted how participants in action arenas use heuristics to deal with complex problems (Ostrom, 2005). Ostrom states that:

‘In most everyday situations, individuals tend to use heuristics—rules of thumb— that they have learned over time regarding responses that tend to give them good (but, not necessarily optimal) outcomes in particular kinds of situations. In frequently encountered, repetitive situations, individuals learn better and better heuristics that are tailored to the particular situation.’ (Ostrom, 2005, p. 160)

Heuristics are defined as:

‘A heuristic is a strategy that ignores part of the information, with the goal of making decisions more quickly, frugally, and/or accurately than more complex methods.’ (Gigerenzer and Gaissmaier, 2011, p. 454)

Gigerenzer and others that have shown how people use heuristics, and their effectiveness (Gigerenzer and Gaissmaier, 2011). The effectiveness of heuristics is often contingent on their ecological rationality. Ecological rationality refers to which heuristic, or rule, will contribute to a better outcome in a particular environment. The better a heuristic performs in a particular environment, which encompasses social, economic and natural environments, the more ecologically rational it is. When the decision-making rule is no longer ecologically rational, for instance if the environment changes or applied in different context, then the heuristics lose their effectiveness. Heuristics can be used for both intuitive and deliberative decision making

(Kruglanski and Gigerenzer, 2011). Heuristic decision-making rules have been shown to be efficient across a range of domains (Gigerenzer and Gaissmaier, 2011), including the management of natural resources (Hicks et al., 2012).

2.5. Multifunctional landscapes: where natural and social systems interact

The places where rural Indonesians make decisions are shaped by natural and social systems. The concept of a multifunctional landscape provides a general framework for understanding how decisions are made in these places. In the most general sense, multifunctional landscapes are the places where natural and social systems interact (Naveh, 2001). Natural systems can incorporate the more proximate ecosystems such as mangroves or forests, to larger systems such as the climate. Social systems comprise components such as the practices and culture of people and their institutions such as government and markets. Ideally, multifunctional landscapes should be:

‘landscapes created and managed to integrate human production and landscape use into the ecological fabric of a landscape maintaining critical ecosystem function, service flows and biodiversity retention.’ (O’Farrell and Anderson, 2010, p. 59)

Central to the ideal of multifunctional landscapes is the multifunctionality of agriculture. That is agricultural landscapes can provide other services, including ecological and cultural, that can benefit nature and society alike (Van Huylenbroeck et al., 2007). The study of multifunctional landscapes also promises, or at least aspires to, the sustainable management of that landscape, and resolving conflicts among competing land uses (Nagendra and Ostrom, 2012; Pfund, 2010; Pfund et al., 2011; Sayer et al., 2013). Although the multifunctionality of landscapes is aspired to, in most places there rarely is that balance between society and nature. In the context of this thesis, I use the framework of a multifunctional landscape to indicate a spatially defined land or seascape with multiple components and functions. These can include natural features, such as forests or coral reefs, or human modified systems, such as farmland or agroforests. Each of these components has the potential to provide functions that benefit rural livelihoods and the uniqueness of each landscape will restrict the options available to rural households. How people are able to benefit from these resources is mediated through social and economic processes.

2.6. Governance, institutional diversity and access

Multiple social processes shape rural landscapes and the people living there. An overarching conceptualization of these processes is that of governance. Governance, broadly defined:

‘includes policies, institutions, processes (of policy-making, implementation, review etc.) and power. It is about who decides and how. It is as much about process and politics as it is about the content of policies and laws.’ (Swiderska et al., 2008, p. vii)

Although the metaphor of multiple levels of governance shaping nature and society in landscapes makes understanding these processes easier (Görg, 2007), in practice people do not experience governance in this way. Rather, people encounter the influences of these processes in ways formal and informal, overt and subtle, and in a range of different arenas. Ostrom (2005) referred to this as institutional diversity. Institutions, were defined in the context of the Institutional Analysis and Development Framework as follows:

‘Institutions are the prescriptions that humans use to organize all forms of repetitive and structured interactions.’ (Ostrom, 2005, p. 3)

Across all aspects of human interactions, people will encounter a diverse array of institutions, and within these institutional settings, make decisions. Property rights are one of the central institutions that shape how people can benefit from natural resources (Ribot and Peluso, 2003). Property rights are defined as ‘the capacity to call upon the collective to stand behind one’s claim to a benefit stream’ (Bromley, 1991, p. 15). They involve a rights holder, a group of people and an institution that recognises the person’s claim. Despite formal rights systems only acknowledging ownership rights, property rights systems can involve bundles of rights such as use rights, control rights, exclusion rights and alienation rights (Schlager and Ostrom, 1992). Although property rights are normally considered from the perspective of their recognition in formal, statutory law, there may often be multiple and overlapping claims (Meinzen-Dick and Pradhan, 2001). These claims often have their foundation in customary laws, and the configurations of multiple legal arrangements are referred to as legal pluralism (Benda-Beckmann, 2001; Meinzen-Dick and Pradhan, 2001). These overlapping and at times, conflicting claims, have resulted from historical processes for allocating land rights and classifying lands that may have been done either through coercive or non-consultative processes.

The relationships between property rights and the use of natural resources have been studied extensively. Central to these debates has been the work of Hardin (1968) and the following responses of Ostrom (1990) among others. Hardin, writing in 1968, was concerned about the depletion of natural resources and environmental degradation globally (Hardin, 1968). He explained environmental degradation through the metaphor of the 'tragedy of the commons'. The tragedy of the commons occurs when herders overexploit the open pasture, or commons, due to self-interest and maximizing their returns. Individuals, in this scenario, have no incentive to take measures to conserve the resource because their actions will only benefit others. Hardin's main premise was that without government regulation or private property, common pool or open access will eventually suffer the tragedy of the commons. Ostrom (Ostrom, 1990) argued that there was also a danger in using the metaphor of the tragedy of the commons for policy prescriptions. Those who used the metaphor used it to promote increased state regulation of the environment, or, the privatization of natural resources. Both arguments held that institutional solutions to environmental problems must come from people on the outside, and imposed on people who use the resource. Ostrom argued not only that these external interventions in the past had failed, but there were also many examples where local users had successfully developed management regimes. From these examples, she developed eight design principles for the sustainable management of common pool resources (Ostrom, 1990). Ostrom's later works began to include principles of adaptive management, and emphasise polycentric governance, however, these were as much policy prescriptions as they were examples of successful management regimes (Ostrom, 2010). What these debates illustrate, however, is that rural households can make decisions as individuals, as part of a collective or in response to the government, according to the property rights regime.

Although examining property rights is important for understanding people's rights to resources, they do not necessarily show how people can benefit from those resources. How people are able to benefit from the resources and other opportunities within the landscape can be understood through the framework of mechanisms of access (Ribot and Peluso, 2003). According to Ribot and Peluso (2003), access is defined as 'the ability to derive benefits from things' (Ribot and Peluso, 2003, p. 153), which they liken to a bundle of powers. The study of access is concerned with 'understanding the multiplicity of ways people derive benefits from resources, including, but not limited to, property relations' (Ribot and Peluso, 2003, p. 154). They try to move their definition away from solely examining people's rights to benefit from things, such as property rights. Instead, they employ a more comprehensive analysis of the

mechanisms that shape how people are able to benefit from resources or things. Access, however, is not a static process. The authors identify three stages of access: gaining access, controlling access and maintaining access. They propose eight mechanisms that regulate access (see Table 2.1).

Table 2.1: Access Mechanisms (Adapted from (Ribot and Peluso, 2003))

ACCESS MECHANISM	EXPLANATION
1 TECHNOLOGY	<i>Many resources cannot be extracted without the use of tools or technology; more advanced technology benefits those who have access to them. Less direct are the technologies that increase or facilitate the ability to physically reach a resource.</i>
2 CAPITAL	<i>Access to capital is generally thought of as access to wealth in the form of finances and equipment (also discussed under technology) that can be put into the service of extraction, production, conversion, labour mobilization, and other processes associated with deriving benefits from things and people.</i>
3 MARKETS	<i>Market access as the ability of individuals or groups to gain, control, or maintain entry into exchange relations. Markets also shape access to benefits from things at different scales and in much more subtle and indirect ways.</i>
4 LABOUR	<i>Those who control access to labour can benefit from a resource at any stage where labour is required throughout the life of that resource or along the path taken by the commodities derived from it. Control of labour opportunities (that is, jobs) can also be used to benefit from resources.</i>
5 KNOWLEDGE	<i>Beliefs, ideological controls and discursive practices, as well as negotiated systems of meaning, shape all forms of access. This includes technical knowledge such as for cultivation, resource extraction and processing.</i>
6 AUTHORITY	<i>Law partially shapes access to resources, capital, markets, and labour. Privileged access to the individuals or institutions with the authority to make and implement laws can strongly influence who benefits from the resource in question.</i>
7 IDENTITY	<i>Access is often mediated by social identity or membership in a community or group, including groupings by age, gender, ethnicity, religion, status, profession, place of birth, common education, or other attributes that constitute social identity.</i>
8 SOCIAL RELATIONS	<i>Access to social relations refers to the friendship, trust, reciprocity, patronage, dependence, and obligation form critical strands in access webs. Like identity, social relations are central to virtually all other elements of access.</i>

To summarise: although rural people may live proximate to natural resources, social processes, such as governance, institutions including property rights and mechanisms shape how people can use and benefit from these resources. These social processes also shape how the resources are managed. And although the metaphors of multi-governance and legal pluralism may serve to illustrate the range of actual and potential social processes that affect the lives and livelihoods of rural people, the actual experience of these processes will vary according to institutional arenas.

2.7. Conclusion

Rural livelihoods, I have argued, instead of solely being the means for subsistence, are instead the means of achieving a range of household goals. These goals are parts of a motivational system, which range from the desirable to the obligatory, and, in which subsistence is a central goal. These household goals, like community living standards, are subjective, diverse and unique, although shaped by common structural and social processes. The pursuit of these goals by rural households in the tropics, however, differs from urban consumers in developed countries; decisions are made in the context of multifunctional landscapes and subsistence economies. In these landscapes, the natural environment as well as a myriad of social processes, shape the choices available to rural households and determines how they can benefit from the natural environment.

Chapter 3 :

Case studies from an Indonesian multifunctional coastal landscape

3.1. Introduction

Illuminating how and why rural households pursue certain goals, and the means they use, is the methodological challenge I discuss in this chapter. Through discussing the merits of case study research, I present the advantages of using a multiple case study approach, in the context of rural, multifunctional landscapes. The case studies are drawn from a coastal landscape in Southeast Sulawesi, Indonesia, and I situate the case studies in the context of the social, economic and political changes that have affected fishers and farmers. Finally, I explain my methodology for exploring how decisions about livelihoods are made, and, how rural households define and pursue their goals as well as react to shocks.

3.2. Case studies of rural household behaviour in multifunctional landscapes

Case study research focuses on analysing real world problems in their context (Yin, 2013). Case studies generally rely on multiple sources of evidence, answering research questions that require understanding more variables than is possible by surveys alone. The specificity of case studies means that there are many, although not insurmountable, challenges for drawing more general or theoretical conclusions (Eisenhardt, 1989; Lund, 2014). Where distinct phenomena are being studied, for instance fires, cholera outbreaks (Vayda and Walters, 2011) or famines (Sen, 1981), case studies have proven effective in understanding the causes of these events. Case study research, in the context of decision making, is less likely to encounter people at the moments when they are making the decisions, but rather, relies on the recollections of people as to what they did, how they did it and why they chose to do it. Despite these challenges, the multiple, different and sequential decisions being studied here involve multiple variables and subjective information that is unlikely to be captured through survey instruments or experiments alone (Russell, 2005).

In the context of the thesis, using multiple case studies is the most appropriate approach for understanding how rural households define and pursue changing community living standards. The cases are drawn from spatially defined communities and a particular process. Although the concept of communities is problematic and often masks ethnic diversity and power imbalances (Agrawal and Gibson, 1999), it is useful for conceptualising diverse, smaller social systems that are made up of households. Following Tannenbaum (1984), it is also one of the smallest levels for assessing living standards. Building on this logic, different communities should have different living standards. A multiple case study approach, ideally, should reveal how living standards differ across communities, and identify why those community living standards differ. Decisions about livelihoods and living standards are not always routine, and will be affected by external policies, interventions and other events, such as those that have driven changes in swidden farming (Cramb et al., 2009; Fox et al., 2009). Consequently, I have included a separate case study of how farmers responded to the expansion of asphalt mining into the landscape. By comparing among these case studies, explanatory theories can be developed (Eisenhardt, 1989; Eisenhardt and Graebner, 2007).

Case studies of rural households and communities living in remote landscapes also have ecological significance. Landscapes are ecological as well as social units (Naveh, 2001) and increasingly are the focus of conservation interventions (Sayer et al., 2013; Sunderland et al., 2007). To select case studies within the landscape, I use a modified version of the site selection method developed by Pfund and others (Pfund, 2010; Pfund et al., 2011). In their research, the authors selected three sites within a multifunctional landscape according to a gradient of accessibility. Remote sites were those typically bordering with a protected area, while accessible sites were typically located near to the road. Less accessible sites were also those with healthier ecosystems, and as road access improved, environmental degradation increased. In their study, sites were also selected to represent ethnic diversity within the landscape, which often, but not always, was related to accessibility of the sites. I have adopted a similar approach for sampling communities, in this case sub-villages (*dusun* or *kampung*), based on ethnicity, accessibility and dominant livelihoods.

An underlying challenge in exploring the relationship between livelihoods and the pursuit of higher standards of living is understanding whether decisions about livelihoods precede or follow decisions about consumption. In more typical theories of rural household decision making, decisions about consumption are made after decisions about production (Angelsen, 1999; Ellis, 1993). In Chayanovian theories, however, it is consumption choices that drive choices about production (Durrenberger and Tannenbaum, 1992; Tannenbaum, 1984). To put

in another way: do rural households make their choices about what to spend money after they have already earned it, or do they choose livelihoods to achieve certain goals? An additional challenge comes from separating how external processes, including government policies and markets, in contrast to individual agency, shape household choices. By comparing among different case studies that share similar livelihoods, it should be easier to explore these issues and identify what motivates decisions about livelihoods and living standards.

There are limitations to generalising the findings from using these approaches. Aspirations, household goals and living standards will vary among rural communities. As differences among communities increase, it is likely aspirations and goals will be increasingly different. The intention of the thesis is not to make a definitive list of the aspirations, goals and living standards of rural households. Rather, it is to develop explanatory theories for the linkages between rural livelihoods and living standards. In particular, how and why do community living standards change, and how and why do rural households adjust their livelihoods to achieve these living standards. From the results of these case studies, these explanatory theories could be tested in other settings to assess their validity.

Although the intention is to provide theoretical insights from the findings of the research, the case studies reflect the unique nature and society of Eastern Indonesia. In the next section, I discuss fishers and farmers in Indonesia, and more broadly in Southeast Asia, and the major changes that have affected them in recent decades. I then discuss the major recent political changes in Indonesia, focusing on the period after the end of the New Order Regime, before discussing in detail the study site and methods.

3.3. Diverse transitions in Indonesia: farming and forests

For farmers and the forest dependent in Indonesia, there has been a significant transition in recent decades from subsistence livelihoods to more commercially oriented livelihoods. Historically, however, people in the islands of modern Indonesia have had some degree of participation in commercial markets for agricultural produce or seafood. For centuries, many of these islands have been directly or peripherally involved in the spice trade, as well as selling exotic marine species, such as sea cucumbers, to Asian markets, especially China (Ellen, 2003). Despite the efforts of the Dutch and others to monopolise commodity production, smallholders managed to remain at least partially engaged in the trade of commodities. In Indonesia, rural people have traditionally relied on mixed systems of swidden agriculture,

natural resource use, and in some cases, cash crops included in the system (Dove, 2011). Modified and mixed tree-based systems have been integral parts of these diverse strategies including forest garden systems (Belcher et al., 2005). A common characteristic of all these systems is that there is one commercially viable crop for cash income.

Despite the benefits of these systems, there has been a transition from complex and diverse traditional systems to monocultures and permanent agriculture (Pfund et al., 2011). As part of these transitions, rural people have moved away from swidden farming into permanent agriculture, as well as other livelihoods (Cramb et al., 2009). Swidden farming is one of the oldest, most persistent forms of farming in the world. Swidden cultivation involves the rotation of fields rather than crops, and involves a short-term cropping period of up to three years, followed by a long fallow period of up to twenty years. Land is cleared by felling trees and bushes, and then burning, which returns nutrients to the soil (Mertz et al., 2009; Pelzer, 1945). Fallows can either be managed, through planting trees or other crops, or left unmanaged to allow vegetation to grow naturally. In the upland areas of Southeast Asia, historically, farmers practiced swidden cultivation often complemented by harvesting forest products and cultivating forest gardens (Belcher et al., 2005). These farming systems have faced challenges over the twentieth and twenty-first centuries due to government policies to displace swidden farmers or transform their farming systems, land acquisitions, or the desire of farmers to convert to more productive farming systems (Cramb et al., 2009; Fox et al., 2009). With the transformation of swidden systems come changes in labour, from collective to household based, and changes in tenure and institutions for managing land and resources.

These changes have been both externally and internally driven. Governments, in their drive towards national development, have sought to modernise the rural poor. Policies and initiatives designed to stabilise the forest frontier, often designate new or existing swidden farmers in the same category as illegal loggers, designating their practices as 'slash and burn' (Fox et al., 2009). In Indonesia, as with many parts of Southeast Asia, the history of classifying the forest estate often coincided with the displacement of upland farmers and restricting their access to forest areas (Kelly and Peluso, 2015). Many rural people have adapted to these changes through diversification of land uses and livelihoods (Hansen and Mertz, 2006). Diversification occurs not only at the farm level, but also within the household and involving non-farm or work in urban centres (Eder, 2006, 1999). Other case studies (Li, 2014, 2002a) have shown how rural people, often indigenous people, have either been unable to benefit or adapt to transformations in their landscapes, often driven by booms in new commodities.

These changes have contributed to the loss of forests and tree cover (Busch et al., 2015; Hansen et al., 2013).

The decline of farming as the central livelihood of rural people has been discussed in terms of the deagrarianisation (Bryceson, 1996) and delocalisation (Rigg, 2006) of livelihoods. Rural people are increasingly working in occupations other than farming and in places other than the village (Rigg et al., 2008). Migration can improve the livelihoods of farmers that remain, especially those with small plots (de Haan and Rogaly, 2002). Propelling these changes are factors such as the decline in the profitability of smallholder farming, new non-farm opportunities, environmental degradation, increasing land scarcity and social and cultural changes (Rigg, 2006). Leaving farming through migration, however, is not a certain pathway to prosperity (Sunam and McCarthy, 2015). The impermanency of many forms of migration in turn, has social, cultural and economic implications as well as power imbalances (Thieme, 2008). Other pathways out of farming and rural life, such as education, have limitations too, with high levels of graduate unemployment in Indonesia (Nilan et al., 2011) exacerbated by the moratorium on civil service recruitment (Mahi and Nazara, 2012). Despite the limited pathways for improving the profitability of farming and alternatives for non-farming livelihoods, the aspirations of Indonesians, especially young Indonesians, continue to rise (Nilan et al., 2011).

With the decline in farming as a central livelihood, land has lost its importance to rural livelihoods in Indonesia (Li, 2014; Lorenzen, 2015), which has led to many rural households selling their land. Rural livelihoods such as agriculture, agroforestry, horticulture and forestry all depend on access to land. For many farmers in developing countries, they sell their land when they have little or no choice. Distress sales, where farmers sell their land due to shocks such as loss of income or health crisis, are common in developing countries (Deininger and Jin, 2008; Ruben and Masset, 2003; Sarap, 1998). In other scenarios, such as commercial or government land acquisitions, there are disparities of power, with farmers often having insecure tenure, which may result in farmers having their lands acquired or feeling compelled to sell their lands (Hall, 2011; Li, 2011; Robertson and Pinstруп-Andersen, 2010). Alternatively, there are scenarios in both developed and developing countries, where landowners or their children no longer farm, or farming itself is no longer seen as being economically viable, and people choose to sell the land (Kuehne, 2012). Finally, there are scenarios where the prospect of instant wealth may be too tempting for farmers to resist, as in the case of land acquisitions for an industrial park development in Thailand in the 1980s:

‘With the lure of such enormous wealth, villagers, who for generations had depended on the land for their well-being and who saw land as a temporary gift to be passed onto their descendants, were enticed to sell. As villagers put it, farmers became millionaires overnight. A few villagers sold all their lands; others kept some in reserve to continue to farm and perhaps sell in the future. Reflecting this shift in livelihood priorities, not only was land sold, but so too was the hardware or equipment of farming.’ (Rigg et al., 2008, p. 371)

3.4. Diverse transitions in Indonesia: artisanal and small-scale fishers

Coastal people, in particular artisanal and small-scale fishers, have also experienced shifts in their livelihoods, landscapes and seascapes. In 2012, Indonesia had the second highest level of marine fishery production in the world with around 6.03 million people engaged in fisheries and aquaculture (FAO, 2014). The majority of fishers in the world are small-scale fishers who either fish with boats less than 15 metres in length, or, otherwise fish without boats (Chuenpagdee et al., 2006). Artisanal fishers use basic or traditional fishing gear such as spears or handlines, although the difference between small-scale and artisanal fishers is often fluid (Batista et al., 2014). Labour in these fisheries is often divided according to gender (Chuenpagdee et al., 2006; Fitriana and Stacey, 2012; Weeratunge et al., 2010) with women in these fisheries often restricted to collecting invertebrates or gleaning, fishing in shallower waters or selling catches. Men, in contrast, are more often engaged in higher-risk activities such as fishing in deeper waters. Both small-scale fishers and artisanal fishers face disadvantage due to their remoteness, which often results in poor infrastructure and limited political influence (Jacquet and Pauly, 2008). With limited access to credit, technology and markets, small-scale and artisanal fishers are often unable to compete with larger fisheries operations.

In the tropics, the interest in small-scale and artisanal fishers has focused on their marginality and use of resources (Pauly, 2006; Ruddle, 2014). The poverty of these fishers has often been assumed (Béné, 2009), and the most prescribed pathway out of poverty has been to increase the size of boats and improve the type of fishing gear (Stanford et al., 2014). These prescriptions are designed to increase the size and type of catches, and improve access to higher value markets. The focus on increasing boat sizes and, consequently, the size of catches has been criticised because it is largely a clearly defined pathway to the overexploitation of

fisheries (Stanford et al., 2014). Livelihood diversification, into more sustainable maricultural activities is argued to be a way to reduce the risks of overexploitation of fisheries (Allison and Ellis, 2001) and increase household income (Sievanen et al., 2005).

A second related area of interest for literature on small-scale and artisanal fishers in the tropics is their use and management of resources. The view of how these fishers use and manage their resources ranges from the pessimistic to the optimistic. At one end of the spectrum, the use of destructive fishing gear by small-scale and artisanal fishers is noted, such as arsenic and blast fishing, which has led to the destruction of coral reefs and sea grasses (Ferrol-Schulte et al., 2015; Ferse et al., 2012). At the other end of the spectrum, small-scale and artisanal fishers are viewed to be ideally placed to sustainably manage their resources. Although fisheries are generally considered open access resources that are difficult to manage (Ostrom, 1990), smaller-scale fisheries can be managed sustainably through co-management (Hilborn et al., 2005) or local user management regimes (Dietz et al., 2003). In Indonesia, historical fisheries management regimes, such as those known as *sasi* in the islands of Maluku, offer further proof that small-scale fishers are willing and able to manage their fisheries sustainably (Harkes and Novaczek, 2002; Thorburn, 2000). The collaborative management of small-scale fisheries is difficult (Marschke, 2012) and faces issues of scale (Berkes, 2006), such as excluding commercial vessels from their fisheries or managing migratory species (Berkes et al., 2006).

Indonesian policy has historically focused on improving the capacity of Indonesian fishers through larger boats, more fishing gear and better physical infrastructure (Stanford et al., 2014). For subsistence fishers, the transitions have involved moving from dugout canoes or sail boats to motorised boats, ranging from motorised canoes to large, crewed boats (Stacey, 2007). Where previously fishers complemented fishing activities with collecting marine invertebrates or products from mangrove forests, over the past few decades Indonesian fishers have become more actively engaged in mariculture, such as seaweed (Sievanen et al., 2005) or sea cucumber cultivation (von Essen et al., 2013). Artisanal fishers have also had to compete with larger, crewed boats fishing in Indonesian waters, which either are Indonesian or foreign owned (Heazle and Butcher, 2007). The increased pressure on Indonesian fisheries has led to the collapse of some fisheries and others to be overfished (Heazle and Butcher, 2007) or reefs severely degraded (Fox et al., 2005).

3.5. Governance in Indonesia

The social processes that affect the lives, livelihoods and natural environment of rural Indonesians during the period of my research have been shaped by recent political changes in Indonesia. The financial crisis of 1997, followed by the political crises of 1998 and eventual downfall of Suharto and the New Order regime, led to a dramatic reconfiguration of government in Indonesia. At the heart of these changes was the intention to redistribute power and authority: from political elites and the military to the people, and from Java to the regions (McCarthy, 2004). These changes were tempered, however. Fearing changes that would embolden separatist movements, power was decentralised to the district, rather than provincial level. Provinces were instead left with coordinating roles and administering the deconcentrated functions of the central government. At first, district authorities used this decentralisation of powers to begin allocating concessions in the forest estate (Wollenberg et al., 2006). These powers were gradually rescinded by the Ministry of Forestry, beginning in mid-2002 (Barr, 2006). Consequently, Indonesia's vast forest estate remained under the control of the central government and the Ministry of Forestry, leaving the districts with control over areas designated as Land for Other Uses (*Areal Penggunaan Lain*). Democracy, however, spread from the central government to the village, with most government heads and councils becoming directly elected. Although the implementation of these laws has been imperfect, and the corruption and clientelism of the New Order persists, the legal innovations of 1998 provided a distinct disjuncture from Indonesia's authoritarian past. Two of the main instruments of change were Law 22/1999 on Regional Governance and Law 25/1999 on Fiscal Balancing between the Central Government and Regional Governments. The two laws took effect in January 2001 (Barr, 2006).

Political decentralization in Indonesia was effectively achieved through the enactment of Law 22/1999 on Regional Governance. The law stipulated that district and municipal governments have the authority for the provision of a wide range of services related to human welfare, infrastructure, industry and the environment. Following these laws, people were also able to directly elect the head of the district for five-year terms. The financial mechanisms for financing decentralization were provided through Law 25/1999 on Fiscal Balancing between the Central Government and Regional Governments. The law stipulated how revenues from natural resources would be divided among different levels of government, as well as the other mechanisms for financing decentralization (Barr, 2006). The law also defines the formula for the distribution and redistribution for revenues among different levels of government. The

revenues derived from forestry and mining, with the exception of Liquid Natural Gas and oil, are distributed mainly to the originating district or municipality, and then among other levels of government. The revenue from fisheries, on the other hand, is distributed among the central government and all districts and municipalities in Indonesia. Through these laws, district and provincial governments, consequently, have greater incentive to engage in forestry and mining to improve their regionally generated revenue. Decentralisation also led to the process of *pemekaran*: a process by which subnational levels of government were divided to create new administrative areas. The process affected villages and districts as much as provinces leading to an explosion in the number of new provinces, districts and villages (Brata, 2008). The emergence of new administrative areas was often not accompanied by increases in the quality of government and provision of services leading to many areas existing in a state of marginal governance (McWilliam, 2011).

During the same period, the function and institution of the village also changed. Since independence and the formation of the Republic of Indonesia, the village as an official government administrative unit has had several distinct phases. Following independence, the definition of villages largely followed local cultural structures. These units were strengthened through government laws up until 1965, giving local communities legal rights for local government. The New Order, with its emphasis on central government control extending down to the village level, stripped away the diversity of local institutions (McWilliam, 2006). In its place, the new village was the lowest tier of the unitary state, with the heads of village appointed and expected to be members of the ruling Golkar party. Law 5 of 1979 on Village Government enshrined most of these change in law (Antlöv and Eko, 2012). The laws established a uniform design for the village in Indonesia (Bebbington et al., 2004). Villages were led by the head of village (*kepala desa*) who reported to the district head. Villages were further divided into sub-villages referred to as *dusun*, with heads (*kepala dusun*) who reported directly to the village head. For much of the late twentieth century, these laws resulted in the erosion of traditional community structures in the Outer Islands of Indonesia and their replacement by authoritarian government and patronage networks.

After the collapse of the New Order in 1998, villages also gained greater autonomy. Law 22/1999 on Regional Governance restored the autonomous status of the village, allowing villagers³ to elect their own village head and a Village Representative Council (*Badan*

³ With the exception of people living in *kelurahan*, or, village like structures within municipalities, or major towns within a district, where heads are civil servants and nominated by the district.

Perwakilan Desa, BPD), elected by villagers, was also introduced (Antlöv and Eko, 2012). Mechanisms for fiscal responsibility were introduced, as the village head would have to produce a financial report that could be contested by the Village Representative Council. In 2004, some of these powers were reduced or removed. The head of village was now held to be accountable to the district rather than the people, and the Village Representative Council was no longer elected, and instead referred to as the Village Consensus Council (*Badan Permusyawaratan Desa*). The reforms of 2004 also required that each village have a Community Empowerment Institution, the Family Welfare Institution, and a Youth Organization.

With the political reforms, also came more mechanisms for funding village development. Prior to the reforms of 1999, villages were dependent on block grants as well as extension programmes for village level development. Through the reforms of 1999, villages were now able to derive funding from local sources, such as village-owned enterprises and village assets, such as markets. Since 2008, every village is required to produce a medium term plan and an annual work plan that should encapsulate the vision for the village and action plans for achieving those goals. Although equipped with a mixture of planning mechanisms and funding sources, the ability of village administrations to achieve them was restricted. A recent initiative begun by the World Bank and then adopted by the Indonesian government was the Kecamatan Development Program (KDP) later renamed *Program Nasional Pemberdayaan Masyarakat* (PNPM) (Antlöv and Eko, 2012). The purpose of the program was to provide funding for projects at the village level through a competitive process at the sub-district level.

In 2014, a new law on villages in Indonesia was passed. Village Law 6/2014 increased both the authority of the village as an administrative unit, and increased capacity for funding activities at the local level (Howes and Davies, 2014). Although much of the administrative structure remains intact, in particular the village head and council, the novelty of the legislation relates to the increased funding for village activities. The village budget, subject to approval of the village council, can obtain funding from its own revenue, fiscal transfers from higher levels of government and 10% of the revenue from taxes or local fund raising of district governments should be dispersed among village governments. The function of these funds is for improving public services, infrastructure, and economic development, in particular agriculture, improving the use of technology and the general security and welfare of the village. Allocating funds for activities takes place in a cycle of planning, implementation and monitoring which is supported by a consultation forum known as the *Musyawarah Perencanaan Pembangunan*

Desa (MUSRENBANGDES). The forum helps decide what activities should be prioritised and the additional funding and community support needed to implement the activities.

Indonesian governance, and consequently Indonesian society, is deeply affected by corruption. At the village level, people are exposed to corruption from every level of government, from the national to the village and sub village (Suryadarma and Yamauchi, 2013). The skimming of funds, including salaries, increases the sense of despondency and, can encourage local officials to engage in skimming and other rent-seeking behaviour. The reduction in payments for poor people, in the form of social welfare payments and scholarships (Suryadarma and Yamauchi, 2013), along with the distribution of payments based on nepotism, reinforces notions that poverty is inescapable. The lack of services, or the provision of poor quality services, such as poorly constructed roads, also reinforce the notions of government corruption (Olken, 2009) and a lack of commitment to rural development on the part of the government. Payments for services, such as from the local clinics (*puskesmas*), that should be technically free (Rosser, 2012) reinforce these notions of a failure of government.

Corruption also cripples initiative. Establishing businesses, beyond small-scale and informal, requires obtaining permits from the bureaucracy, often up until the district level. The process of obtaining permits is time consuming and rife with extortion and requests for bribes (von Luebke, 2009). Similarly, preferential treatment and nepotism undermine the acquisition of skills and hard work and, instead, encourage people to form networks and cliques or direct bribery to achieve results. In summary, systemic corruption distorts the way that rural households make decisions about their livelihoods, welfare and pursuit of better lives.

3.6. Case studies from a multifunctional, coastal landscape in Indonesia

To find cases that broadly represent rural livelihoods and natural resources in Indonesia, I selected a coastal landscape in Buton Island in Southeast Sulawesi. Buton Island is located in the Wallacea region. The landscape covers an area from the forested, hilly interior of the island to the coastal area, covered with mangrove forests that border with the bay and coral reefs. I chose sites that were reflective of ethnic diversity, variations in ecosystems and resource uses as well as road access. Buton Island in Southeast Sulawesi (Figure 3.1), located in the biogeographic region of Wallacea, which is rich in marine and terrestrial biodiversity as well as mineral resources, was an ideal location for my research. Buton Island, located off the

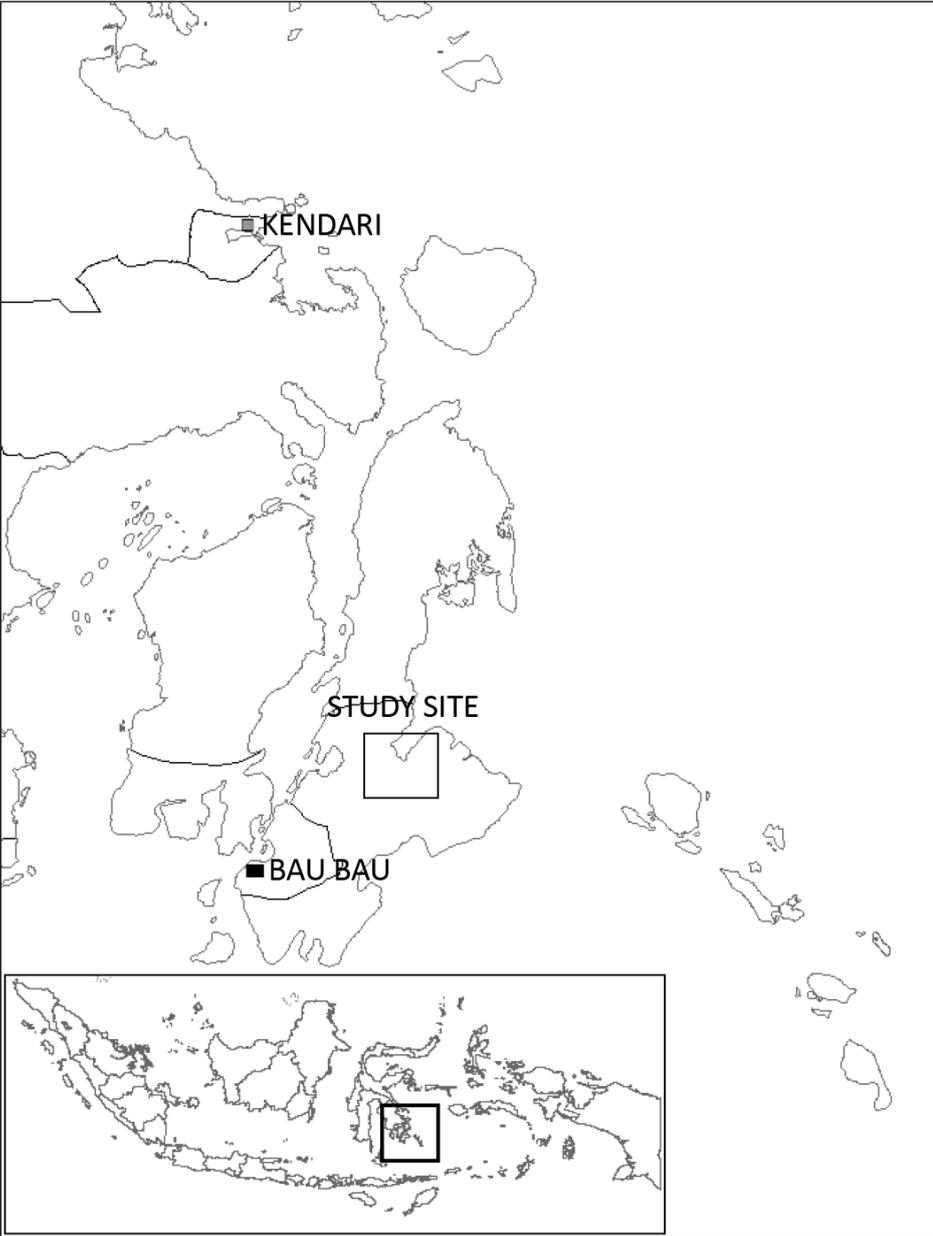
southern peninsula of Southeast Sulawesi, adjacent to the Tukangbesi Islands, has an area of 4,408 km² and in 2010, a population of 447,408. Buton remains highly forested, home to the Lambusango Nature Reserve (Clifton, 2011). The waters of the island are diverse in terms of marine life, and border the Wakatobi Marine Park (von Heland and Clifton, 2015). Mining has long been a part of Buton's history, beginning with asphalt, but now expanding into nickel and other minerals. The people on the island are ethnically diverse: ranging from ethnic Butonese, Bajo, returned internally displaced people from Maluku, to Balinese and Javanese transmigrants. Decentralisation has led to the administrative reorganization of the island into three new districts: Bau Bau city, Buton (which also extends into the neighbouring island of Muna) and the more recently created, North Buton.⁴ Livelihoods on the island include fisheries and mariculture (Yustiana, 2015), irrigated rice farming, agroforestry and upland agriculture, as well as the common practice of migration for labour. The marine and farming livelihoods in Buton share similarities with other places in Sulawesi, including small-scale and artisanal fishing (Clifton and Majors, 2012), seaweed cultivation (Sievanen et al., 2005) and cacao farming (Li, 2002a). The development opportunities for people living in these rural landscapes are generally more constrained, and often, migration to a more populous area is an easier way for people to improve their employment opportunities and welfare (Palmer, 2004).

For my research, a coastal landscape was selected, which is located between the Lambusango Nature Reserve and the main area for asphalt mining in the northern part of central Buton (Figure 3.2). The Lambusango Nature Reserve, a lowland tropical forest rich in biodiversity, has been studied extensively largely through the initiatives of Operation Wallacea. Operation Wallacea, a research ecotourism organisation based in the United Kingdom (Galley and Clifton, 2004), has been working in the region since 1995. Focusing initially on the Lambusango Nature Reserve and Wakatobi Marine reserve, they organise training courses for students as well as facilitating research activities. In the Lambusango Nature Reserve, their research activities have largely focused on surveys of flora and fauna (Gillespie et al., 2007; Martin et al., 2012). Rural livelihoods, where they have been studied, have largely focused on the impacts of rural livelihoods on the conservation area (Widayati and Carlisle, 2012) or how the natural environment affects rural livelihoods such as through the effects of crop raiding by monkeys (Priston et al., 2012; Riley and Priston, 2010). Separate research has been conducted on the conservation project for the Lambusango Forest area, which was initiated by Operation Wallacea, and some of its impacts on rural livelihoods (Clifton, 2011). Less attention has been

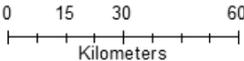
⁴ The district of Buton was further divided in 2014, with the southern part of the island becoming South Buton (Buton Selatan) district.

paid to the rural livelihoods of the people who live in the surrounding areas and their histories, institutions and aspirations outside of their direct interaction with the conservation area.

Figure 3.1: Map of Buton Island with the study site highlighted



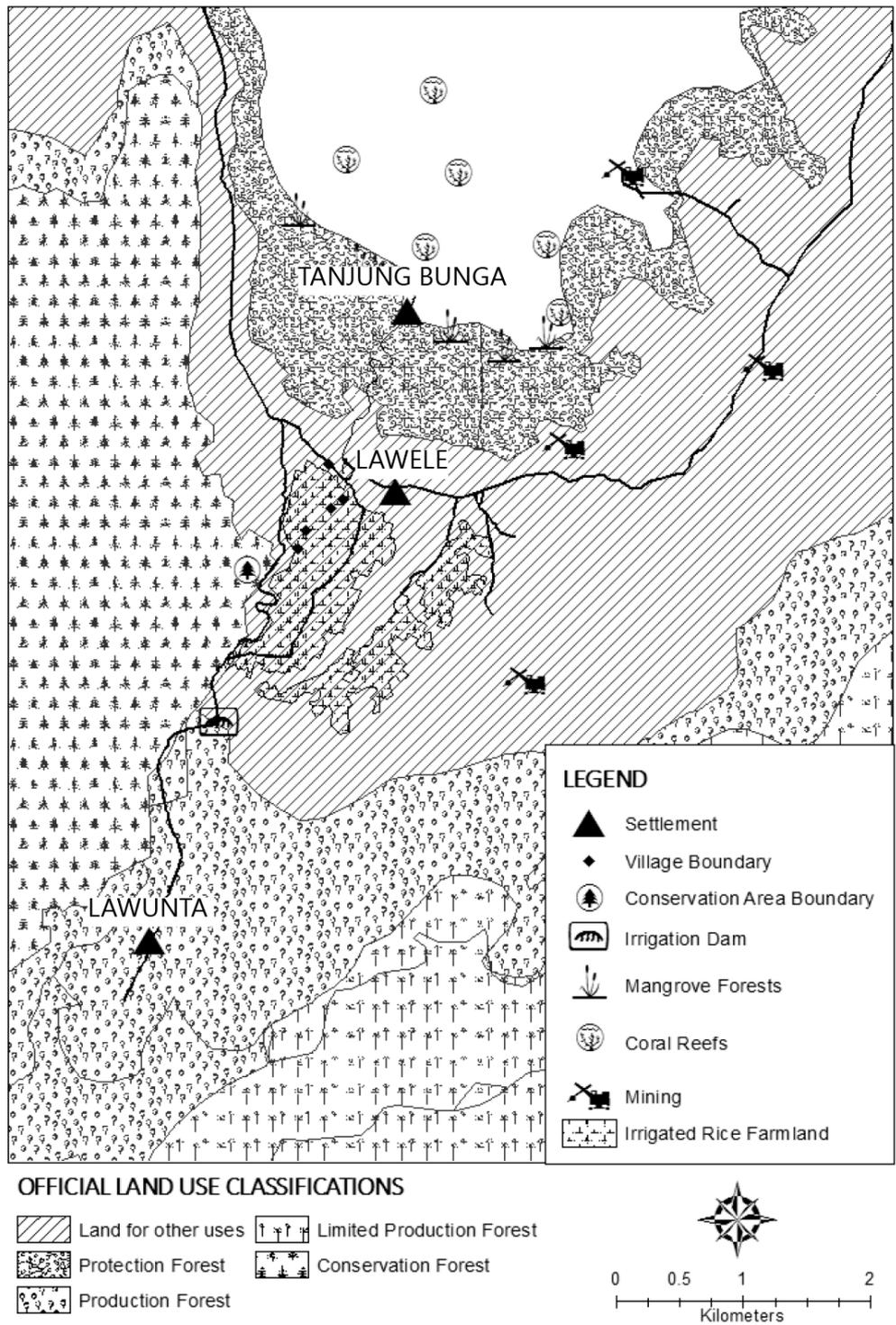
**BUTON ISLAND,
SOUTHEAST SULAWESI**



The coastal landscape, which I studied, crosses the area of two villages: Benteng and Lawele, which were a single village before *pemekaran* in 2011. The people of Lawele consider themselves the indigenous people of the area, with their ancestral village located to the Southwest of the current village. The historical origins of the landscape are evident in the historical remains, such as the centuries-old fortress now located in the conservation area overlooking the village. The history of the area is also present through the names and origin stories of places and sacred areas, and ongoing traditional ceremonies, such as the *pesta adat*, which every two years takes place in the fortress above the village. The people of the village also relate their ownership of the land to the Sultan of Buton, who, according to locals, tried to assert the traditional ownership of Buton up until the time of the first President of Indonesia, Sukarno. Although the rule of the Dutch affected the people of Lawele, it was not until the formation of the nation-state of Indonesia that their links with the land became significantly altered.

The rebellion (*gerombolan*) of Kahar Muzakkar, between 1950 and 1965, linked to broader Islamic rebellions throughout Indonesia (Stacey, 2007), dramatically reshaped the demographic composition of Lawele. Between the years 1956 and 1957, fighting intensified between the rebels and the military across South and Southeast Sulawesi. After rebels entered Lawele, shooting many villagers, the Mobile Brigade (*Brigade Mobil – Brimob*), were sent to the village to repel the rebels. Brimob then established a base in Lawele, leading many people throughout Buton to flee there, as it was a sanctuary. Village elders remember this time as one where tens of thousands of people lived in the village, extending deep into what is now the mangrove forest. Many formerly hill-dwelling people descended into the lowland areas for protection. Bajo from all over Buton fled to Lawele too, with several settlements being built in the bay. When the fighting had subsided, many people gradually returned to their homes, although many stayed, especially around half of the Bajo settlement that was located in the bay.

Figure 3.2: The map of the coastal landscape with the three settlements studied labelled.⁵



⁵ The official land use classifications represent those prior to the study period (2012-2014). During the study period, the land around Lawunta was reclassified, leaving half the settlement still in forest areas, while the other half classified as land for other uses.

Three settlements or sub-villages, known in Indonesian as *dusun* or *kampung*, were selected according to their position on the landscape (Table 3.1.). The first settlement, called Tanjung Bunga, lies at the mouth of the river, built on the tidal flats of the bay. The second settlement, called Lawunta, is located in the hilly, upland area of the landscape, and surrounded by lowland, evergreen rainforest. The third settlement, called Lawele, is located along the road, and lies in between irrigated rice farmland and mangrove forests. The landscape and the surrounding land uses of conservation and mining mean that within a relative small area there are a wide array of actual and potential livelihoods, land and marine uses. The three settlements roughly encompass a mix of resource-based livelihoods, or, more generally, fishers, farmers and the forest-dependent. Below, I discuss in more detail the rationale for the selection of the three settlements as well as the relevance of the case study on asphalt mining.

Table 3.1: Official population data for the villages of Lawele and Benteng for 2013⁶

	Tanjung Bunga	Lawunta	Lawele
Official number of households in Settlement	36	79	193
Adult Male Population	65	160	370
Adult Female Population	65	180	374

3.7. Case study 1: the Bajo of Tanjung Bunga

The first settlement studied (Chapter 4) is known officially as Tanjung Bunga, or locally by the name of the dominant ethnic group there, *Bajo*. When Lawele was divided into two villages in 2011, Tanjung Bunga became part of the new village of Benteng. The settlement is located at the mouth of the main river running from Lawele, adjacent to the protected mangrove forests (Figure 3.3). The settlement is comprised of stilted, timber houses, built on to the mudflats, that run in a straight line around three hundred metres out into the bay. The people who live in the settlement belong to the ethnic group known as the Bajo, who are predominately fishers and rely on marine and coastal resources for their livelihoods. They speak the *Sama* language

⁶ The population statistics for each settlement were provided by the village administrations in Lawele and Benteng.

among themselves and with Bajo from other settlements. They use Indonesian when interacting with other people in the village or for formal occasions. The settlement also has limited infrastructure and access to government services beyond an electricity cable connecting a small generator in Benteng to the houses in Tanjung Bunga. In 2013, the population of Tanjung Bunga was 36 households, or 130 adults.

The Bajo, known variously as the Sama-Bajau or sea gypsies, are thought to have originated from the Southern Philippines. They are now spread throughout archipelagic Southeast Asia as far south as the Lesser Sunda Islands, with the majority in Indonesia concentrated around Sulawesi and its surrounding islands (Stacey, 2007). The Bajo are predominately Muslim, although adhering to animistic practices, often related to the sea (Clifton and Majors, 2012). In more recent history, the Bajo have become increasingly sedentary, building settlements at sea or ‘floating villages’, made up of wooden, pile houses or houses built on coral rocks, with interconnecting bridges and often with no connection to the land (Clifton and Majors, 2012). Despite the comparatively low, dispersed population throughout Southeast Asia, the Bajo remained connected, often travelling between settlements. With their unique language settlements located on the periphery of many coastal villages, the Bajo remain socially and economically marginalised (Clifton, 2013).

Figure 3.3: The settlement of Tanjung Bunga



The Bajo rely on the sea and coastal areas for their livelihoods. Generally, they fish, often with low technology line-and-nets. Along with fishing, they collect marine invertebrates and other species at low tide and harvest products from mangrove forests, including timber for construction and fuel (Clifton and Majors, 2012). Their livelihoods are supplemented with other activities such as boat building, aquaculture, trade and agriculture (Stacey, 2007). The types of boats used by the Bajo range from dugout canoes to larger, motorised sailboats. The size of the boats reflect the range of fishing activities from near-shore reef fishing to catching larger, pelagic species, such as tuna and shark (Stacey, 2007). Generally, there has been an increasing trend towards using motorised boats (Clifton, 2013). The livelihoods of Bajo are most generally subsistence oriented: that is, although there are fishers who are engaged in commercial enterprises, most households are engaged in fishing activities primarily to meet the needs of the household. The Bajo also engage in catch sharing, that is when they catch fish that are surplus to their needs, they often share them with family or neighbours in need (Clifton and Majors, 2012). Fishing is not only oriented towards the individual and household, but also to supporting the community. The fishers at Tanjung Bunga present an interesting case study of small-scale and artisanal fishers in Indonesia.

3.8. Case study 2: the Kalende of Lawunta

The second settlement studied (Chapter 5), is officially known as Lawunta, or locally known as Wabou. It is located in the hills to the south of the main village, in the area zoned as forest (Figure 3.4). The people who live there belong to the ethnic group known as the Kalende, who were the traditional inhabitants of the area, but displaced during the 1960s and 1970s, many of whom fled to Maluku. The Kalende belong to the same ethno-linguistic group as the people of Lawele, speaking the Pancana language (Donohue and Grimes, 2008; Lewis et al., 2016). After the violence in Maluku in the late 1990s, many returned back to Lawele, and in 2002, began the process of reclaiming the ancestral lands. They are mainly farmers who also rely on forest products and agroforests for their livelihoods. When they reclaimed their lands in the early 2000s, they practiced swidden farming, although many have begun irrigated rice farming in Lawele as sharecroppers or owners. Infrastructure is basic in the settlement, including public water taps, a basic road, along with a government-built primary school just outside of the settlement. In 2013, the population of Lawunta was 79 households or 340 adults.

Figure 3.4: The settlement of Lawunta



In the *reformasi* era following the fall of Suharto and the New Order regime, there have been cases of historically displaced people having made claims to their former lands (Li, 2007). How they assert their claims is often contingent on the persistence of customary institutions and livelihoods. Assertions of claims to customary lands and resources have faced what has been referred to as the new ‘repugnancy clauses’: in order for rights to be recognised, people must practice livelihoods that are sustainable, traditional and non-commercial (Benda-Beckmann, 2001). The displaced or their descendants face an unfortunate dilemma: to assert and maintain their claims to land and resources they must avoid modern farming and livelihoods. Through community-based approaches, conservationists have also promoted the idea that indigenous peoples should be given rights to land due to the environmental sustainability of their historical practices, and the assumption that these will continue into the future (Li, 2002b). Underpinning these assumptions are conceptualisations of harmonious communities committed to protecting the natural environment (Agrawal and Gibson, 1999). The claims of customary communities to land in Indonesia were strengthened by the ruling of the Constitutional Court in 2013 (Kelly and Peluso, 2015). The court held that customary communities were entitled to have their lands excised from the state forests of Indonesia and

formally titled as communally held lands. The settlement of Lawunta, in this context, presents an interesting case study of the lives of upland people in Indonesia, particular regarding how they adapt to processes of forced displacement.

3.9. Case study 3: Lawele

The third settlement studied is officially called Lawele (Chapter 6), and is one of the sub-villages located along the main road. The people there are more ethnically diverse, and made up of farmers, civil servants, and small-business people along with semi-skilled labourers. The southern part of the settlement is dominated by irrigated rice fields (Figure 3.5), with an irrigation dam built in the upper area of the valley. Most households in the settlement rely on irrigated rice farming for their rice production. The northern part of the settlement is covered by mangrove forests, which cover the area between the settlement and the bay. Out of the three settlements, Lawele is the most developed, with water pipes, some of which supply individual houses, a road accessible by larger vehicles, schools up to junior high school, and a local, government health clinic. At the start of the research, there were collective arrangements for sharing the costs of generating electricity; however, by the end of the research period, grid electricity had been installed. In 2013, the population of Lawele was 193 households, or 744 adults. The third settlement presents an interesting case study of farming societies in transition in Indonesia.

Figure 3.5: The irrigated rice fields in Lawele



3.10. Case study 4: the expansion of asphalt mining into the landscape

Finally, the fourth case study explores a specific scenario where landowners in the settlements of Lawele and Lawunta had to decide how to respond to land acquisitions for asphalt mining in the landscape. This case study relates to the broader literature on agrarian change, in particular, trying to answer the question: why do farming societies sell one of their main means for a livelihood? In many parts of Indonesia, smallholder farmers have chosen to adopt more profitable monocultures when the right opportunities arise (Feintrenie et al., 2010b; Li, 2014, 2002a; Pfund et al., 2011). During booms of cacao, rubber and oil palm among other crops, diverse farming land has been replaced with monocultures of cash crops. In these situations, many farmers who were able to benefit from the boom have been able to retain their land. During these transitions, farming, in one form or another, continues. Why, then, would smallholder farmers want to sell their land to mining companies? This case study attempts to address these questions while building on the findings of the previous three case studies.

3.11. Methods

During the research, which was undertaken from 2012 until 2014, I used a mix of methods to obtain qualitative, quantitative and geographical data (Table 3.2.). In this section, I briefly discuss the background and context for the research and then discuss the different methods in details. The study sites were selected in a preliminary field visit in early 2012. After which, a research permit, sponsored by Universitas Haluoleo in Kendari, was sought and granted from the Indonesian Ministry of Research and Technology (RISTEK). Concurrently, human research ethics approval for the research was sought and granted from the Australian National University in 2012. Approval was also and sought and given from the relevant authorities at the national, provincial, district, village and sub-village levels. The field work commenced in September 2012 and ended in July 2013, and a subsequent trip was in August 2014 to study land sales to mining companies in two of the settlements. The field work was undertaken in conjunction with Saharudin (Udin), the leader of a local non-profit organisation called *Sekolah Rakyat Butuni* (Serabut). The field work was conducted in intensive two week periods, when we stayed in each of the settlements, followed by an interval of two weeks away from the site.

Heads of households were read oral consent forms prior to commencing interviews and also given documents describing the research and also containing the relevant contact details in case they had queries or complaints. Two local volunteer teachers also assisted with conducting the household surveys.

Table 3.2: Date and location of main field activities

	Tanjung Bunga	Lawunta	Lawele
Focus group discussions and participatory mapping	September, 2012	October, 2012	October, 2012
Household surveys	January to March, 2013	January to March, 2013	January to March, 2013
Livelihood interviews	June, 2013	June to July, 2013	May and July, 2013
Expenditure interviews	July, 2013	July, 2013	July, 2013
Land sales interviews	August, 2014	August, 2014	July, 2013 and August, 2014

Methods from the Multi-disciplinary Landscape Assessment were used for mapping the landscape, along with eliciting general information about the settlements through focus group discussions at the settlement level (Sheil et al., 2002). The activities focus on naming and identifying important landscape, and in this case seascape, components, their functions, the species found there and how those species are used. After this, a participatory map was sketched with all the locations. Other activities were used to identify important dates in the history of the village, management rules and other information about the village. Seasonal calendars were also used to identify the periods when each of the livelihood activities was undertaken. After these activities, I travelled with a local guide to the locations identified through the participatory mapping and took GPS points at these locations, which were later entered into ArcGIS. Other semi-structured interviews were conducted with elders and village heads to obtain more information about the history, management and governance of the settlements and villages as a whole. Project staff involved in the Lambusango Forest Conservation Project were also interviewed although their identities have not been revealed to protect their anonymity.

Household surveys were conducted to provide some basic quantitative information and were intended to provide information related to the sustainable livelihoods framework (Allison and Horemans, 2006; Scoones, 1998). The surveys, modified versions of those developed by

Sunderlin and others (Sunderlin et al., 2010), were used to measure household assets, levels of education, along with household income.⁷ Sources of income included farming, livestock, livestock products, forest and other environmental income, wage or salary labour, business and other sources of income, including remittances and pensions. The results from the initial village level activities were used to create indicative lists of agricultural, agroforest, forest and marine products to act as prompts for potential sources of income. The surveys were then tested in each of the settlements and adapted to be more suitable for the local context. The household surveys were separated into one survey especially designed for fishing households and the other for farming and land-based households. Participants were asked to recall their income for a period of twelve months prior to interview based on specific questions related to each type of livelihood. Annual recall periods are not considered ideal for household surveys about rural livelihoods and environmental dependency (Angelsen et al., 2011). The approach was used, however, because the household surveys were not the primary focus of the research but rather to provide baseline data for the more in-depth, semi-structured interviews. The survey questions were also designed to be specific enough to minimise recall biases by asking the respondents to estimate average harvests, frequencies of harvests and average inputs, coupled with prompts from the results of the seasonal calendars, and then calculations were conducted separately. The data was entered into, and analysed in, Microsoft Excel.

In total, 147 households were surveyed across the three settlements (see Table 3.3.). Households were pragmatically defined as people living within a single dwelling. At times, people also reported extended family members who were supported by the household, although not physically living together, as part of the household. A few other cases, such as a single swidden field being cultivated by three generations of one family, were recorded in a single questionnaire. Although the method proved relatively reliable for farmers and other people living in the land-based settlements, there were significant problems with estimating the income of the Bajo inhabitants of Tanjung Bunga. Fishers were asked if they caught a specific species of fish, if so, how long was the season, their average effort for the season, along with average catch and sale price. Consumption was also quantified, along with associated expenses, which mainly included fuel. I found that the Bajo fishers had difficulty recalling catches, either significantly overestimating or underestimating the amount of fish they caught, as well as focusing on single species rather than the entire range of fish species

⁷ See Annex 1 for a sample household survey in English

that they usually caught. The stark variation of results led me not to use the income data for the Bajo settlement and instead rely on asset data as well as other information.

Table 3.3: Households Surveyed⁸

	Tanjung Bunga	Lawunta	Lawele
Households Surveyed	23	32	92
Official number of households in Settlement	36	79	193
Percentage of Total Households	64%	41%	48%

Following the household surveys, in-depth interviews related to aspirations, goals and expenditures along with separate interviews on livelihoods were conducted across the three settlements (Table 3.4.). From the household surveys, a typology of livelihoods within each settlement was created. Based on this livelihood typology, respondents were selected in proportion to the number of households belonging to that livelihood group. The livelihood interviews were conducted first, and the interviews about goals, aspirations and expenditure were conducted afterwards. Where possible, the same respondents were interviewed again. When the respondents were not available, other respondents from similar livelihood groups were chosen. I made an effort to ensure women were included as part of the interview, and female-headed households were interviewed, however, in most cases, women in the household deferred to men in answering about livelihood choices, in particular farming. In Tanjung Bunga and Lawele, at least one female headed household was interviewed. In Lawunta, however, no female-headed households wished to be interviewed for this process. The respondents of all interviews have been given pseudonyms in order to protect their anonymity. Although field observations were included when possible, the use of these interviews was more appropriate than other ethnographic methods, such as participant observation (Hume and Mulcock, 2012), as they enabled me to understand the decisions of more households over longer periods of time and across many places. As the locations of livelihood activities ranged from Malaysia to the maritime borders of Australia, it would have been impractical to travel to all these locations personally. Following the interviews, the data

⁸ The population statistics for each settlement were provided by the village administrations in Lawele and Benteng.

was analysed to create narratives of the livelihood and expenditure decision-making processes of each of the households.

Table 3.4: Number of In-depth interviews

	Bajo	Lawunta	Lawele
Livelihood Interviews	6	6	8
Expenditure Interviews	6	6	8

3.12. Livelihood decision making in multifunctional landscapes

The in-depth livelihood interviews were designed to capture the diversity of livelihoods available to rural households. Typically, however, the interest in the decision making of rural households is often limited in interest to specific arenas or scenarios. These scenarios can include interactions with external actors in situations including land and resource acquisitions, plantation developments (McCarthy, 2010), forced relocations or displacement from lands and livelihoods due to causes such as infrastructure development (Webber and McDonald, 2004) or the establishment of conservation areas (Cernea and Schmidt-Soltau, 2006). In these situations, how rural people interact with external actors and respond or adapt to the impacts of these developments or acquisitions are studied. Alternatively, interactions can be with external actors during participatory or collaborative processes such as land use (Lestrelin et al., 2011) or marine use planning (Elliott et al., 2001). In these scenarios, how and why people participate is often the subject of analysis.

Other studies have focused on particular aspects of livelihoods, in particular, the adoption of certain livelihoods or land and marine uses. These studies focused on the adoption, and motivations for the adoption of livelihoods, land and marine uses such as agroforestry (Schroth and Ruf, 2014), timber plantations (Newby et al., 2014), migration (de Haan, 1999), types of nearshore and deep sea fishing (Dressler and Fabinyi, 2011) and maricultural activities (Sievanen et al., 2005). The focus of study usually centres on a particular aspect of a livelihood group, such as a crop or tree species, or a technology associated with the livelihood, such as a tractor for farming, or the use of certain types of fishing gear. The purpose of these studies is often to search for ways that can improve the income of rural households or improve the environmental sustainability of households.

The methods I have used, in contrast, have been structured to emphasise how and why rural households choose among diverse livelihoods in the context of their place in a multifunctional, coastal landscape. Interviews were structured in a series of semi-structured questionnaires related to individual livelihoods, which included a range of livelihoods from collecting wild products or fishing, farming to employment in the civil service.⁹ The questions about individual livelihoods were intended to understand what people did, how they did it and why. I asked questions as to how and why households *adopted* new livelihoods, *improved* their existing livelihoods or resource uses or *diversified*. As part of the interviews, I sought to understand the social processes that mediated their ability to benefit from resources including property rights and access mechanisms (Ribot and Peluso, 2003). The access framework, consequently, was used as the basis for questions regarding livelihood choices, with questions structured to assess how each access mechanism affected household livelihood choices. I also tried to understand why people chose these livelihoods, and what prevented them from improving the productivity or profitability from that livelihood. At the start of the interview, respondents would indicate which livelihoods were part of their livelihood strategy. At the end of the interview, respondents would also describe how they and their families allocated time among different livelihoods. Finally, I asked people what other livelihoods they would like to adopt, and what prevents them from adopting those livelihoods.

3.13. Decisions for a better life

The second domain of decision making that I investigated relates to the household goals that are part of the community's standard of living. In my study, I have chosen to focus on the goods and services on which people spend money to improve their lives rather than other actions people may take to improve their lives.¹⁰ People can undertake many actions to support the type of lives that they value or improve them. We could think of participating in social, religious or political organisations or carrying out actions to support political or other social causes. People could also participate in organisations for managing common pool resources to ensure their sustainability. I have chosen instead to focus on the goods and services people buy, in particular the relatively more expensive things, for two main reasons: ease of measurement and relating these decisions to decisions about resource uses and

⁹ See Annex 2 for a sample interview form in English

¹⁰ See Annex 3 for a sample interview form in English

livelihoods. The types of goods and services I focused on were based around seven categories: house and land; transportation; equipment for livelihoods and resource uses; electronic goods and furniture; clothing; ceremonies; and education. The aspirations, goals and preferences of people are studied differently according to different disciplines in the social sciences. Fischer (Fischer, 2014) describes these differences related to preferences as:

‘Economists distinguish between “stated preferences” (the sometimes crazy things folks say they want) and “revealed preferences” (what they actually do). Revealed preferences are taken to be more authentic: it is thought that when the rubber hits the road and the cash changes hands, one reveals one’s *true* preferences. There are also good empirical reasons for focusing on revealed preferences; after all, they are what can actually be measured (and in dollars and cents, no less). Yet I argue ... that we should also take seriously what people say they want; people’s stated preferences reveal equally valid desires and are often attuned to long-range and prosocial values. Anthropologists naturally take stated preferences seriously, for we place great value on what people tell us (Fischer, 2014, p. 44).’

In this study, I have adopted an approach that lies somewhere in between. I chose to interview people about their life histories, in relation to their livelihoods and purchasing choices. In regards to purchasing choices, I asked them: what they have, when they bought it, why they buy it, and what means they used to buy it. These questions were arranged according to range of different classifications of typical household and personal assets. The classifications were chosen to account for basic needs (Maslow, 1943) and, building on Sen, items that would enable different types of functionings (Sen, 1993). The questions were also designed to ascertain whether certain sources of income were more important than others for saving, or, all sources of income were used for achieving a single goal. Where possible, this information was complemented by field observations.

Housing was one of the most fundamental components of a household and satisfies people’s basic needs for shelter and safety (Fischer, 2014; Maslow, 1943). Some families moved into the houses of their parents or in-laws, but for most, they would have to build, or less commonly, buy or rent, a house after they were newly married or when they had children. The questions regarding housing involved not only price, but when they decided to build a house, how long they planned and saved for, what materials they used and why. Included in this category were small electricity generators. Vehicles or vessels for transportation had differing levels of centrality for each of the settlements. Fishers, for instance, relied on boats

for their livelihoods and basic subsistence, whereas farmers could survive without a basic form of transport. Boats and motors, could easily be classified as either transport or livelihood equipment. Aside from fishers, there was little machinery involved in farming in the two land settlements. The government mainly provided the machinery that was used for irrigated rice farming. Other equipment used by farmers included basic tools that could be bought relatively cheaply at the market. Electronic items, in this part of the research, involved larger items for which individuals and households would have to plan and save. Types of electronics discussed included televisions with antennas and DVD players, stereo systems and laptop computers. Smaller, cheaper items such as mobile phones were generally not discussed in these interviews, although were recorded in household surveys.

The questions regarding education were designed to elicit both the motivation of parents for educating their children, and the means they used in order to educate them. During the period of research, there were primary schools in the village of Lawele and in the settlement of Lawunta, one junior high school in Benteng along with a newer, semi-formal senior high school. The questions were mainly focused on how, why or why not, people educated their children outside of the village beyond junior high school. In the interviews, I tried to understand what factors, other than money, influenced how and where children were educated, such as relatives living in major towns with whom their children could stay. Tertiary education was the most expensive form of education and, consequently, increased the financial burden of rural households significantly. In this context, I tried to understand the motivations for their choices and how they adapted to the additional financial burden.

Ceremonies could be classified either as a goal or as a shock. Examples from South Africa, in particular funeral ceremonies (Case et al., 2013), or even wedding ceremonies (Quisumbing, 2007) have been demonstrated to place significant financial burdens on households, which in extreme cases, can force households into poverty. Ceremonies can also be demonstrations of status and wealth in addition to socially expected standards and in Sulawesi, decisions about these ceremonies are made jointly within the household (Colfer et al., 2015). As part of this category of expenditures, I wanted to explore if households had to pay or organise any large ceremonies, as well as asking what were the costs and how expenses were paid. In consultation with my local counterparts, when respondents would not answer immediately about ceremonies, I would prompt them with questions about specific, usually Islamic, ceremonies that were common in the settlements such as *akika* (aqiqah), *sunatan* or weddings.

Clothing differed from the other categories, in as much as it could be cheap or expensive depending on the individual. This category relates to Sen's idea about the necessity to 'appear in public without shame' (Sen, 1993, p. 37). Clothing is not only functional, but also indicates status, wealth and membership of social groups (Harms, 1938). Different clothing is needed for different social arenas, which in the case of the settlements could involve ceremonies, working in the fields or on the sea, professional clothing such as uniforms or clothing for regular social occasions. When asking respondents about clothing, I asked where they usually bought clothing and how often. Distance in this case was a proxy for quality and price, with clothing bought in stores in larger towns indicating higher status than clothing bought at the local market. The frequency of purchases indicated the importance of wearing new clothes, or clothing in good condition.

The second part of the expenditures involved asking respondents about whether they had experienced any shocks, when these occurred, and how they coped. Shocks were defined as unplanned events that affected livelihoods or health or otherwise resulted in additional financial burdens for households (Ellis, 2000b). Shocks were divided into several categories based on their relevance to the settlements: health; crop failure; reduction in fish catch; inability to collect wild honey or rattan; collapse in price or buyers of products; graduates unable to find work; unemployment; equipment failure; and lack of suppliers for businesses. I will briefly discuss why I chose these categories, how they affect individuals and households, and the methods I used for studying them.

Events that affect human health have broader impacts on people's livelihoods and the welfare of households (Krishna, 2010). Types of health problems can involve accidents, chronic diseases, illness or those involving pregnancy and giving birth. During the interviews, I asked about whether they or family members had any major health issues, what were their strategies for coping and what were the financial impacts. I also asked about where mothers gave birth, and if there was any professional assistance during the birth if it was at home, such as midwives or nurses. Where possible, I would also ask respondents about their motivation for choosing health strategies, such as choosing to go to hospital or not, or why they chose to use a traditional healer.

3.14. Conclusion

Case studies drawn from the coastal, multifunctional landscape can provide theoretical insights into the behaviour of rural Indonesian households, in particular farmers and fishers. The landscape, which crosses the villages of Lawele and Benteng, and borders the Lambusango conservation area and asphalt mine, shares many of the challenges facing rural people and landscapes in Indonesia. These include, but are not limited to: smallholder farming, small-scale fishing, forest-dependent livelihoods, irrigated rice farming, mining and conservation. Methodologically, the approach presented explores how the pursuit of changing household goals, other than subsistence, shape the livelihood strategies of rural Indonesian households.

Chapter 4 : Fishing at the Edges

4.1. Introduction

Small-scale fishers, especially the Bajo, have different lives and livelihoods to farmers and civil servants. They share, however, similar goals and aspirations for higher living standards as their land-bound neighbours. In this chapter, I explore how the Bajo fishers of Tanjung Bunga formulate and pursue their aspirations for better lives in the context of an isolated, floating village. I discuss how, with limited alternative livelihoods, fishers have developed a pathway for improving household income through increasing the size and engines of their boats. These strategies are formulated with assumptions about the sustainability of fisheries and coastal resources. I then explore how the pursuit of goals, including subsistence, are embodied in the livelihood choices of fishing households. The realisation of these goals, however, are invariably constrained by the isolation and inaccessibility of the settlement.

4.2. History of the settlement at Tanjung Bunga

Among the farmers, government officials and other people of the villages of Lawele and Benteng, are a small, group of people who live very different lives. The fishers of Lawele, who begin their day at the market, and then spend the rest of the day walking the road, often barefoot, selling or bartering their remaining fish, look distinctly different to the other residents of the village. Belonging to the Bajo ethnic group, their settlement is hidden from sight, past the mangrove forests and river, in a stilted settlement built on the intertidal flats of the bay. Their lives revolve around the sea: they depend on the sea for their homes, food and travel, and their identity connects them with other Bajo throughout Indonesia, and archipelagic Southeast Asia. They connect to the land through selling their fish, bartering for rice, collecting drinking water or accompanying their children to school. And, like most people, they long for the comforts of a modern life, while at the same time, remaining connected to the sea and their way of life.

The Bajo settlement at Tanjung Bunga in Lawele traces its history back to 1957. This was the period of the rebellion of Kahar Muzakkar, from 1950 to 1965, who sought to establish an Islamic state, known locally as the *gerombolan*. Similar to other accounts (Stacey, 2007), locals recall the period from 1956 to 1957, as being particularly violent, with many people fleeing their homes to avoid the fighting. In Lawele, people arrived from both the hills along with sea people, such as the Bajo, in search of security. As one Bajo elder explained:

*'People moved here because of the rebels and there was Brimob (Brigade Mobil) that was based there (Lawele) so people believed it was safe. People wanted to go to Bau Bau but there were too many rebels, so they stayed in Lawele. Every village moved. From Ereke, Lasalimu. Everyone fled here because if they didn't, they would be killed. Not shot, but cut with a long knife. We fled from Ereke in 1957, we waited in Bonegunu for a month, until the rebels arrived and then fled again. Many Bajo died. Men had to wear women's clothing so they wouldn't get killed. The price of chicken was more expensive than humans. People lived everywhere, on land, at sea. There were around 100 people living in the bay, around 50 households. People fled to Kendari, and others fled to Lawele. They first moved to land, then moved to the mouth of the river.'*¹¹

As stability returned to the region, people gradually left Lawele and the Bajo settlement, until it stabilised at its current population of around 30 households.

4.3. The natural environment surrounding Tanjung Bunga

The settlement is located at the mouth of the river that flows from Lawele at the edge of mangrove forests. The mangrove forests extend for about two kilometres until the main village of Lawele. The bay is characterised by tidal flats, coral reefs and channels that then lead out to deeper water areas at the peninsula. At the northeastern edge of the bay, there is a pier where large boats dock to collect the asphalt from the mines. The mangrove forests that are located between the villages and the water are classified as protected forest area (*Hutan Lindung*). According to locals, the forests were classified as protection forests in the early

¹¹ Interview with Bajo elder, 21 September 2012

1980s at the same time as the conservation area was established.¹² In Indonesia, protected forests are intended to protect environmental services, such as hydrologic functions and prevent soil erosion, although biodiversity conservation is not a priority (Muttaqin, 2012). In practice, the classification of the mangrove forests as protected forests has prevented mainly the Bajo from harvesting large trees, but also others from the village. The mangrove forests are still used to collect firewood, as well as palms for thatching, shellfish, and crabs.

The status of the marine area, along with its resources, is far less clear. As a consequence of Law No.22/1999 on Regional Administration (1999), the management of marine resources was decentralised to regional authorities, with exception of the Economic Exclusion Zone (Patlis, 2007). Marine resources were further regulated by the Indonesian Fisheries Law No. 31/2004 (De Alessi, 2014).¹³ As part of the law, fishery businesses are required to have a licence called a SIUP (*surat izin usaha perikanan*) in order to operate, although artisanal fishers are exempt from this requirement. More important for the artisanal fishers in the landscape are the regulations on the use of destructive fishing gears. Law 31/2004 on Fisheries provides a comprehensive list of fishing activities that are banned and established a tribunal for the prosecution of infringements of the fisheries laws (Patlis, 2007). Despite these new provisions, enforcing the law remains difficult, with village authorities and police having limited or no equipment to patrol waters within their jurisdiction.

The Bajo residents of Tanjung Bunga, the main fishers in the area, describe two main seasons that regulate their livelihoods: the Western Monsoon (*Musim Kamarau/Barat*) and the Eastern Monsoon (*Musim Timur*). Rainfall in the area is relatively consistent throughout the year, with peaks associated with the western monsoon, in January and February, and during the Eastern Monsoon, during June and July. As virtually all of the boats and canoes used by the Bajo in Tanjung Bunga have no canopy, rainfall generally constrains fishing effort. More importantly, fishing effort is constrained by winds and the size of waves, which are most severe during the Eastern Monsoon, reaching their peak during the month of August. Most deep sea fishing activities cease or are curtailed during this season, and people generally reduce their fishing effort in the bay too.

¹² Interview with Village Head Benteng, 25 November 2012

¹³ The authority for the management of fisheries and natural resources was revised again under the new Regional Government Law, Law No. 23/2014, which restored many powers to provincial governments. As this occurred after my period of research, however, the law did not have any influence on the governance of natural resources in the study site at the time.

4.4. People and government of the settlement at Tanjung Bunga

The settlement is comprised of independent wooden, pile houses, connected by a dilapidated wooden bridge. The settlement begins at the edge of the mangrove forest, stretches in a straight line, three hundred metres out into the bay. As the settlement nears the mangrove forest, it ends abruptly. Despite years of promises of a bridge and connecting road to the main village, nothing has ever eventuated. The head of the village of Benteng stated that some of the reasons included lack of funding, despite writing many proposals for government assistance, and the protected status of the mangrove forest.¹⁴ Similar reasons have prevented the settlement from getting access to piped water, meaning that residents of the settlement need to travel to the market in Lawele in order to access potable water. The settlement's only connection to modern infrastructure is a single electricity cable, which brings power to the settlement from a small generator in Lapuli, Benteng. The people of the settlement have access to electricity from sunset until eleven at night. This provides people with lighting, charging mobile phones as well as powering televisions and stereo sound systems. For those who cannot afford their own electronic appliances, they generally gather at nearby houses to listen to music or watch television.

Official statistics, provided by the village administration, put the population of the settlement at 36 households, divided evenly into 65 adult men and 65 adult women. Nearly all the people in the settlement identify themselves as ethnically Bajo or as Butonese. The majority of people were born in the settlement while the next largest proportion are spouses from the Bajo settlements in Ereke, North Buton. A few non-Bajo have also married local Bajo and relocated into the settlement. Conversely, some Bajo have also married people from outside the settlement and relocated there, changing their livelihoods in the process. Older houses are built on rocks harvested from the reefs, in contrast to the houses of younger families, which are built from a mixture of plantation timber and timber harvested from the mangrove forests. Cheaper houses have walls made of woven bamboo and thatched roofs of nipa palm (*nypa fruticans*). Houses that are more expensive are built out of timber, although generally keeping the thatched roofs. The environmental conditions mean that the timber needs to be regularly replaced. Where people are willing to replace timber in their households, this does not extend to the communal bridge, which is usually only repaired with branches from the mangrove forest.

¹⁴ Interview with Village Head Benteng, 25 November 2012

Schools and health facilities are located in the main village too. School-aged children, if they wish to be educated, need to travel up the river by boat to Lawele on a daily basis. Some accompany their parents to market to sell the fish they have caught, and are collected later in the day. Others, mainly older children, will paddle themselves to school in wooden canoes. Storms and flooding discourage children from attending school, and older children, especially boys, who are more independent, often choose to begin fishing early in their lives rather than continue their education. The basic health services provided by the local clinic (*puskesmas*) and the nurses that staff it are generally only available if people travel there. Where nurses are willing to attend to the houses of sick people on land, the Bajo are forced to take the ill to the clinic itself. Often this results in the Bajo relying on traditional healing practices, before accessing modern medicines.

The Bajo in the settlement of Tanjung Bunga, both geographically and metaphorically, live at the edge of society. With limited access to government services, rights restricted to accessing the resources of the mangrove forests, the Bajo also are at the lower end of the watershed, and their marine resources increasingly affected by the expansion of the port facilities for the asphalt mines. The creation of the separate village of Benteng in 2011 led to a more responsive village government. The Bajo remain, however, negatively and disproportionately affected by government policies and upstream activities with little involvement in the making of decisions.

4.5. Livelihoods, mechanisms of access and decision making of the Bajo in Tanjung Bunga

The near shore coral reefs, deeper waters of the bay and mangrove forests are biologically diverse, and with the exception of the mangrove forests, largely open access resources. For the Bajo fishers in Tanjung Bunga, learning their first livelihood takes place by fishing, trapping or collecting marine invertebrates with their family, friends or peers. Fishing, however, requires owning or being able to borrow a boat (Tables 4.1. and 4.2.). Although younger fishers learn to fish with their peers or family, they have to share their catches with the owner of the boat. The first step of improvement for young fishers then is to purchase their own boat. Historically, the most basic and commonly used form of transport is a *koli koli* or *sampan*. A *koli koli* is a wooden boat that is forty to fifty centimetres wide and four to five metres long. It has no motor, and people generally rely on it for setting traps, fishing in the reefs nearby or entering the mangrove forests. Although the village elder reminisced about how people used to regularly paddle to North Buton before there were motorised boats, nowadays, it is only used for travelling to nearby destinations. Younger fishers are able to travel to more distant

reefs, whereas older fishers rely on the closer reefs and mangrove forests. In contrast to other fishing activities, non-motorised fishing and collection of marine invertebrates are generally low risk: the waters in the bay are generally calm, and it involves little costs aside from fishing lines. Some fishers, despite owning larger boats, also own a *koli koli*, so they can fish in the shallower waters without having to pay for fuel.

Table 4.1: Access and livelihoods in Tanjung Bunga¹⁵

LIVELIHOOD	ACCESS DETERMINANTS	SPATIAL DETERMINANTS	TEMPORAL DETERMINANTS	MARKETS
MANGROVE FOREST PRODUCTS	Basic canoes and trapping equipment for crabs. Legal or unmonitored access to mangrove forests.	Paddling or walking distance to mangrove forests.	Mangrove forests can be accessed all year round.	Local market for basic shellfish. Regional towns for crabs.
REEF AND BAY FISH	Basic canoes or small motorised boats and basic fishing equipment. Open access reefs and bays.	Proximity to bay and reefs or access via nearby rivers.	Dependent on seasonal influences on fish species. Poor weather reduces fishing effort.	Local market or adjacent villages.
DEEPWATER FISH	Small to medium sized motorised boats and basic fishing equipment. Finances for fuel. Ice for refrigerating fish.	Relative access to deep-water, location of targeted fish species and location of market or traders.	Dependent on seasonal influences on fish species. Poor weather reduces fishing effort, leading to fishing effort stopping for months during the eastern monsoon.	Larger regional towns connected to domestic or international fish trade.
SEAWEED CULTIVATION	Access to seedlings. Access to knowledge about how to address or prevent diseases.	Areas to grow in intertidal flats.	Generally can be grown all year round.	Larger regional towns connected to domestic or international trade.
MIGRATION – MARINE EMPLOYMENT	Family or friend networks. Basic marine skills. Access to employer or crewed boat.	For Bajo, normally related to Bajo settlements throughout Indonesia. Other locations can be coastal towns within Indonesia or neighbouring countries, mainly Malaysia.	Dependent on seasonal influences on fish species. Poor weather reduces fishing effort.	Locations near to abundant fish stocks, such as East Nusa Tenggara Province, or places with demand for labour such as Malaysia.
FISH TRADE	Access to boats or cars to transport fish. Finances. Ice for refrigerating fish.	Distance to regional towns relative to refrigeration capacity.	Dependent on seasonal influences on fish species.	Larger regional towns connected to the domestic or international fish trade.

¹⁵ The table is based on the results of focus group discussions at the settlement level as well as household livelihood interviews.

Table 4.2: Types of boats, average price and percentage of household ownership¹⁶

Boat Type	Koli Koli or Sampan	Ketinting	Bodi
Average Price (IDR)	662,778	3,838,889	10,866,667
Average Price (AUD)	66	380	1076
Percentage of Households with at least 1	83%	43%	13%

There are several ways that young fishers plan and develop strategies for purchasing their first boat. Erman, a 31-year-old fisher, described the process by which he purchased his first boat, a *sampan*, in 2012.¹⁷ As a young fisher without his own boat, he went fishing with others, but would have to divide the catch with the owner of the boat. For him, owning a boat was his step towards improving his income. To achieve this goal, however, he had to decide, plan and save enough money for the purchase. After finally making the decision, it took him ten months to save the IDR 2 million (AUD 198) required for the boat, which was built by the boat builders at Kioko. With the *sampan*, he achieved a degree of independence and increased his household income through a single step.

Although for younger fishers owning a basic canoe is the first step towards improving their livelihoods, for others, fishing in a basic canoe is a way to reduce risk. One such fisher is Fahimah, a forty-year-old divorced mother, who depends on the most basic form of transport, a *koli koli*.¹⁸ Fahimah, purchased her *koli koli* after already owning a small, motorised boat (*ketinting*), enabling her to fish without any fuel costs.¹⁹ Fahimah purchased her *koli koli* in 2008, costing IDR 900,000 (AUD 89). For her, it took at least a year of saving before she was able to afford it, as the price for fish was still low at that time. Fishing with a basic canoe in shallower waters enables her to earn an income with little economic and personal risk.

Fahimah's livelihood alternates, depending on the tide, between fishing in the near reefs and collecting invertebrates from the mangrove forests. The mangrove provides her with many

¹⁶ The table is based on the results of the household surveys.

¹⁷ Interviews 10 June 2013 and 7 July 2013

¹⁸ Interview 10 June 2013

¹⁹ Interview 7 July 2013

resources, especially during the Eastern Monsoon. Shellfish, known locally as *siput* (*cerithidea obtuse*), along with crabs (*brachyura spp.*) and *nipa* palms used for thatching, are the main products that she sources from the mangrove forest. Occasionally, if there is a boat visiting from the Tukangbesi islands, she will collect fallen wood to sell as firewood. When she travels to the mangrove forest, she usually spends two hours in there to collect products, alone and at low tide. The shellfish that she collects have relatively low prices and are sold at the market in Lawele. At high tide, she fishes in the nearby reefs. Species that she catches in the reefs are mainly octopus (*octopoda spp.*), snapper (*lutjanus bitaeniatus*) and squid (*teuthida spp.*). She sells the fish that she catches in the market in Lawele in the morning, or by walking along the road in the village later in the day. If she is unable to sell the fish that she catches, she will exchange them for rice or vegetables. The *koli koli* enables her to subsist but her dependence on selling to the local market in Lawele constrains how much she can earn from fishing. Her seventeen-year-old son, who lives with her, generally fishes using a *ketinting*. Her son, with the *ketinting*, is able to fish for skipjack tuna (*katsuwonus pelamis*) in the deeper waters.

The decision to fish with a basic canoe is both the first step in a sequential strategy for improving the income a fisher can earn and a strategy for managing risk. Both strategies are grounded in being able to harvest, and benefit from, the resources near to the settlement. There are several other implicit assumptions to fishing with a canoe. One of the primary assumptions of fishing in the immediate vicinity of the settlement is that the majority of fish caught will be sold in the local market in Lawele. Prices for fish caught locally are generally low with the exception of during the Eastern Monsoon, when prices rise. When fish cannot be sold, fishers will exchange their catches for rice and vegetables with local farmers. There are exceptions to this: species such as crabs that are easier to transport, or for fishers willing to transport their catches to other locations if they have access to ice. With poor electricity in the settlement, most fishers do not have access to ice, and choose instead to sell their catches locally. The second assumption regards the sustainability of the resources. There is an inherent belief that the resources in the waters and mangrove forests surrounding the settlement will not be exhausted if people fish continually. Only the use of explosives or poisons was acknowledged to threaten the resources.

If fishers wish to catch more valuable species and access higher value markets, they need to be able to travel further. The simplest and most effective way to increase the range of species and markets a fisher can access is through improving the capacity of boats. Moving up from the *koli koli* and *sampan* is the motorised boat called a *ketinting*. Six to seven metres in length and approximately seventy to eighty centimetres wide, it is a wooden boat with a basic motor

and no canopy. For the Bajo of Tanjung Bunga, it is the most commonly used, versatile and fuel-efficient boat to which they have access. The boat allows them to fish in the deeper waters at the end of the bay for larger species such as skipjack tuna, or travel up river to Lawele for selling fish or accompanying their children to school. Motorised transport comes at a cost, and households with a *ketinting* have to pay for fuel for transport and fishing. Although the costs of using motorised transport may be higher with only limited improvements in the range of fishing, the improved ease of transport is cited as an additional factor that makes owning a motorised boat more desirable.

Fishing with a *ketinting* is different to that of a fisher who uses a basic canoe. Gahiji is one fisher who specialises in an intermediate fishing system dependent on a *ketinting*.²⁰ Aged 38, he is married with three children, along with supporting a nephew. Along with fishing, he also has the official role as head of settlement. Using his *ketinting* only consumes about a litre of petrol a day for fishing, over an estimated twelve days per month, or around 144 days a year. He also uses about a litre a day for travelling to Lawele, estimated at around twelve days a month or 144 days a year. Species he fishes for include: *baronang* (*Siganus Sp.*), *bonteh* (*species unknown*), *sori* (*species unknown*), squid, crab and prawns (*Penaeus spp.*). In good weather, he will also fish for larger species, such as skipjack tuna at the *rumpon*²¹ in the deeper waters at the end of the bay. During the more turbulent waters of the Eastern Monsoon, he will devote his time to trapping crabs in the shallow waters near the mangrove forests and rivers. Although he expresses interest in getting a larger boat, such as a *bodi*, he has little interest in fishing for larger fish species such as tuna (*thunnus spp.*) or shark (*selachimorpha spp.*). The risks involved and time away from his family outweigh the value of the potential financial rewards. Gahiji purchased his first *ketinting* in 1992, saying that he had been fishing since he was a child, saving that money to purchase his first boat. Gahiji purchased his current *ketinting* in 2007 for IDR 4.5 million (AUD 446).²² The boat itself he purchased in Ereke and the motor in Bau Bau, choosing a Honda motor because 'Honda motors are durable (*Honda tahan*).' In total, it took around two years of saving to buy everything, but it was worth it for him because 'now [he] can fish a lot further and [his] income is much higher' (*'bisa memancing lebih jauh, penghasilan lebih banyak'*).

²⁰ Interview 10 June 2013

²¹ A *rumpon* is a floating platform that acts as a shelter for pelagic fish and makes it easier for fishers to catch these species.

²² Interview 7 July 2013

If fishers in Tanjung Bunga wish to increase the capacity of their boats further, they can purchase a *bodi*. A *bodi* is approximately one metre wide and seven to eight metres long, made of wood with an internal motor. Although a *bodi* is by no means a large boat, fishers can travel long distances in it, for instance going as far as Wanci in the Tukangbesi Islands, as well as other villages and towns with Bajo settlements, such as Lasalimu in central Buton and Ereke in North Buton. A *bodi* enables people to fish for large species of fish such as tuna and shark, which can be exported and command high prices. Fishing for these species is far more lucrative than fishing for reef species; however, this comes with many risks. Men often fish alone or in pairs in the open seas and also spend long periods away from home. Fishers also need to pay for the costs of fuel for these fishing expeditions up front with the risk of not catching anything.

The rewards of fishing with a *bodi* are said to be worth the risks. One such fisher is Iftiqar, who specialises in fishing for large fish using a *bodi*.²³ Iftiqar is 32 years old, married with two young children and was born in the village of Lawele. Ethnically, he belongs to the indigenous people of Lawele. After he married a Bajo woman, he then moved into the settlement. He migrated to East Nusa Tenggara Province, working as a fisher on crewed boats there. From the time there, he was able to save enough for a *bodi*, which enabled him to fish for larger fish by himself. In 2012, he purchased a new boat and motor, along with a *koli koli* for fishing in the bay. During calm weather, he fishes for tuna and skipjack tuna, as well as shark during September and October. When he goes fishing, he can leave the village up to a month at a time, but usually never longer than that. As he says, 'wherever the fish are, we go there' (*'di mana ikan naik, kami ke sana'*). Fishing for tuna and large fish is a risky activity. He needs to pay for fuel in advance, and if he does not catch anything, he will go into debt with a trader, and pay him back with fish that he catches. Beyond that is the risk of being alone at sea, machine failure and getting sick. During the Eastern Monsoon, he mainly fishes close to home, using his *koli koli* to catch reef species, or what he refers to as basic fish (*'ikan dasar'*).

The process of saving and purchasing a *bodi*, for most, took around one to two years, normally around one year for the motor and another for the boat itself. Maamar, a 27-year-old fisher, bought his *bodi* and motor in 2009 that cost him IDR 11 million (AUD 1,089).²⁴ He purchased the *bodi* and motor separately, each of which taking around a year to save while fishing and cultivating seaweed. After buying the *bodi* he was able to fish for shark and tuna, dramatically changing his type of livelihood. For Iftiqar, buying his most recent *bodi* and motor did not take

²³ Interview 9 June 2013

²⁴ Interview 7 July 2013

too long, only one year to save for the IDR 11.6 million (AUD 1,149) total price.²⁵ He already owned a motorised boat, but buying the new *bodi* enabled him to more effectively fish for tuna in more distant and deeper waters. He was able to purchase his first boats after migrating for work throughout southern Indonesia.

The rule that bigger boats equate to more income reaches its limits with a *bodi*. A *bodi* is for the fishers in Tanjung Bunga what they conceive as the limits of fishing as an individual pursuit. Beyond a *bodi*, fishing becomes a more collective and corporate enterprise. Larger boats require salaried crews, larger catches and larger financial risks. Larger-scale fishing also requires more secure market access and refrigeration. Finally, larger boats also require different institutions, such as establishing companies and gaining government permits. The *bodi* is the boundary between informal, artisanal and small-scale fishing, on the one side, and formalised and regulated fishing, on the other.

Within the bay, however, larger motorised boats are inefficient and expensive. To negate the costs associated with fishing, people often choose to fish using *koli koli* or *sampan*. Ideally, maintaining a range of boats enables people to access a wide range of fish. This is not to say that all who specialise in catching reef fish and invertebrates are necessarily poor. Gahiji, for instance, by focusing on trapping crabs, can sell them at a high price in Ereke.²⁶ Others are able to sell exotic species that can be dried, such as *trepang* (*Holothuroidea* spp.) or *lola* (*trochus niloticus*), in larger markets such as Bau Bau for high prices. Due to a lack of refrigeration, and more generally ice, fish can only be sold in the immediate areas around the settlement, restricting the range of prices available for their catches. One of the factors that inhibit refrigeration is the reliance on small generators, which do not have sufficient power for refrigerators and other needs, such as household appliances. To power a refrigerator and make ice usually requires a dedicated generator that is expensive to run for an individual household. For those solely reliant on reef fish and other species from the bay, their spike in income generally comes in the Eastern Monsoon, when the price of fish increases significantly.

The decision-making rules in these cases are informed by historical evidence and consensus that show that it is effective and sustainable. According to focus group discussions with the leaders of the settlement, any decline in a single resource in the waters or mangrove forests surrounding the settlement has been compensated by increases in price. The exploitation of the marine resources using basic technology, consequently, is not only sustainable, but also

²⁵ Interview 7 July 2013

²⁶ Interview 10 June 2013

progressively more profitable. This decision-making rule is based on the sale of catches to a local market. If these conditions change, the effectiveness of the strategy will likely be affected too. The rule that bigger boats equate to greater income also comes with the caveat that if things go wrong, they can always rely on the waters and mangrove forests surrounding the settlement.

Livelihood strategies are formulated in the context of technology as much as ecology and markets. Fishers decide on the types of technology they want and need due to a range of factors including usefulness, availability based on providers, builders and markets, and price. Restrictions on the harvesting of timber in Buton have led to the increase in price in basic canoes made from legally harvested timber. For those who cannot afford the increased prices of timber, they have to purchase illegally harvested timber, further increasing their marginality. Although fiberglass boats were becoming available in Bau Bau, the price of such boats was perceived to be beyond the means of fishers, and wooden boats were still preferred. Vendors in Bau Bau among other places in Buton sold a range of motors and associated machinery ranging in quality and price. Fishers were able to choose the type of equipment they wanted according to their means and preferences. Ultimately, however, decisions regarding technology were perceived as the means for more effectively exploiting fisheries and marine resources and accessing market opportunities.

4.6. Decisions to diversify

Although improving boat technology is the clearest pathway for improving livelihoods, there are several limits to its potential. Seasonal, climatic factors and personal and economic risk mean that specialising in deep-sea fishing is not always ideal. Some households shift from deep-sea fishing to nearshore fishing according to seasonal variations. Others, however, have tried other strategies to diversify their livelihoods (Ellis, 1998) from solely capture fishing. In this section, I explore the access mechanisms (Ribot and Peluso, 2003) that affect how people are able or unable to diversify into other livelihoods. I also begin to explore how people learn new livelihoods, in particular the role of imitating successful examples of maricultural livelihoods from other Bajo settlements in Indonesia. Finally, I discuss the limits of imitating successful livelihoods from other settlements, in particular seaweed cultivation, without adequate technical or extension support to overcome challenges.

Beyond fishing, there are few other livelihood options within the settlement. One person who has developed an alternative livelihood strategy is Jabrullah. Jabrullah has been refitting and selling old boats for at least twenty years.²⁷ He will buy used boats and using equipment such as an electric sander, he will refurbish the boats and then sell them for a higher price. Most of the work he does during the Eastern Monsoon, as during the Western Monsoon he is busy with buying and selling fish.²⁸ He generally specialises in the trade of octopus, which are destined for export markets, although he sells his fish on to another trader in Ereke. He travels to Ereke using his *ketinting*, meaning that he is unable to trade during the Eastern Monsoon. He describes the period from October to May as his busiest period of the year for buying and selling fish. The fish trade, like refitting boats, requires access to finances to pay for the fish upfront along with the fuel for the transport to Ereke. Also, he buys his ice from Kamaru, which gives him advantage over other locals. Unlike others in the settlement, his access to finances enables him to engage in these two professions, meaning that he no longer needs to fish. The livelihoods of Jabrullah occupy a specific niche within the settlement. He has access to small amounts of capital that enable him to participate in both trade and refurbishing used boats. Although he is content with his income from these activities, others in the settlement have not imitated his livelihood strategy and none expressed interest in replicating it.

For most, alternative livelihoods rely on utilising networks with other Bajo settlements. These include livelihood opportunities such as migration or imitating successful livelihoods from those settlements, such as seaweed cultivation. One pathway of migration people can take is like that of Iftiqar.²⁹ When he was younger, he migrated to Bajo settlements in Kupang, in West Timor, or Maumere in Flores, to work on crewed boats fishing for shark and tuna. When fishing for shark fin in Kupang, his boat often entered Australian waters, where he was caught by Australian authorities and deported back to Indonesia. Others, such as Kadar, who were repeatedly caught fishing in Australian waters, spent time in Australian prisons, which eventually discouraged them from fishing too far from their settlements.³⁰ Some in the settlement regularly migrate on a seasonal basis for work. From September to March every year, Labib, aged 36, travels to Lasalimu to work as a diver.³¹ Using a compressor mounted to a *bodi*, he dives for lobsters at depths of up to forty metres, while his partner works the

²⁷ Interview 10 June 2013

²⁸ Interview 10 June 2013

²⁹ Interview 9 June 2013

³⁰ See Stacey (2007) for a detailed description of Bajo fishing in Australian waters and Carnegie (2014) for a description of Indonesian sailor-traders and their experiences in Australian prisons.

³¹ Interview 9 June 2013

compressor above. They divide the catch and then sell it to a trader. The income from working as a diver far exceeds anything he could earn in the settlement; however, this comes with the risks of injury or death. He returns to the settlement for the Eastern Monsoon and fishes in the shallow waters for reef fish.

Learning new livelihoods or resource uses often comes through travel to other Bajo settlements. As the Bajo travel regularly to other settlements, such as Ereke in North Buton, or are visited by larger boats for firewood or other local products, they are aware of different, marine livelihoods. The Bajo in Ereke, for instance, live in a far more developed settlement, and cultivate seaweed among other things. Inspired by the success of seaweed (*Eucheuma denticulatum*, *Gracilaria* sp.) cultivation by the Bajo in Ereke, the Bajo in Tanjung Bunga decided to try cultivating it. Gahiji recounted how he was the first one in the settlement to try cultivating seaweed.³² After seeing seaweed cultivated successfully in Ereke and how quickly it yielded results (*hasil cepat*), he decided that he would try to cultivate it in the settlement. Beginning in 2009, he borrowed money from his family and bought seedlings from Ereke. He chose the quicker growing red variety (*Gracilaria* sp.) over the more resilient but slower growing variety, and planted these seedlings in two locations. Up until 2011, the seaweed grew successfully, and he was able to sell the seaweed to a trader in Lawele or directly in Bau Bau. During 2011, the seaweed developed a disease, and despite trying to grow the seaweed in other locations, he was unable to overcome it. Iftiqar was a late adopter of seaweed, noticing that others in the settlement were successful with the crop and that seaweed cultivation fit well with his schedule while he waited to go fishing (*bisa kerja waktu tunggu pergi ke laut*).³³ Seaweed cultivation was also a joint activity of the household, his wife urging him to join and working with him in cultivating it. He was only able to get two harvests from the seaweed before the disease ruined the crop, although he made significant income from those two harvests. Although seaweed had been a lucrative enterprise for the Bajo, when it collapsed, people simply continued to fish. For some, such as Maamar, the profits from the seaweed crops had enabled them to buy bigger boats, like a *bodi*, which enabled them to fish further afield.³⁴

These three examples demonstrate the way that decisions are made about diversification and the limits of that type of decision making. The processes of learning and choosing livelihoods are based on social learning and imitating successful strategies from peers (Boyd and

³² Interview 10 June 2013

³³ Interview 9 June 2013

³⁴ Interview 7 July 2013

Richerson, 2005; Kruglanski and Gigerenzer, 2011). The first example that described the livelihood choices of Jabrullah showed that although it was a novel livelihood strategy, it was not desirable enough to be imitated. The other strategies rely on observations of and opportunities within other Bajo settlements. Several other factors support why the Bajo of Tanjung Bunga would want to imitate the strategies of other Bajo settlements. The residents of Tanjung Bunga often expressed the view that they were the poorest of the Bajo settlements in Southeast Sulawesi, if not Indonesia. Other settlements were wealthier in terms of livelihoods and household assets, better market access and government support. New livelihoods were often learnt through travel to these settlements, and others in the settlement followed the example of migration for work. Although imitation played a significant role in learning new livelihoods, not all chose the same livelihoods to imitate. The peer group to imitate, however, were other Bajo fishers.

The pathway for the introduction of seaweed into the settlement followed a few steps. The first was through regular travel to other Bajo settlements, during which the benefits of seaweed cultivation were learned. Eventually, one household in the settlement brought some seaweed back to cultivate, although choosing only the most profitable variety. The success of that household in turn led most other households to follow and try to imitate the success of that initial household. This continued until the collapse of the seaweed plants. There were few attempts to find solutions to the collapse of the seaweed, beyond trying to move the seaweed crops to a few locations. No attempts were made to try to find information about how to address the problem, although fishers had no clear idea of whom to contact for information. Similarly, no trials of alternative, more resilient varieties of seaweed were conducted. One of the main reasons for this may be that the fishers in Tanjung Bunga already had other livelihoods that could provide for their needs and sustain their aspired to standard of living. Seaweed as an alternative livelihood was only chosen because it was perceived to be an easy, complementary and quick way to earn additional income. When that failed, there was little incentive to search for a solution. The type of success that fishers in Tanjung Bunga wanted to imitate was relatively specific.

4.7.A standard of living for the Bajo in Tanjung Bunga

In this part of the chapter, I examine the household goals of the fishers in Tanjung Bunga, and the strategies they use to achieve them. Here, I choose to look at income as a means for

achieving the types of lives that people value, which in turn are made up of smaller, more achievable goals that are part of an overall goal system (Kruglanski et al., 2002). The majority of the discussion here focuses on the types of goals people desire, plan and strive for, and understanding why certain goals are valued over others. Towards the end of the discussion, I explore the goals people feel obliged to fulfil, or 'ought' goals (Higgins, 1987). There are scenarios where people, either as individuals or as household members, have to act, such as health crises. I discuss how people react to these crises and the strategies they use to cope. Other obligatory goals arise from cultural and social pressures, such as ceremonies, and require that households allocate relatively significant resources to providing these ceremonies. I also explore the function of livelihoods and livelihood strategies for achieving these goals, and, which strategies are more effective than others. I also examine what are the structural constraints, or opportunity structures (Fischer, 2014), which affect the types of goals that households can achieve in the settlement. As I compare among the different household goals, I discuss what the general living standard of the community is and why.

Adequate housing is a primary concern for the residents of Tanjung Bunga. Within the Bajo settlement, there is little variation in the type of houses, the materials with which they are built, or their access to services such as electricity or water. As such, there is a greater degree of equality among houses in the Bajo settlement than those on land. There are some minor differences among houses that are worth discussing. The majority of houses have timber flooring, bamboo walls with thatched roofs made from *nipa* palms, although some houses have wooden walls with tin roofs. Older households, or houses built connecting to older houses, have the advantage of being built on coral rocks, rather than the typical pile house design.

At what stage of life do people build their houses and what means do they use? Jabrullah's house was built in 1989, when he had his first child, forcing him to move out of his parents' house.³⁵ At the time, all the materials cost IDR 500,000 (AUD 50). This was before the economic crises and inflation, however, so the price of fish was much lower and he still paddled a canoe. As he said, it took a long time to save the money (*'lama untuk simpan uang'*). Gahiji started building his current house in the year 2000, when he was 25 years old, already married for five years, and the old house in which they were living was falling apart.³⁶ The house cost IDR 1.5 million (AUD 149) for the wood, IDR 200,000 (AUD 20) for the thatched

³⁵ Interview 7 July 2013

³⁶ Interview 7 July 2013

roofing and IDR 80,000 (AUD 8) for the bamboo walls. It took around a year to save the money and 10 months to build. Fahimah built her house in 2006, while she was still married and already had several children.³⁷ She had just moved from Ereke and built the house close to her parents' house, costing about IDR 1 million (AUD 99) for the wood. The house was built slowly, saving money across the course of a month before she would buy another component of the house. Maamar began building his house around the same time at the age of 20, when he was just married. The total cost of the house was IDR 11 million (AUD 1089), and the house took a total of three years to build.³⁸ He had already begun preparing for building the house while he was at school, buying and installing the wooden pillars to support the house. For those three years, he focused on saving his money only to finish the house, using the money from his catches of skipjack tuna, squid and crabs. He built the house himself without using any paid labour. Erman, finally, built his house in 2013, costing IDR 5 million (AUD 495) for which it took him 10 years to save. The house took him around 10 months to build.

After owning, or at least occupying a house, there is a general set of consumer goods and electronics that households purchase. In the settlement of Tanjung Bunga, only 43% of households surveyed have a television and antenna (*parabola*), 35% a DVD player and 17% a stereo (Table 4.3.). The average purchase prices of common household electronics and furniture are listed in Table 3.3 along with the percentages of ownership. In terms of telecommunications, 52% had at least one mobile phone in the household with the average price of a mobile phone around IDR 440,000 (AUD 44). Total household assets, excluding the cost of the house, ranged from IDR 250,000 (AUD 25) to IDR 24,600,000 (AUD 2,436) (Table 4.4.). The average for household assets was around IDR 7,523,409 (AUD 745).

³⁷ Interview 7 July 2013

³⁸ Interview 7 July 2013

Table 4.3: Ownership and average prices of household electronics and furniture³⁹

ITEM	AVERAGE PRICE (IDR)	AVERAGE PRICE (AUD)	PERCENTAGE OF HOUSEHOLDS OWNING AT LEAST 1
Car	-		0%
Motorcycle	-		0%
Electricity Generator	1,191,667	118	26%
Mobile Phone	437,917	43	52%
DVD Player	502,500	50	35%
Stereo	785,000	78	17%
Sofa	2,875,000	285	17%
TV Set	1,785,000	177	43%

Table 4.4: Range and average of total household assets⁴⁰

	Min of TOTAL ASSETS	Max of TOTAL ASSETS	Average of TOTAL ASSETS
IDR	250,000	24,600,000	7,523,409
AUD	25	2,436	745

The total assets of a house are not necessarily related to age, but more often a function of their type of boat, and fishing specialisation. For instance, Maamar, 27, who specialises in fishing for sharks, already has a range of household assets with which he is content, although he does not own a mobile phone.⁴¹ In 2011, he purchased a sofa set for around IDR 3.5 million (AUD 347) in Bau Bau. After saving the money for two years, he and his family chose the model of sofa that was different to what others in the settlement already had. Following the purchase of the sofa, they purchased a television and antenna in 2012, for IDR 1.8 million (AUD 178). It took around a year to save the money for the television, and they chose the brand that was best suited to the low levels of electricity in the settlement. Generally, his wife handles the money in the relationship and decides when to save and how much. With the consumer goods he has now, he is fairly content except that he plans to either improve the house or buy a larger *bodi* with a bigger motor. Gahiji's home has similar assets to Maamar, buying his sofa set in 2008 and television and antenna set in 2011.⁴² They took two years to save for the sofa

³⁹ The table is based on the results of the household surveys.

⁴⁰ The table is based on the results of the household surveys.

⁴¹ Interview 7 July 2013

⁴² Interview 7 July 2013

set and around a year for the television set. They chose the sofa set based on their own preferences, and for the television, they chose the cheapest brand. They also own two mobile phones, each worth around IDR 240,000 (AUD 24).

For households without motorised boats, saving is more difficult, and generally only done during the Eastern Monsoon, when the price of fish increases. Erman, aged 31, in contrast, only has a stereo and amplifier, which he bought in 2012 along with his own, small generator.⁴³ The price of the set was around IDR 1.1 million (AUD 109) that he bought in Bau Bau. He chose the brand because it had the best sound quality (*'merek bagus untuk suaranya'*). It took him nearly 10 months to save the money. For him, the stereo system is all his family needs for now. He would rather focus on finishing the house and buying a *bodi* before thinking about purchasing anything else. Fahimah, aged 40, feels her assets are complete with the house and *koli koli*, and is not planning to make any large purchases in the future.⁴⁴ She owns a television and antenna, along with a stereo system that she bought in 2002 while she was still married. The price of the set was IDR 3.6 million (AUD 356), and although her family had two people fishing at the time, it still took a long time to save.

Planning and saving for larger purchases, of course, requires self-restraint on a daily basis and avoiding other unnecessary purchases. Respondents stated that it was the women of the household who made the choices regarding saving and daily consumption, as well as buying other items, such as clothing for the family. For the Bajo of Tanjung Bunga, this dynamic is worth exploring. Fish caught in the areas surrounding the settlement are taken to the market on a daily basis and sold to villagers there, generally by the women of the settlement. If there are leftovers, they walk up and down the village until they sell them or barter them for other goods, such as rice. On market days, held three times a week, fish are sold, usually at greater quantities; then the women of the settlement purchase food, such as locally grown fruit and vegetables and other goods with the money from the sales. At the market, women in Lawele, supported by business loans from PNPM Mandiri, usually sell clothing, toys and cosmetics. All of the respondents in the settlement of Tanjung Bunga reported buying clothing on a much more frequent basis than other settlements, which ranged from monthly in the case of the people of Tanjung Bunga to yearly in the case of Lawunta.

Across most of the residents of Tanjung Bunga that I interviewed, types of goods that people purchased were consistent. The aspirations and decisions that individuals and households

⁴³ Interview 7 July 2013

⁴⁴ Interview 7 July 2013

made emerged from a mixture of what goods were available, what means people had to pay for them, and the preferences of individuals and households. At one level, the infrastructure in the settlement, with its limited electricity supply, lack of water supply and road access, restricted the range of choices available to people. These problems were further exacerbated by the location of the settlement and the particular needs associated with designing a 'floating' settlement. Restrictions on the harvesting of timber and rocks made finding a cheaper solution to improving the settlement more difficult. Finally, the markets and vendors for goods within reasonable distance of the settlement shaped the types of decisions that residents could make. In the context of these opportunity structures, people chose how they would use and allocate their income for purchases.

Although the need for housing is clear and an established human priority along with food and water (Maslow, 1943), the other items that households purchase require a more detailed discussion. Clearly, there is a need for *communication*, which is represented by the purchases of mobile phones, and a need for *entertainment*, including televisions and stereos. People would express their preference about which type of entertainment they preferred, such as music over television, but obtaining the means for entertainment was generally a priority. *Comfort*, in the form of sofas, was also desirable, but only after other goals were already met. Things such as a solid structure for a house or toilets were not priorities, but the materials, technology and supporting infrastructure for these improvements were not available. People instead made decisions to improve their lives within the context of the limitations of the settlement, aspirations that were seen as achievable according to their means.

Beyond investments in household goods, there are other expenditures for the residents of Tanjung Bunga related to education, health and ceremonies. Education is one of the few pathways out of marine-based livelihoods for the Bajo, although very few of the Bajo in the settlement of Tanjung Bunga, have made it into professions such as the civil service. The majority of people have completed at least some primary education (55%), with 41% of women likely to have no education at all (Table 3.5.). Few have education beyond primary school, and almost none have education beyond junior high school.

Table 4.5: Level of Education in the Settlement of Tanjung Bunga⁴⁵

	MEN PERCENTAGE	WOMEN PERCENTAGE	TOTAL PERCENTAGE
NO EDUCATION	17%	41%	28%
PRIMARY EDUCATION	61%	47%	55%
JUNIOR HIGH SCHOOL	13%	6%	10%
SENIOR HIGH SCHOOL	4%	0%	3%
TERTIARY EDUCATION	4%	6%	5%
	100%	100%	100%

As described earlier, there are many obstacles to a full education for people living in the settlement of Tanjung Bunga. Fahimah described how her son, aged 17, gave up schooling at the primary level to help her with the fishing after her husband left, whereas her son described the difficulty and lack of motivation for paddling the canoe to Lawele each day for school.⁴⁶ A few in the settlement have managed to overcome these obstacles. Gahiji and his family have been able to have their eldest daughter educated to the level of the second class of senior high school.⁴⁷ She stays with her family in Bau Bau, and her parents pay around IDR 100,000 (AUD 10) to IDR 200,000 (AUD 20) for tuition fees and other expenses. They chose to send her to Bau Bau, as they have family who live there; otherwise they would not have been able to send her to school. They have also supported their nephew through a technical education college. Although it is challenging enough for the Bajo to make it through junior high school, attending senior high school and further tertiary education requires a mixture of income, family networks and motivation on the parts of parents and students.

Few respondents mentioned having to go to the local clinic or hospital. For most illnesses or injuries, people responded that they would just treat it in the settlement with medicine they bought. One case was from 2000, when Erman was sick with an illness of the blood (*penyakit*

⁴⁵ The table is based on the results of the household surveys.

⁴⁶ Interview 7 July 2013

⁴⁷ Interview 7 July 2013

darah).⁴⁸ He went to the local clinic, where the medicine cost IDR 300,000 (AUD 30). In total, he was sick for a month, but he managed to work all the time that he was sick. Maamar, in contrast, was sick for five months in 2006 with a stomach problem.⁴⁹ He chose to treat with local medicine (*obat kampung*) given by the traditional healer, because he thought that it was not a problem for the hospital, but instead caused by black magic. All respondents said that they or their wives gave birth at home, often with a nurse from the local clinic (*puskesmas*) in attendance.

Why people choose not to go to the local clinic was hard to identify from the interviews. Many thought that illnesses were either not significant enough for the official medical services or, as in the case of Maamar, that the diseases were incurable at clinics or the hospital. Cost or distance was never directly mentioned as an influencing factor. From my personal observations, there was one case where a newborn child was sick with a high fever. The parents at first chose to wait to see whether the illness would pass. When after a few days, the illness did not pass, the local traditional healer was consulted, who used prayers and incantations to try to heal the child. Only after a week or so of the child being ill, word having spread through the village, led to staff from the clinic arriving and providing the child with medicine, curing the illness. Generally, there was an overwhelming reluctance to access the services provided by the clinic, or more distant hospitals.

The Bajo in Tanjung Bunga generally do not, or are not expected to organise large celebrations for important life events such as *akika*, *sunat*, weddings or funerals. As Iftiqar said, for their weddings generally relatives collectively shared the responsibility for paying, so that no one individual had to pay too much.⁵⁰ Only Gahiji's household reported having to organise and pay for a wedding, but that was for their nephew, who lives in Ereke.⁵¹ The total cost of the ceremony that they had to pay was 10 million, which they saved over a period of two months using their own money and money donated by their relatives. For the moment, celebrations are not a major financial burden or expectation for the households of the Tanjung Bunga settlement. Ceremonies, like clothing, reflect the social pressures people face and their attempts to address those social pressures. And, like clothing, it appears that residents in Tanjung Bunga have few pressures on them to hold elaborate and expensive ceremonies, with

⁴⁸ Interview 7 July 2013

⁴⁹ Interview 7 July 2013

⁵⁰ Interview 7 July 2013

⁵¹ Interview 7 July 2013

the exception of people who marry outside of the settlement and then need to meet the expectations of other social groups.

4.8. Discussion

The settlement of Tanjung Bunga is an interesting case study of the behaviour of rural Indonesian households that depend on marine and coastal resources. Although the concept of a multifunctional landscape typically applies to farming and forested landscapes (Dewi et al., 2013; O'Farrell and Anderson, 2010; Pfund et al., 2011), the concept can be applied in this case to analyse the coastal area and seascape. Their livelihood and cultural preferences, as well as their actual rights to resources, defined the spatial extent of the territory of the Bajo in Tanjung Bunga. The informal terrestrial boundary of the settlement was the edge of the mangrove forests. This boundary had evolved out of historical processes in which the Bajo, as late arrivals to the settlement, had limited access to land for farming. Although a few households owned or had owned some farming land, none farmed on a regular basis. The cultural identity of being Bajo was heavily connected to the sea and the practices of fishing and mariculture (Clifton and Majors, 2012). Outsiders who married Bajo fishers also adopted these livelihoods for both cultural and practical reasons such as distance to arable land. The boundaries of their territory, then, reflected the scope of their regular livelihood activities. This covered the area from the mangrove forests to the deeper waters at the edge of the bay. And despite some fishing in more distant waters, the territory of the Bajo in Tanjung Bunga had defined boundaries.

The territory of the Bajo is both defined by the natural environment and by the socially mediated processes that allow them to benefit from those resources (Ribot and Peluso, 2003; Schlager and Ostrom, 1992). The residents of Tanjung Bunga had few, if any formal property rights, either to their settlement or to their resources. There were also few restrictions on the use of resources and limited competition with external users. The most stringent restrictions with enforceable sanctions related to the use of the mangrove forests, in particular restrictions on harvesting timber. Other restrictions on natural resource uses for the Bajo included harvesting coral rocks and uses of destructive gear for fishing. The residents there did not mention the need for any licenses or obtaining permits for the type of fishing in which they were engaged. There were also no community institutions for regulating the use of resources. The fishers in Tanjung Bunga, consequently, largely made decisions as individual households

for their livelihoods and use of natural resources. Processes of sharing catches and sharing the use of boats, however, mediated the chance of excessive benefits accruing in one household. Markets and technology shaped what resources were valued and how fishers were able to benefit from those resources (Ribot and Peluso, 2003). The biological diversity of the mangrove forests, coral reefs and deeper waters enabled fishers to select from a wide range of resources to consume and sell. Each set of resources, in turn, involved different institutional arrangements. Resources that could be sold in markets that are more distant or could be exported were generally more valuable than products sold locally. Conversely, these same resources often required access to more sophisticated technology, such as boats and refrigeration, and involved credit arrangements between fishers and buyers. Higher value products often came with higher personal and financial risk, although not always. Market institutions, such as the relationship between producers and buyers, had mechanisms for overcoming financial risk, such as providing loans, and for larger boats, owners would also provide for health expenses. The local market, in contrast, was built on a more complex set of exchanges, which involved cash sales and barter for other produce. The role of women was also stronger in the local market, where they both sold products and made household purchases.

Access to markets for materials, technical expertise, motors and fishing equipment also shaped what species people could catch and how much they could catch. The restrictions on harvesting timber from the mangrove forests and other forest near to the settlement increased the price of boats and made people reliant on specialised boat builders. Fishing equipment, including motors, was generally purchased in Bau Bau. Although fishers were generally content with the range and quality of motors sold there, they were less enthusiastic about the range, quality and price of fishing equipment that was available. They unfavourably compared the equipment that was available with that which was available in other towns. The equipment for seaweed cultivation, including the cultivars, was purchased from Ereke, in North Buton. Finally, access to infrastructure, or lack thereof, shapes the decisions of the Bajo in Tanjung Bunga. The lack of road access had multiple effects, ranging from increased distance to markets to the dependency on transportation by boat. The lack of road access, in turn, affected access to other infrastructure, such as grid electricity and piped water. It also made refrigeration and producing ice difficult, which were necessary for transporting catches to distant markets.

The multifunctional coastal landscape, in this context, functions as the decision-making environment for the residents of Tanjung Bunga. Decisions about livelihoods (Ellis, 2000a, 2000b, 1998) are framed by the natural environment, including biological diversity and seasonal influences, which are mediated by social process, such as markets, infrastructure and governance (Ostrom, 2005; Ribot and Peluso, 2003; Schlager and Ostrom, 1992). The Bajo identity, linked to the sea and fishing, means that people generally restrict their livelihood choices to those related to fishing, mariculture or other activities in the coastal area (Clifton and Majors, 2012; Stacey, 2007). Changes in natural systems, such as seasons or fluctuations in fish stocks, or changes in social systems, such as market fluctuations or changes in infrastructure, affect livelihood decisions and strategies. The multifunctional coastal landscape is not a closed system: people can move in or leave, temporarily or seasonally. It shapes, however, the choices rural households make about their livelihoods.

The concept of a multifunctional, coastal landscape with fixed variables influencing livelihood choices and strategies does not fully explain the dynamism in the settlement. Change was also driven through the choices of rural households in the settlement, in particular as they learned and adopted new livelihoods or improved existing livelihoods. Driving these processes of change was social learning, in particular, processes of imitation (Bandura, 1977; Boyd and Richerson, 2005). Fishers in Tanjung Bunga generally did not receive any extension support or formal education regarding fisheries, mariculture or rural livelihoods in general. All livelihoods were learned without formal education, which occurred both within the settlement but also outside of the settlement. People learned about fishing and other marine livelihoods from their elders, peers and friends as they grew up. Through travel to other towns, especially other Bajo settlements, they also learned about improved techniques and technologies, as well as alternative livelihoods that could be suitable for their settlement, such as seaweed cultivation.

In this context, a pattern of household livelihood strategies emerged that focused on improving the capacity of boats and adjusting to seasonal changes. A simple decision-making rule was common across all the households, which stated that bigger boats meant better income. This decision-making rule emerged out of the specific context of the territory of the Bajo in Tanjung Bunga: with no road access and limited infrastructure for refrigeration, larger motorised boats provided the means for improved transport and access to higher value markets. A further complicating factor was the lack of known or feasible alternative livelihoods for the fishers there. The vulnerability of fishers in Tanjung Bunga is common among small-scale fishing households across the world and similarly affects the livelihood strategies of fishing households (Allison and Horemans, 2006). This decision-making rule came with

caveats: during the eastern monsoon, when the winds are strong and waves are too rough, people can return to fish in the waters surrounding the settlement. Fishing in these waters during the Eastern Monsoon also means higher prices for the fish that they catch.

Improving fishing capacity can either be achieved through individual or political means. Most fishers developed strategies to improve their fishing capacity incrementally over their life. The first stages of fishing would involve sharing catches with the owner of a boat, either a friend or relative, and then progressing through the stages of ownership. Ownership of a boat, followed by then improving the quality and size of that boat, is a goal among other competing household goals. That is, households have to make trade-offs to improve their fishing capacity against other goals that improve their quality of life. These strategies for improving fishing capacity are supported by markets for motors and parts, as well as boat builders who are able to procure the timber required for the boats. Alternatively, people in the settlement used political strategies to try to get improved boats and motors. After hearing that fishers in a neighbouring village were provided with motorised boats, the residents of Tanjung Bunga felt that they should receive boats too. With the support of the village head, they began petitioning the local government and fisheries agency to provide them with boats. The strategy has also been proven successful for a wide range of households.

The underlying proposition of the thesis, building on the work of Chayanov among others, is that these livelihood strategies should be tailored to meet household goals including subsistence (Chayanov, 1986; Durrenberger and Tannenbaum, 1992; Tannenbaum, 1984). The second proposition is that there should be threshold where households have enough, and do not need to work more. Testing these propositions requires examining what subsistence means in the settlement, as well as examining the range of goals that constitute a community living standard. The specialisation of the Bajo in fishing and marine livelihoods means that they need to buy or barter for other goods for their daily consumption, such as rice and vegetables. To fulfil these basic subsistence needs, fishers will need to sell and exchange fish at the market on a regular basis, often more than just the three times a week when the market is held. Fishers will need to catch fish on a daily basis to ensure their household has enough to consume beyond fish. These fish are mostly caught in the reefs and waters surrounding the settlement. In addition, the residents of Tanjung Bunga need to travel to the marketplace in Lawele to collect fresh drinking water. Money which is in excess of what is needed for subsistence is usually spent on other consumables and clothing.

Beyond subsistence, the positive or desirable household goals associated with the community living standard are both enabled and constrained by opportunity structures (Fischer, 2014; Kruglanski et al., 2002; Tannenbaum, 1984). In this case, infrastructure, markets for consumer goods and government services shaped what was possible and not possible in the settlement. That is, these structures imposed a threshold on what was achievable through individual household effort. These structures included the inaccessibility of the settlement, in terms of roads, water and electricity, coupled with the difficulties of constructing and maintaining a settlement on tidal mudflats. Generally, after houses were constructed, there was only a narrow range of goods that were possible and useful: such as a television, mobile phone, DVD player, and possibly a stereo system or sofa. The lack of reliable electricity was only one complicating factor; others included the effects of living on water and the lack of suitable materials for houses, meaning that houses required constant repairs. Households, in this context, accumulated enough of the things that could make their lives comfortable considering these constraints.

The inaccessibility of the settlement also affected how people used government-provided services such as education and health. The distance to schools and the clinic deterred people from using the full potential of these services. Another compounding factor was the quality of the services provided by the schools and clinics. Government education in Indonesia, beyond providing basic numeracy and literacy, offers little education that is directly relevant to the lives of fishing communities. The benefits of higher levels of education only come after senior high school and tertiary education, when young people can either find salaried urban employment or enter the civil service. The investments required by households in Tanjung Bunga to educate their children to higher levels are significant and often require the support of relatives in larger towns or urban centres. This is in addition to the motivation of the child to study. Similar problems affect the local clinic, where the staff are poorly trained with limited equipment and medicine, and no doctor was in residence. This was coupled by the unwillingness of the staff to travel to Tanjung Bunga to administer treatments. In that context, consulting the clinic was seen as the last resort, only after consulting with the local mystical healer first.

Finally, the other group of household goals are the obligatory, expected or ought goals (Higgins, 1987). These are the things that people are expected to do or otherwise they will lose status or experience shame, such as ceremonies or clothing. In the settlement, however, there were almost no reported expenses for ceremonies or other rituals, with the exception of those who had family members marrying outside the settlement. Clothing, in turn, was

purchased from the local market and, generally, when fishers had a surplus of income from selling their fish at the market. For the residents of Tanjung Bunga, there were few expectations for the types of lives that they should lead, including the ceremonies they were required to host or the clothes they wore. There are several potential reasons for this. First, across the community, there is a generally equal, basic living standard. Second, the community in general already felt marginalised from other settlements, and described themselves as the poorest of the Bajo communities. This may have led to them not feeling the need to meet the living standards of other communities, in particular related to clothing and ceremonial expenses.

4.9. Conclusion

The community living standards of the Bajo fishers are constrained, on the one hand, by the isolation and inaccessibility of their settlement and, on the other, by the lack of viable alternative livelihoods. Within these constraints, however, they sequentially pursue a range of goals relating to different aspects of their lives and livelihoods. Each of these goals co-exists with their daily struggles for subsistence, which itself involves exchanges with the farmers and vendors at the marketplace in Lawele. Isolation and inaccessibility also shield people from expectations of higher living standards, such as the clothes they wear or the ceremonies they are expected to host. Finally, isolation and inaccessibility, coupled with seasonal and climatic influences, constrain fishers from overexploiting fisheries and coastal resources. If the accessibility of the settlement is improved, changes to the lives, livelihoods and natural environment of the Bajo could be expected.

Chapter 5 : A Land of Trees and Honey

5.1. Introduction

Displacement, driven by government policies and then civil unrest, has shaped the lives of the Kalende of Lawunta. Despite a history of forced migration, the Kalende too have begun to pursue household goals and livelihood strategies similar to those of the farmers of Lawele. In this chapter, I discuss how displacement and the occupation of their historical lands, located in Indonesian forest estate, have shaped their livelihood choices. I discuss how the quasi-official recognition of the settlement has led to a shift in livelihood strategies, which has meant a transition from collective strategies to more individualised livelihood strategies. I then discuss the implications of the transition to a more stable settlement in terms of household goals and community living standards. These changes reflect the shift in priorities from a focus on survival to the acquisition of household assets and improving the well-being of family members.

5.2. A brief history of the Kalende of Lawunta

A small road, wide enough for a single truck, passes through the irrigated rice fields of Lawele, and into the hills behind the village. On one side of the road, a steep escarpment leads into the dense forests of the Lambusango conservation area. As the road meanders east, heading higher up into the hills, the forests are replaced by stands of agroforests, along with swidden fields of corn and cassava. Six kilometres from the main village is the settlement of Lawunta, or also known as 'Wabou'. Most of the houses in the settlement follow the single road through the settlement, with some newer houses built in the area closer to the village. The houses all share a uniform design: elevated, timber houses with tin or thatched roofs. Alongside many of the houses are small gardens, used for growing vegetables and fruit, which back on to agroforests of cacao. Those agroforests gradually turn into the dense forests where the farmers of Lawunta collect wild honey and occasionally rattan. Lawunta is very much a remote and forest-dependent settlement.

The elders of the settlement of Lawunta remember that before they were forced down from the hills, there were three settlements in the hills and mountains behind Lawele: Lawunta,

Rompo and Singku. Beginning with the *gerombolan* of Kahar Muzakkar, armed groups attacked people living in the hills. The upland people sought refuge in Lawele where Brimob, the mobile brigade of the army, was garrisoned, around the year 1957. Following the events of 1965, an effort was made by the sub-district head of the time to relocate most of the upland people to lowland areas. Many who were forced to relocate chose instead to leave for Maluku. As one of the village elders in Lawele described it:

*'Around the time of 1969, all the houses in the mountains were destroyed. It was the government that destroyed them. After that, the people were forced down into the village and the Kalende settlement was set up near the mess over there. You could not live in the mountains again. So, those who did not want to live in the village fled to Pasarwajo and there were those that fled to Ambon. As a consequence, those people were spread everywhere.'*⁵²

The ethnic violence in Maluku, beginning in January 1999 and continuing until 2002, resulted in the deaths of around 5000 people and the displacement of 700,000 people. The impact upon Buton was significant: up to 160,000 people, ethnically classified as Butonese, fled to Buton, intermingling with some refugees from East Timor (Palmer, 2004). Some of these Butonese had been in Maluku up to seven generations. These refugees, landless and without occupations, returned to their historic villages in search of distant relatives and potential work.

Many Kalende returned to Lawele during this period. A charismatic local leader mobilised and organised the Kalende, both the refugees and those who remained in Kawuna-wuna, to reclaim their lands. He framed the incursions in terms of indigenous land rights. In 2001, they appealed to the district regent of the time for permission to reclaim the forests, who granted them informal approval to clear the lands in areas classified as production and limited production forests. In 2002, they began the process of clearing the lands for agriculture. As one of the elders in Lawunta described it:

'We worked together, all of us, we worked together, after we burnt it, then we would divide the land among us. We wanted to return to the village we came from, because we were all Kalende people. We would gather at the government housing estate (pemukiman) and then we would go up. In the morning, we would go up, in the evening

⁵² Interview village elder Lawele 23 November 2012

*come down again, then again, morning go up, evening come down. Each time, hundreds of people'*⁵³

The people came from many places to join in the reoccupation. Paiman, for instance, fled Taliabo in Maluku in 1999, and joined the initial clearing of the settlement in 2002.⁵⁴ Sabran, in contrast, was from the housing estate in Lawele,⁵⁵ along with Rusdi, who was originally from Raha in Muna, but married a Kalende woman,⁵⁶ and Qahir.⁵⁷ Others such as Baharuddin took a more circuitous route, initially moving to Wakal in Ambon, then moving back to Buton in 1995, staying in the village of Wagari, which now borders the village of Benteng.⁵⁸ All, however, claimed to be part of the Kalende ethnic group and sharing the language of the Kalende.

The clearing of the forests received attention from officials from the Department of Forestry. Due to verbal support from the district regent (*bupati*), the Kalende were able to navigate their way through these tensions. They were unable, however, to obtain official land rights for their settlement. The district regent eventually provided the Kalende with some basic services and the construction of a primary school. The Ministry of Forestry later provided people in the settlement with teak seedlings as part of a reforestation programme. The expansion of the settlement led to some clearing of forests in the Lambusango conservation area. The government and representatives from non-government organisations held consultations with the people of Lawunta that led to the clarification of the boundaries of the conservation area. This, in turn, led to a tacit understanding that the boundary of the conservation area was more important than that of the production or limited production forests. The government later enhanced the road that the Kalende had built with a concrete bridge over one of the rivers. In late 2012, the government surveyed the settlement again after converting some forestland to the status of Land for Other Uses (*Areal Penggunaan Lain*). A stone boundary marker (*patok*) was placed near the middle of the settlement. Consequently, half of the settlement was made official, while the other half, along with much of their farmland, remained legally ambiguous.

⁵³ Interview village elder 22 October 2012

⁵⁴ Interview 12 June 2013

⁵⁵ Interview 12 June 2013

⁵⁶ Interview 14 June 2013

⁵⁷ Interview 12 June 2013

⁵⁸ Interview 13 June 2013

5.3. The natural environment surrounding Lawunta

The hilly, forested terrain where the settlement of Lawunta is located is about six kilometres by road from the main village of Lawele. Lawunta is administratively part of the village of Lawele, which means the head of the settlement has an official position (*kepala kampung*). The farming lands and agroforests of the people of Lawunta broadly fall into lands classified as land for other uses, limited production forest and production forest. Since reclaiming the land in 2002, the Kalende of Lawunta have been generally careful to observe the boundaries of the Lambusango Conservation area, avoiding both land conversion and logging in the area. The collection of non-timber forest products, however, is more extensive, and wild honey collectors can travel most of the interior of the island in pursuit of honey. The forests surrounding Lawunta are generally lowland, tropical forests that are rich in endemic fauna such as the anoa (*Bubalus spp.*). Most of the forests, and indeed most of Lawunta, falls within the area described as the Lambusango Forests. Many forest species are important to the Kalende, who also rely on a variety of crop and tree species for their livelihoods.

5.4. People and government of Lawunta

The majority of people interviewed identified themselves as either Kalende or married to someone of Kalende ethnicity. The Kalende identify their historical homes as the upland areas of the northern part of central Buton Island, and use the Kalende language. During their time in Maluku, many of the Kalende retained their language, although they adapted their livelihoods to suit the opportunities available to them. Upon re-entering Lawunta, they worked collectively, with many who had stayed on in Buton sharing their experiences and knowledge with the more recently returned. They also re-learnt many of the old practices through the same people who had remained in Buton, especially through a local leader. These practices include rituals associated with each phase of the farming, mainly swidden, cycle. A group of elders were responsible for allocating lands based on needs of the household, the land available and ensuring the boundaries of the conservation area were respected.

5.5. Livelihoods, mechanisms of access and decision making of the Kalende in Lawunta

The livelihoods of the Kalende of Lawunta emerged out of their claims to, and occupation of, the upland area of the landscape. The periods of displacement and eventual reoccupation of their lands influenced the livelihood choices of the Kalende. After fleeing Maluku, they returned to Buton largely without assets. They had to start farming again with no technical support, capital and many without prior experience in farming. The early stages of the reoccupation were characterised by collective labour and swidden farming. Collective labour was necessary for clearing the forest areas, constructing the new settlement and establishing their claims to the land. After the first few years in the settlement, strategies began to change as people established claims to land, adapted to the environment and its challenges, and pursued more individualistic strategies. Table 5.1. lists how different mechanisms of access (Ribot and Peluso, 2003) regulate how people are able to benefit from the resources in the area of Lawunta, in particular the land and forests. In this section, I explore what resource uses and livelihoods people chose, and why.

The Kalende of Lawunta rely on a mix of farming and collecting forest products for their livelihoods (Table 5.2.). Out of the households surveyed, 50% rely on irrigated rice for some consumption or income. Half of those households owned their own plots of irrigated rice fields with an average size of 0.4 hectares (Table 5.3.). The other half sharecropped irrigated rice fields with an average size of 0.5 hectares. Out of the households surveyed, only 9% derived some income or produce for consumption from swidden fields. Around 91% of households who own forest garden land and 50% of those households derive some income from agroforests. A further 63% of households rely on forest products, mainly wild honey and occasionally rattan (*calameae spp.*), for income. Only a smaller percentage of households rely on wage labour (16%), business (9%) or other income, such as remittances or pension payments (9%).

Table 5.1: Access and livelihoods in Lawunta⁵⁹

LIVELIHOOD	ACCESS DETERMINANTS	SPATIAL DETERMINANTS	TEMPORAL DETERMINANTS	MARKETS
IRRIGATED RICE FARMING – OWNER	Land ownership, usually via inheritance. Access to tractors via farmer groups. Ability to pay for labour if insufficient resources within the household. Access to seedlings via social connections. Ability to pay for fertiliser and pesticide.	Owning land close to existing or planned government irrigation schemes.	Activities are regulated through an official schedule.	Local markets for daily consumption and ceremonies.
IRRIGATED RICE FARMING - SHARECROPPING	Social connection with landowner who does not have sufficient labour to cultivate plot.	Must live close enough to cultivate plot on a daily basis.	Activities are regulated through an official schedule.	<i>Not relevant as most food for consumption.</i>
SWIDDEN AGRICULTURE	Access to land, via clearing supported by customary institutions. Access to seeds and seedlings via social connections. Access to sufficient labour to clear and cultivate fields as well as protect crops from pests.	Must live close enough to cultivate plot on a daily basis.	Activities are regulated through the different seasonal cycles of crops.	Vegetables sold at local market, most other produce for subsistence.
WILD HONEY COLLECTION	Access to flowering trees in government land. Small group labour with limited technology.	Accessible areas with large tracts of forests.	Activities are regulated through the flowering seasons of three tree species.	Local market, trader or regional town.
RATTAN	Access to traders or companies who have licenses to harvest rattan. Legal access to forests where rattan is present.	Walking access to forests where rattan is present.	Activities are regulated by the issuance of licenses.	Traders.
AGROFORESTRY	Access to land, via inheritance, through customary institutions or purchase. Access to seedlings via social connections. Access to sufficient labour to clear and cultivate fields.	Walking or motorcycle access to forests.	Dependent on the seasons of the trees and frequency of harvests.	Local market, trader or regional town.

⁵⁹ The table is based on the results of focus group discussions at the settlement level as well as household livelihood interviews.

Table 5.2: Average income per livelihood activity in Lawunta⁶⁰

	AVERAGE TOTAL ANNUAL INCOME (IDR)	AVERAGE TOTAL ANNUAL INCOME (AUD)	NUMBER OF HOUSEHOLDS	% OF HOUSEHOLDS WITH INCOME FROM THIS ACTIVITY
FOREST GARDENS AND AGROFORESTS	1,079,375	107	16	50%
IRRIGATED RICE	5,425,000	537	16	50%
SWIDDEN	5,200,000	515	3	9%
NET AGRICULTURAL INCOME	4,231,880	419	25	78%
FOREST	7,921,950	784	20	63%
BUSINESS	2,216,667	219	3	9%
WAGE	1,880,000	186	5	16%
OTHER	2,500,000	248	3	9%
TOTAL AVERAGE ANNUAL INCOME	8,993,313	891		

Table 5.3: Average land ownership Lawunta⁶¹

	OWNED LAND - IRRIGATED RICE	SHARECROPPING - IRRIGATED RICE	FOREST GARDENS AND AGROFORESTS
Average (HA)	0.4	0.5	2.15
Count of households surveyed	8	8	29
Percentage of households owning one or more	25%	25%	91%
Minimum (HA)	0	0	0
Maximum (HA)	0.75	0.8	5.5

⁶⁰ The table is based on the results of the household surveys.

⁶¹ The table is based on the results of the household surveys.

At the time of their reoccupation of the lands in Lawunta, most households engaged in swidden or shifting cultivation. Although shifting cultivation was of central importance to livelihoods when the Kalende reclaimed their lands, only 9% of households were still swidden farming at the time of the research. In Lawunta, swidden agriculture (*ladang*) takes place by clearing secondary forests or regrowth, burning the fields and then planting crops there in line with seasonal rains (Table 5.4.). Two main food staple crops are grown in Lawunta using swidden cultivation: rice (*oryza sativa*) and corn (*zea mays*). Corn has two cycles per year, whereas rice only has one. Cassava (*manihot esculenta*) is often cultivated alongside the two main crops throughout the year as it is not seasonal. Up until this point, the farmers have not engaged in rotations of their fields, and during interviews, did not express a need for leaving their fields fallow. Alongside the staple crops, people grow a variety of vegetables, which are sold at the local market. Swidden cycles, in contrast to irrigated rice cultivation, are also accompanied by traditional rituals, often led by the local spiritual leader (*parabela*).

Table 5.4: Swidden cycles*⁶²

CROP	MONTH											
	1	2	3	4	5	6	7	8	9	10	11	12
RICE					HARVEST			CLEAR FIELDS			PLANT	
CORN		HARVEST	CLEAR FIELDS		PLANT			HARVEST	CLEAR FIELDS		PLANT	
CASSAVA	CULTIVATED ALL YEAR LONG											

* Periods in between planting and harvesting are spent weeding and protecting the fields from pests.

Although many in the past engaged in swidden cultivation, few remain now who still rely on swidden crops. Nabil heads one family that does. Nabil lives along the road to Lawunta, along with his children, some of whom have families of their own.⁶³ The houses, built of timber with thatched roofs, are clustered inside a fenced, half-hectare, swidden field. Nabil, who is around sixty years old, is originally from Lawele and of Kalende ethnicity and his wife is Kalende too. When he was young, he migrated to Ambon, before returning to Buton after the violence there. He spent ten years in Wagari, the village bordering Benteng, and then moved to Lawunta to find land. He had owned land in Lawunta since 2005, when he planted teak (*tectona grandis*) trees provided by the government. Compared with others in the village, he

⁶² The table is based on the results of the focus group discussions at the settlement level.

⁶³ Interview 13 June 2013

and his family only recently cleared their fields in 2012. He chose the location, as it was close to the settlement of Lawunta, and, there were no other lands remaining. He and his family cultivate upland rice, maize and cassava in their fields. In the areas bordering these crops, they also grow bananas (*musa spp.*) and spinach (*amaranthus spp.*). They use the yield from the crops for subsistence; if they have extra, they will sell it for cash income. The problem with swidden cultivation is the pests: rats, wild pigs and monkeys (*macaca ochreata brunnescens*). If his crop fails due to pests, he plants again, hoping it will grow again, according to the will of God ('*sesuai dengan atur tuhan*').⁶⁴

Omar, aged 35, is another who still practices swidden cultivation.⁶⁵ At the time of the interview, he had planted maize, after which he would plant rice on half a hectare of land, which he cleared in 2012. He also complained about pests and the difficulty of fencing, working the fields with his parents. He uses no fertiliser or pesticides when he is farming there. Paiman, aged 58, has half a hectare of land that he uses for swidden cultivation of upland rice and maize.⁶⁶ He too cleared his land, located in the area known as Wansaradi, in 2012, in conjunction with a group, and with the approval of the elders of Lawunta. The yield from the fields he uses for food, and sells a portion when he can, but the problem for him is crop raiding by wild pigs. He would like more land; however, he cannot manage it himself and would need to hire others to help him cultivate the fields. Most people stated the same problem: swidden cultivation requires constant attention to protect it from pests, and most households have difficulty managing it alone, without the support of cooperative labour.

Many of the farmers who formerly cultivated upland rice and corn moved into irrigated rice farming as an alternative (see chapter 6 for a more detailed description of irrigated rice farming in Lawele). Half of those who were engaging in irrigated rice farming owned their plots, whereas the others had sharecropping arrangements. After five years of swidden cultivation, Qahir decided to try irrigated rice farming in Lawele.⁶⁷ As he said: 'I have already tried swidden, I wanted to try irrigated rice farming (*sudah coba ladang, mau coba sawah*)'. He borrowed 0.6 hectares of land from a person in Lawele, who also provided the fertiliser and pesticide. In the fields, he grows two varieties of rice, a white rice for consumption and red glutinous rice (*Oryza sativa var. glutinosa*), which he sells. Swidden, he said, has greater yields, because with irrigated rice you can only plant one crop, but with swidden fields you can

⁶⁴ Interview 10 July 2013

⁶⁵ Interview 13 June 2013

⁶⁶ Interview 12 June 2013

⁶⁷ Interview 12 June 2013

plant many. Also, he does not have to share the harvest with the landowner, as in the case of irrigated rice farming. Sharing the harvest with the owner does not provide enough for his family. If he had the money, he would buy irrigated rice fields, but as he does not, he was planning to return to swidden cultivation at the time of the interview.

At the time of the interview, Rusdi, aged 47, had been sharecropping 0.4 hectares of land in the irrigated rice fields of Lawele.⁶⁸ He is responsible for paying for the fertiliser and pesticide, and the harvest is only enough for household consumption. Together with his wife and children, he works the field. If he had the money and there was someone willing to sell, he would purchase some irrigated rice fields. In addition, if there were land available, he would start swidden cultivation again. As he cannot do either, he will just continue to sharecrop irrigated rice fields. Sabran aged 26, farms 0.3 hectares of land in Lawele that his parents own, cultivating the fields in conjunction with them.⁶⁹ The yield is enough for consumption only, and he grows two varieties of rice. He complained of many pests that affect the harvests such as wild pigs and rats. If he had the money, he would like to buy more land, as the current harvest is not enough.

Similar to other farmers in Lawele, the farmers of Lawunta have been exposed to the flooding of the irrigated rice fields in Lawele. Tabari, for instance, lost around six sacks worth of rice because of the flooding of June 2013.⁷⁰ For him, the impact was not too severe, as there was enough for his household consumption, and his cash income comes from collecting wild honey. Qahir too was exposed to the same flood; however, for him the impact was far more severe, meaning that he would not have enough rice for his family's needs.⁷¹ Later, he will have to buy rice to compensate for the loss; the money will have to come from collecting wild honey and rattan, if there is a buyer.

Land that was initially used for swidden farming was gradually replaced with agroforests and small-scale timber plantations, with teak seedlings provided by the government. With limited access to resources, farmers in Lawunta planted what was easily available. Most farmers planted cacao (*theobroma cacao*), which was the dominant tree crop in Lawele. Farmers in Lawele, like many throughout Sulawesi, had planted cacao trees as part of the cocoa boom of the 1980s and 1990s (Neilson, 2007). During this period, Indonesia became the third largest

⁶⁸ Interview 14 June 2013

⁶⁹ Interview 12 June 2013

⁷⁰ Interview 10 July 2013

⁷¹ Interview 10 July 2013

producer of cocoa in the world. Production declined significantly in the 2000s, mainly due to infestations of the cocoa pod borer (*conopomorpha cramerella*). The infestations led to declines in the yields and quality of beans, leading to declining prices for beans. Farmers in Lawunta began planting cacao at the same time many other farmers in Sulawesi were losing interest in cacao. Other tree species, such as cashew trees (*anacardium occidentale*), gained increasing importance for farmers in Buton. Coconut trees (*cocos nucifera*) remain a stable, but low value source of income for these farmers.

In Lawunta, respondents described how the cycles of the agroforests are contingent on the species, with many, such as coconut, fruiting all year long (Table 5.5.). Some species such as cacao have a period when the tree fruits more than others, in this case around April. Cashew trees, in contrast, have only one harvest per year, occurring in the latter months of the year, in between October and December. In the intervening months, the trees are left untended, until the trees show signs of flowering, when fertiliser is applied and then the area is weeded. For reasons unknown in the settlements, cashew has not been productive in the village, with irregular harvests. Coffee (*coffea canephora*), which is grown among the cacao and other agroforests along with secondary forests, is for the most part left untended at present. It too fruits all year long with a peak season around February. Other fruit trees are cultivated less intensively, often in gardens closer to houses, and are eaten or sold at the local market during their fruiting season. Along with these trees, timber species such as teak are also grown.

Table 5.5: Agroforestry cycles⁷²

SPECIES	MONTH											
	1	2	3	4	5	6	7	8	9	10	11	12
CASHEW							APPLY FERTILISER	WEED		HARVEST		
CACAO				PEAK								

The first choices of tree species were mainly opportunistic, but after a while, households began trialling different species. For instance, Omar, planted his first agroforests in 2003 in two places: Matano Beka and Loko.⁷³ At Matano Beka, he planted the two hectares with cacao and coconut, whereas at Loko, he planted the half hectare with cacao, later also planting nutmeg (*myristica fragrans*) there. Later, he cleared two more plots for agroforests: three

⁷² The table is based on the results of the focus group discussions at the settlement level.

⁷³ Interview 13 June 2013

hectares in Lankonwulu in 2005 for cashew trees, and another half-hectare in Wakalmelanta, for clove (*syzygium aromaticum*) and cacao trees. He also uses the last plot for cultivating upland rice and corn. He borrowed the cacao and coconut seedlings from farmers in Lawele, whereas for the clove and nutmeg, he travelled to Taliabo, in Maluku to buy them. The nutmeg and clove trees are not yet productive, and he will need to wait another five years before they start producing. He sells the produce of the cacao and coconut in Bau Bau, where he can get a higher price. If there were more land available, he would like to plant more agroforests.

Paiman planted his first stand of cacao trees in 2005, around half a hectare, in the area around the settlement.⁷⁴ He found the seedlings for the cacao trees in Lawele, choosing to plant them because they were able to survive crop raiding from pigs and monkeys, unlike coconut trees. Although the yields from cacao are small, they produce all year round, and he sells the fruit in Lawele. After this he planted 0.5 hectares of cashew trees in the same area in 2009, and in another location, Lankuwulu, he planted another hectare of cashew nut trees in 2010. He planted cashew trees because others around him had planted them, but as yet, he has not had a good harvest. All of the forest gardens were cleared as part of a group, but then managed individually. He would like to have more forest gardens if he could, so he can have a bigger harvest (*'supaya banyak hasil'*).

Qahir planted most of his agroforests in 2008, owning three hectares spread across three plots in Wakamelanta, Waulala and Lagilamando. In the first plot, he planted cacao, rambutan (*nephelium lappaceum*) along with one or two coconut trees. In the second, he has nutmeg and the third has cashew nut trees with the seedlings given to him by friends. He sells the harvest, but only gets a little amount, as there are many pests, especially monkeys and wild pigs. The authority to open the plots was given to him by the elders, and he cleared the land with friends and cultivates it by himself. He would like more land, as he has many children and the harvest from the agroforests is not enough for them all.

Sabran owns four plots of land, a total of 4.3 hectares, which he cleared from 2002 until 2009.⁷⁵ The first plot of land he cleared, in 2002 at Wambubu, has now been used to grow nutmeg. At Lagilamando, which he cleared in 2004, he has planted timber trees; near the school, he has planted 1.5 hectares of nutmeg. The land there he cleared in 2007, and at Wakamelanta he planted 0.8 hectares of nutmeg and clove trees in 2009. The last plot he bought from a local. He chose to plant clove and nutmeg, between the years of 2008 and

⁷⁴ Interview 12 June 2013

⁷⁵ Interview 12 June 2013

2013, because the harvest is valuable, but as yet the trees are not productive (*'hasil mahal tapi belum ada hasil'*). He predicted that in 2015, he will get his first, small harvest, and by 2020, the trees will be fully productive. The only problem with those trees is the pests. Like the others, he first cleared the land with the group, and then cultivated the land by himself. The later plots he cleared by himself. If the government gave him the permission, he would open more land for agroforests.

Rusdi owns three plots of land that were cleared in 2003 and 2004. In 2003, he cleared 0.4 hectares of land, where he planted cacao.⁷⁶ In 2004, he planted another 0.2 hectares of cacao and in 2004, he planted one hectare of cacao at Wa-ulala. On all these occasions, he accompanied the group of villagers, who were clearing land in these places. He bought the cacao seedlings in Lawele. He chose to plant cacao because he could not find other seedlings and there were too many pests to grow more productive tree crops such as coconut. The harvest is sold in Lawele because he does not have enough to transport it to Bau Bau. He would like to try other tree crops, such as clove and nutmeg, but the seedlings are only available in Maluku.

Decisions about land uses generally conformed to a common pattern. The early stages of clearing fields were characterised by collective labour and swidden cultivation of crops such as rice, corn and cassava. More recent arrivals to the settlement also conformed to this pattern. The challenges of maintaining swidden fields, the option of irrigated rice farming and easy access to cacao seedlings led most to convert their swidden fields to agroforests. Despite the low productivity of cacao and the limited returns from sharecropping, most households were unwilling to convert their agroforests into swidden fields again. This is despite praising the benefits of swidden farming that included low inputs, more diversified cropping systems and not being sharecroppers. Rather, after several years, farmers began to trial tree crops with which they were familiar in Maluku, in particular clove and nutmeg.

To understand how and why decisions were made about land uses, it is better to separate them into collective decisions and household decisions. Swidden cultivation, for most households, was organised through customary institutions and involved collective labour. Both of these factors were necessary for clearing the forestland and establishing land claims. Until farmers had a degree of certainty over their land, the need for customary institutional support was strong. Once there was space for establishing household claims over land, households were able to pursue their own strategies. Rather than looking at particular crops

⁷⁶ Interview 14 June 2013

or tree varieties that were adopted, the overall strategies that were adopted by the Kalende in Lawunta are similar to those of farmers in Lawele. These strategies involve parcels of not yet productive agroforests complemented with irrigated rice farming for the production of staple foods. What differed with their lowland neighbours is their access to irrigated farmland. Negotiating sharecropping arrangements with landowners in Lawele allowed them to access land for farming, but not match the profitability of landowning farmers. With limited sellers of irrigated farmland in Lawele, little access to credit, and few options for improving the productivity of agroforests, there were few clear pathways for improving the benefits from land. Consequently, diversification to other livelihoods became an appealing option for the Kalende of Lawunta.

5.6. Decisions to diversify

If the farmers in Lawunta want to diversify their livelihoods (Ellis, 2000b, 2000b), they have few options. Collecting forest resources, in particular collecting wild honey, and to a lesser extent collecting rattan, are the most profitable and accessible livelihoods. Within the settlement, small general kiosks provide some small additional income, but there are no other non-farming livelihoods available. Outside of these options, migration for rural or urban labour provides seasonal, short- or long-term employment. In this section, I will discuss how decisions are made about diversification, in particular how the collection of wild honey has come to dominate the livelihood strategies of people willing and able to accept the risks involved.

In the forests surrounding Lawunta and Lawele, there are three species of trees that produce wild honey, known by their local names of *kase*, *ampo* and *lea*. For all but three months of the year, the trees are flowering, attracting bees to establish hives (Table 5.6.). During these seasons, the younger men of both settlements will enter the forest in pairs or more to collect honey. Collecting wild honey involves climbing generally tall trees and trying to dislodge the hive. The work is considered dangerous and strenuous and generally only undertaken by healthy men. The pair will generally search for honey until they collect as much as they can carry – at times taking them to the forests on the southern part of the island. Wild honey has the highest value out of any product available in the area, with a 500 ml bottle of unprocessed honey selling for about IDR 50,000 (AUD 5). The collection of wild honey, generally, takes precedence over all other activities for men, with the exception of scheduled, major tasks related to irrigated rice farming such as ploughing, planting or harvesting.

Table 5.6: Honey seasons⁷⁷

SPECIES	MONTH											
	1	2	3	4	5	6	7	8	9	10	11	12
KASE												
AMPO												
LEA												

Nabil’s sons, both around thirty years old, are two wild honey collectors.⁷⁸ Like others in Lawunta, they can travel far in order to find wild honey, walking as far as Pasarwajo or Bau Bau, which can take up to three days. When they go into the forest, the women of the household look after the farming and agroforests. All of the honey that they collect is sold, and they generally work as a pair or within a group. Paiman’s son Saharudin, aged 23 also collects wild honey, from a place close to Pasarwajo.⁷⁹ He collects wild honey in addition to his work carrying timber in Wonco. He can take up to a week while he is collecting wild honey, depending on how quickly he finds it and works in a group of friends. He sells the honey to a buyer that comes to the village, or otherwise takes it to Lawele to sell.

Omar, aged 35 also collects wild honey, along with Amuni, aged 21.⁸⁰ They can travel as far as Pasarwajo, taking up to one week in the process and working with friends. They divide their time by spending one week away during the honey season, followed by a week at home, looking after their forest gardens. The honey they collect is sold directly, either in Lawele or in Bau Bau, where they can get a higher price. They will only sell the honey in Bau Bau if they already have a buyer. Qahir, aged 35, in contrast, does not travel far to collect wild honey, and only looks in the area surrounding the settlement named Walemba.⁸¹ The maximum length of time he will spend looking for honey is four nights, although sometimes only one night. He said that for wild honey the yield is good but is related to the season (*‘hasil bagus tapi tertentu musim’*). He generally works with two friends and sells the honey in Lawele. Sabran, aged 26, also likes to collect wild honey.⁸² The furthest he travels is to the area known as Wariti, near to Pasarwajo, if he cannot find honey closer by, and at most, will spend four nights looking for honey. If he is looking for honey close by, he will work by himself, although

⁷⁷ The table is based on the results of the focus group discussions at the settlement level.

⁷⁸ Interview 13 June 2013

⁷⁹ Interview 12 June 2013

⁸⁰ Interview 13 June 2013

⁸¹ Interview 12 June 2013

⁸² Interview 12 June 2013

if he is looking for honey further away, he will work in a group. He sells the honey in Lawele or occasionally in Bau Bau.

Prices for honey can fluctuate from IDR 20,000 (AUD 2) up until IDR 70,000 (AUD 7). People employ various strategies to cope with these changes in prices. Tabari, for instance, if the price of honey drops, will wait until it increases again before he sells.⁸³ Qahir, will only sell if the price of honey is IDR 50,000 (AUD 5) or above; if it is below that, he will wait until it increases again. Ubaid as well will also wait if the price drops too low.⁸⁴ Farmers, however, have limited alternative sources of income, so if they are in need of quick cash they will sell at low prices or to a trader in the village.

Beyond collecting wild honey, there are few other livelihood options available in the settlement of Lawunta. People, such as Qahir, can supplement their income through working as a labourer in the irrigated rice fields of Lawele or being paid to help others in their fields.⁸⁵ Others have opened small general stores in front of their houses, such as the wives of Rusdi⁸⁶ and Omar.⁸⁷ Omar also does some work as a carpenter, although generally only working in the settlement of Lawunta and does not receive much compensation for his work.⁸⁸ The income from these additional activities is generally small, and not sufficient to be viable alternatives to farming or collecting wild honey.

Seasonal migration and temporary migration, mostly to Maluku, are alternative livelihoods for the people of Lawunta. Sabran has migrated for work in Obi in Maluku.⁸⁹ He lived there for three years working as an artisanal gold miner with a group of other miners. Initially, he went there with a friend and after finding that the work was profitable, he stayed on. He only came back when his parents asked him to return. With the money he earned there, he was able to buy a motorcycle and land. Saharudin, Paiman's 23 year old son, has also migrated for work as an artisanal gold miner, except that he went to Namlea for two months in 2012.⁹⁰ He went there along with his older brother; however, they returned quickly because the social situation was volatile there (*'kacau terus'*). Nabil's two sons have also tried migrating to Maluku for

⁸³ Interview 10 July 2013

⁸⁴ Interview 10 July 2013

⁸⁵ Interview 12 June 2013

⁸⁶ Interview 14 June 2013

⁸⁷ Interview 13 June 2013

⁸⁸ Interview 13 June 2013

⁸⁹ Interview 12 June 2013

⁹⁰ Interview 12 June 2013

work; however, they did not have a specific job in mind when they went, only trying to get whatever work they could.⁹¹

Decisions regarding diversification resulted largely from the limited productivity of land and limited access to irrigated rice farmland. Collecting wild honey, in contrast, offered quick returns with little need for capital or processing. The trees where they collect the honey are located in state forest areas that are effectively open access. Consequently, for most of the younger men in the settlement, collecting wild honey took on primary importance according to the seasons, over other land uses. Only important activities related to irrigated rice farming, such as planting and harvesting, would stop farmers in Lawunta travelling to the forests to collect wild honey. For those unable or unwilling to collect wild honey, they used what they could from diverse livelihoods, including agroforests, for their household income. In this case, evaluating decisions based on income alone is not sufficient. Rather, each aspect of the livelihood strategy encompasses different functions. For instance, agroforests are for establishing property rights and small income, farming irrigated rice is for subsistence, collecting wild honey is for cash income, and small businesses and migration are for additional income.

5.7. A standard of living for the Kalende in Lawunta

These diversified strategies only supported basic, community living standards. Several factors constrained the living standards in Lawunta. First, only basic government services were available in Lawunta. These included a primary school and public water taps, along with a weak mobile phone signal. In the past, the people of Lawunta had to construct their own road, and maintain the settlement as part of collective labour (*kerja bakti*). In contrast to Lawele and Tanjung Bunga, there are no collective arrangements for generating electricity, so households have to own their own generators if they want to use electrical items. This led to a greater cost in terms of power generation. More recently, the government has improved the quality of the bridge and by August 2014, the government had begun work on a major road linking Lawele to Pasarwajo. The poor quality of roads means that only motorcycles are suitable, and often during the wet season and flooding, motorcycles are unable to reach the settlement. To access basic health care, people need to travel by foot to the local clinic and from there, find

⁹¹ Interview 13 June 2013

additional transport to Bau Bau. Also, as the Kalende of Lawunta were mainly displaced people or otherwise landless before reclaiming the lands of Lawunta, they began the settlement with very few belongings. Collectively, their histories of accumulation begin in 2002, and consequently, most have not had as much time to accumulate assets in contrast to the other settlements.

Housing in Lawunta is fairly uniform. The houses are all elevated wooden structures, with the main difference among houses being the size and the quality of the roofing, which include thatching, asbestos or tin. Some houses have components built of bamboo, and one single elderly resident had most of the structure of his house built out of bamboo. Only two houses surveyed had structures dedicated for toilets, and the rest of the households had no access to any facilities, using the forest garden areas behind their houses. Nearly all of the houses used firewood for cooking, and access to water was through public taps in the main settlement, and from the river for houses along the road. There was no public infrastructure for electricity distribution, nor collective sharing arrangements such as in Lawele or Tanjung Bunga. To have access to electricity, people have to purchase their own generators. A second, important factor also shapes the condition of the houses. All houses have been built after 2002, initially quickly constructed, and with the uncertainty of tenure clouding their future.

In this context, how have people built and improved their homes? Rusdi, one of the older men in the village, built his family's house in 2003.⁹² At the time, it cost him a total of IDR 1 million (AUD 99) for the materials and labour. When he was building the house, he was still engaged in swidden cultivation, and used the money from selling vegetables along with other sources to pay for the costs. Ubaid, aged 36, started building his house in 2007.⁹³ Before building his house, he had worked in Bau Bau with his brother-in-law in a bakery (*'bikin roti'*), where he was able to save up the IDR 2,200,000 (AUD 218) to build the house. In total, it took around two and a half years to build it, buying the materials gradually and building it after he bought them. Qahir, aged 35, started building his house in 2010, which was still incomplete at the time of the interview.⁹⁴ To build the structure, it cost him IDR 20 million (AUD 1,980) that he had saved over nine years, mainly saving the money from collecting wild honey. He began building the house as soon as he was married. Amiruddin, aged 32, built his house in 2007, just after he was married.⁹⁵ First from selling vegetables in Lawele and then from collecting

⁹² Interview 10 July 2013

⁹³ Interview 10 July 2013

⁹⁴ Interview 10 July 2013

⁹⁵ Interview 10 July 2013

wild honey and working as a labourer, he was able to save the IDR 6,700,000 (AUD 663) for the materials over six years. Tabari aged 19 and recently married, built his house with support from his family, which included the materials for the house, when he was still young.⁹⁶ Finally, Nabil, one of the most recent arrivals in the village, built his house for IDR 300,000 (AUD 30), only needing to pay for the timber.⁹⁷

Within a house, people generally only owned a limited range of electronic appliances and furniture. From the household surveys, the average household assets, excluding the value of the house, was around IDR 6.6 million (AUD 654) (Table 5.7.). Some households owned nothing beyond the dwelling, whereas the maximum amount of assets was around IDR 36 million (AUD 3,565). In Lawunta, 34% of households owned at least one motorcycle (Table 5.8.), with the average price of around IDR 11 million (AUD 1,089). Around 75% of households owned at least one mobile phone. Another 28% of households owned a generator, costing around IDR 2 million (AUD 198), and the same percentage owned a TV set, 19% owning a DVD player and a further 19% owning a stereo. None of the houses surveyed owned a car or more elaborate furniture, such as a sofa set.

Table 5.7: Range and average of total household assets⁹⁸

	Average of TOTAL ASSETS	Minimum amount of household assets	Maximum amount of household assets
IDR	6,585,938	0	35,780,000
AUD	652	0	3,543

⁹⁶ Interview 10 July 2013

⁹⁷ Interview 10 July 2013

⁹⁸ The table is based on the results of the household surveys.

Table 5.8: Ownership and average prices of household electronics and furniture⁹⁹

ITEM	AVERAGE PRICE (IDR)	AVERAGE PRICE (AUD)	PERCENTAGE OF HOUSEHOLDS OWNING AT LEAST 1
Car	-	-	0%
Motorcycle	10,909,091	1,080	34%
Electricity Generator	1,966,667	195	28%
Mobile Phone	414,167	41	75%
DVD Player	416,667	41	19%
Stereo	908,333	90	19%
Sofa	-	-	0%
TV Set	1,677,778	166	28%

Older families, who do not collect wild honey, have taken longer to achieve their complete set of household goals. Around the year 2007, Rusdi, using the money from selling vegetables from his swidden fields, purchased a small generator for his house.¹⁰⁰ Shortly after this, he purchased an entertainment set for 2,500,000, which included a television, DVD player and antenna. He purchased the cheapest brand he could find in Bau Bau. In 2010, his friend gave him a motorcycle and, after that, he has been content with the assets that he has. Nabil, an older man too, reliant on swidden cultivation, has virtually no assets other than his house.¹⁰¹ His sons, however, who live in the same complex, have televisions, generators and motorcycles: the benefits of collecting wild honey.

Those who can collect wild honey are able to make consumption purchases quickly. For instance, Tabari aged 19, was able to purchase a complete entertainment set, including a television, antenna and stereo system after one season of collecting honey (*musim madu*) in 2011.¹⁰² After buying those, he wants to purchase a new roof and motorcycle, making the purchases after a season of collecting honey. He would also like to buy a new generator, but is not sure how long it will take him before he can buy it. Qahir, aged 35, is a honey collector; however, has no assets beyond his house.¹⁰³ He says he needs to finish building his house before he can think about making any other purchases, which will take up to three years.

⁹⁹ The table is based on the results of the household surveys.

¹⁰⁰ Interview 10 July 2013

¹⁰¹ Interview 10 July 2013

¹⁰² Interview 10 July 2013

¹⁰³ Interview 10 July 2013

Amiruddin, aged 32, who at the time of the interview was also the head of the settlement, collects wild honey along with using borrowed irrigated rice fields and managing his agroforests.¹⁰⁴ He has no household electronic goods, and his main asset, aside from his house, is a motorcycle. He bought the motorcycle, the cheapest brand he could find in Bau Bau, in 2010 with the money he earned from collecting wild honey. His next goal is to renovate his house, which will take five to six years, first buying the beams and supporting structure, the timber for walls and flooring and then the roof. Ubaid, another honey collector, only owns a motorcycle, aside from his house.¹⁰⁵ He purchased it in 2009 for IDR 5 million (AUD 495) while he was building his house, from the money he earned working in the bakery in Bau Bau. At the time of the interview, he had no plans for making any other purchases, as his wife had not yet moved into the settlement from another village. Once she arrived, he would start making plans (*'baru bikin rencana'*).

Other expenditures for households in the settlement relate to education, clothing and to a lesser extent health. Unlike the other two settlements, no households reported having to pay any significant amount of money for ceremonies. In Lawunta, most adults have at least some form of primary education (see Table 5.9.), although 36% of adults have no education, with 44% of women in the settlement having no education at all. Only 12% have attended or completed junior high school, and 5% have gone beyond junior high school. Only one household with whom I conducted an in-depth interview had children studying beyond junior high school. Rusdi, originally from Raha in the neighbouring island of Muna, had two children studying at senior high school there.¹⁰⁶ They stayed with his mother, and every month he would send IDR 300,000 (AUD 30) for each child's expenses or IDR 600,000 (AUD 59) a month. To pay for the expenses, his family would collect money from different sources, such as his cacao trees and his wife's small general store.

¹⁰⁴ Interview 10 July 2013

¹⁰⁵ Interview 10 July 2013

¹⁰⁶ Interview 10 July 2013

Table 5.9: Level of Education in the Settlement of Lawunta¹⁰⁷

	Total Percentage	Male Percentage	Female Percentage
NO EDUCATION	36%	29%	44%
PRIMARY EDUCATION	47%	52%	42%
JUNIOR HIGH SCHOOL	12%	12%	12%
SENIOR HIGH SCHOOL	4%	6%	2%
TERTIARY EDUCATION	1%	1%	0%
	100%	100%	100%

The nearest health clinic for the Kalende is in Lawele. Most women give birth at home and often without the assistance of nurses from the clinic.¹⁰⁸ People rarely go to hospitals and only infrequently use the clinic when they are sick. Rusdi, for instance, was sick for a long period in 2009, during which time he visited the clinic in Lawele three times.¹⁰⁹ Some, such as Tabari, have had serious injuries, but have chosen not to go to the hospital or clinic out of fear.¹¹⁰ The people interviewed purchased clothing occasionally, ranging from once a year, after a season of collecting honey, to three times a year from the market in Lawele. Poorer farmers, such as Nabil, reported buying second-hand clothing instead.

The standard of living in Lawunta was shaped by not only infrastructure and government services, but also the length of time that people had lived in the settlement. Generally, households had few appliances or other assets, although most had mobile phones. For making purchases, wild honey collectors would spend at the end of a season of collecting after selling their harvest, whereas others would have to plan and save. Even households that did not collect wild honey were able to support the education of their children beyond junior high school. With limited exposure to urban society, people felt little pressure for purchasing expensive clothing, and there were few costs associated with holding ceremonies in the settlement.

¹⁰⁷ The table is based on the results of the household surveys.

¹⁰⁸ Amiruddin, Interview 10 July 2013

¹⁰⁹ Interview 10 July 2013

¹¹⁰ Interview 10 July 2013

5.8. Discussion

The case study of the Kalende in Lawunta contrasts with that of both Tanjung Bunga and Lawele, discussed later. Although all settlements share a history of forced displacement, the experiences of the Kalende in Lawunta were far more recent. Evaluating the behaviour and decision making of rural households in this context requires a more nuanced understanding of how displacement shaped people's perception of the landscape and their interaction with customary institutions. The background of displacement also shaped the importance of collective livelihood strategies versus more individualised livelihood strategies. Although over time, this began to shift in favour of individualised strategies. The cause of this shift was largely driven by the government's acceptance of the settlement, which directly led to the tacit acceptance of the rights of the Kalende to the land and led to the provision of some basic services. This in turn led to people in the settlement feeling more secure, and, shifting their livelihood strategies from a focus on survival to accumulation.

Applying the concept of the multifunctional landscape (Naveh, 2001; O'Farrell and Anderson, 2010; Pfund et al., 2011), in this context, differs from the other settlements. The social processes that mediate how the Kalende were able to benefit from their resources (Ribot and Peluso, 2003; Schlager and Ostrom, 1992) were underpinned by the assertion of their claims to the land and resources, and adjusting to the resistance from the government. The boundaries that emerged for the territory of Lawunta were the result of the compromises between the government and the Kalende, although not ever formally recognised. Other boundaries were defined by the existing land ownership of the farmers in Lawele. The boundaries of this territory represented the cultivation rights of the Kalende, although non-alienable ownership rights. That is, the Kalende could clear the land there, farm and plant trees, although not sell the land or use it as collateral. The rights to houses in the settlement were also affected by the politics of their reoccupation of the land, with half the settlement having formal recognition of their house and property while the others not. The strictest boundaries for cultivation were with the conservation area and with the land owned by the people of Lawele.

The territory of the Kalende, according to their livelihood strategies, was far more extensive than their cultivation area. The forests surrounding the settlement and covering the interior of Buton were the source of one of the most lucrative livelihoods for the Kalende: wild honey. In previous years, they had also been a source of rattan. These forests were officially classified

as state forests, and largely either production or limited production forests, but also sometimes included the conservation forests. The Kalende had de facto access rights (Ribot and Peluso, 2003; Schlager and Ostrom, 1992) to collect honey and rattan from these forests, and were never restricted from access or forced to pay taxes or licenses fees for the harvesting of non-timber forest products. The status of the forests, however, meant that this access was temporary and pending the use of the forests for forestry or other permitted commercial land uses, such as mining.

The natural landscape, and its biological diversity, both enabled the livelihood strategies of the Kalende and presented challenges to those livelihoods. Land holdings for the Kalende were relatively large, with households usually holding multiple plots of lands for either swidden farming or agroforests, with some owning up to five hectares or more. Farmers reported that the soils were generally suitable for cultivating most staple food crops and tree crops, with the exception of cashew nut trees. There were also many streams and springs for the Kalende to collect fresh water. The territory of the Kalende, however, fell within the general area of the Lambusango forests, and consequently, farmers faced crop raiding from wild animals such as monkeys and pigs along with the more common problem of rats and mice. Although farmers had some limited technology for repelling pests, such as some basic electric fencing, they were generally unable to prevent crop raiding.

In contrast to the case study of Tanjung Bunga, household decisions regarding the use and allocation of land were contingent on the authority of the local customary institution. The decisions about where new land could be cleared and who could clear it had to be made by the leaders of the Kalende. There were practical reasons behind this. After the initial reoccupation of the territory, land became scarcer, and, the role of the customary institution was to both mediate with the government as well as preserve the legitimacy of the settlement. Lands, at a minimum, could not be cleared within the conservation area or in places that were considered sacred or had existing land claims. The support of the customary institutions also ensured that lands would be cleared collectively, and, in accordance with local customs. Once the land was cleared, however, it became the sole responsibility of the household.

Although households had more than sufficient land, they had limited access to the resources to benefit from that land. This was even more so during the initial stages of clearing the settlement. Swidden farming, in this context, was both an efficient means for clearing and claiming the land, as well as a basic means of subsistence. Swidden farming relied on very basic equipment, and the seeds and cultivars needed for farming were easily available from

neighbouring villages. In the early stages of the settlement, growing vegetables to sell at the local market supplemented the farming of staple foods such as rice, corn and cassava. Land clearing was supported by collective labour. During this period, swidden farming was the most appropriate livelihood for surviving the challenges of that period.

As the settlement gained legitimacy and households gained a sense of security over their land, most households shifted towards more individualised household livelihood strategies. These changes represented the shift from a focus on survival to a focus on accumulation or, pursuing a better life (Ellis, 2000b, 1998; Fischer, 2014). The Kalende faced a central challenge in that they had no access to extension support and limited access to farming technology and financial support. The path that most households followed was to imitate the farming strategies of the farmers in Lawele. There were practical reasons for this process of imitation (Boyd and Richerson, 2005; Kruglanski and Gigerenzer, 2011): the farmers of Lawele had a proven methods of farming that sustained a basic living standard, and, the cultivars for agroforests were easily available. A complete process of imitation, however, was not possible. Cultivating tree crops, such as coconuts, which were historically a stable but low-income livelihood, was unsuitable for the settlement due to persistent crop raiding by wild animals. Similarly, the Kalende generally did not own farmland near to the irrigation canals needed for irrigated rice farming. To participate in irrigated rice farming, they had to either find the resources to purchase land or, alternatively, enter into sharecropping arrangements.

Swidden fields gradually became replaced with agroforests, predominantly cacao, and staple foods, in particular rice, were grown through irrigated rice farming. There were several inherent challenges that affected the productivity of the strategy. By the time farmers in Kalende had adopted cacao, the farmers in Lawele were already facing the problem of the pod borer (*Conopomorpha cramerella*), as well as declining prices for cocoa (Neilson, 2007). Sharecropping arrangements (Ellis, 1993) also limited the profitability of irrigated rice farming as harvests had to be shared, and often the costs of inputs such as fertiliser and pesticides were not evenly shared. At best, sharecropping was for the farmers of Lawunta a means of subsistence. A few remained outside of this strategy, however, and persisted with swidden farming, including newer migrants to the settlement.

For the farmers in Lawunta, there were few, if any clearly defined pathways for improving the productivity of farming. They generally lacked access to the materials, information, markets and credit (Ribot and Peluso, 2003) to improve the productivity of their existing farms or adopt new farming practices or crop varieties. Although the government had provided some teak

seedlings as a means to both reforest the land and support livelihoods, it was not enough to meet the short- and medium-term needs of farmers. Two general pathways emerged for farmers to improve their income: experimentation with different tree varieties or diversification to non-farming activities. The pathway for experimentation with different tree varieties relied on imitation as a strategy, but from imitating different sources. After the limited success of imitating the local farming strategies, some households began imitating the strategies of farmers in Maluku, where they had lived prior to returning to Lawunta. Accessing the cultivars needed for growing clove and nutmeg was done through existing social networks, through which people purchased and transported the cultivars back to Lawunta. Social networks have been shown to facilitate livelihood strategies in other parts of Southeast Sulawesi and, more generally, Indonesia (Stacey, 2007). At the time of the research, farmers were still in the early phases of experimentation with those varieties of tree crops.

Aside from farming, there were two main pathways for diversifying income: collecting forest products, in particular wild honey or migration. Although coming with significant personal risk, collecting wild honey was one of the most lucrative livelihoods for the Kalende in Lawunta. The forests where farmers in Lawunta collected honey were de-facto open access resources. Legally, these forests belonged to the Indonesian forest estate under various classifications, although, in practice, farmers were free to collect without permits. Selling wild honey required almost no processing, and honey could be sold through either traders or small stores in Lawele. In comparison to farming in the settlement, the returns from collecting wild honey were significant, and provided instant, seasonal cash income for households. The collection and sale of wild honey for farmers in Lawunta had few institutional barriers and required almost no capital or technology in order to participate.

Circular migration, finally, offered the other alternative for earning cash income. People migrated outside of the seasons for collecting wild honey, and such migration was largely focused on land-based activities. Social networks were instrumental for the process of people learning about opportunities and facilitating the process for people to seize those opportunities. As such, the destinations where people migrated for work were linked to areas in Maluku, as well as places in Buton, in particular Bau Bau. Besides migration, a few households had opened small, general stores in the settlement, which were generally run by women. Within the settlement, there were few other alternatives for diversifying livelihoods. Households in Lawunta have formulated livelihood strategies based on first, a struggle for survival. Second, they generally developed individualised strategies without access to the

means and support that could enable them to benefit from their resources. With limited alternatives, several factors underpin the way that households make decisions. Gender influences how tasks are distributed, with men often taking higher risk activities, such as collecting wild honey or migration, and women focusing on more routine and less risky tasks, such as weeding, planting or managing stores. Personal risk also affects decision making, with older men and the risk averse less likely to collect wild honey. Finally, seasonal influences shape the decisions that household make and preferences given to livelihoods, with important phases of the rice cultivation cycle and honey-collecting seasons taking precedence.

The household goals that these strategies have changed with time, although underpinning all strategies has been the goal of subsistence. Farming strategies have been designed to produce the basic staple food of rice, although other foods such as corn and cassava have been grown. The difference has been the means for growing rice: with a transition from swidden farming to irrigated rice farming. Although irrigated rice farming was a far more efficient means of growing rice, it also meant less diversified farming, as people stopped growing vegetables, corn and cassava in their fields. Poorer households or those with smaller harvests were eligible for subsidised rice (*raskin*). In contrast to Tanjung Bunga, fresh water was generally abundant in the settlement, and later the government would provide the settlement with basic piped water. For sources of protein, people mainly ate fish and, to a lesser extent, chicken. Although people could rear chickens, fish had to be bought at the market in Lawele or bartered for with rice or vegetables. During the Eastern Monsoon, when the price of fish rose, it became more difficult for households to purchase fish regularly. Other basic consumables were purchased either at the local market in Lawele or in small stores in the settlement.

Beyond subsistence, the limited infrastructure coupled with the relative newness of the settlement restricted the types of goods that households could accumulate or their desirable goals (Kruglanski et al., 2002) . Housing in the settlement was relatively uniform and basic, although, towards the end of the period of the research, people began replacing thatched roofs with tin or composite materials. Unlike the settlement in Tanjung Bunga, the Kalende in Lawunta faced no significant challenges in building durable houses, and had easier access to the materials for constructing and repairing their houses. The settlement also had access to piped water in public taps, which had been provided by the government. Road access, however, was limited. The road to the settlement had initially been cleared by the Kalende, and later, a bridge had been constructed by the local government. The quality of the road had degraded over time, and was generally only accessible by motorcycle. In 2014, in conjunction with the expansion of asphalt mining into the area, the government began to construct a larger

road connecting the settlement and Lawele with the district capital, Pasarwajo. In contrast to Tanjung Bunga and the settlement of Lawele, there were no collective arrangements for generating electricity. Households that wanted to use electrical appliances had to use their own generator.

In the settlement of Lawunta, access to infrastructure shaped what types of goods that could be owned more than access to consumer markets. Owning a motorcycle enabled people to travel easily to the market in Lawele and beyond. Electrical appliances, however, required owning a generator and paying directly for the costs of operating it. In contrast to the other settlements, not all households focused on owning their own electrical appliances or generators. Rather, people would congregate at the few houses that did have electricity and electrical appliances as a social event. While there, people would watch television together, usually a soap opera (*sinetron*), and recharge their mobile phones. Consequently, people who accumulated assets generally provided a service for the rest of the community rather than benefitting themselves individually.

The distance to government services, in particular education and health, only partly explains how people interacted with these services. In contrast to the other two settlements, the Kalende in Lawunta initially built their own primary school, which was later replaced by a government-built facility. There was, however, still a high proportion of people, in particular women, with no education and many with only some level of primary education. A possible reason for this is the history of displacement of the Kalende in Lawunta, which affected people's attendance at schools. Access to health services was similarly limited, although, once again, the quality and effectiveness of the services offered by the under-resourced clinic seem likely to have affected people's use of the services there.

Finally, there were the obligatory or expected household goals, which if left unmet, would result in shame or loss of status (Higgins, 1987). Those goals were largely measured through ceremonies and patterns of purchasing clothing. These types of social pressures were largely absent from the settlement. There were little expectations for households to hold ceremonies that involved significant costs. Similarly, clothes were only bought irregularly, often on an annual basis and usually from the local market. The socially expected living standards of the Kalende in Lawunta did not require households to spend much money to meet those standards. Some reasons for this may be the relative equality among households in the settlement, the general low income of households in the settlement and the relative isolation of the settlement.

5.9. Conclusion

Forced displacement and occupation have shaped the lives and livelihoods of the Kalende of Lawunta. To survive the early years of the settlement, swidden farming, with collective labour, ensured the subsistence of the people living there. And, collectively, they constructed the basic infrastructure of the settlement. Stability, which came through the quasi-official recognition of the settlement and provision of basic infrastructure, led to changes in the lives and livelihoods of the Kalende. Swidden farming was largely abandoned for irrigated rice farming, and swidden farms were replaced with tree species such as cacao. Although constrained by the isolation, inaccessibility and poor infrastructure of the settlement, households began to accumulate basic assets and improve the well-being of their family members. These strategies depended largely on the use of their land and the forests surrounding their settlement. Their isolation and relative equality in terms of income and assets, shielded them from the social pressures to maintain higher living standards, such as the quality and type of clothing and expectations for ceremonies. In contrast to the settlement at Tanjung Bunga, increased access will not necessarily lead to improvements in livelihoods, as most households had already reached the potential limits of their land-based, livelihood strategies.

Chapter 6 :

At the Frontier of the Middle Class

6.1. Introduction

The frontier of the middle class is the place where rural Indonesians aspire for the lives of the middle class, but only have rural livelihoods as their means for achieving those lives. In this chapter, I discuss the settlement of Lawele, a more socially stratified settlement, where a high proportion of civil servants live alongside farmers and the forest dependent. Amongst this livelihood diversity, households pursue a range of livelihood strategies, although common across all households, is a high level of livelihood diversification. I discuss how the comparative accessibility of the settlement and the patterns of interaction with urban centres mean that not only are higher living standards possible within the settlement, but they are also expected. I examine how these raising living standards have affected the livelihood strategies of households in the settlement, ranging from the wealthier civil servants to the poorer forest-dependent households.

6.2. A brief history of Lawele

On the island of Buton, people will commonly express the sentiment, mostly rhyming, that there although there is a lot of asphalt, the roads are dilapidated (*'aspal banyak, jalan rusak'*). Nowhere is this more the case than in Lawele, a village bordering the asphalt mine, with much of its lands sitting on one of the world's largest deposits of asphalt. As you approach the village from the west, deviating from the road that connects Bau Bau to the capital of North Buton Ereke, the quality of the road decreases dramatically. Much of the different layers of road asphalt have been worn away, leaving deep potholes and the remains of the original road built during the Dutch era. After the town of Wagari, the road passes alongside the Lambusango conservation area, where in the distant hills the people of Lawele had their ancestral homes. Beneath the tall escarpment, where the ruins of an old fortress are located in the forest, is the village of Benteng, which was until recently part of the village of Lawele. Crossing a bridge over

a small river in the centre marks the boundary between the two villages and the beginning of the settlement of Lawele. On the northern side of the road, near the market, is the river that connects with the settlement of Tanjung Bunga, located in the bay beyond the mangrove forests. On the southern side, on the farmer's road running in between the irrigated rice fields, is a sign that points to the settlement of Lawunta, six kilometres away in the distant hills. Lawele is roughly in between these two other settlements.

The people of Lawele, along with those of the neighbouring village of Benteng, place their historical settlement in the forested hills above the village. In the 1950s, people began to descend from the hills and settle in the current village. As the official customary (*adat*) leader in Lawele explained:

'The elders talked of how Lawele had already moved several times and here is not really Lawele: the name is really "*bunyi*". They changed the name of the location when they resettled here because at that time, Lawele was in the mountain. The tall mountain, where the sacred place is, is over there. So, when they came down to the coastal area, they brought the name Lawele here.'¹¹¹

The village was transformed with the fighting associated with the rebellion, leading to the establishment of the Brimob base in Lawele. With the establishment of the base, thousands fled to the village for protection, both from the hills and mountains behind the village, and Bajo from throughout Buton. Throughout this period, up until the late 1960s, the village had become a large town, stretching far into what are now the mangrove forests. As conditions throughout Buton stabilised, and as the anti-communist operations began, people began leaving Lawele, returning to their home villages. At around the same time, the Kalende were driven from their homes in the hills, relocated to the areas around Lawele. The village lost its status as the head of the sub-district, and gradually the population decreased to around its current levels.

In 1982, the boundaries of the conservation area were established, and stone markers (*patok*) were placed to show the boundaries. People farmed, mainly swidden cultivation, in the areas around the village. In the 1980s, the people of Lawele joined in the cacao boom of Sulawesi (Li, 2002a; Neilson, 2007), planting agroforests of cacao in their forest gardens, along with some coffee. The next major change for the village came with the construction of the irrigation dam and the beginning of irrigated rice farming in 1991. Those with lands in the flat land at

¹¹¹ Interview 23 November 2012

the bottom of the valley were able to prosper from the farming technology. With irrigated rice farming also came the use of mechanised tractors, fertilisers and pesticides. Around the same time, piped water was installed in the village, providing people with access to public taps, which wealthier households were able to use for internal bathrooms and cooking. In the late 1990s, as with much of Buton, Lawele received a huge influx of people fleeing the violence in Ambon and Maluku. Most of the people who arrived in the village, stayed in the government housing area (*pemukiman*), where the displaced Kalende lived. Many of these people would go on to reclaim their lands in the area of Lawunta. In 2004, these people would be the most affected by the acquisition of lands for asphalt mining, leading to riots and the destruction of the police station. Finally, in 2011, the village was split, with the lands to the west and the Bajo settlement going to the new village of Benteng. The division of the villages, however, did not lead to any significant changes in the land uses or livelihoods of people in the village.

6.3. The natural environment surrounding Lawele

Located along the unpaved, main road, the settlement of Lawele is located on the valley bottom, at the edge of the mangrove forests. Leading up into the hills, there are extensive irrigated rice fields, which are bordered by the conservation area to the west, and forest gardens and agroforests to the east. Above that area are newer irrigated rice fields serviced by canals from the dam, which, at the time of the research, were being extended to areas in the east of the village. The main river, which provides water for the irrigation, flows alongside the irrigated rice fields and finally out into the bay, next to the Bajo settlement. Among the agroforests are secondary forests, or agroforests that have not been tended for a while, leading to regrowth of native species. These areas are rich with wildlife, such as the Buton Macaque, as well as wild pigs and other species. The lands are officially classified as lands for other uses (*Areal Penggunaan Lain*), although all the land has been claimed, some of which has been recognised officially, but most of which is just recognised locally. Despite the proximity of the mangrove forests to the settlement, only a few in the main settlement collect products such as shellfish, crabs and palms for thatching from there. Only a couple of houses engage in fishing as a livelihood, although many others claim fishing as their hobby and nutritional supplement. Flooding has become more regular in recent years, occurring several times during the peak of the Eastern Monsoon in June and July. The flooding has caused damage to crops and property. The causes of the flooding are disputed, with some arguing that it is due to increased rainfall, others land uses and deforestation in the area of Lawunta,

and others pointing to the effects of the farmer's road (*jalan tani*), through the centre of the rice fields, that has altered the way water drains from the valley.

6.4. People and government of Lawele

In comparison to the other two settlements, Lawele is ethnically diverse. From the household surveys, 47% of people identified as being from Lawele, with others identifying themselves as Kalende (3%) and Lapuli (9%): all from a similar, local ethno-linguistic group. Although they identify as separate sub-ethnic groups, their language is mutually intelligible, referred to officially as the Kalende language or Pancana (Donohue and Grimes, 2008; Lewis et al., 2016), although locally referred to as either the Lawele language (*Bahasa Lawele*) or Kalende language (*Bahasa Kalende*). The Lawele claim to be the indigenous people of the area, and claim the many sites, such as the old fortress, as part of their sacred areas. Every two years, locals travel to these sites in traditional garments, clean the areas, as well as practicing traditional rituals such as dances and knife fighting. The remaining proportion of people came from a wide variety of Indonesian ethnic groups, including from the broad Butonese ethnic group (8%), which can mean anywhere from within the boundaries of the old Butonese sultanate, although in this case, it often meant being from Bau Bau. Other respondents identified as being Bugis (5%) and from Muna (4%). The others came from a range of ethnic groups in Southeast Sulawesi, as well as other parts of Indonesia. Although there is greater diversity within the settlement, often in practice this involves someone of Lawele ethnicity marrying people from outside the village. Households where at least one family member is of Lawele ethnicity are likely to own some land, usually forest gardens or agroforests, and possibly some irrigated rice farmland.

6.5. Livelihoods, mechanisms of access and decision making of the residents of Lawele

In contrast to the other settlements, there is a greater degree of diversity among the livelihoods of the residents (Table 6.1.). Few rely on swidden (1%) for their income any longer and a small percentage (10%) rely on income from the forests, in this case wild honey, as there had not been a rattan license issued in the twelve months prior to the surveys. Historically, however, collecting rattan has been an important livelihood for people in the area (Widayati

and Carlisle, 2012). The majority of households (82%) rely on irrigated rice farming (Table 5.2) for their consumption and for some, for cash income too. Other households rely on agroforests for a small percentage of their household income (37%). Wage income, both semi-skilled and professional, such as the civil service, accounts for the incomes of many (40%) households. The civil service professions provided the highest income for households. Businesses, mostly small general stores, provided income for a smaller percentage (13%) of households, and remittances and pensions, provided income to around 10% of households.

Table 6.1: Average income per livelihood activity in Lawele¹¹²

	AVERAGE TOTAL ANNUAL INCOME (IDR)	AVERAGE TOTAL ANNUAL INCOME (AUD)	NUMBER OF HOUSEHOLDS	% OF HOUSEHOLDS WITH INCOME FROM THIS ACTIVITY
AGROFORESTS	3,190,515	316	34	37%
IRRIGATED RICE	11,131,547	1,102	75	82%
SWIDDEN	1,000,000	99	1	1%
NET AGRICULTURAL INCOME	10,201,716	1,010	81	88%
FOREST	6,416,667	635	9	10%
BUSINESS	15,150,167	1,500	12	13%
WAGE	28,114,162	2,784	37	40%
OTHER	21,127,778	2,092	9	10%
TOTAL AVERAGE ANNUAL INCOME	24,959,402	2,471		

Table 6.2: Average land ownership in Lawele¹¹³

	OWNED LAND - IRRIGATED RICE	SHARECROPPING - IRRIGATED RICE	AGROFORESTS/FORREST GARDENS
Average (HA)	0.58	0.60	1.55
Count of households surveyed	63	17	45
Percentage of households owning one or more	68%	18%	49%
Minimum (HA)	0	0	0
Maximum (HA)	2	1	11

¹¹² The table is based on the results of the household surveys.

¹¹³ The table is based on the results of the household surveys.

With such livelihood diversity, there is a more complex array of access mechanisms that regulate how people are able to benefit from resources, and livelihood opportunities (Table 6.3.). With the majority (82%) of households deriving some form of income from irrigated rice farming, it is a central livelihood for households in Lawele. Unlike other land in Lawele, irrigated rice farming is supported by an array of government-supplied infrastructure, technology and extension support. These are complemented by official farmer groups and scheduling for major activities, including irrigation. In contrast, agroforests and forest gardens are dominated by cacao, coffee and cashew, much of which produces little and most of which was learnt with little or no external support. Although collecting wild honey is the dominant income for the forest dependent, others have participated in harvesting rattan or timber, both of which require permits, and for rattan, more targeted markets. Finally, non-farming income is more significant in Lawele. Most of this is non-skilled or semi-skilled labour or small businesses. Among professional occupations, the civil service was perceived as being the most stable and profitable of livelihoods. It was also perceived as being among the most inaccessible. Joining the civil service was not just contingent on education, but having the networks and resources to pass the recruitment phase. In the context of these diverse livelihood opportunities, I discuss how people make decisions about livelihoods and resource uses, and why.

Although historically the people of Lawele were swidden cultivators, only one household surveyed from the settlement reported deriving income from swidden cultivation. Land that was formerly used for swidden has either been replaced with agroforests or left fallow, with native vegetation re-growing. Of the people surveyed, 68% owned irrigated rice fields, although not necessarily using them and 18% were sharecroppers. The average parcel size of irrigated rice fields for owners is 0.58 hectares, and 0.6 hectares for sharecroppers. Generally, people harvest twice a year, and the average amount of inputs people use in irrigated rice farming is around IDR 1,573,393 (AUD 156) per year, including fertiliser, pesticide, machinery and labour.

Table 6.3: Access and livelihoods in Lawele¹¹⁴

LIVELIHOOD	ACCESS DETERMINANTS	SPATIAL DETERMINANTS	TEMPORAL DETERMINANTS	MARKETS
SMALL SCALE STORE	Small amount of finances for start-up costs. Access to suppliers. Location for store.	Stores are usually constructed as part of the residence or in front.	Stores operate all year round.	Local customers.
WORKSHOP (MECHANIC)	Finances for start-up costs including equipment and location. Access to suppliers, usually in larger regional towns. Location for store. Technical skills, usually self-taught or through friends and mentors.	Stores are usually constructed as part of the residence or in front. Villages can only sustain a few mechanics.	Stores operate all year round.	Local customers or people passing through.
SEMI-SKILLED LABOUR	Technical skills, usually self-taught or through friends and mentors. Access to employment opportunities through friends, family or other social networks.	Work usually done within the village or in nearby villages accessible by motorcycle.	Dependent on demand.	Areas within walking or motorcycle travelling distance.
WAGE LABOUR	Access to employment opportunities through friends, family or other social networks.	Work usually done within the village or in nearby villages accessible by motorcycle.	Dependent on demand.	Areas within walking or motorcycle travelling distance.
CIVIL SERVANT	Tertiary education. Patronage, networks and corruption (access fees).	Work anywhere with a district or province.	Dependent on intake, which has been more infrequent since moratorium.	-
LOCAL OFFICIAL	Elected or appointed role.	Work within village or settlement.	Dependent on election.	-

Verda, aged 41, owns half a hectare of irrigated rice farmland in Lawele.¹¹⁵ She inherited the land from her family in 1991, and has a certificate with the land. She and her family use the land for consumption and income, half of whose harvest they eat and the other half she sells at the market. For the farming, they only use basic equipment along with renting a tractor for ploughing the land, harvesting twice a year. They learnt how to farm from people in the village,

¹¹⁴ The table is based on the results of focus group discussions at the settlement level as well as household livelihood interviews.

¹¹⁵ Interview 10 May 2013

as there had never been anyone who offered them technical support. The whole family works together in the fields; however, she said her husband makes the decisions about farming. She said she would like to own more land, as more land means more income. The land available, however, is limited due to the forest areas.

Bandrianto, aged 45, owns 0.35 hectares of irrigated rice farmland in a part of Lawele known as Latombolo.¹¹⁶ He inherited the land in 1989 from his parents and has a certificate for the land. The land is only sufficient for his household consumption of rice, and he plants the *beras ciliwung* (*species unknown*) variety of rice there. The equipment he uses is basic, and he rents the tractor that he uses to plough the fields. He learnt how to farm irrigated rice in 1989 from an extension worker of the department of agriculture. The schedule of activities depends on the farmers around him: if they have all finished harvesting they can inundate the fields again and plough (*'kalau semua petani selesai panen bisa masuk air lagi dan bajak'*). A meeting is held with the official responsible for irrigation, along with traditional leaders, to determine the farming schedule for the year. Bandrianto works the land with his wife and children, along with support from his family during the periods of planting and harvesting. Bandrianto said that he has enough land now. Although, he would like to buy more land so he never has a shortage of food. He plans on selling one of his forest gardens to buy more irrigated rice farmland.

Wafiyah, 34, works on her family's half-hectare plot of irrigated rice farmland.¹¹⁷ From 2011, she has farmed the land by herself, and has a certificate for the land. She uses the rice for both household consumption and for sale. Sometimes she has a reduced harvest because there is not sufficient fertiliser, and there are problems with pests such as rats, as well as birds. She plants *beras ciliwung* for her daily consumption and glutinous red rice for sale as well as consumption. She learnt how to farm from her parents. She works with the farmer group, which determines the schedule for inundation and ploughing, as well renting the government-provided tractor. She still works the fields with her family, although she pays some people to help her plant and harvest. On important celebrations, she sells the glutinous red rice at the market. If there was an opportunity for buying more land, she would take it, as more land means more income.

¹¹⁶ Interview 9 May 2013

¹¹⁷ Interview 10 May 2013

Yaqin, aged 53, owns one hectare of irrigated rice farmland in Lawele that he bought from his wife's relative in 2001.¹¹⁸ Part of the harvest is used for consumption, the other part is used for sale. The main problem with irrigated rice farming, he said, was that there are many pests. The two varieties he grows are *padi santana* (*species unknown*), which he does not sell, and different varieties of glutinous rice that are used for traditional ceremonies, 100 litres of which is used for the traditional festival (*pesta adat*). He learned how to farm from following others, and farms with his wife and extended family, renting a tractor for ploughing the land. If he could, he would like more land. The land available, however, is already restricted.

Many of the farmers have been affected by the recurring flooding of the irrigated rice fields, which also affects the village. Kadhim, for instance, usually gets 14 sacks of rice from his harvest. After the flood, however, he only got 10, sufficient for his household's everyday needs.¹¹⁹ Verda's household was also affected, with their harvest decreasing from 30 sacks of rice to 15.¹²⁰ Consequently, they will need to buy an additional four to five sacks to meet their household needs. Wafiyah's harvest was reduced from 30 sacks of rice to 25. She still has enough, however, to meet the needs of her household.¹²¹

Although not as significant as in Lawunta, a small percentage of households (10%) in Lawele collect wild honey. Zabidi, aged 41, the husband of Verda, collects forest products.¹²² For him, the most important forest product is wild honey, as well as timber, and occasionally rattan. When he looks for wild honey, he can travel up to three days into the forest, and when it is the season for wild honey, he will focus all his efforts on collecting honey. The season for collecting honey, she said, is only around two weeks. As one small bottle sells for IDR 50,000 (AUD 5), there are many benefits to collecting wild honey. For cutting timber, people who own timber will call him, and after getting a license from the department of forestry, he will go there and then cut and carry the timber. Both these activities come with high risks: if he falls from the tree, he could die, as well as the risk of slipping when he is carrying timber. He uses only basic equipment, and works with two other people, one of whom is his older brother. They sell the wild honey at Verda's roadside stall or at the market, where someone, usually from outside the village, comes and purchases it. If it rains, he is unable to look for wild honey.

¹¹⁸ Interview 13 May 2013

¹¹⁹ Interview 13 July 2013

¹²⁰ Interview 12 July 2013

¹²¹ Interview 11 July 2013

¹²² Interview 10 July 2013

Bandrianto, aged 43, also collects forest products, mainly wild honey and rattan, when a license has been issued.¹²³ He will look for wild honey throughout most of the sub-district, sometimes even as far as the forests of North Buton, travelling up to three or four nights into the forest. The further he goes, the more he is able to collect (*'lebih banyak hasil kalau jauh'*). He knows that it is the season for collecting wild honey from the flowers on the different tree species, and he learnt how to collect from his elders. Sometimes, other people claim the trees by placing leaves at the base of them, meaning that others cannot collect the honey from that tree. He collects the honey for his livelihood, but also to use as a natural remedy. One beehive can be worth up to IDR 2 million (AUD 198). The honey is sold in Lawele but can be sold as far away as Java; the price often depends on the species of tree the honey came from. If the price drops, he has to sell it anyway, as he has no other source of income.¹²⁴

Bandrianto also collects rattan, but only in the area surrounding the village, leaving in the morning and returning in the evening (*'pergi pagi, pulang sore'*). The income from wild honey, though, is far greater than rattan: one small bottle of honey is worth one large bundle of rattan. Both carry significant risks, such as falling from the tree when collecting honey or falling while carrying the rattan. Rattan though does not have a season, but rather depends on a company obtaining a harvesting license. Once a license is issued, the company will come to the town and offer a quota to be filled, usually through a trader. Bandrianto now operates as the rattan trader, and organises a group of up to thirteen people to collect the rattan for him, which he also collects. The rattan is then sold on to the company with the license.

Many households (37%) in Lawele derive some income from agroforests. Abdas's mother-in-law, Badrina, aged 71, owns 0.35 hectares of agroforests far from the house, and their family cultivates a small patch at the rear of the house for vegetables.¹²⁵ They grow vegetables such as corn, cassava and banana, which they primarily use for food, but if they have a lot, they will sell it at the market. Tahir, aged 54, has two plots of agroforests, totalling two hectares, and located at Lapuli and Lagunturu.¹²⁶ The land, in Lagunturu for which he does not have a certificate, was cleared in 1970, near to the asphalt mine, although he has a certificate for the land he owns in Lapuli, which is in Benteng now. He said that everyone knew that the land is his. When he first cleared the land, he used it for swidden cultivation, but after a while, he replaced it with timber crops, such as *kayu maniaga* (*species unknown*) and *wola* (*species*

¹²³ Interview 9 May 2013

¹²⁴ Interview 13 July 2013

¹²⁵ Interview 9 May 2013

¹²⁶ Interview 11 May 2013

unknown). In Lapuli, he planted cacao trees; however, it has been thirty years since he planted them, and they are no longer productive. No one in his family manages the land anymore, but, despite this, he would still like to have more land because he has many children.

Wafiyah, aged 34, owns a half-hectare of agroforests that her family gave to her in 2002.¹²⁷ She has a certificate for the land. Planted there are lemon (*Citrus × limon*) trees, coconut along with some newly planted teak trees. There is a regular harvest from the lemon trees, less regular from coconuts, and the teak trees will take several years before there is a harvest. She manages the agroforests with her parents, and will only look after the agroforest after she has managed her other activities. Jahizah, aged 24, owns 0.35 hectares of land, in the area of Lawunta.¹²⁸ Her family cleared the land in 2001, at the same time others began clearing the land in the area around Lawunta. She cultivates teak at the plot, which does not have many pests, such as wild pigs, and planted the trees there in 2012. She expects that they will be able to harvest the trees in twenty-five years. If there were an opportunity to open more land, she would like to get more.

Bandrianto, aged 43, and his wife own three hectares of agroforests by themselves.¹²⁹ Along with that land, they also have access to five hectares of forest gardens, owned by his parents, which has not yet been divided among his family. Originally, they used the three plots for cultivating maize. They had problems with wild pigs, however, so did not plant again. After that, they planted teak trees, coffee, and cacao, and they have already harvested the teak. They do not sell the cacao nor the coffee anymore. He also planted *maniaga*, which grows fast, and they use the timber for household needs along with selling it. They work the land together, and they will sell the timber to family. They would like to have more land that they can use for planting more timber trees, and are waiting for the government to open up more land.

Verda, aged 41, owns 1.5 hectares of agroforests at Tuma Dena, where she cultivates cashew nut trees.¹³⁰ With her husband, they cleared the land in 2000, and have a certificate for the land there. At first, they planted swidden crops, such as maize and cassava; however, they changed to cashew nut trees because they had better yields. All of the harvest is sold, and often a trader will arrive at their house offering to buy their cashew nuts. They will look for a

¹²⁷ Interview 10 May 2013

¹²⁸ Interview 11 May 2013

¹²⁹ Interview 9 May 2013

¹³⁰ Interview 10 May 2013

trader who will pay the highest prices, as often the difference in prices is between IDR 1000 (AUD 0.10) to IDR 2000 (AUD 0.20). They would like more land; however, the land is now limited, and if they had more land they could grow more cashew nut trees. In 2011, the cashew tree harvest failed totally, so her husband had to find other work in order to survive.¹³¹

Rural villages and most regional municipalities lack stable employment opportunities. Farmers, without regular income, and often lacking certificates, are also unable to access many forms of credit or loans. The Indonesian Civil Service, although generally perceived to be low paid, is often the most desired form of employment for educated people living in rural or regional areas. The types of positions available range from the professional, such as teachers and nurses, to the military and police. Access to the civil service, however, has become a highly corrupted process (Kristiansen and Ramli, 2006). Generally, candidates who wish to succeed are expected to pay a non-refundable deposit along with nominating the size of the bribe they will pay, usually ranging from IDR 50 million (AUD 4,951) to IDR 150 million (AUD 14,853). If they are successful in passing the exam and receive a position, they are expected to then pay the remaining amount to the intermediary. As the size of the civil service has grown nationally along with the perception that the civil service is inefficient and many staff underemployed, the national government implemented a moratorium on recruitment from September 2011 that lasted until the end of December 2012. Despite the lifting of the moratorium, recruitment remains limited, as the focus of the central government remains on reducing the overall size of the civil service. Newer districts, however, have been able to recruit, incentivizing the splitting of existing districts (McWilliam, 2011).

There are a large number of civil servants in Lawele, mainly working as teachers. Tahir, aged 54, is a government teacher who began teaching in 1981.¹³² After graduating with a general degree (*sarjana umum*), he sat the civil service exam and was accepted. From 1981 until 2005, he worked in Lawele, before moving to Swandala, a village to the east of Lawele. In 2013, he was relocated to Sampolawa, a village in the south of island, due to the suspicion he had not actively supported the campaign of the victorious regent (*bupati*). As a result, he spends several days a week away from home teaching, and then returns home for several days. Despite the politics associated with the position, he still thinks there are many benefits to being a civil servant, which include a steady salary, health insurance and a pension. The salary

¹³¹ Interview 12 July 2013

¹³² Interview 11 May 2013

he receives is not enough for the needs of his family, and he supplements the salary with income from his forest gardens and irrigated rice fields.

One of his sons, Catur, aged 26, a university graduate, works as an intern (*magang*) at the local primary school, while he waits for another intake of the civil service. Since 2003, he has been working as an intern. He graduated in 2008 with an AKTA 2. As the civil service had increased the minimum requirements, however, he needed to complete a bachelor's degree in Kendari. He graduated in 2011 and since then has been living with his parents and relying on them for financial support. Dahayu, the wife of Abdas, has also been working as an intern or honorary teacher (*'guru honorer'*) five days a week, since eight years ago.¹³³ Honorary teachers are teachers who work at government schools but are not civil servants and only receive a small salary. She studied at the university in Bau Bau, and since then has been trying to be accepted into the civil service. As she is paid only a small amount, IDR 300,000 (AUD 30) per month, her family as to rely on other sources of income to get by until she is accepted.

Yaqin, aged 53, is also a civil servant, however; he works with Department of Forestry, based in Lawele.¹³⁴ He enrolled in 1983 in the department of forestry, saying he just wanted to be a civil servant. There was no need for any university qualifications (*'hanya jasa yang diperlukan'*). There are no major problems with being a civil servant aside from the fact that he has had to keep moving around; he used to have to move around twice a year (*'harus pindah terus, dua kali setahun dulu'*). The income from his salary is not enough, he said, as he has to pay for the school and university fees for his children. That was the reason he chose to buy a plot of irrigated rice fields so he did not have to buy rice again (*'alasan punya sawah, tidak harus beli beras'*).

As standards of living have improved, so has the opportunity for people to work in semi-skilled professions, such as electricians, mechanics, carpenters or builders. Abdas works fixing electrical appliances (*'tukang elektro'*), usually after he has finished working in his irrigated rice fields.¹³⁵ Working in Lawele and neighbouring villages of Lagunturu and Wagari, he uses his own equipment that he purchased in Bau Bau. He taught himself how to fix electrical appliances along with some support from his friends. The work is irregular, and he uses it mainly as additional income to save for more expensive items that his family may need. Ekrem,

¹³³ Interview 9 May 2013

¹³⁴ Interview 13 May 2013

¹³⁵ Interview 9 May 2013

aged 54, also is a semi-skilled labourer; however he works as a builder (*'tukang batu'*).¹³⁶ For forty years, he has worked as a builder, beginning in Makassar and now in Lawele and Wonco. The work is irregular, but aside from that, he sees no other downsides to the work. As he has no irrigated rice fields, he said he has no choice but to keep working as a builder, along with his job working as a motorcycle taxi (*ojek*) on market days.

Fadal, in contrast to other semi-skilled workers in Lawele, specialises as a mechanic. He also earns a small amount of income from the billiard table adjacent to his house.¹³⁷ His house is divided into the front area, where all his equipment is stored, the adjacent building for the billiard table and behind, his dwelling. He purchased the equipment using credit from the bank, along with the money earned from the work he had done as a contractor for a water pipe project. To operate as a mechanic, he did not need any permits; however, for the billiard table, he had to get a license. He chose to become a mechanic as it was always his hobby, and he saw an opportunity to earn an income from it. There are no risks or negative aspects to being a mechanic. He is saving to purchase some new tools, and if he needs new stock, he purchases it in Bau Bau. Prices for servicing vehicles are lower than standard prices in Bau Bau because people in the village are poor (*'masyarakat tidak mampu'*). The business is managed in conjunction with his wife and he advertises his business through a small sign out front of his store.

There were exceptions to this trend. Many households, in particular the women of the household, established small businesses, often with the support of loans from PNPM Mandiri. For semi-skilled labourers, the main cost of production was purchasing their tools, and often, these were not that expensive to purchase. For Fadal, however, who established a mechanic workshop, the initial costs were significantly higher. In 2005, Fadal purchased all of the equipment for his workshop, costing IDR 5 million (AUD 495).¹³⁸ He used the money from his time in Malaysia and purchased the equipment in Bau Bau. At the time of the interview, he did not have the money to purchase any additional equipment. The workshop was at the front of his house, so setting up the workshop and building his house were part of the same process.

There are several small businesses in Lawele aside from the trade of rattan and semi-skilled labour. Most of these small businesses are run by women, and involve running small general stores, selling food products or selling cosmetics, toys or other items at the village market.

¹³⁶ Interview 11 May 2013

¹³⁷ Interview 10 May 2013

¹³⁸ Interview 12 July 2013

Very few of these businesses are a primary source of income; they usually supplement farming, semi-skilled labour or salaried income, such as the civil service. Wafiyah, a widow aged 34, sells toys at the village market.¹³⁹ When she is not working at the market, she either tends to her family's irrigated rice farm, agroforest or helps at her parents' store at the market, which they have owned since 1968. Since 2011, she has been selling toys at the market that she buys from Bau Bau. She saved up the initial capital, and after watching how others traded, decided to open her own business. There is not much risk associated with the business, as she does not sell perishable items. There is a fee associated with selling at the market that she pays to the head of the village. If she had additional money, she would like to expand her business, and in 2012, she borrowed money from PNPM Mandiri to help her business.

Galuh, aged 40, and married to Ekrem sells products at the local market.¹⁴⁰ Galuh specialises in selling cosmetics and has been doing so since 2006. Aside from selling at the market, she also has a small store inside her house, and will travel to nearby villages as well as Talingko in North Buton to sell items. She started the business with money that she borrowed from PNPM Mandiri, and says there is no risk involved, as the goods she sells are not perishable. All of the products she buys in Bau Bau. She works with her husband, who takes her to the other villages on his motorcycle. Once their new house is complete, she will open a store at the front of the house. Verda, aged 41, runs a stall on the side of the main road selling food products, mainly fried banana, as well as credit (*pulsa*) for mobile phones.¹⁴¹ Two years ago, she started her business. She did not require much money; she only needed the basic ingredients along with the basic structure to cook the food and sell it. With IDR 100,000 (AUD 10), she said, you can run the business (*'dengan 100,000 bisa menjalani'*). She purchases the phone credit in Bau Bau. She decided to open the businesses for additional income, and there are no negatives to the business, aside from getting tired (*'tidak ada sisi buruk selain capek'*). She works with her children in running the business. Her younger children sell the fried bananas throughout the village after they finish school, and her eldest daughter manages selling the phone credit.

¹³⁹ Interview 10 May 2013

¹⁴⁰ Interview 11 May 2013

¹⁴¹ Interview 10 May 2013

6.6. Decisions to diversify

Most households in Lawele have diversified sources of income (Ellis, 2000b, 1998). Different groups, however, have different diversified livelihood strategies. Civil servants who own land either loan their land, especially irrigated rice fields, out to others or cultivate the land along with their families after working hours. Civil servants also prefer timber species or other species that do not require much ongoing labour. As their salaries cover their regular income, they are able to invest in longer-term strategies. Other households have to adopt more diverse livelihoods to provide for their regular income. Most households prioritise work in the irrigated rice fields, especially major activities such as planting and harvesting. Once work is completed in the fields, people have time to allocate for other activities. Wild honey collectors prioritise honey collection when it is the season, or look for seasonal migration work when it is not. Semi-skilled labourers will undertake most of their work after they have finished in the fields. Households without rice fields or land, such as that of Ekrem, undertake a variety of activities: mainly a mix of small business and semi-skilled labour. A few households specialise in a single activity such as Fadal and his mechanic workshop.

Many people in Lawele have migrated for unskilled, semi-skilled and professional work. Haddad Tahir, the son of Tahir, moved to Bau Bau in 2012 for work as a consultant civil engineer.¹⁴² He graduated from university with a degree in civil engineering in 2007, and chose to work in the private sector, seeing that there were more opportunities than becoming a civil servant. In addition, there were no employment opportunities for him in Lawele. Once he had graduated, it only took him one month to find work.¹⁴³ As he works as a contractor, most of his work only lasts for six months, and there is usually a gap of two months between contracts. He usually has enough money saved to survive during those months. Ekrem, aged 54, has also migrated for work, travelling to Palu in Central Sulawesi to work for one year in 1982.¹⁴⁴ His friend called him to work there, and he returned after an outbreak of violence. He was planning to migrate to Tual, in the Kei Islands of Maluku in June 2013. He has a child there who asked him to go there to work on building houses, initially for a period of two months. If the income is good in comparison to Lawele, he will continue to work there; if not, he will return.

¹⁴² Interview 11 May 2013

¹⁴³ Interview 11 July 2013

¹⁴⁴ Interview 11 May 2013

Fadal, aged 34, also has migrated for work.¹⁴⁵ From 1999 to 2001, he lived in Kota Kinabalu in Sabah, Malaysia, working on a fishing boat. An in-law of his older brother invited him to work there, saying that the income was greater than he could earn here. All he needed was his passport to enter. Asked why he was motivated to go there, he replied, 'A bigger income and for the experience' (*'penghasilan lebih besar dengan pengalaman'*). He did not anticipate any great risks, as his older brother was already there. He knew, however, that he would be far from his family, and the work was hard. Often his boss would cut his salary and would hold on to his passport, preventing him from leaving. There were also operations by the government looking for illegal immigrants. After the first year, he returned home to discuss with his wife whether he should continue, deciding to try working there for one more year. Once he had saved up enough money, he returned home, and does not want to ever migrate again.

Ibrahim, aged 29, the husband of Jahizah, was working on a fishing boat in Malaysia at the time of the interview.¹⁴⁶ Since the age of thirteen, he has been travelling to Malaysia for work, returning to the village every Lebaran (Eid al-Fitr). The first time he went there, he was invited by his friends, and entered using a passport only. The reason he works there is because the salary is higher than in Lawele; however, he has to work at sea, and he is far from his wife and family. He will return permanently once he has finished building the house in the village.

Bandrianto, aged 43, also regularly migrates for seasonal work.¹⁴⁷ He once worked in Ambon for two years and four months. When he was in Ambon, he was forced to move around a lot because the work was dangerous, eventually working with a timber company for eight months. Every July, a nephew of his calls him to go and work in the Sula Islands of North Maluku to harvest cloves. In 2006, he also worked in Papua for three months, forced to return home because he caught malaria. In 2010, he migrated to Bombana, an island in Southeast Sulawesi to look for gold. His first trip was for fifteen days, and his second trip was for one week, followed by a shorter trip for three days. In 2011, he went to work in the Menui Islands, in Morowali District, Central Sulawesi, harvesting nutmeg. He hears about these opportunities through friends or relatives and, before he can leave, needs to get permission from his wife. When he leaves, his family manages the irrigated rice fields. He does it for the additional income, but also enjoys the experience. If the work is good, he stays longer; however, if it is

¹⁴⁵ Interview 10 May 2013

¹⁴⁶ Interview 11 May 2013

¹⁴⁷ Interview 9 May 2013

not, he just returns home. He was planning to go to North Maluku to work from July to September of 2013.

Zabidi, aged 41, the husband of Verda, regularly migrates for work, and at the time of the first interview with her, was working in Bangka mining tin.¹⁴⁸ In 2011, he first went to Bangka, after a friend who was originally from Lawele suggested he go and work there. He usually goes there after the honey season has finished because there are not many livelihood options in Lawele. Tin mining in Bangka is usually informal and involves dredging tin from the seabed. One or more people can be involved in diving into the water, often without diving equipment, to direct the dredging machinery underwater. The work can be dangerous, he said, if you are involved in diving for tin, but he does not do the diving. He returns to Lawele once the waves start to get big there. In 2012, he went to work in Papua for four months in the timber industry, on the advice of a friend. The problem with Papua, she said, was that there was always unrest (*'sering kacau'*), and people are often shot.

6.7. Standards of living in Lawele

People in Lawele have greater access to goods and services and, generally, have more assets than in the other two settlements. The settlement is also more integrated with urban centres, in particular Bau Bau, due to better road access, and more frequent travel to the town. More young people also study in Bau Bau at senior high school and university, and have more friends and peers in Bau Bau and elsewhere. In this context, how do improved opportunity structures influence the aspirations and choices of people in Lawele? What are the social pressures and effects of social comparison that come with greater integration with urban centres?

The quality of housing in Lawele shows the greatest variation out of the three settlements. Poorer houses are constructed in a more traditional way: elevated, timber houses with thatched (*nipa*) roofs. People usually improve these houses through improving the roofing, with asbestos or tin, installing electricity or building kitchens and toilets. Wealthier houses are built using cement bricks and can be single or double storey. Flooring can be cement or tiles, and roofing materials can be tin, asbestos, tiles or more recently, polymer materials. Some houses have water pipes installed in the house for bathrooms and consumption, whereas others use the public taps. All sources of water come from the same, basic piped water

¹⁴⁸ Interview 10 May 2013

infrastructure. Electricity, up until 2014, was mainly provided through individual generators, or collective power sharing arrangements, with one household selling the electricity it produced to the others. A few houses had individual solar panels installed. The electricity was not sufficient to use refrigeration without affecting the supply to other houses. Consequently, producing ice required running the generators through the night when most were sleeping. In 2014, after most of the field research had finished, grid electricity was made available in Lawele.

Some in Lawele do not have their own houses yet. For instance, Abdas aged 34, originally from Bau Bau, lives with his family in his mother-in-law's house and, as yet, has not had to build a house.¹⁴⁹ In 2015, he said, he would like to build a house for his family out of timber that would cost around IDR 10 million (AUD 990). Wafiyah, aged 34, lives with her parents, where they have all their own equipment. She buys clothing 12 times a year, mainly using the income from her cashew nut trees.¹⁵⁰ Building a timber house for the first house is common. Kadhim, who is a teacher, aged 34, built his house in 2009 for IDR 20 million (AUD 1,980).¹⁵¹ The house, made of timber, is only temporary while he builds another house in Pasarwajo, the district capital. It took one year to save the money using the income from his salary along with the money his wife earns selling clothing at the market. They built the house slowly, paying for different components incrementally. Bandrianto, aged 43, built his wooden house in 1995, for around IDR 1.5 million (AUD 149), using his earnings from collecting rattan and wild honey.¹⁵² He would like to renovate his house in 2013, which will cost IDR 4 million (AUD 396), money that he already has saved from his rattan business along with selling some of his land to his family.¹⁵³

Those wealthier or more established families build houses out of cement bricks. Fadal, aged 34, owns a house that is connected with his workshop and billiard hall, built out of brick.¹⁵⁴ He bought the land for IDR 5.5 million (AUD 545), and the house cost IDR 30 million (AUD 2,971) to build over two months. It took him eight years to save the money from his time working on a fishing boat in Malaysia, as a motorcycle taxi and as a contractor. Verda's family renovated their house in 1996 and 1997, replacing the timber with cement bricks.¹⁵⁵ At the

¹⁴⁹ Interview 14 July 2013

¹⁵⁰ Interview 11 July 2013

¹⁵¹ Interview 13 July 2013

¹⁵² Interview 13 July 2013

¹⁵³ Interview 13 July 2013

¹⁵⁴ Interview 12 July 2013

¹⁵⁵ Interview 12 July 2013

time, which was before the monetary crisis, it cost IDR 20 million (AUD 1,980), and her husband earned the money through collecting wild honey and snakeskins. Every time he would earn money, he would buy extra materials, taking about six months to build the house in total. Tahir, aged 54, built his cement brick house in 1985, which at the time cost IDR 25 million (AUD 2,475), and finished it in 1987.¹⁵⁶ He paid for it all using his salary.

Lawele has also the greatest range of household assets, from a minimum of around IDR 325,000 (AUD 32) up to IDR 75,850,000 (AUD 7,511), not including the value of house and land (Table 6.4.). These represent wooden houses with thatched roofs where the owners may only have a few basic items in the house, to two-storey houses, where the owners have multiple motorcycles or a car, along with electronic goods including laptops (Table 6.5.). Despite having only a weak or moderate mobile phone signal, nearly all of the households surveyed (97%) had at least one mobile phone. The majority of households (66%) had a television set, and 58% owned at least one motorcycle. Nearly a quarter of the households (24%) had more elaborate furniture such as sofas. Although only 5% stated that they owned a stereo, this may be due to not having ‘stereo’ as an explicit category on the household surveys; they were only listed manually under ‘other’ in the electronics section. Some households in Lawele also had items that were not in the other settlements, such as laptops or PlayStations.

Table 6.4: Range and average of total household assets¹⁵⁷

	Average of TOTAL ASSETS	Min of TOTAL ASSETS	Max of TOTAL ASSETS
IDR	19,640,163	325,000	75,850,000
AUD	1,945	32	7,511

¹⁵⁶ Interview 14 July 2013

¹⁵⁷ The table is based on the results of the household surveys.

Table 6.5: Ownership and average prices of vehicles, household electronics and furniture¹⁵⁸

ITEM	AVERAGE PRICE (IDR)	AVERAGE PRICE (AUD)	PERCENTAGE OF HOUSEHOLDS OWNING AT LEAST 1
Car	65,000,000	6,436	1%
Motorcycle	13,306,604	1,318	58%
Electricity Generator	2,134,375	211	17%
Mobile Phone	637,753	63	97%
DVD Player	404,048	40	46%
Stereo	550,000	54	5%
Sofa	3,400,000	337	24%
TV Set	1,235,054	122	66%

At the lower end of the range of household assets were people such as Bandrianto. At the time of the interview, Bandrianto did not own a motorcycle or any household electronic appliances.¹⁵⁹ He purchases clothing four times a year in Bau Bau. Abdas, aged 34, has not yet had to purchase any electronics, as he uses those owned by his mother-in-law.¹⁶⁰ In 2011, he purchased a motorcycle, second hand, in Bau Bau for IDR 8.5 million (AUD 842), for which took him two years to save, using the earnings from working in the irrigated rice fields and as an electrical technician. His family purchases clothing once a year after Lebaran. Wafiyah, also aged 34, and living with her parents also uses their assets.¹⁶¹ She will buy clothes for her family around twelve times a year.

Others have far more assets. Fadal, aged 34, bought his motorcycle in 2001.¹⁶² At the time, he bought the Honda for IDR 21 million (AUD 2,079) in Bau Bau. He used credit to buy the motorcycle and repaid it over two years, using money from his time away in Malaysia, as well as income from working as a motorcycle taxi (*ojek*). In 2002, he purchased a television for IDR 700,000 (AUD 69), still using the money from his time away in Malaysia. He then purchased a stereo set in 2009 for IDR 600,000 (AUD 59), using the money from his workshop. In 2011, he purchased another television along with a PlayStation for IDR 2.2 million (AUD 218) in Bau Bau. The money for this came from his workshop and took him around one year to save. In 2012,

¹⁵⁸ The table is based on the results of the household surveys.

¹⁵⁹ Interview 13 July 2013

¹⁶⁰ Interview 14 July 2013

¹⁶¹ Interview 11 July 2013

¹⁶² Interview 12 July 2013

he purchased a sofa for IDR 2.5 million (AUD 248) in Bau Bau, which took ten months to save. He and his wife planned to purchase a washing machine next, which will probably take three months to save. They purchase clothing once a year, after Lebaran, in Bau Bau.

Kadhim, aged 34, purchased a motorcycle in 2012, for IDR 14.1 million (AUD 1,396) in Bau Bau.¹⁶³ He borrowed money from the bank to pay for it, choosing a brand that was suitable for his wife. In 2010, he purchased a television with an antenna included for IDR 1.5 million (AUD 149) in Bau Bau, using his salary directly to buy it. In 2013, he purchased a DVD player for IDR 400,000 (AUD 40) in Bau Bau, once again just using his salary. They buy clothing three times a year in Bau Bau. He is planning to purchase a Toshiba laptop for IDR 5 million (AUD 495) with credit over the course of one year. At the same time, he just started building his house in Pasarwajo, which he anticipates will be finished in 2014 and will cost IDR 60 million (AUD 5,941). Verda's family bought a motorcycle in 2003 in Bau Bau.¹⁶⁴ It cost IDR 17 million (AUD 1,683), taking two years to save from the household's earnings, especially forest products such as wild honey and snakeskin. In 2005, they bought a television and stereo set in Bau Bau, which cost IDR 3.5 million (AUD 347), and it took two months to save the money. Verda buys clothes around eight times a year from the local market, whereas her husband purchases his clothes five times a year, usually from wherever he is working at the time. They feel content with what they own now, and are just focusing on the needs of their children.

Haddad Tahir, the son of Tahir, aged 29, now lives in Bau Bau, working as a civil engineer.¹⁶⁵ He lives in a rented house, and bought his first motorcycle in 2010, costing IDR 23 million (AUD 2,277) with money he earned being a supervisor on a project in Wakatobi. It took him two years to save the money, and he chose the brand that was his favourite in Bau Bau, a Vixion. In 2009, he bought a laptop for IDR 5 million (AUD 495), which is already broken, and then bought another in 2011 for IDR 7 million (AUD 693), taking six months to save. He purchased a stereo set in 2012 for 900,000 (AUD 89), and then bought a television and DVD player in 2013 for a total of IDR 2 million (AUD 198). He will buy clothes three to four times a year, in Bau Bau at shops or the mall, or Kendari, at Matahari, a large Indonesian department store chain. He is planning to buy a washing machine and a sofa next. After that, he would like to buy land in either Bau Bau or Lawele, where he will later build a house.

¹⁶³ Interview 13 July 2013

¹⁶⁴ Interview 12 July 2013

¹⁶⁵ Interview 11 July 2013

Tahir owns four motorcycles, the first of which he purchased in 2003 in Bau Bau, which cost IDR 13.5 million.¹⁶⁶ The model was a Honda Supra and he used his salary to purchase it. He purchased two additional motorcycles in 2010: a Yamaha for IDR 14 million (AUD 1,386) and a Vixion for IDR 24 million (AUD 2,376). In 2012, he purchased another motorcycle, a Bison, for IDR 23 million (AUD 2,277). In 2005, he purchased a television and antenna for IDR 2.5 million (AUD 248), along with a stereo that cost IDR 1 million (AUD 99). He bought another stereo in 2011 for IDR 1.25 million (AUD 124). His family buys clothing three times a year in Bau Bau. He would like to renovate his house when he has the money, but that will cost IDR 150 million (AUD 14,853) and take around five years to complete. He is also planning to buy a sofa set for IDR 10 million (AUD 990) in August of 2013.

Within the villages of Lawele and Benteng, there are schools from pre-school to junior high school within walking distance (Table 6.6.). There is also a private, senior high school in the village, however, the students have to sit their exams in the sub-district capital of Kamaru. Verda has two children who have gone on to senior high school, but only at the unofficial private high school in Lawele.¹⁶⁷ Mostly, however, people who want to educate their children beyond junior high school will send them to a larger town, such as Bau Bau. These include people such as Fadal, who has one child who has just begun classes in senior high school in Bau Bau.¹⁶⁸ He has yet to pay for school fees, and the child is living with his auntie there. One of Bandrianto's children studied until senior high school in Bau Bau, but they have already finished.¹⁶⁹ The child stayed with family in Bau Bau, and it cost around IDR 2 million (AUD 198) a year, once again using the income from wild honey and rattan.

Some children go on to university, the majority of whom study in Bau Bau, but others study in places such as Kendari or Makassar. Most of Tahir's older children have gone to university, and currently one of his children studies at university in Bau Bau.¹⁷⁰ The cost for the university is IDR 2.4 million (AUD 238) a year for the fees along with IDR 4 million (AUD 396) for other costs. He pays for all those fees from his salary. A university education is now the minimum requirement for entering the civil service, and, for some, is an opportunity to more highly paid work in the private sector.

¹⁶⁶ Interview 14 July 2013

¹⁶⁷ Interview 12 July 2013

¹⁶⁸ Interview 12 July 2013

¹⁶⁹ Interview 13 July 2013

¹⁷⁰ Interview 14 July 2013

Table 6.6: Level of education in the settlement of Lawele¹⁷¹

	Total Percentage	Male Percentage	Female Percentage
NO EDUCATION	3%	2%	4%
PRIMARY EDUCATION	23%	20%	25%
JUNIOR HIGH SCHOOL	22%	20%	24%
SENIOR HIGH SCHOOL	33%	34%	31%
TERTIARY EDUCATION	20%	24%	16%
	100%	100%	100%

The people in Lawele have access to the local clinic, which is within walking distance for most. In case of an emergency, people have access to transport, including an ambulance, to travel to hospitals in Bau Bau. Some choose, however, not to use the services. Early in 2013, Bandrianto broke his arm while looking for rattan in the forest.¹⁷² He did not go to the hospital, as he felt that only a local healer (*dukun*) could help heal the problem. In the past, he had used medical services in Bau Bau. Bandrianto spent three days in a clinic (*'klinik praktek'*) in Bau Bau in 1997. At the time, it cost IDR 350,000 (AUD 35) that he paid for with help from his family. Others have used medical services in Bau Bau too. Fadal was once sick with typhus for four days, having to enter the hospital, which cost him over IDR 1 million (AUD 99).¹⁷³ He had to borrow the money from his family to pay for his stay there. Abdas's mother-in-law was sick in 2009 that required her to enter the community hospital in Bau Bau (*jamkesmas*) for a week.¹⁷⁴ The total cost was only IDR 300,000 (AUD 30), for transport and medicine costs, and they were able to use money that they already had. With the exception of Fadal's wife, most women gave birth at home assisted by a midwife and local healer. His wife gave birth to their first child at the hospital in Bau Bau. The services cost IDR 2 million (AUD 198), money that he had to borrow from his family. After that, she chose to give birth at home for the next two children, and a midwife from the local clinic came to help.

¹⁷¹ The table is based on the results of the household surveys.

¹⁷² Interview 13 July 2013

¹⁷³ Interview 12 July 2013

¹⁷⁴ Interview 14 July 2013

People in Lawele hold, and feel obliged to hold, elaborate and expensive ceremonies for major life events such as *akika* (Aqiqah), *sunat* (Khitlan, circumcision) and weddings. The ceremonies involve providing food and beverages for guests, along with entertainment, usually a large stereo system and karaoke. Most of the people interviewed spoke about *akika* and weddings being the most expensive events to hold. Fadal so far has had to pay for two ceremonies for his children: the first *akika* in 1999 that cost him IDR 5 million (AUD 495), and the second *akika* in 2003, which cost IDR 6-7 million (AUD 594-693).¹⁷⁵ Abdas has had to pay for *akika* ceremonies for both his children.¹⁷⁶ The first in 2007 cost him IDR 3 million (AUD 297), and the second in 2013, cost IDR 10 million (AUD 990), using the money from harvest of his irrigated rice fields. Verda's family had to pay for an *akika* ceremony in 2008, which cost IDR 3.5 million (AUD 347), which took around two months to save.¹⁷⁷ Haddad Tahir, aged 29, had to pay IDR 80 million (AUD 7,922) for his wedding and another one million for his clothing.¹⁷⁸ The costs were divided between him and his parents. Bandrianto had to pay IDR 10 million (AUD 990) for a wedding in 2012, part of the cost of which was borne by his family.¹⁷⁹ It took him one month to save for, using the income from collecting wild honey.

When I returned to the village in August of 2014, grid electricity was already available and many houses already connected. Many stores had begun selling refrigerated drinks, and Verda had now begun selling sweet ice drinks at her stall. Indovision, an Indonesian cable television company, had started selling packages for satellite television. Abdas, who had worked in electrical appliances, was working as their local representative helping them to install the satellite dishes and wiring in houses. A shop had also opened at the market that rented the use of PlayStations throughout the day and night.

6.8. Discussion

The case study of Lawele represents a more complex and dynamic multifunctional landscape where rural households make decisions. Two dimensions contribute to this added complexity and dynamism. The first extends from the diversity of ecosystems and land uses within the

¹⁷⁵ Interview 12 June 2013

¹⁷⁶ Interview 14 July 2013

¹⁷⁷ Interview 12 July 2013

¹⁷⁸ Interview 11 July 2013

¹⁷⁹ Interview 13 July 2013

territory of Lawele. The territory of Lawele fits within the definition of a 'landscape mosaic', or, multifunctional landscape (Naveh, 2001; O'Farrell and Anderson, 2010; Pfund, 2010; Pfund et al., 2011). Theoretically, the territory of Lawele extends to the bay, and is bordered by the conservation area, the forest area and lands of the Kalende to the south, and the asphalt mining to the east. Within this territory, there are diverse natural and human modified systems. The natural systems include tropical lowland forests, mangrove forests, and fresh water and marine areas. The human modified systems, beyond the physical settlement, include irrigated rice fields with their supporting infrastructure and agroforests. The boundaries of the territory are more fluid and are contingent on livelihood activities: farmers have more restricted boundaries while those collecting wild honey generally travel much further.

The second dimension that adds greater dynamism is the greater social diversity and range of economic opportunities. In contrast to the other settlements, there are greater non-farming livelihood opportunities (Ellis, 2000a, 1993). These opportunities are not only restricted to positions in the civil service, but also include opportunities for the provision of semi-skilled labour or a variety of small business opportunities. The interconnectedness of the settlement also adds to its dynamism. The market at Lawele functions as the place where produce from Lawunta and Tanjung Bunga are sold or exchanged. The market provides opportunities, especially for women, to establish small businesses to benefit from this trade. The location of Lawele on the road linking the settlement with the rest of Buton not only facilitates easier access to markets, but also increases the traffic of people, customers and traders through Lawele. The dynamism and complexity of the territory of Lawele provide a diverse and seemingly endless array of livelihood opportunities. In practice, however, the actual range of livelihoods for households is constrained due to a range of social processes.

Property rights are one mechanism that shapes the decisions that households in Lawele can make (Schlager and Ostrom, 1992). The official government land classification scheme restricts the types of access households have to forest areas, in particular restrictions on harvesting timber and hunting. Other forms of forest livelihoods, such as harvesting rattan, collecting wild honey or collecting shellfish from the mangrove forests, are either officially approved or tacitly allowed. Although there are no restrictions on fishing in the bay, typically people only fish as a recreational activity, as fishing as a livelihood is perceived to be the domain of the Bajo. With the exception of harvesting timber, the residents of Lawele perceived there to be few restrictions on how and where they accessed natural resources.

The land used for farming was generally divided between irrigated rice farmland and other lands. Generally, most land was acquired through inheritance or clearing land when it was permitted. Only irrigated rice fields were purchased, and that farmland came with land certificates, and could be purchased on credit by those with access to loans. Other farmland, either agroforests or secondary forests from old swidden fallows, did not generally have certificates, and ownership was recognised locally or via the village head. Parcels of irrigated rice farmland were smaller and increasingly divided among members of younger generations. Agroforest land or fallows, in contrast, were comparatively larger and concentrated among the indigenous households. These lands were generally not sold and considered for their value to future generations. These lands were also more biologically diverse, and agroforests contained usually more than one variety of tree species.

The pattern of agrarian livelihoods was a result of a mix of opportunistic responses to new crops or tree varieties and government-driven initiatives for intensified rice farming. These changes fit in with a broader change from swidden farming to intensified farming and cash crops (Cramb et al., 2009). Only some of these changes, however, were government driven. One of the major policy initiatives of the New Order regime was to discourage swidden cultivation and promote intensified farming (Cramb et al., 2009). Both of these initiatives were in place in the landscape with many people forcibly relocated from their homes in the interior of the island to settlements that were more accessible. The government, however, also constructed the infrastructure necessary for irrigated rice farming such as dams and canals, as well as providing equipment such as tractors and rice milling machines. The productivity of irrigated rice farming in comparison with swidden farming led most families to abandon swidden farming. These fallow lands would later be used for tree crops, in particular cacao.

Agroforests for commercial uses were not new to the settlement. Historically, tree crops such as coconut, clove and nutmeg had been cultivated, and many of these old forest gardens remained in the interior of the island, especially in the conservation area. Coffee and cashew, as well as fruit trees and timber species, were commonly cultivated too. The cacao boom, which affected much of Sulawesi (Li, 2002a; Neilson, 2007), however, was what shaped the landscape in a massive way. Almost uniformly across most households with agroforests, some proportion of their land was dedicated to cacao agroforests. The boom had spread through social exchanges and processes of social imitation rather than through official government policies. And, despite the decline in price and productivity, most households had not replaced their cacao with other tree crops. Without government or other support for addressing the

challenges of pests and disease, or improving the quality of harvested products, there was no clear way to improve the productivity of the extensive cacao agroforests.

Farming, then, retained a centrality to the livelihoods of households in Lawele. The two main forms of farming could be described as agroforestry, including some timber species, and irrigated rice farming. Although there were many households that diversified livelihoods out of farming, there were also households that diversified into farming. This was particularly the case for wealthier households that were able to acquire more irrigated rice farmland to either farm individually or loan for sharecropping. Wealthier households, often civil servants, were also able to invest in planting timber trees on their land, without having to worry about immediate or short-term returns from the land. Diversifying into agroforests, however, was generally not done, as few were willing to sell their land and few lands had certificates. In contrast to the other two settlements, there was a range of livelihood diversification strategies, although most involved some form of farming.

The first pattern of household livelihood strategies involved a mix of irrigated rice farming, agroforestry, forest livelihoods and circular migration. Within this livelihood strategy, rice farming provides households with food for subsistence, but not much more. As agroforests, in particular cacao, are considered not highly productive, forest-based livelihoods were a source of cash income. Collecting wild honey was the most lucrative of these, which provided cash income from a de-facto open access resource with limited inputs or processing. Alternative forest livelihoods, such as harvesting wild rattan, were contingent on businesses that were able to obtain the required permits, and consequently irregular. The price paid to farmers directly for wild rattan was also far lower than they obtained for wild honey. When the income from these strategies was insufficient, men would migrate or women would diversify into small businesses, supported by credit programs from PNPM Mandiri.

The second pattern of household livelihood strategies involved a mix of irrigated rice farming, possibly some agroforests and semi-skilled labour or small businesses. In this scenario, irrigated rice farming provides for subsistence and some income, although not sufficient for the needs of the household. Agroforests, including cacao, cashew or fruit trees, provide some income although not sufficient. Farmers, in order to increase their household income, diversified into semi-skilled occupations, becoming carpenters, stonemasons or electricians. Women would typically open small businesses as either general stores, food stalls or selling specific goods at the market. Other types of labour, such as farm labour or motorcycle

transportation, were also common in this scenario. If income were not sufficient, people, typically men, would migrate for short periods.

The third pattern of livelihood strategies involved professionals, mainly civil servants, who also had diversified livelihood portfolios including farmland or other businesses. One group of civil servants were those who were either indigenous or locals, who were educated and entered the civil service. They typically owned lands that they cleared themselves or inherited, as well as owning irrigated rice farmland. In their agroforests, they planted a range of tree species including timber species. Another group of civil servants were those who were not indigenous and later purchased irrigated rice farmland to diversify their income. Diversification into farmland was supported through bank loans.

There were also other less common livelihood strategies. There was the example of the household where the husband had migrated to Malaysia for an extended period and was sending remittances to support the family. There was the other example of the mechanic, who almost exclusively specialised in his business and had no farming activities. He was largely the exception to the pattern in the settlement. Nearly every household, however, had some level of involvement in farming: either as a source of income, subsistence or both. This could have been due to several factors. First, no single livelihood is sufficient for the needs of a household, with the exception of him. Second, households were pursuing strategies to maximise their income, which included diversifying into as many potential sources of income as possible. Finally, land retained some of its historical and cultural significance as an indicator of wealth for current and future generations.

The diversified livelihood strategies incorporated farming, forest and non-farming livelihoods (Ellis, 2000b, 1998). Applying the access framework provides some understanding as to how households were able to benefit from land and natural resources (Ribot and Peluso, 2003). Understanding how households were able to benefit from non-farming livelihoods requires a separate analysis. A simple explanation for the difference between irrigated rice farming and agroforestry was the level of government support. Where irrigated rice farming was supported through extensive infrastructure, technology, subsidised inputs and farming groups, agroforestry received almost no government support. Farmers adopted agroforestry practices and tree varieties through processes of social learning (Bandura, 1977), exchanges and imitation of successful strategies (Boyd and Richerson, 2005; Kruglanski and Gigerenzer, 2011). Although these strategies were generally effective, they were unable to address challenges such as diseases and pests.

Non-farming livelihoods were also shaped by access to government services, but through different mechanisms. The civil service, or other professional employment, was perceived as the only valuable outcome of persisting with formal government education in the settlement. The relative wealth of families in the civil service had encouraged many younger residents to imitate that strategy. The potential of that strategy, however, had largely been reached by the time of my research with rampant corruption in the recruitment process and the moratorium of civil service recruitment leading to many graduates remaining unemployed. Semi-skilled jobs, in contrast, usually reflected the personal interests of the individual and their ability to purchase basic equipment. Skills were mostly self-taught or learned from peers or family and usually undertaken after farming activities were completed. The opportunities for these jobs increased as the living standards in the settlement increased. Finally, small businesses, especially those operated by women, were supported by small loans through the PNPM Mandiri program.

What differentiated Lawele from the other two case studies was that the pressures to diversify were uniformly felt across most households. The differences among households was how they responded and adapted to those pressures. Why this occurred relates to the different goals of households in Lawele in contrast to the other two settlements. Subsistence, as a goal in Lawele, was similar to that in Lawunta. Households would aim to produce enough rice for the household through farming. Vegetables could either be grown or purchased at the market. Fish, as the main source of protein, as well as chicken, could be purchased at the market or bartered for other goods. The price of fish fluctuated according to seasonal factors, with poorer households being most affected during the Eastern Monsoon. Other consumables were purchased from the market or small general stores throughout the settlement. These patterns of subsistence, however, were not unique.

Where Lawele differed from the other settlements was the type of infrastructure that households could access. Although the infrastructure still was basic, it provided the basic requirements for participating in the consumer society of middle class Indonesia (van Klinken and Berenschot, 2014). These elements included regular and affordable electricity, road access, piped water that could be used directly by households and a mobile phone signal, which although weak, was still capable of receiving and transmitting data. Similarly, the residents of Lawele also had better access to consumer markets, which included not only cheaper electronic goods from China, but also more popular electronic brands. After the introduction of grid electricity, households were able to increase the type and quantity of household appliances as well as access subscription television. With access to the right

infrastructure and consumer markets, there were few or no limitations on the types of goods or services that households could theoretically purchase.

Social inequality was also higher in Lawele. Wealthier households lived in cement brick single or double storey houses where poorer households lived in elevated wooden houses with thatched or tin roofs. In higher quality houses, people would have piped water and indoor bathrooms, where poorer households would have to use public taps. Inequality was also evident in terms of other household assets such as ownership of motorcycles and the quantity and type of mobile phones that households owned. Poorer households, in this context, would compare themselves with the wealthier households in the settlement. Wealthier households, mainly civil servants, would instead compare themselves with their peers in urban centres or other professionals. Younger residents, who went on to higher education in urban centres, also compared their lives against their peers there (Bearden and Rose, 1990). The majority of households owned a television, and consequently, were exposed to the lives of wealthier Indonesians as well as advertising, which influenced their goals and aspirations (Bruni and Stanca, 2006).

The access to government services, in particular education and health, were much higher in the settlement. People in the settlement had direct access to primary and junior high schools, and were consequently more likely to educate their children to either complete high school or tertiary education. Educating children to higher levels, however, came with expenses that were regular and increased with the level of education. Access to the local clinic was also easier and the nurses at the clinic were more likely to make house calls. Households in Lawele were also more likely to have used a public hospital. The improved access to health, however, came with additional expenses that people were unable to pay by themselves and for which they had to rely on the support of their family. Many were also disappointed with either the service or price, meaning they were less likely to use it in the future.

In this general context, not only was a higher standard of living possible for households, but through social pressures and processes of social comparison (Bearden and Rose, 1990), they were also expected to maintain a higher living standard. These pressures were evident through the cost and frequency of ceremonies, as well as the frequency and quality of clothing purchases. In contrast to the other two settlements, households reported holding a number of ceremonies, typical to Islamic households in Indonesia, which involved substantial costs. The most expensive of these ceremonies were weddings. Both wealthier and poorer households felt pressure to hold these ceremonies. For adults, clothing was generally

purchased outside of the settlement, usually in urban centres such as Bau Bau or Kendari. There was an expectation that people should meet the expected standards of their peers in urban centres.

In contrast to the other settlements, and Chayanov's theory, there was no threshold on what a household could consume (Chayanov, 1986; Durrenberger and Tannenbaum, 1992; Tannenbaum, 1984). That is, the combination of infrastructure and consumer markets meant that households could potentially purchase an unlimited range of consumer goods. Simultaneously, social inequality and processes of social comparison meant that households were expected to maintain higher living standards. Households in Lawele had seemingly taken their first steps on the hedonic treadmill. The challenge, however, was that there were few improvements in farming or other livelihoods to support this higher living standard. Outside of the rural livelihoods available in the settlement, circular migration was the only option. The traditional pathway of joining the civil service was becoming unfeasible for younger generations. A mismatch between rural livelihoods and aspirations had emerged.

6.9. Conclusion

In the midst of biological and livelihood diversity, driving livelihood strategies were the desirable and expected goals associated with higher living community living standards. The infrastructure and government services in the settlement, although still basic by many measures, had enabled rural households to have higher living standards. Social integration with urban centres, conversely, had also led to higher expected living standards. Rural households, ranging from the poorer to the richer households, adapted to this potential and reacted as well to these pressures through diversification strategies. Common among all households was the perception that rural livelihoods alone were not sufficient for maintaining these living standards. Land and forests were perceived as not being adequate, and non-farming livelihoods were either temporary and insecure, or in the case of the civil service, no longer a secure, viable pathway to prosperity. At the frontier of the middle class, rural households found themselves balancing the immediate needs of maintaining or improving their living standards, against preserving their lands and livelihoods into the future.

Chapter 7 :

Deciding Between Nature and Roads in the Lungs of the World

7.1. Introduction

Mining leaves little arable land behind for farmers to use after operations have ceased. For farmers, especially smallholder farmers in the tropics, it seems counterintuitive for them to voluntarily sell their land for such a destructive land use. In this chapter, I explore the question of why farmers in Lawele and Lawunta sold their land to asphalt mining companies. The chapter explores these questions through the perspective of the rural households that have been discussed in previous chapters. I analyse the extent to which the decline in the importance of land and the concurrent increasing needs for cash income, motivated people to sell their land. On another level, I explore the political processes driving the expansion, and assessing how much power landowners had to reject the offers for purchasing their land. Finally, I briefly explore why conservation efforts to protect the forest landscape of the interior of Buton failed to prevent the expansion of asphalt mining.

7.2. A brief history of the landscape

In November 2012, a convoy of journalists and dignitaries arrived in Lawele. On the initiative of the national Ministry of Tourism along with the district regent, journalists were invited from throughout Indonesia to promote the Island of Buton as a tourist destination. Before they arrived in Lawele, they had travelled through several destinations in Buton, including the Lambusango nature reserve. In anticipation of the arrival of the convoy, people from Lawele and elsewhere in Buton, waited at the traditional hall (*baruga*) wearing their finest traditional garments. From early in the morning they waited, finally at three o'clock in the afternoon, the convoy arrived. Prior to starting the dances, officials gave speeches to the audience assembled in the *baruga*. The representative of the Ministry of Tourism spoke about the potential of Buton as a place of tourism. He highlighted its natural assets such as forests and marine life,

along with its unique historical sites and strong culture. Later, the regent spoke. He spoke of his plans to turn Lawele into a centre of asphalt mining that would bring prosperity to the district along with providing jobs to people in Lawele. To support the mining as well as the people of Lawele, a new road would be cut through the forest-covered hills behind the village, linking it to the district capital of Pasarwajo. The audience applauded these plans, along with those of increased tourism to Buton, while no one seemed to notice the inherent contradictions between mining and tourism.

In the past, asphalt mining was not always so well received in Lawele. In 2004, according to locals, a new mining concession was allocated in lands around Lawele, just above the government housing (*pemukiman*) for the displaced Kalende. As the mining concession commenced operations, the forest gardens of local people were entered without their consent or adequate compensation. Not content with this, the locals unsuccessfully protested against the operation. Finally, an enraged mob burnt down the police station, leading to the arrest of the leader, and to others leaving the village. The mine itself did not last long after that. By 2012, however, the mood in the village had changed significantly. At the end of the year, the first farmers had sold their land at the edge of the village known as Lagunturu to the mining company. By mid-2013, the last of the landowners in Lagunturu had sold their land. Not long after these initial sales, people from all over the village, ranging from the lowland farmers to the upland farmers of Lawunta, had agreed to compensation payments for the loss of their forest gardens to asphalt mining. Why had the perspective of local people towards mining changed so dramatically in such a short period? Finding the answer to that question requires understanding the history of the landscape, and how the lives and livelihoods of the people who live there have changed.

The people of Lawele and the Kalende consider themselves the indigenous people of the area, with their ancestral hometown located to the southwest of the village. The historical origins of the landscape are evident in the historical remains, such as the century's old fortress now located in the conservation area overlooking the village. The history of the area is also present through the names and origin stories of places and sacred areas, and ongoing traditional ceremonies, such as the *pesta adat*, which every two years takes place in the fortress above the village. The people of the village also trace their ownership of the land to the Sultan of Buton, who tried to assert the traditional ownership of Buton up until the time of the first President of Indonesia, Sukarno. Although the rule of the Dutch affected the people of Lawele,

it was not until the formation of the nation-state of Indonesia that people's links with the land became significantly altered.

The rebellion (*gerombolan*) of Kahar Muzakkar, between 1950 and 1965, linked to broader Islamic rebellions throughout Indonesia (Stacey, 2007), dramatically reshaped the demographic composition of Lawele. Following the *gerombolan*, the events of 1965, with the massacre of suspected Indonesian Communist Party (*Partai Komunis Indonesia – PKI*) members and the establishment of the New Order under President Suharto, further disempowered the people of Lawele (Purwanto, 2009). Buton had been nominated as a stronghold of the Indonesian Communist Party, and, consequently, had many of its government leaders and intellectuals removed from office and imprisoned. Government officials were then replaced with military officers, mostly from South Sulawesi, who initiated a period of repression against the people of Buton, including Lawele. Throughout the 1970s, similar to what occurred throughout Indonesia, the hill-dwelling Kalende were forcibly relocated from their homes to the lowland housing area behind Lawele, named Kawuna-wuna. Many Kalende chose instead to flee to Ambon, where they worked as farmers or in the city.

7.3. Lambusango: the Lungs of the World

In 1982, according to the head of the village of Benteng, the forest areas were first classified according to central government regulations, which included the creation of the conservation area.¹⁸⁰ The classification was done without input from the local people, and consequently, incorporated many locations important to the people of Lawele, and later Benteng. These places include the old village settlement, an old fortress along with forest gardens of coconut, jackfruit and mango trees, still growing at the time of the research. The boundaries of the conservation area were marked through boundary stones (*patok*), which are located just to the west of irrigated rice fields. The classification of these areas further consolidated the government's efforts to displace people from the remote, hilly areas and settle them in accessible lowland areas.

Although the conservation areas were gazetted in 1982, the conservation importance of the landscape was not fully emphasised until 1995, with the establishment of Operation Wallacea. Operation Wallacea, based in the United Kingdom, organises 'research ecotourism' (Galley

¹⁸⁰ Interview with Village Head Benteng, 25 November 2012

and Clifton, 2004). Research ecotourism involves volunteers paying to engage in research and training activities regarding marine and terrestrial biodiversity in Southeast Sulawesi. Each year, several hundred paying volunteers join the trips to Hoga Island in Wakatobi District and Labundo-bundo (Desa Kakinawe) in Buton. The volunteers are mainly university students, along with some high school students, who gain credit towards their degrees. The volunteers are generally motivated to join the expeditions for reasons regarding experiencing the natural environment and foreign countries (Galley and Clifton, 2004). Since its beginnings in Buton, the organization now operates in six countries around the world. The fees from the volunteering programme generally pay for some overhead fees, but with the majority being used for paying for the costs associated with the expedition. Some additional funds are channelled back into a charitable fund that was established by the organization, The Operation Wallacea Trust. The intention of the trust was to fund conservation and livelihood projects that otherwise could not be funded by volunteer fees alone without raising the fees to an uncompetitive level (Cousins, 2007). Aside from visa fees, volunteers are also required to pay an entry fee to the conservation areas. Although some of the research includes socio-economic components (Priston et al., 2012; Riley and Priston, 2010; Widayati and Carlisle, 2012), the majority of the research undertaken by Operation Wallacea in the Lambusango Forest area focuses on biodiversity surveys (Gillespie et al., 2007; Martin et al., 2012).

After conducting expeditions in Buton for several years, Operation Wallacea perceived a need to address the threats to the forests of Buton. In conjunction with the Operation Wallacea Trust and the World Bank, they applied for a grant from the Global Environmental Facility (GEF) to improve forest management in Buton (Clifton, 2011; Purwanto, 2009). The name of the project was the Lambusango Forest Conservation Project (LFCP). Although the conservation areas of the Kakinawe Strict Nature Reserve (*Cagar Alam*) and the Lambusango Wildlife Reserve (*Suaka Margasatwa*) were the main focus of the project, the project expanded the extent of forests intended for sustainable management. These forests included the protected forests, production and limited production forests that covered much of central Buton. The combined area was referred to as the 'Lambusango Forest Management Area' that covered approximately 65,000 ha of lowland, evergreen rainforest. A management forum, involving all relevant stakeholders, was established to manage the area. Other mechanisms that were developed to improve the management of the forest area related to building environmental awareness and monitoring (Purwanto, 2009). The project commenced in June 2005, running until the end of December 2008. One of the main activities was to establish the forum that became known as the Community Forest Management Forum (CFMF). The forum

began in September 2005, but only received political support through Bupati Decree No. 211/2006 on 17 May 2006. The forum was comprised of village elders along with other people with an interest in the management of the forests such as representatives from non-government organisations, universities and government agencies. Political tensions between the forum and the head of district, however, restricted the activities of the forum for the early part of its operation.

During its operation, the project conducted a mixture of enforcement, livelihood development, engagement and awareness-raising activities with mixed success.¹⁸¹ The forum was able to promote the sustainable management of the forest and was successful in opposing activities, such as mining and oil palm plantations, that could threaten the forest. Despite having patrols that were able to apprehend suspected illegal loggers and others conducting illegal activities, these rarely led to actual convictions of suspects. In terms of livelihood activities, these also met with mixed results. Alternative livelihoods, such as the cultivation of ginger, met with market failures (Clifton, 2011). Establishing fair trade products, such as cashews and coffee, also met with logistical and market challenges that undermined their potential as viable alternative livelihoods. Ecotourism, beyond the research expeditions, met with limited success too. The most successful livelihood activity that the project had was encouraging people in Wagari, neighbouring Lawele, to undertake seaweed cultivation, moving many farmers away from farming activities on the edge of the conservation forest (Whitten, 2009).

Arguably, the most lasting impact of the project was the awareness raising of the forest, its biodiversity and ecosystem values. Prior to the project, most in Buton understood Lambusango to be the village of the same name. Few had knowledge of the conservation areas or the importance of the forests. One of the lasting impacts of the awareness-raising project was the creation of posters for the Lambusango Forest Area, which described it as the 'lungs of the world'. The posters included a map of the Lambusango Forest, along with photos of the different types of wildlife there. These posters were distributed to hotels, government offices and restaurants in Bau Bau and Buton, where they were still displayed at the time of writing. Along with these posters, other activities that led to the creation of signs about the benefits of conservation, as well as rules and regulations, greatly improved the awareness of people about the importance of the Lambusango Forest.

¹⁸¹ Interview with former project staff, 8 March 2013

After the project finished, the activities of the forum effectively ceased due to the lack of funding and an organization managing the forum. The NGO established by Operation Wallacea Trust, known as Operation Wallacea Trust Indonesia, moved on to other projects, as it had run out of funding. Operation Wallacea continues to run its expeditions from the village of Labundo-bundo, although it was in the process of expanding its expeditions to North Buton in 2013. Due to limited access to land and timber and the concentration of research ecotourism in Labundo-bundo, people, especially in the village of Benteng, perceive that the conservation area does not benefit them. Rather, as their historical lands are located within the conservation area, they conclude that conservation efforts have been disproportionately inflicted upon them without adequate compensation.

7.4. Asphalt mining resumed

Beginning in 2008, Southeast Sulawesi began a small-scale mining boom. Endowed with large deposits of nickel, gold and asphalt along with other minerals, the district regents of Southeast Sulawesi began issuing licenses for mining through the province. As the governor of Southeast Sulawesi, Nur Alam, explained, there were 400 mining licenses (*Izin Usaha Pertambangan* or IUP) in 2012, where there were only 240 a few years earlier. And with each new district regent that was elected new mining licenses would be issued too:

‘There are district regents (*bupati*) who issue new mining licenses for mines that already have licenses from the district heads before them. So every time there is a change in the head of district, existing licenses are vulnerable to being changed (Siadari, 2012).’

The implementation of new regulations on mining (Law 4/2009) in 2014 prohibited the export of unprocessed ores. The result of this was that many of the smaller concessionaires for minerals such as nickel stopped operating throughout Sulawesi and Indonesia, while they waited for smelters to become operational (Rusmana, 2014). The mining of asphalt, however, was largely unaffected by these regulations.

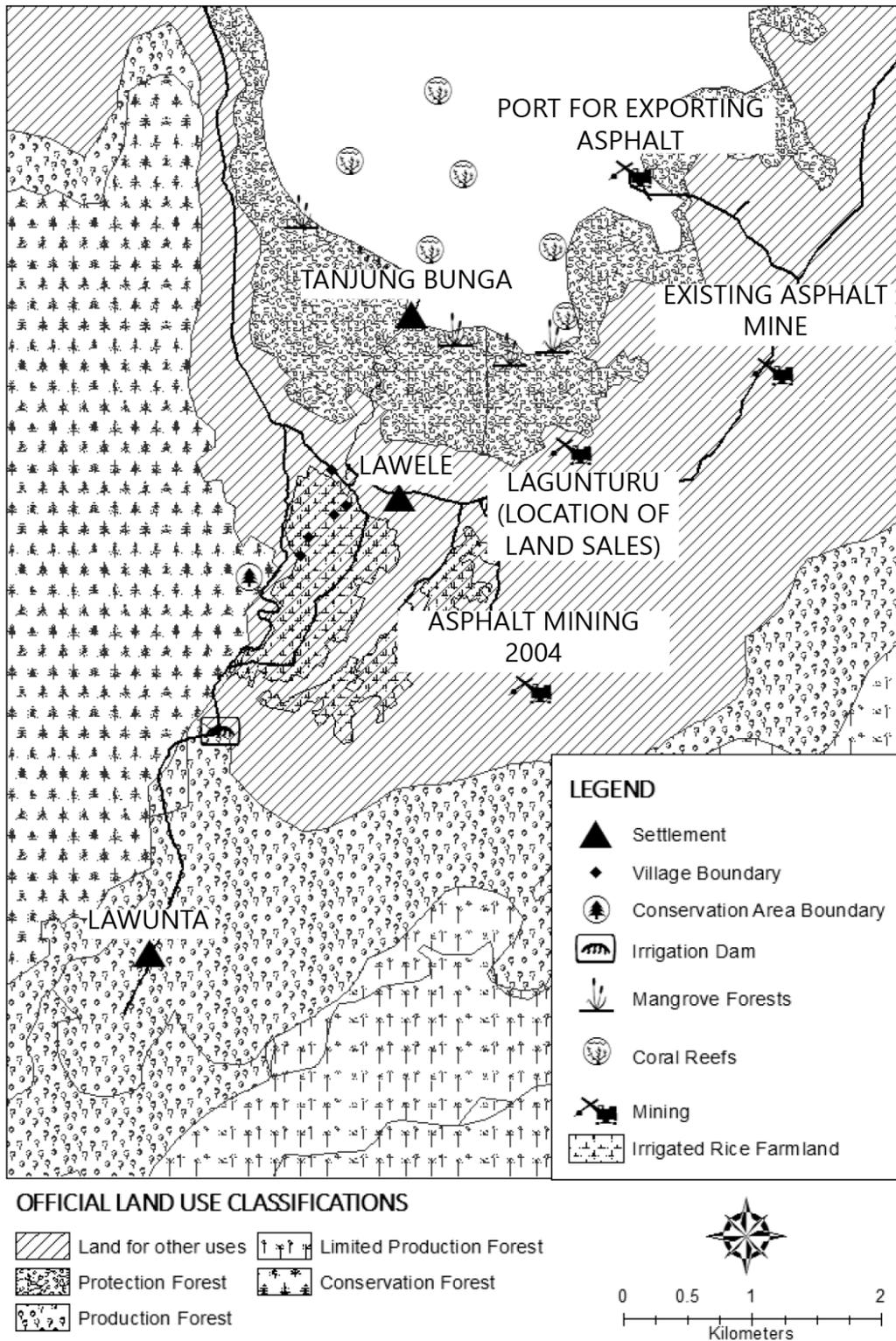
Asphalt, which is found in a belt across the centre of Buton, has been exploited since the early twentieth century. The exploitation of the resource has gone through various phases, but under the most recent district regent of Buton, Samsu Umar Abdul Samiun, it gained renewed importance. Elected in 2012, he has made it a central platform of his administration to

improve the finances of the district by exploiting its asphalt reserves. The type of asphalt in Buton cannot be found anywhere else in the world, and the quality of Buton asphalt, he has been arguing, is far greater than that of competitors (Junida, 2013). To improve the current rates of extraction, the district regent has proposed to create an Asphalt Industrial Area (*Kawasan Industri Aspal*) in Lawele, an initiative that has been supported by the Indonesian President (Asril, 2015). Although the district regent has been promoting Buton asphalt to international buyers such as China, there is greater demand for Buton asphalt to be used domestically, such as in Java (Purbaya, 2014). The district regent of Buton saw no contradiction between mining, nature and tourism. Rather he saw them as being complementary. Lawele itself, close to both the natural wonders of Lambusango and the asphalt mine, could be a place of both ecotourism and asphalt tourism. He summarised this view by stating: 'Asphalt is just tourism' (Yustiana, 2015).

7.5. Land acquisitions for asphalt mining in Lawele

Mining companies, with the authority of the government, began acquiring lands to the west of the existing asphalt mining sites around the village of Nambo in late 2012 (Figure 3). One of the first areas where companies began buying land was at Lagunturu, the village between Nambo and Lawele. Although the majority of people who sold land were residents of Lagunturu, there were also a few people in Lawele, both the settlement and larger village, who had owned land there for a long while. The representatives of the company, assisted by the sub-district head (*camat*), began looking for people with land in the area of Lagunturu. The sub-district head facilitated all the interactions with the local landowners. The process of selling the land began with a large group discussion among the landowners, attended by the company and some government officials. At the meeting, the landowners were paid a percentage of the total value of their land directly, if they handed over their certificates. By June 2013, landowners who had sold their land to the company had still not been paid the full amount. On 8 June 2013, the regent of Buton flew to Lawele by helicopter to allay the concerns of villagers who had sold their land to the mining company, but had not yet been paid. He reassured them that they would be paid soon. Shortly after this, I interviewed three landowners in the settlement of Lawele who had sold their land to the mining company. I asked them about the process of selling the land, why they sold it, what they did with the money and what they thought that the environmental impacts would be.

Figure 7.1: Asphalt mining in the coastal landscape



The motivations for those who sold first differed from those who sold later. By the time the last landowners sold, most of the land neighbouring theirs had been sold, and they felt resigned to the fact that their decisions would not change anything. The people who sold earlier, however, had a different range of motivations for selling that reflected the loss of importance of agroforests and forest gardens, and the need to spend money elsewhere. Safiuddin was one of the first to sell his land to the mining company in December 2012.¹⁸² The land he sold was 0.44 hectares in size, and he received IDR 60 million (AUD 5,941) for it. He had owned the land since 1974, and had planted coconut and teak trees there, and still actively harvested the coconuts for copra. Safiuddin agreed to sell his land in December, but was only paid the full amount in June 2013. Safiuddin said that he wanted to sell the land because he was already old and he does not have any children who want to farm (*berkebun*). With the money from the land sale, he said he would renovate his home and share the rest with his children. The negative side of selling the land he said was that his harvest, especially of copra, would decline. If the mining company increases the price they are willing to pay for the land, however, he would sell all of the land he has there. When asked about the impacts of mining, he stated that there are many impacts (*'banyak dampak'*). In Nambo, the impacts of mining are already visible now, such as when it rains a little the rivers all run red; when it is hot, there is a lot of dust. 'Who knows what it will be like next year?' he added. Despite the negative impacts of mining, he stated that the forest gardens and agroforests such as the one he sold are not important to the community any more (*'tidak ada kepentingan lagi'*). The consequences of selling the land for mining, however, was that people will not have the opportunity to cultivate their land again, as is happening in the neighbouring village of Nambo.

Where people who sold earlier were actively motivated to sell the land, people who sold later felt both compelled and left without any alternatives to selling. The second landowner I interviewed was Junaidun, a local teacher, who was neither the first nor the last to sell his land.¹⁸³ He sold 0.67 hectares of land in Lagunturu in April 2013 for which he received IDR 100 million (AUD 9,902). He had owned the land since 1976 and was growing cashew trees and coffee, both of which were still productive. He said the reason he sold the land was that his friends had already sold their land and he was not able to resist the mining alone. In addition, none of his children are interested in managing the land (*'tidak ada anak yang mau rawat kebun'*). Unlike the others, he did not join the initial group discussion; rather, a representative

¹⁸² Interview 14 July 2013

¹⁸³ Interview 14 July 2013

of the mining company met him at his land where they arranged the sale. He said he would divide the money from the land among his children, as well as use the rest to renovate his house. The problem with mining is that once people sell the land, people wonder where will they go next (*'setelah menjual tanah di sana, mau lari ke mana?'*)? In contrast to Safiuddin, he said that forest gardens are still important for the livelihoods of farmers in the village. And, despite the negative environmental impacts of mining, the sacred places (*keramat*) are located closer to the village and would not be affected by the mining.

Finally, one of the last landowners to sell, a teacher named Tahir, stated that he had no other option as all the others had sold their land and he had already lost access to his land.¹⁸⁴ In June 2013, Tahir received IDR 100 million (AUD 9,902) for 0.70 hectares of land. He had owned the plot since 1964 and had planted timber trees there. The mining company sent a representative to discuss the land sales with a group of local landowners, which was where he had sold the land. He has kept the money in the bank and has no plans to use it immediately. Tahir has seen the negative aspects of mining in the neighbouring villages, such as the pollution of the rivers and the increasing slipperiness of the road. He says that forest gardens are still important for local people, as it gives them an option to farm into the future. The mining will negatively affect the area on the edge of village, such as making it dusty.

After the initial land sales in 2013, mining companies continued to expand into the lands on the outskirts of Lawele, gradually moving nearer to the actual settlement. In August 2014, I interviewed two more landowners in Lawele, asking them the same questions. Bandrianto sold some of his forest gardens in March of 2014.¹⁸⁵ The land, located in the area known locally as Sinapuli, was 1.07 hectares in size, which had not been cultivated for some time and which he had inherited from his family. When talking about how he sold the land, he said that he was the last in the area to sell his land, with all the surrounding properties already sold (*'Saya tinggal sendiri yang di keliling sudah dijual'*). The manager from the company approached him directly and asked him to sell his land for the total price of IDR 107 million (AUD 10,595). He quickly spent the money after he received it: IDR 40 million (AUD 3,961) was allocated for the wedding of his oldest daughter, IDR 47 million (AUD 4,654) was spent on buying three motorcycles, and the rest shared with his parents. He did not feel the sales would affect him personally, as the land was not being cultivated at the time he sold it. He also said that he had other lands and his livelihood strategy was mainly focused on collecting wild honey and

¹⁸⁴ Interview 15 July 2013

¹⁸⁵ Interview 22 August 2014

managing his rattan business. In terms of the village, he did not feel that there would be any impacts from mining there, and there were no sacred locations (*keramat*) there.

In June that same year, Wadhiah, an older woman, whose husband works in Malaysia, sold a parcel of her land to a mining company.¹⁸⁶ She sold two hectares of land in the area near the government housing area (*pemukiman*). The land, which she had owned since 1987, was used for growing cashew trees. Along with other landowners, she sold her land as part of a group, rather than interacting individually with the company. She received IDR 9,000 (AUD 0.90) per metre or IDR 160 million (AUD 15,843) in total, less than the IDR 10,000 (AUD 1) per metre that Bandrianto received. When asked why she sold her land, she simply replied: 'We needed money (*kita butuh uang*).' The money she received was quickly disbursed among her children, mainly so they could build their houses, and the rest used for daily consumption. She was not sure how selling the land would affect her income in the future. She still owned a hectare of irrigated rice farmland, along with another hectare of forest gardens used to cultivate cacao and teak. Prior to selling the land, Wadhiah had not considered what the impacts of mining would be.

7.6. Compensation payments for asphalt mining in Lawunta

Along with the exploration and land acquisitions in the area surrounding Lawele, a separate company, PT Bili, began exploring the area surrounding the upland settlement of Lawunta. As of August 2014, they still had not obtained a mining licence, but had begun compensating landowners in anticipation of receiving it. In contrast to the land sales in Lawele, the land in Lawunta where the deposits of asphalt can be found fall in areas classified as limited production forests or production forests. The people of Lawunta have claimed the area according to their customary rights. This claim, however, has never been formalised. As such, the company was unable to buy the land directly from landowners, but was unwilling to face the protests from the farmers if they went uncompensated. The company therefore framed their payments as 'compensation (*ganti rugi*)'. This meant that the land would remain the possession of the farmers, and after the mining finished they could reclaim it. The company was assisted in identifying local landowners through employing a local person to act as their intermediary. By December 2013, at least thirty households had agreed to compensation

¹⁸⁶ Interview 22 August 2014

payments for their land. The commencement of the mining activities was complemented by the construction of the new road, which will link the village of Lawele to the district capital of Pasarwajo. The first major works associated with the road construction were building a new bridge over one of the streams between Lawele and Lawunta. In August 2014, I interviewed five landowners about the process in which compensation payments were agreed to and distributed.

One farmer, Badrun, agreed to compensation payments in December 2013.¹⁸⁷ His land, located in Wa Sindoli, was 1 hectare in size, and had been used for the cultivation of upland rice since 2011. He received IDR 50 million (AUD 4,951) in compensation for the land after the representative of the business met with him at the location and measured the land. Asked why he agreed to the compensation payments for the land, he offered a few reasons. First, it was difficult to cultivate upland rice there, as there were many pests, and it required too much time for his wife and him to look after the fields by themselves. Second, he had heard that it was impossible to fight the company, so chose to accept the payments instead. He still has another forest garden of cacao and teak at Singkato, and, along with collecting wild honey and rattan, he thinks he will still have enough income to survive. With the money from the compensation payments he bought a motorcycle, rooftop solar panel, renovated his kitchen and then spent the rest on university fees for his child in Bau Bau. He did not think there would be too many negative impacts on his livelihood because of the mining; he said that he already collect honey from far away, maybe he would just have to look a bit further.

The sense of inevitability that surrounded the expansion of mining into the settlement shaped people's decisions. Umar, for instance, agreed to compensation payments in December 2013, saying that he agreed because the mining was already certain.¹⁸⁸ His land of 2.5 hectares was in the area of Terin-terino and was not being cultivated at the time he agreed to compensation payments. He first cleared the land in 2007 and used it to cultivate upland rice and corn, although it had been a while since he last cultivated the land. For the land, he received IDR 125 million (AUD 12,377) that he used to build his house. The most expensive part of the house was the roof, which cost IDR 10 million (AUD 990), along with an electricity generator for IDR 2 million (AUD 198). Another part of the money was used to buy a new piece of forest garden land. He said that if there were any money left after he finishes building the house, he would buy a motorcycle. Since he received the compensation payment, his family has been

¹⁸⁷ Interview 20 August 2014

¹⁸⁸ Interview 20 August 2014

borrowing a lot of it, making it hard for him to save. Personally, he does not think there will be much of an impact from the mining: he has enough land and collects honey from forests far away that will not be impacted by the mining.

Another farmer, Acho, described the process by which she and her husband agreed to the compensation payments for the land.¹⁸⁹ They received IDR 75 million (AUD 7,426) for their land of 1.5 hectares located in Ina Damara, which they had cultivated since 2012. The land was used for cultivating upland rice and coffee. They chose to agree to the compensation payments because everyone else had, arguing: 'how could we resist alone?' With the money they received, they purchased 0.4 hectares of irrigated rice fields, built a new house, bought a motorcycle, television and rooftop solar panel. The mining will not affect their income, as collecting wild honey is their main source of income now and the forests where they collect it are already far away. They also have another 0.5 hectares of land where they cultivate cacao and clove trees that are not yet productive.

Cakrawala was part of the group that received compensation payments in December 2013.¹⁹⁰ He received IDR 50 million (AUD 4,951) for his land in Wa Sindoli, which he cleared in 2007 and cultivates cacao and rambutan there. Although they tried, they were not able to negotiate the price for the compensation that was decided by the company. The main reason he agreed to the compensation payments was that he and others were afraid that if they did not accept, the company would eventually take it anyway. Alternatively, if they did not accept that price of IDR 5,000 (AUD 0.50) per square metre, the price would drop to IDR 1,000 (AUD 0.10) per square metre. Another reason for selling was the location itself. Due to the asphalt just beneath the surface, the land was only suitable for planting upland rice and corn, not for tree crops such as nutmeg and clove. With the money, he bought a television, a stereo system for karaoke, an electric sander, a motorcycle, a rooftop solar panel and a small generator. The remaining money was used for daily consumption, such as rice, and by the time of the interview, everything had been spent. He will adapt to the mining by clearing a new forest garden in the area below the settlement that is classified as Land for Other Uses. At the time of the interview, they were clearing the area in preparation for planting clove and nutmeg trees. He is largely dependent on collecting honey, and thinks that the mining will force him to look for honey further away.

¹⁸⁹ Interview 20 August 2014

¹⁹⁰ Interview 20 August 2014

Finally, Dakari received IDR 50 million (AUD 4,951) in compensation for 1 hectare of land.¹⁹¹ The land, located near the settlement, was cleared in 2007, and used for cultivating cashew, cacao and rambutan trees. He described how initially the company offered people IDR 15,000 (AUD 1.50) per square metre, but, when the time came for finalizing the deal, the price dropped to IDR 5,000 (AUD 0.50) per square metre. Like others, he felt that if they did not agree to the compensation payments, the government would seize the land anyway. The mining company, PT Bili, was perceived as having a close relationship with the government so could not be resisted. He used the money to buy a motorcycle, new roof, tuition fees for his child in Bau Bau, and the rest was used for consumption. He said that the only impact from the mining would be the damage done to the land itself, although, as he only had one other garden left, it would not be enough to survive. He does not know what the future holds and says that the government will have to consider that.

While farmers in Lawele and Lawunta sold their land, the Bajo of Tanjung Bunga could only wait and adapt to the changes in the coastal landscape. I interviewed the head of the settlement in August 2014 to ask him what changes had occurred since the start of the mining. The Bajo said that they had seen little changes in the natural environment due to the mining. Phenomena such as increased sedimentation and declining fish stocks, such as had happened in the nearby villages in the Kapuntori region due to nickel mining, had not happened in the bay.¹⁹² The major change that the Bajo had noticed since the mining began was the increase in the number of workers at the nearby village of Nambo. These workers, with higher salaries than the people in Lawele and Benteng, wanted fish, and were generally prepared to pay more for fish than locals did. As the head of the Tanjung Bunga settlement described it, the workers at the mining operations would not bargain with whatever price was first offered by the fishers, in contrast to villagers in Lawele. Fishers in Tanjung Bunga responded to this new demand in two ways. One group continued to sell their catch at the market in Lawele, and if there were any excess catch, they would take it directly to the miners' settlement to sell. A cook from the mining operations would also directly buy fish from the market in Lawele to prepare for workers in the mining operations. Other fishers in the settlement would directly take their fish to the mining settlement, and sell the excess to people in Lawele. Despite these changes, there have been no visible changes in the Bajo settlement, unlike the two other settlements.

¹⁹¹ Interview 20 August 2014

¹⁹² Interview 21 August 2014

7.7. Discussion

The coastal landscape where these people lived had transformed from a swidden farming landscape into a location where various competing narratives about land uses interacted. Conservationists, on one side, promoted a vision of conservation and sustainable farming, while government promoted the local and national benefits of asphalt mining. Despite these larger narratives, landowners were faced with a choice framed in simple terms: to either sell or not sell their lands for mining. Why did farmers in Lawele and Lawunta choose to sell their land? Can we understand their motivations through how they spent their money? And how much of a choice did they have? In this section, I discuss the broader processes that led to the expansion of mining into the landscape. I also analyse how and why landowners decided to sell or receive compensation payments for their lands.

The increased mining activity can be linked to two central, linked discourses, located at different levels of government. The first, involved 'resource nationalism', that is 'where resource policies are designed to direct economic activity in the mining and energy sectors towards politically defined national goals (Wilson, 2015, p. 399).' In this case, that meant that Buton asphalt is Indonesian asphalt and should be used for Indonesian roads. At the national level, there was an increasing need to build more and bigger roads to cater for the needs of the increasing number of Indonesian commuters. Buton asphalt is perceived to be a high quality resource of the nation that should be used for the nation. The discourse was also effective, as domestic asphalt was priced cheaper than imported asphalt and of better quality than a comparable international product. State-owned companies were the best positioned to translate this discourse into tangible activities through owning concession rights, constructing a refinery or building the access road. In the context of resource nationalism, the interests of the people of Buton are of secondary interest.

The second discourse focused on improving the standard of living of people in the district of Buton through increasing the regional government revenue. Both involve improving the welfare of Indonesians, although the scale and location of the beneficiaries are different. For the district government, asphalt, along with other mining revenue, are portrayed as the means to greater prosperity, via the easily measurable figure of regional revenue. Decentralisation in Indonesia incentivises local governments to engage in mining over other forms of economic activity, as they receive a greater proportion of the revenue (Barr, 2006). A dramatic increase

in the revenue of the district government was equated with commensurate increases in the standard of living of people living in Buton. A few pathways of increased prosperity were presented to people in the village: for instance, increased mining activity in the Lawele area will lead to increased employment, but with no guarantee that the people of Buton will fill those jobs, or be trained to do so. The road linking Lawele to Pasarwajo was another example presented to people in the villages of how increased government revenue would benefit and lead to the development of the district.

Mining, from planning to implementation, involves close collaboration between companies and the government. These interactions shaped the choices available to local people, and typically also reduced their bargaining power in negotiations (Vermeulen and Cotula, 2010). In the context of asphalt mining, only a narrow subset of people in Lawele and Lawunta were given choices and entitled to compensation payments. These payments were also contingent on the type of land rights that they hold. For instance, the farmers in Lawele who own parcels of land, although without certificates, were offered contracts in terms of direct land purchases but not land leases. The upland farmers of Lawunta, however, were only offered compensation payments, due to the lack of clarity regarding their land tenure, which were at a much lower price than the land purchases in Lawele. For some people, like the Bajo of Tanjung Bunga, they were given no choice but to adapt to changes, without compensation.

The way that the offers were made influenced a great deal how people responded. The role of the government, as well as its relationship with the companies, was crucial. From the district level of government, down to the head of village, all expressed support for the companies involved in the mining activities. The role of the government was visible from how the Bupati intervened in the land disputes with the company or how the sub-district head was active in supporting the companies along with identifying local landowners in the areas under exploration. Police were also involved in speaking with the landowners to ensure that no false land sales or claims for compensation payments were made. Through these interactions among government, companies and landowners, landowners were led to feel powerless to stop the changes. Where previously many had expressed a desire to resist the mining because of potential impacts on their environment and livelihoods, when confronted with the decision, they changed rapidly. The disparity of power, however, only partly explains the choices made by landowners.

The process of how payments were offered also affected how people made their decisions. The first step of offering payments to landowners was through directly gathering most of them

in a single meeting place. At these meetings, people were informed about the terms of the deal, which was often accompanied by a direct cash payment, either part or the full price. Few who actually joined these meetings refused to sell, most seemingly unable to reject the money that was being offered. Another tactic that was employed by the company was to progressively lower the price being offered, installing a sense of urgency in landowners that they had to sell quickly. Landowners generally described feeling as though they had little power to negotiate the price being offered. Once the initial landowners had sold, the company would then approach those remaining and individually offer to purchase the land. The landowners who sold later all professed the same issue: that those around them had sold, cutting off access to their land. This left them with no other options but to sell or agree to the compensation payments. Only one or two landowners rejected the payments totally: most accepted at some point the terms that were being offered.

Despite the role of power disparity and negotiating techniques in getting landowners to agree to compensation, not many expressed dissatisfaction, at least immediately after the sale. Many landowners stated the reasons why there was no problem with selling the land. One reason was that families had already moved from agriculture into other employment, such as the civil service. Generational change and improvements in employment meant that there was no one in the family left to cultivate the land. This, however, contrasts with responses from the earlier interviews where people valued land holdings as a means for security for their offspring, and, often would pursue more if they had the opportunity. People were also unwilling to sell their land to others in the village to cultivate, despite the land being idle at the time. In essence, people were content to say that there will be no negative impact in terms of their family's livelihood.

Others expressed the fact that the land had no current value to them due to their reliance on other livelihood activities. For most, these involved a reliance on irrigated rice farming, collecting wild honey or other forest products. The land they sold was either not being cultivated or the value of the crops there was not significant to the income of the household. Mining seems to have entered the landscape at the point where forest gardens are being valued the least. Swidden cultivation of rice, corn and other crops has largely been replaced by irrigated rice farming in both Lawele and Lawunta, although there remain swidden cultivators in Lawunta. Coffee and cacao trees are either old, unproductive or not valuable enough to compete with other activities. The transition to new tree crops, in particular clove and nutmeg, has yet to provide significant yields to increase the perceived value of forest

gardens. The future potential uses of the land seemed to be less important than receiving the immediate benefits from the compensation payments or land sales.

Why had land lost its value and importance to landowners in the two settlements? At one level, processes of deagrarianisation (Bryceson, 1996) rural livelihoods had shifted from being dependent on land to becoming more delocalised (Rigg, 2006). For many families, their children had lost interest in farming, in particular cultivating agroforests and forest gardens. Professional, urban and non-farming livelihoods held more appeal and income than farming. These reasons, however, did not apply to everyone. A more accurate explanation would be that farming these lands was unable to provide for a desirable standard of living in comparison to other livelihood strategies. Historical uses of these lands, such as swidden farming (Cramb et al., 2009) were less productive than irrigated rice farming. Agroforestry, once a profitable land use during the cacao boom (Li, 2002a; Neilson, 2007), was no longer perceived as such, and traditional tree crops, such as coconuts, were unappealing for the young. Aside from a few initiatives for promoting teak cultivation, there were no reported government initiatives for improving the value of farming these lands. Social learning as a means for learning livelihoods (Boyd and Richerson, 2005) was not sufficient for ensuring that farming these lands provided people with their desired standard of living.

Once the payments were agreed to, very few were able to save the money from the payments from the companies. Those who were able to save were already financially stable civil servants who had access to bank accounts. The majority, however, spent their money quickly following the established pattern. Older people, who already had relatively complete houses, furniture and electronics, would spend part of the money on themselves, such as renovations, and the rest would be allocated to their children. For the rest, money was quickly spent to meet a range of consumer items as well as costs for ceremonies. Motorcycles were at the top of the list for most, ranging from modest scooters to the largest available motorcycles in Buton. Building new houses or renovating old houses was also a popular choice for people, especially in Lawunta. House improvements generally included a new wooden frame along with a new blue, polymer roof and solar panel, with a few adding a kitchen, and only one house building a toilet. Following these, people would purchase outstanding items for their house, such as televisions, antennas and stereos. The money would also go to expenses such as tuition fees for university if needed. Once the major items were bought, people would either spend the money on consumption, or give the money as loans or gifts to family members.

Several things about these choices are worth noting. First, people only bought items that were needed to support the community's standard of living before spending the rest of the money on other necessities. Luxury goods were not high on the list of people's choices; conversely, very few reinvested the money in alternative livelihoods. Only two cases, where one household purchased an irrigated rice field, and another purchased forest garden land, were mentioned. And, people tended not to go beyond the standard of living of their location. For instance, people in Lawunta only built wooden houses, although with more durable roofs, and only in one exceptional case was a toilet built. Landowners in Lawele, in contrast, renovated their houses to a higher standard. Once the standard of living was met, money then could be allocated for other purposes related to the relative standards of the location. People in Lawele, who face greater social pressures when it comes to ceremonies, allocated money for the purposes of those ceremonies. In Lawunta, in contrast, money was not needed for holding elaborate ceremonies, so could be allocated for other purposes.

How can the ways people spend their money be explained? Do the ways in which people spend their money explain their motivations for selling the land? One way of explaining how people used their compensation payments is through theories of how people use windfall gains. Windfall gains are characterised as sums of money that are unexpected and unanticipated: coming from sources such as inheritances or lottery wins (Arkes et al., 1994). Windfall gains are typically spent more readily than other sources of income and on goods and services people would not typically spend money on, such as luxury items or gambling. As the money is unanticipated, people may have no clear purpose for using the money, or even decide that as the money is not part of their normal income, it may be used for other purposes, such as 'extravagant, frivolous or speculative use' (Arkes et al., 1994, p. 343). The way that people spend these types of money reflects the limitations of people's systems of mental accounting (Thaler, 1999).

In the context of the previous case studies, however, we could also ask the counterfactual question: what else would people do with their money? Many of the people I interviewed did not own bank accounts, so saving the money was perceived as difficult. This meant, in practice, that large sums of money would have to be stored at home, which is both impractical and unsafe. Spending the money quickly was the most effective way to reduce the risks of storing it at home. This leads to the second question of what should the people have spent their money on? From the case studies, it was shown that farmers, in contrast with fishers, had no clear pathways for improving their livelihoods or finding alternative livelihoods. Where fishers had a clear pathway for improving their livelihoods through investments in boats and

associated technologies, farmers were unsure of how to improve their livelihoods beyond diversification. In the absence of a clear pathway for investing the money in livelihoods, people used the money as the means for achieving the goals that they already desired or were striving for (Kruglanski et al., 2002). These included ideal goals, such as improving homes or buying motorcycles, or obligatory goals (Higgins, 1987), such as paying for ceremonies.

Missing from all these discourses was conservation. Discussions about the broader landscape, or the Lambusango Forest, did not emerge despite the extensive efforts of socialisation, promotion and awareness raising of the conservation project (Purwanto, 2009). Environmental impacts were rarely discussed, and virtually no consideration was given to the potential impacts on wildlife. When potential environmental impacts were raised, people mentioned the impacts upon the watershed, and more direct impacts from mining trucks and machinery, such as increased dust. Although the conservation project had tried to build an awareness of a broader landscape and its benefits, when decisions were actually made only the legal status of land was actually respected. Conservation, in that case, meant only the strict Lambusango wildlife reserve, which would not be directly affected by the increase in mining activities. In turn, research eco-tourism to the reserve (Galley and Clifton, 2004), although providing localised benefits to the village of Labundo-bundo, did not raise a sufficient amount of money for regional revenue to be a viable alternative to asphalt mining. Consequently, conservation did not possess the regulatory power to constrain the mining activities, nor offer sufficient incentives to discourage it. The disconnect between conservation initiatives, government planning and local communities has parallels with other examples from Sulawesi (Li, 2007; Lowe, 2006).

7.8. Conclusion

Why then, did farmers sell their land? There were several, overlapping answers to this question. First, many felt that they had no choice: faced with the combined authority of the national, district, and sub-district governments and mining companies, resistance seemed unfeasible. Second, many farming families no longer farmed, or at least did not perceive farming as the means to the types of lives they aspired for. This situation emerged out of the convergence of rising aspirations and the inability of farming to provide for the types of lives people valued. Third, people held alternative livelihoods or parcels of land in other locations, so that they felt that the impacts of losing their land would not be too severe. And, did the

way people spend their money reveal their motivations for selling their land? In part, the ways that people spent their money revealed their aspirations, and the types of goals, goods and services that they valued. The way people spent their money, however, also revealed the lack of alternative livelihoods for them to invest in, and their lack of access to banking facilities.

Chapter 8 : Changing Livelihoods and Living Standards

8.1. Introduction

Rural household goals and community living standards change. Why they change and how households are able to adapt their livelihood strategies in response are the foci of this chapter. The chapter revisits the main proposition underpinning the thesis that states that: 'as aspired standards of living change, rural households adapt their livelihoods to meet the costs of these new living standards, and that the pursuit of higher standards of living by rural households will have adverse effects on the natural environment.' The chapter also answers the main research questions of the thesis, which ask: what are the goals and community living standards of rural Indonesian households? And, how do they learn, develop strategies and make decisions about livelihoods and the use of resources in order to achieve these goals? Comparing the findings from the previous four case studies, I discuss why living standards and livelihoods differed, or were similar, across the three settlements. Following the comparative analysis, I point to three main patterns that emerged from the case studies that affected the sustainability of rural livelihoods:

1. Improvements in infrastructure, government services and social interaction with urban centres led to increasing aspirations and social pressures to maintain a higher standard of living;
2. Social learning as a means for learning and improving rural livelihoods has reached its limits in the landscape; and
3. The mismatch between aspirations and means will most likely be met through the degradation of natural resources such as the overexploitation of fisheries or land sales.

8.2. A better life in a coastal landscape in Southeast Sulawesi

Access to infrastructure, government services and markets were the main factors that shaped what types of goods and services people could acquire and use (Table 8.1). The lack of reliable and cheap power prevented households from purchasing electronic goods in Lawunta and, in Tanjung Bunga, prevented people from using refrigerators. With the shift from small generators to grid electricity in Lawele, households purchased a range of new appliances, such as refrigerators, as well as installing subscription satellite television. A lack of any or adequate water supplies for households prevented many from constructing indoor bathrooms and toilets. In addition, the absence of suitable designs, materials and technologies prevented the residents of Tanjung Bunga from making any major improvements to the houses in their settlements. The poor and irregular signal for mobile phones, however, did not discourage people from owning mobile phones.

Table 8.1: Infrastructure and government services in the three settlements¹⁹³

	Piped water	Grid Electricity	Collective electricity generation	Road access	Health Clinic	Primary School	Junior High School	Senior High School
Tanjung Bunga	N	N	Y	N	N	N	N	N
Lawunta	Y	N	N	Y	N	Y	N	N
Lawele	Y	(In 2014)	Y	Y	Y	Y	Y	(small private school)

In the three settlements, there was a common set of desired and purchased items among households, most commonly mobile phones, a motorcycle or boat, and a television set (Table 8.2). In Tanjung Bunga, in contrast to the other settlements, a boat was the means for a livelihood as well as transportation (Table 8.3). Not owning a boat meant that people have to rely on friends or neighbours for transport. In the other two settlements, in contrast, people could survive without any form of transport. Comparing across the settlements, households in Lawele had the highest average ownership of assets followed by Tanjung Bunga and then Lawunta (Table 8.4). These goods, generally, represent the basic functionings (Sen, 1993) that people desire: to be entertained, to have mobility, to have comfort and to be able to

¹⁹³ The table is based on the results of the focus group discussions at the settlement level and household surveys.

communicate. That is, within the constraints of their settlements, these were the types of goods that people could individually acquire. In cases such as Lawunta, where access to electricity was limited, people would share the use of their appliances with others in the settlement.

Table 8.2: Household ownership of goods¹⁹⁴

	Car	Motorcycle	Electricity Generator	Mobile Phone	DVD	Stereo	Sofa	TV Set
Tanjung Bunga	-	-	26%	52%	35%	17%	17%	43%
Lawunta	0%	34%	28%	75%	19%	19%	0%	28%
Lawele	1%	58%	17%	97%	46%	5%	24%	66%

Table 8.3: Household ownership of boats in Tanjung Bunga¹⁹⁵

Boat Type	Koli Koli or Sampan	Ketinting	Bodi
Average Price (IDR)	662,778	3,838,889	10,866,667
Average Price (AUD)	66	380	1,076
Percentage of Households with at least 1	83%	43%	13%

Table 8.4: Household Assets in the three settlements (excluding the value of the house)¹⁹⁶

	Average of TOTAL ASSETS (IDR)	Average of TOTAL ASSETS (AUD)	Min of TOTAL ASSETS (IDR)	Min of TOTAL ASSETS (AUD)	Max of TOTAL ASSETS (IDR)	Max of TOTAL ASSETS (AUD)
Tanjung Bunga	7,523,409	745	250,000	25	24,600,000	2,436
Lawunta	6,585,938	652	-	-	35,780,000	3,543
Lawele	19,640,163	1,945	325,000	32	75,850,000	7,511

¹⁹⁴ The table is based on the results of the household surveys.

¹⁹⁵ The table is based on the results of the household surveys.

¹⁹⁶ The table is based on the results of the household surveys.

Education in the three settlements generally followed the pattern of access to schools. In Lawele, where there were pre-schools, primary schools and a junior high school, people had the highest levels of education (Table 8.5). The other two settlements had roughly the same levels of education as each other despite Lawunta having access to a primary school. As I only compared among people 18 years and older, many of those people would not have been living in Lawunta when the school was built. Lawele, in turn, had the highest number of people attending tertiary education, which is contingent on access to primary and secondary school. Comparing access to health services was more difficult than comparing levels of education among the three settlements. For instance, midwives from the local clinic would attend births in Lawele and Tanjung Bunga, but not in Lawunta. Nurses, and doctors when present, would do house calls in Lawele, but were reluctant to travel to Tanjung Bunga. Even when people had access to health services such as clinics and hospitals, they would be reluctant to use those services for reasons such as cultural beliefs, price and quality of the services provided.

Table 8.5: Average years in education for adults (18 years or over)¹⁹⁷

	Men	Women	Total
Tanjung Bunga	6	4	5
Lawunta	5	5	5
Lawele	11	10	10

The choices that people made were not only shaped by opportunity structures (Fischer, 2014) and their access to infrastructure and government services. Social comparison (Festinger, 1954) influenced people’s aspirations and how they evaluated their own wellbeing (Frey and Stutzer, 2002; Reyes-García et al., 2015) and consequently, their consumer behaviour (Bearden and Rose, 1990). A pattern emerged from among the settlements that the more integrated they were with urban centres, the more social pressures that people felt to maintain a higher standard of living. Conversely, the less integrated a settlement was, the less pressure they felt to maintain a higher standard of living. Finally, people compared themselves with peer groups: the Bajo in Tanjung Bunga compared their lives with other Bajo settlements, where students from Lawele would compare themselves with youths living in urban centres. These processes of comparison were evident through two indicators: ceremonies and clothing. Where people in Lawunta and Tanjung Bunga described not having to spend anything on ceremonies, people in Lawele felt they had to hold ceremonies for important life events,

¹⁹⁷ The table is based on the results of the household surveys.

with the costs ranging up to thousands of dollars. The only exception was a family in Tanjung Bunga, whose nephew married outside of the settlement. In terms of clothing, people in Lawunta and Tanjung Bunga were content to purchase from the local market. People in Lawele, however, would only purchase clothing at the market for children or home use. Adults would prefer to purchase their clothing in urban centres such as Bau Bau, Kendari or even Jakarta. Purchasing more expensive clothing was central for avoiding shame (Sen, 1993) and maintaining status (Harms, 1938) while interacting with social groups outside the settlement.

If the majority of people in Lawele were wealthier than their neighbours in Lawunta and Tanjung Bunga, why did many, including civil servants, complain that they still did not have enough? Social comparison (Festinger, 1954; Frey and Stutzer, 2002; Reyes-García et al., 2015) and its influence on consumer behaviour (Bearden and Rose, 1990) and other spending choices only partially explain why people felt this way. Practical reasons also shaped why wealthier families felt they had more financial pressures. As children successfully completed school, parents found themselves liable for university payments including tuition and boarding fees. Better access to health services also meant higher health expenses during an emergency. People rarely had the means to pay for this and instead relied on their families for financial support. Purchasing motorcycles, mobile phones and other electrical appliances led to more regular payments for fuel, phone credit, repairs and electricity. People in these circumstances made the transition from aspiring for higher standards of living to trying to meet the costs of maintaining these standards of living. Families in Lawele had stepped on to the hedonic treadmill (Frey and Stutzer, 2002) with only limited means at their disposal.

8.3. The means for better lives

Generally, household livelihood strategies reflected their location on the coastal landscape and broader changes in livelihoods in Sulawesi and Indonesia (Table 8.6). Location was an important determinant of livelihoods: with fishers located at Tanjung Bunga, farmers in Lawele, and farmers and the forest dependent in Lawunta. On one level, people's proximity to resources shaped their livelihoods, but on another level, people also chose to live in those settlements to access those resources. Location, however, did not explain everything, and the patterns of transitions of livelihoods in the settlements followed a general transition from subsistence fishing and swidden agriculture to more commercially oriented and diversified livelihoods (Allison and Ellis, 2001; Cramb et al., 2009; Ellis, 2000b, 1998). Fishers moved from

using canoes and basic fishing gears to motorised boats and participation in export commodity chains such as those pertaining to tuna. Farmers, similar to other parts of Sulawesi (Li, 2002a; Neilson, 2007), participated in the cacao boom, but also benefited from government provided irrigation and extension programs for rice farming. The provision of government services in the area also provided employment for civil servants such as teachers.

Table 8.6: Changes in livelihoods from the 1950s until 2014¹⁹⁸

	Tanjung Bunga	Lawunta	Lawele
1950	Artisanal Fishing	Swidden farming with some tree crops and forest product collection	Swidden farming with some tree crops Civil service
1960			
1970		Displacement	Cacao Boom
1980			Irrigated rice farming
1990	Increased fishing range through motorised boats		
2000	Seaweed cultivation and failure	Swidden farming with some tree crops and forest product collection	Semi-skilled labour
2010	Deep sea fishing		

Although relative geography and broader social, economic and political transformations seemingly explain the broader trends in the landscape, they do not identify who were able to benefit from the resources, how and why. I will briefly evaluate how structural mechanisms such as property rights (Bromley, 1991; Schlager and Ostrom, 1992) and other mechanisms of access (Ribot and Peluso, 2003) have shaped how people in the landscape have been able to benefit from local resources. Across the three settlements, different bundles of rights influenced people's access to resources. Using the typology of Schlager and Ostrom (1992), bundles of rights include: use rights such as access and withdrawal rights, control rights, exclusion rights and alienation rights. These bundles of rights are then exercised in property rights systems roughly defined as classic commons, public property and individual property (Marschke et al., 2012), although I have modified that typology (Table 8.7). For the fishers of Tanjung Bunga, their resources are effectively open access or a classic commons, despite the regulations that allocate government responsibility for those waters. Within that environment, the fishers exercise use rights with limited ability to exclude outsiders and control the resources. In Lawunta, the farmers exercise use, control and exclusion rights in

¹⁹⁸ The table is based on the results of the focus group discussions, interviews with village leaders and household livelihood interviews.

lands that are officially state property. Customary institutions have been given de facto rights for the use and management of the land under a tacit agreement not to intrude on to the conservation area. Land, however, cannot be alienated and legally sold to outsiders. In Lawele, in contrast, most land is held under private ownership. Forest resources, either in the mangrove forests or in state forests, are under government control, but with use rights for non-timber forest products given to local people.

Although rights to resources are important, they do not explain how people in the settlements are able to benefit from those resources and why. For instance, farmers who have access to irrigated rice farmland are able to benefit more from their land than those who owned forest gardens. Through analysing mechanisms of access (Ribot and Peluso, 2003), it is much easier to understand how people in the three settlements were able to benefit from their resources. Typically, access to knowledge, technology, capital and markets shaped how people were able to benefit from the resources that they had rights to (Table 8.8.). Despite most livelihood strategies being at least partially dependent on the use of resources, many livelihoods and occupations involved activities other than farming or fishing.

Table 8.7: Property rights systems¹⁹⁹

	Open Access	Government Land with de facto open access rights	Government land with de facto customary ownership	Private land through customary or government recognition
Forests with wild honey, rattan and other forest products		x	x	
Forest Gardens			X	x
Irrigated Rice Farming				x
Mangrove Forests		X		
Coral Reefs	X			
Deep-water fisheries	X			

¹⁹⁹ The table is based on the results of the focus group discussions, interviews with village leaders and household livelihood interviews.

How people learned livelihoods, and what learning opportunities were available, shaped the choices about livelihoods that were available to them. At one end of the spectrum were civil servants or other professionals, who, to reach those positions, needed to be continually educated until the tertiary level. At the other end of the spectrum, where most of the respondents were located, livelihoods were learned from a young age from family members, friends or peers (Table 8.9.). The earliest livelihoods of people were formed by the interactions of social learning and their access, or lack of access, to resources. These patterns of learning in relation to place and access to resources were common among fishers, farmers and the forest dependent. Conversely, those without access to resources were forced to learn other skills and trades. Most processes of learning occurred without government support and often in spite of the official government education system (Table 8.10.). From these initial livelihoods and livelihood strategies, people would learn and imitate new strategies based on the complementarity with their existing livelihoods and access to resources. With few exceptions, social learning and processes of imitation (Boyd and Richerson, 2005) shaped how people adopted new livelihoods, improved existing ones or developed diversified livelihood strategies.

Table 8.8: Mechanisms of access for resource-based livelihoods²⁰⁰

ACCESS MECHANISM	Tanjung Bunga	Lawunta	Lawele
TECHNOLOGY	Boat technology – enabling access to resources and markets. Mariculture – finding suitable species for cultivation in the environment. Refrigeration – lack of access to refrigeration restricts the markets where fish and other products can be sold.	Seedlings for agroforests and gardens – limited supply of seedlings available or suitable reduces options for agroforests and gardens.	Irrigated rice farming – technology involves government provided infrastructure such as dams and canals, equipment such as tractors and processing machinery and inputs such as subsidised fertiliser and pesticides. Seedlings for agroforests and gardens – <i>same as for Lawunta.</i>
CAPITAL	Lack of access to capital restricts the size of boats.	Lack of access to capital restricts access to irrigated rice farmland.	Lack of access to capital restricts access to irrigated rice farmland or increasing land holdings.
MARKETS	Local market for locally caught fish with low price although affected by seasons. Markets in major towns for transportable products or those that can be dried with generally higher value. Direct selling to distant markets or trader after catching large fish.	Local market or intermediaries for wild honey for high price. Local market or intermediaries for products from agroforests, in particular cacao, with low selling price. Local market for some vegetables and fruits with low prices.	Local market, within the village and with neighbouring villages for rice with stable prices. Other products same as for Lawunta.
LABOUR	Access to labour does not affect livelihoods.	Sharecropping or wage labour in rice fields is a source of livelihoods. Collective labour is used for clearing forest areas for swidden or other cultivation.	Landowners need to pay for labour in order to cultivate rice fields.
KNOWLEDGE	Most knowledge is passed inter-generationally or from friend to friend.	Most knowledge is passed inter-generationally or from friend to friend.	Most knowledge is passed inter-generationally or from friend to friend.
AUTHORITY	Licenses or customary authority have no discernible role in livelihoods.	Customary authority is needed for clearing new fields.	Licenses are needed for harvesting rattan.
IDENTITY	Bajo identity links people within the settlement to other Bajo settlements.	Kalende identity legitimises customary ownership of land.	Lawele identity generally shapes access to land as well as participation in natural resource-dependent livelihoods.
SOCIAL RELATIONS	Fishing is undertaken usually in pairs and sharing catches.	Collecting wild honey is done in pairs or groups to mitigate risk.	Collective labour in rice farming.

²⁰⁰ The table is based on the results of focus group discussions at the settlement level as well as household livelihood interviews.

Table 8.9: Processes and locations of learning livelihood techniques and strategies²⁰¹

	Tanjung Bunga	Lawunta	Lawele
Fisheries	Bajo settlements throughout Southeast Sulawesi and Indonesia.		
Farming		Lawele and adjacent villages; farmers in Maluku.	Continuation of historical practices and farmers in Buton.
Forest	Continuation of historical processes.	Farmers in Lawele and Buton.	Farmers in Buton.
Semi-skilled labour			Livelihoods in Bau Bau.
Professional			Past livelihoods in Lawele and Buton.
Small business	Small business models from Lawele and Buton; Trade enterprises from other Bajo settlements.	Small business models from Lawele and Buton.	Small business models from Bau Bau and Buton, supported with credit from PNPM.

Table 8.10: The role of government in rural livelihoods²⁰²

	Tanjung Bunga	Lawunta	Lawele
Fisheries	No government intervention in settlement although later provided boats.		
Farming		Support for planting teak trees.	Infrastructure, institutions and inputs for rice farming.
Forest	Prohibitions on timber harvesting.	Licensing for rattan and timber harvesting.	Licensing for rattan and timber harvesting.
Semi-skilled labour			No government support.
Professional			Education to tertiary level, entrance fee costs for civil service.
Small business	Mostly informal.	Mostly informal with the exception of rattan.	Mostly informal with the exception of rattan and credit from PNPM.

²⁰¹ The table is based on the results of focus group discussions at the settlement level as well as household livelihood interviews.

²⁰² The table is based on the results of focus group discussions at the settlement level, interviews with village leaders as well as household livelihood interviews.

Decisions about livelihoods, consequently, had elements of both planned and opportunistic decision making. For instance, fishers in Tanjung Bunga would consciously plan and save in order to purchase larger, motorised boats. The processes of planning and saving would occur over periods of several years. Conversely, many adopted seaweed cultivation as a practice after observing their neighbours cultivate it, leading to a relatively quick boom and bust cycle. Agroforestry in Lawunta was shaped using the only available resources, and in contrast to Tanjung Bunga, there were no clear pathways for improving the profitability of their lands or livelihoods. Wild honey collection, consequently, was a suitable opportunistic and seasonal livelihood that met the needs of farmers in Lawunta, and to a lesser extent, Lawele, in the absence of any other clear options. Semi-skilled labour filled a similar niche for farmers in Lawele who had few alternatives beyond farming small plots of irrigated rice farmland or largely unproductive agroforests.

How can rural people be sure that livelihood strategies are both effective and suitable for their own situation? Imitating the majority of your peer group is by far the least risky decision-making strategy (Kruglanski and Gigerenzer, 2011). In the case studies, we saw several manifestations of this decision-making strategy, which generally could be categorised into fishing, farming, non-farming and professional livelihoods. What was common across all three settlements was the imitation of livelihood *strategies*, not simply individual livelihoods. Fishers, for instance, imitated strategies that involved sequences of progress, involving their boats, and seasonal differentiation of strategies. Farmers in the upland settlement and some in the lowland settlement adopted mixed strategies of wild honey collection, rice farming and agroforestry. In addition, civil servants in the lowland settlement adopted mixed strategies of professional employment with owning irrigated rice farmland that they farmed individually or lent for sharecropping. By imitating an entire strategy, people were able to maximise their opportunities for earning income and avoid missing a potential source of income.

People, however, did not just blindly follow the majority. There were cases across each of the settlements where individuals had adopted unique strategies, which they had learned from others outside of the settlement. These examples included how the Bajo fishers learned and acquired the technology for seaweed farming from other Bajo settlements, in particular in northern Buton. Another example was how farmers in the upland settlement began experimenting with tree crops from Maluku. Alternatively, people began engaging in trades they had learned from urban centres such as Bau Bau as the standard of living improved in the

lowland settlement. In the case of the seaweed in Tanjung Bunga or the tree crops in Lawunta, people generally followed the successful examples that were introduced. In the case of trades in Lawele, however, people did not follow identically the pathway of others, but chose trades commensurate with their skills and preferences. In choosing to differentiate their livelihoods, people, for the most part, chose to imitate the successful.

If choosing to imitate the successful is a decision-making strategy, then whom do people decide to imitate and why? What do people define as success that is worthy of imitation? We saw two examples where people had chosen unique livelihood strategies that were not imitated. In the Bajo settlement of Tanjung Bunga, there was the example of Jabrullah, who worked refitting boats and transporting fish to the north of Buton. In Lawele, there was the case of Fadal, who had established his own mechanic workshop along with a billiard table. In both cases, the two individuals were content with their livelihood strategies and saw themselves as successful. In the latter case, Fadal was demonstrably one of the more successful people in Lawele according to income and assets. In neither case, however, did people choose to imitate their livelihood strategies. Both strategies required a mix of access to capital, tools, equipment, and particular skills that excluded others from following their examples. In order to imitate a strategy, it not only has to be perceived as successful but also as feasible.

Successful examples of livelihoods, and livelihood strategies, were evident in different ways. For the Bajo fishers, they compared their settlement and their own personal assets with Bajo in other settlements in Southeast Sulawesi and elsewhere in Indonesia. They recognised that their relative poverty was due to a mix of factors such as government interventions, the physical location of their settlement in relation to fisheries and markets, and their livelihoods. Livelihoods were one aspect of those settlements that the Bajo could imitate, and they chose the fastest growing and most profitable variety of seaweed available. The farmers in the upland settlement of Lawunta chose livelihood alternatives that they had seen during their time in Maluku. They evaluated their current livelihoods against those they had in Maluku, and that their friends, relatives and peers continued to practice there. Drawing upon those networks, they were able to plant those tree crops in Lawunta.

A distinction emerged among livelihoods that could be improved and those where there was no clear pathway for improvement. Fishers, consistent with many government policies, perceived the improvement of fishing capacity, including supporting infrastructure of market access and refrigeration, as the clearest pathway to improving income. A simple, desirable and

achievable rule of bigger boats equalling better income was mentioned consistently among respondents, who also described the ways in which they pursued these goals. The ways that fishers would pursue their goals of bigger boats was through individual efforts of planning and saving, or, alternatively, through political means such as applying to the local fisheries agency. The rule of bigger boats equalling better income, however, had several inherent flaws. First, there was little consideration of the sustainability of fisheries if everyone increased their fishing capacity. Second, fishers who had already increased the capacity of their boats still relied on basic, non-motorised transport for a significant proportion of the year. Some avoided deep-sea fishing despite owning larger boats for reasons of personal, economic and social risks. Other deep-sea fishers, such as those who targeted species such as tuna and sharks, were unable to fish in deep waters during the Eastern Monsoon. Inevitably, all fishers would have to rely on fishing in the waters near the settlement for at least part of the year. The simple, desirable and achievable rule of bigger boats meaning better income failed to address this resource dependency, and questions of sustainable management.

The effectiveness of learning and imitating rural livelihoods from friends, families and peers has reached its limits in, what has been referred to as (van Klinken and Berenschot, 2014), middle Indonesia. Even positions in the civil service, a formerly guaranteed pathway for relative prosperity in rural Indonesia, has reached its limits, with many graduates from my case studies, remaining unemployed. As aspirations for a middle class life rise along with the social pressures of conforming to a higher standard of living, why are rural livelihoods unable to provide for the types of lives rural people desire to live? How and where livelihoods have failed provides some insight into the institutional causes of the limitations of livelihoods, but also potential pathways for improving rural livelihoods.

Learning and imitating from your family, friends and peers is an effective strategy for learning and making decisions to adopt new or improved livelihoods (Boyd and Richerson, 2005). In the case studies, however, there were many instances where it failed or reached limits. In Tanjung Bunga, there was the case of the Bajo fishers adopting the practice of seaweed cultivation from a Bajo settlement in Ereke in the north of Buton. Despite the initial successes with cultivating the crop, disease affected the crop continually until the cultivation was stopped completely. People in Tanjung Bunga had few pathways or skills for finding a solution for the failure of the crop. There were no local extension workers or other technical resource people that the fishers could consult in order to find a solution. Similarly, their own lack of technical expertise meant trying to find a solution was perceived to be beyond their means.

To cope with the failure, they chose to discontinue the practice and continue fishing as a primary occupation.

For farmers in both Lawele and Lawunta, agroforestry and other crop cultivation in forest gardens faced challenges of pests and low productivity. Cacao agroforests were beset by challenges of the pod borer along with crop raiding by monkeys. Animal pests, such as monkeys, pigs and rats, were perceived as challenging or preventing the farming of tree crops such as coconut, as well as affecting swidden farming of corn and rice. The search for alternative crops undertaken by trialling tree varieties was based on historical experiences with those crops, rather than finding a new or improved alternative. Similar to the fishers in Tanjung Bunga, farmers could not identify any pathway for finding solutions or alternatives. Their education was insufficient for finding solutions, and government agencies were unable or unwilling to provide farmers with the support they needed.

For those who chose non-farming livelihoods, there were both viable and non-viable pathways. Many young people chose to study through tertiary education, in the hopes of imitating previously successful pathways of becoming civil servants. Upon graduation, they found difficulty in finding employment due to corruption in the selection process, high competition and a restricted number of positions due to the moratorium on civil service recruitment. Unwilling to farm or fish, these graduates would work for years as interns (*magang*) on a low salary in the hope that they would be employed in the next recruitment round. Not all graduates faced certain unemployment. A few young graduates found work as civil servants, while others decided to abandon the pathway of aspiring for the civil service, and chose civil engineering instead. Semi-skilled occupations provided alternatives to farming in Lawele either as a specialised occupation, such as that of the mechanic, or as part of a diversified, farming livelihood strategy, which included occupations such as electricians or carpenters. People in these occupations were, however, self-taught.

8.4. Diversification: the means for maintaining a higher standard of living?

How and why do people diversify their livelihoods? Ellis (2000a, 2000b, 1998) argued that the reasons that households diversified was either by necessity or choice. Diversified livelihood strategies were either coping strategies or strategies for accumulation. More precisely, he categorised these determinants as: seasonality, risk, labour markets, credit markets, asset

strategies, and coping strategies (Ellis, 2000b). In this context, the rural household develops diversified livelihood strategies to stabilise or improve their income in response to the typical challenges of rural areas in developing countries. In contrast, I explored diversified livelihood strategies in the context of household goals and community living standards, and how those strategies supported households to achieve their goals. Subsistence was one, although essential, of these goals. From the case studies, I drew a distinction between deliberative, longer-term strategies of diversification and more opportunistic diversification strategies. Deliberative strategies of diversification were planned efforts to ensure the stability and increase of annual income, which relate to all of the categories described by Ellis (2000b) other than what he defined as 'coping strategies.' For the fishers in Tanjung Bunga, these strategies involved targeting different fisheries, marine and mangrove resources according to seasonal and tidal influences, along with trialling seaweed. For farmers in Lawunta, diversification involved the diversification of land uses as well as livelihoods. Farmers would rely on swidden cultivation or irrigated rice farming for their staple foods, and plant agroforests of different species in various locations. Wild honey collection was structured around these main activities, and only involved men in the collection of honey. Farmers in Lawele used a variety of strategies from irrigated rice farming, agroforestry, and small businesses to earn their household income. Civil servants diversified from their main salary through owning farmland.

Opportunistic strategies for diversification were more irregular and generally involved people seizing opportunities for labouring work. Work could either be within the landscape, such as assisting with farming or working on the construction of irrigation canals. More often, opportunistic strategies involved temporary migration. Migration was roughly divided into three types of migration: permanent, long-term and short-term. Short-term migrations, seasonal or opportunistic, were generally intended to meet the cash income needs of households. The places where people worked, and the types of work that they did, were based on their networks (Table 8.11 and Figure 8.1.). The most common response of how people found out about work opportunities was through either a family member or friend. Consequently, the destinations where people migrated and what they did there were fairly consistent within each of the settlements. For instance, the Bajo in Tanjung Bunga migrated mainly to other Bajo settlements. In Lawunta, most of the destinations for migration were in Maluku, and involved work in farming, forestry and artisanal mining. In Lawele, the destinations were much more varied with more variation in occupations. People in Lawele could travel to anywhere between Indonesian Papua and Malaysia, and encompassed work from professional employment to commercial fishing. To take up these opportunities, a friend

or a relative generally informed people that there was an opportunity. People generally assessed whether it was suitable in terms of their other livelihood activities or for longer-term migration in terms of their stage of life. Personal risk was also a factor in deciding whether to go. For most farmers, migration would be planned outside of major rice farming activities and the seasons for collecting wild honey.

Table 8.11: Destinations for migration and occupations²⁰³

	LOCATION	OCCUPATIONS
Tanjung Bunga	Kupang, Maumere, Lasalimu, East Timor, Rote, Wanci	Commercial Fishing Trade
Lawunta	Tobelo, Ternate, Kaimana, Madapolo, Obi, Timika, Namlea, Ambon, Bau Bau	Farm labour Timber industry Artisanal Mining Urban labour
Lawele	Bau Bau, Nambo, Wanci, Tual (Kei Islands, Maluku), Bombana, Wanci, Bangka, Kota Kinabulu (Sabah, Malaysia), Ambon, Sula (North Maluku), Papua, Menui Islands (Morowali District, Central Sulawesi)	Commercial fishing Farm labour Semi-skilled labour Artisanal mining Timber industry Professional employment Urban labour

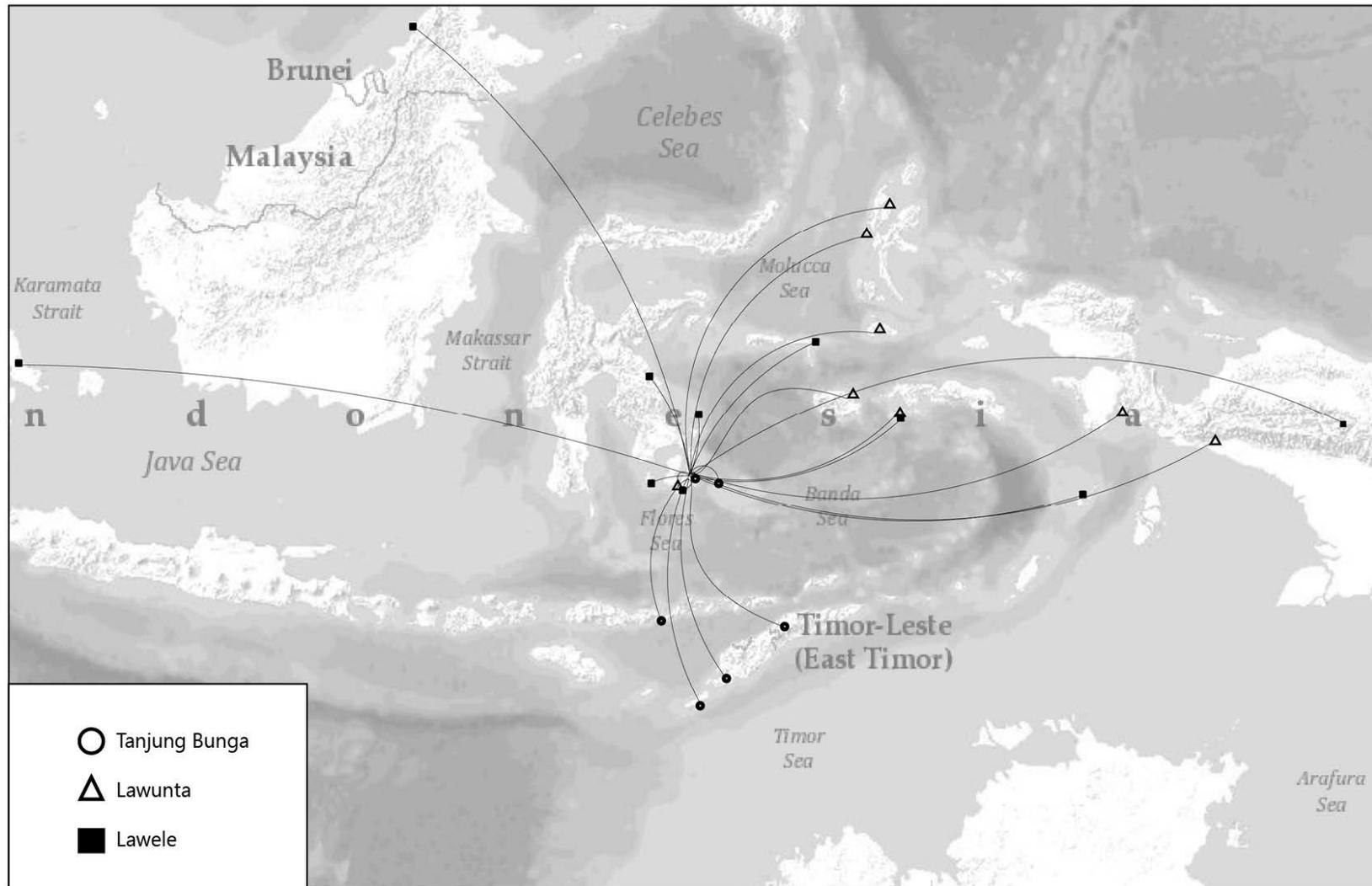
Migration for longer periods, served different purposes. I was unable to study the reasons for why people migrated permanently, although it was common in most of the settlements, in particular Lawunta. From informal discussions, those who left permanently did so due for reasons such as marriage, but, more generally, because the opportunities available in the landscape, in particular Lawunta, were not as good as those abroad. Long-term migration, particularly for young men, was not only perceived as a means for savings, but generally as a way to get experience (*pengalaman*) and capital. Southon (1995) highlights a similar trend among Butonese men in the southern part of Buton who used the same rationale for migration. The mechanic in Lawele, for instance, used longer-term migration as a means for saving for his equipment. Another man, based in Malaysia, was able to send remittances home used for building a house. One woman migrated from Lawele at a younger age to Makassar, returned later in life with a spouse, and established small businesses. For fishers, longer-term migration, as well as providing income, was also an opportunity for them to see the lives and

²⁰³ The table is based on the results of the household surveys and household livelihood interviews.

livelihoods of other fishers. For the Kalende in Lawunta, however, longer-term migration had been forced upon them through government-initiated relocation programs and civil unrest. A history of displacement meant most were willing to persist in living in the settlement despite the hardship.

I have discussed *how* people and households have diversified their livelihoods; here I would like to discuss *why* people diversify their livelihoods. For Ellis (2000b, 1998), diversification is a reactive strategy for survival and a more deliberative strategy for households to improve their standard of living. Ellis in this context places greater emphasis on how households adapt to the structural determinants rather than understanding the needs of individual households for stabilising or increasing their income. Understanding the motivations of why households diversify is important, as it assists us in understanding when farmers or fishers begin to move away from their primary livelihoods. These livelihoods, farming and fishing, also provide for the subsistence and nutrition of people in their communities, as well as produce and commodities for external markets. From the case studies, households feel pressure to diversify their livelihoods when they need to maintain a standard of living rather than when they are saving for goods and improving their household assets. The costs of maintaining a higher standard of living can involve higher regular payments such as education, fuel, electricity and phone credit or occasional, significant expenses related to planned events such as ceremonies or unplanned events related to health. In contrast, poorer households in the remoter settlements were able to save for assets such as electronics, transport or improving their homes, when they are able, with the only pressures related to providing for their food. Where rural livelihoods seemed adequate for subsistence with some form of accumulation, they were challenged when meeting the regular costs associated with maintaining a higher standard of living.

Figure 8.1: Migration map by settlement



The pressures for diversifying for achieving a higher standard of living were most acutely felt by people in Lawele, although households in other settlements felt some of these pressures. There was the case of the Bajo fishing household where the parents were trying to educate their children outside of the settlement. Alternatively, the example in Lawunta, where the family had sent their children to be educated in a neighbouring island and managed by collecting various sources of income. Although these examples demonstrate the financial hardship that some families undergo to better the lives of their children, they are for the most part planned and feasible within the context of their existing livelihoods. The pressures associated with achieving a higher standard of living were qualitatively different: it was the moment where people and households crossed the blurred line between wants and needs. That is, expenses that may have seemed like subjective wants and desires in the past transformed into obligations, and not fulfilling those obligations would result in some form of shame.

What was common in Lawele is that these pressures affected all social groups: from farmers and semi-skilled labourers to civil servants. For farming households, several scenarios emerged. One example was a rice farming household where the wife and daughter established small businesses selling food and phone credit. The husband was engaged in the collection of forest products, in particular wild honey, as well as labouring work near the village and regular, seasonal migration. Income from agroforestry complemented this overall livelihood strategy. Another example involved a similar mix of collecting forest products, including wild honey and rattan, farming and migration. For civil servants, increasing household income involved acquiring more rice farmland, often through getting bank loans, with some increasing their holdings of agroforests and small timber plantations. These strategies, especially for households with children in higher education, were still perceived to be inadequate. Only one household, which was that of the mechanic, perceived their livelihood strategy to be adequate for meeting the costs of maintaining the standard of living that they desired.

Livelihood diversification, in this context, emerged as a response to the combined processes of changing living standards and the stagnant or declining productivity of rural livelihoods. Historical livelihoods, such as fishing and farming, had been adequate for providing for basic subsistence and other household goals and ceremonies. These

livelihoods, however, were proving inadequate by themselves in achieving the goals associated with newer community living standards. Livelihoods that provided income in a way that was more instrumental to achieving the goals of households were given greater prominence. These were generally non-farming livelihoods and required some form of migration from the settlement. These strategies were not inevitable, but arose in the context of an almost systematic lack of government support for rural livelihoods other than irrigated rice farming. From this evidence, there are several other factors that motivate rural households to diversify their livelihood strategies other than those highlighted by Ellis (2000a, 2000b, 1998). The two main factors are: changing living standards and a lack of government support for rural livelihoods, in particular farming and fishing.

8.5. Land sales in the context of changing livelihoods and standards of living

In a situation where farming had become largely unproductive, and living standards have increased, it seems logical that people would be willing to sell their land. Judging by the way that people who sold their land spent their money afterwards, it would seem to confirm that theory. Other dynamics, however, shaped the decisions available to landowners. Mining companies, in conjunction with the government at multiple levels, promoted asphalt mining as a means to develop Indonesia, improve the revenue of local government and consequently, the residents of the district, and provide employment opportunities. Power disparities between the government and companies, on one side, and landowners, on the other, the implicit threat of coercion and negotiating techniques made it difficult for farmers to resist directly or negotiate fairly. Farmers in Lawunta also faced greater challenges of having unclear tenure to their lands, which allowed the government to claim greater coercive powers. In this context, the decision whether to sell and how to spend the money was only a smaller part of larger, interacting processes on economic development in Indonesia, especially economic development that prioritises roads over preserving farmland and forest and coastal landscapes.

Should we place so much emphasis on the decisions of rural people when the interests of government and the private sector are aligned against the preservation of multifunctional landscapes? Would landowners have acted differently if that farmland had been perceived as a central means for providing for their household income? Would people have reacted differently if the land being acquired were irrigated rice farmland? Would the Kalende in Lawunta have reacted differently if they had clearer rights to the land? It is hard to argue in hindsight what would have happened. Although historically people in the landscape had resisted the intrusion of mining into their lands, it would be hard to predict what would have happened if the context had been different. What is clear is that the people did not have clear enough rights to their resources, and were not able to benefit from them in a way that met their aspired to standards of living. In this context, it seems misplaced to expect rural people to be the defenders of the natural environment when government and business have already relinquished their responsibility.

8.6. The pursuit of a better life in a coastal landscape in Eastern Indonesia

People pursue their vision of a better life relative to what is achievable considering their means and the opportunities available to them. Although people may value concepts such as fairness and dignity (Fischer, 2014) or political freedoms (Sen, 1999), there is little that individuals or households can do to achieve these alone. Rather, people strive towards acquiring and accessing the goods and services that are feasible considering their location and capabilities. In the case studies, people have shown a willingness to invest in goods that provide comfort, entertainment and communication, and services such as education for their children, beyond providing for their basic necessities. We have also seen how people are willing to invest in goods that bring social status such as clothing that is comparatively more expensive and holding expensive ceremonies. From the case studies, it also emerged how unexpected and regular expenses associated with maintaining a higher standard of living were affecting households. From these examples, we can ask again: what standards of living and types of lives can rural

livelihoods (Scoones, 2009) and diversified livelihood strategies (Ellis, 2000b, 1998) realistically support?

The evidence presented in the case studies suggests both that rural livelihoods are unlikely to meet the rising aspirations of rural Indonesians. And second, that the natural environment will likely be overexploited to meet the short-term needs of people. There were several reasons for coming to these conclusions. Through improvements in infrastructure and government services people in the more accessible settlement were able to attain a higher standard of living. The acquisition of these goods and services consequently led to higher and more regular expenses for households. Similarly, greater interaction and integration with urban settlements led many rural people to feel greater social pressures that manifested itself through feeling the need to purchase clothing that is more expensive and hold ceremonies that are more elaborate. Conversely, people who lived in settlements that were less integrated with urban centres felt less social pressure. And although people faced these greater financial pressures, the means to meet those pressures remained virtually unchanged. The livelihoods that people relied on were mostly learned and adopted through processes of social learning (Boyd and Richerson, 2005) with limited government support. Where there was no clear pathway for improving livelihoods, people would diversify their livelihoods (Ellis, 2000b, 1998). There were limits to how much individuals and households could diversify their livelihoods, and financial pressures were felt across all social groups in the more integrated settlement.

Two examples from the case studies indicated that these trends would lead to the overexploitation of natural resources. In the case of the expansion of asphalt mining, several dynamics interacted. Although there were power disparities in the interactions with landowners, the landowners expressed their willingness to sell their lands due to the low productivity of the land, and the need to use the money for other purposes. The money was rarely used for alternative livelihoods, but rather making consumer purchases, improving homes or paying for ceremonies. In the second example, the fishers of Tanjung Bunga faced a situation where their inaccessibility and lack of infrastructure affect both their ability to benefit from the fishery and to improve their standards of living. At the same time, the fishers relied on capture fisheries for their

income as they had few viable alternative livelihoods. In this case, it seemed likely as infrastructure in the settlement improved and the settlement had better road access, that the fishers will be able to earn more from their fishery. They will also be able to acquire and access more goods and services that they can spend their money on. In the past, the inaccessibility of the settlement has prevented the overexploitation of the fishery in the absence of a management regime. As these conditions change, it is likely that the fishery will come under increasing pressures.

8.7. Discussion

The findings from the case studies have several implications for the literature on environmental policy and rural development. The most significant result from the study is that the livelihood strategies of rural households are oriented towards the achievement of household goals and community living standards. Although other authors (Durrenberger and Tannenbaum, 1992; Tannenbaum, 1984), building on the work of Chayanov (Chayanov, 1986), have explained rural household livelihood strategies using these types of theoretical models, it is not the dominant theory in environmental policy or rural development. Rather, the dominant theories of rural household behaviour are based on the idea of the risk-averse rural household pursuing subsistence (Ellis, 1993). This understanding of rural behaviour has particularly informed the practice of conservation (Angelsen, 1999) and rural development, through the use of the sustainable livelihood framework (Scoones, 2009), more so than the literature on those topics (Babigumira et al., 2014). Other authors, for instance Ellis, have argued household strategies are roughly divided into coping or survival strategies and strategies for improving living standards (Ellis, 2000b, 1998).

The results from the case studies instead point to households simultaneously holding a range of goals, of which subsistence is a central goal. These goals reflect what Kruglanski and others (2002) referred to as a goal system. With a goal system there are goals which are desirable and those which are perceived as necessary or obligatory (Higgins, 1987). In contrast to other literature on consumer behaviour, however, these goals are

articulated and pursued in the unique context of the subsistence economies (Viswanathan et al., 2010) and multifunctional landscapes of the tropics (Naveh, 2001; Pfund et al., 2011). Household goals, and more broadly community living standards, are enabled by opportunity structures (Fischer, 2014) and shaped by processes of social comparison (Bearden and Rose, 1990) mainly through social integration but also through media such as television (Bruni and Stanca, 2006). A general pattern emerged where better infrastructure and services enabled households to own more and access more services, and, greater social integration and social comparison, led to greater pressures to achieve higher living standards.

This conceptualisation of the motivation of rural households differs from others studies of rural household motivation in Indonesia and Southeast Asia. In contrast to other approaches that have explained the motivations of rural households in terms of desire (High, 2014, 2008) or aspirations (Feintrenie et al., 2010a, 2010b; Levang et al., 2007), I have explained how household goals and motivations are practically shaped and enabled in the context of rural landscapes. Moreover, I have also explored the causal links between how the motivations of rural households influences their livelihood strategies. The achievement of positive goals was usually undertaken within the context of existing livelihoods, where households planned and saved to achieve those goals, usually focusing on one at a time. The range of goals was usually consistent across a community, thus making up a desired community living standard. Obligatory or expected goals (Higgins, 1987), however, had greater influences on the livelihood strategies of rural households. These included the quantity and quality of items such as clothing or the size and frequency of ceremonies. These results match the results from studies from Africa that have demonstrated the effects of ceremonies, in particular funerals, on rural households and livelihoods (Case et al., 2013). The power of social expectations in determining rural household behaviour matches Li's (Li, 2014, 2002a) analysis, where she stated that the fear of being perceived backward drove people's land use choices.

This conceptualisation of the goals and community living standards of rural households differs from other literature in that it emphasises their dynamic and changing nature. Chayanov and others (Chāyanov, 1986; Durrenberger and Tannenbaum, 1992;

Tannenbaum, 1984) described the goals of rural households as being relatively static, and arising out of a largely closed system. Goals and living standards, however, change, and communities can have varying degrees of interconnectedness with urban systems and global markets. Changes in the goals and living standards of rural households are connected to broader changes in society and the global economy. Opportunity structures (Fischer, 2014), including infrastructure and services, shape the goods and services available to rural households. As goals and living standards change, rural households try to adjust their livelihood strategies accordingly.

A central challenge from the case studies was determining whether production or consumption decisions were made first. The pathway for exploring this challenge was understanding how rural households made decisions about adopting or improving livelihoods. Consistent with other studies in Indonesia (Belcher et al., 2004; Feintrenie et al., 2010a, 2010b), rural households would choose the best possible livelihood among the available options based on criteria such as profitability, labour and risk. This, however, does not explain everything. In particular, it does not explain how rural households learned about livelihoods, and how they were able to evaluate whether that livelihood would benefit them. Process of social learning (Bandura, 1977) and social exchanges, in particular strategies of imitation (Boyd and Richerson, 2005; Kruglanski and Gigerenzer, 2011) were critical for rural households to improve existing livelihoods and learn new ones. In the absence of government extension and support, with the exception of irrigated rice farming, social learning and imitation were the most effective means available to rural households. In this context, it is more accurate to state that rural households will choose among the best options available to them, considering the options available through their social networks, and their access to resources as well as other mechanisms of access (Ribot and Peluso, 2003).

Identifying the instances where the pursuit of changing household goals influenced livelihood strategies was easier by comparing across settlements rather than within. The relative isolation and poor access to infrastructure and services of the two remote settlements meant that there were relative similar patterns of livelihoods and living standards within the settlements. These cases reflect Chayanov's notion of the drudgery-averse household (Chayanov, 1986; Ellis, 1993): that households will only

work as much as they need to meet their household goals (Tannenbaum, 1984). As there were limits on the types of goods and services possible in the settlements, there were also limits on how much household needed to work. In the more accessible settlement, however, the combination of infrastructure and government services enabled households to own a much wider range of goods, and access a wider range of services. Households in this settlement were also more socially integrated with urban centres. In contrast to Chayanov's propositions about the natural limits of consumption (Chayanov, 1986; Ellis, 1993), people in the more accessible settlement had taken their steps on the hedonic treadmill (Frey and Stutzer, 2002). The differences between settlements was demonstrated through the livelihood strategies of farming and forest-dependent households, whose members in the more accessible settlement migrated more frequently and generally had more diversified livelihood strategies.

Rural households in the cases studies were not the main drivers of environmental degradation. Fishers, due to constraints such as infrastructure and inaccessibility, were isolated from markets that were more lucrative and had little incentive to overexploit the fishery. Although farmers had replaced much of their swidden fallows with cacao during the 1980s and 1990s, similar to much of Sulawesi (Li, 2002a; Neilson, 2007), there were no viable, alternative crops with which to replace those agroforests. The main causes of smallholder-driven deforestation was the clearing of Lawunta, which was driven by processes of displacement and civil unrest (Palmer, 2004). The government and the private sector, through asphalt mining, drove the major land use changes in the landscape. Although rural households were not involved in significant environmental degradation, it more likely reflects their lack of alternatives. The situation in the more accessible settlement reflects what Levang and others (Feintrenie et al., 2010a, 2010b; Levang et al., 2007; Rival and Levang, 2014) have described as a situation of rising aspirations, where farmers, if given the opportunity and supporting infrastructure, will adopt monocultures such as oil palm, which enable them to achieve those aspirations.

8.7. Conclusion

Community living standards have changed at a faster pace than the capacity of rural livelihoods. Government initiatives for promoting the expansion of infrastructure and government services were not matched by initiatives for improving rural livelihoods, or, alternatively, expanding non-farming employment opportunities. The advantages of having access to improved infrastructure and services were counterbalanced by the social expectations that came from integrating with urban centres. The pursuit of desirable goods and services, such as electronics or transportation, could be integrated into existing livelihood strategies. The power of social expectations, however, were more disruptive to rural livelihoods, and led to increasingly frequent financial burdens, with seemingly few benefits other than gaining the approval of friends and peers. With few clear pathways for improving the productivity of rural livelihoods, however, the natural environment will bear the costs of paying for these additional financial burdens.

Chapter 9 : Rural Livelihoods in Middle Income Indonesia

9.1. Introduction

Rural Indonesians are caught between the aspirations for changing living standards and the means available to achieve them. Compounding these challenges is the expansion of commercial land uses, including mining, which are converting the farms and forests of rural landscapes. Fishers, generally marginalised during these processes, also face competition from commercial vessels. In this concluding chapter, I examine the relationship between livelihoods and changing living standards, and explore the policy implications of the research. I explore ways in which policies and interventions for rural development and conservation can support rural Indonesian households, that is, to enable them to achieve the lives they desire while avoiding the degradation of the natural environment where they live.

9.2. A city life in the midst of the forest?

In 2007, researchers from the Center for International Forestry Research published the results of five years of ethnographic and household analyses on the Punan Tubu people of East Kalimantan, Indonesia (Levang et al., 2007). The Punan Tubu, a hunter-gather people, who formerly lived in the Tubu Watershed of the Mentarang River in Malinau District, have been transitioning to life in permanent settlements since the beginning of the twentieth century. Some of the settlements had been relocated in the 1970s to be closer to the city of Malinau, while several others had been able to remain in the upper Tubu. The researchers aimed to understand what the advantages and disadvantages of living in and out of the forest were. Although living in town led to better access to health services, formal education, information, and job opportunities, there were many disadvantages too. Some of these disadvantages included the loss of

land and culture and the lack of access to forests for food. The researchers concluded from the results of the research:

‘The Punan do not want to choose between conservation and development, between forest life and city life. They want to benefit from the advantages of both locations, to enjoy both free forest products and the positive aspects of modernity, to go wild boar hunting in the morning and watch television in the evening. In short, they want to enjoy city life in the middle of the forest (Levang et al., 2007).’

Development, according to Sen, should be the means that provide them with the capabilities to achieve the freedom to choose the types of lives they value (Sen, 1999). Is the idea of a *city life in the midst of the forest* (Levang et al., 2007), the type of life where rural and indigenous people are able to enjoy the comforts of urban living while living close to nature and benefitting from its resources, possible? Is there a way to enable rural people to choose to live the types of lives that they desire without resulting in the degradation or destruction of the natural environment?

9.3. Livelihoods and the living standard

The central proposition that underlies this thesis is that it is household goals, and community living standards, which drive livelihood strategies. This is in contrast to other theories of rural household decision making (Ellis, 2000a, 1993), particularly those used in environmental policy (Angelsen, 1999; Babigumira et al., 2014), that argue that production and livelihood strategies determine the consumption choices of rural households. This theory of household decision making, which gives primacy to consumption over production, emerged from the work of Chayanov (Chāyanov, 1986; Ellis, 1993) and further developed by others (Durrenberger, 1997; Durrenberger and Tannenbaum, 1992; Tannenbaum, 1984). These authors argue that it is the household goals, and the number of consumers within a household, that determine the livelihood strategy of a rural household. Although the evidence from the case studies confirms

this theory, it comes with caveats. The constraints that rural households face in matching livelihoods not only arise from the effort or labour allocated to livelihoods, but also deriving from their location on the multifunctional landscapes. In brief, these constraints can be described as:

- Access to natural resources and other livelihood opportunities (Ribot and Peluso, 2003); and
- Social learning as the primary means of learning livelihoods (Boyd and Richerson, 2005; Kruglanski and Gigerenzer, 2011).

The case studies all showed how the place where people were born and lived on the landscape shapes the livelihood choices available to rural households. The physical proximity to natural resources both affected the types of livelihood choices available to rural households, but also reflected the historical choices made by communities to build settlements near those resources. In many cases, communities were forced to settle there either as a result of escaping violence or through government resettlement programmes. Young people in these settlements then learned their rural livelihoods from family and peers, constrained by their family's access to resources and ability to benefit from those resources. Formal education in the three settlements generally played little role in enhancing rural livelihoods, and only offered a pathway out of rural employment for some. The only exception to these general rules were people from outside settlements who married with people within the settlement. Even in those cases, these people mostly adapted to the local livelihoods, although some were able to apply their expertise learned elsewhere.

The freedom to choose how to allocate effort and resources within individual livelihoods, and among diverse livelihoods, was already constrained by the time a person became an adult. People either made choices as farmers or fishers, while a few others had different choices available to them as civil servants or professionals. Improvements in these livelihoods was not as simple as increasing effort and inputs (Ellis, 1993). For most livelihoods, people were already working at their maximum potential, and there were few, if any clear pathways for increasing income from individual livelihoods. In the few examples where there were pathways for improving the returns from individual livelihoods, such as increasing the capacity of fishing boats

or expanding irrigated farmland, rural households faced other constraints, such as lack of access to refrigeration or an inability to access bank loans. Diversification, in this context, was the only option available for rural households to improve their income (Ellis, 2000b, 1998).

One of the central constraints on the rural household to choose among livelihoods and improving existing livelihoods was their access to information, technology and credit (Ribot and Peluso, 2003). In many ways, this reflected a failure of government extension programs and formal education to enable people to make informed choices about rural livelihoods. Rural households also lacked pathways for seeking information and support when there were livelihood challenges, such as crop failures and pests. Social learning and social exchanges of technologies, including cultivars, were the main means by which people learned new livelihoods or how to improve existing livelihoods (Boyd and Richerson, 2005; Kruglanski and Gigerenzer, 2011). Although social learning was instrumental in providing for the livelihoods of people in the settlements, there were instances where scientific and technical information and formal learning were needed. Without that support for improving existing land and marine livelihoods, circular migration provided one of the most effective means for improving household income.

The function of these livelihood strategies was to achieve the household goals associated with the community's living standard (Tannenbaum, 1984). The community living standard exists at the intersection of social influences, infrastructure and consumer markets, and is invariably linked to the income of the people living there. The social influences that shape the standard of living within a community are both historical and dynamic. Historical social processes and traditions shape everything from the routine, such as preferences in food and drinks, to the less routine, such as annual community celebrations. Although these preferences are rooted in history, they are also dynamic and changing, subject to the social influences that shape other consumer preferences. Social influences that shaped the preferences of rural households included television and exposure to more urban societies. These influences introduced rural people to different ways of living and the goods and services associated with those lives. Beyond that, however, processes of social integration and social comparison contributed to higher expectations of the types of lives that people should aspire for

and maintain (Bearden and Rose, 1990; Bruni and Stanca, 2006; Frey and Stutzer, 2002). These expectations were particularly evident in expenses related to clothing and ceremonies.

Translating social influences, expectations and aspirations into achievable goals, however, is only possible in the context of access to infrastructure, government services and consumer markets. Poor mobile phone signals, limited access to electricity, roads and piped water all restrict the types of consumer goods available to rural households. The lack of access to government services, such as education and health provision, not only reduces the wellbeing of rural Indonesians, but also make it more expensive for them to access those services. The type of consumer markets, and distance to those markets, in turn, affects the types of goods available to rural households. Access to cheap electronic goods produced in China has meant that a wide range of goods is now more relatively available to rural households, either through the local market or in larger towns. For those seeking better quality, stores in larger towns offer more popular brands of electronic goods, motorised transport and equipment for sale.

In Chayanov's original theory, there was a point when the peasant household had enough (Chayanov, 1986; Durrenberger and Tannenbaum, 1992; Tannenbaum, 1984). In two of the case studies, the threshold seemed to be imposed by the limitations of infrastructure, as well as the comparative isolation of the settlements. Households in these settlements were able to define the point when they had enough, and were content to maintain their current living standard. In the third case, however, there was no obvious threshold for when rural households had enough. Rather, each household, ranging from the poorer households to the wealthier, always had the desire for more. Consequently, household income was rarely considered sufficient. The causes of this seemed related to the level of infrastructure and social integration. In the settlement there was sufficient infrastructure as well as integration with urban societies for the people there to aspire to a middle class living standard. As infrastructure improved, rural households quickly adjusted through purchasing new goods and services, such as refrigerators or subscription television.

Although aspired to and actual living standards were increasing, rural livelihoods for the most part failed to improve at the same pace. Rather, circular migration was the most

common strategy for diversifying household income for achieving the increasing range of household goals. Wealthier households with salaries, in contrast, were able to increase their holdings of irrigated rice farmland to improve their household income. For all, however, the mismatch between aspirations and the means to achieve them created a new type of vulnerability for rural livelihoods and the landscape. The most dramatic example of this was the expansion of asphalt mining into the landscape, and the consequent land sales. Although companies supported by governments drove these processes, the motivations of households still affected the decisions made, and how the compensation payments were used. The results from this case study are similar to how smallholder farmers in other parts of Indonesia have responded to booms in commodities such as oil palm (Feintrenie et al., 2010a; McCarthy, 2010; Rist et al., 2010) and rubber (Feintrenie et al., 2010b). In many of those cases, however, the income of rural households was significantly improved over a longer period. In the case of mining, however, the benefits of the land sales were immediate, but the impacts would affect people and the landscape long into the future.

9.4. Rural household decision making under changing standards of living

The results of the case studies point to a theory of decision making for rural households under changing standards of living. The concept that livelihood strategies are orientated to maintaining community standards of living (Tannenbaum, 1984) as well as achieving newer living standards were confirmed across the three cases. Standards of living, in turn, were shaped by structural factors or opportunity structures (Fischer, 2014), such as infrastructure and consumer markets, and social influences, including traditions and more modern social influences, such as television (Bruni and Stanca, 2006) and social integration. Changes in these structural and social processes affected not only the types of goods and services that were possible in the settlements, but also what was expected of people. Meeting these rising standards of living was constrained by the lack of access to information, technology, credit and extension support. Instead of improving the productivity of existing livelihoods, rural households instead diversified, with migration a central part of that strategy. Under the right conditions,

this contributes to a new type of vulnerability for rural households and their landscapes, where the immediate needs of maintaining a living standard are more important than the sustainability of their livelihoods and resources.

The results of research have both implications for theories on rural household behaviour and decision making, as well as policies for rural development and environmental management. The concepts of the risk averse rural household, and the subsistence oriented rural household, dominates in the literature and practice on rural development (Babigumira et al., 2014; Ellis, 1998). These discourses describe rural households that develop livelihood strategies that are designed for minimising risk and maintaining a basic level of subsistence. This theory of decision making also shapes policy interventions for rural development and environmental management. Livelihood and conservation interventions often seek to substitute environmentally harmful activities with sustainable livelihoods, which may not match the needs of rural households (Li, 2007). In many instances, these interventions have failed dramatically (Sunderland et al., 2007; Wright et al., 2016). Similarly, interventions that are designed to improve the productivity of particular livelihoods may not take account of the place of that livelihood in a particular livelihood strategy, or the living standard that the rural household is trying to maintain or achieve.

There are several implications for environmental and rural development policies and interventions in Indonesia. First, interventions should be designed with the awareness that aspirations and goals are subject to change, and the realisation of those goals is contingent on opportunity structures. Changes in opportunity structures, such as markets or infrastructure, will enable households to pursue different goals. The pursuit of different goals and community living standards will require new livelihood strategies. This scenario matches what Levang and others (Feintrenie et al., 2010b; Levang et al., 2007; Rival and Levang, 2014) have referred to as 'rising aspirations'. In these scenarios, rural households will search for a means to achieve their new household goals and community living standards. In Indonesia, typically this has involved the conversion of biologically diverse forest gardens (Belcher et al., 2005) to oil palm (Belcher et al., 2004; Feintrenie et al., 2010a, 2010b). The pursuit of household goals and higher living standards will take priority over preserving the environmental and cultural values of the

natural environment unless alternative means are provided. In the context of rising aspirations, smallholder farmer and small-scale fisher driven conservation becomes more difficult.

A related challenge in this context is the provision of compensation or alternative livelihoods for reducing or avoiding environmentally harmful activities. There has been a trend in environmental policy and governance to advocate payments for environmental services (Wunder, 2007), including payments for reducing deforestation and degradation (Agrawal et al., 2011), as a means for reducing environmentally harmful activities. The evidence from the case studies indicate that direct cash payments to rural households will not lead to the adoption of alternative livelihoods. Rather, the money will be quickly spent and rural households will be left in a worse position than before. Similarly, providing alternative livelihoods (Roe et al., 2014; Wright et al., 2016) that are not perceived to be instrumental to the achievement of household goals or community living standards is likely to fail. Finally, investments in community or village infrastructure and services, without commensurate investments in rural livelihoods, may actually exacerbate the mismatch between aspirations and means. This will likely have the effect of encouraging rural households to search for means to meet their immediate and near future expenses.

The normative propositions that guide environmental and rural development policies and interventions in rural households should shift to recognise these considerations. Sen argued that development should lead to freedom, and enable people to have the capability to live the types of lives that they value (Sen, 1999). A central challenge is to identify how to build the capabilities of rural households and improve their freedom to live the lives to which they aspire. The associated challenge is that the pursuit of these lives does not endanger the rural landscapes and seascapes that they depend upon. To ensure that rural households have this freedom, they need support to make fully informed decisions about both livelihoods and the use of natural resources. This support depends on access to information, including education, technology, and credit (Ribot and Peluso, 2003), as well as the authority and rights to make decisions about their livelihoods, landscapes and seascapes.

9.4. Improving rural livelihoods in Middle Indonesia

Understanding how rural Indonesian households learn livelihoods and make decisions about livelihoods should shape how interventions should be designed to improve them. From the case studies, a pattern of decision making emerged that was opportunistic and based on processes of social learning and imitation with limited government support (Boyd and Richerson, 2005; Kruglanski and Gigerenzer, 2011). Diversified livelihood portfolios (Ellis, 2000b, 1998) emerged as an assemblage of livelihood choices built up over time in response to diverse opportunities. These choices were based on considerations of their instrumentality in supporting actual or aspired to community living standards. When livelihoods were no longer instrumental, they were discarded in favour of those that were. And, although people were often aware of the environmental functions of the landscape and seascape, and valued those for a variety of reasons, these values rarely factored into decisions about livelihoods.

The inverse of this type of decision making would involve structured, informed decision making supported by institutions for learning, and facilitating access to technology, credit and markets (Ribot and Peluso, 2003). Ideally, decisions with that affect the natural environment would be made by those most affected by the consequences, and informed scientific knowledge as well as local values. Rural households in this context would need specific capabilities (Sen, 1993) to enable them to make these types of structured and informed decisions. Rural development policies and interventions should ideally support rural Indonesian households to be able to choose and improve the most appropriate livelihoods while not overexploiting the natural environment. These interventions would support rather than replace existing processes of social learning and exchanges (Wright et al., 2016). Or put more simply, rural development should give rural households the freedom to choose.

A normative approach to rural development that emphasises the freedom of rural households would require a shift in which policies and interventions for rural areas in Indonesia are designed. Although there are initiatives designed to support the

autonomy of villages, such as PNPM and now the village fund, as well as instruments for forest management, less attention has been given to rural households. Segmented, sectoral interventions and policies typically focus on supporting a particular livelihood at a particular time, most typically related to irrigated, rice farming. Rural households generally are unable to decide what support, interventions or policies are most needed. Rather, they are only able to choose whether to participate in the program. For livelihoods that fall outside the spectrum of current government policies or discourse, there is limited or no government support.

Other institutions that affect the quality and types of livelihoods in rural areas in Indonesia are also limited or entirely missing. With the exception of some PNPM programs, facilities for providing credit to rural households with reasonable interest rates are generally non-existent. In their place, private or small-scale lenders provide loans to rural households with high interest rates. Markets for technologies for rural livelihoods are also limited. Vendors of rural machinery, farming and fishing equipment, as well as seeds and nurseries for seedlings, are scarce or entirely absent. In the absence of these markets, rural households have to rely on their social networks for obtaining the technologies necessary for their livelihoods. The reliance on social networks for these resources restricts the options available to rural households. Improving both access to credit and markets for technology are essential for improving the capabilities of rural households.

Access to information and opportunities for learning can enable rural households to make more informed decisions about livelihoods. Indonesian education in rural areas seems, however, unlikely and unable to address the challenges of rural livelihoods. Primary, secondary and in part, tertiary education, have little relevance to the challenges of farmers, fishers and the forest dependent. From my case studies, even those who were able to proceed through the current education system faced limited prospects of employment after graduation. The process of educating children to that level was already expensive, and, families faced the burden of continuing to provide for their unemployed children after graduation. Education, in rural areas, needs to be more specifically adapted to the needs of farmers, fishers and the forest dependent, to enable them to make more informed decisions and overcome challenges in their

livelihoods. Initiatives that provide for adult learning in the area of rural livelihoods could assist with achieving these goals.

How information is provided to rural people is often as important as the types of information being provided. Throughout the developing world, there have not been significant investments in farmer education (Van den Berg and Jiggins, 2007). Agricultural extension, one of the most common pathways for disseminating information and technologies, would have limited benefits in this context. Agricultural extension services, although effective in the early stages of disseminating a technology, are generally held to be ineffective in developing countries due to challenges relating to scale and complexity and the weak accountability of extension agencies (Anderson and Feder, 2004). Although few people recalled any interactions with extension agents, initiatives or incentives that would increase the frequency of visits would be unlikely to solve the challenges faced by farmers, fishers and the forest dependent. As extension workers are often involved solely in promoting a single policy agenda, these policies may not match the aspirations of rural people, or be responsive to their challenges (Anderson and Feder, 2004). Farmer field schools, which have been successful in Indonesia for addressing specific issues such as pest management (Thorburn, 2014; Van den Berg and Jiggins, 2007) are another potentially effective way of providing information to rural people.

To support farmers to overcome the challenges raised in the course of this thesis requires the provision of rural education that encourages adaptive thinking and supports a diverse array of livelihood options. Farmers, fishers and the forest-dependent should have the skills and knowledge to trial new livelihoods or improve existing ones, and have the institutional support to find solutions to the challenges that they face. Part of this process means making education more relevant to the needs of rural Indonesians. Where agricultural education for children and youths is common in many developed countries, the Indonesian curriculum is not tailored to the different needs of rural Indonesians. Learning facilities for adults, whether in temporary facilities such as farmer field schools or more permanent facilities could support rural Indonesians to learn new ways to improve their livelihoods (Anderson and Feder, 2004; Thorburn, 2014; Van den Berg and Jiggins, 2007). Finally, institutional and technological

arrangements are needed that allow rural Indonesians to find technical information and support for any challenges they may face, such as through the internet. With these additional forms of support, they will be able to learn new livelihoods and improve their existing livelihoods in a way that meets their aspirations and enables them to overcome any challenges or shocks.

Recognising the rights to resources, including land, of rural Indonesians, can improve the ways that people can benefit from the resources in their landscapes, but does not necessarily ensure their sustainable management (Schlager and Ostrom, 1992). Institutional arrangements that support adaptive collaborative management (Scarlett, 2013), could assist rural Indonesians with many of the challenges presented in the case studies. Adaptive collaborative management involves scientists, managers and the public working together to find solutions to the challenges of resource management (Scarlett, 2013), such as through participatory action research (Colfer et al., 2011). Similarly, initiatives that reduce the financial burden of accessing government services such as education and health will reduce the pressure on rural livelihoods and, consequently, natural resources.

To realise a vision of a *city life in the midst of the forest* (Levang et al., 2007), a form of development that increases the capabilities of rural people to benefit from and manage their resources needs to be implemented. This would emphasise learning and adaptive thinking over simple heuristics. A form of development is needed that includes institutional support for improving the ways that people can benefit from resources and reduces the cost of accessing government services. Although aspirations for a better life may be shaped through markets, media and culture, the institutional arrangements should be in place that enable people to pursue the lives they desire without harming the natural environment where they live.

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Annex 1: Household survey

Household Survey: Farming

Basic Information			
Village	<input type="text"/>	Settlement	<input type="text"/>
Household Code	<input type="text"/>		

Fulfillment of research tasks		
Task	By whom	Date (DD/MM/YR)
Conduct interview		
Fill out questionnaire during interview		
Code questionnaire after interview		
Verification of accuracy by enumerator		
Verification of accuracy		
Data entry		
Verification of data entry accuracy		
Data cleaning		

1. BASIC INFORMATION ON HOUSEHOLD MEMBERS

Explain to respondents: (1) that names will be written in this form to facilitate conducting the interview and for finding the household again in 2012, but will be kept completely confidential; (2) that 'livelihood' (columns 6 & 7) is defined by the most time spent on an activity and not amount of money; and (3) that 'the last 12 months' is the 12 month period prior to the date of the interview, and not last year (2009).

Table 1A. BASIC INFORMATION ON HOUSEHOLD MEMBERS								
We want to ask you some basic information about all members of your household.								
1. No.	Name of household member	2. Relation to head of household Codes below	3. Gender 0 = male 1 = female	4. Age in years	5. Years of education	6. Primary livelihood in last 12 months (for those 16 and older)	7. Secondary livelihood in last 12 months (for those 16 and older)	8. Days of illness in the last 12 months (for those 16 and older)
1.		1						
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								

1B. Identification of main respondents	No.	Name

<p>List the number (from column 1 above) and the name (from column 2) of the two main respondents.</p> <p>If there is just one respondent use code -8.</p>	No.	Name
--	-----	------

Codes for column 2: Relation to head of household		
1 = head of household	6 = father/mother	11 = nephew/niece
2 = spouse	7 = father/mother in law	12 = step/foster child
3 = son/daughter	8 = brother/sister	13 = other family member
4 = son/daughter in law	9 = brother/sister in law	14 = non-family household member
5 = grandson/granddaughter	10 = uncle/aunt	

CODES FOR COLUMNS 6 AND 7 SEE CODE BOOK: LIVELIHOOD

1C. INFORMATION ON HEAD OF HOUSEHOLD AND SPOUSE

We would like to ask you some questions about the head of this household and the spouse (if applicable).

<p>1. What is the marital status (legal or common law) of household head?</p> <p><i>Codes: 1=married and living together; 2=married but spouse living/working away; 3=widow/widower; 4=divorced; 5=never married; 9=other (specify)</i></p>	
<p>2. How many years ago was this household first formed?</p> <p><i>Indicate answer in years</i></p>	
<p>3. Was the household head born in this village? If they were born outside the village, where were they born?</p>	
<p>4. How many years has the household head lived in the village?</p> <p><i>Indicate answer in years</i></p>	
<p>5. Which ethnic group does the household head belong to?</p> <p>For instance, Kalende, Bajo, Lawele etc.</p>	

6. Was the spouse born in this village? If they were born outside the village, where were they born?			
7. How many years has the spouse lived in the village?			
8. Which ethnic group does the spouse belong to? For instance, Kalende, Bajo, Lawele etc.			
1. Has anyone in the household ever migrated for work? If yes, where, how long were they there and what did they work as?			
Name	Location	Employment	Duration
2. Has any household member studied outside of the settlement? If yes, were, what level of education or specialisation?			
Name	Location	Level/Specialisation	Duration

2. HOUSEHOLD ASSETS

Table 2A. CONDITION OF THE HOUSE		
We would like to ask you some questions about the materials that are used in the construction of this house.		
Floor	1. What is the <i>main</i> material used in the construction of the floor of the house? <i>Write the name of the material.</i>	
Walls	2. What is the <i>main</i> material used in the construction of the walls of the house? <i>Write the name of the material.</i>	
Roof	3. What is the <i>main</i> material used in the construction of the roof of the house? <i>Write the name of the material.</i>	

Table 2B. LAND					
Land type	1. Area (in hectares)	2. Area used by the household (in hectares)	3. Area rented or loaned to other households (in hectares)	4. What do you cultivate there?	Location name
1. Irrigated rice fields (owned by household)					
2. Irrigated rice fields (borrowed or sharecropping)					
3. Irrigated rice fields (rented or loaned to other people)					
4. Irrigated rice fields (shared with other people)					
5a) Forest gardens/farmland (owned by household)					
5b) Forest gardens/farmland (owned by household)					
5c) Forest gardens/farmland (owned by household)					
5d) Forest gardens/farmland (owned by household)					
6. Forest gardens/farmland (rented from other people)					
7. Irrigated rice fields (rented or loaned to other people)					
8. Irrigated rice fields (shared)					

with other people)					
9. Other land					
10. Other land					
11. Other land					

Table 2C ACCESS TO UTILITIES

We would like to ask you questions about your household’s access to various kinds of utilities, like water, toilet facilities, and electricity.

In all cases, be sure to list just one code. For example if there is more than one type of source of water for the household, choose the type that accounts for most water usage in the household.

<p>1. Source of water What is the <i>main</i> source of water for this household? <i>Use codes below</i></p>	<p>2. Type of toilet What is the <i>main</i> type of toilet facility used by this household? <i>Use codes below</i></p>	<p>3. Electricity Does this household use electricity, and if yes, what kind of access does it have? <i>Use codes below</i></p>

Codes for water	Codes for toilet	Codes for electricity
1 = stream, river, pond	1 = stream, river, pond, field, forest	1 = no electricity used
2 = common faucet or well, or neighbor’s faucet or well, or common rain-fed reservoir	2 = shared latrine with pit or floating over water (not flushed with water)	2 = yes, through unpaid connection to grid or through village system (mini-generator, mini-hydro, solar-battery system)
3 = own well or own rain-fed reservoir	3 = own latrine with pit or floating over water (not flushed with water)	3 = yes, through paid connection to electrical grid
4 = piped water from groundwater beneath house	4 = own latrine, with water (flushed by pouring water)	4 = use of own generator
5 = piped water from municipal system or water company	5 = own flush toilet, with piped water but not septic system	5 = other (specify)
6 = other (specify)	6 = own flush toilet, with piped water and with septic system	
	7 = other (specify)	

<p>4. Cooking fuel What is the <i>main</i> type of cooking fuel used by the household? <i>Codes: 1 = fuelwood; 2 = charcoal; 3 = other vegetative biomass (shrubs, leaves, agricultural residues); 4 = dung; 5 = biogas; 6 = coal; 7 = oil; 8 = kerosene;</i></p>	

9 = liquefied petroleum gas (LPG); 10 = electricity; 11 = solar; 12 = other (specify)	
<p>5. Cooking technology</p> <p>If the household uses woody biomass fuel (codes 1-3 above) ask:</p> <p>Do you use a three-stone (open) fire or an improved stove for your cooking?</p> <p>Codes: 1 = three stone (open) fire; 2 = improved stove; 0=neither; -8=does not apply</p>	

Table 2D. OTHER ASSETS OWNED BY THE HOUSEHOLD			
1. How many houses does the household own in this village?			
2. How many houses does the household own outside of this village?			
3. Please tell us the items you may have in the following household asset categories, including their number and current market value.			
<i>Instructions:</i>			
<ul style="list-style-type: none"> • This inventory of household assets should be for assets in <u>all</u> houses owned. • Value per unit is the current market value the respondent could get if the item is sold on the market today. • If the item is broken, take this into account in the current market value (e.g. price if not broken minus the cost of repair). • If it is culturally inappropriate to inquire about the value, ask for the age in years of the item and whether it is in good condition. You can calculate the value independently outside the interview. • If it is impossible to ask about ownership of an item because it is illegal (e.g. a chain saw or a gun in some locations), tick the box indicating that ownership is illegal. 			
Type of asset	Number owned	Value per unit (average)	Total value
TRANSPORTATION			
1. Automobile			
2. Truck/van			
3. Motorcycle			
4. Bicycle			
5. Boat			
6. Boat engine			
7. Saddle			
8. Other (>\$25)			

9. Other (>\$25)			
10. Other (>\$25)			
HOUSEHOLD ELECTRICAL/MECHANICAL GOODS			
11. Electric generator			
12. Cell phone			
13. Regular telephone (land line)			
14. Television			
15. Satellite dish			
16. Radio			
17. Cassette/CD/ VHS/VCD/DVD player			
18. Computer			
19. Camera			
20. Washing machine			
21. Sewing machine			
22. Lawn mower			
Table 2E Other assets owned by the household (continued)			
Type of asset	Number owned	Value per unit (average)	Total value
23. Chainsaw [Item illegal. Question not asked: ___]			
24. Gun [Item illegal. Question not asked: ___]			
25. Solar panel			
26. Other (>\$25)			
27. Other (>\$25)			
28. Other (>\$25)			
FURNITURE			
29. Sofa set			
30. Dining room table			
31. Wall clock			
32. Other (>\$25)			
33. Other (>\$25)			
34. Other (>\$25)			
35. Other (>\$25)			
KITCHEN EQUIPMENT			
36. Stove for cooking (gas or electric)			
37. Stove for cooking (non-gas or electric)			
38. Oven			
39. Refrigerator/freezer			
40. Mixer/blender			

41. Other (>\$25)			
42. Other (>\$25)			
43. Other (>\$25)			
AGRICULTURAL/FARM EQUIPMENT			
44. Tractor			
45. Plow			
46. Chemical spraying device			
47. Water pump			
48. Wooden cart or wheelbarrow			
49. Grain/flour mill			
50. Scale			
51. Other (>\$25)			
52. Other (>\$25)			
53. Other (>\$25)			
54. Other (>\$25)			
MISCELLANEOUS			
55. Family heirloom			
56. Fishing equipment			
57. Carpentry/woodworking tools			
58. Plumbing tools			
59. Musical instrument			
60. Other (>\$25)			
61. Other (>\$25)			
62. Other (>\$25)			
63. Other (>\$25)			
64. Other (>\$25)			
65. Other (>\$25)			

3. HOUSEHOLD INCOME

Production and costs should be calculated in tables A and B (and C and D if necessary) over a 12 month period. Alternatively the data can be presented by seasons over the 12 month period.

Table 3A. AGRICULTURAL PRODUCTION DURING THE 12 MONTHS BEFORE THE INTERVIEW							
We would like to calculate your production from agriculture during the last 12 months.							
This table includes information on the full 12 months prior to the date of the interview (circle YES or NO). If NO: This table includes information on just one season from _____ (month /year) to _____ (month/year)							
No.	1. Product	2. Total production (4+5)	3. Unit (for production)	4. Own use (including gifts)	5. Sold (including barter)	6. Price per unit	7. Total value (2X6)
1.	Avocado						
2.	Sugar palm						
3.	Spinach						
4.	Beans						
5.	Rice (<i>Beras Cihera</i>)						
6.	Rice (<i>Beras Ciliwun</i>)						
7.	Rice (<i>Beras Hitam</i>)						
8.	Rice						

	(Beras Impari)						
9.	Rice (<i>Beras Ketan Merah</i>)						
10.	Rice (<i>Beras Ketan Putih</i>)						
11.	Rice (<i>Beras Santana</i>)						
12.	Cloves						
13.	Durian						
14.	Squash						
15.	Maize						
16.	Guava						
17.	Cashew nut						
18.	Teak tree						
19.	White teak						
20.	Orange trees						
21.	Green beans						
22.	Long beans						
23.	Short beans						
24.	Peanuts						
25.	Cacao						
26.	Kapok						
27.	Ambarella						

28.	Coconut						
29.	Moringa						
30.	Coffee						
31.	Langsat						
32.	Chili						
33.	Mango						
34.	Guava – local variety						
35.	Timber trees – local variety (<i>maniaga</i>)						
36.	Jackfruit						
37.	Pineapple						
38.	Nutmeg						
39.	Rice						
40.	Papaya						
41.	Bananas						
42.	Areca Nut						
43.	Rambutan						
44.	Sago						
45.	Snake fruit						
46.	Mustard						
47.	Breadfruit						
48.	Sugar cane						
49.	Eggplant						
50.	Tomato						
51.	Sweet potato						
52.	Cassava						
53.	Soursop						

Table 3B. COST OF AGRICULTURAL PRODUCTION IN THE 12 MONTHS PRIOR TO INTERVIEW
 We would like to calculate the cost of your agricultural production during the last 12 months. These should be purchased inputs only. If it is easiest just to list the total cost (col. 5), do so.

This table includes information on the full 12 months prior to the date of the interview (circle YES or NO). If NO:
 This table includes information on just one season from _____ (month /year) to _____ (month/year)

No.	1. Item	2. Quantity	3. Units	4. Price per unit	5. Total cost
1.	Seeds, seedlings, planting material				
2.	Fertilizers				
3.	Manure				
4.	Pesticides/herbicides/fungicides				
5.	Draught power				
6.	Hired labor				
7.	Hired machinery				
8.	Transport/marketing				
9.	Payment for land rental				
10.	Other, _____ specify:				

TABLE 3C. OWNERSHIP OF LIVESTOCK AND OTHER ANIMALS AND INCOME FROM SALES IN THE LAST 12 MONTHS

We now want to ask some questions about your ownership, consumption, and sale of livestock and animals in the last 12 months.

*For the types of animals marked by an asterisk (*) ask about adult animals only.*

1. Type of animal	2. Beginning number 12 months ago	3.Sold (including bartered), live or slaughtered	4.Slaugh-tered for own use (or gift or share given)	5. Lost (theft, death)	6. Bought or received as a gift or as earned share	7. New from own stock	8. End number now (2-3-4-5+6+7)	9. Price per animal	10. Total end value (8X9)
1. Cow									
2. Bull									
3. Oxen									
4. Calf									
5. Duck (Itik)									
6. Goat*									
7. Ducks*									
8. Chickens*									
9. Rooster*									
10. Fish									
11. Bee hive									
12. Other (specify)									

Table 3D. INCOME FROM THE SALE OF ANIMAL PRODUCTS IN THE LAST 12 MONTHS						
What are the quantities and values of animal products and services that you have produced during the last 12 months?						
1. Product/service	2. Unit	3. Units produced (4+5)	4. Own use (including gifts)	5. Sold (including barter)	6. Price per unit	7. Total value (3X6)
1. Eggs						
2. Hides / skin						
3. Manure						
4. Draught power						
5. Soap						
6. Other						
7. Other						
8. Other						

Table 3E. COSTS OF INPUTS FOR ANIMAL HUSBANDRY AND PRODUCTS IN THE LAST 12 MONTHS				
What are the quantities and values of inputs used in livestock and animal production during the past 12 months? <i>We want to record cash expenditures in this table. If it is easiest just to list the total cost (col. 5), do so.</i>				
1. Inputs	2. Unit	3. Quantity	4. Price per unit	5. Total costs (3X4)
1. Feed/fodder				
2. Rental of grazing land				
3. Medicines, veterinary services				
4. Costs of maintaining barns, pens, etc.				
5. Hired labor				
6. Inputs from own farm				
7. Other _____				
8. Other _____				
9. Other _____				

Table 3F. FOREST ENVIRONMENTAL INCOME IN THE LAST 12 MONTHS

We would like to know about your household use and income from all kinds of products gotten from the forest in the last 12 months. *Please do not record forest products used as inputs in household business. Their value will be recorded in Table 3K.*

1. Product	2. Location of forest products	Production					Costs			10. Income (7 minus 8 minus 9)
		3. Units	4. Units harvested	5. Units sold	6. Mean price per unit	7. Gross income (4 x 6)	8. Hired labor	9. Inputs, transport, taxes, share, etc.		
1. Local timber species (Wola)										
2. Local timber species (Kia)										
3. Wild spinach										
4. Indian sandalwood										
5. Local timber species (Maniaga)										
6. Honey										
7. Rattan										
8. Resin										
9. Candlenut										
10. Bamboo										
11. Nipa Palm										
12. Crabs										
13. Snails										
14. Worms										
15. Frogs										
16. Buffalo										
17. Anoa										

18. Deer									
19. Eels									
20. Mozambique tilapia									
21. Fish (Gabus Jawa)									
22. Gliricidia									
23. Edible leaves (Daun Wintonu)									
24. Fish									
25. Local beverage from sap (konau)									

3H. CHANGE IN FOREST COVER AND FOREST INCOME IN THE LAST TWO YEARS

We want to know how your forest-based income has changed in the last two years (24 months) and the reasons for that change.

<p>1. In the last two years, has your household consumption of forest products increased, stayed the same, or decreased? <i>1 = increased</i> <i>2 = stayed the same</i> <i>3 = decreased</i> <i>4 = it varies by product</i> <i>-8 = does not apply (no forest product income)</i> <i>-9 = respondent does not know</i></p>	
<p>2. If the answer to question 13 is 1(=increased) or 3 (=decreased) ask: Why has your household consumption of forest products increased/decreased in the last two years? List up to 3 reasons. Use -8 (does not apply) if the answer to question 13 is 2, 4, -8 or -9</p> <p>1. _____ _____</p> <p>2. _____ _____</p> <p>3. _____ _____</p>	
<p>3. In the last two years, has the forest cash income (i.e. <u>for sale, not home consumption</u>) of your household increased, stayed the same, or decreased? <i>1 = increased</i> <i>2 = stayed the same</i> <i>3 = decreased</i> <i>4 = it varies by product</i> <i>-8 = does not apply (no forest product income)</i> <i>-9 = respondent does not know</i></p>	
<p>4. If the answer to question 15 is 1(=increased) or 3 (=decreased) ask: Why has the forest cash income of your household increased/decreased in the last two years? List up to 3 reasons. Use -8 (does not apply) if the answer to question 15 is 2, 4, -8 or -9</p> <p>1. _____ _____</p> <p>2. _____ _____</p> <p>3. _____ _____</p>	

Table 3I. HOUSEHOLD BUSINESS INCOME IN THE LAST 12 MONTHS

Is anyone in the household conducting a business – even a small one – and if yes, what are the gross income and the costs in the last 12 months?

Look in Table 1A to see if any household member is operating a household business. Be sure to look at both the primary and secondary livelihood columns. Be sure to ask if there is a small business not revealed by these codes. It could be a tertiary livelihood.

You may – if easier – get annual sales, costs, and income by asking about values per month and months in operation, and then aggregating.

	Business 1	Business 2	Business 3
1. What is your type of business?			
2. What is your type of business? <i>If the code used above does not provide sufficient information to describe the business, write additional information here.</i>			
3. What is the amount of gross sales in the last 12 months?			
4. What were the costs of your business in the last 12 months (include inputs bought, hired labor, rentals, etc.)			
5. What is the net income of your business in the last 12 months? <i>Net income defined as gross sales minus costs (3 minus 4).</i>			
6. What is the current total value of your business? <i>The total value of the business includes all its assets (e.g. building, machinery, stock of inputs, etc.) if sold today in current condition.</i>			

Table 3L. MISCELLANEOUS INCOME IN THE LAST 12 MONTHS

Please tell us about any kinds of income to your household in the last 12 months, cash or in kind, that have not yet been mentioned. I will read out a list. Please tell us if you have received income in this category, and if so, how much in the last 12 months.

No.	1. Type of income	2. Total amount received in last 12 months	3. Notes
1.	Renting out of own land		
2.	Remittances		
3.	Gifts from family or friends		
4.	Inheritance		
5.	Pension		
6.	Support from government		
7.	Income from local politicians		
8.	Support from NGO		
9.	Compensation for lost income		
10.	Dividends from community enterprise		
11.	Borrowing money (If yes, from whom? What were the conditions? How often do you need to repay for how long? What is the interest?)		
12.	Pawning (If yes, from whom? What were the conditions? How often do you need to repay for how long? What is the interest?)		
13.	Credit (If yes, from whom? What were the conditions? How often do you need to repay for how long? What is the interest?)		
14.	Selling land (If yes, where was the land sold? What type of land – plantations, irrigated rice fields, forest gardens or housing? How much was it sold for and why was it sold?)		
15.	Purchasing land (If yes, where was the land purchased? What type of land – plantations, irrigated rice fields, forest gardens or housing? What was the price and reason for purchasing it?)		

4. PERCEPTIONS OF WELLBEING AND WELLBEING CHANGE IN LAST TWO YEARS

Note: In posing the questions in the table below, read out all of the choices (codes) to the respondents and ask them to choose one answer.

We will now ask you questions about the wellbeing of your household, how that has changed in the last two years, and the reasons for the change.

1. Has your household's income over the past two years been sufficient to cover the needs of the household? Why? <i>Explain that we are defining 'income' as own production and cash income.</i>	
2. Overall, what is the wellbeing of your household today compared with the situation two years ago? Why? <i>Explain how we are defining 'wellbeing' (see the technical guidelines).</i>	
3. Has your household had sufficient food over the past two years? Why? When do you not have sufficient food (season, month)? Why	

Checklist for bringing the interview to an end:

- State that you have asked the last question and the interview has come to an end
- Remind the respondents of the guarantee of anonymity and confidentiality
- Express your thanks to the respondents for their willingness to participate in the research and for sharing their valuable time

Annex 2: Household livelihood decision-making questionnaire

HOUSEHOLD LIVELIHOOD DECISION-MAKING MATRIX

DATE:		CODE:		
LIVELIHOOD	(Y/N)	WHO	AGE	DESCRIPTION
IRRIGATED FARMING				RICE
AGROFORESTRY				
SWIDDEN				
FRUIT AND VEGETABLES				
FOREST INCOME				
IN MIGRATION				
OUT MIGRATION				
CIVIL SERVICE				
BUSINESS				
LABOUR				
NEAR SHORE FISHING				
DEEP-SEA FISHING				

IRRIGATED RICE FARMING

Access mechanisms	Questions	Answer
<i>Capital, social relations, authority and identity</i>	When did you open, buy, rent or loan the land? Do you have official rights to the land? How do people know you own it? Who did you get it from? How are you connected to that person (relations, ethnicity)? Where is the land? Why did you choose that location? How did you get the money to buy the land and equipment?	
<i>Perceived benefits</i>	Why did you get the land? What will the land be used for? Food, cash income? What are the negatives?	
<i>Technology and capital</i>	What equipment do you need? How do you get access to that equipment? What varieties of rice do you use? Why did you choose those varieties of rice? What benefits do they have?	
<i>Knowledge</i>	How did you learn about farming rice? How do you get access to new farming techniques? How do you know when to plant, plough and harvest? Do you need to consult anyone?	
<i>Authority</i>	Who do you need to consult in order to plough, plant and harvest? Do you need permission? Do you speak with an <i>adat</i> leader or government official?	
<i>Labour, social relations and identity</i>	Do you work the land by yourself? If you have to work it with other people, how do you organise it? Who do you work with – people of your own ethnicity, family etc.?	
<i>Markets</i>	If you decide to sell your rice, who do you sell it to? How do you negotiate the price?	
	Would you want to get more irrigated rice farmland? Why would you want more land? What would you need to get it?	
	Who is responsible for choices regarding irrigated rice? How is it discussed with other members of the family?	

FOREST GARDENS (AGROFORESTS) – MULTIPLE PARCELS

Access mechanisms	Questions	Answer
<i>Capital, social relations, authority and identity</i>	When did you open, buy, rent or loan the land? Do you have official rights to the land? How do people know you own it?	
	Who did you get it from? How are you connected to that person (relations, ethnicity)?	
	Where is the land? Why did you choose that location?	
	How did you get the money to buy the land and equipment?	
<i>Perceived benefits</i>	Why did you get the land? What will the land be used for? Food, timber, cash income? If you don't have an income yet, when do you think you will get income from the agroforests? What are the negatives?	
<i>Technology and capital</i>	What equipment do you need? How do you get access to that equipment? What types of trees and crops do you have there? Why did you choose those types of trees and crops? What benefits do they have?	
<i>Knowledge</i>	How did you learn about agroforestry? How do you get access to new farming techniques? How do you know when to plant, plough, maintain and harvest? Do you need to consult anyone?	
<i>Authority</i>	Who do you need to consult in order to plough, plant and harvest? Do you need permission? Do you speak with traditional leader or government official?	
<i>Labour, social relations and identity</i>	Do you work the land by yourself? If you have to work it with other people, how do you organise it? Who do you work with – people of your own ethnicity, family etc.?	
<i>Markets</i>	If you decide to sell products from your agroforests, who do you sell it to? How do you negotiate the price?	
	Would you want to get more agroforests? Why would you want more land? What would you need to get it?	
	Who is responsible for choices regarding agroforests? How is it discussed with other members of the family?	

FOREST GARDENS (SWIDDEN)

Access mechanisms	Questions	Answer
<i>Capital, social relations, authority and identity</i>	When did you open, buy, rent or loan the land? Who did you get it from? How are you connected to that person (relations, ethnicity)? Where is the land? Why did you choose that location? How did you get the money to buy the land and equipment?	
<i>Perceived benefits</i>	Why did you get the land here? What will the land be used for? Food, cash income? What are the negatives?	
<i>Technology and capital</i>	What equipment do you need? How do you get access to that equipment? What crops do you use? Why did you choose those crops? What benefits do they have?	
<i>Knowledge</i>	How did you learn about swidden agriculture? How do you get access to new farming techniques? How do you know when to plant, plough and harvest? Do you need to consult anyone? How many years do you leave the land fallow? After finishing here, where will you cultivate next? How do you know the land is ready to be used again?	
<i>Authority</i>	Whose do you need to consult in order to plough, plant and harvest? Do you need permission? Do you speak with an <i>adat</i> leader or government official?	
<i>Labour, social relations and identity</i>	Do you work the land by yourself? If you have to work it with other people, how do you organise it? Who do you work with – people of your own ethnicity, family etc.?	
<i>Markets</i>	If you decide to sell your crops, who do you sell it to? How do you negotiate the price?	
	Would you want to get more swidden land? Why would you want more land? What would you need to get it?	
	Who is responsible for choices regarding swidden land? How is it discussed with other members of the family?	

FOREST GARDENS (VEGETABLES AND FRUIT FOR SALE)

Access mechanisms	Questions	Answer
<i>Capital, social relations, authority and identity</i>	Where do you grow vegetables and fruit? Who owns the land? How did you get the land? Where is the land in relation to the other parcels of land that the household owns? Are fruit and vegetable crops mixed in with other crops? If so, how do you decide how much land to allocate to fruit and vegetables?	
<i>Perceived benefits</i>	What are the benefits of growing fruit and vegetables? Which types are the most profitable? What are the negatives?	
<i>Technology and capital</i>	What equipment do you need? How do you get access to that equipment? What types of fruit and vegetables do you grow? Why did you choose those crops? What benefits do they have?	
<i>Knowledge</i>	How did you learn about the cultivation of vegetables and fruit? How do you get access to new farming techniques? How do you know when to plant, plough and harvest? Do you need to consult anyone? After finishing here, where will you cultivate next? How do you know the land is ready to be used again?	
<i>Authority</i>	Who do you need to consult in order to plough, plant and harvest? Do you need permission? Do you speak with an <i>adat</i> leader or government official?	
<i>Labour, social relations and identity</i>	Do you work the land by yourself? If you have to work it with other people, how do you organise it? Who do you work with – people of your own ethnicity, family etc.?	
<i>Markets</i>	How do you decide how much of your harvest you will sell and how much you will consume? How do you negotiate the price? Do you often barter fruit and vegetables?	
	Would you want to get more land for fruit and vegetables? Why would you want more land? What would you need to get it?	
	Who is responsible for choices regarding the cultivation of fruit and vegetables? How is it discussed with other members of the family?	

FOREST INCOME (HONEY or OTHER PRODUCTS)

Access mechanisms	Questions	Answer
<i>Capital, social relations, authority and identity</i>	Where do you go to collect honey (or alternative)? How long do you go for? Does anyone own the land? Do you need permission to go there? How do you allocate time for collecting honey (or alternative) with other activities?	
<i>Perceived benefits</i>	What are the benefits of collecting honey? What are the risks associated with collecting honey (or alternative)? What are the negatives?	
<i>Technology and capital</i>	What equipment do you need? How do you get access to that equipment?	
<i>Knowledge</i>	How do you know when it is the season to collect honey (or alternative)? How do you decide where you will go to collect honey (or alternative)? How did you learn how to collect honey (or alternative)?	
<i>Authority</i>	Who do you need to consult in order to collect honey (or alternative)? Do you need to get permission from anyone in order to leave your other activities?	
<i>Labour, social relations and identity</i>	Do you collect honey (or alternative) by yourself? If other people join you, how do you organise it? Who do you work with – people of your own ethnicity, family etc.?	
<i>Markets</i>	Who do you sell it to? How do you negotiate the price? Do you barter honey (or alternative) for other goods?	
	Would you want to dedicate more effort to collecting honey (or alternative)? What prevents you from doing so?	
	Who is collects honey (or alternative) in the family? How is it discussed with other members of the family?	

IN MIGRATION

Access mechanisms	Questions	Answer
<i>Capital, social relations, authority and identity</i>	When did you move here? Why did you choose here? What did you need to move here (describe the process)? Did you need permission to move here? What did you need to buy a house here? How did you start the process of finding land or other livelihoods?	
<i>Perceived benefits</i>	What are the benefits of living here compared to where you lived before? What were the risks of moving here? What are the negative aspects?	
	Who made the decision to come here? How was it discussed with other members of the family?	

OUT MIGRATION

Access mechanisms	Questions	Answer
<i>Capital, social relations, authority and identity</i>	Where did you, or your family member migrate to? How old were you or the person that migrated? Why did you choose to go there? Did you have work or land organised before you left? How did you know about that place? Did you know other people who had travelled there? What did you need, money, equipment, education, training, in order to go there and work? Did you need permission from anyone, or assistance, in order to travel there?	
<i>Perceived benefits</i>	What are the benefits migrating to that place, and the work? What are the risks? What are the negatives?	
<i>Differences between perceived benefits and actual benefits</i>	How was life different to what you expected? Was it better or worse? What challenges were there that you didn't expect? What was life like socially?	
<i>Returning home</i>	Why did you decide to return home?	
	Would you want to migrate again for work or land? What would you need in order to do it? Why would you want to do it?	
	Who made the choices regarding migration? How was it discussed in the family?	

CIVIL SERVICE

Access mechanisms	Questions	Answer
<i>Capital, social relations, authority, identity</i>	Which civil service job did you apply for (or work with)? Why did you choose that job? What did you need in order to get that job (education, networks, relatives)? How did you know about that job?	
<i>Perceived benefits, negatives and risks</i>	What are the benefits of working in the civil service? What are the risks? What are the negatives? What are the challenges?	
<i>Diversification</i>	Is your salary sufficient? If not, what other activities do you do to get alternative income?	
	Who made the choices regarding entering the civil service? How was it discussed in the family? Who makes decisions about diversification of income?	

LABOUR

Access mechanisms	Questions	Answer
<i>Capital, social relations, authority, identity</i>	What type of labouring work do you do? Where do you do it? Who do you do it for? What type of equipment and skills does it require? Why did you choose that work? How did you learn about the work opportunities?	
<i>Perceived benefits, negatives and risks</i>	What are the benefits labouring? What are the risks? What are the negatives?	
<i>Allocating time and ensuring ongoing work</i>	How do you divide your time between labouring and other activities? Do you plan how much labouring work (seasonal, reliable) you will do or does it depend on people asking you?	
	Would you want to do more labouring work? What would you need in order to do it? Why would you want to do it?	
	Who made the choices regarding labouring? How was it discussed in the family?	

BUSINESS

Access mechanisms	Questions	Answer
<i>Capital, social relations, authority and identity</i>	What type of business do you run? Where is that business located? What capital and equipment did you need to start the business? How did you get access to that capital and equipment? Did you need to get any permissions to open the business (government, other)? How did you decide that there was a business opportunity? What was the role of your family and other networks in getting access to the business?	
<i>Perceived benefits</i>	Why did you start or buy the business? What were the risks? What are the negatives?	
<i>Technology and capital</i>	What equipment do you need? How do you get access to that equipment? How do you maintain stock?	
<i>Knowledge</i>	How did you learn running a business? What skills do you need to run a business?	
<i>Authority</i>	Do you need to consult regularly with authorities for running the business, such as paying tax? Do you need permits?	
<i>Labour, social relations and identity</i>	Do you run the business by yourself? If you have to work it with other people, how do you organise it? Who do you work with – people of your own ethnicity, family etc.?	
<i>Markets</i>	Where do you buy your stock from? Who do you sell to? How do you negotiate the price?	
	Would you want to increase the size of your business or start another? Why would you want to? What would you need to get it?	
	Who is responsible for choices regarding the business? How is it discussed with other members of the family?	

FISHING (DEEP-WATER)

Access mechanisms	Questions	Answer
<i>Capital, social relations, authority and identity</i>	What type of large fish do you go fishing for? Where do you fish for them? What type of equipment do you need to fish for them? How did you get access to that equipment? Where did you get access to the capital? Did you receive support from family or borrow in order to get the equipment? Did you need any permits or permission from anyone to do this type of fishing? How did you learn about this type of fishing opportunity? Who did you learn about it from?	
<i>Perceived benefits</i>	Why did you choose to do this type of fishing? What were the risks? What are the negatives?	
<i>Technology and capital</i>	What equipment do you need? How do you get access to that equipment? How do you maintain stock? If you are unable to catch fish, how do you pay for petrol or other expenses?	
<i>Knowledge</i>	How did you learn how to fish for large fish? Who did you learn it from? How do you know where big fish are?	
<i>Authority</i>	Do you need any permits or permission before fishing?	
<i>Labour, social relations and identity</i>	Do you fish by yourself? If you have to work it with other people, how do you organise it? Who do you work with – people of your own ethnicity, family etc.?	
<i>Markets</i>	Where do you sell your fish to? How did you learn about the markets for fish? How do you maintain quality of the fish? How do you negotiate prices? Are there other markets that you could go to? Why don't you go to them?	
	Would you want to do more fishing for big fish? Why would you want to? What would you need to get it?	
	Who is responsible for choices regarding the big fishing? How is it discussed with other members of the family?	

FISHING (NEAR SHORE)

Access mechanisms	Questions	Answer
<i>Capital, social relations, authority and identity</i>	What type of fish do you go fishing for? Where do you fish for them? What type of equipment do you need to fish for them? How did you get access to that equipment? Where did you get access to the capital? Did you receive support from family or borrow in order to get the equipment? Did you need any permits or permission from anyone to do this type of fishing? How did you learn about this type of fishing opportunity? Who did you learn about it from?	
<i>Perceived benefits</i>	Why did you choose to do this type of fishing? What were the risks? What are the negatives?	
<i>Technology and capital</i>	What equipment do you need? How do you get access to that equipment? How do you maintain stock? If you are unable to catch fish, how do you pay for petrol or other expenses?	
<i>Knowledge</i>	How did you learn how to? Who did you learn it from? How do you know where big fish are?	
<i>Authority</i>	Do you need any permits or permission before fishing?	
<i>Labour, social relations and identity</i>	Do you fish by yourself? If you have to work it with other people, how do you organise it? Who do you work with – people of your own ethnicity, family etc.?	
<i>Markets</i>	Where do you sell your fish to? How did you learn about the markets for fish? How do you maintain quality of the fish? How do you negotiate prices? Are there other markets that you could go to? Why don't you go to them? How do you decide how much to sell, how much to eat and how much to share?	
	Would you want to do more fishing? Why would you want to? What would you need to get it?	
	Who is responsible for choices regarding the fishing? How is it discussed with other members of the family?	

ALTERNATIVE LIVELIHOODS

Would you choose an alternative livelihood?

LIVELIHOOD	(Y/N)	WHO COULD DO IT?	WHAT THE BENEFITS? WHAT ARE THE NEGATIVES AND RISKS?	WHAT PREVENTS YOU FROM ACCESSING THAT LIVELIHOOD ALTERNATIVE?
IRRIGATED FARMING	RICE			
AGROFORESTRY				
SWIDDEN				
VEGETABLES				
FOREST INCOME				
OUT MIGRATION				
CIVIL SERVICE				
BUSINESS				
LABOUR				
NEAR SHORE FISHING				
OFF SHORE FISHING				
FISH TRADER				
OTHER				

Annex 3: Aspirations and coping strategies questionnaire

ASPIRATIONS AND COPING STRATEGIES

SETTLEMENT	CODE
NAME	
GENDER	AGE

LIVELIHOOD	GENDER	AGE
IRRIGATED RICE FARMING		
FOREST GARDEN (AGROFORESTS)		
SWIDDEN		
FRUIT AND VEGETABLES		
FOREST PRODUCTS		
MIGRATION		
CIVIL SERVICE		
TRADE/BUSINESS		
LABOUR/SEMI-SKILLED LABOUR		
NEAR SHORE FISHING		
DEEP-WATER FISHING		

GOALS: HOUSE AND LAND

<i>How old were you when you bought the house and land?</i>
<i>At that time, were you already married or with family? Were you already working or did you own your own land?</i>
<i>Why did you choose that moment to purchase the house and land?</i>
<i>If you have not yet purchased a house and land, when do you think you will?</i>
<i>Within your household, who chose to purchase the house and land? How was it discussed within the household?</i>

Goal	Sub-goals	Questions (Means):
		<ul style="list-style-type: none"> • How much money did you need to buy it? Did you require other assistance such as hired labour? • Did you use income from one livelihood or several? Please explain. • Did you need to find other work for the additional income to purchase it? • In the process of saving money in order to purchase the items, what other things could you not purchase or pay for?
Purchase land	Materials: timber, cement, roof, flooring, walls	
Purchase house	Toilet Water pipes Bath Generator Electricity wiring and	
House renovations	fittings	

GOALS: TRANSPORTATION

<i>How old were you when you bought the form of transportation?</i>
<i>At that time, were you already married or with family? Were you already working or did you own your own land?</i>
<i>Why did you choose that moment to purchase the form of transportation?</i>
<i>If you have not yet purchased any form of transportation, when do you think you will?</i>
<i>Within your household, who chose to purchase the form of transportation? How was it discussed within the household?</i>

Goal	Sub-goals	Questions (Means):
		<ul style="list-style-type: none"> • How much money did you need to buy it? Did you require other assistance such as hired labour? • Did you use income from one livelihood or several? Please explain. • Did you need to find other work for the additional income to purchase it? • In the process of saving money in order to purchase the items, what other things could you not purchase or pay for? • Why did you chose that brand? Where did you buy it? How long do you think you can use it before it is broken or you will buy another one?
Boat Motorcycle Car Truck Bicycle	Motor Boat materials such as timber Brand of motorcycle, car, truck and bicycle	

GOALS: LIVELIHOOD TECHNOLOGY OR MACHINERY

<i>How old were you when you bought the form of livelihood technology or machinery?</i>
<i>At that time, were you already married or with family? Were you already working or did you own your own land?</i>
<i>Why did you choose that moment to purchase the form of livelihood technology or machinery?</i>
<i>If you have not yet purchased form of livelihood technology or machinery, when do you think you will?</i>
<i>Within your household, who chose to purchase the form of livelihood technology or machinery? How was it discussed within the household?</i>

Goal	Questions (Means):
	<ul style="list-style-type: none"> • How much money did you need to buy it? Did you require other assistance such as hired labour? • Did you use income from one livelihood or several? Please explain. • Did you need to find other work for the additional income to purchase it? • In the process of saving money in order to purchase the items, what other things could you not purchase or pay for? • Where did you buy it? How long do you think you can use it before it is broken or you will buy another one?
Tractor	
Motorised cart (<i>gerobak</i>)	
Farming machinery and tools	

GOALS: HOUSEHOLD GOODS AND ELECTRONICS

How old were you when you bought the items?

At that time, were you already married or with family? Were you already working or did you own your own land?

Why did you choose that moment to purchase the items?

If you have not yet purchased form of household goods or electronic appliances, when do you think you will?

Within your household, who chose to purchase the items? How was it discussed within the household?

Goal	Sub-goals	Questions (Means):
		<ul style="list-style-type: none"> • How much money did you need to buy it? Did you require other assistance such as hired labour? • Did you use income from one livelihood or several? Please explain. • Did you need to find other work for the additional income to purchase it? • In the process of saving money in order to purchase the items, what other things could you not purchase or pay for? • Why did you chose that brand? Where did you buy it? How long do you think you can use it before it is broken or you will buy another one?
Television DVD Player Antenna Stereo Laptop Printer Refrigerator Washing Machine Sewing Machine Sofa Wardrobe Dining table	Brand	

GOALS: CLOTHING

<i>Normally, when do you buy clothing?</i>
<i>Normally, where do you buy clothing?</i>
<i>When will you buy clothing again?</i>
<i>Within your household, who decides to purchase clothing? How is it discussed within the household?</i>

Goal	Sub-goals	Questions (Means):
		<ul style="list-style-type: none"> • How much money did you need to buy it? Did you require other assistance such as hired labour? • Did you use income from one livelihood or several? Please explain. • Did you need to find other work for the additional income to purchase it? • In the process of saving money in order to purchase the items, what other things could you not purchase or pay for? • Why did you chose that brand? Where did you buy it? How long do you think you can use it before it is broken or you will buy another one?
Adult clothing		
Children's clothing		
Ceremonial clothing		

GOALS: CEREMONIES

<i>When have you had to organise ceremonies?</i>
<i>At that time, were you already married or with family? Were you already working or did you own your own land?</i>
<i>When will you organise another ceremony?</i>
<i>Who within the household is responsible for organising ceremonies? How is it discussed within the household?</i>

Goal	Sub-goals	Questions (Means):
		<ul style="list-style-type: none"> How much money did you need to buy it? Did you require other assistance such as hired labour? Did you use income from one livelihood or several? Please explain. Did you need to find other work for the additional income to purchase it? In the process of saving money in order to purchase the items, what other things could you not purchase or pay for?
Aqiqah	Scale, place, invitees	
Circumcision (Sunatan)		
Weddings		
Funerals		
Traditional festival		
Other festivals		
Pilgrimage (Hajj)		

GOALS: EDUCATION

<i>What level of education have your children achieved?</i>
<i>While they were being educated, were there expenses or other obligations that affected your ability to pay for school or university fees?</i>
<i>Will you have to pay again for the education of your children?</i>
<i>Within your household, who decides whether to pay for school or university fees? How is it discussed within the household?</i>

Goal	Sub-goals	<ul style="list-style-type: none"> • How much money was needed for school or university fees? Was other assistance needed, such as from relatives? • Did you use money from one livelihood or several? Please clarify? • Did you need additional employment to pay for those fees? • When you were saving money for those expenses, what were you not able to buy or pay for? • Why did you choose that location for schooling or university?
Primary school	Location	
Junior high	Specialisation	
Senior high		
University		
Technical college		

SHOCKS: HEALTH

<i>Have you or your family experienced any health problems?</i>
<i>At that time, were there any other expenses or obligations that affected your ability to pay for the health expenses?</i>
<i>Do you have money saved in case there is a health problem?</i>
<i>Within your household, who decided to pay for those expenses? How was it discussed within the household?</i>

Shock	Clarification	Questions (Means):
		<ul style="list-style-type: none"> • How much money did you need to pay for the expenses? Did you require other assistance such as from relatives or friends? • Did you use income from one livelihood or several? Please explain. • Did you need to find other work for the additional income to purchase it? • Did you already have money saved for those expenses? What were the consequences of paying those expenses? What were you unable to buy or pay for as a result?
Illness		
Accident		
Disability		
Pregnancy		
Dental problems		

SHOCKS: CROP FAILURE

<p><i>Have you ever experienced a crop failure? When did it happen? What was the cause?</i></p>
<p><i>When it occurred, did it affect any of your other financial obligations (i.e. school fees, health expenses, loans)?</i></p>
<p><i>Within your household, who decided the strategy for coping with the crop failure? How was it discussed within the household?</i></p>

Shock	Clarification	
		<ul style="list-style-type: none"> • What was the strategy for coping with the crop failure? • Did you already have money saved which could be used? • Did you need assistance from your family, friends or the government? • What were the consequences? What were you unable to purchase or pay for?
<p>Failure of rice harvest</p> <p>Harvest failure of agroforests or tree crops</p> <p>Harvest failure of seaweed</p>		

SHOCKS: FISH SCARCITY

<i>When have you had difficulty catching fish, like for example during the Eastern Monsoon?</i>
<i>What was the reason? For example, seasonal factors, weather, boat problems, sickness or the location?</i>
<i>When it occurred, did it affect any of your other financial obligations (i.e. school fees, health expenses, loans)? If it occurs every year or regularly, do you have money saved in anticipation?</i>
<i>Within your household, who decided the strategy for coping with the reduction in fish catches? How was it discussed within the household?</i>

Shock	Clarification	
		<ul style="list-style-type: none"> • What was the strategy for coping with the reduction in fish catches? • Did you already have money saved which could be used? • Did you need assistance from your family, friends or the government? • What were the consequences? What were you unable to purchase or pay for?
Reduced catches of fish from the reefs and bay		
Reduced catches of larger, deep-water fish.		

SHOCKS: UNABLE TO FIND HONEY OR RATTAN

<i>Have you ever entered the forest and been unable to find honey or rattan?</i>
<i>What was the reason? Seasonal factors, weather, the location or illness?</i>
<i>When it occurred, did it affect any of your other financial obligations (i.e. school fees, health expenses, loans)? If it occurs every year or regularly, do you have money saved in anticipation?</i>
<i>Within your household, who decided the strategy for coping? How was it discussed within the household?</i>

Shock	Clarification	
		<ul style="list-style-type: none"> • What was the strategy for coping? • Did you already have money saved which could be used? • Did you need assistance from your family, friends or the government? • What were the consequences? What were you unable to purchase or pay for?
Unable to find honey or rattan		

SHOCKS: MARKET FAILURE

<i>Have you ever experienced a market failure (a drop in prices or a lack of buyers)?</i>
<i>What was the reason or causes?</i>
<i>When it occurred, did it affect any of your other financial obligations (i.e. school fees, health expenses, loans)?</i>
<i>Within your household, who decided the strategy for coping? How was it discussed within the household?</i>

Shock	Clarification	<ul style="list-style-type: none"> What was the strategy for coping? Did you already have money saved which could be used? Did you need assistance from your family, friends or the government? What were the consequences? What were you unable to purchase or pay for?
Dropping prices		
Lack of buyers		

SHOCKS: GRADUATES UNABLE TO FIND WORK

<p><i>When did you, your child or spouse graduate? With what specialization/major?</i></p>
<p><i>Why were you/they unable to find work?</i></p>
<p><i>Who supports you or them? What is your/their strategy for coping without work?</i></p>
<p><i>Within your household, who decides the strategy for coping with an unemployed household member? How is it discussed within the household?</i></p>
<p><i>What has been the impact on your ability to purchase items or for achieving other goals?</i></p>

SHOCKS: UNEMPLOYMENT

<p><i>Have you ever been unemployed, unable to find seasonal labour (labouring/migration) or, if you are a semi-skilled labourer, experienced a lack of clients?</i></p>
<p><i>What was the reason or cause?</i></p>
<p><i>When it occurred, did it affect any of your other financial obligations (i.e. school fees, health expenses, loans)?</i></p>
<p><i>Within your household, who decided the strategy for coping? How was it discussed within the household?</i></p>

Shock	Clarification	
		<ul style="list-style-type: none"> • What was the strategy for coping? • Did you already have money saved which could be used? • Did you need assistance from your family, friends or the government? • What were the consequences? What were you unable to purchase or pay for?
<p><i>Unemployment</i></p> <p><i>Unable to find seasonal work (labouring/migration)</i></p> <p><i>Reduction in clients for semi-skilled labourers</i></p>		

SHOCKS: EQUIPMENT FAILURE

<i>Have you ever experienced an equipment/mechanical failure related to your livelihoods?</i>
<i>What was the reason/cause?</i>
<i>When it occurred, did it affect any of your other financial obligations (i.e. school fees, health expenses, loans)?</i>
<i>Within your household, who decided the strategy for coping? How was it discussed within the household?</i>

Shock	Clarification	
		<ul style="list-style-type: none"> • What was the strategy for coping? • Did you already have money saved which could be used? • Did you need assistance from your family, friends or the government? • What were the consequences? What were you unable to purchase or pay for?
Equipment or machinery related to livelihood failure (boat, motor, computer etc.)		

SHOCKS: REDUCTION IN SELLERS (UNABLE TO PURCHASE STOCK)

<p><i>Have you ever experienced a reduction in sellers for your business?</i></p>
<p><i>What was the reason/cause?</i></p>
<p><i>When it occurred, did it affect any of your other financial obligations (i.e. school fees, health expenses, loans)?</i></p>
<p><i>Within your household, who decided the strategy for coping? How was it discussed within the household?</i></p>

Shock	Clarification	<ul style="list-style-type: none"> • What was the strategy for coping? • Did you already have money saved which could be used? • Did you need assistance from your family, friends or the government? • What were the consequences? What were you unable to purchase or pay for?
Reduction in sellers		

ASPIRATIONS

In the next two years, what would you like to buy or allocate your household budget to (>IDR 250,000)?

RANKING	CATEGORY	CLARIFICATION	MEANS (INCLUDING CREDIT FROM PNPM MANDIRI AND BANKS, BORROWING MONEY OR OTHER FORM OF HELP SUCH AS CHILDREN STAYING WITH RELATIVES FOR THEIR EDUCATION)
	HOUSE AND LAND		
	TRANSPORTATION		
	LIVELIHOOD EQUIPMENT		
	ELECTRONICS AND HOUSEHOLD GOODS		
	CLOTHING		
	CEREMONIES		
	EDUCATION		

FUNCTION OF INCOME

LIVELIHOOD OR SOURCE OF INCOME	WHAT CAN YOU USE THE INCOME FOR?	WHAT ARE YOU NOT ALLOWED TO USE THE INCOME FOR?
IRRIGATED RICE FARMING		
AGROFORESTS		
SWIDDEN		
FRUIT AND VEGETABLES		
FOREST INCOME		
MIGRATION		
CIVIL SERVICE		
TRADE/BUSINESS		
LABOUR/SEMI SKILLED LABOUR		
NEAR SHORE FISHING		
DEEP WATER FISHING		
PNPM LOANS		
BANK LOANS		
LOANS FROM FAMILY OR FRIENDS		