

Deforestation or Development

***Exploring the actors, practices and drivers
of forest loss on Zambia's Central Plateau***

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Part I

1. Seeing deforestation

Driving through most provinces of Zambia, the roads are lined with seemingly endless forests that are occasionally interrupted by a few petrol stations, small settlements, agricultural fields, or marketplaces. One day in the middle of the dry season, when driving along Zambia's Great North Road in Central Province, incredibly vast and verdant agricultural fields suddenly started to appear. After more than a hundred kilometres of dried-up forests on both sides of the road, the wheat here was still lush and high, thanks to large centre pivot irrigation systems. Over the next hour, dozens of large-scale commercial farms lined the road with large combines dispersing dust on the horizon, before forests zipped past again.

While I was impressed by the mere size of the fields, I was also concerned about how much forested land had been cleared for them. When mentioning the manifest deforestation we just encountered, my closest interlocutor – a Zambian man with whom I had already researched deforestation in his own community for almost six months – was puzzled by this association, asking rhetorically: 'But this is not Deforestation, is it?!'¹. His amazement was not singular, but rather is a good representation of the crucial finding that 'deforestation' is not necessarily equal to the loss of forests or trees. While 'deforestation' might seem to be a rather straightforward phenomenon, which is tangible, clearly visible and can even be detected from afar, in contemporary Zambia, it has been conceptualized in a very particular way which will become clearer throughout this work. Initially, 'forest loss' and 'deforestation' will be used interchangeably, but towards the end of the thesis, the use will be further complicated through addressing the question of what 'deforestation' actually consists of in the Zambian context, and what it does not.

Deforestation is, of course, not a new phenomenon but as old as agriculture, thus reaching back more than 10,000 years (cf. Wunder et al. 2014). While the first written lament about deforestation is by Plato from the 5th century BC (Williams 2006: 74), the issue has not been considered a major environmental challenge for a long time. It has only been on the agenda of both the civil society and governments around the world, since the mid-1970s, with an initial focus on tropical rainforests in South East Asia, the Amazon and the Congo Basin – the threatened 'lungs of the earth' (Adger et al. 2001; Arts et al. 2010: 64-65). Against the background of global warming and biodiversity loss, however, deforestation quickly became a *global* concern. Besides the forests' ascribed global

¹ Vincent Musonda during an informal conversation on Great North Road in Mkushi District on July 31, 2015. While placenames have not been changed, all personal names have been anonymized.

relevance, the loss of forests can also contribute to warming at the regional and local level, alter rainfall and the distribution of water resources, which in turn can negatively influence remaining vegetation.² Furthermore, forests are closely associated with the provision of clean air, water, natural habitats and a wide range of (edible) products for millions of people – and millions of other species. Increasing attention has been paid to the issue of deforestation since the United Nations Conference on Environment and Development (UNCED/Earth Summit), which was held in Rio de Janeiro in 1992 and resulted in the Agenda 21 – the first international document calling for concerted action to stem, amongst others threats, the continuing loss of forests. Since 1995, the United Nation’s annual Climate Change Conference, and a myriad of other conferences on, for example, sustainability, biodiversity, or agriculture, have continued to discuss the agents, drivers, and possible solutions to deforestation. At the beginning of the 21st century, forests continue to decrease across the globe, and their protection has remained a global mission, codified in the recent Millennium Development Goal of environmental sustainability. The New York Declaration on Forests of 2014, and goal 15 of the Sustainable Development Goals – to sustainably manage forests – will carry on this agenda until 2030. Equally, different carbon forestry projects and offset initiatives, where people and companies support reforestation and afforestation, as well as the continuation of REDD+ mechanisms, indicate a continued awareness of the challenge. This is equally so in Zambia, where the issue of deforestation has occupied conservationists, researchers and policy-makers, and frequently features in the media. Since the lion’s share of all deforestation has occurred within tropical countries such as Indonesia, the DR Congo, or Brazil, however, Zambia, and other countries outside the rainforest belt, have not received the same amount of attention – despite alarming rates of deforestation. In Sub-Saharan Africa, many of them, including Zambia, are located within the so-called *Miombo* woodlands, of which the next pages will provide an initial understanding.

Zambia’s Miombo woodlands and the alleged culprits of their decline

In addition to the African rainforest, the less famous *Miombo* woodlands constitute one of the largest contiguous eco-zones.³ They are found in the transition zone between the moist forests and dry savannas, spanning the continent from Angola to Tanzania and

² The interrelation of trees, forests and hydrology (e.g. clouds, rainfall, groundwater, atmospheric moisture) is highly complex and varies considerably between the temperate zone and the tropics. For a recent and detailed discussion, see Ellison et al. (2017), who have argued for a priority change from carbon storage to the hydrologic and climate-cooling effects of forests and trees.

³ *Miombo* is a Swahili term for the tree genus *Brachystegia* that dominates the woodlands, together with the two closely related genera *Julbernardia* and *Isoberlinia*. For a more detailed description of *Miombo* woodlands, see Campbell et al. (1996), Chidumayo (1997), and VECEA (2017).

Mozambique over an area of 2.7 million km² (Kutsch et al. 2011: 1). One of the countries within that region is Zambia, where the *Miombo* woodlands are the most extensive forest type, covering about 50% of the country's total land mass (ZEMA et al. 2013: 55; EC 2014: 14). Taken together with other forest types, about 66% of Zambia's surface is covered by forests (Kalinda et al. 2013: 619; ZEMA et al. 2013: 56; EC 2014: 7; FAO 2015: 8). Even by absolute numbers, Zambia is number 3 of the most forested countries on the continent, following Angola and the DR Congo (FAO 2015: 3, 8) and thus associated with a high capacity to absorb carbon and act as a sink (cf. Chidumayo 2013; cf. Mwitwa et al. 2013). In addition, the woodlands play a vital role for the local hydrology and weather phenomena, and they are of importance to biodiversity conservation: not only does Zambia have the highest diversity of trees, it is also the centre of endemism within the *Miombo* region, with 17 different endemic *Brachystegia* species (Rodgers et al., cit. in Frost 1996: 12).

The two photos⁴ below show the *Zambian Miombo* woodlands from within and outside during the dry season. While the left photo was taken in late July, the one on the right shows the woodlands in late October, just before the rains are expected. The red foliage is the new flush of deciduous species.



Fig. 1 *Miombo* woodlands from within and outside during the dry season

In an attempt to conserve such woodlands, hundreds of Local and National Forest Reserves were officially designated all over Zambia during colonial times, with increasing numbers towards the time of independence (Honig & Mulenga 2015: 7).⁵ Similarly, several National

⁴ All photographs presented in this thesis were taken by the author in 2015.

⁵ According to the last available annual report from the *Zambian Forestry Department*, there were 487 Forest Reserves in 2009, covering about 9.5% of Zambia's total land area (EC 2014: 17). According to Mulenga (2015: 7), there were 517 Reserves in 2013. The official number on protected land reported by the *Zambian government* to the *FAO*, however, did not change between 2000 and 2015 (FAO 2015; Morales-Hidalgo et al. 2015: 72).

Parks have been established across the country, with most being entirely located within the *Miombo* woodlands.⁶ By 1994, about 40% of the woodlands *on the continent* had come under anthropogenic domination, converting them into a mosaic of agricultural fields, continuous woodlands, forested patches, exotic fruit trees, and grassland (Misana et al. 1996: 73, 84). In Zambia, areas formerly covered by woodland have been transformed by millions of both rural and urban people, who rely on its resources such as timber, charcoal, edible forest products, or fertile soil (Kokwe & Mickels-Kokwe 2012: 15; Dewees 2013: 7; Gumbo et al. 2013: 1; ZEMA et al. 2013: 55; cf. Angelsen & Wunder 2003: vi). High rainfall areas, which are particularly suitable for agriculture, have been and continue to be shaped by humans through the removal of trees for settlements, farmland, and a wide range of other livelihood opportunities (Campbell et al. 1996: 1; Kalinda et al. 2008). Hansen et al. (2013) – the most authoritative source for earth scientists – estimated the annual loss to have been only around 110,000 ha between 2000 and 2012.⁷ For the period between 1990 and 2015, the FAO (2015: 14) estimates that Zambia has lost about 167,000 ha every year. This latest figures are the lowest found in the literature and much lower than previous estimates.⁸ In Zambia’s latest National Development Plans (GRZ 2011c and GRZ 2017: 47), the forested area lost annually was estimated to be around 250,000 to 300,000 ha, which has become the most frequently quoted number by scholars, politicians, NGOs and the media alike during recent years.⁹ For comparison, this equals roughly the size of Luxembourg or Lake Kivu of the African Great Lakes. Having said this, different ‘guesstimates’ should always be taken with a pinch of salt as they reflect, amongst others, different definitions of what actually counts as a tree, a forest,¹⁰ or as deforestation.¹¹ While different figures over the years have changed, the overall picture has remained the same: even with the recent lower figure, Zambia is number 15 of the most deforested countries globally by *absolute* numbers, and number 7 in Sub-Saharan Africa (FAO 2015: 9-14). Nevertheless, the issue of deforestation in Zambia had received little scholarly attention until about 2012. Only thereafter, the government began to assess the potential for implementing and benefitting from REDD+, which urged a few researchers and

⁶ The National Parks Kafue, West Lunga, Kasanka, Lavushi Manda, Lusenga Plain, Nsumbu, and Mweru Wantipa are located within the *Miombo* woodlands.

⁷ For an interactive map, see UMCP (2017) and WRI (2017a).

⁸ In the Forest Resource Assessment of 2001, Zambia was estimated to lose up to 851,000 ha annually (FAO 2001: 135). The same figure uncritically entered Zambia’s National Development Plan for 2006-2010 (GRZ 2006a: 97), Zambia’s Vision 2030 (GRZ 2006b: 20), and the Zambia Forestry Action Plan (ZFAP 2006-2010), which were then cited again (e.g. Mickels-Kokwe 2006: 18), or reproduced without even providing references (e.g. Husselman 2008: 2, and Ellatifi 2009: 12). This variations are, amongst others, due to diverse methodologies applied and the inconsistent use of key terms (see Kamelarczyk & Smith-Hall 2014).

⁹ This updated figure is based on a combination of field plots and remote sensing that were part of Zambia’s first Integrated Land Use Assessment carried out between 2005 and 2008 (ILUA I) (see Kalinda et al. 2008). Relevant data from its successor that was run from 2010 to 2013 (ILUA II) was not published by October 2017.

¹⁰ Since 1998, Lund (2015) has compiled and updated a list of more than 1,500 definitions of ‘forest’.

¹¹ Such statistics may also reflect different methods of measuring the forest stock, different degrees of precision, information gaps, wrong conversions or calculation, diverse political interests of the many stakeholders involved, or failures in reporting data. The same caution holds true for data on biomass and carbon stock.

environmentalists to answer the question who and what has caused the visible and continuing decimation of forests (e.g. Giesecke 2012, Kokwe & Mickels-Kokwe 2012, Vinya et al. 2012, Mwitwa et al. 2013, Matakala et al. 2015, and Turpie et al. 2015). Politicians, NGOs, the media and citizens alike have debated the same questions. Since then, narratives about deforestation have, especially in Africa, ‘acquired a new sense of urgency and drama’, as it is interrelated with the global climate crisis and the struggle to tackle it (Leach & Scoones 2015: 17).

While there is agreement that Zambian deforestation has been mostly rooted in anthropogenic actions (Kokwe & Mickels-Kokwe 2012: 24), fifty years of research have failed to convincingly document major deforestation drivers (Kamelarczyk & Smith-Hall 2014). Until today, the various factors contributing to forest loss in Zambia are, apart from anecdotes and patchy evidence, not yet well understood (Kokwe & Mickels-Kokwe 2012: 72; Mwitwa et al. 2013: 1). The proximate causes of the decreasing forest cover are varied, with slash-and-burn agriculture, the production of charcoal, bushfires, agricultural expansion, the expansion of rural and urban settlements, infrastructure development, logging, and the harvesting of firewood being the most commonly named. Apart from certain practices, an underlying key cause ‘offered’ in the debate is poverty, and in particular *rural* poverty, which is usually left entirely undefined (e.g. GRZ 2010a: 5, Kokwe & Mickels-Kokwe 2012: 24, and Matakala et al. 2015; cf. Fairhead & Leach 1996; cf. Adger et al. 2001; cf. Munro 2009: 110). Beyond that fuzzy concept, the actual actors at work, their precise practices and the drivers behind those have remained largely unexamined. Moreover, with the exception of Gumbo et al. (2013), studies have so far not paid attention to regional differences, but made cursory claims for the entire country, and even across different forest types. However, as there *are* regional ‘differences in history and in local socio-economic, political, and biophysical contexts’ (Unruh et al. 2005a: 324), such claims are bound to be simplified and cannot do justice to differences between, and, to a lesser extent, within regions (cf. Boucher 2011a: 7). The focus so far has furthermore been mainly on quantitative questions, investigating the marketing, distribution and sale of charcoal and timber for example, with a clear focus on *outcomes*, but not on the processes leading to them. Another area of research has been legislation within the forestry sector (e.g. Gumbo et al. 2013, EC 2014, and Ng’andwe et al. 2015), which, however, is less helpful in understanding deforestation as policies, laws and government acts, which are said to be inconsistent anyway (Mwitwa et al. 2013: 7; EC 2014: 50), are not implemented in the first place. Paper is patient, but in order to really understand deforestation, ‘what matters is what happens in the field’ (Mercier 2012: 7) or rather does *not* happen there. In this regard, the non-enforcement of legislation is much more relevant in understanding deforestation, as it contributes to it through not preventing it. This inaction, moreover, can even be deliberate as will become clear in the last two chapters of this work. Long-term research at the sites of deforestation

– and thus regionally specific and qualitative insights – are, so far, entirely missing for Zambia, with the lone exception being *Cutting Down Trees* from 1994 (Moore & Vaughan 1994).

Nevertheless, there is a widely shared understanding in contemporary Zambia of what – or rather who – is to be blamed for the deforestation which has been experienced country-wide. Interestingly, while a wide range of proximate and distant drivers are usually listed in the recent literature, only a few have absorbed most attention in the public debate, whereas others have been largely neglected. Even though deforestation is not yet well researched in contemporary Zambia (Kokwe & Mickels-Kokwe 2012: 72; Mwitwa et al. 2013: 1), ‘the culprits’ of deforestation, as they were regularly referred to in interviews with government officials but also villagers, are quickly presented: small-scale and especially slash-and-burn farmers, and, much more, charcoal producers. This focus is not new, but represents a continuation of the way in which deforestation has been framed throughout the 20th century across the globe (Munro 2009; cf. von Hellermann 2013; cf. Leach & Scoones 2015). In the Zambian context, more often than not, the adjective ‘illegal’ is added to describe the production of charcoal or logging, suggesting that the legal extraction of wood would be less destructive to the environment. Similarly, small-scale as well as slash-and-burn farming mostly appears together with the term ‘unsustainable’, whereas conventional farming and large-scale agriculture are not marked with the same derogatory label. The vignette with which this chapter began has already pointed to this. In the very first newsletter from the Southern African Science Service Centre for Climate Change and Adaptive Land Management, for example, ‘agriculture’ was named as deforestation cause number one followed by charcoal, yet the author or editors decided to illustrate the text with a photograph showing a charcoal producer (SASSCAL 2016: 9). Equally, the cover photo of the Facebook page ‘Stop Deforestation Movement-Zambia’ shows a man pushing a bicycle full of charcoal. Similarly, a review of Zambian on-line newspapers, including the readers’ comments, as well as the online content of the national broadcaster ZNBC, reveals one-sided coverage. In the same vein, the Zambian country office of the Centre for International Forestry Research (CIFOR) has been focusing on investigating the charcoal trade, with major funding from the United States Agency for International Development (USAID). Reviewing on-line videos on deforestation in Zambia, the results are largely the same: the ‘aimless destruction of forests’ and climate change (National Geographic 2017) are directly linked to the production of charcoal. In the active Facebook group ‘Small Scale Farmers(Farming As Business)’, which has more than 240,000 members, complaints about the production of charcoal show once more who is blamed for deforestation and ultimately held responsible for climate change – and who is not, for example, ‘modern’ farmers, or

members offering already cleared land for sale (cf. WRM 2015: 5).¹² Last but not least, in international newspapers, the focus also lies clearly on charcoal through texts, (suggestive) pictures, or both.¹³ During my own fieldwork in 2014 and 2015, the marked focus on charcoal was confirmed and even more pervasive: whenever explaining my research topic, researchers, farmers, forestry officers, politicians, NGO workers and journalists, all argued that charcoal producers and practitioners of shifting cultivation are the ‘ignorant agents of deforestation’ (Munro 2009: 110). From village to state level, there was a strange harmony about those responsible for ‘indiscriminate cutting’ and ‘rampant deforestation’, as it was commonly put. Even though a number of studies have been done, research has been limited, with the same information only being recycled, thus arriving at the same conclusions, with charcoal being the focal point (Gumbo 2014; cf. Mwampamba et al. 2013). Together with the perpetual quotation of Zambia’s alarmingly high deforestation rate – 250,000 ha – a simplistic, though seemingly intrinsic link between charcoal and deforestation is established (cf. Adger et al. 2001: 689), and the wider political, economical, social, or cultural structures into which practices or actors are embedded are masked (Adger et al. 2001: 689). Even though the extent to which the production of charcoal and its trade actually contribute to deforestation it is not well documented (Gumbo et al. 2013: 52), it has become the literal ‘poster practice’ of deforestation, which dominates the media, scholarly contributions, national policy papers, and public discussion (Mwampamba et al. 2013). The way in which deforestation is conceptualised in Zambia, which will be elaborately discussed in Chapter 10, represents a certain discourse. As the term itself is so widely applied across disciplines, yet often undefined and thus ambiguous, I will clarify on the next pages what I actually mean by ‘discourse’. Thereafter, I will briefly present the analytical framework and the questions that guided this research, and eventually the outline of the thesis at hand.

On discourse, narratives, and their social embeddedness

While there are innumerable approaches to the definition of ‘discourse’, it is, most broadly, associated with the exchange or discussion of ideas on a certain societal or political topic (Arts & Buizer 2009: 341) – such as deforestation. More precisely, I will follow the often-quoted definition of Hajer (1995: 44), according to whom a discourse is ‘an ensemble of ideas, concepts, and categorizations that are produced, reproduced, and transformed [...] and through which meaning is given to physical and social realities’ (1995: 44). Following

¹² In this regard, Leach and Scoones (2015b) have pointed out that the link between local carbon stocks and global climate change needs much more investigation before final conclusions can be reached.

¹³ See, for example, Lusaka Times (2012), BBC (2012), Guardian (2013), Lusaka Voice (2014), Times of Zambia (2016), Independent (2016), and National Geographic (2017). A quick on-line search, including the many smaller news websites and blogs – which all reflect opinions and at the same time contribute to opinion making – yields similar results.

this understanding, ‘deforestation’ can be viewed as a discursive construct that consists of a certain range of collectively shared ideas and narratives on the same (Klein 2004: 11-12; cf. Kull 2000: 428), that are freely floating around in society and in politics as text or conversation (cf. Arts & Buizer 2009: 340 ff.). Similarly, though more judgemental, Leach and Mearns (1996) have argued that the construct of ‘deforestation’ consists of a number of shared assumptions, anecdotes, myths and received wisdoms on the same. Through persistence and regularity with regard to recurring ideas and narratives on ‘deforestation’, ‘a collectively binding order of knowledge’ (Keller 2012: 2), which is then spread through NGOs, government agencies, the media, but also sciences, development agencies, educational institutions, and, not to forget, inter-personal communication (cf. Leach and Mearns 1996; cf. van Dijk 2003: 86; cf. Munro 2009; cf. Leach & Scoones 2015: 15). This knowledge also becomes the foundation of competency: the more deviant an account from that knowledge, the less likely it is to be taken seriously and to be influential as it is seen as incompetent (Arts & Buizer 2009: 341). The dominant discourse on deforestation thus powerfully defines what counts as credible, legitimate, true, and ultimately ‘knowledge’ – whereas counter-discourses can be dismissed as mere sentiments. How ‘deforestation’ is written or talked about – who and which precise practices, for example, are seen to be part of ‘deforestation’ – is thus not only represented, but also enabled and partly caused by the discourse (cf. Klein 2004: 12). Following the Foucauldian understanding, the discourse disciplines people to think, speak and act in a specific way (Arts & Buizer 2009: 342), as a result of which the discourse itself becomes almost self-evident, seemingly doing nothing but representing ‘the truth’ or ‘facts’ (Kamelarczyk & Smith-Hall 2014). Importantly, the discourse is ‘not just language’ which represents and influences the way, deforestation is written, talked and thought about, but it also has the power to impact ‘upon the real world’, with material implications: it feeds, amongst others, into the actions of people, policies, laws, institutional arrangements, and interventions that govern society (Hajer 1995; Klein 2004: 11 f.; Arts & Buizer 2009: 341 ff.; Arts et al. 2010: 57, 70; Keller 2012). In the context of Guinea, for example, Fairhead and Leach (1996) have shown how the assumption that forest patches within populated savannah landscapes are the remains of a bigger forest in the past became a doctrine that shaped policies for decades. Even though the assumption was flawed, as forest patches had rather been *created* by rural communities, the misperception was real in its consequences. Equally with regard to deforestation, which policies seem to be suitable in order to stop it, and what seems to be the wrong way of approaching it, can be fundamentally influenced by the ideas available in the discourse (cf. Hajer 1995), which are necessarily limited.¹⁴ As farmers, politicians, journalists, researchers

¹⁴ If a discourse is translated into policies, Hajer (1995: 61) considers it to be hegemonic. However, how discourses precisely influence political processes has hardly been researched (Arts & Buizer 2009: 341-343; Arts et al. 2010: 71; Kamelarczyk & Smith-Hall 2014). While causality is likely, it is yet to be conclusively established.

and so on are surrounded by the discourse, they deliberately or subconsciously subscribe to it (Arts et al. 2010: 58, 70), which, in turn, legitimizes and sustains it again (cf. Arts & Buizer 2009: 346). Weak or contradictory empirical evidence makes it particularly difficult to challenge the dominant discourse (Kamelarczyk & Smith-Hall 2014). While there *can* be counter-discourses (e.g. Gumbo 2014) or competing narratives within one discourse (e.g. Lungu 2017), I am mainly concerned with the *dominant* representation on deforestation in Zambia, which remained uncontested for a long time – essentially since colonial times (Kamelarczyk & Smith-Hall 2014: 24).

While the focus on unsustainable farming practices and illegal wood extraction has largely remained the same in Zambia, on a global level, the focus increasingly shifted away from certain actors towards an analysis of larger political and economic processes underlying their supposedly destructive actions. Since *Land degradation and Society* (Blaikie & Brookfield 1987), more scholars became concerned with the connection between political economies and environmental change, strengthening the field of political ecology.¹⁵ This shift, however, often only redirected the focus from village to state level, with corrupt politicians and capitalist corporations replacing the previous actors, or rather scapegoats (von Hellermann 2013: 2 f.). Therefore, Vayda and Walters (1999: 167) have argued that, instead of creating a more holistic understanding and complex pictures, such an approach runs the risk of creating just another one-sided narrative (see also von Hellermann 2013: 3). The focus on structural explanations can furthermore lead to losing sight of cultural phenomena (Perry 2003: 123) or ethnographic facts, which become mere anecdotes or even get in the way of cursory claims or a dominant narrative (cf. Karlsson 2011: 8 f.). Being aware of such pitfalls, the research underlying this thesis aimed at paying attention to actors at different levels, as well as the wider structures into which they and their practices are embedded. As a consequence of this approach, the findings presented in this thesis are most likely to hold true far beyond the research area. While this work builds upon insights from political ecology, its unique value lies in its ethnographic approach, which is briefly presented below and elaborated on in the methodology chapter.

In order to investigate the on-going decimation of *Miombo* woodlands in Zambia, I have been guided by a set of four interrelated research questions, asking about the 'what', the 'how', the 'who' and the 'why'. While the methods applied to do so will be discussed in-depth in Chapter 3, I will now first present the research questions, followed by an outline of how the thesis is organized.

¹⁵ The concept of 'political ecology' had already been coined by Frank Thone (1935: 14) over fifty years earlier.

Research questions and chapter outline

As has already been pointed out, the thesis at hand is essentially ethnographic, based on empirical data gathered during 13 months of fieldwork in Zambia. Living within a single rural community for ten continuous months, I examined how households and their individuals shape and are shaped by their natural surroundings, with a focus on forests and trees. I identified the diverse practices leading to forest loss (the ‘what’ and the ‘how’), and in the course of that, the proximate actors and stakeholders (the ‘who’). Based upon that, I researched the salient knowledge about the natural environment in general, and trees in particular, that is embedded in those practices. Besides, I investigated further drivers behind those practices at the individual and the household level, such as personal needs, short-term desires, long-term aspirations, or constraints. In addition to this, attention has been paid to the structural level, which includes, amongst others, discourses, moralities, policies, economic processes, customary and statutory laws (the ‘why’), which all impact on individuals and households. Only by including that level can the wider context in which local practices can actually unfold be understood properly: it will become clear which drivers – many of which are locally distant from the sites of deforestation – favour or enable deforestation, do not prevent, or even accelerate it. The model below (Fig. 2) illustrates first, how those three interrelated fields of research – practices, actors and drivers – interrelate, with the black arrows indicating the direction of influence. Second, the blue arrows show how the fieldwork was structured: Unlike many ethnographies, I did not start from certain people or groups, but rather I approached the field from the many observable practices that involve the cutting of trees, from where I began to seek connections to the actors and drivers at both individual and structural level.

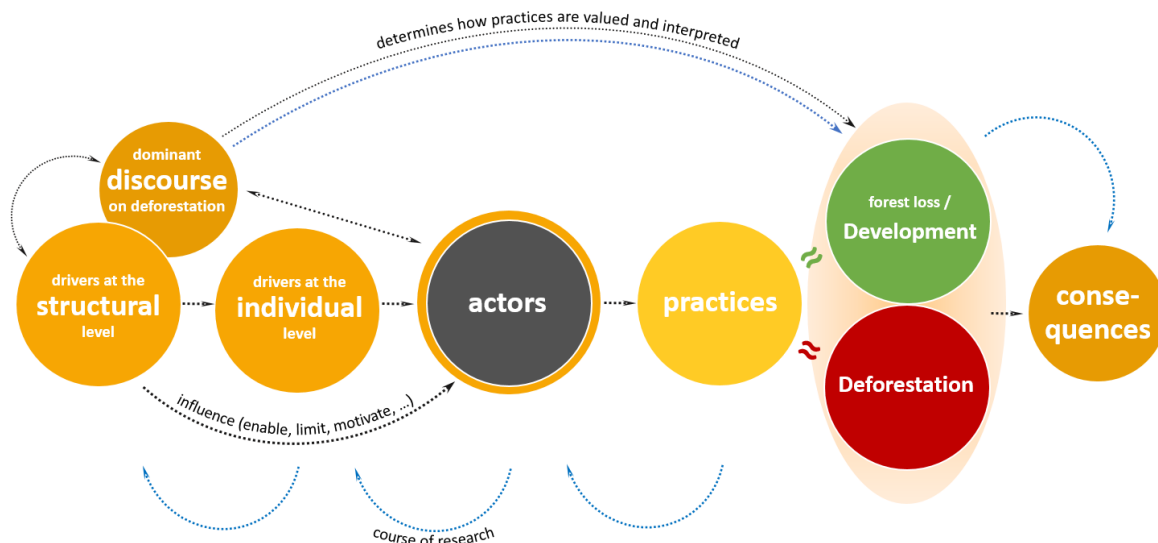


Fig. 2 Model of analysis employed during the research process

During the exploratory stage of the research endeavour, I followed the dominant discourse, and consequently one particular practice – the production of charcoal. During the first months, the overarching narrative of ‘the destructive charcoal burner’ was put into perspective, as will become convincingly clear in the subsequent chapter (Chapter 2), in which I lay out how I was trying to access both the physical and thematic field of deforestation during preliminary fieldwork over little more than three months in 2014. The chapter does not only offer insights into my early methodological approach, but also empirical insights: several ideas I had developed before being in the field, mainly based on a literature review, could not withstand local realities (cf. Adger 2001: 709), which, as a matter of fact, impacted upon my general understanding of the research topic. I will demonstrate that much ‘knowledge’ about deforestation in Zambia has indeed been based on an array of assumptions (Leach & Mearns 1996), myths, stereotypes and gross misconceptions (cf. Mwampamba et al. 2013), but not on everyday experiences or interaction with those said to be responsible. After that, I will introduce and reflect on the methods applied as well as on my own position during the main period of fieldwork in 2015 (Chapter 3), and then turn to the research setting. I will begin by introducing the wider region, the research community Chibobo and its villages,¹⁶ their inhabitants and livelihood strategies, as well as the natural environment. Based on that, I will picture how the residents value the woodlands and forests surrounding them, and how access to them is regulated (Chapter 4). After having provided that overview, with a number of ethnographic findings, I will offer insights into the most salient edible non-timber forest products, as their collection, at times, is also related to forest degradation and loss – but also conservation. That chapter will moreover further the understanding of how the residents see and interact with their natural environment (Chapter 5). After this Part I of the thesis that has set the scene, I will investigate throughout Part II all other salient practices associated with deforestation, such as the collection of firewood, the production of charcoal, the extraction of timber, mining manganese, or the production of staple food and cash crops, in particular maize and tobacco. Each practice will be described and analysed thoroughly, and while the focus remains at village level, connections to the greater region or the capital city are also included (Chapter 6). Following the discussion of a wide range of practices leading to forest loss, a more general driver underlying many of those – the desire to aspire – will be introduced. While consumerism has been on the rise, belief in witchcraft has declined over the years, which has fundamental implications for the increased desire to participate in the cash economy and to materially improve one’s life (Chapter 7). The main strategy for doing

¹⁶ The [b]s in ‘Chibobo’, and any other Lala word, are pronounced with open lips, yielding a sound close to [w]. The community of Chibobo consists of 12 adjoining villages, out of which 2 have been considered to be ‘illegal’ since their recent evolution (see Chapter 9). In the local language, the word for both ‘community’ and ‘village’ is *Umushi* and the English words are used interchangeably, yet in order to be precise, I will henceforth use the term ‘community’ to refer to the entire settlement, and ‘village’ to refer to one of the 12 villages.

so is agricultural expansion, which, in recent years has become a challenge due to looming land constraints. I will trace the evolution of Zambia's current land tenure system, and argue that the general perception of Zambia having large tracts of unutilised land is fundamentally flawed (Chapter 8). Thereafter, I will demonstrate how land scarcity experienced in the community, in combination with other dynamics, has impinged upon a protected National Forest adjacent to the community (Chapter 9). Whereas the preceding chapters mainly dealt with Kansenga – an old, well-established village of the research community, this chapter takes a closer look at Milombwe – the community's 'newest' village, which has come into existence illegally within the National Forest since about 2013. This chapter will examine a practice that was deliberately omitted earlier, namely the expansion of settlements. While it also takes place within Kansenga, it can be observed much better in Milombwe as previously undisturbed *continuous* woodlands get replaced over a vast area. Including it underlines the processuality behind the contemporary loss of National Forests that has been experienced across Zambia for about the last decade. National Forests are often the spaces where the land scarcity experienced on the Central Plateau plays out, and where politics come into play more obviously.

The focus of this work though is on the ordinary lives of those involved in the cutting of trees, which is connected throughout the chapters with obvious but also more subtle factors driving environmental change. As a consequence of this holistic analysis, the reader will develop a deep understanding of how the large issue of deforestation unfolds in a small place (cf. Eriksen 2010). The material presented will reveal a number of striking discrepancies between the dominant discourse on the one, and what can be observed on the other hand. Importantly, I do not simply put forward a counter narrative, or dismiss current understandings as 'Lie[s] of the land' (Leach & Mearns 1996), but I offer a more nuanced understanding of the topic through presenting actors, scenes, and perspectives, that usually do not occur together in one work when Zambian deforestation is explored (cf. Vandermeer & Perfecto 2005: 13).

Having analysed a variety of practices, actors and drivers behind forest loss in each chapter, I will return in the last chapter to the initial claim that 'forest loss' is not necessarily the same as 'deforestation' (Chapter 10). I will provide answers to what, from an emic perspective, actually constitutes 'deforestation' and what it does not. I will summarize one component of the structural level, namely the discourse on deforestation in Zambia, and offer insights into why only certain practices are, quite literally, seen as 'deforestation' whereas others are not. Finally, it will be argued that this particular way of seeing deforestation in Zambia, as well as political interference, have undermined efforts to halt forest loss. In addressing all of these issues through this thesis, the abstract model above (Fig. 2) will be populated with content. I will now turn towards a discussion of the preliminary research I carried out in 2014.

2. Accessing the field

I spent about two weeks in Zambia between February and March 2014, in order to carry out exploratory fieldwork that would help me to verify some of the initial hypotheses I had come up with after the literature review and an initial consultation of workmates, maps and satellite imagery. I began my research in Sesheke (Western Province), where my colleague João Baptista and I met one of the district's forestry officers. I expected this to be a good starting point, which was a false premise as will become clear in the following pages. In Zambia, all trees are vested under the president, and for the purpose of governing all forests and woodlands, each district is equipped with a forestry office.¹⁷ Their task is to patrol the country's Local and National Forests, and to control and tax the extraction of trees as well as non-timber forest products if sold – irrespective of who owns the land. As their mission is also to carry out educational work and extension activities, I assumed a regional expertise. However, in Sesheke already, my colleague and I were told outright that, despite being in 'the home of timber', there are only three officers for the entire province, without means of transport or any guards for patrolling Forest Reserves. As they had hardly spent any time in the field, they could only share a few insights and general assumptions. Instead, they referred me to their colleagues and suggested alleged 'hotspots' of deforestation. During the coming two weeks, I aimed at entering into dialogue with potential gatekeepers – people who could help me to identify and access potentially suitable research sites: I met with further officers from the Forestry Department, researchers, farmers, saw millers, timber and charcoal traders, as well as officers employed at border crossings and police stations where forest goods were intercepted. In Chirundu, a border town between Zambia and Zimbabwe, I also talked to immigration and customs officers about their experience with both the official and clandestine export of forest products such as charcoal, sawn timber or unprocessed logs. Hundreds of piled charcoal sacks ready for export along the tarmac winding down towards Chirundu's dry port shaped my first impressions. But not only here, heaps of charcoal and crammed sacks were dotted all over the country indeed. Following Sesheke's officers' advice, I also met their colleagues from the Forestry Department as well as the Center for International Forestry Research (CIFOR) in Nyimba (Eastern Province), and Mpulungu (Northern Province). The first had received more than 3 million USD from the US Agency for International Development (USAID) in order to research local deforestation, the results of which would eventually feed into Zambia's national REDD+ strategy. Northern Province, on the other hand, has historically been one of the major 'hotspots' as its residents have long practiced slash-and-burn farming – one of the most

¹⁷ Each district office reports to the respective provincial forestry office. All offices are part of the Forestry Department that is under the Ministry of Lands, Natural Resources and Environmental Protection (MLNREP), which itself has been re-structured and re-named at least twice within the recent years.

prominent practices across the globe associated with deforestation. I had travelled a few thousand kilometres, and conducted a number of informal interviews and (participant) observations, during which I got a first impression of the causes of contemporary deforestation. Back in Germany, I continued the literature review, prepared for long-term fieldwork, and tried to establish contact with other people to whom I had been referred during the recent stay. Reaching them via email or phone was very difficult due to a lack of interest, technical problems such as a lack of (reliable) electricity, limited network coverage, fluctuating internet connections, and usually a combination of these. This further communication, however, formed the basis for a future travel schedule and equally helped me to widen my knowledge about deforestation – or at least the discourse on it. Eventually, from early August to November 2014, I returned to Zambia in order to follow up topics raised earlier. Ultimately, I aimed at identifying a single and final research site at which deforestation was both a topic of debate, and occurring physically. As the often-quoted ‘250,000 ha’ only indicates a national average and accounts for neither temporal¹⁸ nor local differences, however, national and also provincial deforestation rates were not very helpful. Moreover, regions with seemingly high deforestation rates are not necessarily affected by deforestation as *relative* deforestation might be high in savannah and low in densely forested regions, even when the number of trees lost is higher in the latter. Even though the analysis of satellite imagery, which is often used to construct deforestation rates, has been criticized a lot for the ‘assumptions, interpretations, and uncertainties [that] go into the processing and reading of them’ (Karlsson 2011: 86; cf. Robbins 2001), the imagery has ‘a compelling aura of scientific validity’ (Karlsson 2011: 84) and thus is often re-produced and treated as capturing ‘the real world’.

In order to render an in-depth study possible, but also for reasons of feasibility, the research site should be located within one political entity, where not more than one local language is widely used in everyday interactions. While such a focus is fairly traditional in anthropology, my fieldwork was later extended far beyond the community’s boundaries, as will become clear in the subsequent chapters. Before that, I will summarize what I encountered during the preliminary phase, which will help to understand how my perspective on deforestation, and arguments about its drivers, developed.

During my second stay, my approach to research was still open: I tried to identify potential sites of deforestation through informants from market places where charcoal or timber was sold to individuals or re-loaded onto lorries for wholesale. Besides informally interviewing marketers and truck drivers, I also talked to traders selling (non-timber) forest products en route, and I frequented carpentries where I also talked to suppliers, vendors and customers – people who could link me to the sites of extraction and consumption. In

¹⁸ The rate often remains similar for periods of up to 25 years, yet if no regrowth or reforestation takes place, the area lost every year should be in decline. Vice-versa, if the area lost remains the same, the rate should increase.

addition, I met with the staff of tourist lodges that were working in alleged hotspots of deforestation. Though this start was already biased in the way I approached 'deforestation', it was a viable point of departure to continue from. I usually began the conversation with innocuous questions about the tree type of the logs, which tools were used for extraction, when the business was started, or for how much money the products are sold. Remarkably, whenever explaining my field of research, deforestation, and elaborating my research questions, I was immediately directed towards charcoal producers. The term 'deforestation' did not only seem to be intrinsically linked with charcoal, but also with illegal or informal activities. As a consequence of this, I faced a good deal of suspiciousness during most first encounters. In urban areas, I was frequently confronted with allegations of working for the government's Forestry Department, or, mainly in rural areas, accused of being a spy, or a journalist who has nothing good in mind. Several times, in different parts of the country, I was interrogated by prominent villagers such as the head teacher, or the residing Chief. They often linked my presence to Peace Corps, a volunteering programme run by the U.S. government. Since the programme's inception in 1994, almost 2,000 U.S. citizens have come to different, mostly rural parts of Zambia to work on projects in agriculture, aquaculture, education, health, or the environment. During my stay, there were serious rumours about them actually carrying out intelligence operations all over the country, with thousands of them being involved. At one instance, the head teacher of a rural community informed the nearby residing Chief about this too-curious White young man – me – and then called the high-ranking provincial forestry officer to report my suspicious activities. The officer explained that he already knew me and he had given me the go-ahead to carry out research. However, the head teacher continued to lecture other villagers since 'it is known only too well that White men who travel under the flag of Peace Corps are spies'¹⁹. On these grounds, there was often little trust and I received misleading or contradictory information about the origins of logs or bags full of charcoal, for example. Besides this non-cooperation, another factor – rain – impinged upon my exploratory (and later) research in two respects: first, transport was complicated as bridges were underwater, sections of villages were cut-off, and I was busy taking notes, seeking shelter, protecting electrical equipment, observing people, and seeking shelter again. Second, I encountered many 'ghost villages': most potential informants in rural settings were either collecting fertilizer in town, cultivating their own or other peoples' fields, usually without a lunch break, thus not having time to receive me or show me around during daylight.

Another obstacle arose when I introduced myself to the Chief or Chieftainess, the highest traditional leader of a chiefdom. One day, in October 2014, I paid a courtesy visit to Her Royal Highness Chieftainess Serenje, one of the traditional leaders of the Lala People,

¹⁹ Head teacher in a village along Great North Road in Isoka District (Muchinga Province) on October 14, 2014.

who soon would become my research subject though in another chiefdom.²⁰ For my own good and security, she wanted to formalize my research process as much as possible: she would not have allowed me to stay within a village, but only in a guesthouse, close to the tarmac, with running water and electricity. She wanted to make sure that I was comfortable, safe and sound, without being hassled by anyone. While this was only well-meant and a form of hospitality, it would have prevented me from properly conducting in-depth fieldwork. As months passed by, I was eventually issued a residence permit that also officially allowed me to conduct research all over Zambia.²¹ The permit looks like a red passport and thus carried some sort of authority, legitimized my mission, and also minimized the scepticism with which I was initially received. Henceforth, I could also more easily approach officers at the district or provincial forestry offices, as well as the headquarters. While this might seem to be naïve or biased as the officers have a clear political mandate – which is to stop, and not necessarily to understand, deforestation – it was my unwritten obligation to report to the forestry officer of the district where I intended to carry out my research. Besides, the Forestry Department implicitly carries authority and is often referred to as either a resource for expert knowledge, or a partner for implementing projects. I was optimistic that they would enable me to get in touch with ‘affected’ communities, from where I could continue through snowballing. Getting to meet the officers in charge, however, was quite difficult at both the district and the provincial level, as the premises were more often than not unoccupied. As most employees could only be reached via mobile phone, it took much more time than envisaged to get hold of a person in the position to assist and officially allow me to carry out my fieldwork. Over a period of about three months, I eventually managed to interview several forestry inspectors at police roadblocks, as well as officers working in the headquarters in Lusaka, 4 provincial and 15 district offices.²² They were usually well qualified, with a higher education degree in forestry. However, they could barely apply their qualifications for a number of reasons that will be outlined on the following pages.

²⁰ Visiting a Chief or a Chieftainess is a very formal occasion during which one needs to strictly observe protocol if one wants to be received, following a certain way of kneeling down, clapping hands, and addressing His or Her Royal Highness. Whenever I entered the premises of a Palace, I was welcomed by the guards, expected to hand over a gift or cash as a sign of appreciation, and then told the proper way of approaching the Chief or Chieftainess.

²¹ Since I was part of the Southern African Science Service Centre for Climate Change and Adaptive Land Management (SASSCAL), a large research project that was linked with Zambia’s Ministry of Education, it was relatively unproblematic to obtain this permit. However, the entire process took almost 3 months as the Immigration Department had accidentally issued a permit for 2013. The application had to be started over again, which entailed waiting for several signatures of senior officers.

²² Besides the headquarters, I interviewed officers from the provincial offices of Eastern, Northern, Muchinga and Central Province, and from the following districts: Sesheke (Western Province), Chongwe and Rufunsa (Lusaka Province), Mkushi and Serenje (Central Province), Mambwe, Lundazi and Nyimba (Eastern Province), Mpika, Chinsali and Nakonde (Muchinga Province), Mbala and Mpulungu (Northern Province), Mansa and Kaputa (Luapula Province). The three remaining provinces (Southern, North-Western, and Copperbelt) were also visited, yet no officers were available.

A toothless tiger chasing 'rampant' deforestation

More often than not, forestry officers are recruited by the headquarters and then assigned a post wherever staff are needed. As a consequence of this practice, they often did not speak the local language but communicate with one of the widely spoken *linguae francae* such as Bemba, Nyanja, Tonga or Lozi. On top of that, all of the officers visited acknowledged that they did not receive *any* funding from the central government, apart from their monthly salaries (cf. Leach & Scoones 2015: 30). Between 2000 and 2010, the government did not report any public expenditure for forestry (FAO 2015: 234), and for the following years, the actual allocation is unclear, incomplete or contradictory.²³ According to the annual budget for the year 2015 (GRZ 2014a), the Forestry Department was authorized to receive about 11 million USD, but this total figure literally does not add up. The highest spending is on recurrent charges at the headquarters, salaries, and forestry projects such as REDD+ or ILUA, the integrated land use assessments.²⁴ Importantly, there are only very few district offices carrying out showcase projects, like the one in Nyimba mentioned above (see p. 13; cf. EC 2014). Money for 'transport logistics', 'maintenance of motor vehicles' and 'motor vehicle insurances' has been nil for the entire Department (GRZ 2014a: 951). As a result of the stressed financial situation, most district offices did not have any office equipment or stationery, had no means of transport, and only intermittent electricity (cf. EC 2014: 7, 22). In cases where they were provided with motorbikes, they were in need of repair, or short of fuel. Consequently, officers managed to carry out field visits and patrols in only a few districts, either through forest operators themselves (EC 2014: 34), at their own expense, or through begging others for a lift in order to 'at least to do something', as one officer put it.²⁵ While annual reports of the department record several types of law enforcement activities (EC 2014: 34), surprise inspections are almost non-existent. In fact, most officers I met across the country had not left their offices in town and thus not explored 'their own' catchment area for more than a year. Besides financial challenges and transport constraints, the size of the districts is another problem. Less than a handful of permanently employed officers and interns are usually responsible for monitoring entire districts – again, without the access to means of transport, petrol, maps, or airtime for mobile phones. On top of this, for the purpose of decentralization and governability, the central government has created several new districts. The research district Serenje, for example, was split into two districts.

²³ There are no coherent statistics available at the Central Statistical Office (CSO) or the FAO, as the Forestry Department does not submit any data. Figures in the Department's annual report do not add up, are incomplete or contradictory, or in conflict with what local officers present during interviews. Whereas district offices also generate revenue, the amount could not be traced as the headquarters does not collate data produced by single offices (EC 2014: 7, 22 f., 35, 50).

²⁴ Forestry projects also received major grants from the Finnish government, FAO and USAID. During recent years, those projects were furthermore supported by the World Bank, the EU, UNDP, DFID, and a number of countries such as Norway, Denmark, Japan, and Germany (EC 2014: 22, 31 f., 37).

²⁵ Forestry officer during a field visit to Katibunga (Mpika District, Muchinga Province) on September 28, 2014.

By late 2015, the new district of Chitambo had been gazetted but there were no government offices yet. The forestry officers responsible for this new district were thus stationed in the town of Serenje, about 40 km away from their catchment area. As a result of this situation across the country, there is hardly any interaction between the officers and the rural populations for years, apart from a few short, irregular visits. On top of all this, support by traditional authorities within the villages has reduced over the years (Makano 2008: vii), which does not give the officers a good starting position. Similarly, only a few villagers manage to come to the offices to apply for licences.²⁶ As they are required to travel to the district's capital, which in my research district is up to 80 km and at least a day's wages away, only a minority finds its way there. Since the rural population of Zambia aged 20-50 today was born 'into the local governance vacuum' which is characterized by an incapacitated local government (Mickels-Kokwe & Kokwe 2015: 131), circumventing laws related to forestry is, in most cases, possible without any trouble, so that the majority opts for an informal or illegal way of extracting, producing, or conveying forest products. Since the removal of the Forest Guards in the late 1990s, the Department's previous apparent lack of impact was exacerbated to the extent that it became a toothless tiger. Moreover, the Department has been characterized, according to Makano, by the practice of cronyism, clientelism, and 'managerial incompetence, manifested in lack of visionary leadership' (2008: vii), with managers being poorly connected to the larger political system. Several years after this finding, forest governance continues to be weak, with a lack of continuing grounded engagement, a department that does not have the will or capacity to adapt (Mickels-Kokwe & Kokwe 2015: 140) and 'an absence of forest management planning at all levels' (EC 2014: 8). While some have pointed out that the Department's paralysis has led to forest degradation and loss (Gumbo et al. 2013: 42; cf. Mwitwa et al. 2013: 7), I would argue, more precisely, that it has at least not prevented it. While the officers could not execute their actual mission, keeping their jobs still makes sense from the ruling party's point of view – the more civil servants employed, the higher the potential to create loyal advocates, and thus eventually be re-elected.²⁷

In the end, apart from a few officers attending high-profile meetings across the world, the majority remains in provincial and district offices far away from sites of rural forest loss. The officers' lifeworlds are thus largely detached from those of most rural dwellers, who, in consequence, regard the officers 'as lazy and out of touch, never leaving their offices and unaware of what is happening on the ground' (von Hellermann 2013: 131; cf. Karlsson 2011: 98; cf. EC 2014: 7, 24; cf. Mickels-Kokwe & Kokwe 2015: 140). This detachment and physical

²⁶ Timber and charcoal which is produced for sale or barter, but also other forest products such as sand or certain soil types, with the exception of fruits and mushrooms, need a production licence – no matter whether the trees came from customary or state land. On top, a 'conveyance licence' is needed if such products are ferried (GRZ 2015: 116).

²⁷ Especially primary school teachers from my research community have alluded to the idea of a government trying to employ as many civil servants as possible, especially police officers and teachers, for the sake of power.

absence has, of course, crucial implications for the knowledge produced on deforestation and those thought to be responsible for it. Nevertheless, senior officials are not aware of, or do not acknowledge this crisis which in turn accounts for a lack of political will to reform the sector (Makano 2008: vii). In spite of limited access to the field and interaction with rural settlers, the officers' profound knowledge about local drivers of deforestation seemed to be well established: first and foremost, charcoal producers, usually portrayed as uneducated, poor people indiscriminately cutting down trees, were held responsible for the ongoing depletion. The common explanation for their 'reckless behaviour' was poverty, and simply that 'those charcoal burners just like doing illegal things'²⁸. Mostly, the officers' language about villagers in general was marked by judgmental expressions, with a patronizing or condescending attitude. Suspicion and mistrust characterised the relationship, with the officers' viewing 'the culprits' as having no desire or ability to change (cf. Mutamba 2004: 110-112). Many officers, and also the interns, who were eagerly hoping for a permanent post, demanded a *per diem* – an allowance for the service of introducing me to a community or the traditional leadership. While I never paid anyone in cash, I always paid for a vehicle, fuel, meals, drinks, and often talk time, with one exception when the officer paid. As a matter of fact, the officers and interns were pleased when I enabled them to visit 'their fields' – the imagined sites of destruction.

At one instance in Mambwe District, I met a young field officer who had recently graduated from the renowned Zambia Forestry College (ZFC) nearby Kitwe.²⁹ After having described my intentions – to receive an impression about the present manifestations and thus agents or drivers of deforestation in his area – he told me about how bad it was and that I have to see it with my own eyes. The office's motorbike was broken and covered by the dust of many months, but the officer quickly organised another one, I fuelled it, got on the back seat, and off we went. On our way into the woodlands, he seized the opportunity to visit his friends and run some errands. Along the way, we found people carrying firewood on their heads, on which the officer commented with an excited voice: 'You see them?'³⁰. After further 12 km through the woodlands, he noticed tyre marks in the sandy soil, which he followed avidly. To me, it felt like a hunt and the officer seemed to be very ambitious to find someone. After slaloming around trees for further kilometres, we eventually found three teenage boys. They were dropped by a small truck earlier that morning and left behind to produce charcoal. Amidst a forested landscape, we eventually found three fallen trees. The officer seemed to be proud, confiscated all axes and hoes, verbally threatened the visibly

²⁸ Forestry officer during an interview in Serenje Boma on April 20, 2015.

²⁹ The ZFC was set up before independence as a higher education institute to provide technical training in natural resources management, and to 'produce' forest guards. The college, its housing sites and other university departments are located just within the Mwekera National Forest, which itself lies amidst the Copperbelt's ever expanding settlements. Due to encroachment, the Forest has declined from more than 17,000 ha in 1957 to 10,000 ha in 2005, and close to nil in 2011 (see ZEMA et al. 2013: 67). Today, the college is part of Copperbelt University, offering several certificate and diploma courses.

³⁰ Forestry officer during a field visit in Mambwe District (Eastern Province) on September 16, 2014.

visibly scared boys, and took close-up pictures of them. Driving back to the office, we got lost several times and found our way only through GPS navigation. The entire trip, well meant by the officer, backfired dramatically: I had enabled him to lecture the alleged culprits and thereby obstructed any possible future cooperation with community members, who were surely told about this incident. I remained disillusioned to say the least and became much more cautious about using forestry officers in order to get in touch with local communities.

To cut a long story short, during the following field visits in other regions, I was always ‘disappointed’ as we hardly encountered the ‘rampant deforestation’ I had been directed to. My overall impression of limited deforestation was also strengthened by the fact that Zambia is one of the most forested countries in the world.³¹ In hindsight, I assume that the officers were highly sensitive with regard to probable environmental destruction, and partly seemed to legitimize their position and mission through presenting their catchment areas as affected. On the one hand, claims of urgency admittedly raise one’s personal but also the institutional – the department’s – relevance for solving the problem (cf. Ribot 1999: 297; cf. Scoville-Simonds 2009: 33). Since the Ministry of Environment has been ‘flushed with money’ to oversee Zambia’s REDD+ initiative, there is a great interest in maintaining this status, which ‘comes with external interest and technical authority, with new vehicles, refurbished offices and per diems being paid out at endless meetings’ (Leach & Scoones 2015: 30). However, on the other hand, most officers I met did seem to *genuinely* feel affected and acted to the best of their knowledge. Since they do not live in a discursive vacuum, they were – just as myself – heavily influenced by the discourse that prevailed in the country (see Chapter 10). In that regard, especially in a rural setting, bunches of firewood, logs of timber, or charcoal kilns are tangible, physical objects – very different from cleared agricultural fields, residential plots, or open-pit mines, that would only later come into my focus.

Another related challenge during exploratory research was that the concept of academic research was usually conflated with environmental protection. Even though I made efforts to communicate that my research was aimed at understanding, not at changing deforestation in the first place, a certain kind of activism aimed at sensitizing the rural masses (cf. Munro 2009: 109) was desired and moreover expected. Local government representatives often did not share my impartial approach to research, and when I failed to take up a clear stance ‘against the culprits’, interest in introducing me to local communities decreased. Remarkably, what the officers told me was in harmony with what I had read and had been told during the previous months. However, the realities I encountered locally were

³¹ During the rainy season in particular, forests and even the dry savannahs are lush and seem to be in abundance. During the late dry season, the rich green of the landscape gets replaced by yellow and brown shades of colour, and many forests are bare. Yet the existence of seemingly endless forests along the roads or seen from higher viewpoints still impressed me.

not in harmony with this picture. More often than not, ‘expert knowledge’ on environmental change is inaccurate and exaggerated, and based on anecdotes and unquestioned assumptions, but not on everyday experiences or interactions with those said to be responsible for deforestation (Leach & Mearns 1996; Kull 2000: 428). Similarly in Zambia, the practice of ‘armchair forestry’ has prevented the officers from properly understanding the issue of deforestation. As I began by following the dominant discourse, I also seemed to be just scratching the surface. In order to better grasp, I opted for other auspicious access points: civil society organizations, in the field of environmental protection, climate change or land governance were another option. While there are only a very limited number of environmental organizations in Zambia, including NGOs or think tanks, most, if not all of them, are based in urban areas, and their rural presence is, similar to the Forestry Department, uneven and rare, and they usually have a weak voice (EC 2014: 31).³² One of the NGOs, ‘the Green Living Movement’ (GLM), is physically present in different parts of Zambia, trying to promote sustainable agriculture and agroforestry. After an extended meeting with the NGO’s founder, he directed me towards Chibobo – a rural community in Serenje District, where different present-day practices are allegedly causing deforestation.³³ Recent landscape change was then confirmed by remote sensing data, so this community seemed to be interesting. Thanks to the NGO’s involvement in the community since 2001, access was relatively simple: when I first arrived there on October 20, 2014, I was not treated with mistrust, but welcomed in a curious manner. Vincent Musonda, the local representative of the NGO, who would later become my host and closest interlocutor and thus features prominently in this work, gave me an extended tour through the community and introduced me to the highest traditional leader, who himself received me openly. I could imagine spending a year of my life here, and the responsible district forestry officers, who already knew me from previous visits, were looking forward to working with me and gave me their blessing. Less than three months later, in January 2015, I would come back to begin ten months of continuous fieldwork. Before dwelling on the main chapters, I will introduce and reflect upon the different methods applied during that time, as well as my own position in the field, which will help the reader to retrace how I derived my data, in which contexts knowledge was constructed, and what my conclusions are based on.

³² In late August 2014, I met in Lusaka with several representatives from CSOs such as the ‘Africa Forest Forum’, the ‘CBNRM Forum’, as well as ‘Conservation Lower Zambezi’. Branches of the large international NGOs such as WWF, WCS or AWF are also present in Zambia, yet none of their activities is on forests (EC 2014: 31). Appointments with the ‘Wildlife Environmental Conservation Society’ as well as the ‘Zambia Climate Change Network’ did take place despite efforts.

³³ Meeting in Lusaka’s Levy Mall on August 26, 2014.

3. Research methods

Methodology chapters often read like a sequence of success stories that lay out in objective language how information was simply collected, without unexpected interference on either side of the voice recorder. Equally, insights gained *by accident* often remain unacknowledged. Such ‘clinical reports’ convey the idea of a highly professional researcher who has, at least in the majority of situations, everything under control. However, unanticipated events such as death, illness, torrential rainfall, or simply a bad mood will interfere at one point or another with methods thought to be feasible and yielding the best results possible. This holds particularly true in contexts that are shaped by human beings, their complex lives and daily interactions. I have therefore decided not to put on a ‘mask of competence’ (Okely 2009: 3), but to reflect on some challenges I encountered during fieldwork. In that regard, I decided to use the more personal ‘I’ throughout this thesis, instead of writing from the perspective of an allegedly objective, ahistorical ‘author’. This will enable the reader to better picture me in the field, but also speaks to the fact that the acquisition of knowledge is always situated within social relations and a certain historical moment, which somehow gets veiled by writing of ‘the author’.

Entering the field

In January 2015, I finally travelled through Central Province, slowly approaching Chibobo – a rural community amidst the *Miombo* woodlands. As during my first visit less than three months earlier, I was received by Vincent Musonda, the representative of the NGO. I had not been the first *Mzungu*³⁴ here, but when pointing out that I was here to stay for a long period, I was not believed as none of the Whites had stayed for more than three months.³⁵ I was offered a two-room guesthouse for a small rent by the NGO, which I accepted as it would allow me to ensure security and privacy, and to stay close to the centre of the community. Apart from being visited by a full-grown spitting cobra one night, I had a tranquil time in this house. Most mornings, I was woken up by the sound of my neighbour’s broom sweeping the yards, by the sound of him slashing the grass, or by cheerful children picking guavas from a tree just next to my house. During the first weeks, when my presence was still strange or foreign to many children passing by, they would stand in front of my house staring at me for minutes, being afraid, amused and naughty at times. While the house was my oasis for

³⁴ *Mzungu* generally refers to a person who is caucasian White and associated with alleged British characteristics. The term is also used to describe a Black person behaving like that, or, at times in a joking manner, to describe someone who has a lighter skin colour.

³⁵ Every year, Chibobo is visited by a predominantly White delegation from an Australian NGO that is the major supporter of the community’s orphanage, clinic and primary school. Besides, there are a few Peace Corps and volunteers hosted by the Green Living Movement (GLM), though only irregularly.

contemplation and calmness, I was hosted by Vincent's household of seven people, which I reflect on further below.

After a few weeks, I got a good idea of the settlement structure, its political set-up, and the daily routines of a rural community amidst the rainy season which was in full swing. I committed several hours a day to acquaint myself actively with the Lala language, and since Vincent wanted to learn Swahili, we operated in tandem. Apart from that engagement, my knowledge of Swahili was very helpful with regard to my initial standing: whenever I was introduced to someone, my Swahili skills were emphasised by Vincent, and later many others, in order to clarify that I am 'not a *real Muzungu*', and that Africa, generally referring to an imagined pan-African culture, is very close to my heart. Whenever I 'chanced' vehicles along the Great North Road, mostly empty fuel tankers from Lubumbashi or the Copperbelt on their way back to Dar es Salaam, speaking Swahili was equally helpful. The fact that I had been living, working, studying and extensively travelling in Eastern Africa and Zambia had also increased my credibility. Besides, my previous experiences in rural Africa made it relatively easy for me to adapt: neither the cuisine, nor the lack of running water or electricity was a challenge to me. Nevertheless, Vincent provided invaluable guidance to me throughout the entire research process. He soon became what is often referred to as 'research assistant', but he also played an important role as translator, interpreter, advisor, facilitator and discussant. I gained indispensable insights through this collaboration and intimate interaction, which is usually kept quiet about (Caplan 2015: 22; cf. Schumaker 2011), arguably to ensure adherence to the idea of the author's objectivity and sovereignty. In order to shift the emphasis from a technocratic to a more active role, I prefer the term 'research companion' (Schweitzer 2015: 73). It also acknowledges the fact that my research is the outcome of a collaboration, as will become clear in this chapter. Vincent was most suitable for this position due to his 'exposure', as he called it himself: he attended school for 12 years and studied hard. This, including his excellent command of the English language, enabled him to be elected as the chair of the community's agricultural camp committee,³⁶ or to secure a volunteering position as representative of the NGO. This in turn opened the opportunity to study agricultural courses, and to travel to Tanzania and South Africa to attend workshops on agriculture on behalf of the NGO. He had hosted and closely interacted with people from Finland, Australia and the United States, and was thus open to different world-views, new ideas, and curious to also find out about my life back home. His interest and cultural understanding of other life-worlds allowed him to quickly translate my background into locally valid concepts and vice versa, including complex cultural issues such as kinship. Furthermore, he was indispensable with regard to interpreting, and his *cultural* translations opened doors and helped me to avoid missteps regarding the phrasing

³⁶ 'Agricultural camps' are geographic entities at community level that are represented by a committee. Its chair is the contact point for the Ministry of Agriculture's local extension officer.

of questions and their appropriateness, approaching sensitive topics, or offering *suitable* gifts.

In addition to Vincent, the *Chilolo* and the *Sulutani*, the most powerful local traditional leaders, became important brokers. They both grew up in this community and thus had a sense for its natural environment, its residents, as well as salient inequalities and power relations that come along with it. They could direct me towards certain households and places possibly relevant to my interest, and point out the best time for carrying out an interview with certain people. Being associated with those prominent figures and having received their blessing has increased my standing and facilitated access to households. By that time, I had already finished preliminary research and was not new to the thematic field anymore – I had conducted dozens of interviews, visited many sites of deforestation, and experienced a steep learning curve as the previous chapter has demonstrated. Living within a single community now, I could immerse myself deeper, and design and carry out research methods in a more structured way.

Becoming part of the field

In contrast to other social science disciplines, anthropologists rely heavily on one core method, which is participant observation. Instead of mainly asking questions through interviews and surveys, anthropologists try to gain an emic understanding of the research topic through immersing themselves into everyday life, participating in daily activities, and observing material goods, social relationships, and individual behaviour. Importantly, many practices are reproduced in daily habits or routines, have thus become embodied, tacit knowledge, which is hardly reflected upon and cannot be remembered or explained well outside of its context (cf. Carolan 2008; cf. Kara 2015: 92). Therefore, it is impossible to learn about certain practices, or human-environment relations in general, not to mention understand them, through a pure intellectual effort (cf. Schweitzer 2015: 65). For charcoal producers, for example, it was very difficult to describe the steps of making a kiln without *doing* it, just as many other activities leading to forest loss or degradation could be observed and discussed much better in moments when embodied knowledge was put into practice. Thus, participant observation, which includes a bodily participation, has been a central tool during my fieldwork. In order to stimulate as much information as possible, I often combined participant observation with interviewing, and depending on the context, either participation, observation, or asking questions dominated.³⁷ While the method of participant observation does not have a clear start or end, it was adopted by me throughout

³⁷ During a field research laboratory in July 2016, Otto Habeck pointed out that mere observation is often portrayed as ‘participant observation’. For the sake of accuracy, it is important to mention the different methods, even though the boundaries between them are often fluid.

my stay. Within the first days of my stay, when rainfall was still heavy, I brought down two trees with a diameter of less than 10 cm – my first hands-on experience with regard to deforestation, during which I realized why it is called *hardwood* timber. Cutting down trees is a manual act here, without anyone in the community using a chain saw. Through participating in this strenuous activity, I could not only engage in casual conversations, but also gained credibility – it was like proving that I had not come to protect the woodlands or to teach something, but I had essentially come to imitate and thereby learn. In the same regard, producing, but also buying or carrying charcoal on my motorbike increased my credibility. Another closely related method I frequently applied were transect walks, which also allowed me to elicit reflections about the landscape, and about how it has changed over time.

As a result of these usually one-to-one interactions in the natural environment, the relationship between me – the ‘apprentice’ – and ‘the guide’ took shape, and research went by more casually as they themselves determined both speed and direction, both with regard to my research but also literally. Especially in the beginning, in order not to overlook seemingly unrelated yet connected issues, my observation remained open and exploratory, what Okely (2015) called the ‘funnel method’: besides observing or participating in activities obviously linked to deforestation, I also spent time at the many ‘beer places’, at people’s fireplaces, and I attended events such as religious ceremonies, funerals and burials. Even when visiting places or talking about something seemingly unrelated to my research topic, new thoughts were triggered, and our relationship was fostered. Milombwe, the second research village, for example, only came into play by accident: when one of my interviewees sent me to her father to taste a local delicacy, I suddenly found myself within a seemingly new village, in the middle of the officially uninhabited National Forest (see Chapter 9).

As a matter of course, plenty of participant observation was carried out within my host family, which was living a few hundred metres away from me:³⁸ I participated in their everyday life, consumed most of my meals there, and napped on their sofa. I spent many mornings and evenings with them at the fireplace, or in front of the TV watching the evening news. While I was paying Vincent a salary, I got more and more included into his household, to which I also contributed through labour, as expected by any adult member: I assisted the family in weeding what became *our* maize fields, and in applying fertilizer on each and every plant by hand – bending down, straightening up, bending down, straightening up thousand of times. ‘Do not apply too little, do not be wasteful’, I was told. After several forenoons on the fields, my hands had open sores as they were not used to the chemicals. Later on, I also gave the household a hand with processing the harvest, in clearing trees for agricultural expansion, or in collecting and selling goods in a grocery. Moreover, I assisted the

³⁸ The household consists of Vincent aged 36, his wife aged 33, their two children aged 3 and 1, two nephews (sons of Vincent’s sister) and one sister-in-law (sister to Boyd’s wife) in their late teenage years.

household's teenagers with application writing and school homework. Most cooperation, however, was between Vincent and me: for the purpose of being independent and mobile, we purchased a second-hand motorbike as a shared investment. As a consequence of that, we both considered the motorbike to be *ours* from the very first day, so it was not only used for carrying out research, but also for transporting goods, or picking up visiting relatives from the tarmac. We also used the motorbike for several trips to the nearby town, to the lowlands of the district, or to other communities he wanted to introduce me to. Riding off-road was already demanding, but manoeuvring the motorbike through a *forested* terrain posed an even greater challenge and dangers throughout fieldwork. About every two weeks, Vincent, me, and at least a dozen other people went on a packed, open platform of a Canter³⁹ to the nearest town in order to buy spare parts for the motorbike, to re-fill my jerrycans with petrol, or to buy stocks for Vincent's grocery. We were also travelling by other means of transport with colleagues from the NGO or my visitors, we shared a tent at times, and we enjoyed several adventurous trips together. Sharing much of our working and leisure time has, as with the motorbike, contributed a lot to social bonding and the friendship we developed.

In order to uncover the large web of entangled issues 'on which the poisonous spider of [...] forest destruction crouches' (Vandermeer & Perfecto 2005: 13), fieldwork was not only conducted where trees are cut down, but I also 'followed goods and people' wherever they went to: to maize depots, open-pit mines, forestry offices, carpenters, charcoal markets, tobacco storehouses, or agricultural trade shows. In this regard, Lusaka, being about 400 km away, was the most distant place of inquiry. Through following people, I could closely examine the different, often unexpected *external* factors playing out locally (Munro 2009: 104, 115), such as the urban consumption of energy, market demands for charcoal, load shedding, dietary preferences, or impunity regarding forestry laws. Travelling in particular has also helped me to better understand the concept of deforestation: wherever I saw vast commercial agricultural farms and thought about deforestation, my companions saw 'development' and got passionate about irrigation systems or tractors.⁴⁰ Since most time has been spent within the research community, however, the research was not precisely multi-sited, yet spatially beyond what is usually captured by participant observation (Marcus 1995; Hannerz 2003). Through such trips and dozens of informal interviews that evolved along the way, I found answers to some questions I had not yet asked, and other questions arose.

With the time passing by within the village, I was increasingly included into the wider family network, and seen and treated respectively as a cousin or uncle by my social relatives.

³⁹ While a Canter is actually a mark of Mitsubishi, the word is used as a proper noun for any small cargo truck. Similarly, Honda means any motorbike, in the face of the make.

⁴⁰ The entanglement of deforestation and development will be discussed in detail in Chapter 10.

The boundary between the two identities ‘neutral researcher’ and ‘integrated resident’ became more and more blurred, yet in order not to ‘go native’, my host and research companion remained the only person to whom I have been entirely open. In many other situations, I often did not speak out, for example with regard to politics, though I never lied to anyone. In order to avoid importing my own concepts mixing them with emic concepts, I did not introduce *my* understanding of deforestation, for example. I was also never seen as an expert on the issue, but rather as an expert on the underlying practices I was investigating, especially farming, which is possibly due to the widespread perception of White people being knowledgeable.

After a few months in the field, the rains ceased and the dry season began. I henceforth concentrated on activities more directly related to deforestation: I followed my ‘interviewees’ like an apprentice and assisted them in clearing land, in piling and covering logs for charcoal kilns, in harvesting the charcoal, or in continuously firing a barn for curing tobacco leaves with fuelwood. Similar to an apprentice, I slowly and happily acquired new skills. Eventually, further time was dedicated to the maize harvest, which is the major event of the agricultural year: picking tonnes of maize cobs one-by-one, storing them in a granary near the household, threshing them with wooden and metal sticks, and burning the remains in the field. Through all this engagement – the practice of enmeshing myself in the daily routines but also unique events – I managed to show a genuine interest, to open up relationships, and ‘to gain rapport in a particular place and get some clue about what people are up to’ (Karlsson 2011: 9). Through participant observation, I managed to create an environment of trust and mutual understanding in which conversations tend to be more honest and open, and during which more reliable information can surface (Dewalt & Dewalt 2000: 273; Davies 2008: 81). Instead of ‘sucking out’ people as ‘informants’, a close participation in everyday life creates *collaborative* relationships. Much different from allegedly efficient question-answer-research, participant observation is less formal, can be carried out ‘along-the-way’, and overall diminishes differences and thus hierarchy. Walking far distances with locals, as well as using a bicycle and ‘only’ a motorbike instead of a car, has also reduced the existing differences and increased my ‘field credibility’ indeed. I became well known for drinking any type of fermented, often alcoholic drink, for eating caterpillars, and for trying moles, bush rats and termites. Even the most common thing – eating the national staple food *Nshima*⁴¹ – was appreciated and extremely important for establishing rapport. One of the first questions I have been asked in rural settings in Zambia, Kenya and Tanzania always was: ‘Do you eat Nshima?’ or ‘How do you find Ugali?’ – to which positive answers were always rewarded with a smile (cf. Clark 2014: 45). As it plays such a fundamental role, eating, and even more, *enjoying Nshima*, does change a visitor’s

⁴¹ *Nshima* consists of two ingredients only – white maize flour that is boiled in water, and strongly stirred until turning into a dough-like consistency.

status and facilitates immersion, arguably easier than any other consumption habit. Drinking alcohol with men and women at one of the many 'beer places' such as the 'Hard Men's Clinic', however, was also of crucial importance for gaining recognition, which cannot be overstated. Drunken men and women were omnipresent in the community, seven days a week and especially after church on Sundays. This also posed a challenge: several times, interview appointments had to be re-scheduled because either the interviewee or my research companion was drunk.

Importantly, for me, participation was much more than a pure learning process or a strategic act to create trust or respect. It was one way of giving something back, because the more time I spent in the field, the more I came to realise how privileged I am: listening to people's stories, opinions, problems and aspirations had something deeply humbling in it (cf. Karlsson 2011: 9). I tried to give back through being open and appreciative, through sharing my personal stories, contributing labour to daily activities, or giving a hand whenever needed. I also shared material goods, or gave people a lift on the motorbike, including the government's residing agricultural extension officer who did, similarly to the forestry officers, not have any means of transport despite her big catchment area. Another important though indirect part of participation was the way I introduced my Zambian colleagues, but also my 'life back home' into the community: I hosted colleagues from within Zambia in my house, but also friends from Germany, Poland, Mozambique and the United States. Their visits were not seen as a break in my research, but rather a continuation of my seriousness and willingness to immerse into a village, and to share this part of my life with my old friends. Equally the other way around, locals were happy to welcome and to get to know people 'from my other life'. Spending time with friends from, broadly speaking, my own culture, helped me to recover and also to reflect upon the previous weeks and to discuss and digest the many impressions. Only through them, I realized how much I had already immersed and learned. I had adopted a certain way of life – before having any idea what I was learning (cf. Tsing 2013: 30 f.). Furthermore, they recognized how interesting and also meaningful my work was, which obviously motivated me.

The information gathered during participant observation, but also any other method that will be presented below, was fixed as field note, as a real or mental photograph, a sketch in a small notebook, a voice-recording or a self-recording, with as much information as possible. Besides, I wrote an extensive field diary on a daily basis, in which I included the people I met, the places I visited, and the topics we discussed, later annotated with questions to ask and thoughts to develop. I also made use of photography for documentation purposes: during the entire fieldwork, I took about 10,000 photos and a few videos – of forest sceneries, roads, people, fields, fruits, grinding stones, money, advertisements, grocery fronts, and my closest interlocutors in different situations. The photos would later help me to remember events, and also trigger more thoughts, even beyond the visible, such

as my feelings, the scent, or my ideas of that very moment. Walking around with a camera and taking photos of the – from a local point of view – most mundane objects, also demonstrated my curiosity and serious interest. While I had brought a reflex camera, I eventually only used a compact camera as the first looks intrusive and imposing, and suggests affluence and professionalism, which can be intimidating and would have only reinforced the existing hierarchy between us, *White* researchers,⁴² and them, the researched. One persistent challenge with regard to storing but also processing data was the lack of electricity. Vincent allowed me to charge my laptop, camera and mobile phone using their solar panel and car battery. However, extended relatives and friends of the household regularly plugged in their smartphones for listening to music, which quickly flattened the battery. Vincent had regular arguments about it, as he wanted to be supportive to my research, but also watch TV himself. I also had a solar panel and an external power bar myself, yet during the rainy season, when the sky was clouded throughout, my notebook needed to be charged for about eight hours, only to be used for less than half that time. About once every three weeks, I spent a few hours in a tourist lodge in the town of Serenje, in order to use their electricity as well as relatively reliable internet – for entering and sorting some of my data, for making printouts in preparation for meetings and interviews, or for making calls home. In the course of my fieldwork, however, Serenje got increasingly cut off of the national power grid due to load shedding (see Chapter 6.5), so I eventually abandoned going to town, which tremendously slowed down the process of entering, analysing and writing up, most of which had to be completed back at university in Germany.

On the previous pages, I have reflected on how I increasingly became part of the rural community, not only but also through the method of participant observation. A method that is located almost at the other side of the spectrum with regard to formality and reciprocity, is a census. It follows a structured questionnaire, cannot be carried out along the way, and feels exploitative at times as it offers very limited spaces for ‘giving back’.

Gathering data by census

Information about the Lala Plateau in general and the Lala People in particular is relatively thin as there are almost no scientific studies, travel reports or historical records (see Chapter 4). Statistics are mostly available for the province, sometimes the district, and do not capture the household level or offer insights into precise rural livelihoods. Against that background and in order to get an overview of the demographic and socio-economic background of the community, I modelled a complex questionnaire with different categories

⁴² As I am White, I have been perceived as, for example, wealthy and knowledgeable, which possibly impacted on interviewees’ or participants’ self-presentation in some situations. As the topics discussed were not directly if at all related to race, I expect response biases due to me being White to be rather negligible.

of inquiry (see Pauli 2008).⁴³ After several pilot interviews I ran with my host family, I customized the questionnaire to suit local realities and dropped ambiguous questions or answer options. I eventually carried out a census in each of the two research villages, Kansenga and Milombwe, with 64 and 18 households respectively being involved. The census interviews were conducted in the outdoors, usually in front of the main house. As a sign of respect, visitors are always provided something to sit on when approaching a house – usually before the first words are spoken. Conducting an interview indoors would have been less comfortable due to a lack of light, but also space, as the majority of houses consist of a storage and a sleeping room with a small window only. Interviews were conducted with the household head or spouse, and if they were absent, I later returned to this household as often as necessary. Only when the head or spouse were unavailable, for example due to temporary labour migration or prolonged hospitalization, the census interview was conducted with the most knowledgeable person, usually the oldest resident, unless participation was rejected. Altogether, 3 households out of 84 in total rejected participation. While two did not provide any explanation, the other one expressed doubt about the benefit to themselves. While the community had not received much attention from researchers, other students, volunteers, NGO workers or government officers had been asking similar questions over the years, without any obvious exchange between the different interviewers, and no change experienced locally. Therefore, several households were disillusioned and reluctant to participate in ‘just another study’. However, after all the interviews were finished, the latter also asked to be visited by us and they were eventually included.

The first interviews for the census were conducted in English with interpreting in both directions, and answers provided were directly recorded in writing. This took relatively long, but once I better understood the setting and mastered the most common answers in the local language, the interviews were conducted by Vincent in Lala, with me taking notes. Thereafter, the interviews ran smoothly and took about half the time – between 35 minutes and little more than 2 hours, depending on the size of the household, its economic activities, and individual issues that arose. Several interviews were delayed when informants got distracted by their children or drunk neighbours, and many were interrupted by strong rains, or had to be postponed when the sun had set in the meantime – while torches or candles were often available, they would have only attracted mosquitoes.

While data on the individual members of the household was quickly gathered, the sections on income, farm produce, material assets, and expenditure were more difficult as

⁴³ Information was gathered about the history and location of the household, and the demographics of its members. Following sections dealt with questions of land ownership, household assets, living conditions, livelihood strategies, future aspirations, as well as consumption and expenditure patterns. In the later sections, I asked about access to and consumption of natural resources, environmental change, and the concept of ‘a good life’. For Milombwe, questions on the Farm ownership were adapted. In the course of conducting the census interviews, the questionnaire was refined with new answer options or follow-up questions. For a copy of the latest questionnaire, Appendix C.

many households do not keep track of such information. Since all interviews were conducted in the outdoors, some assets could not be captured. While I have interrogated the most common material assets, I did not survey whether or not a household possessed a mattress, as this would have caused discomfort according to my research companion. In general, however, previous (participant) observation helped a lot in appraising whether the information provided was complete or not. Moreover, since my research companion knew all the households very well, we were in a position of questioning and cross-checking the information provided. Importantly, irregular economic activities such as the production of charcoal, the extraction of timber, or the collection of honey were only mentioned if prompted directly – they were not concealed, but rather considered to be irrelevant as they are not seen as ‘real business’. Another major challenge resulted from the absence of a land register. While Vincent and most interviewees had a good spatial understanding of 1 ha, respectively 4 lima, it was very difficult to elicit the *precise* size of the entire Farm, the existing farmland, or freshly cleared land. I often cross-checked the land sizes with the weight of maize harvested,⁴⁴ or, if figures were dissonant, calculated through GPS, which, however, should be treated as an estimation as boundaries are often unclear in the middle of forested land.

Conducting the interviews was a very tiresome process and often concluded by my research companion with the sober comment ‘I told you so’. As a final question, I always asked: ‘Do you have any questions, or is there anything you would like to add, or tell us?’. Most often, I was asked in one way or another to what end I collect all this information and how *they* will benefit from my research (cf. Mutamba 2004: 106). I was asked to talk to the government or well-wishers, who could support the community with water pumps, second-hand clothes, or bicycles. Others hoped for direct personal support in the form of credit, donations, sweet drinks for the children, or ‘at least a shelf-tempered beer’ from the next grocery. I was often asked to advise people on farming practices, or on the right medicine to take for present pain. To all that, I responded honestly, pointing out that I do not have the relevant knowledge and that I am not in the position to do justice to such hopes. Having tried my best to make this clear and to explain why students living so far away are interested in other peoples’ lives, I asked whether members of the household would still be willing to further participate in my research. At that point, I think it was helpful that I was perceived as a student, who is not yet married, still without children, and still learning, in contrast to a fully-fledged researcher who would have been received differently (cf. Schweitzer 2015: 72). Those who agreed to continue to participate in my research, the vast majority, formed the basis for the sample of other methods.

⁴⁴ According to the local farmers’ experience, a harvest of 1,500-3,000 kg of dried, shelled maize requires land of about 1 ha that has been fertilized. Without the application of fertilizer, the cultivated area at least doubles.

The census had not only allowed me to introduce myself and my research to each and every household, but also to collect quantitative data. On top of that, the chit-chat before, during and after the interview revealed important qualitative information as well. The completion of the census thus enabled me to better understand the existing livelihoods and to better contextualise the data I had gathered and was to gather through other methods. The census interviews also enabled me to refer to specific livelihoods or people, thus showing some 'local proficiency' during everyday communication. During my last week in the community, the census was updated in both villages regarding the precise amount of forest *newly* cleared within the last months, and realistic intentions for the future.

All the methods following the census were not applied in chronological order, but in a circular manner instead, each building upon previous encounters and thus being more sophisticated. Besides participant observation and census interviews, a major way of eliciting information is the conduct of personal interviews, which were of crucial importance to me as well.

Conducting interviews

During the entire fieldwork, I have conducted more than a hundred interviews excluding the census interviews, of which some were a few minutes long and others took more than an hour. I would like to avoid the common division into expert and layperson, or into stakeholder interview and 'interview with a farmer' as such a classification can be misleading. First, while 'stakeholders' are often associated with NGOs, political parties, activists and so on, all people interviewed by me, no matter their affiliation or occupation, have a stake in the issues discussed. Second, the term 'expert' suggests knowledge and competency that, in reality, does not necessarily exist. While those in power – a politician, a forestry officer or a scientist, for example – are often dubbed 'expert', the term is imprecise. While they all might be qualified by education and have the authority to speak about a certain issue, they are not necessarily more experienced or knowledgeable. Especially scientists are equipped with authority as they present allegedly value-free, fact-based data or information, whereas villagers are believed to merely voice value-laden concerns and interests (cf. Callon et al. 2001, cit. in Scoville-Simonds 2009: 28). However, so-called 'experts' may *not* know better or more about a forest's history, its trees, actual extraction practices, or even rural life in general, as the previous chapter has demonstrated. Nevertheless, whereas rural populations have often been more doubtful regarding their own knowledge about their surroundings, rendering it irrelevant, office-based government employees presented themselves much more confidently. It was therefore difficult at times to identify true 'experts' for certain topics.

Overall, I conducted, by a narrow definition, 85 semi-structured interviews on all salient practices entailing deforestation and issues related to that.⁴⁵ Many more interviews were also semi-structured in a way, yet they were conducted *ad hoc* without prior preparation. The interviews were mostly conducted with a single informant only as this would allow them to speak freely. While most of the appointments were scheduled, a few were conducted spontaneously, for example when the interviewee could not be reached in advance. The interviews often took place in an official setting, for example on the premises of the District Council, within the forestry office, at the Chief's or Chieftainess' Palace, or in a tobacco company's office. In order to exclude external factors such as wind or noise that hampers audio recording, or passers-by who could interfere with the flow of the interview, most interviews were conducted indoors. However, if the interviewee allowed, the interview was audio-recorded. Since many central themes to this research – selling charcoal without a licence, cutting down a protected precious tree, bribing a police officer on your way to the market, and also land acquisition within protected areas – are characterised by illegal or informal activities, many informants, mainly those from outside my research community who did not (yet) know me well, preferred to speak off-the-record.⁴⁶ Consequently, in many instances, I had to quickly take notes or memorise the most important thoughts and succinct quotes, instead of later transcribing them. A number of semi-structured interviews took place in a less official setting: one interview was conducted, due to time constraints of the informant, just next to the furnace door of a tobacco barn he was feeding. Another one was conducted in the living room of a local traditional leader, and some have been conducted in front of the interviewees' houses, or in their *Insaka* – one of the most important spaces for social interaction.⁴⁷ In particular during such informal contexts, the boundary between casual conversation and the constructed space of the interview is blurred. Lower hierarchies, in turn, favour the openness of interviewees. Apart from one member of the community who was dealing with precious timber, interview participation was never refused. Also part of structured interviews, though slightly different, were the dozens of 'Q&A sessions' which I carried out with my research companion in order to clarify ambiguities or elaborate on topics that could not be exhaustively discussed.

Quite different from semi-structured interviews are narrative interviews. Without having a set of questions that need to be addressed, the course of the interview is very much

⁴⁵ 3 semi-structured interviews were conducted with scholars, 4 with business owners or employees, 5 with NGO representatives, 5 with government officers, 6 with traditional authorities, 4 with Serenje's forestry officers, and 19 with forestry officers from elsewhere (see p. 17, fn. 22). 39 further ones were conducted with 'mainstay farmers', out of which half were concerned with men and women who had illegally acquired land or already settled within the Serenje National Forest. Most of the interviews were held with men, which does not reflect a gender bias but rather represents who holds certain positions, and who owns land acquired recently.

⁴⁶ This clearly speaks in favour of long-term fieldwork.

⁴⁷ An *Insaka* is a circular, grass-thatched shelter for preparing and consuming food, playing, holding meetings or telling stories. Each household has at least one, and when the sun is too hot or the rains have set in, most conversations naturally take place here.

structured by the narrative flow of the interviewee. I have conducted, by a narrow definition, 27 narrative interviews, 18 in Kansenga and 9 in Milombwe, that largely focused on the person's biography or a certain phase of his or her life.⁴⁸ As I did not guide the interviews at all, they touched upon many different issues that were not at all, or only at second sight, related to my research topics. But the interviews allowed them to tell a story *they* wanted to share, about a painful childhood, experiences with witchcraft, or how they have become who they are today. Especially (the belief in) witchcraft was an eye-opener, as it plays a crucial role in the accumulation of goods, which in turns stimulates practices leading to deforestation (see Chapter 7). Obvious, but still important, only when trees bear fruits or snakes appear more frequently during the dry season, reflections on both subjects were more likely than during the wet season, when fruits and snakes are hardly a topic. As we touched on a number of very personal and intimate topics during the narrative interviews, they also lowered hierarchies and brought us closer together. The general openness I encountered was obviously favoured by already having lived within the village for many months. Interestingly, when interviewees could hold the voice recorder like a microphone, they were less influenced by its presence, yet whenever it lay on the ground or table, they looked sceptically at it again and again. Due to my limited language skills, many recorded interviews, which were often fast and complex, were later translated with the help of Vincent.

Apart from such scheduled interviews, both semi-structured and narrative, the unplanned casual conversations that unfold naturally when following people – along the roadside, at the petrol station, in a public bus, in front of the TV, at the fireplace, on the maize field, or while eating *Nshima* – were of crucial importance. Many illuminating moments arose from such informal, every-day conversations, which were not intended to be and thus not marked as an interview, but rather as 'just killing time'. However, similar to participant observation, it enabled me to 'become privy to insider, often unspoken knowledge' (Smith 2015: 97). 'Interviewees' were more relaxed and lengthy than during formal interviews. Using a voice recorder was, however, mostly avoided in order to maintain a natural and informal situation.

As months passed by, my sustained presence and also my participation in daily activities had increased my credibility and reputation, and people had realized that I was not going to leave soon, as many expected during the first months. By now, I had visited many households several times and met many key informants more than once. I thus got to know the community better, became part of a wider network, understood its geography, social and political structure better, and could confidently refer to many households,

⁴⁸ Two-thirds of the narrative interviews were conducted with men. This bias was due to men's increased willingness to participate in an open interview that is hardly guided, which put off some women who seemed to be less self-confident, but were also much more occupied with housework.

prominent places as well as people (cf. Dewalt & Dewalt 2000: 269). This knowledge and standing eventually allowed me to construct a stratified sample for focus group meetings.

Group meetings: discussions, participatory exercises, and mapping

Based on my initial impressions, data gathered and questions that arose from the census and the interviews, I designed a set of questions to discuss in group meetings. For the purpose of organizing them, I identified potential participants, one per Farm,⁴⁹ of which the first research village has 38 in total. During the selection process, I tried to be as inclusive as possible, that is, sensitive to categories and possibly influential factors such as age, gender, education, or the duration of residence. I also discussed with my research companion who would be a challenge to include due to hardness of hearing or alcohol addiction. In order to give justice to the diverse opinions and knowledge present, I intended to and eventually held the same meeting with six different groups across the community, which I had clustered into five major areas: North-East, Central, West, and South. This approach did not only allow me to organize meetings better, but also to keep each group to a limit of seven people. Moreover, it also allowed for shorter walking distances and lower time efforts, which increased the attendance rate. When designing those six smaller groups, my research companion's advice was again helpful as he knew which participants would intimidate others, who would never disagree in the presence of a certain person, or who simply does not like whom. In that way, we came up with diverse groups that were already heterogeneous in themselves. This relatively high number of similar meetings enabled me to identify consensus and contradictions, and to get to know the attendants and their livelihoods better, which in turn enabled me to identify further interview partners.

Before inviting the participants, I discussed the draft schedule with Vincent as he was experienced with organizing and chairing such sessions in the community and beyond. I could also benefit from his more subtle cultural knowledge: he suggested that we provide biscuits and soft drinks instead of warm food, and water to drink. While hot food would have tired many people and hence rendered a fruitful discussion more difficult, water would have been seen as less appreciative. Finally, I invited a number of selected people, but I still had a list of people I did not find at home, on their fields or at the beer place. As most are illiterate, I could not leave a note, and mobile phones were usually uncharged or broken. As the *Sulutani* – the village headman – would know the right households to ask and the right places to go, I provided him with a list of those invitees and asked him to invite them on my behalf. I was aware that most villagers would not refuse his invitation as he is a respected

⁴⁹ Each village accommodates several so-called Farms, which each consist of 1 to 10 households. For a definition and description of both, see Chapter 4.

elder and a traditional authority. For this reason, I emphatically pointed out to him that participation is entirely voluntary, no reasons need to be given for not wanting to participate, and they are free to send another person from their Farm. Apart from two refusals, many more people, including some from the neighbouring villages, were eager to participate as well.

Importantly, the final composition of a group is often different from what sophisticated researchers expect, even though samples are often portrayed as the exclusive result of the researcher's reflections. One invitee sent his sister, another one her son, another one did not show up at all, and several others came without being invited. Apart from one instance, when a potential contributor was too drunk to participate, I never refused participation. Eventually, a total of 38 participants attended 6 meetings,⁵⁰ out of whom 21 were female.

Most meetings were conducted in March and April – when the rainy season was in full swing, which complicated access to some parts of the community, as illustrated by the two photos below. The left one shows how my research companion, Vincent, is manoeuvring our motorbike across logs over a stream into a dense stretch of the Serenje National Forest. On the rack: biscuits, soft drinks and sugar cane for the participants.



Fig. 3 Heavy rains impeding access to group meetings

Each focus group meeting took place at one participant's household, under the open sky or in the main *Insaka* (right photo above), with all of us sitting on reed mats, stools or cardboard. After presenting and discussing the schedule for the meeting, we always started with a 'soft' entry: we asked participants to line up, without verbal communication, according to their age, their distance to the meeting place, the number of years they have

⁵⁰ Due to the larger number of households in the 'Central' and 'North-East' areas, the initial meeting in Kansenga, the first research area, was carried out twice.

spent in the community, or with regard to the number of siblings. This line-up-game created a group identity and dynamic, was interesting in itself, and also served to break the ice. Thereafter, we collaboratively re-traced the village history, and then discussed the transformation of agriculture, the advent of charcoal production, changing consumption patterns, and the exhaustion of available land. We also discussed the different concepts 'forest' and 'bush', the value of both, and how their appearance has transformed over time. In order to better understand some individual drivers behind forest loss, we created, in a participatory style, pile sorts with stones or beans on material and non-material aspirations. Ultimately, we created free lists of non-timber forest products and medicinal trees, based on which we later discussed their collection and use, which would help to uncover salient human-environment interactions that arguably impact on people's conduct over the forest.

Most of those topics were co-moderated by me and my research companion, and discussed in a panel, what usually took about five hours including breaks. I often relied on Vincent's interpreting, especially for complex narrative accounts. While I asked him to translate every detail, possibly crucial side comments were certainly lost in translation or entirely missed, which is a well-known, major weakness of researchers having limited language skills. Again, his presence was indispensable and helped more than it complicated the meeting. He could also dig deeper, in a charming way, if he doubted what we were told. As a matter of course, the most contested topics took more time than when all members strongly agreed with what someone else had said. When more private or sensitive issues arose, I did not force discussion but took notes and asked follow-up questions during later private visits, to clarify what remained unsaid or was omitted. Fortunately, partly as a result of the groupings and our previous experience,⁵¹ there was no atmosphere of silencing others or forced agreement at any time, and none of the participants felt uncomfortable. In contrast, there often *was* disagreement and I was astonished by how self-confidently and articulately participants, particularly women, contributed to the discussions. Even weeks after the meetings were held, I was frequently told by the participants how much they had learned and enjoyed themselves. Those who had participated, and also their relatives, repeatedly asked when we could have another such session. Similarly, the local leaders of neighbouring villages and communities asked when we would come to their people 'to talk about trees'. This topic in particular was mentioned as a major benefit, as the participants had a lot of fun and learned a lot from their neighbours when discussing sexual medicine – trees or plants used to increase sexual appetite or to raise the body temperature for a more pleasant sexual experience. In the end, the meetings helped me once more to establish

⁵¹ During my postgraduate studies at Sussex, 'participatory methods' were one of my major courses. I attended several workshops with Robert Chambers (1999) who became well known for advancing and critically reflecting upon such methods. Having participated in several group meetings that included participatory exercises myself, I was open and alert towards issues of power, and always intended to be truly inclusive. For my own critical reflection on the main difficulties and pitfalls involved in participatory methods, see Parduhn (2011). Vincent, as mentioned above, also had experience in chairing such meetings in and beyond the community.

rapport, but also to enhance a mutual understanding. Moments during which participants did not comprehend why *I* did not understand something so obvious to them were most fruitful from their point of view.

After the first round of meetings, I designed a second group meeting, during which I asked follow-up questions, verified my earlier understandings, and added further topics such as alternative livelihoods, forest management, or plans for the future. The meeting was eventually carried out 4 times, and had a total number of 30 participants, out of whom 18 were female. In Milombwe, the second, much less populated research site that is located within the Serenje National Forest, the similar two sets of meetings, though adapted, were held as well, with 37 participants in total, out of whom 17 were female.

In total, 81 different individuals had participated during all 14 meetings across the two research villages.⁵² While in Kansenga, female was slightly higher than male participation, it was the opposite in Milombwe, which reflects the different gender distribution but may also be the result of gendered land ownership – while most Farms in Kansenga are owned by women, it is the opposite in Milombwe, which possibly engenders a sense of entitlement to participation in meetings – or to send someone ‘more appropriate’ than the person I had invited. The age distribution within the groups remained diverse, with the youngest participant during all meetings being 18, and the oldest 72 years old. The ‘oldest’ settler in terms of residency had lived in Kansenga for 54 years already, followed by 4 residents who had lived there for 40 years. As Milombwe was only settled in 2010, only one resident had been there for five, with the others for less than three years.

One particular method I introduced during the last group meetings was mapping. Whenever I had asked people for distant directions, they often started drawing into the sand or using sticks and stones to explain the location of a certain household or a precious tree, using the bird’s-eye-view. Being certain that maps are a well-known concept, I wanted to make use of such maps in order to understand the settlement structure of the entire community better, its natural environment, distinctive landmarks, perceived borders, liked and disliked places, or unexpected features. When done in groups, drawing exercises can reinforce social hierarchies, evoke shyness, shame, or fear that one’s illiteracy might be exposed. Therefore, I made it a voluntary homework exercise, providing coloured pens and paper of different sizes. While I tried to not to give too many instructions, I soon realized that many were hesitant and asked for further guidance. I gave some examples but as most households were still hesitant, I only collected a few maps before departing, without the possibility of letting the participants elaborate their work. Therefore, I refrain entirely from

⁵² Before those meetings, I had conducted exploratory research in a third village, which is similar to Milombwe within the Serenje National Forest. Here, I also held a group meeting with questions on the village’s history, land-use practices and salient forest products, with 11 participants, out of whom 6 were female.

interpreting the mappings or drawings, which do not necessarily include the most relevant, important, valuable or meaningful places, not to mention social spaces.

On top of all the methods presented above, I also aimed at reviewing the literature from local scholars, which is often only available as hardcopy in libraries or research institutions.

Reviewing local libraries and the media

While reviewing the existing literature on deforestation in Zambia, I realised that potentially relevant PhD theses and papers published by Zambian researchers were not available from afar, neither on-line nor as hard copies. Apart from a Zambian colleague at Mulungushi, most authors I contacted never got back to me. Nevertheless, I wanted to read their publications to widen my view and to include their findings, so I checked at the library of the University of Zambia (UNZA) in Lusaka, Zambia's largest public university. Unfortunately, most publications I found here were out-of-date, often not much younger than the late 1960s building. Furthermore, most Zambia-related publications were stored in a special collection that could only be accessed after applying for and being granted a permit.⁵³ Moreover, only a few books I found in the catalogue could actually be located in the collection, others were allegedly stolen or misplaced. Besides the university library, I visited the Institute of Economic and Social Research (INESOR), the Elizabeth Colson Research and Documentation Centre (ECRDC), and the documentation centre and library of the parastatal Zambia Environmental Management Agency (ZEMA). Apart from the latter, access to the libraries was restricted as well. Capturing very recent publications by Zambian researchers was further complicated by the fact that many briefs, papers and even monographs were not (yet) included in any catalogue. Therefore, I had to physically search through the respective institutes, checking every single publication. On top of that, the on-going load shedding (see Chapter 6.5) rendered access to online catalogues impossible for several hours a day – not to mention limited electricity for running the laptop, or light in the library rooms. Besides academic literature, I reviewed laws and legal acts, but their local impact is rather minimal as they were neither known nor enforced within the community. On top of that, I managed to regularly read newspapers in the nearest town, about 30 km away. In order to capture diverse perspectives, I consulted newspapers that are close to the government, as well as those associated with the opposition. Watching the daily news on TV1, the state-owned and only available channel in my research area, was equally important. Even though it is extremely one-sided and little more than propaganda by and for the governing party, it is a major source of information for millions of people, including those

⁵³ The permit costs about 25 USD and allows the holder to access the collection for one month. The fee cannot be paid in cash, but needs to be transferred into a bank account. A bank slip then needs to be given to the library officer in charge – but nobody was responsible for this.

few community households of Chibobo which owned a TV. It has helped me to understand recurring narratives that make up the dominant state discourse on deforestation. Furthermore, I reviewed the online content of news sites and Zambia's biggest newspapers Daily Mail, Daily Nation, Times of Zambia, and The Post, which allowed me to follow the news and ongoing debates around deforestation and related issues before and after fieldwork.⁵⁴ In order to source information from a wider background, I additionally reviewed the content of social media, videos, and online news portals such as Lusaka Voice, Lusaka Times, and Zambia Weekly. During exploratory research, I also accepted an invitation by the biology emeritus Emmanuel Chidumayo, who had published extensively on the *Miombo* woodlands. In early August 2014, we met on his plot in the outskirts of Lusaka, where he is still conducting research on re-growth and seed dispersal on different tree plots. Apart from this encounter, other endeavours to include unpublished or locally published perspectives on deforestation from Zambian researchers were rather unproductive.

On the previous pages, I have conveyed an idea how information and data was collected and constructed through an interplay between the researcher and local residents, which was often characterized by coincidences. After I had accomplished long-term fieldwork, my own *rite de passage*, I could start entering and analysing the data.

Making sense from afar

Back at university, I first entered, then cleaned, and analysed all data collected during the census with *SPSS Statistics*. As I had collected the bulk of qualitative data during the census, I quantified data where possible, and very often extracted information and succinct quotes for further analysis. Later on, I digitalised all my hand-written diaries, copious memos, observation and meeting protocols, interview transcripts, newspaper cuttings, and so on. After hundreds of pages were transcribed and sorted in respect of the precise research site and topic, I did a close reading during which I identified relevant content, recurring arguments and major narratives. Quantitative data from SPSS and excerpts from the census were included, and photos were consulted if dates needed to be cross-checked. Throughout this careful, iterative process of data triangulation, software has helped to process a large volume of data, yet an equally big share has been analysed manually. Early on, this was intertwined with writing, which itself became an analytical tool that helped me to properly 'digest' the topic and recognise connections. Throughout this late stage of entering, processing, analysing and writing-up, I have continued to communicate with my research

⁵⁴ After the general elections in August 2016, 'The Post' – Zambia's biggest opposition newspaper, as well as three privately-owned broadcast TV channels were liquidated over different allegations, which is likely to have been politically motivated. The respective websites as well as their social media channels have since been idle.

companion on a regular basis via phone, which has helped me to feed-back and discuss some of my findings and interpretations, and to uphold a mutual, amicable relationship. Before leaving the research site, I also distributed self-addressed, stamped envelopes amongst a handful of literate informants in order to stay in touch. Since my departure, they have informed me about recent developments in the community, including the National Forest, shared their worries regarding the delayed rains, updated me about a newly enthroned Chief, and always asked about my family and life in Germany. All this has helped me to remain up-to-date and fill knowledge gaps, yet this lasting access to the field, which can never be truly accomplished from afar, was also the source of unease as I could not 'let go', stop gathering data and write up (cf. O'Hare 2007).

Besides this challenge, all social research comes with its own ethical questions that need to be addressed during different stages of the research process. Confidentiality has been one such concern. During fieldwork, I did not disclose my data or insights into other households to anyone but my research companion. After fieldwork, 'do no harm', the mantra of most social research projects, still holds true: in order to not endanger any of my informants, their dependents or any other person, I have decided to anonymize their names, irrespective of whether I endorse or detest what they have said or done. As most interviewees and participants were convinced that I would advocate for their case, they asked me to spread their stories and photographs (cf. Benjaminsen 2014: 390). However, while I have not changed placenames, I have decided not to disclose people's real names or faces, as it is difficult to foresee who is going to read this work. So far, different government officers have already asked me to provide them with a list of people who illegally acquired plots in the National Forest (see Chapter 9), which I have always refused.

Having summed up how the data was analysed, I will now turn towards the actual research site. I will set the scene by introducing the research community, which shall help to visualize and better understand the evolved settlement structure, its inhabitants, their livelihood strategies, and the natural environment. I will begin by taking a closer, more general look at the people who have lived in and continue to shape the life, landscape and economies of the region – the Lala People.

4. The research setting – The Lala Plateau

A short history of Zambia's Lala People

According to the Zambian government, there are 73 ethno-linguistic groups (CSO 2013: 1), and in public discourse, this figure is used with regard to ethnic groups, languages and dialects interchangeably. The Lala People are one of them, itself made up of five sub-groups, with the Lala representing the biggest population, followed by the Bisa, Swaka, Luano and Ambo, which all have their own language or dialect, for example *IciLala*. While the group's cultures in the widest sense show similarities, this thesis deals with the largest group only, which has long occupied both sides of the border, namely the Congo Pedicle and Zambia's present-day Serenje District (see Fig. 4). All of Zambia's Lala Chiefdoms, eight in number, are largely, but not completely, within the district's boundaries.

According to oral history, these Chiefdoms came into existence when Lala-speaking people migrated from the Luban Empire in the south-east of today's Democratic Republic of Congo around the 18th century (Long 1968: 2; Siegel 2008: 440; cf. Brelsford 1956: 20).⁵⁵ After crossing the Luapula river to the margins of the Bangweulu wetlands, they gradually trekked southwards onto the plateau which is endowed with numerous perennial streams suitable for farming. Besides farming, they allegedly also had a reputation for being fine iron-workers making axes, hoes and weapons.⁵⁶ The gradual drift from the wetlands onto the plateau is said to have continued into the 20th century (Munday 1940: 438, cit. in Long 1968: 2; Brelsford 1956: 42).

During early colonial times, the Lala People lived in scattered villages of matrilineal descent groups (Long 1968: 80). For the purpose of administration and evangelization, they were instructed 'to build proper villages under their Chiefs' (Long 1968: 81). Eventually, the British South Africa Company (BSAC) put them in villages of about 100 huts by force (Long 1968: 81). Back then, slash-and-burn agriculture, known locally as *Chitemene*, was the major livelihood. As a result of this, the loss of forests was nothing new to the region. When soil and woodlands suitable for this practice were in short supply nearby, the 'proper villages' underwent recurring fission, with some households settling where resources were still available (Peters 1950: 53; Long 1968: 83). The BSAC was not in the position to prevent this, so that by 1924 the villages had dissolved into scattered settlements with a mean population of 166 individuals each. Later on, the spread of cassava cultivation, which needed good water supply, led to more continuous, growing settlements (Long 1968: 96).

⁵⁵ For the legends allegedly told by forefathers and repeated by men, see Brelsford (1956: 41). Siegel (2008: 440) points out that the Lala living in Zambia adhere to a different historiography than those of the Congo Pedicle.

⁵⁶ In 1965, enormous open quarries of iron ore, iron-smelting furnaces and pottery was found about 10 km north of Chitambo Mission. The discoveries were attributed to the Lala who have lived here for long, seemingly practicing ironworks on a larger scale (Madan 1908: 5; Bancroft 1961, cit. in Phillipson 1968: 106).

In response to this, but also to foster economic development and ease tax revenues, the colonial government demarcated larger areas as so-called ‘parishes’, in which residents could be registered. All households were required to plant 12 fruit trees and about 0.8 ha (2 acres) of cassava ridges annually, to follow crop rotation and apply cattle manure to their fields. They were furthermore supposed to build a two-room house out of moulded burnt bricks, to construct a kitchen hut out of poles and mud, and to dig a pit latrine. A newly installed head of the parish was to oversee this development (Long 1968: 86, 161), a point which I will pick up on below. Though the above references are out of date and are not explicitly linked to deforestation, they have helped me to picture the region’s transformations. Apart from them, only a few maps and ethnographic accounts exist, with all being out-of-date and fragmentary (Brelsford 1956: v; Siegel 2008: 439).

The memoirs of John Edward ‘Chirupula’ Stephenson (1937), who was one of BSAC’s scouts and guards, for example, provide only a few insights into the ‘Lala lore’ (1937: 4) and their language (Madan 1908: 5). Peppered with lengthy descriptions on wildlife behaviour, however, it reads like adventurous travel writing and a romantic homage to the natural beauty of Northern Rhodesia. His later published biography (Rukavina 1951; cf. Rukavina et al. 2015) deals only with his life until 1903 (Wright 1972: 311), and offers similarly few ethnographic insights, even though he was comparatively well integrated into Lala society.⁵⁷ He claims, for example, that *all* Lalas sharpened the four upper front teeth (*kusongolameno*), ‘a custom stemming from cannibalistic days but practised more for decorative purposes now’ (Rukavina 1951: 110). Neither the practice, nor the interpretation, could be verified locally which possible points to exoticist writing or a confusion of different ethnic groups – at least one elderly local of Chibobo had heard about this practice, though amongst other unknown ethnic groups only. In the same way, other records of the Lala People could not be verified: a few scholars were concerned with the Lala’s traditional music played on a thumb piano called *Kalimba*, meaning ‘small instrument’ (Jones 1950; van Dijk 2010; cf. Agordoh 2005: 7). Moreover, they dealt with possession cults and dance ceremonies during which different drums are used (Jones & Kombe 1952; Ijzermans 1995; van Dijk 2010: 89 ff.).⁵⁸ Interestingly, neither the piano nor the rituals or drums were found in my research area; possibly not anymore. In 2011, which was the latest comment on the Lala People found in the literature, Currie (2011: 4-7) argued that their traditional religion is animist and ‘was then and is still deeply rooted in the[ir] lives’ (Currie 2011: 6 f.). This

⁵⁷ Stephenson was married to Princess Mwape Chiwali, the daughter of a Lala Chief, and they had 4 children. Although he was working for the BSAC, he opposed their acquisition of mineral rights, and presented himself as a communicator between the colonial state and the Lala People. Following his own wishes, he was buried according to Lala custom (Wright 1972: 312 ff.). I only got to know about Stephenson when, in October 2014, I accidentally run into one of his descendants in Mkushi, who provided me with a publication of the biography.

⁵⁸ Interestingly, Jones and Kombe (1952) was an early collaboration – between a British Christian missionary and ethno-musicologist, Arthur Morris Jones, and a Lala man who was beating the drums during the ceremony. The underlying fieldwork for the two publications (Ijzermans 1995; van Dijk 2010) was carried out in 1981.

claim, however, was not substantiated by any empirical data and also does not reflect my own observations at all.

All the last paragraph's examples demonstrate that a review of the existing literature on 'the Lala People' are of little avail due to existing intra-ethnic differences, even within the same sub-group, in both the past and present. In order to update and add to the existing literature, this work will bring together the ethnographic information available, but mainly provide recent insights from a Lala community in the year 2015, which will create a solid foundation which future research can draw on. In order to prevent general claims about 'the Lala People', it is paramount to lay open the geographic details of the precise research site.

In the following pages, I will briefly portray the district of Serenje and the chiefdom in question, and thereafter turn to the research community, which will help to picture its residents, its natural landscape, and to better understand salient livelihood strategies.

Chibobo – a growing Lala community in the 21st century

Today, similar to the parishes established during colonial times, so-called 'communities' form the foundation of both state and customary politics. As indicated earlier, each of the Lala communities lies within one of their eight Chiefdoms, largely within the District of Serenje. The entire district is mapped out below (Fig. 4), which will help to follow the subsequent description better.

The thesis mainly plays within Muchinda Chiefdom and to a lesser extent in Kabamba Chiefdom. In addition to these two, there are the Chiefdoms of Muchinka, Chitambo (previously Kafinda), Chibale, Chisomo, Mailo, and Serenje, with only the last one being represented by a Chieftainess. While some Lala People also live outside the District, especially on the Copperbelt, other ethnic groups like the Namwanga, Bemba and Tonga live within the district, with the capital town of Serenje, usually referred to as *Boma*,⁵⁹ being home to people from all over the country and a few from abroad. As no other data is available, the population size of the district, 158,000 (CSO 2012) to 188,000 (ZVAC 2010: 4), can thus only be an approximation of the current Lala population.⁶⁰ With more than 23,000 km² and only 7 inhabitants per km², the district of Serenje is one of Zambia's vastest and most sparsely populated districts (CSO 2012; Sitko et al. 2015: 9), reaching from the temperate Lala Plateau characterized by wet *Miombo* forests,⁶¹ perennial rivers and minor

⁵⁹ During colonial times, B.O.M.A. was the abbreviation for 'British Overseas Military Administration', yet in recent times, this meaning has been mostly forgotten. Today, *Boma* is a synonym for any district's capital and its centre, and it is applied as a proper name, whereas 'Serenje' only or 'Mkushi' refers to the whole district.

⁶⁰ In the wake of decentralization efforts, the large district of Serenje has been split into two – Serenje and Chitambo – yet during the latest census, population data had not yet been disaggregated.

⁶¹ Kutsch et al. (2011: 1) have classified the *Miombo* zone in dependence of annual precipitation and tree cover as savanna (<40% cover, <600mm rainfall), woodlands (<60%, <800mm), or forests (>60%, >800mm). Another popular distinction is between the Central Zambezian (wet) and the Southern *Miombo* (dry). The latter

streams, over the Muchinga Escarpment and its foothills down 1,000 metres of altitude into the dry savannah and Mopane woodlands surrounding Luangwa River. Hundreds of villages are dotted all over this land, with a much higher concentration on the plateau area due to higher levels of rainfall, the occurrence of many streams, proximity to the main road as well as the district's capital. Within the district, the Great North Road is an interesting landmark in several aspects: first, it is, apart from a few kilometres of urban roads, the only tarred road in the vast district, which is why it is often referred to as 'The Tarmac'. Second, the road follows the country's highest ridge, 1,650 metres above sea level, that divides the district into a wetter northern, and a dryer southern 'half'.⁶²

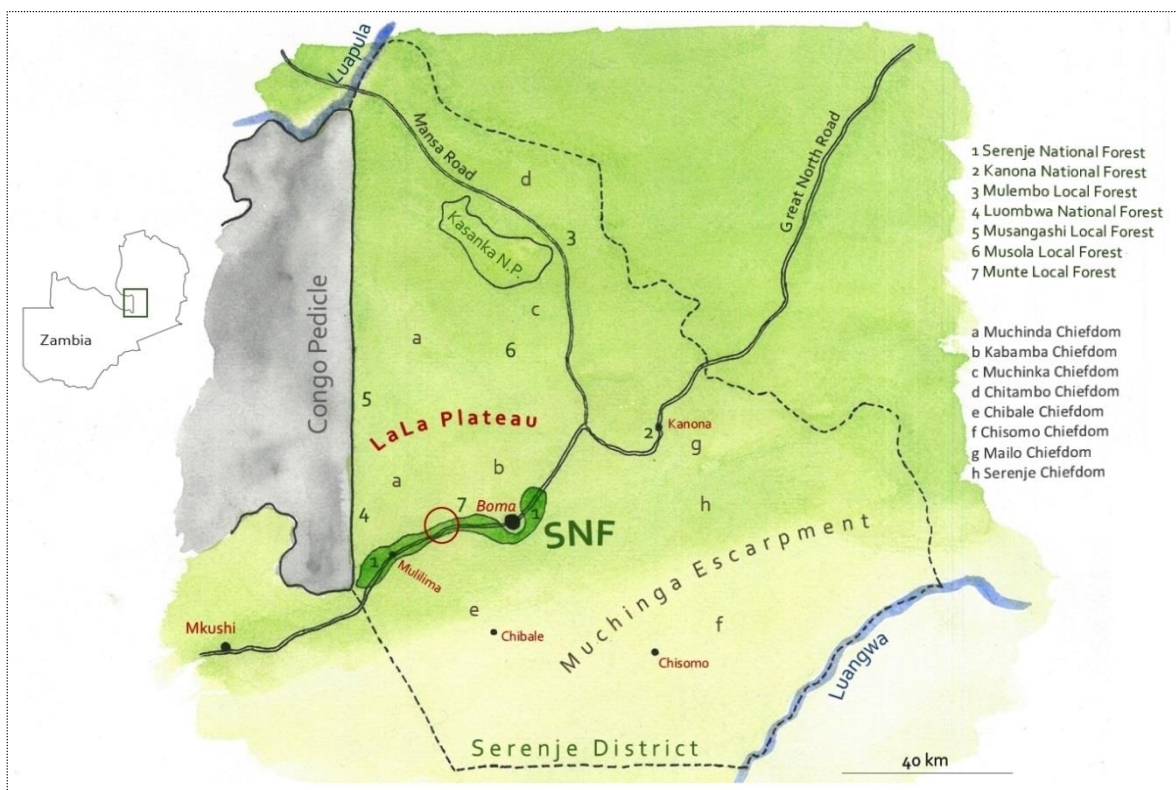


Fig. 4 Map of Serenje District (map created by author; see Appendix B)

The Great North Road also straddles the watershed between the Luapula and Luangwa River drainage basins, which is why the research area is a delicate and important ecological zone with regard to hydrology. In order to protect the sources and relatively undisturbed *Miombo* forests within the district, seven Forest Reserves were gazetted during the 1960s – all on the plateau.⁶³ Out of those, three more strictly protected *National* Forests were

zone represents about 15% of Zambia's entire forest cover (EC 2014: 14) and is characterized by a lower water table, smaller and more scattered trees, more woody shrubs, and thus a lower aboveground woody biomass.

⁶² The north falls within Zambia's high-rainfall area, the so-called 'agro-ecological zone III', which is characterized by annual precipitation of more than 1000 mm (ZDA 2014; EC 2014: 14) and wet *Miombo* forests.

⁶³ The Reserves, ordered by size: Serenje National Forest (Kabamba and Muchinda Chiefdom, 29,680 ha), Kanona NF (Serenje, 28,450 ha), Mulembo Local Forest (Chitambo, 19,395 ha), Luombwa National Forest

established along the Great North Road. The Serenje National Forest, which will take centre stage in Chapter 9, is the largest of them, covering almost 300 km².

The capital town, *Boma*, is the only urban centre of the district, with an official count of more than 17,000 inhabitants (CSO 2012). It is located in the centre of the district and about 115 km away from Mkushi, the nearest town. Therefore, *Boma* serves as an important trading place and social hub to people from close-by villages, but also to villagers from the remoter lowlands around Chisomo (see map above), whose residents cycle or walk about 80 km up the escarpment in order to sell, for example, live pigs or home-made reed mats for a few Kwacha in *Boma*.⁶⁴

In order to have better access to urban amenities, such as clinics, shops, secondary schools, but also electricity and tap water, rural populations generally prefer to settle in proximity to roads or towns (cf. IAPRI 2015). However, not more than ‘5% of Zambia’s customary land⁶⁵ is within 2 hours to an urban center’ of at least 20,000 people (Sitko et al. 2015: v). As a result of this, settlements on customary land are spatially clustered in pockets with good infrastructural investments and market access. The community that goes by the name of Chibobo, which takes centre stage of this work, is one such case.

Chibobo, which is located within the encircled area on the map above (Fig. 4), is located about 30 road kilometres away from *Boma* and lies almost entirely on customary land. It is located within Muchinda Chiefdom, which occupies a peculiar role in Zambian politics: due to succession disputes among brothers, no Chief or Chieftainess had been installed in the Chiefdom since 2010,⁶⁶ which is extremely rare. The ramifications of this power vacuum have been significant with regard to the allocation and re-distribution of land, which will also be addressed in this work.

The community rests on the Lala Plateau at an altitude of 1,450 metres above sea level, with a few hilly ranges, within a high-rainfall area. The rain only falls within the wet season, between late October and April, with increasing delays and drought spells of up to three weeks.⁶⁷ In the past, however, streams never used to dry up and ‘you would not have managed to cross them with a Honda’.⁶⁸ As all agriculture and gardening in the community is rain-fed, the rainy months mark the main growing season. Peak temperatures are reached just before the onset of the rains with up to 36°C in the early afternoon, with the lowest temperatures being experienced in June with only 4°C at dawn. The community is not only

(Muchinda, 14,885 ha), Musangashi LF (Muchinda, 11,630 ha), Musola LF (Muchinka, 7,700 ha), and Munte Local Forest (Kabamba, 340 ha), covering a total area of 112,080 ha (see GRZ 2015: Ch. 199).

⁶⁴ Zambian Kwacha (ZMW) is the Zambian currency, worth 100 Ngwee. In October 2014, 10 ZMW equalled 1.6 USD. During fieldwork, the rate dramatically dropped, making 10 ZMW worth only 0.8 USD one year later.

⁶⁵ Customary land is, in contrast to private or state land, solely governed by traditional authorities, who apply customary laws to govern it – laws that are unwritten and orally handed down from one generation to the other. For a detailed description of the evolution and present-day land governance, see Chapter 8.

⁶⁶ Until February 2010, Senior Chief Muchinda, who died at the age of 89, had occupied the throne for 25 years.

⁶⁷ During fieldwork, I checked air temperatures and rainfall on a daily basis. Impressively, in March 2015, more than 400mm reached the soil within less than 24 hours – more than a third of the entire season’s rainfall.

⁶⁸ ‘Honda’ is used as a synonym for any motorbike, just as ‘Canter’ is used for different types of pickup lorries.

endowed with comparatively high rainfall, but also with streams and soil suitable for the widest range of crops. Besides this advantage, living relatively close to *Boma* means access to the most important household needs such as soap, cooking oil and sugar, to farming inputs, credit facilities, and markets for selling farm produce – against relatively low costs for transport. Having good market conditions, high rainfall and good soil, the region has the ‘best endowments of geographical capital’ (Sitko et al. 2015: 16). As a result of these favourable assets, people have migrated into the community for decades. Especially since the oil crisis in 1973, jobs in urban areas, in the mines and related industries have ceased to exist. Until then, the region had been a regular supplier of men for wage employment in central and southern Africa (Peters 1950: 5; Brelsford 1956: 113), but following the economic collapse, more people returned to their district of birth and brought land under cultivation (cf. Mickels-Kokwe & Kokwe 2015: 128). While most land on the plateau, with the exception of the Kasanka Game Reserve in the north, was already cultivated (cf. Peters 1950: 73),⁶⁹ Chibobo was still small then. As more and more households from already-crowded communities moved here in search of land, it slowly began to grow. At the same time, the government encouraged civil servants to ‘return home’ for retirement. In that regard, living close to the district’s capital, Serenje *Boma*, is highly desired because ‘you need to chase a lot of papers to get your social benefits there, and you need to go to [the provincial capital] Kabwe and to Lusaka to push papers’⁷⁰. Besides, in particular during the last decade or so, available land, free social amenities such as a primary school, a clinic that was opened early in 2012, and a newly-built secondary school that was inaugurated in 2017, have pulled more people into the community and prevented others from leaving. The new school is especially hoped to spur the electrification of the entire community, which has also contributed to population growth. Besides this, a new maternity ward is to be opened in the near future, and a preschool classroom will be added to the primary school as enrolments have been increasing over the last years.⁷¹

⁶⁹ Peters (1950: 73) claims that by 1945, all land on the Plateau was under cultivation. While this could not be confirmed for Chibobo, residents of his research community, an area that has until today been much more densely populated, agree. However, while most land was allocated to Farms, it is unlikely to have been entirely clear-cut and farmed.

⁷⁰ Kenji Nkoma during an interview at his Farm in northern Chibobo on April 28, 2015. Civil servants who have worked in the service for 30 years or reached the age of 55 are eligible to receive a pension, which is around a fifth of the previous salary.

⁷¹ In order to accommodate all pupils in the few classrooms currently available, one set of grades can only be taught in the morning, while the other one is attended to in the afternoon.

Chibobo's present-day villages, Farms and households

Today, the entire community spreads over a total area of almost 200 km² and has a total population of about 6,000 people.⁷² It has developed into a mosaic of farmland, *Miombo* woodlands and denser forests, grasslands, groves, seasonal streams and their floodplains, which all is surrounded and dissected by dozens of trails, minor gravel roads and hundreds of households. All households are represented by a *Chilolo* – a Chief's Counsellor, who is democratically elected by the local population for a lifetime and reports directly to the Chief. The community of Chibobo is then divided into 12 adjoining, growing villages. Similar to parishes during colonial times, today villages are each named after old villages, which themselves were usually named after their major stream (cf. Long 1968: 84). While the entire community is headed by one *Chilolo*, each village is headed by an elected village headman, the *Sulutani*,⁷³ who reports to the *Chilolo*. While the former had lost much of his influence when heads of the newly created parishes were installed by the colonial government (Long 1968: 4, 141, 145 ff.), they are highly respected today, though still not enjoying discernible economic privileges. Interestingly, the role of today's *Chilolo* resembles that of the parish head, with similar responsibilities and catchment areas. Both figures are highly respected traditional leaders: when they call for a meeting, their subjects will join, or duly apologize. Equally, if the government's agricultural extension officer calls for a village meeting, the respective *Sulutani* has to be invited, and is often put in charge of calling his subjects together.

Each village accommodates around 30-40 so-called Farms (*Ifamu*)⁷⁴ – the entire land attributed to a single landowner. A Farm is usually made up of 1 to 2 households (*Ishiko*), and includes adjoining farmland, overgrown fallow ground, forested patches, gravel roads, paths, and so on. Here, it is important to define what is actually meant by the often-used term 'household'. In my context, a household is a group of individuals who farm together in the same fields, share water and prepare food from a single fireplace (cf. Long 1968: 210), though men and women may consume food at different places – women for example close to the fireplace and men in the house. Furthermore, all members of a household share a common budget, and are headed by a male or female household head (*Umutwe wa ng'anda*), who is regarded as such by all members, without necessarily being the main breadwinner. Day-to-day decisions, however, are usually taken by the main breadwinner. Each household is usually comprised of several houses and consists of a nuclear family (mother, father and their children), brothers- or sisters-in-law, nephews and nieces

⁷² 6,000 is the number used by the clinic and a local NGO that has been active in the community since 1993. Based on the census I carried out, this figure seems to be realistic.

⁷³ All villages were headed by a male village head. Another term for him, though less frequently used, is *Mwine Mushi*, literally 'owner of the village'.

⁷⁴ The word 'Farm' is often used in spoken language or at road signs indicating the direction towards the Farm of a certain family, such as the 'Musonda Farm', which is owned by my research companion's mother.

(children of the household's adults' siblings), and, if applicable, married daughters with spouses and children (cf. Long 1968: 20). Whereas a household's members are usually kin-related, friends and workers can also join the household. Thus, households are not homogenous: different members are likely to have diverse educational backgrounds, dependents they need to support, or different consumption patterns. In this regard, the head's biological children generally receive more attention than, for example, nephews or orphans living in the same household. Moreover, many members, including teenagers, often have supplementary sources of income. Whereas they generally pool their money and negotiate purchases together, more often than not, little is known about the precise earnings of each member. However, all members who are able to work are united by farming, which always constitutes the household's and its individual members' mainstay.

As already pointed out, one to several households make up, together with adjoining farmland, forested patches and so on, a so-called Farm. One member of the Farm's household or households is always considered to be the owner of the Farm, or rather the land it comprises of. He or she is recorded in a so-called Farm Book (*Amabuku*) and considered to own this land for a lifetime. Here, I prefer the term 'owner' to 'custodian', as the land is considered to belong to a certain person to an extent, which is much stronger than the linkage between a custodian and his or her protected property (see Chapter 8). All land within the community – with the exception of state land surrounding the clinic, the schools, the main gravel road, and a few private plots – thus belongs to somebody, and is inherited following customary law. After providing some insights into land inheritance, I will ultimately provide a more scenic description of the community.

While each and every Farm belongs to a single person, it carries the social ties of his or her extended family. Once the owner dies, land is inherited by the matrilineal kin. Male offspring usually do not enjoy any right to that Farm, unless there are no inheritors such as the landowner's daughters, daughters-daughters, sisters and sisters' daughters. In case they are absent, the general pattern of matrilineal succession can be subject to negotiation. Consequently, most Farms are female-owned. Farms owned by men were either allocated to them a long time ago when land was plentiful, or they were bought from previous owners who did not have legitimate heirs. In that case, their sisters and sisters-daughters do not have any rights to the land, yet matrilineal inheritance remains applicable from that point again.

Since a son is usually not entitled to land, he only lives on this Farm until he gets married, and is then expected to immediately relocate to his parents-in-law for a probation period of two to several years. During that so-called uxorilocal residence, he is absorbed into his in-laws household, and is expected to cultivate their fields and nurse their garden in order to prove his capability. He does, still, not enjoy any rights to what he has produced, but receives food from the in-law's fireplace. When the married couple has children, they

are allowed to establish their own household – either on the same, or outside this Farm through acquiring land elsewhere (cf. Long 1968: 20 f.). If they remain on the same Farm, they will not receive a Farm Book, unless the Farm is exceptionally big and can be split. Eventually, the sons of the new household would move away, the daughters would bring in their husbands, and the cycle continues (cf. Long 1968: 20).⁷⁵ In case a Farm owner wants to move or passes away and there is no legitimate inheritor, the land will be re-allocated by traditional authorities. Since land has become the most desired asset during recent years, the re-allocation always happens in no time at all, a topic that will be addressed in Chapter 8 in detail.

Most of Chibobo's Farms are lined along gravel roads, with the major one – Chibobo Road – cutting due north through the community, linking the Great North Road with a number of Serenje's northern villages (Fig. 5).



Fig. 5 Chibobo Road during the dry season

Along this major gravel road that was graded for the first time during the late 1970s, two centres, about 7 km apart, have evolved, with a few groceries serving the population with important household needs, most importantly sugar, soap, and cooking oil known as *Saladi*, even though salad is not part of the local diet. Hard liquor, bottled beer, body lotions, hair

⁷⁵ Even though it is highly uncommon, my research companion, a man, remained at his mothers' Farm, where he is now living with his wife, their two children, and others. All of his sisters but one, who can claim the land, are living in towns on the Copperbelt, so there is no pressure on the Farm. However, they are expected to come back, for retirement at latest, and claim the land without prior notice, which would possibly cause conflict. Staying on his mother's Farm has another disadvantage: if he passes away, his wife and children will be chased from the land, unless his wife does not want to marry again. That is why, he already acquired another Farm in Chibobo for the future.

jelly, razor blades and toast bread are also in high demand. The shopkeepers always try to have enough stock of such items, whereas other consumer goods such as coarse salt, prepaid talk time, school books and pens are quickly sold out. A common sight at these centres is women sitting on the ground selling tomatoes from their gardens and home-made fried dough (*fritas*), and sometimes, a selection of children's clothes, cooking pots, and dried fish in small, transparent plastic bags. Several times a week, Hendricks Munshya, a man in his 60s, cycles up and down the main gravel road and passes by the markets to advertise his home-made buns. Besides him, there is only one other lady in the entire community who bakes and sells buns on a regular basis. Since demand is high and the main gravel is more than 10 km long, Hendricks usually returns home after sunset using his mobile phone as a torch. Besides groceries and mainly women offering food and consumer goods for sale, small bars, where politics are discussed and gossip is exchanged, have evolved at the two centres. Home-made *wine* – a mix of water, tea leaves, yeast and sugar – is sold in 2.5 litre containers and drunk from empty yeast cups. Especially after the harvest, when most people have cash and are not yet occupied again with farming, the places are crowded from dusk till dawn each day of the week. Loud tinny music playing at the *Hard Men's Clinic*, as one bar is called, often indicates that big blue plastic drums full of home-brew are not yet empty. The bars were most crowded after church services on Sunday.⁷⁶ In the northern centre of the community, close to where I was living, about eight such 200 litre drums were sold every week. After the annual harvest, when most households have cash available, even higher amounts of locally brewed beer, *wine*, Lusaka Beer or *Chibuku Shake Shake*⁷⁷ are sold, with many more households offering local brew along the main gravel road. This presence of alcohol on the Lala Plateau is not a new phenomenon but has already been observed by Peters (1950), who claimed that all adults consumed beer whenever it was at hand, and that beer parties were held every four days after the main harvest – a time which he aptly calls 'the beer season' (Peters 1950: 99). Very often, when I met residents of the community's northern villages many kilometres further south in the community, the northern beer places were likely to be sold out. The two major centres and the surroundings were important spaces of social life and therefore a key location to hang around, establish trust, or trace people when they were late for a meeting or an interview. Such spaces can be seen as markers of an 'urban way of life' (Long 1968: 88). Yet in marked contrast to towns and even the urban periphery, Chibobo has – as with all communities in the Chiefdom – not yet been connected to the grid, and water supply is only secured through a number of streams, a few

⁷⁶ While the vast majority has stated during the census to believe in God, only a minority attends church services on a regular basis. 27% are Catholic, followed by the New Apostolic Church, United Church of Zambia (UCZ), Jehovah's Witnesses (15%), and several others.

⁷⁷ *Sheki Sheki*, as the popular brew is called, is a thick, opaque, traditional beer, industrially produced and successfully sold in paper cartons all over the country. What makes it traditional are the ingredients – maize flour, sorghum, and finger millet. Before sipping, the carton needs to be shaken in order to mix the sediments that have settled at the bottom, therefrom its name.

communal boreholes, so-called ‘mono pumps’, and even fewer private wells belonging to individual households.

As mentioned above, Chibobo is located only 30 km from *Boma*. If one wants to leave the community for town, one needs to get up in the early morning hours and wait along that gravel road for transport. Since the year 2010, one reliable *Canter* from within the community passes by and leaves for *Boma* at least once a week. Passengers squeeze themselves onto the open, usually crowded platform and pay 10 ZMW one-way including cargo such as luggage, stacks of tomatoes, sacks full of sweet potatoes, or bags full of charcoal. After a few bumpy kilometres on Chibobo Road, one leaves the village and drives through a 3-km-stretch of a *Miombo* forest and crosses a railway line. The last 18 km until *Boma* lead over the Great North Road – one of Zambia’s major tarmac roads, which connects the nation’s capital Lusaka, about 400 km away, with the bustling border town of Nakonde in Zambia’s far north, even further away. ‘The tarmac’, as everyone refers to it, is shaped, in the truest sense of the word, by petroleum trucks from the port of Dar es Salaam destined for Lusaka, the Copperbelt, and Lubumbashi in the Democratic Republic of Congo (DRC), and 40-tonners loaded with copper from Zambia’s and DRC’s large-scale mines in the other direction. If no transport is available from within the community, villagers walk, cycle or take a bicycle taxi up to the tarmac in order to ‘chance transport’, or use short cuts over minor gravel roads. Those travelling regularly, usually the owners of the groceries, are important brokers with regard to the media. In the absence of the internet and with almost no access to newspapers, radio or TV within the community, mostly due to bad networks and the lack of sufficient electricity, *Boma* is an important place where news and government announcements can be consumed and brought back into the central places of the community.

After having provided a description of the entire community’s scenery and its socio-political structure, the following chapters will focus on one of Chibobo’s 12 villages. While I lived in Chibobo and carried out participant observation and informal interviews all across the community, my research has concentrated for reasons of feasibility and an in-depth analysis on 2 villages – Kansenga and Milombwe, whereas the latter only comes into play in Chapter 9.

Since the community’s villages are relatively similar with regard to their residents and livelihoods, the ethnographic findings presented in this thesis are most likely to hold true for the entire community. I will now turn towards Kansenga, briefly outline its history, present socio-demographic data, describe its setup, its natural environment, as well as the way the latter is valued and accessed.

Being surrounded by the bush – The village of Kansenga

Kansenga is the oldest of all the community's villages, with the first Farm officially registered in 1940, when the Great North Road was not yet tarred. There was a good forest stock, and elephants, buffaloes, leopards, hyenas and lions were roaming around until about the mid-1950s. During dawn and dusk in particular, the few people living here were always on the watch when walking. One of my oldest interviewees remembers how he and his siblings were taken to school by their father, who was equipped with a gun, and how they listened to animal sounds at night. Also as a result of a good forest stock, but also ample land that had not yet been allocated to anyone, people from other Lala communities came here to practice *Chitemene*, slash-and-burn agriculture. In 1961, as the oldest resident of Kansenga remembers, only three Farms existed in Kansenga and 'you could easily count the people living here. Back then, the fields were much bigger, the farmland of two men was as vast as from the centre of Kansenga down to the National Forest, or up to Chishi'⁷⁸ (the next village, see Fig. 6), which are at least 3 km apart. With the oil crisis and the following layoffs during the late 1970s, many people re-migrated to their home districts. Population numbers slowly increased in Kansenga, as it is nearby *Boma*, and next to the Great North Road, thus having very good market access. With growing population numbers, that came along with a decline in woodlands (cf. Unruh et al. 2005b: 191), *Chitemene* became unsustainable and was slowly replaced by conventional farming practices: millet that had been the dominant staple food for long decreased, and fields of maize began to appear in the landscape. At the same time, and also due to past hunting practices, the number of mammals greatly reduced. While the major dust road passing through the community had been graded during the late 1970s, only a few families, which the oldest settlers can easily recount by name, lived in Kansenga. Over the next three decades, Kansenga and the other villages of Chibobo grew bigger, with a marked increase over the last decade, due to still available land, better health and educational facilities, and prospects for electricity. Since then, many communities on the plateau have experienced mounting land constraints. By October 2015, the end of my fieldwork, Kansenga was made up of 39 Farms,⁷⁹ out of which more than half are owned by women. Interestingly, one-third of all the Farms only came into existence between 2006 and 2013, since when all land has been allocated. The entire area, including streams and floodplains, covers around 1,000 to 1,200 ha. Land under dispute covers at least 200 ha adjoining – or within – the Serenje National Forest,⁸⁰ yet apart from this one case, the

⁷⁸ Charles Chilekwa during the group discussion at his Farm in Kansenga on June 23, 2015.

⁷⁹ Each Farm in Kansenga had between 1 and 10 households, but usually just 1 household (59%), followed by 2 households (31%), 3 (5%), 5 and 10 households (2.5% each, once only).

⁸⁰ The land is occupied by the so-called '*Mateshi Farm*', though the Forestry Department claims that it is *not* located in Kansenga but illegally within the Serenje National Forest (see Fig. 6, house in the Forest). As the landlord could only produce an old map from the 1940s but neither a Farm Book nor a title deed, the issue remained unsettled. As there has not been any land audit since the 1940s, it is often unclear which land has been officially handed over or was taken illegally (Chu et al. 2015). However, as the Farm came into existence before

Farms' boundaries in Kansenga are widely known and undisputed. After passing through the National Forest for about 3 km north, Kansenga stretches for almost 7 km along Chibobo Road, the community's major gravel road. From the southernmost household to the northern centre, where the community's primary school and clinic are located, for example, a walk takes about 1.5 hours. The following map (Fig. 6) depicts the community,⁸¹ with the two red dots marking the community's central places that were described earlier.

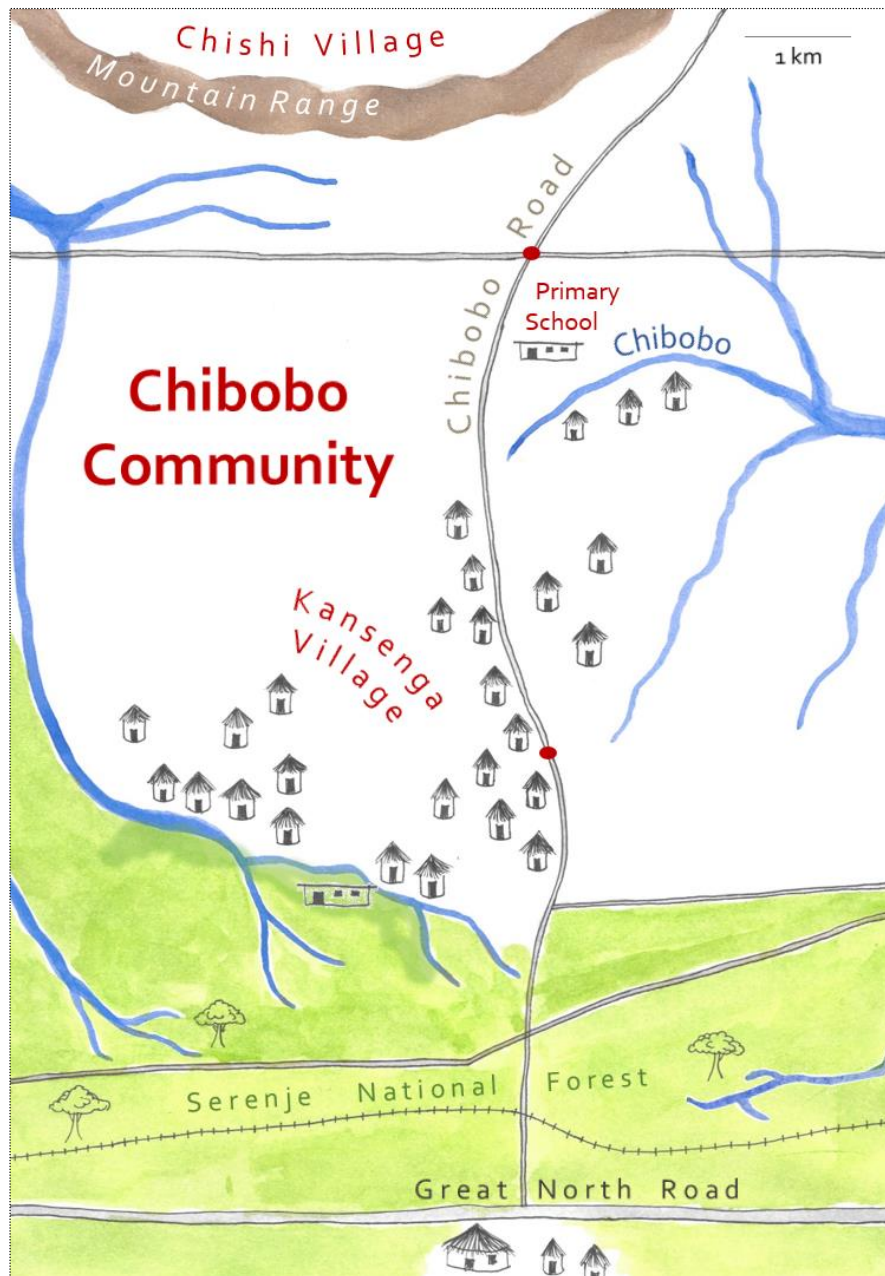


Fig. 6 Map of Kansenga Village within Chibobo Community (map created by author)

independence, in the local perception, it is undoubtedly part of Kansenga. Accordingly, its households were included in the census of Kansenga. In order to 'defend' the land, the alleged owner allocated several patches to relatives and friends to make sure it was occupied.

⁸¹ Households spread across the entire community, yet only Kansenga's have been indicated for the sake of clarity. While the distribution is accurate, 1 sketched house equals about 2.5 Kansenga households in reality. The houses south of the Great North Road indicate the most populated adjoining community.

Over the last generations, Kansenga has changed from a sparsely populated area with slash-and-burn agriculture as the major livelihood, to a more crowded landscape with different coexisting livelihoods and rural economies. Today, Kansenga is home to 65 households altogether, of which 65% are headed by men, who are not necessarily the main breadwinner nor the owner of the respective Farms. All those 65 households of Kansenga represent my sample – they were part of the census, and several of its members gave me interviews, attended the group discussions, let me participate and observe their practices, and so on. Each household is made up of 1 to 12, but mostly 5-7 people. All residents taken together sum up to a total population of 343, of whom 52% are female. The majority of those men and women, 97%, identified themselves as Lala.⁸² While the oldest residents were born in 1936 and 1939, 45% of the population is below 14, and 65% below 24 years of age only.⁸³ Interestingly, 42% of all of the residents were also born in Kansenga, and 10% in the other villages of the same community. The remaining people, 34%, were born in the neighbouring communities of the district, and a few in Serenje *Boma*.

The major livelihood and mainstay of all but five households⁸⁴ is subsistence and small-scale farming, that is, the cultivation of 5 ha or less of rain-fed land.⁸⁵ A majority, however, even cultivated less than 2 ha of land, with the lion's share of the land being devoted to maize. Kansenga is thus a typical Zambian village, where 80-89% of the rural population rely on subsistence and small-scale farming (Honig & Mulenga 2015: v; Mickels-Kokwe & Kokwe 2015: 129), with 73% of households cultivating less than 2 ha of land (IAPRI 2015). Importantly, there is a big variety even within the smallholders' households in Kansenga: while some struggle to produce enough to feed themselves, others practice stable subsistence farming, and about every second household manages to sell an agricultural surplus after the annual harvest, depending on farming inputs, weather, labour, and many other factors. Only a single tobacco farmer from Kansenga, farming as little as 0.5 ha of tobacco, has managed to achieve much higher incomes. Besides farming, livestock constitutes an important source of food or income, with 88% of all households owning chickens, 35% owning goats, and two households owning cattle and pigs. Moreover, about 18% of all households have an additional income from gardening, and 15% from selling home-made wine or beer.

⁸² All Lala also belong to one clan, most of them bearing the name of a plant or an animal, which spread across borders (Siegel 2008: 440 ff.). Since this affiliation was not well pronounced though relevant in joking relationships, I did not survey it during the census.

⁸³ The age distribution in Kansenga has been as follows: 0-6 years: 25%, 7-13: 20%, 14-24: 20%, 25-50: 25%, 51-79: 10%.

⁸⁴ None of them had ever cultivated 5 ha or more. The other five households either cultivated more land, or had more income from off-farm activities.

⁸⁵ Most studies do not provide any definition of small-, medium-, large-scale, or commercial farmer, yet implicitly often follow the definitions of the FAO, in which all households cultivating 5 ha or less of rain-fed land are considered to be smallholders.

About 72% of Kansenga's households have secure tenure rights, as they occupy Farms they inherited following customary laws (41%), bought from the previous customary or private owner (19.6%), or which they were allocated by customary authorities upon request (11.4%).⁸⁶ The remaining households, 28%, occupy *other people's* customary or private land,⁸⁷ without enjoying any rights to inherit it, which often rendered their outlook regarding land ownership highly insecure – a circumstance which will come into play in the later chapters (see Chapter 8 and 9).

After having provided some quantitative data, I now turn to the perception of the natural environment, and offer insights into how local residents access and live with it.

Perception, valuation and access to the bush

As was pointed out earlier, *all* land within the community belongs to one Farm or another, and is thus associated with its owner and his or her family. Most of the Farms are intersected or surrounded by forested patches, which are in most if not all cases not the remains of a primeval forest, but the result of historical interactions between the community and their natural environment (cf. Fairhead & Leach 1996: 253)⁸⁸. Most notably, the practice of *Chitemene*, or rather the abandonment of it, has shaped the landscape in Kansenga and the entire northern Provinces of Zambia, leaving behind re-sprouting and still-growing woodlands amidst a mosaic of farmland and houses (cf. Fairhead & Leach 1996 and 1998). While some patches can still be identified as the remains of slash-and-burn practices, others have already re-grown to denser secondary forests. The latter and all land, which has seemingly remained untouched by human culture, uncultivated or uninhabited, is conceptualized as *Mpanga*, bush, in the Lala language. *Mpanga* itself can incorporate several densely forested places such as *Mateshi*, *Mushitu*, *Chipya*, as well as *Umutengo*, which all have a specific flora and fauna.

The word 'Forest' or *Kapenda*, in contrast, always and exclusively refers to a Forest Reserve that is officially gazetted as state land and supposed to be protected by the Forestry Department.⁸⁹

The residents of Kansenga have emphasized that they are not living *in* the bush, 'like the forest people from Congo', but they are rather surrounded and intersected by it. This is

⁸⁶ The figures refer to the status quo and do not allow for conclusions about *de facto* access to sufficient land, nor about the households' children inheritance rights.

⁸⁷ First and foremost, the *male* offspring of the landowner do usually not have any rights over the land. On top, tenants, a husband living on the land of his late wife or her relatives, as well as parents living on the Farm owned by one of their children do not have rights to the land they are occupying for now.

⁸⁸ *Misreading the African Landscape* certainly is a catchy title, yet with regard to the authors', and also the discipline's effort to debunk grand narratives, the generalized title is rather bold, even though the authors convincingly present their ethnographic case.

⁸⁹ Forestry officers are locally called *Kapenda Mabula*, 'leaf counters'.

often perceived as a threat as the bush is imagined to be infested with insects, spiders, poisonous snakes and unpredictable spirits.⁹⁰ Moreover, open defecation near paths discourages people from going to the bush. It is furthermore seen as a place where madmen, people who have nothing good in mind, and even criminals hide out. As the oldest resident of the village testifies:

Killings are happening in the bush, they murder and sell the body parts, especially breast, tongue, and they remove the reproductive system. They break the chest to get the heart to sell it to people who do make even more money on the black market.⁹¹

This murder is known as *Kolakola* and is, as the residents have pointed out, not connected to ritual killings or witchcraft (cf. Ashforth 1996: 1219).

However, the bush is also seen as a benefit simply because ‘that’s where the money is’⁹²: it provides firewood, fruits, mushrooms, charcoal, and, most importantly, farmland. In this regard, the bush is not seen as an obstacle to farming, but as a benefit, as it is associated with providing fertile soil, or natural fertilizer when burnt down. Extracting branches or entire trees from the bush is a day-to-day activity, which is usually first experienced in everyone’s early childhood. My host and research companion remembers:

When we were young, my mum used to chase us, you are trying to cut a tree just near the house, you even use the biggest axes: ‘Look mum, look mum, you have seen me mum? I am strong!’, but you are cutting a wrong tree [laughs].⁹³ We do it as part of passion, to proof to our parents that we are strong, but instead of going to the bush, you do it on your Farm, so they are even seeing how badly you are cutting [laughs]. I remember when I was in grade 1 or grade 2, my mum said ‘Can you come, I wash you, than you are going to school’, when I was busy fighting with trees, so I was like six, seven, a very young boy.⁹⁴

Interestingly, one of the first words I learned was ‘to cut’ (*-kutema*) – not due to my research topic, but as the very first example of a verb in the only yet preliminary guide to the Lala language (Madan 1908: 21) is ‘-kutema’. In the grammar section, tenses and modes are always explained with that word. While I do not want to (over)interpret this finding, ‘cutting’ is certainly one of the basic words in primary school. Once the pupils grow older, they soon contribute labour to the household by collecting firewood, or clearing trees for farming. Whereas many adults avoid the denser parts of the bush, pupils still picture it in a rather positive light: they go there to study, enjoy its shade and calmness, play with friends,

⁹⁰ This dichotomy between ‘civilization and wilderness’ is nothing unique. With the Fulani of West Africa being a known exception, most groups see ‘the bush’ as a place of danger or threat for humans (cf. Krohmer 2010: 53).

⁹¹ Charles Chilekwa during the group discussion at his Farm in Kansenga on March 20, 2015.

⁹² *Ibid.*

⁹³ A ‘wrong tree’ would be any beneficial tree – one that gives shade, serves as a rain shelter, or carries edible fruits.

⁹⁴ Vincent Musonda during an interview at his Farm in northern Chibobo on August 9, 2015.

and can even pick fruit during the season. Schnegg et al. have alluded to the fact that eating these fruits constitutes more than the material consumption – it ‘produces a social context in which people interact with one another and the natural environment’, and thus combines material with a number of immaterial benefits (2014: 8).

Equally due to its calmness, graveyards are also located within, ‘in order not to disturb the deceased’ and to ensure they rest comfortably.⁹⁵ In order not to disturb the deceased, customary law forbids farming that land, building structures, or cutting trees. While this is widely respected, the bush was no place of praying to ancestors, spirits or gods *anymore*. However, until about the 1990s, the residents of Chibobo brought maize or millet beer in clay pots whenever visiting a grave. ‘To make sure that the deceased can enjoy themselves’, the pots were put nearby the graves. Previously, the residents also followed a ritual that entailed sacrificial offerings: by bringing clay pots with crop seeds into the bush, they were appreciating the previous harvest and praying for rains (cf. Ijzermans 1995; cf. Campbell et al. 1996: 2). Yet nowadays, these two practices are not followed anymore. Another value ascribed to the bush stems from its relatedness to prostitution and adultery. While I did not encounter it myself, different people from the community – men, women and adolescents – have alluded to this ‘very common practice’, which I could only witness myself if I were to go into the bush late at night. One of my neighbours, a man in his 40s cheating on his wife, explained why he would ‘disappear into the bushes’ for sexual encounters: ‘If I take her home, she can be eaten alive by my wife [laughs], so I just tell her “I’ve rented a guest house under that tree”’⁹⁶.

Besides these recreational values for both adults and pupils, the bush or rather individual trees are also ascribed an aesthetic value by most residents: especially old-growth, tall trees have an ‘inherent beauty’, provide shade and function as a wind break at one’s Farm. Moreover, they can provide a protective camouflage for chickens and chicks against birds of prey. Trees with a monetary value such as pine or eucalyptus were cherished even more as they combine beauty, commercial value, and ecosystem services, and can also serve as a unique feature to a Farm. The photo on the left below (Fig. 7) shows one of the few eucalyptus trees in the community that serves as a landmark along Chibobo Road.

Besides providing shade, camouflage, and acting as a windbreak, the woodlands and individual trees are also appreciated for further ecosystem services, particularly nitrogen fixation and the modification of hydrological cycles. Whereas knowledge about the former has been spread by the local NGO promoting agroforestry, knowledge about the rain and water table is based on observations and rare interaction with the Forestry Department. One resident of Kansenga sums up this relationship with trees well:

⁹⁵ Group discussion at Chilekwa Farm in Kansenga on March 20, 2015.

⁹⁶ Moses Chunga during an interview at his Farm in Kansenga on July 3, 2015.

We were always advised, ‘don’t cut trees along the stream, or the sources’, and you should not clear around your Farm or around your huts, you should make the fields far away of your house, because when you clear around your house, the wind comes directly, it can blow off your roof, and also the beauty, you know, if a Farm has houses inside the trees, the Farm looks nice, it looks beautiful. Tall trees also stop the clouds so we get more rain.⁹⁷

For all these reasons, trees along the road or surrounding the households are usually protected. However, the front yard of most houses are cleared of trees – to appear welcoming to visitors but also to make them unsuitable for snakes, as depicted in the photo on the right.



Fig. 7 Conservation of trees around living spaces

The following satellite image shows four Farms (F1-4 in Fig. 8) of northern Kansenga, with Chibobo Road and the dotted lines being the boundary between these Farms. The yards are cleared and clean, while trees surrounding the wider housing spaces are protected for the reasons outlined above. As they are ‘inside the trees’, farmland is even further away and thus ‘out of sight’ from the protected – and thus protecting – living spaces.

⁹⁷ Collins Miselo during an interview at Musonda Farm in northern Chibobo on July 19, 2015.



Fig. 8 Satellite imagery: Bird's eye view of four adjoining Farms⁹⁸

The bush in general and specific *indigenous* trees in particular do also have a *material* value: the benefits of non-timber forest products (NTFPs, see Chapter 5) and specific trees will be set out in the respective chapters throughout the thesis. The last lines of this chapter are about a more general aspect that shapes the residents' perception of the surrounding woodlands – which is access to them.

In order to conserve the many benefits of the *Mpanga* and to protect its resources, access rules have evolved. First, it is important to recognize that Farms, including their wooded areas, can be crossed by anyone at any time. However, they cannot be *used* for permanent activities such as settling, gardening or farming without the consent of the landowner. Farm produce or physical structures, both man-made and natural, including trees, pastures or river sources, are respected as the Farm owner's property. While picking fruits or collecting mushrooms, roots or edible tubers along the way is commonly accepted, the collection of firewood or timber is not. For subsistence needs, trees can only be utilized by the respective Farm owner without any limits. However, according to statutory law, trees do not belong to the landowner, but they are vested in the Zambian President, on behalf of the Republic of Zambia (GRZ 2015: 90; Honig & Mulenga 2015: 7). As soon as they are cut down for sale, barter or deal, they are supposed to be taxed through a licence (GRZ 2015: 116). While the Forest Act of 2015 (GRZ 2015) and its predecessors from 1973 and 1999 have provided the legal framework for accessing and managing trees and forest products, the

⁹⁸ Source of satellite image: DigitalGlobe 2017, Google Earth. The trademark has to remain for copyright reasons.

common local perception is that, on customary land, the state is not supposed to manage or interfere with any activities related to natural products. This perception has structured local practices concerning woodlands – not only as a result of disapproval, but also due to a lack of access to and thus knowledge of the relevant statutory laws. Moreover, the forestry officers from *Boma* were neither in the position to sensitize potential deforestation actors, nor to monitor the woodlands or to enforce the laws concerning them.⁹⁹ According to statutory law, *all* woodlands – trees on Farms, the bush, and National Forests – are under *de jure* ownership and thus governance of the state. The *de facto* governance, however, rests 60% with customary authorities, 25% with the state, and 15% with individuals, business and other legal entities (GRZ 2010a; cf. Unruh et al. 2005b: 194).¹⁰⁰

After having provided some insights from the macro to the micro level, the following chapters are mostly concerned with one, practices of deforestation, their driving forces and enabling conditions, and two, the village level. Starting from there, however, connections to the wider region or the capital city will be included as well, as lined out in the methodology chapter. In the next chapter, I will offer insights into the most salient non-timber forest products. To know more about their extraction is important in three aspects: first, some of the practices are linked to deforestation or forest degradation. Second, it will further show how people value and interact with their natural environment. And third, it will help to understand a more subtle dimension, namely what prevents the residents of Kansenga and beyond from clearing the woodlands surrounding them (cf. Wunder et al. 2014).

⁹⁹ According to the annual budget for 2015, the Serenje District was allocated 0.00 USD (GRZ 2014a: 1167), yet according to the officers themselves, they were paid their monthly salaries.

¹⁰⁰ The example of the Serenje National Forest adjacent to Kansenga's south (see Chapter 9) will illustrate how the ownership and governance of woodlands and forests can also be challenged and shift over time.

5. Edible products and medicine from the forest

The woodlands within and surrounding the community, including the National Forest, offer a wide range of resources, with trees utilized for a number of purposes being the most obvious one. In addition, there is a range of edible resources such as fruits, mushrooms, or honey – so-called non-timber forest products (NTFPs). Their consumption has been researched for a long time and in many regions across the globe, including Africa and the *Miombo* woodlands (e.g. Syampungani et al. 2009, and Shackleton et al. 2011). Yet for the Zambian context, and the Zambian *Miombo* woodlands in particular, the literature is based on out-dated empirical data, with a few exceptions (e.g. Mulenga et al. 2014). Moreover, apart from abstract discussions of NTFPs and disaggregated national data, precise ethnographic and ethnobotanical insights are still missing. Lastly, charcoal and firewood are often included in the literature on NTFPs, yet for the purpose of a more refined analysis with regard to deforestation, they will be discussed separately in this thesis: since they are wood-based resources, the consequences of their extraction clearly differ from non-timber forest products. As an up-to-date inventory of NTFPs found in the Zambian *Miombo* woodlands does not exist, the present chapter shall lay the foundation for further research, add to the existing, scattered knowledge, and thus allow for comparison. While I manage to provide an extensive list of products, translations into English or botanical names are yet to be completed by experts.

Within Kansenga,¹⁰¹ mushrooms, tree fruits, bush meat, roots, tubers and so-called ‘wild vegetables’ are consumed by the vast majority of households. Furthermore, a large number of trees – or rather their roots, leaves, and bark – are widely utilized for medicinal purposes. Moreover, locally sourced honey, bush meat, and insects such as caterpillars and termites are also part of the diet, though to a lesser extent due to limited availability. Even though all products can be clearly allocated to an individual’s Farm, collecting them without asking for permission is common and widely accepted. While the products are collected by most households themselves, only a few wealthier households buy them from their neighbours, who also sell to passing motorists along the Great North Road from time to time. Rare products like honey and insects consumed in Kansenga are also bought in *Boma* at times.

Despite the practical relevance of NTFPs in Kansenga, gathering information was not an easy undertaking: due to the products’ seasonality, they were not part of any household’s budget or working plan and thus hardly foregrounded (cf. Syampungani 2008). They were not considered to be ‘real’ food or sources of income, as they are – in contrast to farming – not linked to the formal economy. Moreover, they are hardly linked to town, which is

¹⁰¹ The chapter at hand is concerned with NTFPs collected and traded by households living in Kansenga only. Chapter 9 will then provide insights into the NTFPs collected by households living in the National Forests.

important for anything to qualify as ‘a business’. So most households only confirmed collection of specific products when explicitly prompted during interviews or group discussions.

Besides, with regard to medicinal trees, most indigenous knowledge, such as local names, proper preparation or utilization, is mostly held by elderly people. The knowledge was accumulated when the woodlands were less depleted, yet nowadays it is fading away within the community and arguably altogether. In contrast to fruits or mushrooms, for example, not all households could function as experts. In contrast, most informants below the age of 50 years pointed out that they had also learned a lot about medicine during the meetings.

But how are NTFPs related to deforestation? Within Kansenga, all households have observed the decline of NTFPs, which they ascribe to the loss of trees, as well as the reduction of rainfall and shade. On the other hand, the utilisation of fire, which is related to several NTFPs, has also contributed to the degradation of the woodlands themselves. The following description of the most salient products will help to better picture how people interact with their environment, and how the availability of NTFPs possibly influences deforesting practices. I will begin by presenting the collection of fruits and mushrooms, the most popular products, followed by ‘wild vegetables’ and other NTFPs. Thereafter, I will discuss the ramifications of fire utilization, and finally address the obvious idea that the desire to preserve NTFPs can translate in forest conservation (e.g. Mickels-Kokwe 2006).

Edible tree fruits and mushrooms

Edible fruits (*Ifitwalo*) from trees are arguably the most important NTFP in the *Miombo* woodlands. Within the research community, fruit-bearing trees were of crucial importance as well, even though their consumption was hardly reflected upon. Every year, before the onset of the rains, all households begin to prepare their fields on a daily basis for the coming season. At the same time, after the dry season is about to come to an end, a number of trees begins to drop ripe fruits ready for consumption. For several weeks to come, all but a few households go into the bush ‘just after knocking off’ from preparing the fields in order to search for fruit on and around their favoured trees, while other fruits are also found by chance when walking through the bush, herding animals, searching for timber or other NTFPs. During the few weeks preceding the rains, fruits are gathered on an almost daily basis until they are finished, and are consumed either directly or as an in between meal, thus contributing to each and every households’ diversification of diet. While this diversification was appreciated as an end in itself, it was never said to be beneficial or healthy due to the fruits’ vitamins or minerals.

The fruits of the *Musuku* tree¹⁰² are the most common and popular of all tree fruits. The fruits known as wild locquats are usually eaten on-the-spot or added to an early morning porridge before going to the fields. *Masuku* are plentiful all over my research area, with some 'hot spots' in the bushier places of the *Mpanga*. While adults go there with buckets in order to collect up to two gallons for family consumption, children consume the fruits as a snack literally along their way. One Lala saying is even linked to the activity of gathering *Masuku*, roughly translated as "one rotten *Masuku* fruit does not make a bad tree", yet if you're foolish enough you think all of the fruits have turned bad, just like when talking about other families'¹⁰³. Besides *Masuku*, there is at least a handful of other tree fruits which are commonly collected.¹⁰⁴

Similarly important as fruits are mushrooms (*Ubowa*).¹⁰⁵ Thanks to the high amount of rainfall on the Central Plateau, its woodlands offer a wide range of edible mushrooms, which are consumed by most residents as well, apart from those who dislike them. In contrast to fruits, however, they have considerably decreased in number over the last years, which is attributed to the expansion of villages, the reduction of rainfall, and human-induced bushfires. Usually in the second month of the year, when the new rains have already watered the soil for several weeks, adults equipped with pots, baskets or buckets head out into the forested patches of the community. Depending on individual taste preferences and the availability of mushrooms, which fluctuates every year, they are collected on a daily basis, or just a few times before they are depleted. While the lion's share is immediately prepared as a relish¹⁰⁶ for dinner, a smaller part is usually dried and stored for later consumption, and if the preferred type is in abundance, it can even be served all week long. Due to the experienced decline of mushrooms, however, several residents have resorted to easily accessible parts of the National Forest, where mushrooms are still available in larger numbers. Not only households residing near the Forest, but also those living furthest away, up to almost 10 km, have reported regularly going there in order to collect mushrooms – and if one is too late, others might have already finished them. While the households of Kansenga usually collected just enough mushrooms for home consumption, those from 'over the tarmac', that is, closest to the National Forest, collect them in bulk in response to the demand from motorists and traders from town.

¹⁰² For a list of the most common trees found in Kansenga and Milombwe, see Appendix A.

¹⁰³ Collins Miselo during an interview at Musonda Farm in northern Chibobo on July 19, 2015.

¹⁰⁴ The most popular tree fruits collected by the residents of Kansenga are *Mpundu*, *Mufungo*, *Tusongole*, as well as *Musafwa* and *Makonko*.

¹⁰⁵ The most common types are *Katoto*, which is found during the early rains, *Tente/Kabansa*, which is the most popular one, followed by *Ichikolowa* (*Termitomyces titanicus*) – a popular though rare large umbrella mushroom that can feed several adults. Other types include *Bwitondwe*, *Musefwe*, *Sanda*, *Usepa*, and one type only known as *Fungus*, which grows on wood during the last months of the rainy season, and is mixed with groundnuts as a relish. For further details on the edible mushrooms, see Pegler & Pearce (1980).

¹⁰⁶ 'Relish' refers to any kind of side dish that accompanies a carbohydrate, usually *Nshima*.

While both mushrooms and fruits represent a welcome culinary change to most households in Kansenga, they can be truly important for the poorest. Especially to subsistence farmers, who regularly finish their staple food *Nshima* before the new harvest, mushrooms and fruits, though important products, do not ensure food security. Besides those two, there are several roots, tubers and so-called ‘wild vegetables’, which are also collected in and around the community. While most of them can be found in non-forested landscapes, they were primarily collected in the bushes (*Mpanga*). In order to provide a more comprehensive picture of the village life, I will briefly present them as well.

Roots, tubers and wild vegetables

First and foremost, the *Munkoyo* root (*Rhynchosia & Eriosema*), about 1 cm thick and up to 15 cm long, is the major ingredient of a very popular drink also called *Munkoyo*. The roots are first soaked in water, then beaten until tender, and eventually added to a watery porridge made from maize flour. The roots do not add much taste, but give a yellowish colour, and – claimed to be the most important function – make the porridge runny again. It is left to cool down and then taken with lots of sugar. In contrast to mushrooms and fruits, the roots can be collected all year round. Up to twice a week, usually women go to the nearby *Mpanga* or into the National Forest in order to dig for the roots. If the collection site is far away, the site is frequented less often, with the roots being dug in bulk instead. Depending on the number of roots collected and consumption patterns, they can then last for up to three months of home consumption. Similar to mushrooms, people from ‘across the tarmac’ have been accused of plundering the National Forest too quickly. Since around 2010, the root has been subject to increased demand from the eateries and lodges in *Boma* and also Lusaka. While those households collect them for sale, only a single household of Kansenga named *Munkoyo* as a source of income, selling the drink on the doorstep. However, many others, who did not mention it during the census interviews, also sold it though on an irregular basis. Since it is so widely collected, there is always one place in the community where it is sold in cups and 2.5 litre containers. In a few households, the drink was left to ferment for a few days and then sold or taken as an alcoholic refreshment.

A similarly popular delicacy is *Chikanda* – small round tubers of orchids. They are found near the sources of streams, where they are dug out just after the rains have ended, that is, from about late February up to early June. Their white radish-like pulp is pounded and mixed with ground peanuts and chili pepper, salted, boiled, and formed into a vegetarian ‘meatloaf’ widely known as ‘African polony’. Similar to *Munkoyo*, the collection, processing and sales was a female business only. While most households from Kansenga only collected it occasionally for home consumption, at least two households went on a

weekly basis to the National Forest in order to dig tubers for sale. On the other hand, a few households entirely refrained from foraging for tubers out of fear of snakes that are imagined to live in great numbers near the streams. At both central places of the community, still-warm slices of the meatloaf are offered to passers-by who eat them directly as a snack or take them home for dessert. Besides this rural consumption, demand from urban populations has been increasing as well over the last 20 years, as a result of which Soweto market in Lusaka, for example, has been supplied with *Chikanda* tubers from Tanzania's Southern Highlands, Malawi, the DR Congo, Angola and Mozambique (Veldman et al. 2014). While *Chikanda* tubers or the meatloaf has also been hawked at bus stands in *Boma*, at permanent police check-points along the Great North Road, and on many markets across the country, residents of Kansenga had not yet supplied markets outside the community, which, however, is likely to change if the demand is sustained. Again, a number of people from 'across the tarmac' had already come to the National Forest in order to collect tubers for sale along the Great North Road.

Besides roots and tubers, there is a good number of wild vegetables or leaves picked from the *Mpanga*. Usually around December, wild okra known locally as *Delele/Mulembwe* (*Abelmoschus esculentus*) is collected and prepared as relish. During the rainy season, the red leaves of wild spinach (*Amaranthus spp.*), known locally as *Ibondwe*, meaning 'blood giver', are consumed as side dish. Those and several others¹⁰⁷ are not grown in gardens but rather seen as tolerated weeds.

The list of edible NTFPs provided above is substantial but still not complete. After having presented vegetarian products only, I will now turn towards bush meat offered by the woodlands within and around the community.

On digging rats and collecting insects

One of the most desired forest products is certainly bush meat. Bush meat from big terrestrial mammals such as antelope types is sold several times a year in the community by hunters from either the northern game management areas (GMAs) on the plateau surrounding Kasanka National Park, or from the southern lowlands 'behind the escarpment' heading towards Luangwa River and the adjacent National Park (see Fig. 4).¹⁰⁸ Since none of them acquires a licence, their hunting is considered to be poaching, which is deemed to be illegal by law, punished with imprisonment of up to 20 years, and the rangers of Zambia's Wildlife Authority (ZAWA) are known for making short work of poachers. A leg of a gazelle,

¹⁰⁷ During the onset of the rains, *Ichitashi* and *Impumpule* are gathered by many households about twice a week. As the latter is found along streams, the fear of snakes prevents many from continuing when the first fresh grass has sprouted. Moreover, *Kanunka* (*Bidens pilosa*) and *Ndulwe* (*Solanaceae*) were mentioned as part of the diet.

¹⁰⁸ 'Kasanka' is well-known beyond the district for its annual mass migration of straw-coloured fruit bats.

however, is sold for up to 40 ZMW, which makes it highly profitable and hence worth the risk to a few men.

Apart from that, wild animals are also hunted within the community – in the woodlands, the National Forest, on agricultural fields and open grasslands. A major sought-after bush meat is from the cane rat, locally known as *Insengele* (*Thryonomys*). Throughout the year, they are trapped by a few households from time to time in home-made traps using empty paint cans, which are usually set at dusk and checked at dawn. During the very first week of my fieldwork, two farmers passing by my house proudly presented a live, 30 cm-long – excluding the tail – cane rat to me. They had set the can trap on their farmland just a few hundred metres from my house. Since it weighed several kilograms, my research companion emphatically asked me to buy it, which I did for slightly more than the usual price, for 30 ZMW. One of the trappers cut its throat, and my research companion's wife dried and later prepared the meat. While all people know and many have tried *Insengele*, a full year may pass without seeing a single rat. Equally rare but popular is the meat of the *Katili*, a wild hare, as well as that of duikers and rabbits, *Mpombo* and *Kalulu*. During the onset of the rainy season, when visibility is good due to short or burnt grass, both are caught with home-made wire traps,¹⁰⁹ chased with dogs, or – by two men in the entire community – hunted with a rifle.¹¹⁰ Big moles were also caught in traps or dug out, though not more than a few times per year.

The most common and popular bush meat were different types of mice, with *Imbeba* being the most common one. During the rainy season, the animals and their holes are difficult to spot, and they have too many worms inside them. That is why, only after June and in particular towards the last months of the dry season, male children set out on a regular basis to 'dig rats', as it was locally called. Some dig them on a daily basis, others try their luck twice a week, sometimes accompanied by their father or adult brothers. In late October, after about half a year of drought, my neighbours' children invited me to join the hunt. Importantly, in order to clear the hunting ground and to better spot mouse holes on the surface, dry grass or harvested maize fields are first set on fire. Then, armed with a hoe, the boys started from the hole and followed the tunnels for several metres. When the mice were trying to escape, they playfully ran after them, trying to hit them with the hoe or their hands. Eventually, we managed 'to dig' twenty rats within less than an hour, yet another day of the same week, we returned empty-handed after more than two hours. While most mice are instantly prepared for dinner, some are dried for consumption several weeks later. In contrast to many products mentioned above, 'digging rats' is rather seen as an entertaining

¹⁰⁹ One day on the motorbike, I accidentally ran into such a wire trap in the northern, hilly part of the community. Fortunately, I neither strangled myself nor crashed.

¹¹⁰ One of them, who happens to be one of Chibobo's 12 *Sulutanis*, masters the production of rifles. While most metal material is sourced in *Boma*, the entire stock is made from wood sourced within the community.

leisure activity. According to interviews, the amount of mice has not been decreasing, yet they are too unreliable to be included in the diet.

Besides rats and mice, birds are also hunted within the community, though less frequently. One particular tree, which is found on the hilly side of the community in between rocky outcrops, releases a sticky mass when it is cut or scratched. Bird and small insect hunters collect this natural adhesive and fry it in cooking oil in order to make it more elastic. It is then smeared onto the head of a wooden stick, which can thus be used as a trap. A further local delicacy is different sorts of grasshoppers: they are collected while cultivating fields, yet despite their abundance, they are not gathered in bulk, but rather seen as a tasty bite. Another much smaller insect, *Inswa*, a type of flying termite, is another popular delicacy. In *Boma*, they are sold for about 5 ZMW per small cup, which is relatively expensive, yet in Kansenga, they are not collected in bulk. However, every year, a few households and many children gather them for immediate consumption. With the first torrential rainfall after the long dry season, *Inswa* seem to come from nowhere: millions of them hectically crawl through small holes from underground, spread their wings, and suddenly are all around. After the downpour, the ground is covered with a carpet of discarded wings. Most likely, all this has to do with their mating process, yet nobody in the village had much knowledge on this. While the termites were still flocking around, children started gathering the fallen ones one-by-one, or simply picked them straight from the holes in the ground. After a few minutes, the children's buckets were full to the brim. Professional vendors, in contrast, make use of light in order to collect them: a bucket filled with a little water is carved into the soil, with a candle or a mobile's torch next to it. Since the termites are attracted by light, they flock towards it and often end up in the water. For consumption, they are dried and deep fried, which makes the wings drop off.

In addition to all of the animals and insects mentioned above, edible caterpillars (*Ifishimu*) are also part of the diet.¹¹¹ During the late dry season, they are harvested one-by-one, by shaking the tree or branch, or by cutting down trees. If the collection sites are too far away, the latter has been locally condemned as 'destructive', as fallen trees cannot be utilized afterwards anymore as firewood or timber, but will go to waste. Over the last decades, caterpillars have in fact become less prevalent within the community, which is said to be due to deforestation, poor rainfall and bushfires during the *late* dry season. During fieldwork, only a few households felt lucky to have found them by chance, yet most households have bought them from time to time in *Boma*. There, they are on sale almost throughout the year as they appear in abundance within the greater region, with both regional and seasonal variation. A small plastic bag of caterpillars for about 5 ZMW serves

¹¹¹ The most common types collected were known locally as *Mumpa* (*Gonimbrasia zambesina*), *Chipumi* (*Gynanisa maja*), *Imishila*, *Miyongolo*, *Utukoto/Nokutoto*, *Finshima*, *Chipolo*, *Mubundiku*, *Fikoso* (*Cirina forda*), and *Mpambata* (*Imbrasia epimethea*; all local names are taken from Mbata et al. 2002: 119).

as a relish for one adult, which makes it relatively expensive. A few adults also travelled to nearby regions on the Plateau such as Lupiyah, Chibale, Mailo and Kanona, where caterpillars can be found in great numbers, though it was always combined with family visits. Just as during 'digging rats', fire also has its role for the caterpillar harvest: during the dry season, bushfires are deliberately set in order to burn the woodlands' dry leaves. A few days thereafter, new leaves rejuvenate even without any rainfall. The flush of new green leaves is said to attract caterpillars and to ensure they will stay, survive, and breed. In other parts of Serenje and Mpika, where caterpillars usually abound, the respective Chief himself had ordered his people to set fire during the dry season in order to guarantee a good harvest – though not too late in order not to burn the caterpillar eggs. This is similar to what Eriksen (2007: 249) found for a region north of Chibobo, where the Chief orders his people, *Chilolos* and *Sulutanis* to do so and penalizes non-participation. By doing so, he not only breaks local customary law, but also the statutory Forest Act of 1999, which prohibits setting fires after August (Eriksen 2007: 251). Importantly, while the salient caterpillars' preferred host tree is the *Mutondo*, the fire runs through the forest rather randomly. Due to the damage linked to caterpillar collection, both fires and the cutting down of trees, Zambian forestry officers have even considered caterpillars as pests (Syampungani et al. 2009: 153). Before shedding further light on the ramifications of fire utilization, I will turn towards the last but one non-timber forest product, which is honey from wild bees.

Honey hunting

Four households of Kansenga were involved in regular honey hunting, which is not to be conflated with bee-keeping. Whereas the latter is aimed at breeding bees and cropping honey, the former solely aims at collecting honey from feral colonies of bees. On top of the four households, several adults – exclusively men – and especially children did not specifically set out, but also tried collecting it when found accidentally. Honey hunting, even though practiced only every once in a while, also improves the diet of many households, including their neighbours or relatives, who often receive a share. Zambia's 'liquid gold', as it is called for marketing purposes, is found twice in a year: just after the rainy season around April, and again around October, before the onset of the rains, when trees start re-sprouting and flowering. Not only trees are searched for honey, but also underground termite nests. Once abandoned by the termites, the nests are sometimes taken over by a swarm of bees. One household used a football-sized abandoned termite nest even for attracting bees:¹¹² he hollowed it out, smeared some honey in the inside, stabbed bigger

¹¹² As they are found nearby the sources of streams and their extensive wetlands, they are used as an indicator for water underground. Since they are hard as stone, empty nests are also used as stools in kitchen huts, or for grinding grains of millet.

holes in the surface, and put it onto a tree. He also applies the same strategy in standing trees, which he then covers up with soil. Another man ordered a few tree hives for his garden from pieceworkers. When bees are found in there, on a tree or in a termites' nest, they are first smoked out in order to disturb their communication, which prevents them from stinging or a collective attack. Thereafter, when the colony has left the nest awaiting instructions from the queen, the entrance is opened by axe or hoe, and the honeycomb is extracted by hand, without any protective gear. Up to five litres of raw honey, including the comb, pollen and moisture, can be extracted in such a way. It is usually consumed unfiltered over the following weeks, with parts of it being boiled and put into jars for future consumption. Once when I participated in, or rather observed, cropping honey from an underground termite nest in May 2015, the bees had not yet produced any honey. In order to make sure the bees would not abscond, the hunter closed it up with logs and soil again. In order to assess the availability of honey in a tall, promising tree, another man even constructed a ladder to ensure that he would not cut down a tree unnecessarily. Others, however, would also torch a taller tree to make it fall. Crucially, honey hunting has had some destructive effects on the woodlands: according to one hunter himself, when they fail to extract any honey, they do get annoyed and you just leave the fire used for producing smoke, which then can spread across the landscape, especially during late dry season.

Most households had their knowledge on bees and honey either from the Green Living Movement (GLM) – the NGO my research companion was working for –, from 'Community Markets for Conservation' (COMACO), word of mouth, or as the result of trial and error. One particular strategy has only been applied by a single household, though was frequently reported about – cooperating with *Mwebe*, the so-called 'honey bird'. After whistling to the bird, it 'flies ahead and returns, skimming the ground to show where to go and to show it is still there, upward and downward again. In this way, the bird leads the human to a bee's nest in the tree' (Ijzermans 1995: 261).¹⁴³ While humans then take the honey, the comb with larvae, bee grubs and beeswax is left for the bird. Another man has refrained from 'trusting' the bird as it can even lead to you to a snake. On a national level, about 20,000 households all over rural Zambia, mainly in the *Miombo* woodlands and their transition zones, partly derive their income from such professions (Husselman 2008: 1 f.), with strongholds in North-Western and Central Province. Driving through the woodlands of Central Province, honey is offered all along the Great North Road, especially approaching Lusaka. An increasing number of NGOs promote beekeeping, provide training and inputs, and employ beekeepers through out-grower schemes, later selling the honey, which is mainly organic, to supermarkets and shops in urban areas. Zambian honey is also exported to the UK (55%), Germany (35%), Arab countries, the U.S., and Zambia's neighbouring countries

¹⁴³ In one of the first written though fragmentary introductions to the Lala language, a short story about 'The Honeybird and the Stork' (Madan 1908: 53) already confirms the local relevance of the bird.

(Husselman 2008: 3). Besides honey, beeswax is sold in local markets or by hawkers at bus stands as floor polish, for making candles, or to beekeeping novices who use the wax for baiting their hives. Given Lubinda, the Minister of Agriculture, also proposed growing flowers specifically for beekeeping in a BBC interview – as Zambians 'have a lot of land' (BBC 2016).¹¹⁴ In order to promote this business, the Green Living Movement (GLM) has also supplied some NGO members in Kansenga with bark hives – they can now harvest several kilograms for home consumption a year. While honey from Kansenga has not been traded outside the community and hardly within, it is likely to gain popularity in the future due to its promising economic potential. When practiced on a larger scale though, the aggregate effect of bark-hive and fibre harvesting can also contribute to forest degradation, which ultimately may even reduce the number of bees (Mickels-Kokwe 2006: 20).

Last but not least, I will briefly present another widely used non-timber forest product, namely trees or rather their components that are used as medicine.

Medicinal trees

For a long time, many Kansenga households have relied on trees and other plants as first aid, for treating the most common symptoms such as diarrhoea, coughs, headache, toothache, stomach pain, or rashes.¹¹⁵ More precisely, sexually transmittable diseases (STDs; especially *Ulushinga*), malaria, as well as flu, which are the most prevalent diseases, are also treated with ingredients from local trees.¹¹⁶ Besides humans, chicken diseases were also cured, and snakes were repelled by making lines around one's house with certain ingredients. Besides curing diseases, a number of trees are also used as an aphrodisiac – against erectile dysfunction, to increase sexual appetite, or to increase the body temperature before sexual encounters.

While there are a number of different formulations, the most common one is the grinding or soaking of bark, which is then boiled with salt and drunk, or rarely inhaled or sat in. Leaves are also chewed with salt, and at times, roots, fibre or leaves are beaten or soaked. The liquid is then used for flushing noses or irritated eyes, or applied externally, sometimes mixed with Vaseline, on wounds, sores or scars. Moreover, seed pods are warmed on the fire, to be used on swollen body parts, or boiled with water to be drunk for anaemic patients. Penis enlargement has also been a topic, yet in comparison to all other treatments, it was linked to a ritual: a certain tree fruit needs to be touched and picked once 'big enough'. If the patient forgets or does not find the right fruit anymore, he will be, quite

¹¹⁴ Chapter 8 is devoted to this (flawed) representation of land abundance.

¹¹⁵ The most common trees used to treat a wide range of symptoms are *Kafungo* (*Cassia abbreviata*) and the *Mutondo* tree (*Julbernardia paniculata*).

¹¹⁶ The fact that the linguistic root of tree/trees (*icimuti/ifimuti*) is the same as that of medicine/medicines (*umuti/imiti*) was not attached any particular meaning.

literally, in big trouble. While men liked chatting about this during the group meetings, most people were doubtful about its effectiveness.

Since almost all trees are used in one way or another for curing illnesses, the bush is viewed as an ‘open pharmacy’ to which access is virtually free.¹¹⁷ However, since the clinic was opened in 2012, access to, and the popularity of pharmaceuticals has increased substantially. The clinic personnel reports that there is a general preference for tablets and injections nowadays, with the widespread assumption that they represent a universal remedy. Not only painkillers, but also antibiotics are generously dispensed in Chibobo free of charge, which has already created an overreliance. However, while the clinic is supposed to serve at least 6,000 people living within the vast catchment area, it is still up to 7 km away from the furthest Farm of the community. Consequently, medicinal plants are still of high importance to many households that are more remote (Syampungani et al. 2009), especially as first aid. Only when the pain persists do distant settlers walk or cycle to the clinic.

Its personnel, which is only one male nurse and one clinical officer, does not dismiss traditional medicine, pointing out that pharmaceutical companies also extract efficacious remedies from trees, like quinine against malaria that is extracted from the Southern American Cinchona tree. The difference to ‘evidence-based medicine’, as the nurse puts it, simply is that ‘many local medicines are not researched, so we simply don’t know whether they are doing good or harm’, nor is there knowledge about the proper dosage or lines of treatment.¹¹⁸ The same holds true for the ‘Sondashi Formula 2000’ – a mix of four indigenous plants aimed at curing HIV that has been ‘discovered’ by a Zambian. Consequently, he ‘would never send people to the bush’ or to a traditional doctor. In contrast, he already had to transfer patients to the Serenje District Hospital in *Boma* due to an overdose of ‘wild medicine’. While the nurse can recount several stories, one of my informants in his mid-50s also remembers how he was once troubled with a persistent erection after drinking too much of a traditional medicine made from leaves.

After having presented a multitude of non-timber forest products that can be found in Kansenga, I will now offer some reflections on the future use of edible forest resources and medicine.

Foraging or farming?

On the one hand, NTFPs have been utilized for supplementing the diet, for diversifying income, and also as a safety net during times of stresses or shocks (Shackleton et al. 2011;

¹¹⁷ For a collection of medicinal trees collected by households from both Kansenga and Milombwe, see Appendix A. Importantly, the trees listed as ‘medicinal’ were first and foremost used as medicine, while many of the fruit or timber trees named in the list were also used for medicinal purposes.

¹¹⁸ Clinic officer during an interview at Chibobo’s Clinic on July 18, 2015.

Mulenga et al. 2014; Wunder et al. 2014).¹¹⁹ Especially for the poorest households, the availability of NTFPs has reduced food costs. Besides rural populations benefiting from edible forest products, fieldwork has also found a rising *urban* demand for many products, which disputes the blame of rural communities for unsustainably exploiting their woodlands. Due to increasing demand, the commercialization of such products, including payments for ecosystem services (PES), has been suggested (Syampungani et al. 2009). The economic benefits associated with NTFPs, but also culinary preferences, can arguably translate into sustainable or at least more cautious practices (Mickels-Kokwe 2006: 20): in order not to aggravate the situation, fruit trees, for example, are spared from being cut down. However, I argue that other profitable livelihood options like livestock rearing, the production of charcoal, the extraction of timber, and especially maize farming, will always be preferred over the conservation of NTFPs. Instead of fostering sustainable practices, money made from fruits, mushrooms or honey, will rather be re-invested in more promising livelihood activities. Even in times of crop failure, or as a gap filler during slack periods, for example in between two harvests (Wunder et al. 2014), most households are more likely to resort to the production of charcoal, or the extraction of timber for sale. This, in turn, is due to the circumstance that NTFPs are not sufficiently available in order to compete with other livelihood options, which all entail deforestation.

Finally, I will now return to an issue closely intertwined with NTFPs, which is the utilization of fire. On a regular basis, the fires set in the course of collecting NTFPs get out of control and eventually affect the landscape. Beyond this connection to NTFPs, the following pages will provide a few more insights into the drivers of bushfires regularly experienced in and around the research community.

Burning the bush and cleansing the land

Bushfires are a common phenomenon encountered in Zambia, especially during the late dry season. Burn scars on remote sensing imagery from UNEP et al. (2013) show that 60,000 to 170,000 ha per year fall victim to anthropogenic and natural bushfires in Zambia.¹²⁰ While the precise role of fire and forest degradation – or, in contrast, regrowth and diversification – is yet to be properly understood (Fairhead & Leach 1996; Eriksen 2007), bushfires have been blamed a lot in the research community for the reduction in numbers of mushrooms, fruits, and caterpillars. Utilising fire before the caterpillar harvest, during honey hunting or digging rats, for example, is said to have negatively impacted the

¹¹⁹ Studies that conceptualise charcoal as a NTFP obviously suggest an even higher importance of NTFPs as safety net and livelihood option.

¹²⁰ Since the canopy often remains intact during bushfires, the disturbance of the undergrowth and grass, which is also relevant in terms of carbon loss, is difficult to be detected through remote sensing (Boucher 2011a: 5). The burnt area is thus likely to be even greater.

surrounding woodlands: they regularly get out of control, sweeping across hectares of land, burning grass, the soil and trees. Moreover, tree seeds, seedlings and saplings are damaged or destroyed every season, which means that vegetation remains degraded (Frost 1996: 53; Elias & May-Tobin 2011: 23 f.), with the gradual replacement of fire-sensitive tree species by fire-hardy species (Mickels-Kokwe 2006: 18). Spaces with burnt trees are then not only more susceptible to fires, but also to further extractive activities as it is easier to cut damaged trees down, and inhibitions about doing so are lower (cf. Elias 2011: 66, 71 f.). With the decrease in the number of trees, grass production increases and provides – in the absence of herbivores – even more fuel for fires, and so forth (Frost 1996: 48, 51; Elias 2011: 66). Within Zambia, the District of Serenje has been among the four most fire prone districts of Zambia between 2012 and 2017 (WRI 2017b). However, 74% of all households in Kansenga indicated during the census that bushfires have de-created in comparison to the past. This was clearly attributed to rainfall reduction, which decreased the overall amount of grass during the dry season. In the past, people announced when they were going to light a fire during the dry season, as even controlled burning was a challenge due to tall grass. Yet nowadays, ‘people just burn anyhow’¹²¹ and do not even establish firebreaks around their Farms anymore. Against this background, bushfires in the research community contribute to forest degradation rather than deforestation. While I agree that the extraction of NTFPs by rural communities has so far had a minor environmental impact (Mulenga et al. 2014: 501), the impact of related bushfires on rural life should not be neglected: across the country, deep black clouds of smoke appear regularly after July. Equally within Chibobo, the crackling sound of bushfires can be heard almost every single day after July, with many fires creeping and smouldering for several continuous days. Along the streams, however, where grass is plentiful and stands tall, bushfires spread in no time at all. As such fires can quickly destroy the entire harvest of a household, farmers hurry to bring in their produce as quickly as possible around the middle of the year. Besides this direct danger, settlers have also pointed to the more subtle consequences: in August 2015, twelve people perished during a car accident on Great North Road, including one man from Kansenga. Dense smoke emanating from a bushfire had prevented proper vision, but the driver overtook causing a head-on collision.¹²² Besides, fires regularly cause tensions when they skip natural firebreaks such as dirt tracks, pollute the air, and cause even bigger bushfires, ultimately destroying houses. In August 2015, for example, an extensive fire destroyed one house in one of the central areas of Chibobo. More often than not, the source and original cause of the fire cannot be identified and held accountable anymore, yet mostly boys are accused of digging rats, or playing around with matches. In all cases, the fires were said to be man-

¹²¹ Charles Chilekwa during the census interview at his Farm in Kansenga on February 13, 2015.

¹²² It is a common strategy across rural Zambia to lay down a number of broken branches a few hundred metres before the scene of an accident or breakdown on the road in order to warn other motorists, which was jokingly mentioned when prompting deforestation practices.

made and not lightning-induced, but according to my own observation, they were not always caused by careless boys, but also by adult men discarding cigarettes, or people burning rubbish nearby the woodlands. Moreover, some of the 21 households of Kansenga which keep cattle or goats¹²³ have also utilized fire during the dry season in order to stimulate new pasture growth, kill pests, and also saplings which would otherwise shade out the grass (cf. Boucher 2011b: 44). The two photos below show what happens after dry grass has been lit on fire: it sweeps across the forest floor – and a few days later, fresh grass shoots out of the burnt soil.



Fig. 9 Utilizing fire to stimulate re-growth of pasture grasses and leaves

Even more often, however, fires were caused by farmers ‘cleaning’ their harvested maize fields for future cultivation, which at the same time is expected to minimize weeds and pests. After the harvest and threshing, large amounts of dry shelled maize cobs are also piled up and set on fire. Depending on the amount harvested, some cobs are used as a substitute for firewood, yet large quantities are also burnt, usually just next to each and everyone’s household, where they have been processed for sale. All this happens during the driest time of the year and often continues, without any observation, into the late night, which is why runaway fires are common. On top of this, fire has been utilized around houses, market places or the school – in order to destroy a habitat suitable for snakes. Equally, in order to get rid of owls preying on chicks and chickens, bigger trees are brought down from time to time. At the same time, when owls have not nested, large trees are conserved in order to block the birds’ view. ‘Cleansing’ is the most popular strategy for creating safe spaces, and the common expression ‘Only a dead snake is a good snake!’ captures the attitude in the

¹²³ Only two households of Kansenga owned cattle: while one had five heads of cattle and no goat, the other one owned 21 heads of cattle and 11 goats. 15 more households kept between 1 and 5 goats, with five more keeping between 8 and 14.

community well. When a snake is seen but cannot be killed due to its distance or pace, nearby dry grass is immediately or later set on fire to make sure it will not come back. Since snakes are vehemently feared within the community, one man who would like to collect *Chikanda* tubers along streams even wished to have more bushfires in order to wipe them out. In contrast to 'digging rats', 'fighting snakes' is one of the more accepted explanations for deliberately setting fires.

After having pictured how the residents of Kansenga see and value their natural environment, and how this in turn impacts on their practices, the following chapter will take a closer look at the diversity of practices contributing more directly to forest degradation or deforestation. I will begin by portraying an everyday practice, which has explicitly been linked to deforestation – the collection and consumption of firewood. Thereafter, I will discuss agricultural practices, mining activities, logging, and, as a matter of fact, the production of charcoal.

Part II

6. Practices leading to forest loss and degradation

6.1 Collecting firewood

Similar to many other Sub-Saharan countries, the main source of energy in Zambia is wood fuel. Taken together, firewood and charcoal are estimated to account for about 84% of the national energy consumption (CSO 2015: 12). While charcoal serves 59% of the 6.5 million urban households, about 85% of the 9 million rural Zambians (CSO 2015: 1, 12) mostly use firewood as a source of energy, for both cooking and heating (Turpie et al. 2015: 16), while the latter is often done in conjunction with the former (Mwampamba et al. 2013: 76).¹²⁴ Despite this prevalence, there are no recent studies on the production and consumption of it (EC 2014: 38). The few studies available mainly deal with trading on a national scale, often aggregate charcoal and firewood, and do not offer ethnographic insights (e.g. Gumbo et al. 2013). Moreover, statistics on the consumption of firewood published from different sources vary greatly, even for similar years, and are incomparable due to different aggregations (Turpie et al. 2015: 32, 85). In the following, I will differentiate between fire- and fuelwood with the latter referring to larger amounts, such as for brick burning, drying fish, or firing tobacco barns. Both categories differ with regard to collection and consumption patterns, and consequently induce different levels of deforestation. Therefore, fuelwood is not part of the immediate discussion but rather of the subsequent chapter on growing tobacco.

The collection or consumption of firewood is often claimed to be an activity contributing to deforestation as extraction may exceed the regenerative capacity of the forests (Cooke et al. 2008: 103). As populations in the Global South increased during the 1970s and 1980s, firewood became a scarce resource. Forests decreased and the imminent ‘firewood crisis’, that dominated policy discussion well into the 1990s, was thought to end in conflict (Hiemstra-van der Horst & Hovorka 2009; May-Tobin 2011: 80). During the oil crisis of the early 1970s, the discourse gained popularity, but then slowly faded away as the impact of firewood collection had been over-estimated (Arts et al. 2010: 64).¹²⁵ According to Cooke et al. (2008: 104), even regions where forests diminished were not affected by a shortage of firewood. Despite this, the narrative has regained popularity and firewood collection is ‘back again’ on the list of Zambian drivers of deforestation. In order to put this claim into perspective, I will in the following chapter deal with access to firewood, as well

¹²⁴ For Copperbelt Province, for example, per head consumption was estimated to be around 1,025 kg for rural and 240 kg for urban households (Kalumiana 2003).

¹²⁵ For a discussion of possible origins of these ‘imagined fears’, see Ribot (1999).

as its collection and consumption for cooking and heating. Moreover, I will provide insights from the fireplace – the scene at which firewood is consumed on a daily basis all year round, in Zambia and a great many countries globally.

Nshima is on the fire

In rural Zambia, the fireplace in every *Insaka*, a grass-thatched open wooden hut that is used as a kitchen or gathering place, is of central significance. While I was sitting close to the open fire warming my hands that are dead from the cold, maize is loudly turning into popcorn in front of me. I come to realize that this is more than just an inviting place, but a *social space* (Lefebvre 1991) at which most days begin and end. Female members of the household usually get up around sunrise, thoroughly sweep the house and its surroundings, and ignite a fire. After that, some households start the day with a cup of hot water, slices of white bread, or the national staple food *Nshima*, but most households skip breakfast. In particular during the rainy season, when most of the day is spent cultivating the fields, two meals only, lunch and dinner, are most common (96.6%). Just around sunrise, all members of a household who are able to work walk on an empty stomach, with a hoe and bags full of chemical fertilizer carried on their shoulders, a few hundred metres to their farmland. After several hours of physical, monotonous labour, when the sun is up high, some of the female members return home in order to prepare *Nshima*. The meal is then either brought to the field, always served steaming hot, or one of the females calls the workers to come home soon by saying '*Nshima is on the fire*'. Regardless of the season or time, this common expression triggers a pleasant anticipation as *Nshima* is adored so much. During the dry season, when activities on the farmland are less time-consuming, breakfast is more common in the community, yet still a privilege. Most days also end in the *Insaka* at the fireplace, when all members of the household come together to have *Nshima* and a chat about the day. The foundation for this – having *Nshima* twice a day – is one, access to maize flour, which will be discussed in the Chapter 6.3 on farming. Two, it relies on the ready availability of energy:

Electricity would be one such option and poles have been mounted at the tarmac's turnoff to the community. However, they are still bare and not yet connected to the grid. Apart from regular supply difficulties, gas or petroleum are available in *Boma*, but such sources of energy, including the appliances needed, are only affordable to very few households in the community. During my entire fieldwork, I only encountered one man using diesel to run a waterpump at his garden. But for the vast majority of the population, the only energy source at hand is wood fuel such as charcoal and firewood. All but two households in Kansenga preferred firewood as fuel, including those who could easily afford or produce charcoal themselves. The major reason for this preference was the efficiency of

firewood: ‘We mainly use firewood because the water boils much faster. It’s available and we are used to it, charcoal just takes too long. My wife is not used to it, because it takes time for the *Nshima* to be cooked’¹²⁶. Moreover, firewood is cheaper and readily available, with hardly any access constraints. Only when there is not sufficient firewood for cooking at hand and one wants to beat an arriving downpour, for example, charcoal, if available, may be used in addition, to prepare the relish while *Nshima* is on the fire. But firewood is not only consumed for its availability, speed, or due to a lack of alternative energy sources, but it is also preferred in certain contexts – in face of the availability of charcoal. One such context is linked to the sense of taste: beans and traditional beers made out of millet or maize for example have to be prepared over firewood as this gives the flavour, smoky and natural taste which most generations, including those living in urban areas, grew up with (cf. GRZ 2010b: 48; cf. Bensch & Peters 2011: 19). It is impossible to prepare beer on electric stoves, which would be ‘an insult to the beer!’¹²⁷. In a similar way, in urban contexts, charcoal is the first choice for preparing meat, not only due to high electricity tariffs, but also to yield a distinctive charcoal-flavour.

Back in rural areas, firewood is not only the first choice for heating food or beverages for home consumption, but also food for sale. Firewood is the major source of energy, though in larger quantities, by those producing buns or *fritas*, sweet fried dough balls. However, if possible, the few local bakers used charcoal, which burns at higher temperatures for a continuous time. Equally, the process of burning bricks consumed firewood, but only 20% of houses are made out of burnt bricks, and the burning process is not recurring. Besides preparing food and burning bricks, firewood is also used for heating water for a bucket bath. Especially during the first months of the dry season, when temperatures just after dusk fall to 4°C, the outside cold becomes a constant topic of conversation and one does not want to wait long to pour hot water over oneself. During the cold season, the fireplace is a magnetic spot because it does not only provide heat for boiling water, but also light and a protective warmth. Whenever visitors arrive, they walk straight towards the *Insaka*, wait for an older person's welcome to enter, and sit down on the ground or wooden stools close to the fire. Especially during the colder months, open fires allow for outdoor conversations and keep them alive past sunset. In addition to every household’s fireplace, funeral ceremonies are another important site of consumption. In order to allow relatives from further away to attend the burial, the whole ceremony usually takes place at least two days after the passing has been announced. Those who have come from afar to the deceased family’s Farm will sleep in the outdoors, next to the house in which the corpse is laid out. The guests will ignite a big fire themselves and feed it with enough firewood to last the night. Clearly, this becomes even more important during the coldest weeks of the year. Firewood

¹²⁶ Charles Chilekwa during an interview at his Farm in Kansenga on May 25, 2015.

¹²⁷ Vincent Musonda during an interview with Charles Chilekwa at Chilekwa Farm in Kansenga on May 25, 2015.

is collected on a day-to-day basis by hundreds of households in the community that has been growing over the last years, so are there legitimate prospects for an imminent firewood crisis?

To the residents of Kansenga and most certainly beyond, firewood is *the* major benefit of being surrounded by the bush. It serves as a source of energy free of charge, and with little planning regarding collecting, storing and drying, it is available throughout the year. Even though firewood is collected every single day by one household or another, it is often only a 'by-product' of cutting trees for another purpose, yet firewood did not cause the clearing (May-Tobin 2011: 81). For example, after land is cleared of the forest for farming, firewood is collected for as long as possible. Remarkably, whenever new fields are opened up, or when existing farmland is extended 'into the bush', firewood accumulates and exceeds the demand of the cultivating household. As the amount is seen as excessive, trees are sold to other households who are in need of larger amounts of fuelwood, for example for curing tobacco (see Chapter 6.2). Smaller trees are usually piled in rows and burnt, which indicates that the wood available is not seen as dwindling. At the burnt spot, pumpkin and millet is planted, just as during slash-and-burn farming. Equally, when a feeder road to *Boma* was extended by the District Council, or when a path for a future extension of power lines was cleared with machinery by the Zambian power company ZESCO, an extensive quantity of firewood was released. More recently, in the late dry season of 2014, Chibobo's main gravel road was extended into the contiguous bush, and further forested patches were cleared to source gravel for the road. Many villagers passing by the site seized the opportunity and collected some logs until they were finished. Roads are considered state land but since all the adjoining land is under customary tenure, the firewood produced in due course is treated as common property. Likewise, when an observation road over the crude oil pipeline that runs through the Serenje National Forest was cleared, workers of Chibobo's orphanage came with the NGO's truck and collected all the cuttings the construction company had left. All such firewood collected from a cleared field or literally along the way, was not driving deforestation, but agricultural expansion and infrastructural developments were. Since fields are always cleared or extended during the dry season, the largest amount of firewood is 'produced' during this time and no household falls short of it.

Yet firewood is not only collected as a side-product, but also extracted from the woodlands. The majority of households in Kansenga (51 households, 78%), collects firewood from just within the vicinity of their own Farms. While most of them are lucky enough to have enough trees nearby, a few households have to walk relatively far on their land as the nearby woodlands have already been cleared for farming. Distance to sites of collection was, however, not mentioned as a challenge at all. Only three households indicated that they have to walk further than years ago, but in all cases, this was not the result of an absolute scarcity, but the wish to have the farmland close-by. Those households without suitable trees on their

own Farm (6 households, 9%) usually collect firewood on their neighbour's land, without being expected to pay in kind. This does not usually provoke conflict, as one resident explains:

There is no problem because we see when firewood is already reserved by the owners [...] and we go to those who have good personality, who don't talk much. Firewood is everything, we take even burnt logs from them, they are merciful.¹²⁸

Another man, though living in a less densely populated part of Kansenga, argues that 'there are too many people and Farms, so I have to go [to other people's Farms] when the owner is not there, or to the Forest'¹²⁹. Besides him, there were four households that did not have access to suitable trees on their own Farms and ultimately go to the National Forest. Three to four times a month, they cycle to the Forest and look for land that has not yet been settled. Three further households near the Forest admitted that they prefer collecting firewood there in order to secure the available trees on their own Farm, yet nowadays, it has become difficult as the land has also been allocated. While 57 households (88%) have extracted firewood from customary land, mostly their own Farms, 8 households (12%) have resorted to the National Forest, at times in order to conserve the trees on their own Farms. Consequently, hardly any household would subscribe to the idea of a firewood crisis. Especially during the dry season, dry wood is plentiful, easy to find and most households walk daily to weekly into the bush or National Forest to collect it.¹³⁰ This being said, there are also a few households that fail altogether to collect firewood, for example as a result of sickness or idleness. In such cases, wood is usually accessed from near the house, which in turn can cause intra-household friction as trees nearby are supposed to be spared to provide shade and wind protection. In this regard, my research companion complains about his teenage nephew:

When I'm not around you find maybe a tree is cut by this chap [points at his nephew] and you get annoyed. They cut around here for firewood, they are really too lazy to walk. I even tell my junior, that grandfather told us not to do so. If I see one with the axe here I say 'no no no no no, if you wan't to cut trees, go in the bush!'¹³¹

To most households, however, collecting firewood is unproblematic, especially during the dry season. During the rainy season, however, collection has to be planned. Since wet logs or branches are too heavy to be carried home, they are cut in sections and piled upright to dry in the sun and allow fresh rainwater to flow down. Pre-cut and piled branches are

¹²⁸ Arnold Mkosha during the census interview at his Farm in Kansenga on February 12, 2015.

¹²⁹ Frederic Tembo during the group discussion at Chisala Farm in Kansenga on May 30, 2015.

¹³⁰ Depending on the season, the weather, household structure, land tenure and the forest stock, the method and frequency of collection varies across households.

¹³¹ Vincent Musonda during an interview at his Farm in northern Chibobo on August 9, 2015.

respected by everyone in the community as 'reserved' – taking them would be considered stealing and is very unlikely to happen as most households feel surrounded by the bush and do not see any need to do so. Firewood will only be collected once it has dried and is thus lighter. Then, it is collected when returning from the fields back home for lunch, literally along the way, by hand, in an empty wheelbarrow or on a bicycle, if available. While male members of a household including young boys are expected to carry trunks or bigger logs, females regularly carry what is called a 'bunch' on their heads – several branches tied together with fibre rope that is extracted from the same trees, but mainly *Musamba*, *Kasabwa* and *Mutondo*.

Importantly, cutting for firewood does not take place indiscriminately: while firewood produced as a by-product often stems from indiscriminate clearing for farming or infrastructural development indeed, the manual extraction of firewood follows clear rules: first, rotten wood, bark,¹³² dead limbs and dry branches or twigs account for a large share of the wood collected as firewood. Therefore, it is rather seen as 'cleaning up', which moreover removes dried branches which may break down and hurt people. With regard to the species used, households are highly selective as the wood of some trees produces too much ash, too much smoke, or burn too quickly. The wood preferred most is from typical *Miombo* trees only, such as *Musamba*, *Kasabwa*, *Mutondo* and *Mutobo*. The hardest of all the trees, *Mubanga*, also gives good firewood that burns very hot and lasts long, yet is avoided because of its hardness. During the wet season, when finding dry wood can be time-consuming, however, branches of the *Mubanga* tree are preferred as they produce long-lasting embers that can even be re-ignited the following morning. A taboo with regard to the use of certain trees as firewood, as found in other *Miombo* woodlands in Malawi and Zimbabwe¹³³ was not encountered here.

Overall, live trees are seldom cut down for firewood, which is why the collection's contribution to deforestation is rather small (Hosonuma et al. 2012: 8). Additionally, after the harvest, peeled dry maize combs are used as fuel. As they burn very fast, they are used for boiling water for bathing or preparing *Munkoyo*, but not for preparing food. On the one hand, this cuts down on the amount of firewood needed. However, while I have often been told that maize combs will be used as a firewood substitute until the rains set in, heaps of thousands of combs were burnt just a few weeks after the harvest, a long time before the first rains. Afterwards, pumpkin was planted in the ash field, just as during *Chitemene* times, and firewood is collected again. Equally, firewood is not hoarded in large quantities after it has been produced as a side-product after clearing a field, but rather burnt. After

¹³² Small ants called *Mubenji* are removed first as they will defend themselves through biting.

¹³³ In the villages surrounding the Chimaliro Forest Reserve in Malawi, the smoke of a *Miombo* tree locally known as 'trouble stirrer' (*Psorospermum febrifugum*) is believed to cause family conflicts and is thus not used as firewood (Lowore et al. 1995). In Zimbabwe, taboos on using *Lonchocarpus capassa*, *Ochna* and *Maytenus* for firewood were found (McGregor 1995).

clearing forested land for farming in 2015, only 13% of the involved households utilized the trees as firewood. While some of the remaining percentage did not have trees suitable for firewood, others burnt trees as there were still some on the Farm nearer by the house. In general, according to my observations, firewood is not used in a frugal manner, but rather pragmatically: when it is difficult to buy matches locally, the fire in the *Insaka* is not extinguished but remains untouched over night to allow it to be re-ignited the following morning. In the same way, if one wants to cook fast, a big fire is produced. Only a single household in Kansenga had an 'energy saving stove' that uses improved heat circulation in order to cut down the amount of firewood needed. Arguably, all this indicates that there is no experienced scarcity of firewood, and thus no need to save on it. A single household, which was working closely with GLM, the local NGO advocating for agroforestry, has started planting fast-growing trees such as the Indian Mahogany (*Toona ciliata*) or Indian Ash (*Lannea coromandelica*). They are meant for the provision of firewood, but also shade, timber and fuelwood, but, since only a few trees have been planted, no harvest has taken place so far.

Due to the availability of by-products as well as the focus on abundant dead wood (cf. van der Horst & Hovorka 2009: 1605), collection rates in Sub-Saharan Africa are said to be below the regeneration rate, making the collection of firewood sustainable (May-Tobin 2011: 82). While such a claim for an entire continent is bold and impossible to verify, it surely depends on the local context including factors such as population density, the forest stock, and the availability of other, affordable energy sources. In the case of Kansenga, it is hard to estimate whether firewood collection exceeds re-growth, yet in the local perception, it has hardly contributed to deforestation, with the scarcity of firewood not (yet) being an issue. The predicted fuelwood crisis has not been experienced on the ground, yet in the neighbouring district of Chitambo, the situation seems to be changing. Just along Mansa Road (see Fig. 4), I encountered several big piles of firewood for sale. Interestingly, they were only placed in the northbound direction, indicating that they target consumers heading towards Luapula Province – Zambia's province with the highest deforestation rate.¹³⁴ Several years earlier, Eriksen (2007: 249) had found that firewood constituted a main source of income in the same region. Ironically, the motto of the District Council, as seen on a wooden board, is 'We derive our lives from nature'. In Luapula Province, the drying of fish from three major lakes and wetlands has also played its role in the depletion of fire- or rather fuelwood. In Central Province, on the other hand, the practice of growing tobacco has been accused of having similarly destructive effects. In particular the process of curing – drying tobacco in special barns – consumes large quantities of fuelwood. In fact,

¹³⁴ Between 1995 and 2005, Luapula Province had, according to Chidumayo (2012, cit. in Vinya et al. 2012: 9), the highest annual deforestation rate with 2.47%, followed by Eastern Province with 0.85%. For the following years, no provincial data, for example from Zambia's two Integrated Land-use Assessments (ILUA I and II), was available by October 2017.

over the last decades, the landscape of several communities in Serenje and a number of villages in Chibobo has been shaped by tobacco farming. The following section pays close attention to this practice.

6.2 Growing and curing tobacco

Following the trees

In contrast to the dominant staple crop maize, tobacco has a long history in Africa (Geist 1999: 26) and has long been grown in Zambia as well (Colson 2012: 7). Over 100 years ago, in 1912, Virginia tobacco emerged as a leading agricultural export crop for the White settlers in today's Eastern Province (Kanduza 1983: 201). Equally to the settlers along the so-called 'line of rail' in today's Southern, Lusaka and Central Province, that is, between Livingstone and Mkushi, Virginia tobacco represented an important source of income (Kanduza 1983: 201). In 1924, tobacco became the major export crop of Northern Rhodesia, as Zambia was then called, which did not change after independence in 1964 (Pollock 1924, cit. in Kanduza 1983: 201), even though different sources offer greatly different export values for the same years (FAO 2016; Simoes & Hidalgo 2016). Between 1990 and 2010, the area of tobacco harvested increased from about 5,100 to 60,000 ha (Sacchetto 2012: 13). Still today, tobacco is Zambia's top agricultural export crop, with China, Belgium-Luxembourg, Russia, Germany, Malawi and Zimbabwe being the key markets (German et al. 2011: 19; Simoes & Hidalgo 2016). Benson & Hedges, Camel, and Natural American Spirit are just a few of the companies processing Zambian tobacco in their cigarettes. Within Zambia, only slightly more than a million people, mostly men, smoke cigarettes on a daily basis (WLF 2016), with Sweet Menthol (SM) having been the only available brand in *Boma*. Of the tobacco farmers I interviewed in the community, none was a smoker. But what actually is the connection between tobacco and deforestation?

As with most other crops, in order to grow tobacco, land needs to undergo clearance before cultivation. As this is not much different from other farming practices (see Chapter 6.3), scholars did not pay particular attention to tobacco-related deforestation, with a few exceptions both general (e.g. Geist 1999) and specifically from Zambia's neighbouring countries Malawi, Tanzania or Zimbabwe where tobacco has long been a major export product (e.g. Tobin & Knausenberger 1998, Mangora 2012, and Manyanhaire & Kurangwa 2014). What makes tobacco worth a second look and unlike other crops, however, is the vast amounts of fuelwood needed in the process of heat-drying tobacco leaves, also known as 'flue-curing'. For this process, leaves are hung up in rows in a brick barn which is equipped with a furnace at one side. For about a week, the furnace is fired through the constant supply of fuelwood. The heat created then spreads into the barn through meandering flues or pipes. Once the green leaves turn yellow, after about a week, the barns are fired for another three days until the leaves are dry enough to be crumbled. Depending on the wood species and the efficiency of the barn, about 20 kg of fuelwood are needed for 1 kg of cured leaves

(Giesecke 2012: 8; Mangora 2012: 138).¹³⁵ Even the latest wood-saving ‘rocket barns’ claim several kilogrammes and are too costly for most farmers.

The major tobacco types cultivated in Zambia are the ones used in cigarette manufacturing – bright leaf, also known as ‘Virginia’, and burley tobacco. Only the first undergoes flue-curing, yet it also is the most common type of tobacco in Zambia and globally (ZDA 2011: 7). Due to the demand for fuelwood needed, tropical forests and woodland areas are most suitable for establishing tobacco fields in their midst. In fact, according to the World Health Organization (WHO 2008: 4), 90% of tobacco is grown in tropical dry forests. Within Sub-Saharan Africa, Geist (1999: 25) even estimates that nearly 90% of all the tobacco produced originates from the *Miombo* zone. While this number might be out-of date, the *Miombo* woodlands have certainly continued to ‘absorb’ tobacco growers in need of large amounts of fuelwood. In Central Province alone, which is home to vast *Miombo* woodlands, more than a thousand households were involved in growing tobacco in 2015 (IAPRI 2016: 28). Some of them live in the research community, and the following pages will provide a few cases that will illuminate the tobacco-deforestation nexus, and explain why tobacco is preferred over other crops in the first place.

Before that, it is important to note that on the Lala Plateau, the practice of growing tobacco has been closely associated with the *WaTonga* – the Tonga People, one of Zambia's largest ethnic groups, who are historically from the distant Southern Province. While the history of Zambia's tobacco industry is scarcely documented, a few insights drawn from the Gwembe Tonga Research Project (GTRP) can help to understand this association. The GTRP is one of the longest lasting social science studies over a single population in Africa that was started in 1956 by the social anthropologists Elizabeth Colson and Thayer Scudder. For the following sixty years, the research of several generations of social scientists was concerned with the Tonga People (Cligget et al. 2005: 193). Notwithstanding the GTRP's focus on the Tonga People occupying the Gwembe valley, data about those living on the adjacent plateau is also provided. According to Colson (2012: 7), the Tonga were already growing different varieties of tobacco in the valley and on the plateau during the first half of the 20th century, selling it in towns and to those working on the European Farms along Zambia's Line of Rail – the railway linking Livingstone, Lusaka and the Copperbelt. By that time, tobacco was already an established crop and they were in the act of setting up an export trade into nearby regions, in combination with cannabis. Tobacco became one of the major cash crops of Southern Province, and at one point, an issue of concern: as a result of both agricultural expansion and the process of curing, ever more trees were depleted. By the

¹³⁵ Importantly, even if we use that figure and know the precise weight of the harvest, it is difficult to determine the ultimate area needed for cultivating and curing tobacco. While the amount of fuelwood needed depends on the harvest, the area ‘consumed’ varies tremendously depending on tree density and even type (see Chidumayo 2016), not to forget the ‘opportunistic’ production of fuelwood as a by-product of clearing for other purposes.

late 1970s, the burgeoning tobacco industry fuelled discussions surrounding ‘the fuelwood crisis’ (Geist 1999: 18) mentioned in the previous chapter.

Between 1961 and 1997, the area under tobacco cultivation in *all* of Zambia had several ups and downs but in the years following 1997, the area harvested for tobacco and hence the production quantity increased every year: since 1998, it increased 21-fold reaching 60,000 ha in 2013 (FAO 2016). This rise partly resulted from the influx of well-experienced medium-scale tobacco growers who fled Zimbabwe in the wake of Mugabe’s fast track land reforms (cf. German et al. 2011: 18; cf. Mwitwa et al. 2013: 3). Whereas it is impossible to tell how many hectares of the above figure were not previously used but specifically cleared for tobacco, this crop nevertheless entails a significant increase in fuelwood consumption for curing. Besides, though on a minor scale and also true for other crops, timber is needed for the construction of sorting sheds or storage (cf. Chibwana 2010: 101).

After the forests of Southern Province had been exploited for a long time, by both indigenous but also European farmers since colonial times, thousands of Tonga People have abandoned their traditional homeland and emigrated to other provinces over the last four decades (cf. Aagaard 2009: 2-3). In search of pristine woodlands and land that had not yet been disturbed by the hoe or the plough, they moved towards the *Miombo* zone, where large forests could still be found. Serenje, which is about 600 km away, has been one of their host regions. Tobacco, however, was not entirely new to Serenje region, but already observed on the Serenje Plateau as a minor crop in 1945 (Peters 1950: 94). Equally, Long noted the cultivation of Turkish tobacco by both ‘ordinary village cultivators’ as well as commercial farmers (Long 1968: 3, 19). The nearby ‘Mkushi Tobacco Farming Development Scheme’ was already in operation during the late 1950s, with smaller tobacco schemes in Serenje coming into existence a few years after independence, all of which still exist today.

Tobacco schemes and the community in between

When the ‘Mulilima Tobacco Scheme’, about 25 km south west of Chibobo, was set up under a commercial farming licence in 1969, an area of several km² was opened up for settlement. This incorporated a few hundred, then-present small-scale farmer households, and attracted more during the 1970s, including an number of Tonga, though precise figures do not exist. Until 1983, it was solely run by the parastatal Tobacco Board of Zambia (TBZ),¹³⁶ occupying several clerks and at least twelve extension officers. TBZ did not grow any tobacco itself, but provided seeds and fertilizers as interest-bearing loans to member farmers. During all these years, about 14, the harvested tobacco was cured on-site, with fuelwood

¹³⁶ TBZ’s major tasks are to monitor tobacco dealers, to issue selling certificates, and to regulate the quality of exports.

entirely extracted from the adjoining Serenje National Forest. Remarkably, no licence was applied for at the Forestry Department, possibly as the scheme was run by the same central government, as the current managers suggested.¹³⁷ In spite of extraction, there were neither forest management plans nor any re-forestation efforts. When the scheme was opened, large eucalyptus trees were planted in front of the scheme's offices and depots, clearly visible from the Great North Road, yet today, they were not meant as fuelwood for curing but to gradually provide timber for planks. Eventually, the scheme was privatized, staff was reduced and operations were handed over to different companies and contractors over time. Years went by and membership fluctuated, reaching 193 households (67% male-headed) during the 2014/2015 farming season. Taken together, they were cultivating plots amounting to 200 ha, producing 238,000 kg of Virginia tobacco. While in the past member households concentrated on tobacco, it nowadays constitutes just one of many crops, hence the relatively small area harvested. The 2015 yield was, similar to the preceding decades, cured with fuelwood extracted from the Serenje National Forest. As a result of this constant exploitation, nowadays, fuelwood is only found several kilometres into the Forest. Over the last years, the current scheme management were only asked once, in 2012, to acquire a licence for cutting trees by the Forestry Department, but they refused to pay a flat sum, complaining that charcoal burners and squatters should also take responsibility. Eventually, the management paid 78,000 ZMW and were allowed to extract fuelwood for processing the harvest over a period of three months. Apart from this one-off payment, no other requests were made by the Forestry Department, which points to their reluctance or inability to protect the Forest. Due to the foreseeable scarcity of fuelwood, the management considered shifting from tobacco to other viable cash crops such as sunflower and jatropha for biofuel production.

Besides this scheme, another one was opened in Lupiyah, for which I was not provided with information about foundation year, size, or membership numbers. Open lorries full of tobacco bales¹³⁸ speeding from the scheme to the tobacco auction floor in Mkushi were signs of industrial operations during the 2015 harvest.

Just in between the two schemes lies the research community, where no household grew tobacco until around 2004. It was only in this year, when tobacco growers from Southern Province arrived, one by one, and in larger numbers from 2008. The first Tonga immigrants settled in the northernmost village of the community, in an area locally known as 'the Island' (*Chishi*) because it is surrounded by a hilly range (see Fig. 6). As a result of its relative remoteness, being furthest away from the Great North Road and the urban market, it had been sparsely populated and was mainly used for agriculture during *Chitemene* times. With

¹³⁷ Officers during an interview at the Tobacco Scheme in Mulilima on May 8, 2015.

¹³⁸ Bales are cubes of 1 m³ out of (manually) compressed tobacco leaves that had a maximum weight of 65 kg in Chibobo.

the decline of this practice, the trees slashed here recovered and rejuvenated well. The first Tonga settlers chose this village for the availability of fuelwood, but also as relatively large Farms were still available here. Following the population growth of the more recent years, 'the island' was also settled and cultivated by people from within the community. After all land had been allocated and the forested patches were replaced by different crops, further Tonga immigrants established themselves in other villages of the community, clearly following good forest stands. According to the new settlers themselves, they in-migrated for three reasons: first, the soils in Southern Province had lost fertility over time, which came along with declining productivity levels. Second, the quantity of fuelwood needed for curing could not be extracted anymore due to widespread deforestation, and lastly, rainfalls continued to be very low or unpredictable. In contrast to this, Chibobo is ideal as all these essential resources are naturally available: several streams meander over the plateau, and sandy patches with scattered ant hills indicate water-bearing soil, which is necessary for establishing nurseries. Moreover, the existing bush with relatively large trees provides still-fertile soil, and enough fuelwood to heat the barns.

In 2009, after the number of tobacco farmers in the entire district had grown, Alliance One, the leading tobacco company in Zambia, opened an office and depot in *Boma*. The company does not plant any tobacco, but provides seeds and fertilizers as interest-bearing loans. Most of its member farmers are Tonga from Chibobo and Mulilima, of which all are considered to be small- and medium-scale farmers. After each harvest, the company collects their produce for free, sells it on their behalf on the tobacco floor in Mkushi, subtracts the loan and pays out the surplus, if there is one. Whereas it is also possible to grow tobacco independently, most farmers depend on such outgrower schemes as they do not have the capital to start off without a loan. From 2010 onwards, a few Lala men 'got infected' learning the know-how of nursing, cultivating and curing tobacco from experienced Tonga growers, yet it failed to spread on a large scale. One of the reasons is that, in comparison to any other farming practice, seeds, fertilizer and pesticides are more expensive, it is highly labour intensive, and considered to be *the* most difficult crop to handle (see Loker 2005: 306 f.). Already the initial steps necessary have discouraged many households interested in it: special seedbeds need to be prepared for germination, and seedlings need manual watering. While taking care of the seedbeds, fuelwood for the barns needs to be collected, because once the rains have started, farmers are too occupied with cultivating. After the main field has been prepared, which is an arduous task in itself, and as soon as the rains are expected not to stay away again, the seedlings will be transplanted. Thereafter, fertilizers and pesticides need to be applied repeatedly. On top of that, the local costs for constructing one brick barn for curing were around 5,000-8,000 ZMW.¹³⁹ Just a few households of the

¹³⁹ This equals 400 to 1280 USD, depending on the exchange rate, which varied tremendously during fieldwork.

community had the financial capital and were prepared to take the risk of taking a loan from Alliance One, or one of the other tobacco companies based in Ndabala, Mkushi or Lusaka, such as Japan Tobacco International (JTI), Zambia Leaf/Zamleaf, or Tombwe Processing. Such companies also supply commercial farmers who are cultivating up to 1,000 ha, but mainly thousands of small-scale farmers growing Virginia tobacco.¹⁴⁰ On the following pages, I will present three tobacco growers from the research community, and discuss why and how they have chosen to engage in this practice. The first man I will acquaint the reader with is Cornelius Twaambo – a Tonga man who came to Chibobo in 2006 when he was in his early thirties.

Cornelius Twaambo

When I was crossing the last stream that was still carrying water in the late dry season, I could see a big homestead that appeared like a village on its own. A roaring hammer mill was in full swing when I approached the homestead that seemed to be the wealthiest for kilometres: a private hammer mill, houses made out of burnt bricks and covered with iron sheets, a kiln for making more bricks, big turkeys, and three vehicles: a Canter, one 4x4, and a Pick-up. Cornelius Twaambo was one of the very few men and women who immediately invited me to enter his house. He was not ashamed of anything but proud to share his stories on a big sofa set with me. Inside, I observed a carpet, curtains, a TV and a radio, which all distinguished this household from the vast majority.

Cornelius Twaambo was born in 1974 and spent most of his life in the district of Choma, Southern Province. As rainfall continued to be very low, in 2006 he decided to follow his uncle who had come to Chibobo two years earlier in search of new land suitable for growing tobacco. When he arrived, he was allocated a small part of his uncle's Farm and received his guidance concerning tobacco. He took out loans from Alliance One, which he managed to pay back year after year with additional profits, and to expand his tobacco fields to 5 ha. Since sales continued to go well, he was in the position to buy his own Farm from a private individual in 2011. Stretching over about 60 ha, it is one of the biggest in the entire community. In the 2014/2015 farming season, he had 8 ha under tobacco cultivation here – as an independent farmer who does not depend on loans anymore – and another 4 under maize and soya beans. Both the size of his fields and his independence certainly make him part of the 'upper class' of the community.

¹⁴⁰ According to recent estimates from the Indaba Agricultural Policy Research Institute (IAPRI 2016: 28), the current number of Virginia growers is likely to be more than 5,000 all over Zambia, with 1.1% of all households of Central Province growing Virginia.

He mainly sourced fuelwood for curing from the recently cleared 8 ha on his own Farm.¹⁴¹ Therefore, not all the fuelwood used for curing actually drove deforestation. On top of that, however, he bought a minor amount of additional fuelwood from his neighbour. Since Cornelius owns a Canter, he can easily pick up the wood and offload them just next to newly constructed barns, as shown here:



Fig. 10 Feeding the tobacco curing barns

Interestingly, Cornelius could have also extracted further fuelwood from his own Farm, either by himself or through pieceworkers, but he decided to buy up the excess wood of others. This behaviour indicates that trees on one's own Farm are rather protected as long as one can afford to do so. The same has also been observed with regard to firewood (see previous chapter), where households extract wood from the Forest rather than from their own Farm. After curing, grading and baling the tobacco, Cornelius needed to look out for a buyer. He eventually sold 9,000 kg of tobacco,¹⁴² for which he made a profit of almost 125,000 ZMW.¹⁴³ Finding a market as an independent farmer can be tough, but Cornelius was lucky this time. He sold all his tobacco to Tombwe in Lusaka in the name of a befriended farmer, who was registered with them. His friend had received fertilizer from Tombwe but failed to grow tobacco in the end, which was due to hunger, as Cornelius says: instead of cultivating tobacco, he re-sold the fertilizer and bought maize flour instead.

¹⁴¹ Cornelius Twaambo's Farm in western Chibobo was comparatively well-wooded. Depending on the tree density, each hectare of the woodland provides about 20 m³ of fuelwood.

¹⁴² With 1,125 kg/ha, Cornelius produced slightly less than other tobacco farmers of the community, who mostly produced between 1,190 and 1,530 kg/ha over the last two years, with the exception of Boyd Changwe (see next page), who only harvested between 350 and 770 kg/ha.

¹⁴³ Further money needs to be deducted for the pieceworkers employed over about 30 days for picking, stringing, curing, grading, and baling tobacco. Working about 4 hours a day, a pieceworker received 450 ZMW for the entire month.

During the 2015/2016 farming season, Cornelius doubled the size of his tobacco fields to 16 ha, but for the following season, he does not intend to expand his fields again. Wood for further firing of the curing barns, however, will be needed once more. Depending on market prices, Cornelius points out that he considers diversifying into other crops, but also acknowledges that ‘we can come up with ideas, but we can’t change from what we are doing. We earn a lot of money out of tobacco and my family is growing bigger’¹⁴⁴. In fact, all resident members of his family plan to stay here for good, which is why he has bought additional customary land of 110 ha from two men. Currently, his children are schooled and live in *Boma* as Chibobo’s primary school is about 7 km away from here. Instead of walking there, he pays for their accommodation in *Boma* where they attend school instead. Besides his children, money is also needed for future investments, more precisely a borehole which he wants to drill in order to have reliable access to water on his Farm – an endeavour that starts from 25,000 ZMW. Tobacco can enable him to afford this sooner or later because tobacco is, in contrast to maize, not to mention any other crop, much more profitable: 50 kg of the tobacco produced in Chibobo earned on average 87 USD in July 2015, against 7.5 USD for the same amount of maize (cf. ZDA 2011: 7; cf. Sacchetto 2012: 13). Consequently, the question of whether he will continue cultivating tobacco or shift to other crops will mostly depend on market conditions. Just as the interview in his spacious living room was ending, the first rains after more than five months of drought set in, giving Cornelius – and all other farmers of the region – confidence for the coming season.

Cornelius and his uncle were amongst the earlier tobacco growers in the community and over the last six years or so, several farmers were tempted by the high potential profits and tried their luck as both independent and contracted farmers. As mentioned above, tobacco had also ‘infected’ some of the Lala People. In the following, I will share some insights from the life of Boyd Changwe, a Lala man born in 1954, who also owns one of the largest and well-forested Farms of Chibobo, more precisely in Kansenga.

Boyd Changwe

In 1980, when Boyd Change was 26 years old and had just finished grade 10, he followed his mother who had moved to Kansenga six years earlier. She was allocated about 90 ha of land by Chief Muchinda himself, for which she later acquired a title deed. Boyd’s family advised him ‘not to waste two more years at school’, but to stop so that he can look after a herd of cattle, pigs and goats on his mother’s land. When he came, he remembers, he found a thick bush and people from far away places were practicing *Chitemene* in the area, and growing crops along the streams and their extensive sources. Today’s community was just

¹⁴⁴ Cornelius Twaambo during an interview at his Farm in western Chibobo on September 28, 2015.

a tiny village with a handful of Farms, which he easily recounts by name.¹⁴⁵ Boyd eventually got married and was, due to the size of his mother's Farm, allowed to stay there for good. They were growing maize, beans, sweet potatoes and sorghum for years, but the produce did not fetch the desired prices on the market. When Boyd became an adult man of 45 years, his mother decided to divide the livestock so he could have his personal share. He received two goats, two pigs and two oxen. 'I was told: "Now this is your place, you can't go anywhere, you'll be responsible for this Farm", which I appreciate', he says.¹⁴⁶ While farming was still not going well, he could rent out the oxen to other households for ploughing. The new income in turn allowed him to buy three more cattle for the commercial production of milk and for reproductive purposes, and today, he owns more livestock than anyone else in the community: 21 heads of cattle, 11 goats, and 2 donkeys.

In around 2010, Boyd remembers, 'the Tongas' and people from the tobacco scheme in Lupiyah said they would make good money. He got inspired, took up a small loan, and farmed half a hectare. After his first sales, he already made a profit of 5,000 ZMW. Motivated by this success, his family of 11 people devoted a lot of labour to growing tobacco. Since the youngest in the family was 15 years old and the household had employed two 'cowboys' for herding livestock, their combined labour force was strong. Besides these efforts, they continued to rent out oxen and donkeys for ploughing. In return, he was not paid in cash, but with the fuelwood produced during clearing, indicating again that fuelwood harvesting is not necessarily the driver of deforestation, but agricultural expansion. They also continued growing maize, beans and sweet potatoes for sale. In response to changing prices and market demands, they have added groundnuts and soybeans to the household's livelihood portfolio as well, with the production of charcoal being another additional income. Still at least half the annual income stems from tobacco alone. Their adaptive capacity and income diversification has enabled them to afford a relatively high standard of living: houses made out of burnt bricks covered with iron sheets, a rickety car, several bicycles and mobile phones, a sound system, a solar panel, and even two wells dug manually by pieceworkers.

During fieldwork, in the 2014/2015 farming season, he cleared little less than 3 ha for the production of tobacco. Some of the fuelwood was carried by oxcart or pulled by oxen towards two barns. The remains were turned into two charcoal kilns and sold to people from *Boma* who came here with small trucks. Interestingly, when all charcoal was sold and the fuelwood used up by the barns, Boyd had to clear more trees for fuelwood only. In a similar way, another tobacco farmer reports that he had employed day-labourers for clearing his land 'free of charge' – in return, they were allowed to utilize the trees for the production of charcoal. In the end, however, he also had to clear extra land for fuelwood only. Boyd points

¹⁴⁵ Boyd Changwe during the group discussion at his Farm in Kansenga on March 17, 2015.

¹⁴⁶ Boyd Changwe during an interview at his Farm in Kansenga on July 14, 2015.

out that the fields additionally cleared for fuelwood will be utilized later, but to clear more land than one eventually manages to cultivate is most undesirable, shameful and considered to be destructive (see Chapter 10).

That demand for fuelwood by tobacco farmers had not yet encouraged others to cut down trees for the sole purpose of selling fuelwood. Instead, after non-tobacco farmers open up new farmland during the rainy season, the excess wood is sold to tobacco farmers instead of being burnt on their fields.

Similar to Cornelius Twaambo, Boyd Changwe was an independent farmer, yet he borrowed money from fellow farmers in order to buy enough fertilizer. Eventually, he managed to produce around 970 kg of dried tobacco, which was relatively little in relation to the area of farmland. While the amount of fertilizer might not have been enough, it was mainly attributed to low rainfall and some drought spells in his area, which indeed is about 7 km away from Cornelius' fields. On top of a dissatisfying harvest, 2015 was a particularly bad year for most tobacco farmers of the entire district and beyond. First, the world market price was said to have slid, which resulted in low market prices. Second, farmers rumoured that Chinese wholesale buyers reject tobacco from Zambia, Malawi and Zimbabwe overall, claiming it has a bad taste, allegedly to beat down the price. Lastly, the majority of farmers was literally 'left in the cold' after Alliance One, the only nearby tobacco buyer, closed down unexpectedly without notifying even their member farmers. Boyd was amongst the farmers who felt badly cheated by the company: just before closing down the office and depot in *Boma*, Alliance One staff had come to collect his baled tobacco. According to the printed sales statement, he was supposed to receive 9,875 ZMW, yet the bank paid out only 4,000 ZMW on behalf of the company. Boyd and his wife refused to accept this money and went up to the tobacco floor in Mkushi in order to 'chase the money and push papers'. In short, 'it was a war, moving up and down, using my own money', Boyd says. Apart from him, many other tobacco farmers from Chibobo and other communities complained about the company's unscrupulous behaviour, arguing they had sold all of the tobacco, taken the money, and are now dodging. A number of farmers had tried to take Alliance One to court with the help of the National Farmers' Union, yet during fieldwork, they were told to wait and more rumours about bribery at all levels arose. Most likely, the story went, Alliance One was 'buying' – or rather collecting – from independent farmers in order to compensate for the loans their member farmers could not pay back. Eventually, Boyd went to the Tobacco Board of Zambia (TBZ) at the tobacco sales floor in Mkushi where he received 1,000 ZMW the company had deposited for him. After two employees of TBZ demanded 150 ZMW each, he was left with 700 ZMW, which was short of 300 ZMW to pay out the pieceworkers and transporter. In order to pay them off, he will sell one calf. At least, Boyd summarizes, 'I had no loan at least, that was good, they would have gone to kill me. Other farmers never

received any money for their harvest¹⁴⁷, losing up to 40,000 ZMW, more than 3,200 USD at that time. One may assume that this setback and tremendous loss would lead Boyd and others to keep their hands off the tobacco trade. Surprisingly, however, a few weeks after Boyd had come to terms with the loss, I met him along a major stream that cuts through his Farm. He was already preparing tobacco for the coming season, busily taking care of his 50 m² nursery. Thousands of plants were already germinating in ten ridges after Boyd had irrigated by hand for the last days. He was still angry and pointed out that he could hardly sleep during the last days, but 'by now I am used, God will give them something. Today here I am crying, but they are also sweating. I am not alone, we are many, many people are crying'¹⁴⁸. Boyd has not lost heart as the household's standard of living has tremendously improved over the last years: he can pay school fees for two daughters and a niece,¹⁴⁹ lend money to family members and friends, and even regularly send 2,000 ZMW in cash to children in town – more money than they receive as remittances themselves. This improvement was attributed by the household members to the expansion of fields, with a special emphasis on tobacco. In the end, he is thankful for the advice not to continue his education into upper secondary:

My friends who continued with education got employed but took a very bad life [...] most of them have died. If I'd have proceeded, I'd have taken a wrong life like drinking a lot of beer, to go out with many women and contract HIV as well. Looking back, I thank my family, they were doing a good job because now I'm not suffering.¹⁵⁰

As things have unfolded so well for Boyd and his dependents, they will pursue the same income strategy and further expand their tobacco fields in the future. Just as in the case of Cornelius Twaambo, they have many plans: besides more bicycles, Boyd wants to construct a bigger house, have a big van to carry goods, buy more livestock and, most importantly, a hammer mill, which costs at least around 20,000 ZMW, and even more after the harvest when the need for flour is high. Boyd is aiming high, and is optimistic to get back on track after the last year's misfortune. He plans to get a loan over 3,000 ZMW from Tombwe in order to farm about 3 ha of tobacco. Another idea of his is asking the White farmers from Zimbabwe and South Africa in the nearby commercial farm blocks for 'waste seedlings' from their nurseries. One of his friends started his first tobacco year in such a way, eventually pulling in several tonnes of tobacco.

Besides those tobacco farmers living on private and customary land, many more households had opened up their tobacco farms in the Serenje National Forest. Two of them,

¹⁴⁷ Boyd Changwe during an interview at his nursery along Chibobo Stream in Kansenga on September 29, 2015.

¹⁴⁸ *Ibid.*

¹⁴⁹ While primary school is free, secondary education, that is grade 8 to 12, starts from 570 ZMW per year at a public day school. Public boarding schools cost about twice as much.

¹⁵⁰ Boyd Changwe during an interview at his Farm in Kansenga on July 14, 2015.

both Lala, were living within my core research area. One of them, Robert Ngosa, will be presented on the following pages.

Robert Ngosa

When riding my motorbike across the pipeline, I suddenly bumped into a beautifully flowering tobacco field that was impressively wide. It belonged to Robert Ngosa, who was living here with his wife, six children and three other extended family members. When I approached his homestead for the first time, a pleasant smell of dry tobacco leaves was in the air. Several family members and pieceworkers were sitting in the *Insaka* on the ground grading tobacco, that is, sorting leaves by quality. In the background, music was playing from a sound system that was loosely connected to a car battery, which itself was connected to a solar panel. The main house had a concrete floor and was covered with iron sheets, around which several turkeys and guinea fowl – more valuable poultry than chicken – were roaming. This scenery, solar panels on the ground, and a well at a distance already told me that this household most likely belonged to the upper wealth category.

The first tobacco fields in the Forest were in fact opened up by Robert in October 2013, just before the onset of the rains. Robert, in his early 30s, came from Chishi, ‘the island’ in the north of the community, where he was living on his in-laws land and growing tobacco already. As he did not enjoy any rights over the land and bigger trees for curing had to be sourced via ox-cart from a distance, he decided to establish his own Farm in the National Forest, following its trees and good soil. During the two farming seasons spent in the Forest, the household made high profits from tobacco. During the first harvest, Robert had 2.5 ha devoted to tobacco. Most of the land had previously been cleared by charcoal producers, so pieceworkers were only employed to clear the remaining scattered trees. The resulting fuelwood was piled and completely used in for curing in four barns. Eventually, he sold 3.3t of high quality tobacco for which they received around 62,650 ZMW. After paying back the loan of 10,500 ZMW to Tombwe, the profit amounted to more than 8,500 USD back then. The money was invested in a car, which later broke down and has since been in a garage for repairs. In the 2014/2015 farming season, he cleared another 2.5 ha for tobacco, plus 0.5 ha of tobacco on his neighbour’s Farm. The neighbour himself had cleared the land but eventually failed to cultivate it, which is undesired as Boyd Changwe already mentioned.

Importantly, tobacco depletes soil nutrients much quicker than most crops (WHO 2008: 4). In order to improve the productivity and also to avoid fatal pests, crop rotation is necessary, and extended up to four years. That is why, even when not extending the fields, more land needs to be cleared when no other land is fallow. As soon as ‘enough’ land has been opened up, clearing only continues for fuelwood. The practice of leaving land fallow,

high fuelwood consumption, and also quick expansion renders tobacco farming more destructive in the local perception than any other farming practice.

As Robert had already spent the money made in the first season, he took up another loan. He eventually harvested 4.6 t during my fieldwork in 2015, for which he made a profit of approximately 8,000 USD. As the dollar rate had fallen by about 50% over the last year, he was not happy with the gain. However, he managed to finally ‘bail out’ his car from the garage, and bought a big, brand new solar panel. Besides growing tobacco, the household grew tomatoes along a nearby stream, which generated another 9,000 ZMW, more than 700 USD. In the end, the household could lend 3,000 ZMW to a friend for a gear box, assist others buying children’s medicine, and send remittances to relatives, amongst others, for the purpose of school and university fees, amounting to more than 6500 ZMW per year. Since they have moved here, things have been going well, which is why nothing much shall change. Robert only wants to purchase Irish potato seeds from Lusaka and give it a try. For the coming farming season of 2015/2016, Robert took up a loan over 10,500 ZMW from Alliance One in Lusaka – notwithstanding the bad experience which fellow farmers had. He will once more clear new land for tobacco, at least 2.5 ha again. This time, clearing is more difficult and expensive and will take many days¹⁵¹, as the remaining land is more forested than the previous patches he used. Since tobacco farming is perceived to be a rather unsustainable farming practice, he has already been cautioned by other settlers in the Forest that the Chief will chase him one day. However, as he is highly motivated to expand his fields even further, he is unlikely to quit the business. In contrast, he wishes to buy more fertilizer every year and eventually buy a plough and cattle for pulling it:

If they continue buying for a good price, I do not have plans to stop tobacco growing. Maybe the trees will just stop me from growing. [...] I am willing to grow sun-drying tobacco, but it doesn’t sell good on the international market, it’s the same [profit as] if you just grow a small field of maize, so the companies didn’t provide [seedlings].¹⁵²

As indicated by this quote, the concentration on tobacco highly depends on the market prices. Price spikes can result in spontaneous investments, and with falling prices, the focus can shift towards other crops. As a matter of course, this affects the practice of expanding fields and fuelwood harvesting, which in turns mirrors fluctuating levels of deforestation (cf. Boucher et al. 2013: 430).

Just a few hundred metres from Robert’s Farm, another tobacco field was opened up by an absentee landlord from *Boma* who had acquired land in the Forest for farming only

¹⁵¹ Depending on stem diameter and forest density, one person can clear-cut 1 *lima* (0.25 ha, 50 by 50 m) of open woodlands in half a day, or needs a full week in denser patches. For open patches, workers are paid 10-30 ZMW, for denser ones 60 ZMW in total.

¹⁵² Robert Ngosa during an interview at his Farm in the Serenje Nat. Forest (Chibobo) on September 29, 2015.

(see Chapter 9). During the 2014/2015 farming season, he employed pieceworkers to construct a curing barn, and let them clear about 1.75 ha for the cultivation of tobacco. In the end, he did not manage to grow enough tobacco to pay back the loans. Feeling dejected, he stopped growing tobacco in the following farming season, cultivated maize instead, and left 0.75 ha fallow – again reinforcing the image of a destructive practice.

By the end of my fieldwork, not more than 25 households in the entire community of Chibobo had grown tobacco in one or both of the last seasons, out of which 8 were Lala households.¹⁵³ On top of those households, there were many more in the surrounding communities, which partly cleared new fields, partly re-opened re-grown bushes, or utilized fallow land. Importantly, tobacco has been crucial to the emic understanding of deforestation. Whenever I brought up the topic, charcoal and tobacco were the two main, and often only associations. While growing tobacco has historically been tightly associated with the Tonga People, the number of Lalas involved – and many other groups across the country – has been increasing. While the practice is widely viewed in a negative light, the Lala majority population particularly accuses the Tonga minority for this destructive activity. In-migration has indeed been recognized as a primary driver of deforestation (Unruh et al. 2005b: 191) and the historical trend of the Tonga People following trees has created an image of ‘the destructive *Watonga*’:

After destroying their provincial towns they came here and invaded.
We see in Southern what they have done and now they are fleeing to
our area, now they have destroyed our rainfall.¹⁵⁴

Despite such statements, Tonga People are not discriminated against or do not face hostility. They have learned to speak the local language, are respected for their economic success, and valued for the provision of piecework opportunities. While ‘following trees’ has been criticised, Boyd Changwe’s wife has expressed her sympathy, pointing out that they also do not rule out migrating elsewhere after finishing the trees. Tobacco growing has clearly been associated with deforestation, yet at the same time, especially Tonga farmers are also associated with re-foresting their Farms in Chibobo. In the following, I will briefly outline the efforts made.

Planting trees and the future

When the office of Alliance One was still open in *Boma*, I paid the branch a visit. A *canter* with a roaring engine parked in front, with four men busy offloading twelve bales of tobacco. The interior of the branch, a storehouse with an office corner, was filled with the scent of

¹⁵³ This number includes all Farms established by October 2015, including the newest ones in the Nat. Forest.

¹⁵⁴ Abina Changwe during the group discussion at Changwe Farm in Kansenga on June 1, 2015.

dry tobacco from dozens of bales that were soon to be sold on the Mkushi floor. After having explained my research interest to the officer, he acknowledged the problem of deforestation and points out that tree planting was part of the company's environmental responsibility. In Chibobo, Alliance One has in fact been the only company that ever gave out seeds or seedlings to their registered farmers. In 2013, the company gave out seeds and offered training to farmers. During this, they already experienced challenges in convincing the farmers to invest time in planting trees: 'Farmers refused, saying "I'm 50 years old and in 10 years I'm off", so currently there is not a single incentive for planting trees'¹⁵⁵. This experience is confirmed by one of the farmers who has planted some of the spores himself: '[Other farmers] don't have any interest in growing, they just park them behind the sofa'¹⁵⁶. This lack of interest in planting activities was also confirmed by the experience of forestry officers (cf. von Hellermann 2013: 131). In the following year, after tobacco sales went down, the company closed down branches and reduced the number of staff in several districts. The branch in Serenje remained open but as a result of ongoing challenges, the budget for tree planting was cut completely, without any outside funding coming in. The tobacco growers described above in detail, for example, also pointed out their willingness to carry out tree planting sessions as they are aware of the negative environmental consequences of clearing and curing. They also remember having received the seeds and plastic bags for raising them, but they did not receive any training. Cornelius Twaambo gave it a try but without any know-how about how to nourish them properly, most of the seedlings died, he lost motivation and stopped the effort. Boyd Changwe also planted the seedlings, which were eaten up by his goats who, as he optimistically adds, 'at least don't devour tobacco leaves'¹⁵⁷. In the meantime, he was given seeds for fast-growing tree species such as Indian Ash (*Lannea coromandelica*) and Indian Mahogany (*Toona ciliata*) from the *Green Living Movement*, the local NGO promoting agroforestry. They were meant for the purpose of providing shade and 'subsistence logging' – the provision of timber, firewood, and fuelwood for curing. Boyd proudly points to a broad tree with a yellowish bark and big leaves next to the main house, explaining that this is the one he planted some years back. It had already grown to about five metres height, much quicker than the indigenous trees. However, no harvest has taken place so far, and against the background that only very few such trees have been planted across the community, it is rather 'a drop in the ocean' and hardly more than a symbolic act or awareness training by the NGO. As with most households, he also wants to grow eucalyptus and pine (see Chapter 6.6), for which seedlings are only available at the Forestry Department and are plainly too costly with about 7-13 ZMW, 1 USD each. Two further tobacco farmers of the community, who lived outside my core research area, have

¹⁵⁵ Officer during an interview at the branch of Alliance One in Boma on May 6, 2015.

¹⁵⁶ Harry Chisalema during an interview at his Farm in northern Chibobo on September 28, 2015.

¹⁵⁷ Boyd Changwe during an interview at his Farm in Kansenga on July 14, 2015.

undertaken some serious tree planting. Some years ago, they received four tablespoons of eucalyptus spores and plastic bags for the seedlings from Alliance One. However, they eventually pointed out that they do not want to use the trees for curing, but to sell poles to electricity providers. Robert Ngosa from the Forest also received tens of thousands of spores for eucalyptus and seeds of other exotic fast-growing tree species for free from Alliance One, yet so far, he had not yet raised or planted any trees, assuming that he ‘cannot finish the Forest’.

The finding that tobacco farmers are, due to their economic status, capable of expanding their fields season after season, at a much quicker rate than subsistence or non-tobacco-growing small-scale farmers is important with regard to deforestation. The closure of the tobacco office’s branch makes it seem as if the industry is experiencing a decline, yet relatively wealthy farmers do not depend on a nearby branch. In case they want to take up a loan, they can still raise the necessary travel costs to other branches. They are also in the position to ferry their produce to the auction floor – with their own vehicle. Whereas smaller farmers will get pushed out of the industry, the farmers of Chibobo expect to continue making high profits. Besides profitability, another major benefit of growing tobacco is that the sales made at the auction floor are going straight into a computer-based account. A few days later, the farmers get paid in cash or via cheque, so there are no delays as experienced by millions of maize farming households selling their produce (see Chapter 6.3). Due to such benefits, the industry is likely to continue or even grow further – especially following good harvests or increased market prices. Against the background that the *Miombo* stock of other provinces, in particular North-Western, have not yet been tapped, households will not ‘be stopped by the trees’¹⁵⁸ from growing tobacco, as Robert Ngosa put it. Importantly, commercial farms will equally remain engaged, with much larger areas devoted to tobacco (cf. German et al. 2011: 19). In the following section, I will turn to farming – the most important activity, livelihood, and even lifestyle in Zambia. After first looking at subsistence and small-scale farming and their underlying drivers, large-scale farming in the research area will also be discussed.

¹⁵⁸ Robert Ngosa during an interview at his Farm in the Serenje National Forest (Chibobo) on Sept. 29, 2015.

6.3 Farming white maize

Since the invention of agriculture at least 12,000 years ago, Forests have been cut down for both crop and livestock farming (Boucher 2011a: 5; Sunderland 2015). For more than half a century now, one particular crop has been on the rise all over Sub-Saharan Africa – hybrid and in particular white maize. While it was used on the continent for centuries, the pace at which it has been transformed from a vegetable into the staple food, thereby replacing indigenous crops, has increased in the recent decades (McCann 2007). On the following pages, I will re-trace how today's agricultural system in Chibobo has evolved, mainly drawing on oral history interviews and group discussions about the community's land-use history, while consulting a few records from a neighbouring Lala chiefdom.

Slashing and burning the woodlands

Northern Zambia, the traditional homeland of the Bemba and its related people, has been cultivated under slash-and-burn agricultural practice since pre-colonial times (Madan 1908: 5; Stromgaard 1989: 428). Locally known as *Chitemene*, trees are lopped at about breast height after every year's rainy season, are then cut into logs, and eventually piled into a heap (Trapnell 1943).¹⁵⁹ Just before the onset of the new rains, these heaps are burnt down in order to enhance soil fertility through nutrient release and increase of the soil's pH value. Furthermore, through the heat produced, bacteria which would have otherwise competed with the crop for ammonium in the top soil are killed (Chidumayo 1987).¹⁶⁰ Remarkably, after burning the heap, only the burnt area gets cultivated, with the so-called 'ash garden' being only about one-twentieth of the cleared area, depending on the quantity and size of trees available (Stromgaard 1989: 433; cf. Eriksen 2007: 248). The ash gardens are mostly utilized for the production of finger millet – the traditional staple food of Northern Zambia. After the harvest, Lala People plant groundnuts in the same garden, possibly followed by cassava and groundnuts again in the second year, before it is abandoned for up to twenty years to allow the coppiced trees to re-grow (Stromgaard 1989: 433). Importantly, with regard to land tenure, no group or individual had an interest in a certain piece of land for an indefinite period of time back then. The Chief was seen as 'the owner of the bush' (*Mwine Mpanga*) and it was customary to consult the respective village headmen (*Sulutani*) regarding the allocation of new suitable tracts of land. However, all residents of the

¹⁵⁹ While the Bemba People have practiced 'large circle *Chitemene*' (also known as Northern *Chitemene*) for which branches are carried to one larger heap, the Lala have prepared their fields in small circles (Southern *Chitemene*), where wood carriage is minimal. For a detailed description of the *Chitemene* practiced by the Lala People, see Long (1968): 12 ff.; Seur (1993) and Stromgaard (1989): 431 ff. Stromgaard's claim that the Lala People practiced clear-cutting instead of coppicing trees, could not be verified for Chibobo.

¹⁶⁰ Within Chibobo, where *Chitemene* has also been practiced for long, at least since the 1950s, farmers differed about whether burning biomass or burning soil is more important for having a good yield.

chiefdom were allowed to cultivate *any* tract, if no one had established any rights over it through cutting or cultivating it. Thereafter, one enjoyed full rights to use it for as long as possible (cf. Seur 1993: 355). Boundaries were established through footpaths or pollarding trees in widely spaced intervals (cf. Long 1968: 27-28). The *Miombo* woodlands have thus not only been an important source of resources such as firewood, fuelwood, edible forest products, or agricultural land (Lininger 2011: 89), but also of ‘natural fertilizer’ – nutrients in the ash of burnt trees – to farm that land. This ‘type of axe-agriculture’ (Peters 1950: 72) obviously brings about forest degradation or deforestation, depending on regeneration periods. On the Serenje Plateau for example, a single household was cultivating not more than half a hectare of millet each farming season – for which at least 7 ha of woodland had to be lopped (Peters 1950: 30, 89; Stromgaard 1989: 433). The same cleared spot was only returned to after 17 years (Peters 1950: 73). In order to allow for such long fallow periods, the fields and fallows associated with a single household can be vast. Against the background of a growing population all over the plateau, increasingly following the economic crisis of the 1970s, however, fallow periods got shorter and shorter (Peters 1950: 72; Seur 1993: 93, 128). With the lack of mature seed-bearing trees and late fires impeding forest recovery (Peters 1950: 83; Long 1968: 26), *Chitemene* had already brought about an advanced state of degradation all over the plateau, with Kasanka National Park being the exception (Allan 1949; Peters 1950: v, xiii, 73). Since slashing-and-burning does not need any capital but an axe (Peters 1950: xvi), it went on where forests were in good stock for several decades. One of the oldest residents of Chibobo remembers:

When I was attending grade 7, my grandfather made a small axe for me so I could help cutting small trees. We used to cut extensively, from one stream to the other. [...] The fields were much bigger,¹⁶¹ we went deep into the bush, as long as there are no villages, first come first served, but there were only three Farms. [...] After you harvest groundnuts in the second year, you forget about [the field] and move on and return after over ten years.¹⁶²

While *Chitemene* was the dominant form of agriculture, many people supplemented the so-produced millet with sorghum, cassava, beans and maize from hoe-cultivated fields, and vegetables grown in subsidiary gardens (Peters 1950: 16, 73, 94; Long 1968: 16, 27 f.; Stromgaard 1989: 432). All this was practiced for subsistence only, with the sale of agricultural surplus or ‘traditional beer’ out of maize or millet being the exception. However, a large amount of the total adult *de jure* male population of the plateau was working out of the district for most time of the year. Many of today’s adult generation of Chibobo remember

¹⁶¹ According to many farmers, male pride has also contributed to the vast areas cleared for *Chitemene*. When clearing land was exclusively a male task, men could gain (self-)respect by bringing trees down – while women could boast by balancing heavy buckets of water on their heads over long distances.

¹⁶² Charles Chilekwa during the group discussion at his Farm in Kansenga on March 20, 2015.

their parents working on the Copperbelt as well.¹⁶³ As the labour requirement for *Chitemene* was discontinuous, it fitted well into the cycle of urban labour migration (Peters 1950: xvi), on which the remaining rural population was dependent: to them, cash remittances were indispensable for paying taxes introduced by the colonial government, purchasing clothing, or paying school fees (Long 1968: 33). Ever since, however, *slash-and-burn* has been dismissed by the colonial government as environmentally destructive. Throughout the colonial but also post-colonial period, the practice has, much more than any other agricultural practice, been portrayed as the traditional practice *per se* that is unsustainable and a major cause of deforestation – not only in Zambia, but across the globe (Richards 1985; Fairhead & Leach 1998; Adger et al. 2001; Palm et al. 2005; Sanchez et al. 2005; Karlsson 2011: 12; Lininger 2011: 90; Leach & Scoones 2015: 17). It has been labelled unmodern, archaic, primitive, backward, or uncivilized to name a few common ascriptions (see Seur 1993, and Moore & Vaughan 1994). Consequently, governments have tried to discourage people from cutting trees for *Chitemene* and to implement conventional farming practices using a hoe or a plough.¹⁶⁴ A number of so-called peasant farming blocks were established, which were meant to concentrate the population, improve farming and soil conservation, and to encourage further development. The promotion of cash crops such as hybrid maize and tobacco was also expected to generate a new kind of farmer – one who produces a surplus (cf. Long 1968: 5, 16; Seur 1993: 165). During the economic decline of the 1970s, many people working in the mines, as well as civil servants, ‘returned home’ to their villages (cf. Long 1968: 34; cf. Mickels-Kokwe & Kokwe 2015: 128). As a result of this sudden in-migration, the pressure on the woodlands from *Chitemene* increased, also within Chibobo, so that farmers had to travel ever longer distances to access trees. With more households experiencing a shortage of trees and declining fallow periods (cf. Stromgaard 1989: 428), hoe-based farming began to gain foothold in fields, along the streams, and also in gardens near the households (cf. Stromgaard 1989: 429). *Chitemene* slowly started phasing out and farmers begun to intensify their farming practices (Chidamayo 1987). At the same time, the government tried to encourage smallholders to adopt maize as the main staple and cash crop (cf. Mickels-Kokwe & Kokwe 2015: 129). A number of efforts were geared towards ‘modernizing the farmer’, with maize successively replacing traditional crops.

¹⁶³ Peters (1950: xv, 17) claims that about 44% of the male adult population on the plateau was working outside of the district. However, since he only conducted research in a single chiefdom, such figures can provide an estimation at most.

¹⁶⁴ According to Chidumayo (2013; pers. comm. at his Farm in Lusaka’s suburb Makeni on August 3, 2015), coppicing can even be beneficial to re-growth and regenerating trees can, under certain conditions, even capture and store more carbon from the atmosphere than mature forests. However, this argument merely becomes an intellectual game when real regeneration is not possibly anymore due to population pressures.

Modernizing the farmer – From millet to maize

During the 1980s, a programme known as ‘Lima Ladder’¹⁶⁵ was implemented by the government, entailing heavy subsidies at all stages of the production and marketing of maize. In Zambia’s North in particular, where *Chitemene* fields abounded, farmers were encouraged by the government’s extension officers to grow hybrid varieties of white maize and apply chemical fertilizers. Through the commercialization of maize farming, subsistence farmers should be transformed into small-scale farmers, who would eventually stimulate economic growth and help meet the growing urban demands for maize meal (cf. May-Tobin 2011: 80). As Chibobo has been endowed with high rainfall, good soils, fairly predictable weather patterns, still virgin land, and relatively easy access to *Boma* and the tarmac, it has been most suitable for profitable agricultural production. While other chiefdoms on the plateau had already been densely populated, Chibobo only now encountered rapid in-migration. During the 1990s, agriculture companies from the private sector, the Credit Unions and Savings Associations (CUSA), *Lima* Bank, and the National Agricultural Marketing Board (Namboard) started giving out loans for farming inputs – mainly seeds and chemical fertilizer for white maize – and supported farmers with the provision of marketing systems. However, as the vast majority of farmers did not have any collateral, they were not eligible for loans. They could therefore not increase their productivity through technological or input-based advancements, but only expand their fields to yield higher harvest. As more farmers wanted to participate in the cash economy and produce beyond subsistence needs, extensive instead of intensive agriculture – just as during *Chitemene* – became the norm again. But agricultural expansion did not necessarily entail deforestation as households could, first, cultivate former *Chitemene* fields and fallow land, and second, begun to utilize the streams and their sources’ wetlands which they previously did not. In a system similar to *Chitemene*, they cut the topsoil, dry, pile and burn it in ridges, onto which Irish potatoes are planted. Parallel to this practice, another form of farming has evolved – the ‘grass mound-system’ locally known as *Ukufukika*: during the months following a rainy season, when the soil is still soft, mounds of grass, weeds and saplings from a previously fallowed site, from grassland or open woodlands are turned upside-down with the hoe and start decomposing. With the onset of the new rains, the composted mounds are levelled and then cultivated.¹⁶⁶ That system of farming on hoe-cultivated mounds (Stromgaard 1989: 432) has been the most common one in Chibobo since the late 1980s, with intentional burning becoming less frequent (cf. Eriksen 2007: 248). As a result of this agricultural change, abandoned *Chitemene* fields re-grew all over

¹⁶⁵ *Lima* derives from the word *ukulima* – ‘to farm’, in the local and many other Bantu languages. A *lima* is also an area unit, equal to 0.25 ha or 2,500 m².

¹⁶⁶ The same cultivation system is practiced by the Bemba People further north, where it is known as *Fundikila* (Stromgaard 1989: 437).

the community, creating a mosaic of 'plots of land that have been abandoned at different times, with plots of fully regenerated or partially regenerated forests, or recently abandoned fields' (Lininger 2011: 90). At the same time, Farm boundaries became more fixed: whereas previously, Farms on customary land could grow and shrink over time, depending on the area of land under cultivation, Farms were henceforth demarcated, having a fixed and smaller size. With this change of access to and ownership of land, first Farm boundary disputes arose (cf. Long 1968: 28 f.).

Within the research village of Kansenga, farming Irish potatoes on fields and along streams became the dominant livelihood strategy. However, deteriorating conditions, in particular the unpredictability of rainfall, caused many households to turn away from Irish and instead grow red sweet potatoes and beans, as they are more resistant to dry spells. After a while, local markets experienced seasonal gluts, which resulted in low market prices (cf. Davies et al. 2015: 28). This prompted many farmers to concentrate on white maize, which had been heavily promoted by the government – it became the major source of income and has been on the rise ever since. Since fertilizing with grass, mulch etc. is more labour intensive, farmers planted nitrogen-fixing plants and applied chemical fertilizer on their fields to enhance soil fertility whenever possible (cf. Davies et al. 2015: 53). While in the past felling, which only occupied men (Long 1968: 21), took most of the time, nowadays clearing takes less time as fields are smaller, and men and women spend more time on applying fertilizer and weeding. Over the years, the grass mound-system (*Ukufukika*) displaced slash-and-burn farming (*Chitemene*): in the densely-populated parts of Kansenga, the last *Chitemene* fields were abandoned in 1993, yet in the sparsely populated fringes, the last two fields were abandoned in 2011 and 2012 only. Within the entire community of Chibobo, a few farmers within 'the island', Chibobo's northernmost and least populated village, were still practicing it during fieldwork in 2015 (cf. Kasumwa 2014: 58) – not as a habit or in resistance to the government, but in an attempt to diversify crop production and thus food security when chemical fertilizers were unaffordable (cf. Moore & Vaughan 1994: 139).

Slowly but surely, *Chitemene* was phased out and the government wanted to further the idea of 'farming as business' that had shaped agricultural policies at least since independence. From about 2002 onwards, the Fertilizer Support Programme (FSP) has been implemented, which in 2009 became known as *FISP* – the Farmers Input Support Programme. Under this programme, following the country's Poverty Reduction Strategy Paper (PRSP), subsidized hybrid seeds and fertilizers were provided through the Ministry of Agriculture to all farmers organized in cooperatives. In the beginning, the focus was exclusively on maize, which was diversified after 2009 towards other crops as well, while the focus remained the same (Davies et al. 2015: 8, 29). Because one benefit of maize, from the perspective of both government and farmers, is that in contrast to cotton or tobacco, it

is both a cash and staple crop – so in case of a poor harvest, it can still be used for home consumption (Long 1995: 108).

Since FISP has been rolled out, about 80% of the national budget for agriculture was channelled into the programme, and the national Food Reserve Agency (FRA),¹⁶⁷ that procures most of the smallholders' produce (Mason & Myers 2011; Kuteya et al. 2016: v).¹⁶⁸ Ideally, this programme should reach the majority of the rural households, especially the poorer ones, yet only cooperative members were eligible to benefit from the programme, that is, to receive *one* subsidized pack of inputs for 400 ZMW.¹⁶⁹ In order to enjoy the benefits, farmers across the country tried to become a cooperative member, yet many failed to join due to an annual fee of 50-70 ZMW, and the obligation to buy at least one share (Davies et al. 2015: 28).¹⁷⁰ FISP did thus not reach out to the majority of Zambian small-scale farmers (Burke et al. 2012; cf. Franks & Hou Jones 2016: 3), including those from Kansenga: in 2015, only 35.1% of its households had one or two members in one of the dozen nearby cooperatives. On top of this moderate participation on a national level, cooperatives were said to regularly deliver inputs too late or distribute the packs unfairly: whereas inputs are allocated to cooperatives according to their membership numbers, they are clandestinely bought up by a few individuals, with others remaining empty-handed. Even though it is against FISP guidelines, some farmers in Chibobo organized up to 20 subsidized packs through 'knowing the right people' from the Ministry of Agriculture, while other members had to buy non-subsidized fertilizer, which is much more expensive.¹⁷¹ The same malpractice was reported to me by farmers from other communities as well. Moreover, wealthier households generally benefit from cooperative members who fail to raise enough money for the packs – they can buy their claims and use the inputs on their own fields (cf. Burke et al. 2012). While some wealthier farmers thus benefitted, the majority were left out. In order to allow the fields' fertility to replenish, crop rotation is practiced and once the field is unfertile, it is left fallow for 1 to 4 years, depending on the land available. As long as this is possible, no further land will be cleared, as 'cutting trees is hard labour and the younger generations are not used to cut excessively as during *Chitemene* anymore'¹⁷². Even

¹⁶⁷ The role of the FRA is discussed further below, see pp. 111 ff.

¹⁶⁸ While only 37-60% of the national budget for agriculture was allocated to FISP and FRA, the Zambian Ministry of Agriculture has routinely been spending more than was planned each year – 80% refers to the actual releases of inputs and expenditure (pers. comm. with Auckland Kuteya from IAPRI on December 20, 2016).

¹⁶⁹ Each so-called 'pack' or 'matching grant' consists of 10 kg of maize seeds, 2 bags à 50 kg of 'Urea' as basal, and 2 bags à 50 kg of 'D-Compound' as top dressing fertilizer. This is enough to cultivate 0.5 ha, which will yield, depending on the rainfall, 1,000-1,500 kg of maize – the annual consumption needs of the average household.

¹⁷⁰ Cooperatives collect shares and can then buy, for example, a hammer mill. Once it starts generating profit, it is distributed amongst the members according to their shares. In Chibobo, however, only one of the dozen cooperatives functioned accordingly, whereas all others never generated surpluses and shares disappeared unaccounted.

¹⁷¹ Private companies have charged about 150 ZMW for 10 kg of maize seeds and 220-250 ZMW for 50 kg of fertilizer. This is almost three times the price of a subsidized pack.

¹⁷² Charles Chilekwa during the group discussion at his Farm in Kansenga on March 20, 2015.

households with access to *forested* land did not convert it into an ash garden, which indicates how unpopular *Chitemene* had become.

Nowadays, applying chemical instead of ash fertilizer has become the most desired practice across Chibobo and certainly the nation. If farmers were to explain why they were expanding their fields, the answer was usually: ‘Because we are having fertilizers’ – only when inputs are at hand, either through FISP, or other, more expensive channels, the expansion of fields is given consideration. Moreover, owning land is a question of ‘male pride’: similar to *Chitemene* times, having land, and especially *cultivated* land, is a source of respect and continues to be a status symbol. As long as inputs and labour can be made available, the extension of fields thus continues year by year. Accordingly, higher profits are re-invested in fertilizer, which is why yield often translates into expansion (Hou Jones & Franks 2015; Franks & Hou Jones 2016). While all farmers are striving for continuous expansion, the wealthier ones, of whom most are in a cooperative and thus have access to chemical fertilizer, are more likely to expand their fields, or, more precisely, to employ pieceworkers to do so.

Today, some parts of the community can easily be identified as former *Chitemene* fields that are still re-growing, while others have been entirely replaced by fields for cash crops, in particular white maize.¹⁷³ Not only depending on market incentives but also dietary preferences, most households want to diversify crops and vegetables available at the same time: if all land under cultivation is devoted to maize, cassava, potatoes and beans, further land will be opened up to add another crop or vegetable. The desire for diversification also leads to decreased fallow periods and ever more depleted soils (Davies et al. 2015: 14), which further urges farmers to intensify farming. If this is not possible due to financial, labour, or land access constraints, encroaching into unsettled Forest Reserves remains an option (cf. Franks & Hou Jones 2016: 3).¹⁷⁴

Over the last decades, subsistence farmers, smallholders and commercial farmers alike increased their maize production across the country, making maize Zambia’s major cash crop and staple food. While in 2002, when FSP was introduced, about 430,000 ha were under maize cultivation, 1,200,000 ha were under maize in 2014 (FAO 2016). The necessary clearing, usually through *Ukufukika* or clear-cutting trees, has indeed contributed to deforestation. Despite this, and a number of related but also independent undesirable environmental implications, farming is imagined, in Zambia and many other Sub-Saharan countries, to be the major vehicle that will bring about socio-economic development (see Chapter 10). In times of economic insecurity due to falling copper prices and China’s

¹⁷³ While the overall consumption of millet has consequently reduced considerably over recent decades, it is still grown, for example on the ‘ash gardens’ of charcoal kilns, or after clearing new land for farming: in 2015, 15% of Kansenga’s households planted millet onto the ash after burning the felled trees on-site.

¹⁷⁴ The issue of land scarcity will be discussed in detail in Chapter 8, with the encroachment into the Serenje National Forest being discussed thereafter.

economic slowdown (Chisanga & Chapoto 2016), and the greater purpose of job creation, the development strategy pursued by the Zambian government is to transform the nation into an agro-based economy, which is based on the government's conviction that Zambia has an untapped potential for agriculture (see ZDA 2014; Sitko et al. 2015). While the flaws of this assumption are discussed in Chapter 8, I will on the following pages turn towards the farmers' strong desire to afford as much chemical fertilizer as possible.

'Happiness is having fertilizer'

In Chibobo and large parts of Zambia, the majority of all smallholders' farmland is devoted to maize.¹⁷⁵ The application of chemical fertilizers whenever possible, which came along with the heavy focus on maize, has reduced yields over the years and acidified the soils. As a result, fallow periods are getting increasingly shorter, with soils getting ever more depleted. Despite or because of this, *having fertilizer* was foregrounded by all households as a predominant desire, either during interviews, group discussions, or along the way. Fertilizer has become more important than any other material or immaterial good as higher incomes can be achieved with crops requiring more fertilizer, namely maize, tobacco or soya beans. The open question 'What means happiness to you?' was strikingly often answered with 'having fertilizer'. The question 'What do you admire?' mostly yielded the same answer, because simply put: more fertilizer means a better harvest, which in turn heightens one's purchasing power. As fertilizer has advanced to being a good that carries the promise of a good life, the desire to have access to it both physically and financially was pervasive – not only in Kansenga and the wider community, but in every Zambian chiefdom, every district, and every province I have ever visited. Over the last decades, fertilizer has emerged as a status symbol: being in the position to use chemical fertilizer *in gallons* is a sign of relative wealth already, while buying 50 kg bags implies even more prosperity. As fertilizer is seen as the ladder to success par excellence (cf. Mickels-Kokwe & Kokwe 2015: 129), most households invest the larger share of their income into it, with some having precisely started to produce charcoal as an income booster. But what is the meaning of 'success' in the local context?

The first driving force behind pronounced agricultural commitments is food security, that is, to grow enough maize to sustain a household until the next harvest. Although a tendency has been observed in the community that extended families narrow down to more nuclear families, reproduction rates are still high, for which the different motives are summed up quite well by Collins Miselo:

¹⁷⁵ An extreme example of monocropping was found in Southern Province: after 1992, 95% of the cropped land on the Tonga Plateau had been allocated to maize (Aagaard 2009).

We make future leaders, the more you have, the higher the chance that one will make it, that one can take care of you when you get old [...]. We also follow the Bible [in reproduction], we just chance, so one *has* to turn out educated.¹⁷⁶

Besides, children may be bewitched or die of illness, so high fertility rates are associated with increased security. Since 1969, the population of Serenje District has more than tripled (CSO 2015), which obviously raised consumption needs and thus necessitated the expansion of fields,¹⁷⁷ but also contributed to the longing for fertilizer.

Once the need for food security is covered, there are numerous other desires that require heightened agricultural productivity (see Chapter 7), as summarized by Boyd Changwe:

We always feel like expanding the field because we always want to increase the harvest, because we are improving in life. We have different desires, we see cars passing by, transporting goods, even your Honda! We want to have nice clothes, music, kitchen utensils and good food.¹⁷⁸ Money is never enough, even if you are the president. A good life is still very far away, nothing is in 100 percent here.¹⁷⁹

While most households would subscribe to this statement, 59% of all Kansenga households have pointed out that their standard of living has, overall, improved, while for 14% it did not change over the last years. This was predominantly attributed to the ability to feed one's household, to even support distant relatives with remittances, and the possibility of purchasing household essentials such as cooking oil and soap. This, in turn, was attributed to the increased access to fertilizer and the expansion of fields. While in the past farmers had to beg relatives from town, they were now or in the foreseeable future also in the position to afford iron sheets – a conspicuous symbol of relative success. Deteriorating living conditions, on the other hand, were attributed – in Chibobo but also country-wide (CSO 2015: 10) – to a lack of land, no access to fertilizer, and thus little food security.

All households wanted to improve or, if decent already, maintain their standard of living and in order to attain this, households follow different income strategies, several at a time, such as producing charcoal, rearing poultry and cattle, re-selling fish from Luapula, brewing beer, or tailoring. The dominant strategy, however, which will not come as a surprise, is to increase the amount of fertilizer used, and to expand one's fields once enough fertilizer can be afforded. As mentioned above, having large fields of maize, as well as selling as many bags full of maize as possible, has become a statement. I will now shed some light

¹⁷⁶ Collins Miselo during an interview at Musonda Farm in northern Chibobo on July 19, 2015.

¹⁷⁷ At the same time, higher agricultural surpluses can stimulate further population growth (Vandermeer & Perfecto 2005: 51).

¹⁷⁸ Locally, 'good food' is animal products such as bush meat, chicken, fish, sausage, or milk, of which all are relatively expensive.

¹⁷⁹ Boyd Changwe during the group discussion at his Farm in Kansenga on June 1, 2015.

onto the crucial question, why *maize* farming is preferred to other means of income and has become so pervasive today.

A Food Reserve without reserve

In contemporary Zambia, ‘when you talk about farming, you talk about maize’¹⁸⁰. This observation has largely to do with the government’s strategy of promoting ‘modern’ farming and to ensure food security. For this purpose, and increasingly for export, the Zambian government has aimed at increasing the production of maize from year to year. In this regard, the FRA – the Food Reserve Agency – was set up in 1995 by the government to manage the national food reserve and provide marketing and storage services. Since then, it received, similar to FSP/FISP, substantial public resources from the national budget for agriculture (Kuteya et al. 2016: v; see p. 106).

While the left of the two following photos shows a healthy maize field adjacent to the *Miombo* woodlands during the rainy season, the one on the right shows what happens a few months later: the harvest has been brought in by many hands and is stored in granaries. Once the moisture content of the combs has reduced considerably, farmers, family members and pieceworkers begin threshing – always by hand, using wooden or metal bars.¹⁸¹ Thereafter, they are winnowed and filled into 50 kg bags.



Fig. 11 Transformation of forest into maizelands

¹⁸⁰ Farmers during group discussion in Chongwe (Lusaka Prov.) on July 6, 2015, cit. in Davies et al. (2015): 22.

¹⁸¹ My host family’s household harvested about 20 t of unshelled maize from 3.5 ha, on which 700 kg of basal and 700 kg topdressing fertilizer had been applied. After several weeks in the granary, the overall weight had reduced by almost 50% to about 10 t, of which 8 were sold to the FRA and the rest kept for home consumption and paying pieceworkers. The entire harvest – threshing, winnowing, packing and transporting – occupied five adults for more than a week.

Depending on the harvest, this can take between a few hours and several weeks. In the meantime, the FRA establishes depots in every single community across Zambia, often near its primary school or clinic. Instead of ferrying the maize to millers or traders in *Boma*, farmers can thus deliver their produce to these central storage spaces without major expenditure on transport. Importantly, the FRA buys up maize at a price that exceeds wholesale market prices in major maize-producing areas, which make FRA the most-preferred buyer of smallholder surpluses (Davies et al. 2015: 8). Both, the easy access to FRA depots, as well as their pricing policy, made it the largest single acquirer of maize in Zambia. In addition to the FRA, there are further buyers from the private sector such as millers, 'briefcase buyers'¹⁸² and cross-border traders buying from households throughout the year, usually for a lower price (Chisanga & Chapoto 2016: 6). Despite their early entry onto the local markets and instant cash payment, farmers producing 50 kg and more maize prefer selling it to the FRA. Even though FRA's payments are oftentimes delayed for several months (cf. Davies et al. 2015: 30), higher prices and the standard process of supplying them with maize and collecting cash later is highly formalized, giving a sense of security to most farmers.

In the 2014/2015 farming season, the farmers of Chibobo were counting on the government and hoped, as in every season, for high procurement prices. Spurred by the historical bumper harvest of the previous farming season, both the government and farmers were eager to pull in the new harvest. Just after they had begun, everybody was excitedly waiting for the announcement of the FRA's official, national purchasing price. Since selling maize to the FRA marks a major event in Zambia's rural calendar, the topic dominated public debate and many discussions around the beer places for several weeks. Against the background of the preceding general elections of 2016, it was beyond doubt that the ruling government was going to buy up the maize for a good price in order to increase its power base (cf. Davies et al. 2015: 15, 27 f.). Eventually, on August 12, 2015, the Minister of Agriculture announced that FRA was going to buy each 50 kg bag of dried maize for 70 ZMW – a satisfactory price for the farmers. A week later, the Zambian President overruled the announced price to 75 ZMW, and later mandated the FRA to buy more maize than first budgeted for. Between mid-August and late October 2015, the FRA eventually bought up 596,000 t of dried maize from farmers across the country (NAZ 2017) – at least 19% more than initially targeted – and eventually exported more maize than ever before. Despite a productivity decline due to poor and erratic rains across the region, Zambia emerged as the country with the largest surplus of maize, thereby eclipsing South Africa which had been the major regional exporter (Chisanga & Chapoto 2016: 2). For all the reasons mentioned

¹⁸² 'Briefcase buyers' refers to men and women who come with a briefcase only to the villages in order to buy up crops or charcoal from many small-scale producers, wholesaling it at marketplaces, or to big buyers such as restaurants, lodges, or milling respectively melting plants.

above, the FRA is a reliable, most favoured customer to most farmers producing a surplus of maize. During the 2014/2015 season, slightly more than half of Kansenga's households sold maize to the FRA, between 100 and 10,500 kg each.¹⁸³ As expected, payments were delayed but certain.

The opposition has claimed that the government's politics of buying up huge amounts of the national maize production is a strategy to secure the loyalty of the voting public, of which the majority are rural households. Arguably, there is no need to buy ever more maize for emergencies, as the reserves are full beyond need and further storage facilities are missing (cf. Davies et al. 2015: 29), but '[e]veryone in the political arena wants to be seen to be working for smallholder farmers' (Chisanga & Chapoto 2016: 10). The increased export is, according to the opposition, only to create an artificial shortage, which in turn enables them to buy even more. Either way, in the next marketing season of 2015/2016, the government announced buying up to 1,000,000 t – 68% more than during the current, but similar to the last but one marketing season (NAZ 2017). Promises of that kind have persisted over the last years and created a dependency between the majority of farmers and the FRA. Moreover, they provided good reasons for even increasing the production of maize as far as possible, which has become seen as a kind of universal remedy. The politics of an unconditional buying-up has made a diversification of livelihoods unnecessary and uninviting to the greatest extent possible (Davies et al. 2015: 15; cf. Chisanga & Chapoto 2016: 10). All these conditions – a reliable buyer and upcoming market opportunities – have been stimulating and are likely to trigger an ongoing expansion of farmland, with a clear focus on hybrid maize. Importantly, this tendency towards a monoculture has not only undermined traditional seed varieties, but also sidestepped more ecological cultivation practices, and eventually created a technological and financial treadmill – farmers are forced to remain in that system of fertilizer-based maize farming. As maize has become so politicized and can influence elections, politicians increasingly find themselves in a dependency trap as well (Davies et al. 2015: 15, 27 f., 30).

Within my wider research area, all farmers expressed their clear intention to sell, by all means, more maize than ever before in the coming farming season. For that purpose, 79% of the interviewed households stated that they would clear new fields during the current year – predominantly to increase their maize production.¹⁸⁴ The majority, 80%, cleared less than half a hectare, with 17% felling not more than 1.5 ha, and none more than 3 ha. Generally, only a few trees are spared, such as fruit or extremely hard trees, which can later

¹⁸³ Out of them, 48% sold less than 1,000 kg, 31% less than 2,000 kg, 14% less than 5,000 kg, with the last 7%, only 2 households, selling 10,500 kg each.

¹⁸⁴ Only 53 out of 65 households included in the original census participated in the follow-up survey in October 2015. Others had moved elsewhere, shifted onto another person's Farm, were absorbed into another household, or were absent over a longer period of time due to labour migration or a hospital stay. Vacated land was, in most cases, already re-settled, though not included in the follow-up survey. In order to be precise with regard to forest loss, I asked about newly cleared forested patches and did not include re-opened land that had been fallow. If this was to be included, the area cleared would be larger.

provide fruits, or shade for infants while parents are working. From the cleared trees, 92% produced charcoal, predominantly for sale, 15% burnt the trees and planted millet onto the ash garden, 13% used them as firewood, and a single household, which had expanded most, utilized them entirely for curing tobacco.¹⁸⁵ Importantly, the size of newly cleared fields varies over the years, with some years passing by without any new clearings, depending on the household's ability to source inputs. The entire area *newly* cleared amounted to less than 30 ha for Kansenga, yet as the census was conducted in early October, the clearing of new land had not yet been completed. If the period until late December, and all households, including the new ones, were to be taken into consideration, the entire area newly cleared would be considerably higher, though not exceeding 100 ha. This limitation was due to financial or labour constraints, but also due to a severe lack of land, which will be further discussed in Chapter 8.

Besides the various benefits associated with growing maize outlined above, it is highly important for a less obvious reason as well, as I will now briefly illustrate.

Farmer's identity and the unconditional love for Nshima

During *Chitemene* times, *Nshima* was mostly made out of ground millet and so was reddish in colour, but nowadays, it is predominantly made out of white maize, that is boiled in water and strongly stirred until it turns into a dough-like consistency. It is quickly prepared, rather inexpensive, and, overall, very filling. Across rural Zambia, but also in other countries, there is a clear dietary preference towards *Nshima* and its regional counterparts. The demand from the growing *urban* populations has been equally on the rise.

The fundamental significance of *Nshima* became clear to me in the course of my fieldwork, and for the first time during a trip to the 2015 Agricultural Exhibition in Lusaka. I was travelling with my research companion, and to both of us the trip was a welcome change to village life. During the first dinner, I asked him to choose *any* meal from the menu, which I would pay for as a gesture of appreciation. There was rice, pizza, pasta, sweet and Irish potatoes, and many other local and international dishes. Whereas he was happy to order meat instead of greens as a side dish, the main food had to be *real* food as he would say – so he decisively ordered *Nshima*. *Real* food is only *Nshima*, without exception, and if you want to give yourself a treat, only quantity and quality matter. Similar situations reoccurred in Lusaka, in *Boma*, in rural settings, along the roads or at border check points, with men and women, adults and children, the rich and the poor always favouring *Nshima* over anything. Whenever I shared non-*Nshima*-food I had prepared with someone in the

¹⁸⁵ 77% used the felled trees entirely for the production of charcoal, whereas others utilized them, solely or in addition, as firewood, for slash-and-burn farming, or for curing tobacco, which accounts for the total percentage exceeding 100.

community, it was always appreciated, but rather seen as a starter, no matter its size and complexity. I only slowly came to understand that hardly *any* other food can keep up with a big portion of freshly prepared, steaming *Nshima*, if possible, three times a day. Its nutritional value, being full of carbohydrates, is likely to play its role in this clear preference, but *Nshima* has become much more than just filling – it carries, similar to a Farm’s fireplace, many associations, histories, and emotions. While it is also prepared by bachelors and married men, preparing *Nshima* is certainly among the most important skills of any woman wanting to get married. In fact, it is religion-like, as one of my visitors, amazed by its prevalence, once uttered. As a result of its social importance, eating *Nshima* can significantly facilitate immersion. Similar to my experiences in Zambia, the Western African equivalent *Fufu* is ascribed a great importance, as underlined by a common expression heard in Asante Ghana: ‘If you haven’t eaten *Fufu*, you haven’t eaten’ (Clark 2014: 45). Equally, *Ugali*, the East African counterpart, is considered the only ‘real food’ in comparison to other available food (Ohna et al. 2012).

Besides the love for *Nshima*, the prevalence of farming as a livelihood has obviously many other reasons, one being the salient identification of all farmers and most Zambians, including a large number of urban residents, as ‘born as’ or ‘born into’ a line of farmers – as proudly being part of a seemingly timeless, pan-African *agri*-culture or class, which is defined by poverty on the one hand, and hard-working people on the other (cf. Landini 2012). When households were asked during the last Livelihood Conditions Monitoring Survey (CSO 2015: 24) to indicate projects or facilities they would like to see provided or improved in their community, agriculture was the frontrunner with 57%, outnumbering health, education or roads. The farmers of Kansenga have clearly indicated that living and working in *Boma*, where all such amenities are found, would be no option at all as farming is their primary goal and occupation of choice, vocation or even mission. But apart from the conscious decision to engage in farming, though explained with an almost essentialist approach towards rural belonging, many people are also facing constraints due to limited qualifications: while 46% of Kansenga’s residents were not yet or still at school, 46% had dropped out of school, mostly during primary school, and 7% never attended school. Only slightly more than 1% completed secondary education, which is mandatory for entering a college or continuing with advanced training. Furthermore, of all those who never attended, dropped or had already finished, only about every second person was literate in Lala,¹⁸⁶ further reducing livelihood options. However, laziness, a lack of planning, and drinking a lot of alcohol, which are all interrelated and have arguably contributed to decreasing productivity and the pursuit of quick-profit strategies like charcoal burning, were also a

¹⁸⁶ Most people stated that they can read and understand Lala and Bemba as they are so similar. Writing, however, is hardly practiced. Many indicated to owe their reading proficiency to the church, which offers literacy courses and regular Bible studies. The English language was neither written nor read in Kansenga, with a few people speaking it on a very basic level.

recurring topic, with most farmers rejecting the general idea of people being caught in the poverty cycle (cf. Mickels-Kokwe & Kokwe 2015: 129).

Remarkably, small-scale farmers have long been blamed for being responsible for deforestation in Africa, which is in sharp contrast to Southeast Asia and the Amazon basin countries, where large-scale commercial agriculture is held responsible (Rudel et al. 2009; DeFries et al. 2010; Fisher 2010; Hou Jones & Franks 2015). However, the public discourse observed in Zambia is different: on the one hand, ‘unsustainable agricultural methods such as shifting cultivation’ (van Rooij 2014: 6) have indeed been seen as major destroyers of the nation’s forests. Even though in many regions of Zambia, *Chitemene* has been largely abandoned for decades, in the course of the design and installation of REDD+ projects, slash-and-burn farmers have been brought back to life, being re-imagined as villains responsible for forest loss (Leach & Scoones 2015: 17; Mickels-Kokwe & Kokwe 2015; cf. Dzingirai & Mangawanya 2015). On the other hand, however, ‘modern’, that is, input-based maize farming, both small- and large-scale, is not seen in such a negative light, but rather as productively contributing to the country’s development. This view is shared from village to state level, with a conspicuous emphasis on farming as the seminal development strategy (see ZDA 2014; Sikto et al. 2015) – notwithstanding its contribution to forest loss. While this seeming contradiction will be discussed extensively in Chapter 10, on the last pages of the present chapter, I will briefly present some empirical data on large-scale farming – a topic which hardly comes into focus when deforestation is discussed in Zambia.

Commercial (maize) farming – Zambia’s elephant in the room?

Large-scale farming is not a new phenomenon to the wider region. Due to favourable climate conditions and fertile soils, the central district of Mkushi is home to a number of commercial farms. In the 1950s, the *Mkushi Farm Block* was established with White farmers, in particular ex-servicemen, being settled on crown land (Simunchembu 1989: ix). Today, its adjoining circle-irrigated farms cover an area of about 176,000 ha overall, which can clearly be seen on far away satellite imagery (see ZEMA et al. 2013). While Mkushi has since been Zambia’s largest agglomeration of commercial farms, its neighbouring district Serenje has not been equally affected. However, since it is endowed with equally favourable conditions and ‘free’ land, it has experienced considerable in-migration over the last 15 years, with correspondingly increased agricultural activities, with a focus on maize (ZVAC 2010: xii). This in-migration was partly due to an influx of White, experienced large-scale farmers fleeing Zimbabwe following Mugabe’s fast track land reforms (German et al. 2011: 18; Mwitwa et al. 2013: 3). Foreign direct investments (FDI) into the agricultural sector,

especially from China, have also been growing, since about 2009 (German et al. 2011). Since then, land grabbing has become a topic of debate (e.g. Herre 2013 and Chu et al. 2015).¹⁸⁷

It will not come as a surprise that the major cash crop grown in the community, the district, and Central Province at large has been white maize, with virtually all households participating in the production of it, devoting an area of 248,000 ha to it in 2016 (CSO 2017).¹⁸⁸ In spite of large-scale participation, only 2% of all farmers account for about 50% of maize surplus sales (Davies et al. 2015: 23; Chisanga & Chapoto 2016), which points to the significance of large-scale farms. Since Zambian maize is non-genetically modified (non-GMO) by law, it has a comparative advantage when exporting into GMO-restricted countries such as Zimbabwe and Malawi. Furthermore, as South Africa's production has been declining, Zambia could tap its traditional supply markets Botswana and Namibia. On top of that, overall maize production as well as consumption needs will increase due to population growth and increased exports (Chisanga & Chapoto 2016: 9 f.; cf. Sitko & Jayne 2014: 10). Central Province also ranked number one with regard to soya and wheat, covering areas of about 60,850 and 10,800 ha respectively (CSO 2017). The biofuel *Jatropha* as well as palm oil had equally been on the rise on the plateau, in Serenje's neighbouring district Mpika. After initial clearings for a *Jatropha* outgrower scheme, however, investors pulled out, leaving frustrated farmers and already-cleared land behind. As the overall demand for other cash crops, however, is expected to grow, the government has demarcated official farm blocks in each of the 10 Provinces, of 100,000 ha each.¹⁸⁹ Only the blocks for Central Province and Northern are bigger, with 147,000 and 150,000 ha respectively (ZDA 2014), amounting to a total area of more than 1,000,000 ha. Five of the farm blocks, including the larger two, are located in the high-rainfall area, which is most suitable for the widest range of crops. The farm block of Central Province, widely known as 'Nansanga', is located north of Chibobo, in traditional Lala land, amidst the well-forested Central Plateau. Due to its conducive weather, fertile soils, and central location, it is ideal for becoming Zambia's next agricultural hub (cf. GRZ 2011c: 187). Nansanga was the first Zambian farm block that was put on tender by the government in December 2010, with one core venture of 9,350 ha, three commercial farms of 8,150 ha in total, and more than 300 small- and medium-scale farms between 10 and 900 ha having been offered to investors (GRZ 2011a and 2011b). The block area is a mosaic with more than 400 households, their farmland, and about 70 ha of

¹⁸⁷ 'Land grabbing' refers to often large-scale land acquisition in developing countries by individuals, (multinational) corporates or the government for the purpose of agricultural development or resource extraction through foreign direct investment (FDI). Another form of land appropriation, so-called 'green grabbing' refers to the recent appropriation of natural resources for environmental ends such as biodiversity conservation, the protection of ecosystem services, or carbon sequestration (see Fairhead et al. 2013).

¹⁸⁸ Only in Eastern and Southern Province, even more land was devoted to maize. Due to less favourable agricultural conditions, however, less maize was produced (CSO 2017).

¹⁸⁹ Each farming block is meant to host one large-scale core venture of about 10,000 ha, a number of commercial farms of at least 1,000 ha, and several smallholdings of at least 10 ha, which are preferably organized as an outgrower scheme (ZDA 2014; cf. GRZ 2011a and 2011b).

the Serenje National Forest (GRZ 2006c: ix). By 2006, corridors for power lines, about 95 km long, were cleared from *Boma* to the farming site (Kasumwa 2014: 89), with more land having been cleared for a network of further electricity lines, 150 km of access trunk roads, feeder roads, boreholes, and three dams (GRZ 2011b). The environmental impact assessment published by the Ministry of Agriculture and Cooperatives (GRZ 2006c) states that a large percentage of the block will be cleared of trees for the cultivation of cash crops, the construction of roads, their extension, the establishment of dams, cattle ranches, and agro-processing plants. This, in turn, will disturb wildlife, destroy habitat and decrease biological diversity. Job opportunities as well as a number of amenities such as shopping facilities, schools and health centres will furthermore lead to in-migration, which will entail further deforestation. Moreover, it will reduce the area and the natural resources including forests accessible to the local population. Heavy machinery will be used for clearing the land, yet interestingly, the terms 'deforestation' or 'forest loss' do not occur in the entire assessment. By late 2015, most land was still bush and had not yet been transformed as the initial investor, a Hungarian company, had unexpectedly pulled out again (cf. Kasumwa 2014: 80). A few years later, the Zambia Correctional Service¹⁹⁰ and companies from India, South Africa and Saudi-Arabia invested again.¹⁹¹ Besides Nansanga, another commercial farming area is located nearby the community: *Luombwa*, named after the major stream in the area, is about 15,000 ha big, and has already been converted from customary into private land (Kasumwa 2014: i), thus giving plenty of rope to any type of venture. According to the documents of Serenje's District Agricultural Officer (DACO), a first company had already acquired about 6,000 ha within the block, which is confirmed by the Environmental Impact Assessment that had been commissioned by the company (Kasumwa 2014). While 1,200 ha out of 6,000 had already been cleared for farming, additional 2,300 ha will be cleared for the time being for crop production, storage space, housing units, workshops, connecting roads, and facilities required for rearing cattle (Kasumwa 2014: i). Timber that can be used commercially 'discovered' along the way will be felled and marketed by the Forestry Department. All this will result in habitat loss for bird species such as hornbills and barbets, and threaten a number of other wild animals such as tree-roosting bats, monkeys, squirrels and tree pangolins (Kasumwa 2014: iii). The development of the site, once completed, will entail in-migration and hence the development of further human settlements and physical structures, resulting in additional habitat loss and fragmentation, and impede upon local communities' access to firewood, mushrooms, medicinal plants etc. Moreover, forest clearing will negatively impact upon water resources, soil, and air, and no re-forestation is intended (Kasumwa 2014: 98 ff.). As large-scale conversion usually entails clear-cutting and

¹⁹⁰ As an agency under the Ministry of Home Affairs, the Zambia Correctional Service is managing and controlling prisons and prisoners.

¹⁹¹ District Agricultural Officer (DACO) during an interview in *Boma* on May 7, 2015.

mechanical ploughing, seed dispersal and future re-generation are rendered extremely slow if possible at all (cf. Vandermeer & Perfecto 2005: 92). The impact assessment (Kasumwa 2014) concludes, that all such impacts mentioned above are not critical, 'of low significance', and – in contrast to small-scale farming – rather localized. In contrast to that, however, Sitko & Jayne (2014: 195) argue that all Farms of 5-100 ha taken together account for more land than the entire small-scale sector. Similarly, DeFries et al. (2010: 178) have pointed out that industrial-scale agricultural production for growing urban populations plays a much bigger role in deforestation than forest loss which comes along with manual farming practices.

While all larger agricultural projects like the one mentioned above may negatively affect flora, fauna, soil and air quality, and also entail human re-settlement, they will 'result in overall economic growth and development', that is, create employment opportunities, improve food security, and increase the revenue base for the government, which in turn can be invested in infrastructure development (Kasumwa 2014: iii-v, 128). In the same vein, Serenje's Agricultural Officer sums up:

I am aware of this dilemma, but you see, this forests don't give us a direct benefit, it's always a balancing act, just like the case in South America, where they found oil under a forest. It will bring development, so we clear, but it certainly is a conflict.¹⁹²

The trade-off between forest conservation and development arguably becomes more delicate when it is between forest conservation and food production. South of the research community, a 900 ha-big farm for the production of soy, wheat, maize, and dairy farming has started operations in mid-2015. As most commercial farms employ circle irrigation, fields need to be continuous, and cannot be intersected by forests, as the concepts of agroforestry or conservation farming stipulate. Clearing for fields has caused the same negative environmental impacts as mentioned above, yet in order to keep adverse effects within limits, the impact assessment (Envsol 2016) included a number of stipulations. However, the general problem is that there is no monitoring of compliance. To forestry or agricultural officers in Serenje, it is always difficult to meet with the landowners or the executive staff as they are often simply unknown – once land has been converted from customary to private land, no government institution apart from the Ministry of Lands and their local counterparts, sees the transfer.¹⁹³ Even employees or local residents rarely see them. In any case, however, forest loss caused by farming is hardly seen as a *real* problem, as, according to the Zambian Development Agency, 86-90% of Zambia's arable land, including forests, is currently not even utilized (ZDA 2014). On these grounds and in order to reduce poverty levels and further development (GRZ 2006b; GRZ 2011c; GRZ 2017), local

¹⁹² District Agricultural Officer (DACO) during an interview in *Boma* on May 7, 2015.

¹⁹³ *Ibid.*

as well as foreign direct investments (FDI) into land-based enterprises such as horticulture, floriculture, ranching, and agriculture are promoted by the government (see Chu et. al 2015). In the same way, Zambia's future development strategy focuses on agricultural growth, with input subsidies on a variety of crops (Davies et al. 2015: 8). Consequently, the expansion of existing farm blocks but also the emergence of new large-scale farms is most likely to proceed. Since two-thirds of Zambia's land surface is covered by trees, it inevitably entails the replacement of forested areas.

Due to agricultural expansion by both large- and small-scale farmers, land has become a scarcity in many regions of the country. The ramifications of this will be discussed in the Chapters 8 and 9, but before that, I will turn towards further practices that are linked to forest loss. After having discussed the extraction of firewood, the cultivation of tobacco, as well as farming with a focus on the production and consumption of maize, the following sections are on (small-scale) mining, the production of charcoal, and lastly the extraction of timber.

6.4 Prospecting and mining for manganese

Zambia has a long history of mining, at least dating back to the 4th century (van Alstine et al. 2011: 6). Thanks to its massive copper deposits, and to a lesser extent those of gold and cobalt, in the north-western lobe of the country, Zambia and formerly Northern Rhodesia experienced economic growth and levels of urbanisation and thereby social change unprecedented in Sub-Saharan Africa before the 1970s. Apart from copper and the mining province Copperbelt (see Chapter 10), other mining activities and regions have not received the same attention (Lindahl 2014: 9), most likely due to their recent relevance or their lower economic contribution. The chapter at hand thus draws attention towards manganese mining – a more recent phenomenon that has not been associated with the Copperbelt.

Since the mining sector was privatized in the late 1990s, the government has intended to diversify the industry towards minerals other than copper, cobalt and gold, which had a long tradition (Lindahl 2014: 9). Since then, there are much more other minerals prospected for and mined in Zambia, such as precious stones for export,¹⁹⁴ metallic minerals like manganese or iron ore, energy minerals such as hydrocarbons, coal and uranium, but also lead, zinc, and many more (Simoes & Hidalgo 2016; ZDA 2016: 5). In addition, a range of industrial minerals such as glass sands, limestone or clay are extracted from Zambian soil (ZDA 2015: 9). Importantly, all of those resources are largely excavated in open-pit mines, which means that both prospecting and mining activities require clearing of the entire surface: for the pits themselves, for processing plants, wide roads for heavy loads, housing sites for the workers, and so forth. Importantly, even when prospecting or mining sites are abandoned, other extractive activities such as farming are most likely to follow as the land has already been cleared (cf. Elias 2011: 66, 71 f.). If the land is too uneven, dissected, or degraded, however, cultivation is rendered difficult, unprofitable or impossible, which can eventually necessitate further clearing of land elsewhere (cf. Equinox 2005: 51, 134). Despite that impact, in the literature on deforestation in Zambia, little attention is paid to the mining operations in previously unaffected areas (Lindahl 2014: 9). Whereas it is difficult to estimate the precise area cleared *solely* for mining-related activities,¹⁹⁵ the unavailability of such information is conspicuous.¹⁹⁶

¹⁹⁴ Major gemstones include diamonds, emeralds, aquamarine and tourmaline (ZDA 2015: 9).

¹⁹⁵ Mining can also be the land-use following farming activities, thus not responsible for deforestation. However, when following *Chitemene*, for example, the impact of mining is more grave – not to mention the impact it has on undisturbed woodlands.

¹⁹⁶ Gathering information on on-going mining activities, both small- and large-scale (for the latter, see Chapter 10) has been a methodological challenge. The underlying business relations are often non-transparent and complicated by a number of subsidiaries and contractors, or changing owners and shareholders. While being in Zambia, information, for example with regard to the size of land cleared, was either kept secret or not recorded at all by the operators. Observation, interviews, press releases, government statements, impact assessments, news or companies' websites – that more than once went defunct during research – were thus consulted to gain an understanding of the topic.

The present chapter is on manganese only – the resource needed for the production of aluminium alloys, stainless steel, or cast iron for engine blocks. In order to make manganese mining more attractive, companies that register with the Zambian Development Agency (ZDA) have been exempted from paying taxes on dividends, profits and imported goods for the first five years of operation (ZML 2012). As a result, the mining of manganese took off in several provinces: beginning in 2011, several large-scale prospecting licences in Luapula Province have been granted to *Tranta*, *Asian Minerals* and *Tycoon Mining*. In the same year, two Australian companies listed on the stock exchange have also entered the business: *Kaboko Mining* and *Zamanco Minerals*. According to their own website, *Kaboko* has been at the forefront of the investors with 3,225 km² being under their large-scale prospecting and small-scale mining licences in Luapula and Central Province. Similarly, *Zamanco* has been involved in several joint ventures covering small- and large-scale prospective mining processes in Luapula, Muchinga and Central Province, with a tenement area that amounts to a total of about 3,000 km² (ZML 2012). In August 2012, a subsidiary of the Indian *PLR Projects* announced to invest 17.6m USD into mining and processing manganese extracted from four large-scale prospecting mining licences in Luapula and Central over about 2,600 km² (PLR 2016). Lastly, *Kaboko* plans to open further mines in Northern Zambia in 2017 (Corathers et al. 2016). Apart from larger firms including those listed on the stock exchange, further privately-held small-scale firms have mined and prospected for manganese in Central Province in 2015, such as *Allegra Mining* and *Taurian Manganese* (Corathers et al. 2016). On top, *Ferro Alloys Corp Ltd* (FACL) have, according to their own website, three large-scale licences in Luapula and Central over 60 km², and collaborate with other small scale mining operators. Many more companies are said to operate unregulated, hence there is no information available on them (Lee 2012). Most of the manganese is exported to China and the United States, through the ports of Dar es Salaam and Beira, but also Durban and Walvis Bay (PLR 2016; Simoes & Hidalgo 2016).

As has become obvious from the list of examples, the two provinces most affected are Luapula and Central. Three of the provinces' districts – Mansa, Kabwe and Serenje – have experienced the highest increase of activities related to manganese mining during the last years. I will now offer an example of a recently opened manganese mine on the Lala Plateau, in the vicinity of my core research area.

Serenje's Kabundi Mine and smelting factories

When waiting for transport from the Great North Road back to Chibobo in mid-April 2015, three young men in a white Toyota Corolla offered me a lift. They were heading to a recently opened mine about 15 km due north, in order to supervise the ongoing prospecting. For the

last few weeks, many residents of Chibobo were wondering about empty trailer trucks speeding over the gravel road raising dust several times a week. Only now I understood that they were also heading towards the mine to be loaded with manganese. I was dropped in front of my house by the three men and as the sun had almost set, they offered to pick me up early the following weekend to show me round the mining site. The following Saturday, they picked me up around noon and openly talked about their businesses on our way to the mine.¹⁹⁷ They turned out to be the operators themselves, all in their mid-30s, and had been working in the mining sector in Mansa, Serenje and Mkushi since their teenage years. About two years ago, they had obtained a resource map from the relevant Ministry and begun to research by asking villagers in the vicinity of potential sites about whether they had seen surface outcrops similar to a sample they carried. Behind them was a ‘Zambian big man’ – an investor who holds the prospecting licence. After having identified a potentially profitable site about six months earlier, exploration of the deposits was underway in order to estimate whether further investment was worthwhile or not. Before mining operations can begin, manganese-bearing veins are prospected: this process usually starts at sites where surface outcrops occur, with drilling along a potential vein. After several veins were discovered, the operators employed geologists from the Ministry in December 2014 who dug trenches for surveying the veins and dispatching minerals to a laboratory. This process of prospecting usually targets a large area and is characterized by the selective cutting of trees – usually following the veins for up to several kilometres. Manganese-bearing outcrops in Chinsali and Serenje, for example, were at least 4.5 and 3 km long respectively (ZML 2013: 2, 9). Although the geological report for this mine was not yet confirmed, preliminary results estimated isolated deposits under an area of about 40 by 35 km, respectively 1,400 km² or 140,000 ha. This is the area covered by a large-scale prospecting licence they were granted from the Ministry for 90,000 ZMW, about 13,800 USD back then. From the time of the licence being granted, they have two years time to research the entire area.

After they had explained all this to me during the short ride, we approached the mining site that was located amidst the *Miombo* woodlands. The rainy season had left us with almost impassable feeder roads. As many trucks had to be rescued over the last weeks after they got stuck in the mud, the operators were looking forward to the dry season. Because there is no mobile network here, the rescue is costly in terms of time and money. After the driver manoeuvred our car with little ground clearance over the mud, we reached the first prospecting site. A mobile yellow diesel air compressor is the only colour that looms in the middle of the green woodlands. The compressor, filling the air with tremendous noise itself, is connected over a long thick cable with a heavy pneumatic drill about fifty metres away. Five men in their 30s and 40s are occupied with drilling holes of one metre depth to check

¹⁹⁷ Field visit to the Kabundi Mine on April 18, 2015.

for and follow the veins.¹⁹⁸ The drill is positioned and moved by two men working in concert, and whenever the drill bit is pulled out and releases blue-greyish powder, all thumbs go up and a few seconds of laughter interrupt the work before the next holes are tackled. Once a long vein has been determined, the holes will be deepened another metre and the process starts over. When red or brown soil is surfaced, the vein has either changed direction or come to an end. The workers are employed and paid on a daily basis, but in order to ensure efficiency without the need to control them, the operators have decided to pay them 2 ZMW (0.3 USD) per drilled hole instead. After the workers had drilled a few holes during our visit, we moved on and reached a camp site with a kitchen, storage huts, and a dozen more men from the nearest village waiting for jobs. None of them was wearing special gear or clothing and the safety measures taken at the mining site were insignificant: the 'blasting shelter' for example was made out of tree branches, twigs and tattered sacks carrying the logo of the United Nations.

During the last month, four open pits were excavated here, with a total size of about 50 ha that were previously forested, excluding feeder roads, shelter, etc. In one of the pits, a yellow excavator was busy crushing and piling large grey rocks and stones containing manganese ore onto a hip outside of the pit. Next to it, several women were crushing the stones with hammers to be loaded onto truck trailers (see Fig. 12). One of the operators points out that he prefers to employ women as they also pick smaller stones and do not just crush the larger ones.



Fig. 12 Quarry and reloading site of the Kabundi Manganese Mine

¹⁹⁸ To me, standing next to the pneumatic drill was associated with one of the most emotional moments during fieldwork. On March 14, five weeks before visiting the mine, I had ruptured my right eardrum on a rough trip to the Palace of His Royal Highness Chief Chisomo in Serenje's lowlands. I had already accepted partial deafness and was happy that a painful inflammation was treated. My ability to hear 100% returned unexpectedly in that very moment standing next to the ear-battering drill. The vibrations had possibly removed a glued membrane.

A truck with a long open trailer stands next to the quarry site and is loaded with stones until a weight limit of about 35 t is reached, which equals about ten heaps. On average, one such truck leaves the mine on a daily basis straight to FACL's plant in Kabwe, which in turn has buyers in South Africa and the overseas market.¹⁹⁹

Obviously, the prospecting and actual mining activities are merging here, with manganese being extracted, quarries opened, and manganese being sold to smelters. While this is a grey area, companies benefit from prolonged prospecting periods as it is less costly with regard to licensing fees, taxation and royalties than mining operations in full swing. First profits were expected to be made in about May 2015 after loans were settled from the first sales and thereafter, *ZCCM-IH*, an investment company wholly-owned by the Zambian state, will come in. The operators point out that the mine under investigation can only be considered to be small-scale, with little manpower and no heavy equipment such as a bucket-wheel excavator being involved. Nonetheless, for the process of prospecting, forested land had to be cleared already. On top of the mining site itself, a cleared surface is needed for roads withstanding heavy loads, feeder roads, parking, housing, shelters, kitchen huts, storage depots and dumpsites. Especially once the mining starts, more elaborate roads and on-site facilities for sorting, processing and disposing of side products are needed. According to the operators, large-scale operations will encompass the relocation of the population, which in turn will entail further deforestation for new settlements and farmland.²⁰⁰

On top of the mining site and its surroundings, processing plants for smelting manganese and adding value have also been opened up in the districts of Kabwe, Mansa and Serenje.²⁰¹ This indicates a real or expected growth of the industry and is likely to stimulate further investment into manganese mining. The two oldest plants, in Kabwe and Serenje, were directly linked to my research area and important with regard to deforestation in three ways: first, they offer a market for manganese, for which mining sites including the associated infrastructures need to be cleared. Second, the plant in Serenje occupies previously forested land, amidst the *Miombo* woodlands. Third, this plant was an on and

¹⁹⁹ Depending on the market prices, refined Manganese has been traded for about one-third of the copper prize: 1,680 vs. 4,780 USD/t (Mining operators during an interview at the Kabundi Mine on April 18, 2015).

²⁰⁰ During a short visit to the mining site in March 2018, there were at least two companies excavating manganese from large open pits, and trucks from Zambia and *all* neighboring countries queuing to be loaded with 35 t each. At least a dozen of such trucks left the mining area every day, passing through Chibobo and feeding different smelting plants in Zambia and abroad.

²⁰¹ Since 2010, the Indian Ferro Alloys Corp. Ltd. (FACL, not to confuse with FACOR) runs a plant in Kabwe. Another melting plant in Serenje District, in Kanona, is operated by the Southern Africa Ferro Alloy Limited (SAFAL). Further mobile processing facilities are run by the Australian Kaboko Mining since 2013 in Mansa. While a local subsidiary of the Australian Zamanco suspended the plans of a second ferroalloy plant in Serenje in 2016, a local subsidiary of the Indian company PLR has taken over. Land had already been acquired along the Great North Road at Mansa turnoff, and environmental clearance was obtained from the Zambian Government (PLR 2016). Besides this, two more Indian-owned processing plants were referred to in my research area, yet I could not confirm their existence. The scarcity of information may also be responsible for the claim, that there is only a single producer of manganese ferroalloys in Zambia, on the Copperbelt (Steenkamp & Basson 2013), which has not been true in 2013 either.

off bulk buyer of charcoal, which possibly but not necessarily triggered deforestation as well (see Chapter 6.5). Whereas the Kabwe's plant management claims to use electricity only, the plant in Serenje was certainly supplied with large amounts of charcoal to feed its furnace over the few last years.

During previous fieldwork in late 2014, I had paid a courtesy visit to Her Royal Highness Chieftainess Serenje who lives a few kilometres from the plant. Alongside the factory's premises, I encountered large quantities of charcoal – a heap of about 180 m³ by guess. The side facing the roadside was covered with elephant grass, arguably to hide from possible forestry patrols.²⁰² In the previous farming season of 2013/2014, a lorry from the plant came to *Boma* to buy up charcoal from local markets. There, the driver of the lorry allegedly incited some of the present residents from Kansenga to produce charcoal. They were offered 700 ZMW/t if they have a production licence, and 500 ZMW without a licence.²⁰³ The communities near the plant, where charcoal can be ferried 'for free' by bicycle, are especially likely to be utilized first. Considering the additional costs for transport from Kansenga to the plant, about 85 km north-east, however, delivering charcoal is not profitable to small-scale producers. A number of households selling locally to briefcase buyers were sure, however, that their produce was also supplied to the plant. Those in Kansenga owning a small truck or producing larger amounts – four households in total –, have found a market in the plant as well. One of the producers claimed that the furnace consumes at least eighty 50 kg bags of charcoal, around 4 t every day, yet I could not confirm this. Since a licence would lower the profits for both sides, producers and buyers, they did without it. In September 2015, the Minister of Central Province carried out an impromptu visit to the plant and complained in the media about the management's practice of acquiring truckloads of charcoal for their smelter, thereby exacerbating the high levels of deforestation in Serenje and neighbouring Chitambo district. Additionally, one of the Lala Chiefs, His Royal Highness Chief Kabamba, complained about his subjects turning towards the production of charcoal as a result of this company's demand. Despite the warning and complaint, the company continued, which points to the powerlessness or unwillingness to intervene effectively of both Forestry Department and customary authorities. Eventually, as the plant was not paying well overall, producers from Kansenga stopped supplying the plant after a while. As an alternative to charcoal, a fifth household started selling tonnes of dried and hand-threshed maize combs to the plant, which possibly points to a more sustainable substitute, which has usually been seen as a waste-product and just burnt.²⁰⁴

By late 2015, the mining of manganese had just gained a foothold in Serenje and Mansa District, with new melting factories being under construction (see p. 125, fn. 201). The

²⁰² Field visit to Chieftainess Serenje's Palace nearby Kanona on October 21, 2014.

²⁰³ The official licence for producing and conveying charcoal costs 324 ZMW/t in total, making the unlicensed trade more profitable.

²⁰⁴ Kenji Nkoma during an interview at his Farm in northern Chibobo on April 28, 2015.

demand for charcoal in the region for firing industrial furnaces is thus not likely to vanish in the near future. Against the background of unreliable and high electricity tariffs, the plants' management are also unlikely to switch over to electricity soon. In fact, the plant in Kabwe was forced to suspend operations in December 2015 for about four months, after ZESCO had increased the tariffs by over 200% with immediate effect, possibly to get the massive load shedding of that time under control. This topic, load shedding, will be illuminated in the following section, which is about the production of charcoal – a topic that is, like no other, associated with deforestation.

6.5 Producing charcoal

As was pointed out earlier, the main sources of energy in Zambia are firewood and charcoal, accounting for 84% of the national energy consumption (CSO 2015: 12). While about 85% of the 9 million rural Zambians depend on firewood, charcoal serves about 59% of the 6.5 million urban residents (CSO 2015: 1, 12; cf. FAO 2010). In the face of this prominence, research on charcoal in Zambia is still in its infancy with no recent comprehensive study on its production or consumption (EC 2014: 7). A first scoping study, with empirical data from six districts, was carried out in 2013 (Gumbo et al. 2013), yet it is mainly concerned with the charcoal trade and legal framework, and hence does hardly include the producers' or consumers' perspectives. Though it is one of the more recent studies, a bulk of the literature cited is from 2005 and earlier. Apart from that, empirical data from Central Province is missing until today – despite the fact that Central is considered to be, together with the Copperbelt, Zambia's main charcoal hotspot (Kalinda et al. 2008: 34), with signs of emerging production hotspots in North-Western and Western Province (Mwitwa et al. 2013: 4). Driving overland in Zambia, one can hardly miss the vast amounts of charcoal sacks that are dotted along all major roads and abound on wholesale markets.²⁰⁵ They are either sold by the producers themselves, often called 'charcoal burners', or by traders who bought smaller bags from several small-scale producers. Whereas almost all charcoal is produced in rural areas, it is predominantly consumed in urban areas. While it has not yet been well documented to what amount the production of charcoal and its trade actually contribute to deforestation (Gumbo et al. 2013: 52), it is commonly said to be a, and often *the* major driver of deforestation, environmental degradation, and ultimately climate change. In that regard, charcoal is said to have a twofold impact: first, the forests cleared for producing charcoal release large amounts of carbon dioxide, and second, black carbon resulting from using charcoal is another strong contributor to global warming (Hofstad et al. 2009), possibly the second strongest after carbon dioxide (Ramanathan & Carmichael 2008). In addition to black carbon, the aerosols released are also said to impact regional climate patterns (cf. Menon et al. 2002).

In the following, I will investigate the charcoal production in and around Kansenga, which has grown considerably within the most recent years. In the absence of any written documentation, it has been difficult to trace the evolution of the charcoal trade in the

²⁰⁵ During preliminary and main fieldwork, I have observed the highest concentrations between Solwezi and Chingola (Copperbelt Province), and along the Great North Road in Central Province: Between Liteta, Kabwe and Kapiri Mposhi, and between Ndabala and Chibobo, the last being my research area. On top of that, charcoal is sold basically in every single district across the entire country. Further north, south of Mpepo and after Chinsali towards the Tanzanian border (Muchinga Province), the amount of filled bags was also striking. The charcoal markets and hundreds of individual bags lined along the tarmac in Solwezi District (North-Western Province) were similarly impressive. Along the eastern stretch of Luangwa Bridge (Eastern Province; cf. Gumbo et al. 2013: 26) and along the tarmac winding down towards Chirundu and Siavonga (Southern Province), the number of charcoal sacks was strikingly high as well.

community: persistent staff changes within the Forestry Department and the Ministry of Environment have impinged on the production of statistics as well as the accumulation of institutional memory. The collective knowledge about the history of charcoal in Kansenga was hence elicited during group discussions and interviews. After presenting the history of the charcoal business in my research area, I will discuss the perception of the black good, and then demonstrate how the link between the production of charcoal and deforestation is more complex than the dominant discourse suggests. Eventually, I argue that the perception of charcoal as the driving force of Zambian deforestation is fundamentally flawed.

Kansenga – a village between claims and demands

Driving overland on the central plateau, the scent of burning wood is pervasive. Charcoal kilns are lined up on major and minor roads and pop up here and there on clearings within the *Miombo* woodlands. In particular between the southernmost corner of the Congo Pedicle and Serenje *Boma*, the acidic smell of burnt wood in the air gets stronger and stronger. Just along to the roadside, small kilns, about three metres long and one metre tall and wide, are smoking and smouldering, with freshly cut and piled trees already next to it and empty bags waiting to be filled. In fact, this stretch of about 50 km, where hundreds of charcoal sacks abound, has been termed the *Charcoal Belt*, in reference to Zambia's Copperbelt (Mwanza 2012). The photos hereunder show the Great North Road nearby Chibobo with a line of charcoal bags. They are presented to passers-by – like the drivers of the many fuel tankers from Tanzania heading towards the Copperbelt.



Fig. 13 Charcoal bags for sale along the Great North Road

The photos depict the situation today along innumerable stretches Great North Road – but what are the beginnings of the charcoal business in the area?

The origin of the charcoal business reaches back into colonial times and is closely linked to Zambia's mining areas that were characterized by early industrialization and urbanization. In particular the Lamba People from Ndola and Kapiri Mposhi became known for making charcoal and selling it to miners, teachers, officers and even workers, as the oldest resident of Kansenga remembers.²⁰⁶ The years before independence, rumours about the Lamba People selling charcoal *on a larger scale* to urban areas had spread in Kansenga, where, back then, only a few bags of charcoal destined for *Boma* were individually produced only every now and then. As the Lamba People usually fixed their heavy bags full of charcoal onto bicycles with rubber bands, one anecdote about them became widely known in the greater region and is narrated without a twinkle in the eye: 'They are all blind, at least at one eye' – because it is just a question of time until the rubber band snaps, straight into an eye. When rubber bands are out of stock, traders usually resort to fibre rope extracted from the common *Musamba* tree which is not only well known for its strength by salesmen, but also by parents constructing a swing for their children, and – as I am consistently told – by suicidal persons.

Back then, the forests of Central Zambia were not only turned into charcoal for supplying the urban Copperbelt, but also the capital city Lusaka: in order to 'feed' Lusaka's growing populations, the forests north of it, in particular between Liteta and Kapiri Mposhi, and also along Great East Road were turned into charcoal on a commercial scale since around 1970 already (Chidumayo 2001). Between independence and 1980, Lusaka's population quintupled, which is why the demand for charcoal increased further. As a result of the production of charcoal, but also the expansion of settlements and agricultural fields – which mostly went hand in hand –, trees close to the tarmac got scarcer during the 80s in Central Province and on the Copperbelt. Charcoal traders had therefore to move further into the bush, or transport charcoal towards the tarmac, which both became more time-consuming and expensive. As a result of this, they continued their quest elsewhere, as close as possible to their key markets. While traders from the Copperbelt started moving towards the well-wooded North-Western Province, traders supplying Lusaka moved eastwards along Zambia's Great North Road, approaching the *Miombo* woodlands and villages of the central plateau. Similar to the tobacco growers from Southern Province, they were following the trees (see Chapter 6.2). Importantly, the closest district to Lusaka after the already-depleted Kapiri Mposhi was Mkushi (see Fig. 14), which had to be 'skipped' as most land there was either gazetted as a protected National Forest Reserve,²⁰⁷ or utilized already by subsistence and small-scale farmers. Moreover, large tracts of land – covering more than

²⁰⁶ Charles Chilekwa during an interview at his Farm in Kansenga on June 23, 2015.

²⁰⁷ Chaba Local Forest, Myafi National Forest, and Mkushi Headwaters National Forest (GRZ 2015: Ch. 199).

1 Mio. ha – were already occupied by ‘the Whites’ as they are called – commercial farmers who are feared as very serious businessmen. They are said to defend their vast property even with armed forces, so traders skipped this private land and started to source charcoal from the villages of Serenje District, starting from nearby the southernmost corner of the Congo Pedicle, and further inland.

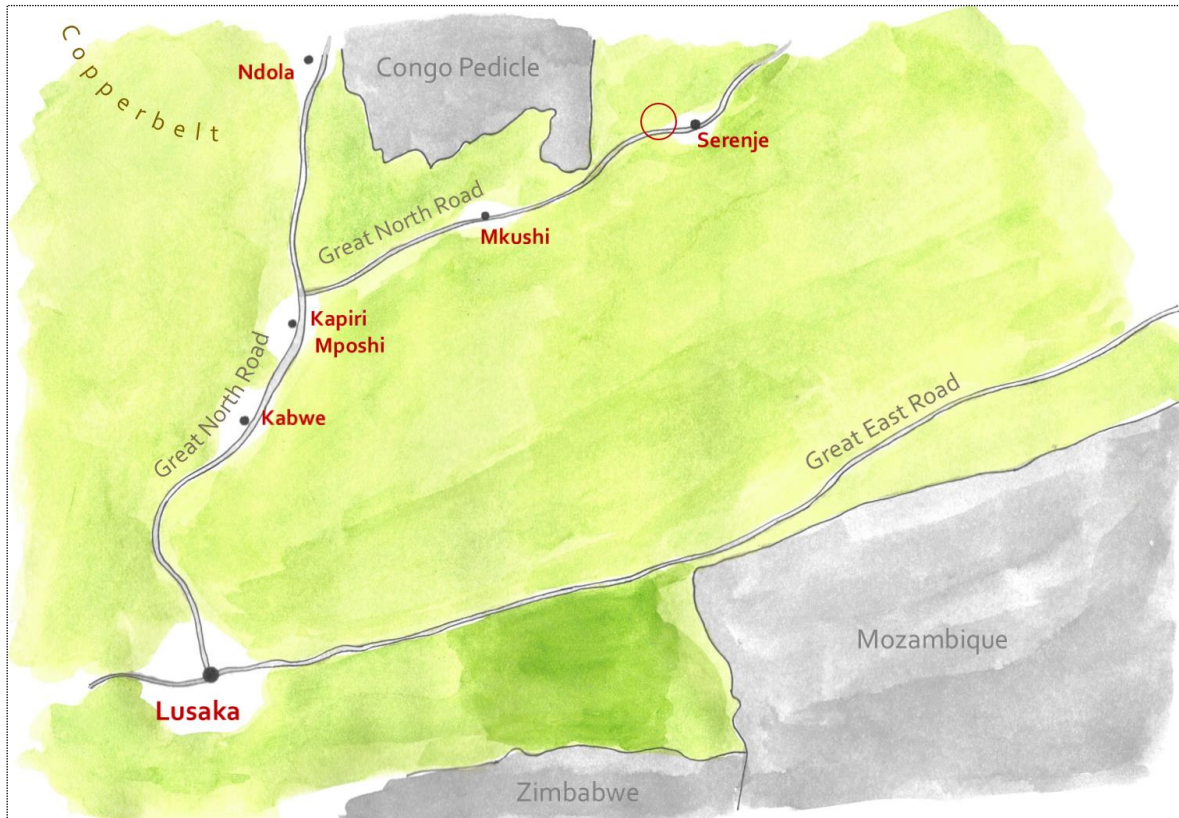


Fig. 14 Map of the Central Zambia with urban centres (map created by author).

Traders supplying Lusaka allegedly tried to persuade smallholders to abandon farming and rather concentrate on charcoal burning which will provide quick money: farmers were offered cash on the spot, and when first success stories from the markets circulated, more smallholders were attracted and gave it a try. They soon realized that the charcoal business lives up to its promise and became traders themselves, buying from and thus encouraging even more neighbours to venture into the same.

While traders approached the research area (red circle in the above map) from the west, charcoal production also gained foothold close to Serenje *Boma* when its growing population and, amongst other businesses, restaurants and lodges were crying for affordable and reliable energy for heating and cooking. A forested place called *Makupu*, just at *Boma*'s TaZaRa station at the foot of the Ika Hills, became the largest source of charcoal. Around the mid-90s, not only local Lala People, but also Namwanga from Zambia's far north, who had come for business, started encroaching the woodlands surrounding *Boma*

including the Serenje National Forest. Charcoal was not only sold into the wealthier residential areas, but also within the so-called 'Zambia Compound'²⁰⁸ where the working class lived and most houses were still grass-thatched, did not yet have iron sheets, and were but for a few not yet connected to the electricity grid. From *Boma*, one can clearly see the remnants of this encroachment at the nearest face of one of the Ika Hills until today: a forested stretch on the top which remained untouched as it has been hosting guarded radio towers, secondary growth below, and cleared stretches at the foot.

Back then, the major livelihood in Kansenga was farming, and charcoal was also produced, but only unfrequently, for example when a newborn was expected during the cold season:

My neighbour tried to produce charcoal and I followed suit when we were expecting a baby. I wanted to ensure that the newborn will always find a warm room. We were so careful because there was no clinic in the community and my wife needed to walk like 25 kilometres to the hospital in *Boma* for the under-5-treatment. One or maybe two years later, charcoal became prominent for most of us here in Kansenga.²⁰⁹

Besides this domestic use, it also functioned as an insurance (Zulu & Richardson 2013), for example when cash was needed unexpectedly for medical treatment, to arrange or to attend a distant funeral, or to compensate for bad crop sales when droughts impeded a harvest (Mwitwa et al. 2013: 4 ff.). During droughts, gardens dried up, livestock decreased due to a tsetse fly infestation, and the number of edible mushrooms and fruits declined. In order to compensate for the loss of food, charcoal was the best resource at hand to minimize risks. While it had functioned as an insurance and safety net for long, beginning in the early 2000s, producing charcoal for *regular* sale became an option for more and more households. While some households specifically produced charcoal, others utilized trees after clearing their fields, that had previously been only used as firewood and timber, with the larger quantity being burnt. Whereas the *Miombo* woodlands on the Copperbelt and in the southern Central Province were thinned out even more by now, Chibobo and the surrounding communities were still well-forested, and relatively close to Lusaka. By 2010, the demand from Lusaka had reached the research area from the west, but also from the east, where Serenje's increasing population required more and more charcoal. Suddenly, sacks full of charcoal popped up along gravel roads and were traded at a main market place along the Great North Road.

Chibobo suddenly found itself in between claims and demands, but not only Chibobo, also the Serenje National Forest was approached from all directions – by charcoal

²⁰⁸ Most of Zambia's cities and towns have a neighbourhood that goes by the name 'Zambia Compound', which is usually considered to be of a lower class, for low-wage workers, the unemployed, and their dependants. As there is spatial planning involved, it is not similar to a shanty town.

²⁰⁹ Boyd Changwe during an interview at his Farm in Kansenga on July 14, 2015.

producers, and also people in search of farmland, with the latter having been partly motivated by the encroachment of the former: beginning in the year 2010, mainly men from ‘over the tarmac’, from south of Chibobo, entered the National Forest on a daily basis in order to produce charcoal for sale. They returned back home every day, and while the encroachment was illegal, they continued for about two years – until all larger trees were depleted. After that, different tree sizes had to be mixed and burners stopped being selective regarding the species or size. It is only during this last stage of clearing, where ‘indiscriminate cutting’, a commonly used term to describe the production, truly took place.

While in Chibobo, not a single household was considered to be a *professional* burner, whose major source of income is charcoal, several households from ‘over the tarmac’ derived the lion share of their income from that. The largest share was eventually sold to traders from Lusaka, or directly ferried there. One elderly man from Kansenga remembers how he tipped off the Forestry Department when he found out about a family house just along Great North Road that was used ‘by the culprits’ as storage room for charcoal. This phrasing, widely applied within the community when talking about illegal activities, indicates that there was initial resistance to the charcoal business. As the National Forest is state-owned and not open to the public, which was commonly accepted, the charcoal burners’ encroachment was not seen by Kansenga’s residents as an invasion into ‘their’ land, but as being destructive to the environment in general. Several households expressed environmental concerns, for example with regard to water retention or the trees working as ‘cloud stopper’ and thus bringing rain. Especially the fact that most cleared land remained idle after clearing was seen even more as a proof for being destructive. Accordingly, the burners were fiercely condemned, summarized well by a statement uttered during a group discussion, to which all agreed: ‘if they start cutting for charcoal, they should be punished, like 5 years imprisonment or cultivating big portions at the Chief’s Palace’²¹⁰. When many parts of the National Forest were allocated to permanent settlers, the encroachment came to an end (see Chapter 10). The amount of charcoal traded in the area, however, did not decrease, as the wood produced through clearing the new plots and fields was now turned into charcoal. Only one out of 18 households that had already settled down here did not produce any charcoal as his land was already depleted by previous charcoal production. Consequently, large quantities of charcoal were suddenly to be found all over the National Forest.²¹¹ Charcoal, however, was not only produced in the Forest, but also on customary land within Kansenga, as the following pages will illustrate.

²¹⁰ Boyd Changwe during the group discussion at his Farm in Kansenga on March 17, 2015.

²¹¹ Charcoal production in the Serenje National Forest will be discussed in more depth in Chapter 9.

The charcoal burners of Kansenga

During my first visit of the community, I was told that almost every household had been involved in the production of charcoal at one point or another. Either as a producer, or as a landowner allowing others to produce charcoal on his or her land. I could hardly believe this as at times I had difficulty getting hold of charcoal from within the village. Ironically, when I held my first group discussion in order to find out more on the same, some of the invited attendants were late as they were still busy piling logs for a new charcoal kiln. Just when another participant was enumerating all his neighbours who are *currently* producing charcoal, an oxcart loaded with dozens of filled sacks passed by. In fact, over the last years, more and more residents of Kansenga have started producing charcoal for sale, with a rigorous increase since 2010: while in 2006 only a single household had produced it, four more participated in the business in 2010 for their very first time, five joined the business in 2012, seven others in 2013, ten in 2014, and at least two more when fieldwork was conducted in 2015. In 2015, two-thirds of Kansenga's households, 43 out of the 65, were currently engaged in the production of charcoal. Four of those had replied to the call for charcoal from the manganese smelting plant in Kanona which was discussed earlier. Others sold their produce locally, in *Boma*, and increasingly to traders from Lusaka or on markets in Lusaka. On top of those producing charcoal themselves, others have contributed to the business through piecework, producing charcoal on behalf of other households. The remaining third of Kansenga's households have never engaged, or no longer engage, in the production of charcoal, either for environmental concerns, as they were too old, or physically impaired due to blind- or lameness. Others did not engage simply because they 'do not engage in such poor men's business', with laziness also being a recurring topic. Besides, some were living on the in-laws' or other people's land, where they did not enjoy free access to trees. Again others had already exhausted their forested land entirely, or there were no suitable trees left. On the side of consumption, only two households of Kansenga (3%) consumed charcoal on a daily basis, and none in the Forest. One of the wealthiest was mostly using it for cooking and heating the house during the cold season when evening temperatures fall below 10°C just after sunset. For heating water for bathing, however, they also preferred firewood as it works much quicker.²¹² When there are continuous rains with heavy winds and outside cooking is impossible, charcoal was used by that households as well, while the majority of all households will still use firewood inside the house or *Insaka* and bear the smoke. Whereas the consumption of charcoal is generally a symbol of wealth,

²¹² Ruth Chisala during an interview at her Farm in Kansenga on June 2, 2015; This household is relatively rich, measured by its household assets, land owned, agricultural produce sold, pieceworkers employed, livestock, the remittances it both sends and receives. In fact, the household regularly receives clothes, money, food, and blankets from adult children that they 'can't even count the money, it's all send by children, we don't buy anything' (*ibid.*). They do not produce any charcoal, but buy locally or barter with dried maize.

the other household, who preferred charcoal over firewood, was amongst the poorest: the only one-person-household in Kansenga, a single woman, mainly cooks from inside the house as she is fearing being alone in the outside as soon as it gets dark. Whereas the first households buy charcoal locally, the latter never buys but either begs from her neighbours, or assists charcoal producers with repackaging charcoal pieces into sacks. In return, she is given enough pieces to tide her over for a week. Two more households, that were currently producing charcoal, stated that they used charcoal in addition only when there was no sufficient firewood collected: when a downpour is visible at a distance, charcoal may be used to prepare relish while the *Nshima* is on the fire. On top of these four households, two people running a small-scale bakery were also using charcoal, though less frequently, as it provides a more constant and manageable heat than firewood. A major benefit that has continuously been pointed out by charcoal users, in both rural and urban areas, is that charcoal does not blacken the pots as the soot of firewood does, and thus saves a lot on cleaning time.

Within about five years, charcoal had become a commodity in Chibobo and its surrounding communities, answering several demands. But where did the demand actually come from, apart from the melting factories and the few local households in Chibobo and *Boma*? On the following pages, I will present three different cases that will answer this question and illustrate the diversity of charcoal burners and their motivations for entering that business. Based upon those, I will develop two more general arguments: I will first point out how the inadequate planning with regard to Zambia's energy supply has severely driven the urban demand for charcoal, and second, argue that the production of charcoal is rarely the cause but rather a symptom of deforestation.

Mandalena Mbulo

Born in 1964, Mandalena Mbulo grew up with her parents in a neighbouring community, where they were used to growing tobacco. Since a lot of firewood was needed for curing the leaves (see Chapter 6.2), she got used to cutting trees into logs and piling them in preparation for the curing barns. After she got married, she bought two small pieces of land in Kansenga, where she moved to with her husband,²¹³ yet she continued using her parents' farmland. Almost three decades passed by and she started, according to herself, to admire how friends and neighbours were producing charcoal, seemingly making money whenever they want. This freedom and availability of cash is in sharp contrast to farming which predominantly yields once in a year only. Whereas Mandalena has three grown-up children,

²¹³ This practice is rather uncommon, as the husband is usually expected to purchase land after passing a probation period with his in-laws, onto which he can take his wife and children.

there is little contact or support: ‘They don’t send anything, nowadays you have to fight for yourself’²¹⁴, she says.

When the rains were still on in early 2012, she started extending her parents’ farmland ‘into the bush’ for the coming season. Instead of burning all the trees cut, as was previously done, she decided to utilize them for making charcoal. This ‘opportunistic’ production of charcoal is, I would like to foreclose, most common in the community.

Although it is not an easy process to turn wood into charcoal, she wanted to give it a try: ‘When you suffer, you can teach yourself new skills. Struggling to earn a living, you end up learning new things quickly’²¹⁵. Just two years before turning 50, Mandalena remembers precisely, she made her first charcoal kiln and managed to produce thirty bags of charcoal.²¹⁶ Her more experienced neighbours advised her to take it to Lusaka to earn higher profits, she gave it a try, and has since then built four more kilns. During my fieldwork, Mandalena extended her own farmland in Kansenga and constructed her first kiln here. She invited me to give her a hand in finishing it. Eventually, we managed to build a typical earth mound kiln that was about 4 metres long, and 2 metres wide and tall.²¹⁷ After the strenuous act of bringing hardwood trees down and cutting them into logs,²¹⁸ they had to be piled in an orderly fashion and covered under mounds of earth to create a low-oxygen environment. If the oxygen is too little, the fire disappears. If there is too much of it, the logs do not combust into charcoal, but burn away. If the combustion process goes well, the kiln will slump down by about half after several days, depending on the moisture of the wood. To make sure the kiln’s inner fire proceeds well through the entire kiln, Mandalena and I returned every day in the early morning hours, before sunrise, as the air temperature was still low then. We checked for the kiln’s height and small holes in the mound which we left for oxygen to get in and smoke to come out. This time, as we were in the middle of the rainy season, the process took very long, so we could only ‘open’ the kiln after about two weeks. The moment we removed the upper layer of the kiln with a shovel was very memorable and surreal: morning dew on the grass, a lush tree canopy and tweeting birds all around us, smoke and crackling everywhere, and dense smoke rising from the kiln. Despite standing within the smoke, the eyes did not even burn from the smoke, which was something magical. When I opened the kiln, the heat immediately hit my face and flames struck out of the opening. The first metre of the kiln’s interior had already been turned into charcoal over the last days, so we could remove it with a shovel and a rack. My face and arms quickly turn painfully red so I had to step back after every half a minute to cool down and take a breath. We are both

²¹⁴ Mandalena Mbulo during the census interview at her Farm in Kansenga on February 17, 2015.

²¹⁵ *Ibid.*

²¹⁶ The charcoal pieces are filled into empty 50 kg bags of fertilizer. That is why, the charcoal bags are marketed as 50, 90 or 120 kg, while the actual weight varies.

²¹⁷ The kilns were measured by forestry officers and charcoal producers in so-called ‘cords’. One cord is officially about 3.6 m³ yet locally often much bigger and estimated to yield about ten 50 kg bags.

²¹⁸ The traditional earth mound kiln is said to be energy-inefficient as it consumes about 10 kg of wood per 1 kg of charcoal (Kalumiana & Shakachite 2003).

incredibly dirty already, and while harvesting the charcoal is certainly exhausting, takes effort and patience, it is, to me, somehow addictive for its meditateness. We dig out the charcoal pieces bit by bit, pile them, while Mandalena explains that if properly combusted, charcoal pieces sound like a chime when falling on each another. The photos below capture two charcoal producers at work – Mandalena on the left, and Brian, who will be presented shortly below, on the right photo.



Fig. 15 Charcoal producers at work

To make sure the hot pieces will not flame up again and burn away, we buried them under the soil immediately. To help them cool down, we spilled some water we had fetched from a nearby stream onto it. The wood which had not yet properly turned into charcoal was tossed back into the kiln, which we then covered again with freshly cut and dug out grass sods. After almost two hours of work, we had merely harvested half a bag of charcoal and my shovel started turning too hot to be handled.

We started putting smaller pieces one-by-one into a white sack and reserved the bigger ones for later: first, they need more time to fully cool down, and second, because they are used as ‘the head’ – the upper part of the charcoal bag that is meant to attract customers on the market place. During price negotiations at the market, the head is most important indeed. Before abandoning the kiln, we throw more soil on top of the kiln to make sure that the wood will compress well and combustion can continue smoothly. The soil shall furthermore close up any larger holes, because otherwise, a fire could develop inside and ‘eat up’ the charcoal. Just before knocking off, Mandalena collects small bits of charcoal for home consumption and happily announces: ‘When I have finished the job, I can drink even more beer!’,²¹⁹ as the sales will bring in some cash. I had the satisfying feeling of having

²¹⁹ Mandalena Mbulo during the census interview at her Farm in Kansenga on February 28, 2015.

acquired a new skill, with the most important lesson learned being: never forget to put cool or wet soil under your feet because otherwise, you will properly melt the soles of your shoes – just as I did.

Instead of going home immediately, Mandalena continued preparing the field – the one that had delivered the trees for our kiln. While she was making ridges for planting sweet potatoes, she found a big grasshopper which she will enjoy for lunch. She adores the virgin land, and points out that she will not have to apply any fertilizer. Since she is a cooperative member, she will still receive 200 kg of fertilizer, which she will use on another field, for maize only. Despite Mandalena's expertise in producing charcoal, the current kiln did not live up to her expectations. After two more weeks, we had only harvested eleven big sacks. In order to make the trip to a charcoal market worthwhile, she bought 14 more bags from her neighbours for re-sale. Together with other charcoal burners from Kansenga, she booked a Canter to Lusaka, for which each person had to pay 25 ZMW per charcoal bag. They all left together for Mandevu – one of the biggest markets for charcoal in Zambia, named after the neighbourhood where it is located.²²⁰ Usually, Mandalena sells her bags one-by-one and returns after a full week, but this time, business went well and she returned after two nights only. She managed to sell all 25 bags for 65 ZMW each, which, after several deductions,²²¹ amounted to a net profit of about 740 ZMW, or 30 ZMW per bag. In contrast to many others of the community, Mandalena knows how to make a financial calculation, she overviews the household's budget, decides what to buy, and keeps track as well. She knows that this was a particularly bad sale and selling the bags in *Boma* would have delivered the same amount of money, yet taken much longer. Fortunately enough, she did not acquire any licence, which would have even resulted in loss. She attributes the bad market prices to the dry season which was about to begin. This means less storms and in turn less power blackouts in urban settings and hence a lower demand for charcoal, which I will further illuminate below. In order to give herself at least a treat, she bought new hair extensions, but nothing else. Back home in Kansenga, she planted pumpkins on the remaining ash field from the kiln, similar to the past practice of *Chitemene* (see Chapter 6.3). As the rainy season was about to leave, she was busy cultivating the fields on her and her parent's Farm and did not have any time left for preparing another kiln.

As a rule of thumb, the production of charcoal always diminishes during the late dry and rainy season because people concentrate on on-farm activities such as planting and weeding. That points to the clear preference for doing farming – even if the permanent

²²⁰ Other major charcoal markets in Lusaka that were targeted by the producers from the research area were Misisi, Kabwata, Kamwala, Chilenje and Chipata Compound, though the lion's share was sold in Mandevu. Outside of Lusaka, the largest markets are in Kitwe, Ndola, and Chingola on the Copperbelt, in Kabwe (Central Province), as well as in Chipata (Eastern Province).

²²¹ Mandalena had to pay 16.5 ZMW for 11 empty sacks she used for her own produce, 140 ZMW for her neighbour's ten additional bags, 4 ZMW for off-loading each bag, 25 ZMW per bag for transport, plus a few Kwacha for food.

production of charcoal would be financially more lucrative. But Mandalena, as most others, simply does not have any interest in producing charcoal all year round, as it is first, too exhausting, and second, conceptualized as a dirty job, in the literal sense of the word. To her, the production is just a means to an end, namely the purchase of certain goods. At the moment, she desires to upgrade her grass-thatched roof with iron sheets, and as soon as enough money is raised for that, charcoal production will be stopped for the time being. Even though her husband usually ‘fails to work [...], only asks for beer and even steals our fertilizer and *mielie meal* so he can sell it or barter with beer’,²²² she asserts that their lives have been improving which manifests, according to herself, in managing bigger fields of maize, rearing livestock for sale, and not having to do piecework for others anymore. Not only Mandalena Mbulo, but many households of Kansenga have quickly acquired the skills of burning charcoal by trial and error and ever since experienced an increase in their quality of life. One of Mandalena’s distant neighbours, Brian Mwelwa, born in 1986, stands for the youngest generation directly involved in the business. In contrast to Mandalena, he did not produce charcoal on his own Farm, but on other people’s land. While Mandalena’s production of charcoal has not been the underlying cause of deforestation but merely a symptom of it, namely agricultural expansion, Brian Mwelwa’s engagement in the charcoal business has been both, as will become clear below.

Brian Mwelwa

Brian Mwelwa has been living in Kansenga for almost all his life. He only lived outside the community during lower secondary school, this is grade 5 to 9. When the upcoming school fees for upper secondary became a challenge, he dropped out and returned to his parents’ Farm in Kansenga. He got married in 2007 to a woman from Kansenga and a few years later became father of two. As the parents’ land is big enough, they remained on their Farm opening up their own household. In order to raise some money to upgrade the grass-thatched roof with iron sheets, he had the idea to grow as many tomatoes as feasible for sale. His children were another incentive: while they were still in primary school, he wanted to put some money aside for their secondary school fees, so they do not have to stop like him. After his initial sales of tomatoes did not deliver good profits, he entered into charcoal production, but as this was too laborious, he says, he decided to concentrate on growing sweet potatoes for sale in Lusaka. After making good profit, he bought up even more sweet potatoes from other households and re-sold them. That time, the trip was bad and he decided to go back into charcoal again. If alternatives are available, charcoal is not the first

²²² Mandalena explains that she wanted to take him to court and almost got divorced last year, but community members told her not to take this step because they had been married for so long (Mandalena Mbulo during an interview at her Farm in Kansenga on May 2, 2015).

business one would opt for, as his volatility indicates. Brian begun buying up charcoal from other burners for re-sale but he soon realized that producing charcoal himself would be more profitable.

When I first met him, he had already covered a kiln of about 6x3x2 metres with sods of grass and soil. Inside the kiln, the wood had been turning into charcoal for the last three weeks already and would according to his experience yield about 30 sacks of charcoal. When we met to check on progress, the inner fire had ‘jumped’ over several square metres of wood, so we had to open the kiln, take out the unburnt logs, and cover it again. We reserved the unburnt pieces for another kiln he had already prepared just next to this one.

Brian acquired, in contrast to Mandalena Mbulo, a production and a conveyance licence.²²³ Thirty bags sold one-by-one at Mandevu in Lusaka for a good price of 90 ZMW would fetch a net profit of more than 1,000 ZMW, but if market prices are bad, that is only 55 ZMW per bag or less, the turnover could even be negative. This uncertainty accounts for the common decision not to pay for the licences or to conceal the accurate amount of bags produced. In contrast to others who shy away from the transaction costs involved in getting a licence, Brian applied for them as he was already in *Boma* twice every day – in order to sell previously produced charcoal. After he had raised enough money for transport to Lusaka, he ferried the remaining bags to Mandevu. Eventually, he returned with a very little profit, pointing out that selling the bags within the village would have been more beneficial. Next time, he will skip the licence and give it another try. As the living conditions of the entire household have been improving, he wants to continue the production until he can, similar to Mandalena, afford iron sheets, and as soon as he has saved a few hundred Kwacha for his children’s secondary education.

In contrast to Mandalena, Brian’s kiln was not located on his own or his parents’ land, but on his neighbour’s just across a stream. Brian had chosen a spot in the middle of a well-forested patch close to his own household. The landlord of this spot, his neighbour, did not even know about this. Not because Brian tried to hide, but because he had paid 150 ZMW to the landlord’s children who allowed him to proceed. When the landlord found out about it, he was neither surprised nor interested in it, as his Farm is well-forested, and with about 90 ha vast enough to accommodate five different households including their farmland. Also in contrast to Mandalena, Brian did not clear the forest opportunistically, but solely for the production of charcoal. That is why, he could also be much more selective regarding the trees to use for charcoal, drawing on his knowledge about tree types most suitable for charcoal. The main tree targeted is *Mutondo* as it gives best charcoal, yet only those trees

²²³ For 30 bags, Brian paid 780 ZMW for the production (the charge is 260 ZMW per 10 bags) plus 135 ZMW for the conveyance licence (4.5 ZMW per bag). On top of that, he paid 25 ZMW per bag for transport, doing the off-loading himself (Brian Mwelwa during an interview at his Farm in Kansenga on July 13, 2015).

having a diameter of at least 10 centimetres.²²⁴ Brian did not attempt to fell the *Mubanga* tree as it is simply too hard. When I tried bringing it down myself, my axe blade sounded like striking stone, bounced back and eventually bent. Besides, charcoal made out of *Mubanga* crackles and produces sparks. Other trees' charcoal gives too much smoke, smells bad, leaves too much ash, breaks easily or burns too quickly.

The spot Brian had chosen for the production of charcoal was *not* meant to become farmland in the near future, so the charcoal produced was no side-product but the direct driver of forest loss. This was not desirable as he admits, but in the future, he will not have to cut down trees for charcoal anymore. His mother and also his mother's brother had just acquired land within the Serenje National Forest of which parts need to be cleared for farming *anyway*. Therefore, in the future, Brian will, similar to Mandalena, take advantage of agricultural expansion and 'opportunistically' produce charcoal. As Brian will not be able to clear all the trees within good time, that is, before the onset of the next rains, his mother has already employed one of her neighbours to clear that land, for which he is allowed to produce charcoal as a payment.

In this context, May-Tobin (2011: 82) pointed out that charcoal burners had less farmland and capital than those farmers who did not produce charcoal. While the argument is generally true with regard to the actors of production, the point is misleading as it tends to overlook households with more forested land and capital. At least six rather well-off households with regard to capital and land did produce charcoal from clearing farmland themselves, and many others have employed pieceworkers for clearing the land for farming, who are then allowed to produce charcoal from the felled trees as a payment. Those landowners do not only have the physical and financial capital to convert *more* forest into farmland, but they can also do so more quickly by employing several additional pieceworkers at a time, and as they have money or vehicles available to easily ferry charcoal. Some wealthy households, such as in the case described above, will allow others to produce charcoal on their land against a small payment.²²⁵ For all these reasons, they are important agents of charcoal-related deforestation, enabling others to conduct it. Furthermore, May-Tobin's argument is not precise enough because households with large tracts of forested land but little capital to invest, may also first engage in the charcoal business as it does not need much investments. This has widely happened within the Serenje National Forest, as Chapter 9 will illustrate. Similarly, those with large tracts of *unforested* land and little capital may opt to bring down trees on other people's Farms: they will convert them into charcoal, the charcoal into cash, and cash into consumer goods and a range of livelihood

²²⁴ Besides *Mutondo*, most of the widespread *Miombo* trees are suitable for charcoal, such as *Kasabwa*, *Mutobo*, *Musamba*, *Mupundu*, and *Muputu*.

²²⁵ Wealthier households are benefitted even threefold: first, as they can convert their forested land into charcoal, second, as they can utilize it as farmland, and third, as they do not have to pay others for clearing their land, which was common before charcoal became a commodity.

alternatives but mostly agricultural inputs. Charles Chilekwa, the oldest settler of Kansenga, is one such case.

Charles Chilekwa

Charles, born in 1944, owns a big Farm of which one side borders with the Serenje National Forest. For the last decades, his major livelihood was growing maize and sweet potatoes for home consumption and sale. In 2013, when a sudden demand for charcoal seemed to be endless, he quickly added it to his livelihood portfolio. As his land does not feature any larger trees, he entered the Serenje National Forest and produced charcoal on 'no man's land'. As he was afraid of the forestry officers catching him with charcoal, he only produced small kilns that yielded about six bags, which he got out of the Forest as quickly as possible. In 2015, one of his friends from 'over the tarmac', the neighbouring community, had acquired land in the National Forest. Charles got employed by his friend as a pieceworker for clearing the trees, and was allowed to produce charcoal in return. Since then, he has supplied the teachers of the community and cycled almost daily to *Boma*, about 30 km each way, selling charcoal in the Zambia Compound, to restaurants and boarding schools. Since he commutes so often, he initially got a licence, but since the fees are too high, he usually shies away from getting it. When he runs into the forestry officers, he says, he just pays them 'a 5 Kwacha'. Only once, the officers demanded that he do some slashing work, plant gum trees around their office, or pick used beer containers to be used for seedling propagation in their tree nursery.

As the land was well stocked with trees and the farming season was approaching, the landlord himself, being 65 years old, did not just watch Charles but also cleared 3 ha for growing maize himself. Instead of just burning the trees, he also prepared some kilns. In contrast to Charles, he sells all his produce in Lusaka, for which he always applies for a conveyance and a production licence for 20 bags. He ensures that the forestry officers follow the procedures and always issue him with licences as required, not least as their receipt books are audited. However, when paying for 20 bags, he also carries up to 60 bags to Lusaka. This has been the common procedure as the several police checkpoints along the tarmac do not pose any threat:

At the first check-point, we pay a council levy of 2 ZMW per bag, but they just refer to the licence, so we don't need to bribe them. But the foresters know that we can't come for 20 bags. They are at Chisamba road block, before entering Lusaka, and in Mandevu again, so you need to pay three times even when you have a licence, like a 200

ZMW each block. But if you don't have a licence, they will count the bags and charge you bitterly.²²⁶

Even with the bribe money taken into consideration, not getting 'a full licence' is still paying off. From the time Charles has produced charcoal, he has been able to buy all basic household needs, so he is willing to continue with that business as long as his aging body allows. A major benefit to him is that it does not, in contrast to farming, need any investments such as fertilizer, and the harvest can be all-year-through. Even when the focus is on farming during the late dry and rainy season, charcoal can be produced: 'We sell maize only once a year, and while you are waiting, you can make some charcoal. And during the [farming] season, you can also make some charcoal after cultivating the fields instead of wasting your time'²²⁷. In contrast to other smallholders, this business thus elevates him to eye level with those who are receiving their salaries on a monthly basis such as civil servants – local teachers, the clinical officer, the nurse, or the agricultural extension officer – or successful gardeners or farmers growing winter maize along the stream. Charles' children have recently bought and sent him a TV, so this long desire is stilled. He now wants a solar panel and a car battery to run it, for which charcoal might be the facilitator.

Charles was just one of the many pieceworkers giving a hand to the owners of newly opened Farms within the Serenje National Forest. Since the land was widely forested, the amount of trees cleared and charcoal 'opportunistically' produced here was unheard-of. A few people from *Boma* have seized the situation and started a deceptive business: after collecting small chunks of charcoal, they mould them into small pieces that look like 'snake stones' – light volcanic stones that are used by farmers and poachers as first aid to treat snake bites. Due to the stones' porosity, it sucks out the snake's venom. While charcoal may have the same effect as volcanic stones, the practice of selling fake snake stones was despised in the community.

In the following, I will offer a short summary of the cases depicted above, which is combined with further insights from other charcoal producers from Kansenga.

Summary: production and perceptions of charcoal

As I have illustrated with the three cases above, the production of charcoal cannot simply be attributed to certain regions or actors. While some people produce charcoal on their own land, others produce it on other people's Farms on customary land or in the National Forest, for themselves or for others. Some sell their produce locally or in *Boma*, and others ferry it

²²⁶ Brighton Kalunga during an interview at his plot in Chimupati on May 4, 2015.

²²⁷ Charles Chilekwa during an interview at his Farm in Kansenga on June 23, 2015.

to Manganese smelting plants, or to public markets Lusaka. While some only sell their own produce, others re-sell their fellows' produce.

Engagement in the charcoal business is driven by different incitements. Whether or not one engages in the production of charcoal depends on many variables, such as access and distance to forested land, the opportunity to clear land for farming or settling down, market incentives, or the need or desire to source cash quickly. While women were long seen to be retailers of charcoal only, they have now started producing charcoal themselves and thus challenged the previous assumption of charcoal being a male domain (Gumbo et al. 2013: ix, 60). Charcoal has become an alternative source of income as there are almost no investments needed and high margins are possible at times. Furthermore, it can be pursued all-year-round, which is in sharp contrast to farming that yields only once a year. A more constant supply of cash can elevate smallholders to eye level with waged workers in terms of the availability of money, thus lowering inequalities within the community. But the production also comes with strenuous physical labour, very early working hours, and one is always exposed to high temperatures that make you sweat and cause the fine dust to stick to your skin, which account for charcoal's reputation of being a dirty job only poor or desperate people would opt for as a regular livelihood:

You even get used to dirty clothes so when going to the beer place you don't even change [...] also because you don't have time for that because you will go back to check how the fire is proceeding. And you need a lot of water to clean yourself and especially your clothes, it's a very dirty job, different from farming where you are just exposed to soil during cultivation. But when harvesting you come home with clean clothes.²²⁸

In a similar vein, when I congratulated Mandalena Mbulo on the good job she had done, she replied: 'This is no good job, it's dirty',²²⁹ which echoes the general attitude towards charcoal. But it is not only perceived to be dirty, but also as being destructive: not only the forest's lifespan is reduced, but also the burner's own body, as Mandalena wittily put it. That is why, most people do not want to continue this 'dirty business' for too long if alternatives are available.

Charcoal is rather seen as initial aid to accumulate cash that will boost or enable other businesses such as a grocery, the re-sale of dry fish or maize, or investments into livestock. More often than not, the money made from charcoal is entirely re-invested in fertilizer and sometimes seeds. Similarly, two households explicitly stated that they ventured into charcoal to raise money for joining a cooperative, which will give them access to subsidized agricultural matching grants. Charcoal has also, either directly or through other livelihoods, enabled many to settle debts and afford everyday household needs such as cooking oil and

²²⁸ Vincent Musonda during an interview at his Farm in northern Chibobo on July 14, 2015.

²²⁹ Mandalena Mbulo during participant observation at her Farm in Kansenga on March 3, 2015.

soap, to buy iron sheets, or to finance school fees and books of their dependants. Similarly, one lady wanted to buy cotton from the charcoal sales and knit neat clothes for her children who otherwise, in school, would feel ashamed of their tattered clothes. In fact, being responsible for one's family was the most common explanation for having entered the business.²³⁰ Charcoal has allowed many to keep up with their neighbours, to be a good husband, or son-in-law. In this way, it represents – similar to fertilizer – the material out of which advancement can be made and facilitate vertical mobility. As it can be such a powerful tool, it remains to be seen whether the production is really transitional and ends once certain needs are met, or charcoal will become the means to just another end. While charcoal can be a stepping stone indeed, the engagement also depends on market prices, which is influenced by the demand and market supply. While demand depends on outside temperatures and the availability of other energy sources in town, supply fluctuated a lot during fieldwork within the research area. As farming was generally granted priority over the production of charcoal, the latter was mostly produced when land needed to be cleared anyway, but rarely for the sole purpose of burning charcoal. As illustrated by the photos below, most charcoal has been produced opportunistically,²³¹ which means that even without the production of charcoal, almost the same amount of forested land would have been cleared.



Fig. 16 Opportunistic production of charcoal during agricultural expansion

²³⁰ A further charcoal burner, a man with a walking disability, has expressed his desire for taking care of his family. As he cannot walk far, he has started clearing around his family's main house which is extremely uncommon, especially considering that it lies just along the main gravel road in a densely populated stretch of the village. The smell and smoke that develops during the process of burning could have angered his neighbours, but he felt like not having a choice. Despite his impairment, he brings all the charcoal bags on a regular basis to *Boma*, one-by-one on a bicycle.

²³¹ As the production was only supplementing the major livelihood, it was rarely mentioned as a source of income during the census interviews.

Rose Makano, who has been researching the production of charcoal in Central and Lusaka Province, and been consultant to the FAO, personally warned me, pointing out that farmers will portray themselves as ‘opportunistic producers’ only, while in the actual fact they are permanently producing charcoal:

Especially along Great North, you will find that people are full time charcoal producers [...]. The only problem you'll encounter is that no one will tell you upfront they are engaged full-time, these are things you will observe when you live among them. They will always say, they are farmers and only do charcoal production off-season when they want to expand land or when their income from agricultural production dwindles, but this is all lies, most of them are engaged in charcoal production full time and farming is secondary.

In fact, in several cases, it was difficult indeed to differentiate whether the intention to produce charcoal or to cultivate land came first, as an initial income from charcoal can also allow farmers to cultivate at all, or more land than envisaged due to a higher income. Cleared patches are always brought under cultivation as soon as possible, because ‘empty fields’ are highly undesired and widely seen as morally wrong. The sentence ‘we *have to* grow something if we cut’²³² reflects a greater discourse in the community. Only in three cases from Kansenga, and for the professional charcoal producers that began to encroach the National Forest in 2010, the dominant idea of charcoal production being the underlying driver of deforestation could be confirmed. Importantly, in those cases, the cutting of trees is more selectively as only the trees most suitable are utilized. ‘Cutting for charcoal only’ is therefore mostly degrading, but not necessarily contributing to permanent forest loss that comes along with clear-felling for farming (cf. Hosonuma et al. 2012: 8). If left alone, re-growth and soil regeneration is possible as Chidumayo (2013) has insistently pointed out, yet at the same time, a degraded forest is easier to clear and inhibitions to start other extractive activities are lower (Elias 2011: 66, 71 f.). In fact, the initial clearing of the Serenje National Forest triggered other ‘professional charcoal producers’ to come for a ‘second round’, and facilitated if not incited others to open up their Farms within the Forest (see Chapter 9). While it is clear that both the commercial production of charcoal and clearing for farming has contributed to deforestation (EC 2014: 7), it is less clear to which extent each cause has contributed. However, in contrast to Makano’s claim, interviews and also, more importantly, (participant) observations in Kansenga and the adjoining Serenje National Forest have clearly confirmed the theory of opportunistic production. In order to cross-check their claims to be fulltime farmers, I have inquired about their current farmland size, produce and sales. In 2015 alone, 92% of Kansenga’s households that had cleared new fields for the coming season (79% of all households) used the opportunity and produced

²³² Mandalena Mbulo during participant observation at her Farm in Kansenga on March 3, 2015.

charcoal from the felled trees, predominantly for sale. On the other hand, every second household of those who had not expanded (21% of all households) also produced charcoal. This clearing-for-charcoal-only is, however, most likely to result in the cultivation of the cleared land, as soon as inputs are accessible. For that reason, determining the area cleared by ‘opportunistic’ producers on the one, and ‘professional’ producers on the other hand, is hardly possible. Furthermore, the area cleared highly depends on forest density, but also the household’s changing needs, which makes it equally difficult to determine the amount of bags produced.

In contrast to the years before around 2010, when most trees were burned after clearing a field, nowadays, instead of ‘wasting’ the raw material, smallholders seize the opportunity and produce charcoal. The same opportunistic behaviour did not only apply to agricultural expansion, but to any other practice that involved clearing bigger trees. One mother recounts that when the small gravel road leading to her home was narrowed by too many trees, her children were afraid to pass through, not seeing what was possibly hiding at a distance. To relieve them, she cleared a stretch along the roadside, took home some pieces for firewood, and converted the rest into charcoal – for the first time in her life. In that case, the desired sense of security was driving the clearing, with charcoal being produced opportunistically as well. Many farmers used the opportunity to utilize the trees, which in the first place was a response to the growing demand.

Before now turning to the consumer side, the next section is about the place in between producers and consumers, where charcoal is traded, and the enabling environment.

Feeding a black depot in Lusaka

All over the *Miombo* region, across Sub-Saharan Africa, woodlands are progressively cleared for charcoal. In the research area, the demand stems from smelting plants, but mostly from the growing populations of Lusaka, urban Central, and the Copperbelt including its newly created mining compounds, where, taken together, about one third of the country’s entire population is living – with the highest average household salaries (CSO 2015). Within the research area, the lion’s share of charcoal was, by far, conveyed and consumed in Lusaka, the capital city. Driving through its outskirts, any other city or major town, dozens of bicycles loaded with charcoal coming from all directions, a few hours before sunrise already, is a common scenery. Once they approach a marketplace, they start advertising their produce like market criers. Those traders from further away, like from Serenje, usually ferry their produce by lorry directly to one of the bigger markets. One of the city’s largest is ‘Mandevu’, just opposite of the Hero Stadium along Great North Road. Mandevu has become the epitome of a charcoal marketplace, which can even be identified

on satellite imagery due to its blackened ground. There are between twenty and fifty individual traders present at once, selling their produce on 'a market' of which every single sales floor, spaces of less than 50 m² each, is owned by another urban resident. The landowners provide the space and employ people who orderly off-load charcoal bags and put symbols or the producers' initials onto the bags for identification if not already done. As most producers or traders will sleep next to their charcoal for at least one to three nights, just until they have sold all bags, the landowners also provide security guards, showers and a toilet. For all these services, they charge at least 4 ZMW per bag. Usually, the bags are sold one-by-one and bulk buyers, Chinese men, were only encountered once by a single informant. When the demand is high and the supply low, a 90-120 kg bag can fetch up to 120-180 ZMW. When the demand is high, however, it usually does not take long until the market is over-saturated with bags, which in turn lowers the prices by half.

But why can the producers or traders simply convey the charcoal from the sites of production over hundreds of kilometres, across police check points, without necessarily obtaining the licences? First of all, the existing forestry laws are not well understood: many of the burners have pointed out that a production licence was not needed because a field was cleared *anyway*. Others assumed that a licence is not needed as long as it is produced on customary land. According to the law, however, a production licence is mandatory as soon as charcoal is meant to be used beyond subsistence, that is, for sale. However, forestry officers are, according to themselves, not keen to strictly enforce this law as a gesture of goodwill towards the poor – smallholders producing a few bags for sale every now and then only. With the increased production of charcoal since the last years, however, they have become more rigid, yet are still bound to their offices due to a lack of funding (Gumbo et al. 2013: 52; see Chapter 2). Since then, controls in *urban* areas seem to be more strict at first sight. In order to diminish the risk of encountering police or forestry officers, charcoal trucks from Chibobo destined for *Boma* usually leave at night or in the early morning hours before road blocks are mounted. In the rare case a truck is impounded, the drivers or burners may be taken to the forestry office, charged according to their produce and issued a permit *ex post*. One man, who ferried his charcoal on a bicycle recounts:

The forestry officers bounced into me and got my bike and the charcoal, it was not even meant for sale, I was taking it to my older brother. I was told to come every morning to clear the surroundings at the office for four days – I had to walk from Kansenga, until my feet got swollen, this was when the bike was released, but not the charcoal. Now I can't send any charcoal to my brother anymore because I am fearing.²³³

²³³ Royd Sembe during the census interview at his Farm in Kansenga on February 18, 2015.

While such disciplinary measures were reported by three households only, many never encountered the officers and some claimed that they had to pay a small amount of money or hand over some charcoal to the officers to be released and continue their trip. Some of the burners, traders or drivers even had licences, but they were usually disguising the true amount of bags loaded. One day, I encountered a truck in Kansenga destined for Mandevu that was loaded with 490 bags. The licence the driver had, however, was for 80 bags only. While some traders are cheating with regard to the amount of bags, others do not acquire a *new* licence. A conveyance licence is valid for two weeks only and has to be invalidated upon entering Lusaka. However, ‘instead of ticking the box, you just pay them a drink, 20 or 30 Kwacha, you can’t get away with 5 bob only but you can even negotiate, because there are many road blocks to pass’²³⁴. Old licences can therefore be sold by the legitimate holder, usually for 50 ZMW, used for several times until the two weeks elapse. This kind of noncompliance was most common when heading to Lusaka. All traders are aware that the five permanent check points that need to be passed before reaching the market of Mandevu – Ndabala, Kapiri Mposhi,²³⁵ Kabwe, Chisamba Farm Block, and Lusaka North – are bribed away too easily:

You see how foolish these guys are, you can even negotiate, depending on the officer’s mood, for at least 50 Kwacha, because there are many other road blocks to come, where you will have to pay again, so there will always be a solution, you don’t even have to hide anymore!²³⁶

Despite the charcoal trade’s implications for the national economy (see May-Tobin 2011: 83), tokens or bribes are a common feature of the charcoal trade (cf. Gumbo et al. 2013: 38). This ‘lawlessness’ has, as von Hellermann (2013: 17) has rightly pointed out, brought many opportunities and has contributed to economic development. Arguably, that is why there is little willingness to control the trade properly and to enforce existing laws. Similarly, revising official forestry fees and fines has not been done after 2003 anymore (EC 2014: 50). Since breaking them usually goes unpunished, licences have been the exception in the community, with the informal trade being proliferating (cf. Gumbo et al. 2013: 52). While corruption and greed amongst forestry officers has been blamed for being the main cause of deforestation and ‘things falling apart’ (von Hellermann 2013; cf. Laurance 2004, cf. Barbier et al. 2005; Kishor & Damania 2006), it is mostly traffic officers who are prone for supplementing their salaries through soliciting bribes on an everyday level – for not counting charcoal bags, for not checking licences, or for moving away the road barrier.²³⁷

²³⁴ Kenji Nkoma during the census interview at his Farm in northern Chibobo on February 16, 2015.

²³⁵ After I had finished fieldwork, a new toll gate was established in Manyumbi, between Kapiri and Kabwe.

²³⁶ Kenji Nkoma during the census interview at his Farm in northern Chibobo on February 16, 2015.

²³⁷ Von Hellermann (2013: 16-17) has pointed out that practices of petty corruption can also be understood as policy adaptation, instead of pure corruption or abuse of office. The avoidance of paying for licences can also be seen an ‘alternative means of interest articulation’ (Scott 1969: 326), that could arguably have the same effect

While both sides, traders and officers, benefit from the common practice of bribery or loose controls, traffic officers are usually seen to be greedy and described in disparaging terms all across the country (cf. von Hellermann 2013: 3). While the wide absence of the law enforcement in combination with bribery and impunity has not *caused* deforestation, it has certainly facilitated the rise of the charcoal trade. However, it needs to be pointed out that bad governance only makes a difference in terms of deforestation for charcoal which was *not* produced opportunistically. Because even with proper taxation, controls and unbribeable officers, clearing for farming, road extension etc. would still cause forest loss. Such a situation would arguably discriminate against the poor to whom charcoal is an important part of their livelihood.

In late 2015, the charcoal trade was omnipresent and hardly challenged, linking villages with charcoal markets as far as 400 km away, like in the case of Chibobo. Consumers are thus detached from the product (cf. May-Tobin 2011: 83), which can partly be held responsible for consumers condoning the environmental impact. The crucial question that remains is, what spurred the sudden demand in Lusaka, *Boma*, and other urban areas?

Load shedding in Southern Africa

Within Zambia but also many other countries, millions of urban residents depend on charcoal for heating and cooking (CSO 2015: 1, 12; cf. FAO 2010). It is preferred over firewood for several reasons: it is readily available at a number of nearby marketplaces, it is less time consuming than collecting firewood in the outskirts and thus easier to transport, and, it produces less irritating smoke when burnt (May-Tobin 2011: 82). Other alternative energy sources such as liquefied petroleum gas (LPG), paraffin or kerosene are available, but, including the appliances needed, much more costly. Viable solar cooking options also do not exist (see Atteridge et al. 2013). Most private households as well as eating places, from small eateries in wooden stalls to middle class restaurants, thus prepare all kinds of food with charcoal. Even in up-market restaurants, I have witnessed chefs preparing food on charcoal braziers (*mbaula*) in the backyards. Because first, there is a wide-spread positive attitude, even loyalty, towards this well-known way of cooking (cf. Atteridge et al. 2013: 27). Second, charcoal is often preferred over a gas or electric stove in order to yield a certain flavour: when preparing barbecue or beans, for example, charcoal is necessary to create a distinct ‘rural taste’ many grew up with (cf. Bensch & Peters 2011: 19). That is why, the assumption that charcoal is just a ‘transition fuel’, and increased affluence will come along with households diversifying or switching to ‘modern’ fuel alternatives, needs to be

upon policymaking as if charcoal producers formed a union agitating for the reduction of fees. I would like to add that the acceptance of bribes could be comprehended in the same way.

reappraised with attention to different local situations (Mwampamba et al. 2013). Another more subtle reason for the consumption of charcoal is that eating or drinking *cold* food seems to be unthinkable, with *Nshima* being the uncontested staple food of the nation, in spite of alternatives being available.

Electricity is another available source of energy, but with tariffs having been tremendously increased over the last years, with new hikes in June 2017, using charcoal is more economical, and also faster in heating and cooking (cf. Madubansi & Shackleton 2007). The indoor air pollution that comes along with it (cf. Babanyara & Saleh 2010) is still trumped by such considerations. While the number of households connected to the power grid has been increasing over the last years, the expansion of the electricity network could not keep up with growing population numbers (Mwitwa et al. 2013: 4). Over the last fifty years, Lusaka has changed from a small town with about 83,000 inhabitants into a big city: between independence and 1980, it's population quintupled, and then again doubled by 2000. Ten years later, it had grown by another 60% – to more than 1.7 million – and since then even more (CSO 2012: 27). As the expansion of the electricity network could not keep pace, households that would have otherwise opted for electricity had no choice but to use charcoal. In 2015, about 16% of Zambia's total population was allegedly²³⁸ connected to the grid through the Zambia Electricity Supply Corporation (ZESCO) – Zambia's public energy supplier (CSO 2015: 12), and an illegal supply has been made almost impossible.²³⁹ Importantly, households that have been connected to the grid have increasingly tried to guarantee to have charcoal available at any time. The underlying issue is load shedding (Dlamini et al. 2016) – a strategy exercised by ZESCO when the demand for electricity is higher than the amount available. In order to distribute the available electricity, the supplier creates a 'rolling blackout': some neighbourhoods are out of power between 6 and 12 in the morning, others between 12 and 18, and so on. Remarkably, the issue of load shedding was not restricted to Zambia but an issue all over Southern Africa,²⁴⁰ being experienced erratically since 2007 and aggravated since 2012 (Dlamini et al. 2016). After uncontrolled load shedding in the beginning, ZESCO announced an official time schedule for Lusaka, the Copperbelt towns, Serenje *Boma*, and many other towns all over the country. In the beginning, the electricity supply during the business and night hours was stable, yet since November 2014, it became more and more unpredictable and unreliable again. Since then, 'powering the nation', ZESCO's advertising slogan, has been turned into 'darkening the

²³⁸ According to the Central Statistical Office (CSO 2015), 34.5% of the urban and 2.1% of the rural households were using electricity as the main source of energy. However, according to the national electricity supplier ZESCO (2016), only 120,000 households were equipped with prepaid metres across the country, which equals less than 5% of Zambia's households (CSO 2015). Such consumer figures thus need to be treated carefully.

²³⁹ Several people had been electrocuted across the country trying to illegally connect to ZESCO's power lines, known as 'wiretapping' (pers. comm. with ZESCO personnel in *Boma* on July 3, 2015).

²⁴⁰ The export of charcoal into Mozambique I as well as Gumbo et al. (2013: 31) have observed at the Chirundu border post might be linked to it, but this needs further investigation.

nation' by urbanites. While they seemed to be desperate about the situation, life went on as always in the Zambian villages and a feeling of independence dispersed as nobody was connected to the grid here. As a consequence of load shedding, charcoal has become the major source of energy for cooking and heating – for households but also restaurants and businesses such as barbers, hairdressers, or vendors, who previously all used electricity.²⁴¹ In the absence of alternative, affordable sources, charcoal has also been the *only* available source that can supply millions of people over several months and even years. As a result of this large demand, more charcoal than ever before was produced and ferried from rural into urban areas. While growing urban populations accounted for a steadily increasing demand for charcoal, the shortfall of electricity since early 2015 exacerbate the demand. On February 12, 2015, load shedding made headlines in Zambia. TV1, a channel run by Zambia's National Broadcasting Corporation (ZNBC) and the only one available in Chibobo, announced during the evening news that charcoal prices had risen due to load shedding: bags that usually fetch 75-125 ZMW were now sold at 150-170 ZMW in Lusaka. While bags were previously sold just one-by-one, they are now cleared away with up to ten at a time. When first news spread in the community that Lusaka is hit hard by load shedding, more and more people ventured into the business, hoping that Lusaka will remain in the dark for a while. Equally, urban producers of braziers were happy as prices had gone up. In July 2015, about half a year after severe load shedding had started, I encountered many traders and private individuals from Lusaka passing by along the Great North Road nearby Chibobo. They reported how bad the load shedding still was. They were happy that here, about 400 km away from home, the same quantity of charcoal is sold at about a third of the market prices of Mandevu. The charcoal business was flourishing and unprecedented, with market prices skyrocketing and dropping sharply again at weekly intervals due to alternating under- and oversupplies. At peak times, up to 60 t of charcoal were leaving the community in a single week. The absolute majority of this came from the Serenje National Forest, mostly produced as a by-product of agricultural and settlement expansion. However, the demand also triggered a number of households to cut down trees for the sole purpose of charcoal in many villages close to the tarmac that I visited during fieldwork. Even in remoter villages, where farmers usually shy away from the charcoal business due to high transportation costs, residents promptly converted forested patches into charcoal. But the power cuts were not only said to have caused deforestation, but also businesses laying off staff and possibly even 'a rise in pregnancies because of the long, drawn-out nights', as one Lusaka taxi driver gravely suggested (Jeffrey 2015).

²⁴¹ Especially businesspeople and residents from poorer neighbourhoods severely critiqued the distribution of electricity as they felt 'left behind' in comparison to the central business district (CBD) of Lusaka, wealthier neighbourhoods and the areas housing government officials and ZESCO staff, where electricity was more reliable.

In late November 2016, five provinces including Central experienced a 5-day blackout, and when ZESCO published further shutdown notices in early 2017, complaints and angry comments flooded their social media accounts. A tourist lodge at the Zambezi River tried to catch urban clients with the slogan ‘come and relax without having to worry about load shedding’, and offers for diesel generators were advertised along major roads on large-scale electronic displays. Ironically, ZESCO announced an increase in electricity tariffs in order to attract investment in the energy sector and fight the continuing power generation deficit. While Zambia’s Energy Regulation Board (ERB 2016) published a list of providers who sell LPG and solar equipment in November 2016, charcoal is still a much cheaper source of energy. On top of that, the cost of living in Lusaka has reached the highest on record since the early 1990s,²⁴² and the value of the Kwacha has declined tremendously since late 2014.²⁴³ The unfavourable exchange rate increased the cost of petrol and hence the market prices of most commodities. On top of that, ZESCO has increased most of its private, public and commercial electricity tariffs in May 2017, and again in September – by up to 75%. Against this background, electricity is unlikely to become a priority, but will rather be replaced by charcoal. In the following, I will briefly offer some insights into why electricity consumption levels, also in relative terms, have increased over the last years, and how the government has tried to respond to this yet failed.

Hydropowering a dry nation

As mentioned above, population growth has contributed to the power deficiency Zambia has been experiencing. In this regard, the rise of the middle classes occupies a central role: they are willing and able to use more and more electrical appliances such as tablets, smartphones or colour TVs, which have all become rather ‘normal’ in urban Zambia. As some have pointed out, such goods are ‘needed’ in order to be a ‘normal’ member of society (cf. Power & Mont 2010: 2576). Especially a smartphone, arguably more than any other good, certainly belongs to the ‘canon of what it takes’ to be part of and live a good life in modern urban Zambia, increasingly characterized by consumerism (cf. Belk et al. 2003: 337). With more telecommunication towers being constructed all over the country, and mobile money services²⁴⁴ being widely offered and used, mobile phones have also become

²⁴² In April 2016, the basic needs basket for a Lusaka household of five costed 4,294 ZMW (JCTR 2016).

²⁴³ Within the period of my fieldwork alone, the exchange rate of the Kwacha had declined from 0.16 USD in late 2014 to 0.08 USD in late 2015, and not recovered beyond the 0.1 USD mark by March 2017.

²⁴⁴ Subscribers can receive and send money from their ‘mobile wallets’, buy talktime and settle bills in a straightforward way in almost real-time. Mobile money services are offered by all three mobile network providers in Zambia and also independent companies such as Zoona. Rural communities can thus gain access to banking services which were out of range previously as bank accounts were too costly considering fees and travelling expenses to and from the bank or ATM. So-called ‘eWallet services’ are on the rise in several Sub-Saharan countries and just as the Kenyan forerunner M-Pesa, mobile money services have been surpassing the volume of traditional banking in Zambia.

more desirable. Apart from that, newly available smartphones consume more electricity than ‘offline phones’. Charging them was indeed a major subject of conflict within several households I have visited: while the head’s priority was watching TV and charging torches, other household members wanted to ensure that their phones are fully charged.²⁴⁵ Certain consumer goods have gained such an importance, that, if electricity needs to be rationed, it will rather be used for lighting, TV, radio or charging phones, but not for cooking, which in turn increases the demand for charcoal (cf. Gumbo et al. 2013: 52). Moreover, the government’s aim to promote economic development (see Chapter 10) has translated into higher electricity consumption levels. In this regard, especially the mining industry has consumed a large share of the national load (GRZ 2006b), but also commercial farms. In fact, the two hydro-dams that are located in the wetter Central Province, namely Mulungushi and Mita Hills, largely supply the mines and the large-scale farms nearby. Moreover, since about 2000, Zambia had a GDP growth rate of 6%, making it one of the fastest growing economies in the world and its economy is expected to grow massively up until 2024 (CSO 2010; McKenney 2015), which will come along with energy needs. But besides the increased demand from the growing and energy-hungry populations and industries, another factor has contributed to prolonged load shedding: electricity in Zambia is largely generated by hydropower stations, with only four main power plants, namely, Kariba, Itezhi-Tezhi, Victoria Falls, and the Kafue Gorge. If water levels are sufficient, the national energy demand of about 1,800 megawatt can be satisfied by the capacity of the four, even without the several smaller hydropower and thermal stations also feeding into the national power grid. However, since late 2014, Zambia has been experiencing a power generation deficit of at least 50%. Importantly, all four hydropower plants are located in Zambia’s south – a region that generally receives far less rains than the northern lobes, which points to flawed government planning. Low rainfall and low water levels in the dams were held responsible for load shedding by state officials, yet when at the end of the 2014/2015 rainy season load shedding got worse, many rumours and allegations about corruption and clandestine electricity exports unfolded. Especially the water levels of Lake Kariba became a constant, emotional topic in the news as irate urbanites were waiting for the dams to fill up. During the dry season, load shedding had obviously not yet levelled out but got even worse. Most urban households experienced daily outages of between six and twelve hours, depending on the neighbourhood. Even at the end of the rainy season of 2016/2017, more than two years after load shedding became a major topic of concern in Zambia, water levels of the dams remained too low and load shedding consequently an issue distressing many urban residents. In the meantime, the government has started to import electricity from Mozambique and South Africa, and pledged to diversify energy production

²⁴⁵ Whereas making calls was a priority to urban residents, playing music or using built-in torches was important to the people of Chibobo, who had most people they interact with within reach.

in the near future. Until then, the failure to supply reliable energy to the growing urban and semi-urban populations will continue to stimulate the production of charcoal in rural areas – as a by-product of agricultural expansion, but also for its own sake, thus perpetuating deforestation (cf. May-Tobin 2011: 83).

As a result of this outlook, several approaches to make both the production and the consumption of charcoal more sustainable have been discussed already. One of my Zambian research colleagues has suggested promoting the ‘coup system’ that has been practiced on the Copperbelt: a forest is demarcated into portions and each area is harvested for charcoal production in a specified year, leaving the other portions of the forest regenerating.²⁴⁶ Different approaches to community-based wood production, where the local community regulates extraction and issues permits on a sustainable basis, have also been discussed, with references to Senegal and Niger, where forest cover even increased under such projects (see de Miranda et al. 2010), even though all community-based natural resource management (CBNRM) practices also come with their pitfalls (see Roe et al. 2009, Dressler et al. 2010, and the continuing work of the Institute for Poverty, Land and Agrarian Studies – PLAAS). Following the example of NGOs from Ghana and Kenya, that are converting human waste, coffee and coconut husks, bagasse and sawdust into ‘charcoal’, several start-ups have come up with potentially more sustainable alternatives. The Zambian NGO ‘BioCarbon Partners’ for example was offering such bags of 90 kg for 125 ZMW, which might be a competitive price during peak seasons, but the distribution was limited to the hypermarket chain Shoprite, which mostly captures wealthier households in the first place. Utilising fast-growing eucalyptus for the production of charcoal instead of slow-growing hardwood has been another idea of the government to protect natural forests (GRZ 2009; cf. Girard 2002; cf. Tobin 2011: 86). However, it remains to be seen whether *afforestation* will take place for that purpose, or rather the replacement of indigenous woodlands with fast-growing species.²⁴⁷ Also on the producers’ side, improved kilns such as the Retort or Casamance kiln have been promoted (Mugo & Ong 2006: 9), with manuals for improving the efficiency of kilns were offered by the Ministry of Energy and Water Development. President Lungu (2017) equally said that sustainable production techniques must be supported, without further explanations. On the consumers’ side, energy-saving charcoal stoves such as the *Lakech* stove from Ethiopia or the ceramic *Jiko* from Kenya were put on the market. The Ministry of Agriculture (GRZ 2013: 61; cf. Hibajene & Kalumiana 2003) also aimed at promoting more efficient charcoal stoves, while their overall effects on charcoal consumption are yet to be proven: research from Senegal for example has shown

²⁴⁶ Malunga Mwape during an interview in Kabwe on August 6, 2015.

²⁴⁷ Brazil for example is the biggest consumer of charcoal in the world. In order to meet the demands, charcoal is produced by commercial industries to which FSC-certified eucalyptus trees are supplied to (see Mugo & Ong 2006, and FAO 2010). Whether such plantations replaced indigenous forests is not stated, yet in Chibobo itself, the replacement of ‘useless trees’ is envisioned by several farmers as described in Chapter 6.6.

that the dissemination of improved cooking stoves reduced the overall charcoal consumption by only 1% (Bensch & Peters 2011). Both non-wood charcoal and improved stoves were marketed at the 2015 Agricultural and Commercial Show in Lusaka, yet relatively high costs and fragility has rendered them virtually irrelevant (cf. May-Tobin 2011: 85).

After having provided an analysis of the charcoal deforestation nexus, the subject to which I turn in the following section is another industry often said to contribute to the destruction of forests, namely the timber industry (Gumbo et al. 2013). I will discuss the utilization of timber for local purposes but also for export, with a special emphasis on a recently 'discovered' precious species. The role of softwood timber plantations will also be discussed.

6.6 Extracting timber

Indigenous hardwood

As pointed out in the introductory chapter, the *Miombo* woodlands are entirely made up of hardwood trees. Cutting them down is thus not an easy endeavour, but requires machinery or hard physical labour. Within the research area, all cutting is done manually with an axe only, with the exception of a few large-scale farms. Since most households of Kansenga cannot afford to purchase and transport building materials from *Boma*, timber from *Miombo* trees is the only available local resource for construction:

We resort to wood because there is no metal available in the village like in your world, we need the forest to provide us with poles, otherwise, if there is no forest, we sleep in the outdoors.²⁴⁸

Poles are in fact utilized for a multitude of construction purposes by each and every household, all across the community. They are employed for the construction of outside walls, fences, or for roofing. Similarly, for the construction of the *Insaka*, furniture, granaries, piggeries, bridges across streams, or shelters alongside maize fields, the main material is the locally available wood. Many households have sorting sheds, storage facilities, structures to comfort and protect laying hens, as well as elevated structures for drying the dishes, all made out of wood. One resident of the community even produced professional guns using local wood. Timber or rather broken branches are also used as danger signs: whenever a car or a lorry has a breakdown on the gravel or tarmac road, large limbs are cut down and placed onto the road into both directions to alert other drivers. Besides those signs and physical structures, all domestic tools such as hoe and axe handles, pestles and mortars, cooking sticks, or slingshots for hunting birds are made locally from wood. Nowadays, many other products that were previously made out of wood have given way to plastic imports from China. In this regard, Elias (2011: 65) reminds us about the environmental friendliness of wood: in contrast to plastic or bricks which need to be burnt first, structures or tools made out of timber produce lower emissions and thus have a smaller carbon footprint. In fact, the extraction of timber is less problematic with regard to carbon release as the final products such as furniture etc. continue to store carbon (Scholes, cit. in Frost 1996: 28). However, associated challenges with regard to, amongst others, biodiversity and hydrology, do still apply and thus make logging a relevant topic.

Despite a high demand for timber, its extraction does not happen indiscriminately, but with only the most suitable trees being targeted: roofing for example needs different timber from planks, which again is different from doors, frames or coffins. The timber preferred

²⁴⁸ Kunda Malikuki during the group discussion at Chilekwa Farm in Kansenga on March 20, 2015.

most is *Mukwa*,²⁴⁹ from one of the hardest trees of the region and southern Africa, which is known for its durability against the weather, termites, or wood-boring weevils. Its planks are most expensive, with about 20 ZMW each, in contrast to planks from other species sold at 10-15 ZMW. The second-most preferred type is the *Mubanga* tree which is even harder so the wood does not quickly rot and insects struggle to attack it. It is hard to such an extent that blades rebound and do even break. Therefore, it is the only tree which is not cut down but usually brought down with the help of fire, which is set around the tree until it falls. Then, the tree is further processed with axes and a pit saw and used for carpentry works. Both, *Mukwa* and *Mubanga* have, according to one of the oldest and few carpenters of the community, declined in numbers all over the greater research area. Besides these two major timber providers, fruit trees such as *Misuku*, *Mufungo* or *Mupundu* are also targeted. The bigger trees growing in the denser forest stretches are preferred, yet even young ones are brought down if slim poles are needed. Those trees bearing fruits, ‘the female *Misuku*’, however, are avoided.²⁵⁰ Only temporary shelters that need to last for one season only while a house out of bricks is constructed, for example, are made out of other, softer *Miombo* trees such as *Mutondo* or *Kasabwa*. Apart from timber, natural ropes extracted from the *Musamba* tree constitute important building material. The ropes are not only used for construction, but also for suicide by hanging. While no such incident happened during fieldwork, members of the community repeatedly explained to me that second purpose of ropes.

Access to all such trees suitable for timber is not (yet) a challenge as most households can source them from their own Farms on both private and customary land, without the need to consult traditional authorities. There were only five households altogether who do not have any bigger trees suitable for construction – and firewood – remaining on their Farms. Those usually beg from their neighbours, or resort to the National Forest, where they ‘steal from Farms not yet settled’²⁵¹. Whereas licences from the Forestry Department are required by statutory law as soon as commercial benefits are sought, beyond subsistence (EC 2014: 16), I did not encounter any person who ever applied for it. When furniture such as stools, tables, or small carpentry is needed, most households produce it themselves. A person experienced in carpentry and joinery is only called in for more elaborate furniture or construction works. In the entire community, only a handful of such professionals is known: Alan Nsakanya and his brother, both in their early 30s, are two of them, who both have been working casually as carpenters since boyhood, producing planks, doors and window frames for others. Since both concentrate on maize farming as soon as the rains set

²⁴⁹ The tree, in contrast to its timber, is locally known as *Mulombwa* (Nyirenda & Mukosha 2015: 26) or *Mulombe* (Matakala et al. 2015: 17). Within the community, some agree to this interpretation whereas others have argued that one word simply is Lala and the other one Bemba.

²⁵⁰ Alan Nsakanya during a transect walk in the Serenje National Forest (Chibobo) on May 4, 2015.

²⁵¹ Frederic Tembo during the group discussion at Chisala Farm in Kansenga on May 30, 2015.

in, they only work timber during the dry season, which is the main period for cutting trees anyway (cf. Gumbo et al. 2013: 47) – dry wood is much lighter hence demanding less labour to be worked, and less money to be paid for transport. In the year 2012, Alan moved from his Farm in Chimupati – the community south of Chibobo – onto a Farm of 12 ha in the Serenje National Forest. Since then, he has cleared about 1.5 ha for farming, of which he could use the timber of desired tree species for commissioned work. Apart from that, he also looks for suitable trees on other people’s Farms, usually in collaboration with his brother who is still living in Chimupati. Once they find a tree, they negotiate with the landowner of the respective Farm, who is usually given 10% of the planks or logs and some waste material as a payment. The photos below illustrate how much ‘excess wood’ accumulates in the process of clearing new land – especially when done in densely forested parts. This will either be burnt on the spot, used as fire- or fuelwood, or converted into charcoal. Trees that are suitable as timber are also processed, in pitsaws dug on site.



Fig. 17 Cutting planks in a pit saw dug on site

Each month of the dry season, Alan and his brother cut down around five big trees and process them with a pit saw. The lowest, straightest part of the tree is utilized for timber, and the upper parts usually go to waste. The outer bark, about one third of the stem, gets attacked by termites quickly and is thus removed before further processing.

Depending on the size of the tree, a single tree of about 60 years age can produce up to 250 planks for roofing of at least 4 metres each, yielding a profit of between 1,000 and 2,250 ZMW, depending on the natural quality.²⁵² Alan and his brother also receive special orders from within the community, but also from *Boma*. Then, they start looking for the demanded or most suitable trees species, up to 50 km inland. A big, suitable tree that goes by the name of *Misuku-nyika* can only be found along the streams on the southern Lala Plateau, for

²⁵² Alan Nsakanya during a transect walk in the Serenje National Forest (Chibobo) on May 4, 2015.

example. In the Lala language, *nyika* means stream and *Misuku* is the most common fruit tree of the region. Both trees look alike yet the fruits of the *Misuku-nyika* are inedible. Not only do Alan and his brother produce planks, doors and window frames themselves, they also supply other carpenters or joiners with timber.

One of their clients is Frank Nkandu, a man well known for his craft skills. After finishing *Serenje Boys*, a well-respected secondary school about 25 years ago, he came back to the community where he started a small-scale carpentry. In contrast to the two brothers, he rarely cuts down trees himself – only in times of financial constraints when he cannot pay anyone for cutting and sawing. But mostly, he buys from others and concentrates on the production of elaborate products such as armchairs or bunk beds. Similar to the two brothers, he gets business from all over the area, including roofing orders from *Boma*. More recently, Frank prefers working with eucalyptus as it is soft and hence much easier to process. Despite that, a plank, for example at the prisoner's nursery in *Boma*, costs 65 ZMW – three to six times as much as indigenous timber.

During the last years only, a new business has popped up in *Boma*: wooden curios, mainly carvings of elephants, were sold at the turnoff to *Boma* and in town to the few independent tourists passing by. Within the research community, wooden cheese and chopping boards were produced on behalf of the orphanage in late 2016. They were meant for a stall at the fair of the orphanage's main donor, the Overnewton College of Melbourne. While this might have been a singular production, it has pointed to an existing market that might be further explored in the future.

Besides the number of regular wood workers, there are also part-time loggers – men who engage in producing timber on an erratic, opportunistic basis. In late May, some weeks after the rains had stopped but the soil was still tender, Vincent Musonda, my research companion, employed four pieceworkers to clear new land for farming. When the workers encountered an old, about 15-metres-tall *Mubanga* tree, the hardest of all the local trees, they negotiated with Vincent payment and agreed to produce planks from it. They brought down the tree, dug out a two metres deep saw pit, and started working on the tree for about a week. Eventually, they had 4 logs out of which they produced 50 planks à 400 cm, which they expected to sell for a total of about 700 ZMW. The planks were then directly sold, without the use of middle men, over bush routes directly to the carpenters or individual households. Since any construction, no matter how hard the timber, will collapse sooner or later, there will always be new orders: rainfall, termites and wood-boring weevils make sure that all constructions have to be renewed after every two to seven years, depending on the quality of the wood initially used. Apart from locally used timber, so called *precious timber*, valuable indigenous hardwood species suitable for export (EC 2014: 7), is also found and harvested in the community, which I will examine on the following pages.

The precious Mukula – A new logging frontier?

Research on the trade of indigenous timber is still in its infancy. The first scoping study was conducted in 2013, with empirical data from six districts of three provinces (Gumbo et al. 2013). Despite being one of the most recent studies, much of the literature cited is over 10 years old and thus does not capture more recent developments. The study furthermore concentrates on economic aspects of the trade and does not offer qualitative insights. Another recent study (EC 2014: 35, 52) rightly points out the difficulty in assessing numbers on the timber trade provided by the government, which is contradicting in itself, as well as the data provided by UN Comtrade and other sources. While the state of official inventories is characterised by out-dated and missing figures for many years, the aggregation of indigenous and plantation timber further complicates a refined analysis (EC 2014: 8; cf. Kokwe & Mickels-Kokwe 2012). The underlying study itself (EC 2014), however, is based on short-term fieldwork and only deals with institutional stakeholders, laws and trade regulations, which raises questions about its relevance considering the *informal* and malpractices in the formal sector.

Although it is not well documented to what extent the extraction of timber and its trade actually contribute to deforestation, the logging of precious wood is said to be one of the major drivers of deforestation (e.g. GRZ 2010b; Gumbo et al. 2013: ix, 52). In fact, in Zambia's Western and Southern Province, sawmills abound and have contributed to an alarming decline of the Zambian teak (*Baikiaea plurijuga*) (Gumbo et al. 2013: x).²⁵³ Yet importantly, about 75% of the commercial value of Zambian trees is not found where the teak occurs, but in the *Miombo* woodlands (Gumbo et al. 2013: 7). Nevertheless, for large parts of the *Miombo* region and Central Province, empirical insights are missing until today. Ethnographic insights from the sites of production are missing altogether and the following paragraphs shall contribute to filling this gap.

Within Serenje, the only salient tree type targeted for export was the *Mukula* tree – internationally marketed as rosewood.²⁵⁴ During first fieldwork in 2014, many people had just heard about this tree on the radio, on TV, or by word of mouth, but were hardly aware of its commercial value. Only when sudden demand from the Chinese market swept the country, it became more widely known. Prior to this, in Chibobo, the tree was only known by its local name, *Mulimba*, hardly ever seen, and not attributed any special value. When trucks loaded with logs of that tree were seen coming from villages further north, rumours

²⁵³ After merchantable sizes of *Baikiaea plurijuga* had become a scarcity in Western Province, the World Conservation Monitoring Centre of UNEP included it to the 'threatened Plants of the World' in 2000 (Gumbo et al. 2013: 42).

²⁵⁴ In the Zambian context, it is mostly referred to as *Pterocarpus chrysothrix*, yet outside of Zambia as *Pterocarpus tinctorius* or *Padouk* (e.g. Cerutti et al. 2017, and ITTO 2017), and once as *Pterocarpus soyauxii*.

spread about their destination. Eventually, residents of Chibobo were asked by neighbouring villagers whether this tree has been seen and where to find it.

Between June and October 2014, trucks loaded with logs of *Mukula* were coming from the hilly, uninhabited areas with rocky outcrops in the community's north nearby 'the Island' (Chishi; see Fig. 6). During that time, two Chinese men came twice in a small vehicle to check the quality of the logs, straight and at least 2m long, before the workers were allowed to load them onto trucks. Many logs were left behind in the woodlands and at reloading sites as they were bent and not suitable for further processing. Over a period of several weeks, the logs were off-loaded along Chibobo's main gravel road at night times, where they were piled until the quantity reached about three-hundred logs. The truck drivers, who brought the logs from the forest to the gravel, asked the nearest Farm owner, Mwape Nsakanya, to keep an eye on the logs as they feared other traders taking them away. For this job, Mwape was paid 200 ZMW. By December 2014, several containerized trucks had removed the logs during nighttimes. Two trucks were covered by a tarpaulin and filled up with maize, so as to not arouse any suspicion at the several police check-points towards Lusaka or Tanzania. With the belated onset of the rainy season in December, the extraction was disrupted as the truck drivers did not want to risk getting stuck in the mud. Interestingly, as Mwape clarifies: 'They were fearing the rains, not the government, they can't fear the government'²⁵⁵. After the rainy season had come to an end, the harvest continued around the same spots in the community's north and other villages of the northern Lala Plateau.

One day, an allegedly Chinese man with a truck full of *Mukula* logs was stopped at a mobile police check-point along the main gravel of Chibobo and forced to offload them at the pipeline in the National Forest. Since police did not have the means to intercept and transport the logs themselves, the trader came back some days later and took them elsewhere. Rumours flourished and corruption was suggested, yet due to several middlemen, it was impossible to trace and interview the owner. In fact, one well-known *Mukula* trader from the community, who also owned a small-scale sawmill at *Boma* turnoff, was the only individual who avoided me throughout fieldwork, despite his friends having put in many good words for me. Whenever we agreed on an appointment, he politely excused himself. Villagers, those who had cut down the trees, however, were confident that all logs are ferried to Lusaka to prepare them for export. Similar to charcoal producers, the timber traders are well aware of the 'lawlessness' towards Lusaka, where bribing your way over police road blocks is everyday business. While laws do exist, they are partly unknown and partly not enforced by the police, the Zambia Revenue Authority (ZRA), or forestry officers working at permanent but also mobile road blocks. With a rising alertness regarding

²⁵⁵ Mwape Nsakanya during an interview at his Farm in northern Chibobo on May 12, 2015.

the *Mukula* trade, however, such blocks were intensified. By that time, *Mukula* had not been listed as a commercial species recognized by the Zambian government, yet since demand was unexpected and sudden, all over the country, the government released an export ban in order to first investigate what the tree was actually exploited for (Phiri et al. 2015).

The hype also increased throughout fieldwork in 2015, and piles of *Mukula* logs suddenly appeared along the roads of Chibobo – most likely abandoned waste products that were too short, thin or bent for further processing. Likewise, at the police station in *Boma*, dozens of *Mukula* logs covered the fore court for the entire period of my fieldwork, apparently rotting away. The District Forestry Officer claimed to have already auctioned it to ‘the Chinese’²⁵⁶ and now waits for their headquarters to handle the export. On a regular basis, the state-controlled evening news on *ZNBC TV1*, the only channel I was able to watch erratically with my host family, reported about traders being arrested, trucks being impounded at the customs enforcement centre of the ZRA, police officers successfully catching Chinese men smuggling logs through the country, or foreign nationals who attempted to ferry logs out of the country being fined. Whereas the government first complained about this trade with an emphasis on its illegality, they later repealed the export ban under the condition that production licences are to be obtained,²⁵⁷ and the logs are added value in Zambia – the export of planks or processed wood was promoted, whereas the export of round, unprocessed wood was not allowed anymore (TI 2016). Over the next years, the export ban was lifted and re-established several times (Cerutti et al. 2017), and neither traders nor forestry officers could precisely tell me the current status. Besides this insecurity, the timber involved is supposed to be hammer-marked with a three-digit-coded hammer of the district of origin by forestry officials. Due to the officers’ lack of transport, sites are not visited (EC 2014: 33) and loggers shy away from travelling via their respective *Boma* for receiving the stamps. In order to process the wood, sawmills are needed, yet licences for such are only issued at the Forestry Department’s headquarters in Lusaka. Without the guarantee of being granted the necessary licence, sawmillers equally shy away from the travel costs involved (cf. Gumbo et al. 2013: x, 2). The process is further complicated and costly as the department requires official environmental briefs, stock assessments, and many more documents for export (Gumbo et al. 2013: 45; EC 2014: 26, 34). In order to make similar profits, middlemen or operators of sawmills thus have to sell more wood, which eventually can increase the trees harvested. At the same time, however, due to such complicated, often unclear and insecure processes, many stakeholders prefer

²⁵⁶ Zambia is the third-most important destination of foreign direct investment (FDI) from China (German et al. 2011: 17), which accounts for the Chinese’ increased visibility in Zambia. ‘The Chinese’ is regularly ascribed to people thought to be from China, who are involved in the construction, transport, agriculture, mining, and more recently the timber industry (cf. German et al. 2011: 19, 27 ff.) and are more often than not suspected to be involved in fishy or irregular activities (German et al. 2011: 45).

²⁵⁷ According to the forestry officers (during an interview in the District Forestry Office in *Boma* on April 20, 2015), a licence for *Mukula* was 225 ZMW per m³.

informal transactions. For the same reason, the timber trade remained largely unmonitored, and reliable numbers about the extraction of precious trees do not exist.

After the run on the ‘newly discovered’ *Mukula* had been on for several months, one of Chibobo’s oldest residents explains to me that ‘all the *Mulimbas* are taken now, the Chinese shape them and put them in boxes for export’²⁵⁸. In August 2015, a truck loaded with about 300 *Mukula* logs arrived at the sawmill at *Boma* turnoff which is owned by a man from Chibobo, and guarded round-the-clock by three watchmen. Just on the other side of the street, Mitchell Bwalya, a Lusaka-based Zambian businessman had started a similar small-scale sawmill in late 2013 already, just when the demand for *Mukula* was first discussed in Lusaka. When he got ‘an urgent order from Chinese people’²⁵⁹, he joined up with three other Zambians. While most of the *Mukula* described above was extracted from the Lala Plateau, the *Mukula* processed by Mitchell Bwalya and his workers was mostly harvested in the lowlands of Serenje (see Fig. 4). Another logging site was just opened in the woodlands north-west of Chibobo, approaching the Congolese border. Just when conducting the interview, two trucks with about 30 t of *Mukula* came in from the harvesting site. The trees were about to be cut and sawed, ferried to Lusaka, re-packed for containers, sealed and sent for further shipping to the ports of Dar es Salaam or Walvis Bay,²⁶⁰ or to the dry port of Johannesburg. Their only buyers are from China, who are said to use the outer bark of ‘the green gold’, as it was called due to its value, as medicinal component, the outer core for flooring, and the dense inner core for rifle butts that require heat and shock resistant wood (Phiri et al. 2015; TI 2016).

A few days before I accomplished fieldwork, lorries full of *Mukula* passed through the community, usually coming from the woodlands further north. No one in Chibobo I talked to knew anyone involved in cutting or transporting *Mukula* trees anymore, as the sites of extraction had moved further north. There, selective logging continued, most likely until the last suitable *Mukula* tree has been removed. Due to selectivity, the forest canopy in the unsettled woodlands and Forests remains relatively intact (Doucher 2011: 6). The landscape has seemingly not been affected by *Mukula* logging, as only a few trees per km² are cut down, amounting to a few hundred trees in total. However, with regard to biodiversity, the loss is significant – the entire species is said to edge toward extinction (TI 2016). Nevertheless, the *Mukula* industry was not an issue at all locally, similar to other districts where traditional leaders and district councils are hardly concerned about the impact of the timber industry in general (Gumbo et al. 2013: x). Whether the selective cutting in and around Chibobo results in net deforestation or is sustainable remains a debate (Turpie et al.

²⁵⁸ Boyd Changwe during the group discussion at his Farm in Kansenga on June 1, 2015.

²⁵⁹ Mitchell Bwalya during an interview at his sawmill at *Boma* turnoff on August 12, 2015.

²⁶⁰ In fact, at the Zambia-Namibia border, the majority of the wood imported recently has been *Mukula*, which has not been mixed with other timber species such as *Pterocarpus Angolensis* as was initially expected (pers. comm. with Amber Nott from the Namibia University of Science and Technology on June 8, 2017).

2015: 24). Whereas several researchers have pointed to the regenerative capacity of the *Miombo* woodlands after disturbance (e.g. Syampungani 2008, Chidumayo 2013, and Jew et al. 2016), the woodlands are unlikely to have enough time to actually recover before being cleared again (Kalaba et al. 2013). Against the background of an increasing number of settlements and a growing population, the number of suitable timber species is likely to visibly decline in the near future. For the most preferred species, this has already been observed in the community. Notwithstanding the selective nature of logging, it also contributes to the release of carbon dioxide to the atmosphere. It can furthermore increase the drying out of the woodlands, and eventually leaves them – just as any other clearing – ‘more susceptible to fires and expansion of other extractive activities’ (Elias 2011: 66). Because if already degraded, a forest is easier to clear (Elias 2011: 71-72; cf. May-Tobin 2011: 82) and inhibitions to begin clearing are lower. Selectively logged areas in the Brazilian Amazon for example were four times more likely to be completely cleared during the following years than unlogged areas (Elias 2011: 71).

Logging does not only occur in Zambia’s indigenous hardwood forests, but also in softwood plantations. On the pages to come, I will investigate such plantations and demonstrate why they are equally important in understanding deforestation – in Zambia and all those countries where plantations have started to replace natural forests.

Exotic softwood timber plantations on the rise

Whereas Zambia’s indigenous trees are extremely hard and slow-growing, exotic species such as pine and eucalyptus are soft and fast-growing, hence easier to cut down and process (cf. Elias 2011: 72). Since plantations are managed, the stands are characterised by an even-aged structure and an even spacing of trees, which again facilitate forestry in comparison to natural forests. On the one hand, such plantations can certainly ease the pressure on natural forests and contribute to their conservation. They can play an important role during re- or afforestation efforts (FAO 2015: 20, 33), reduce erosion, capture and store carbon, and further the production of timber and fuelwood. On the other hand, however, there is evidence for increased deforestation of indigenous woodlands for the establishment of plantations. This conversion of natural forests into plantations also then comes along with a loss of biodiversity, related ecosystem services, and resilience (Brockerhoff et al. 2008: 925, 937; Ellisson et al. 2017: 57), as well as heightened carbon dioxide emissions.²⁶¹

In the Zambian context, in particular the mining industry and the energy sector demand softwood timber for sleepers, tunnel supports, pit props, or utility poles. As the market value

²⁶¹ While sustainably managed plantations can *increase* the carbon stock, the replacement of natural forests by plantations is usually detrimental in that regard – depending on, amongst others, rotation periods and tree species, aboveground liter mass, fine root biomass, and soil respiration (see Liao et al. 2010).

of softwood is much higher than of local hardwood species (Pirard et al. 2016), the latter get increasingly displaced by softwood plantations – in Malawi, Tanzania (EC 2014: 49; Gumbo et al. 2013: 60), but also in Zambia. While commercial large-scale plantations on the Copperbelt have a longer history, small-scale plantations at the districts' forestry offices, as well as woodlots that are set up by companies or individuals are rather recent phenomena of the last decade (cf. Kokwe & Mickels-Kokwe 2012: 8).

The first planted forests, solely aimed at the commercial production of timber for the mining industry, came into existence in the early 1960s on the Copperbelt – arguably replacing indigenous forests (EC 2014: 7). Since they were low-yielding and could thus not keep up with the demand, the fast-growing, exotic tree species eucalyptus (*E. spp* and *E. grande*) and mostly pine species (*Pinus oocarpa* and *Pinus kesiya*) were introduced (World Bank 1983: 5; ZAFFICO 2013; EC 2014: 19).²⁶² In the framework of the World Bank-funded 'Industrial Plantation Project', the existing plantations on the Copperbelt were to be expanded by about 42,500 ha until 1993 (Hardie & Wood 1973; World Bank 1983). For that purpose, clear-cut logging with graders and bulldozers took place (World Bank 1983: 20, 55), amounting to an area of 50,000 ha in 1982 already, exceeding the initially planned area (World Bank 1993). The plantations were run by the parastatal Zambia Forestry and Forest Industries Corporation (ZAFFICO), that was privatized in the late 1990s, with the Ministry of Finance and National Planning becoming the major shareholder (Kokwe & Mickels-Kokwe 2012: 8). On top of ZAFFICO's plantations, there are a further 7,000 to 10,000 ha devoted to local supply plantations managed by the Forestry Department.²⁶³ Today, Zambia's plantations are estimated to amount to an area of about 64,000 ha (FAO 2015: 39), of which at least 84% are within the Copperbelt, owned by ZAFFICO (2013; cf. EC 2014: 19). As this total figure does not include private plantations and recently established ones, the total area covered by softwood plantations is likely to be much higher.²⁶⁴ With these numbers being provided, it is important to keep in mind that one cannot conclude that *all* the land was previously covered by indigenous trees.²⁶⁵ However, against the background of Zambia's high forest density of about 66% of the total land mass (ZEMA et al. 2013: 56, EC 2014: 7, FAO 2015: 8), it seems unlikely that plantations were opened up on farmland or other previously non-forested lands. Even where this might have been the case, the existing farmland was re-opened elsewhere as it is unlikely that all farmers could find employment at the plantation.

²⁶² Whereas indigenous trees need 50–60 years to produce sufficiently big logs, eucalyptus only needs 12 and pine 25 years to reach the same diameter (World Bank 1983: 5, World Bank 1993; Brockerhoff et al. 2008: 926).

²⁶³ Since data is inconsistent, the precise area covered by plantations is difficult to assess. Consequently, a recent report of the European Commission (EC 2014: 19–20) wrongly indicates that plantations are only to be found in Luapula, Southern and Northern Province, with none in Central, Lusaka, Eastern and Western.

²⁶⁴ ZAFFICO (2013) itself provides different numbers, between 48,000 and 54,010 ha, on their official website.

²⁶⁵ Unfortunately, none of the relevant authorities could provide any information with regard to previous land-uses. Apart from poor or no records, it was also due to an employment turnover that inhibits the accumulation of institutional memory (cf. Franks & Hou Jones 2016: 3).

On the following pages, I will discuss the ongoing development of plantations in Serenje and demonstrate why the land area dedicated to softwood is likely to experience a further increase in the future.

Eucalyptus and pine as symbols of Development

Travelling in Serenje over the Great North Road, a few large eucalyptus trees pop up here and there, with dozens of them standing tall on the tobacco scheme in Mulilima (see Chapter 6.2). Besides this eye-catching concentration of eucalyptus trees, in 2006, Serenje's forestry officers opened up a commercial plantation a few kilometres north-east of the Serenje turnoff. According to the forestry officers,²⁶⁶ in 2015, the plantation had a size of 30.5 ha, accommodating eucalyptus and pine trees only. As a result of the previously discussed governance constraints (see Chapter 2), the management of this and certainly many other state-run plantations has been a challenge for the Forestry Department. Villagers living in the plantation's surroundings, for example, were employed for weeding the rows but eventually started cutting down pine trees for sale on their own initiative. Eventually, the court sentenced each adult to a fine of 200 ZMW or 4 months of imprisonment. Arguably as a result of financial and managerial problems, none of the plantations run by the Department has been certified by the Forest Stewardship Council (FSC) since 2005 (FAO 2015: 225). The first official sales from the Serenje Plantation are expected to begin in around 2030, yet considering the short rotation periods for eucalyptus, an earlier sale of poles for the generation of revenue would not come as a surprise – especially since demand for softwood timber is still on the rise, mainly coming from the three sectors mining, energy, and construction. In 2013, the government launched a National Tree Planting Programme during which 2,000 ha of plantations and community woodlots were to be planted in all provinces in order to combat global warming, alleviate poverty, and further economic development (EC 2014: 27). 200,000 jobs were to be created in the framework of the programme (REDD 2017), yet information about the programme's actual execution are yet to be released.

When driving into *Boma* today, visitors are welcomed by a number of huge, old 'blue gums' (*Eucalyptus globulus*), as all eucalyptus trees are referred to, regardless of the actual species. They were planted around the premises of the District Council decades ago, most likely for ornamental purposes. Around the District Forestry Office, a good number of them stand tall into the sky as well, serving as a landmark and inspiration to clients, visitors and passers-by. Those eucalyptus trees naturally drop the biggest of their branches at any one point, hence rendering them a danger in populated areas. In fact, one man had recently died

²⁶⁶ Three officers during an interview at the District Forestry Office in *Boma* on July 21, 2015.

when he was cutting branches off a tall eucalyptus tree at the bus stop. Despite that real danger, several households want to benefit from this auspicious softwood business and plant such trees close to their houses, for interrelated economic and social reasons. Since Zambia's state-owned plantations have hardly been expanded over the last years, venturing into this business has become an attractive opportunity for a number of households, not least because softwood timber fetches about three to six times as much as indigenous timber. During fieldwork, the desire to own pine or eucalyptus was omnipresent in Chibobo, always linked to the expectation of soon having planks for roofing and poles that can be sold as utility poles to ZESCO. In the village of Kansenga in particular, many had been inspired by a lady who sold the planks of five large eucalyptus trees from her Farm that had been planted by her previous landlord. Today, next to the big stumps that have remained, a few high eucalyptus trees stand tall, still serving as a landmark and inspiration (see Fig. 7). Others were influenced by the success stories of distant neighbours who claimed to have already sold poles to ZESCO, by a large-scale farmer from a northern village who had planted 2,000 seedlings, or by people who had crossed the border into Tanzania: just after the border, pine trees appear on almost every single Farm and travelling further in-land along the Tanzanian part of the Great North Road, this picture is re-enforced throughout the three regions Mbeya, Njombe and Iringa, where private woodlots abound and vast commercial timber plantations are lined up. Interestingly, plantations are seen as man-made infrastructures of Development, in contrast to natural indigenous forests that are rather seen as a dangerous, wild bush (*Mpanga*), which rather fits into the rural sphere.²⁶⁷ Against this background, eucalyptus and pine began to carry a particular meaning over the last years. Besides predominantly economic reasons that create an interest in growing softwood trees, there are also social benefits associated with exotic trees. Similar to any other material good than can be used for demonstrating wealth and showing off, softwood trees have become a status symbol – they have become important for identification and representation. Both pine and eucalyptus carry, similar to maize, the promise of cash – much more than indigenous timber. In times where 'keeping up with your neighbours' has become both an impulse and a concern, flourishing exotic trees can trigger jealousy and stir up a spirit of competition. My research companion for example was eager to plant exotic trees close to his houses, first and foremost because 'others shall see [...] everybody has mangoes and guavas'²⁶⁸. Besides him, many individuals across the community desired to own eucalyptus or pine trees – for economic, social, and sometimes environmental reasons.

²⁶⁷ João Baptista, who undertook ethnographic research in the region of Huambo, central Angola, also found that large areas of native forests were cleared for planting eucalyptus, pine and other species. During colonial times, when fuelwood was needed for steam engines, and softwood timber for rapid construction, this was highly promoted by the German colonialists who saw plantations as a form of Development, which was later continued by the Portuguese (unpublished data, pers. comm. on November 29, 2016).

²⁶⁸ Vincent Musonda during an interview at his Farm in northern Chibobo on October 2, 2015.

On the following pages, I will present a few cases, beginning with Kenji Nkoma, a retired teacher of 63 years.

Deforestation for reforestation?

In 2009, Kenji Nkoma bought 6 ha of customary land in Chibobo where he decided to settle for retirement. Since then, he has been farming about half that land with mostly maize. He is one of the vocal opponents of deforestation in the community, and he always tries to limit agricultural expansion in order to conserve trees. Besides farming, he also runs a hammer mill that can be used by community members for a fee, and he is one of the few people in the community owning a Canter, which he rents out. As a retired teacher, he belongs to the very few residents of the community who receive a monthly pension. On top of all that, he rears chickens and turkeys for sale, which is why he can afford a burnt-brick house with iron-sheets and solar panels. In order to additionally polish up his income, he dreamt of opening up a softwood plantation. For that purpose, but also for farming and livestock rearing, he illegally acquired about 10 ha within the Serenje National Forest in 2013. Interestingly, he had still 3 ha left on his Farm which are 'still bush'²⁶⁹ – which he wants to keep for protection. This again confirms the observation that trees surrounding one's own Farm are rather conserved as long as possible. As soon as possible, Kenji wants to start the plantation in the Forest, for which he will first clear 0.5 ha. On one side, he wants to use cow dung, and on the other, fertilizer in order to see whether the stand will be different. Together with one of his neighbours, who is equally excited by the idea of running a small-scale plantation, he has already started collecting paper cartons of *Shake-Shake* beer for raising the seedlings. He also sent some children to collect pine seeds directly from fallen cones in *Boma* and at the secondary school of Chimupati, yet they failed to germinate. Thereafter, his friend went straight to the Forestry Department, where he secretly received several tea spoons of eucalyptus spores from one of the gardeners, in return for 'a cup of tea', a few Kwacha.

Similar to Kenji Nkoma, another elderly man, Joseph Chisenga, wants to venture into softwood plantations. Currently, he is living on a small residential plot along the Great North Road in Chimupati where he is running a grocery. As his old family Farm with farmland is in Chibobo, he commutes almost every day between both places, almost 10 km each direction. In January 2015, during my first days in the community, he stopped by my house to greet me. After I had explained my research interest to him, I soon realised his expertise in medicinal trees, exotic trees, and his passion about agroforestry, organic

²⁶⁹ Kenji Nkoma during an interview at his Farm in northern Chibobo on April 28, 2015.

farming, and also beekeeping. As Joseph often passed by and was well versed in the English language, he quickly became one my closest interlocutors. He was one of the most interested and motivated members of the Green Living Movement (GLM), which is why he has been much involved in their activities. Apart from his participation in a number of workshops organized or funded by GLM, he was occasionally provided – just as a few other households across the community were – with pine, eucalyptus, and a number of other exotic, fast-growing tree and plant species. They were meant for the provision of shade, the production of firewood, compost, animal fodder, and medicine, or to fix nitrogen in the soil to improve its fertility.²⁷⁰ He also bought a number of fruit trees such as grenadine, passion fruit, guava, apple, and orange, which he planted on his fields and in an orchard on his Farm.²⁷¹ Driven by the fear that the government may stop subsidising fertilizer one day, he aims at intensifying farming through agroforestry practices. Similar to Kenji, Joseph was condemning the ongoing deforestation in and around the community, which, according to him, is mainly due to charcoal production. In order to oppose it, he re-forests his land as much as possible and practices agroforestry. At the same time, he also – just as Kenji – recently acquired land within the National Forest, for the purpose of opening up a plantation for pine, eucalyptus and apple trees, and to put up at least 20 bee hives. A tree nursery shall be opened in June at the Secondary School in Chimupati, where he lives, as there is easy access to water. After about six months, with the onset of the rainy season, the seedlings can be transplanted onto his Farm in the Forest. Interestingly, most of his land in the Forest had already been cleared by commercial charcoal producers (see Chapter 9), so that most of his intended activities will in fact re-forest the land. However, while he had claimed not to do any farming in the Forest, he cleared the remaining trees by himself, opportunistically produced charcoal, and began to plant maize. While his intention to open up a plantation was certainly genuine, access to new, fertile land seems to have corrupted his plans. When I had finished fieldwork, he adhered to his plans and promised to start a nursery as soon as possible. While any activity in the Forest was prohibited, he was certain not to be evicted, explaining: ‘To me, this can’t happen because I plant a lot of trees and I’m known for this’²⁷².

Besides Joseph Chisenga and Kenji Nkoma, there were two more men, both in their 50s, who acquired land in the National Forest. While one of them had acquired land for the sole purpose of opening up a plantation, the other one intended to move into the Forest due to a lack of his own land, and both were hoping to plant softwood trees in the future. The

²⁷⁰ The most common species were *Senna Siamea*, *Senna spectabilis*, Indian Mahogany (*Toona ciliata*; all three to provide shade, timber and fuelwood), *Sesbania* (for nitrogen fixation), Indian Ash (*Lannea coromandelica*; as a windbreak), Jacaranda, Cinderella, Neem, and *Moringa Oleifera*. The latter is fast-growing, drought-resistant, and the long seed pods as well as the leaves are eaten as immune-boosting vegetables. Powder made from its seeds is also used as a natural coagulant to purify water and lower its bacterial concentration. Medicinal ‘ben oil’ can also be extracted from the seeds, which, however, has not been practiced in Chibobo.

²⁷¹ Transect walk via Joseph Chisenga’s Farm in northern Chibobo on May 1, 2015.

²⁷² Joseph Chisenga during an interview at his plot in Chimupati on July 17, 2015.

latter had already cleared a few hectares, yet by the time I had concluded fieldwork, the new fields were still fallow, so it remains to be seen how he will eventually utilize the land. The other landlord described himself as ‘the most disappointed citizen of this world’²⁷³: he lives in *Boma*, where he runs an Internet café with printing, typing and recording facilities, and he also earns a living from church services. As he has a keen interest in forest conservation, His Royal Highness Chief Mailo from the southern Lala Plateau – which is less populated – allocated him a 250 ha-big Farm for opening up a tree nursery. In order to finance this activity, he had dropped applications to several embassies with lengthy descriptions on his project ideas. His letters were serious and credible, yet so far, his requests were refused. When he found out about available land in the National Forest, he wanted ‘to protect it from charcoal burners’ by planting many trees, thereby setting an example for others. When I was leaving the community, he had neither cleared nor planted anything in the Forest, nor on Chief Mailo’s land.

While it remains to be seen to what scale exotic trees will be eventually planted in the wider region, the very intention to do so certainly carries the possibility of clearing indigenous forests. This, however, is – similar to farming activities – hardly seen as a driver of deforestation (see Chapter 10). Especially when indigenous vegetation remnants are conserved, plantations replacing previously forested land hardly feature in the debates surrounding deforestation (Brockerhoff et al. 2008: 926, 937).

Importantly, all of the above have clearly indicated that if eucalyptus does not work out well, due to little rain or unsuitable soils for example, they will rather concentrate on maize farming. Land initially cleared for exotic trees is thus likely to be eventually used for cash crops, as they do not require long lasting rotation periods but can be harvested the following season. While most households in Kansenga desired to own pine and eucalyptus trees, only a handful had planted a few over the last years that rarely pop up and stand out in the landscape. While most households had planted a few guava and fewer mango trees near their houses, for both sale and home consumption, re- or afforestation to any considerable scale was the exception. As spores or seeds are not sold by the Forestry Department and seedlings are too costly with around 1 USD each, most households, however, have so far refrained from planting them in face of a big desire (cf. Ellison et al. 2017: 59). Only two households in the entire community of Chibobo – both tobacco growers – had undertaken some serious eucalyptus planting (see p. 98 ff.). Some years back, they were provided by the tobacco company Alliance One with four tablespoons of eucalyptus spores and plastic bags for the seedlings. After nursing them for 3 months, they were transplanted in the middle of the rainy season into their tobacco fields, thus not entailing extra deforestation. Eventually, 624 plants survived the coming dry season and stood as thin trees of 1 to 2.50 m height

²⁷³ Lawrence Kombe during an interview at his plot in *Boma* on August 12, 2015.

already during fieldwork. Planted woodlots for curing tobacco were lauded as demonstrating responsible behaviour of growers and the industry (e.g. Sacchetto 2012: 14), and tobacco as well as tea farms from Asia have shown that eucalyptus plantations for curing can indeed help alleviate the strains on natural forests (May-Tobin 2011: 83). However, the two tobacco farmers have pointed out that they want to sell the eucalyptus after about five more years as poles to electricity providers, and not use them for curing. They have also pointed out that once the trees grow too big, they will shade the crops, which in turn necessitates the clearance for new farmland. Another tobacco farmer, who had also been provided with spores and seeds of fast-growing trees for free by Alliance One did not plant them as he did so far not experience a scarcity of trees. Thus, the well-meant distribution of fast-growing trees did not yield the desired effect, and at times even promoted forest clearance.

During my last days in the community, I wanted to go round, say good-bye and provide farewell gifts to all households that had assisted me in one way or another. As many households had continuously expressed their wish to plant a few pine or eucalyptus trees on their Farms, I decided to buy each household a young tree.²⁷⁴ As thick dark clouds were signaling the imminent rains, the time was most convenient. In early October 2015, I went to the District Forestry Office in *Boma*, where I found only a few seedlings of pine, lemon, guava, avocado, jackfruit and jacaranda. 95% of all available tree seedlings, however, were for eucalyptus. I eventually bought around 80 trees, and the officer in charge told me that the money will be used for stationary or fuel, as they had not yet received any of that this year. When I returned to Chibobo with the trees on the back of a Canter, I could hear a giggling ‘give me, give me’ from all directions. The following days, I distributed them across the village and provided some basic information on how to nurse and transplant them. While all appreciated the gift, most households asked for more trees, and would have preferred pine or eucalyptus instead of fruit trees, as the latter do not have a market value.

Apart from private households growing exotic trees, there was also one corporate plantation between Chibobo and the Congo Pedicle.²⁷⁵ For this so-called Green Forestry Project, several hectares of *Miombo* woodlands were professionally cleared in June 2011 and replaced with rows of pine seedlings. Due to fences and gates, and a lack of public information on land ownership and land-use, assessing, monitoring and also managing the actual area of forest loss is impossible (cf. Franks & Hou-Jones 2016: 3). Even Serenje’s District Agricultural Commissioner was not aware of the landowner or the company at work, which, he says, is true for most cases he deals with. When he was on site in 2015 in order to demarcate the land, local workers referred to White farmers, possibly Boers, ‘but they are

²⁷⁴ Since the activity was normative and could be perceived as a recommendation, it was carried out after fieldwork had been finalised.

²⁷⁵ Exploratory field visit around Chisebwa Village on October 20, 2014.

also just guessing [...] Locals we talked to did not have any contact details or knew when they would come, as they usually do impromptu visits'²⁷⁶. The project was allegedly initiated by the Irish, Finnish or Swedish Embassy, run by a South African corporation, funded by REDD+ and associated with the Catholic Church, yet all such information could not be confirmed, which hampered a thorough investigation of their practices and motivations. However, satellite imagery shows that within a few years, the woodlands had given way to ranches and circle-irrigated farms stretching over more than 3,500 ha.

In January 2015, the land was sold to a foreign agricultural investor, who transferred the 'Green Forestry Project' into the 'Great North Ranch', as a consequence of which all of the small trees were uprooted to give way to farmland. The same kind of replacement of plantations has also been reported by local media for the Copperbelt: in March 2015, the government announced plans to de-gazette one 330-ha pine plantation in Ndola as it has become increasingly difficult to find land for residential plots there. Similarly, in Lufwanyama, ZAFFICO recently complained about losing planted forests to new mining activities. While plantations had to give way to settlements and more profitable businesses such as mining, the demand for timber is still high. Throughout the entire tropics, a rapid expansion of commercial plantations has been observed (Brockerhoff et al. 2008; ITTO 2009), yet still, the import of timber into Zambia has tremendously increased in volume and value since about 2004 (EC 2014: 7), which indicates a high demand. At the same time, Zambia has been exporting timber to China (Asanzi et al. 2014; Simoes & Hidalgo 2016), DR Congo, South Africa (EC 2014: 45) and many more countries informally which are not captured by any statistics. However, due to incomplete and contradictory data provided by the Forestry Department, as well as discrepancies to the data provided by UN Comtrade and other sources,²⁷⁷ no conclusions can be drawn (EC 2014: 35, 52).

During one of his recent speeches, President Lungu (2017) reminded the private sector to invest in both, natural forest management, but also the establishment of plantations. For all this, the area under planted forests is likely to increase during the next years, which will most certainly entail the loss of indigenous *Miombo* woodlands and forests. It has also been proposed to establish plantations on grassland, which would even increase carbon capture, yet so far, the prime area for plantations has been similar to the preferred land for the cultivation of maize (Franks & Hou Jones 2016).

²⁷⁶ DACO during an interview in Boma on May 7, 2015.

²⁷⁷ Even mirror statistics show discrepancies: whereas China reports the importation of logs from Zambia, Zambia does not report any export of logs to China.

6.7 A pause to summarize the key practices

After having presented a wide range of practices contributing to the forest loss experienced in Central Zambia, it remains to be said that the list below is not complete for the entire country. Many other practices are also relevant, such as large-scale mining (see Chapter 10), clearing land for factories, new highways, and many more both small- and large-scale. It is difficult to establish the relative importance of each practice with regard to deforestation, as the local contexts are very different across regions, and even within a single district. However, I am able to come up with a ranking for my own core research area, that is, Chibobo.

Minor impacts	Medium impacts	Major impacts
cutting trees for cropping honey and collecting caterpillars : uncommon due to the limited availability	clearing land for gardening : small fields	clearing land for maize farming: wide-spread participation, expansion as often as possible; adds to subsistence area; high profits re-invested in expansion
bushfires : suppresses re-growth and <i>degrades</i> forests, but contributes little to forest loss	clearing land for subsistence farming : small fields; irregular expansion	clearing land for growing tobacco : regular expansion; high profits re-invested in expansion; limited participation counterbalanced by field size and curing
sourcing firewood : mostly from dead wood and often opportunistically	prospecting and small-scale mining for manganese: clearing for veins and open-pits adds to infrastructure development and charcoal consumption for smelters	commercial, mechanized agriculture : large-scale farms, comes with roads, housing, power poles
opportunistic charcoal production: very common, but underlying practice is another	commercial production of charcoal : medium participation; profits re-invested in farming	
small-scale logging : few households participate; highly selective; often a by-product; carbon remains captured	commercial logging : despite selectivity, truckloads are extracted; hardly a by-product of other practices	
infrastructure development, e.g. new roads or expansion, pipeline expansion, bridges: singular events, rare re-occurrence	settlement expansion: comes along with infrastructure development	

Table 1 Classification of practices

Depending on the frequency of a practice, the number of households that participate in it, and the area cleared, the following classification of practices can be treated as an approximation for the wider the Lala Plateau. However, while the table focuses on the amount of trees lost, all given practices implicate different *qualitative* environmental as well as socio-economic implications, which further complicates such a classification.

Ultimately, *all* these practices leave the land more susceptible to further extractive activities as cleared land or already degraded vegetation lowers the inhibitions to ‘only continue’ clearing. Moreover, most practices provide an initial income that motivates people to continue such practices, or that is re-invested – more often than not into further expansion (cf. Elias 2011). Either way, most practices are driven by certain imaginings of the future: while some wish to make sure none of the household members will have to go to bed hungry anymore, others work hard in order to buy iron sheets, while another neighbour dreams of owning more livestock.

In the following chapter, I will point to a number of factors that have contributed to the rise of activities contributing to the cash economy, and present the needs and wants²⁷⁸ most prevalent in the community, as they underly a number of practices linked to deforestation.²⁷⁹

²⁷⁸ While I am aware of the economics’ debates on what constitutes a need and a want, I did not differentiate between them as this would include a judgement about which goods or services are ‘necessary’. In any case, both ‘existential needs and greedy wants’, and any point in between those two subjective ends on the spectrum, drive anthropogenic actions and are thus relevant to the research topic.

²⁷⁹ Similarly, for rural Angola, João Baptista (unpublished data, pers. comm. on April 19, 2017) found that both short- and long-term notions of the future are closely linked with the way forest residents treat their surroundings.

Part III

7. *The desire to aspire*

First, it is important to recognize that many households are working towards a collective end with a common budget, yet there also exist a myriad of competing aspirations within a single household. Due to different preferences on what to spend the pooled resources on, conflicts can and do arise (Haddad et al. 1997; cf. Quisumbing 2003). However, while I did not investigate practices of intra-household decision-making, it was usually presented to me as rather harmonious, with no outright subordination of certain household members taking place, for example along gender lines. In Kansenga, both the livelihood strategy and actual resource allocation are usually negotiated between the head of the household,²⁸⁰ his or her spouse, and the oldest children. The final decisions on how to make money, what to save for and what to buy, are then taken by the head and spouse collectively (42.4%). In this regard, in both male- and female-headed households, men acknowledged the right of women to have a say, of whom the majority confidently told me that they *do* have the ability to speak out and make decisions in their own interest, even though it involves bargaining and deception at times (cf. Kabeer 1999: 438). One probable reason for this relative power of women is their customary right over land. On the other hand, some adult men and women acknowledged unequal power relations, yet also pointed out that they are legitimate as they are inherent or God-given, or as 'it has always been like this' (cf. Mosedale 2005: 245).²⁸¹ In many other instances (40.7%), it is the household head alone who decides, while male- and female-headed households are equally distributed. In the remaining cases, the head consults the adult children, or they themselves decide. Rarely, the spouse only is responsible for those decisions to take, for example when the official head is too old and thus not capable of making a budget or overseeing expenses. The act of buying certain goods, which involves opportunities to prefer one's own ends, was much more a male domain: it was usually carried out by the household head (56%, of whom two-thirds are male-headed), both head and spouse (22%, of whom all but one are male-headed), the oldest children (14%, of whom only one is male-headed), or the spouse only (8%, of whom 40% are male-headed). While there are different and often competing desires within a single household, the following insights are based on statements collected during the census interviews, group discussions, as well as narrative and informal interviews. I thus managed to include the less dominant voices, which allows me to present a wider range of future aspirations.

²⁸⁰ In Kansenga, 65% of all households were headed by men, who were not necessarily the main breadwinner.

²⁸¹ Due to this internalization and support of long-standing unequal social and cultural practices and norms by women themselves, subordination gets reproduced, reified, and remains unchallenged (Kabeer 1999: 440 f.).

For most of Kansenga's households, the overriding aim is to ensure food security, and to continuously improve life on an everyday level along the way. In that context, food security means, first of all, *enough*, yet not necessarily *nutritious* food, with a heavy priority on *Nshima* (cf. ZVAC 2010: 53, Davies et al. 2015: 8, Sunderland 2015). While improving life means different things to different people, the salient aims are to diversify the diet and to make sure one does not run out of basic household essentials such as soap or cooking oil. Besides such basic needs that are all interrelated with one's health, households wish to increase their diet towards animal products, and to upgrade at least one of their houses' roofs from thatched to iron sheets, or the ground from soil to concrete. After those goods that have been clearly desired, there were others frequently mentioned such as a bicycle to facilitate regular visit to the distant clinic, or to ease the children's way to school. Depending on the household's distance to the school, some also wish to rent a room nearby. Similarly, 'new second-hand' clothes or shoes are desired as a tattered clothing is socially less acceptable and thus prevents people from, amongst other activities, going to school, or attending church services. Even though the number is small, within Kansenga, 12 pupils were currently enrolled in secondary school, between grade 8 and 12, which involves school fees, as well as costs for uniforms, that need to be covered. Ultimately, the feeling of responsibility for one's dependents – or, as it was locally called, 'feeding the family', which includes household members but also more distant relatives, was mentioned as a driving force behind the increased participation in the cash economy. In that regard, one's own children were said 'to come first', with adopted orphans and the extended family only coming second with regard to affection but also resource allocation.

Besides many day-to-day needs named above, many households want to maintain or improve their living standards, which, according to themselves, could manifest in the ownership of certain durable goods: new kitchen utensils, a radio, a mattress, or a sofa set:

Having a sofa set means happiness to me! It looks nice and you can invite guests! You can also rest more comfortably yourself, though if you rest here, you won't even eat because you need to be on the field.²⁸²

This statement does not only demonstrate that food security has the highest priority, but also sums up well the general observation that desires are not only material, but also about conviviality. Equally, the desire for good clothing, food, or a radio was ultimately a social one, as they would allow the owners to welcome or entertain visitors 'appropriately' (cf. Belk et al. 2003: 337, 344). Resources such as livestock, exotic trees, maize and fertilizer, that can ultimately be turned into cash, were equally seen as desirable property, as they were often ends in themselves.

²⁸² Namakau Sitwala during the census interview at her Farm in Kansenga on March 3, 2015.

Material well-being in general, but access to fertilizer in particular, were closely linked to a feelings of happiness and admiration. With farming being the major livelihood strategy in the community – and across rural Zambia – both fertilizer and material goods are closely intertwined and ultimately linked to many other, more subtle goals such as social recognition, physical health, inner peace, love, security, or attractiveness (cf. Belk et al. 2003: 344). Importantly, once the desire for a certain good or service is satisfied, a new desire may arise and the journey – working towards a tangible good or an altered state of being – begins anew: many households, but also single members, will individually pursue new ‘projects that will make their lives worth living. They passionately seek [...] something infinitely better than they now have’ (Belk et al. 2003: 344).²⁸³ Some households have already improved their living – through producing charcoal, extracting and processing timber, or through mining manganese. While most households have pursued a variety of different livelihood strategies at the same time, all of them concentrate on farming. All those practices are driven by a number of different immediate needs and future aspirations, that can be both material as well as social. On the following pages, I will further refine this rather simple argument and allude to some aspects that have contributed to the rise of needs and the evolution of new lifestyles.

On witchcraft, infrastructures and consumption

When discussing the reasons for engaging in one livelihood strategy or another, interviewees have alluded to the fact that the ‘desire to aspire’, which nowadays seems to be widely spread, has not been a common phenomenon in Chibobo and beyond for long. The will to save money – at home or even in a bank account –, and to purchase certain goods, or more generally, to grow economically, is a relatively new one. It is especially people born during and after the 1970s, who want to openly display material wealth, and to compare themselves with others, while elderly people are also trying ‘to catch up’. In sharp contrast to the past, ‘keeping up with the neighbours’ or peers has become a major concern and thus driver of economic activity: ‘When you see you neighbour dropping many bags [of maize] at the FRA depot, you get even more motivated!’²⁸⁴ In the end, by emulating the rival, one can either be or feel like them, or undo the envy one is feeling (cf. Belk et al. 2003: 337). In addition to the spirit of competition, it is also *inspiration* through others that has shaped individuals’ and households’ desires. In particular visible material goods, such as sound systems or solar panels arranged next to the house, but also flourishing exotic trees, or bags

²⁸³ While this claim may sound ‘consumerist’, I shy away from applying that term as it is value-laden, leaning towards consumption for prestige or identity construction, far beyond utility and strongly influenced by media culture. While those aspects certainly play their role in Kansenga, the observed lifestyles are not close to abundance, wastefulness and unsustainability as the term ‘consumerist’ suggests.

²⁸⁴ Kunda Malikuki during the group discussion at Chilekwa Farm in Kansenga on March 20, 2015.

full of maize flour in front of a house, can inspire others, but also trigger envy and stir up a spirit of competition:

When your neighbour has x, y, z, you also go and get it! If you see someone eating *breakfast* [an expensive type of *mielie meal*, you will try by all means also to get this sack, despite the fact that you can have it much cheaper from our hammer mill, just for boasting.²⁸⁵

In that way, Farms can function as a stage: certain goods are not only acquired to fulfil a *material* function, but also as they signify something ‘about us and our lives – both to ourselves and others’ (Power & Mont 2010: 2577). When my host was contemplating planting a number of exotic trees for example, he pointed out that they will not be planted nearby his farmland, but the main household as neighbours and visitors shall see them. In this regard Belk et al. have pointed out that ‘with the development of consumerism, [...] rather than fearing others’ envy, we begin to cultivate it’ (2003: 329). This being said, however, I have also observed wealthier households rather hiding their assets to avoid begging: when a tobacco farmer was travelling on a Sunday to the sales floor to sell off his tobacco, he told others that he is only going to attend a special church service. Similarly, whenever my research companion carried new goods for his grocery, he made sure they were well covered. At many other instances, however, both men did not hide their possessions, as they considered it to be the results of their hard work, which they hence deserve and can proudly display (cf. Belk et al. 2003). While this particularity of self-display and the general desire to grow economically may not seem unique or of late, it has not been normality for long for the following reason: first and foremost, the widespread belief in witchcraft (*Imfwiti*)²⁸⁶ prevented most households from accumulating cash or material goods, as they always fear being bewitched by squinting neighbours or family members:

There was a lot of envy in the past, nobody wanted to have more because they will bewitch you when you were boasting, even family members, they don’t want you to be different from them. People were envious over small things. People in towns even failed to return to their villages despite Kaunda [President of that time] promoted this, they were fearing to be bewitched if they bring iron sheets here, they might all be against you.²⁸⁷

When the first man in the community acquired iron sheets during the 1980s, some residents remember how they were discussing whether he is a brave man, or just stronger than those

²⁸⁵ Ruth Chisala during the group discussion at her Farm in Kansenga on May 30, 2015.

²⁸⁶ While I did not investigate the precise characteristics of *Imfwiti*, it is not similar to the concept of *Juju*. While the former was usually translated with witchcraft, the latter was rather described as ‘black magic’.

²⁸⁷ Vincent Musonda during the group discussion at Chisala Farm in Kansenga on May 30, 2015.

who want to bewitch him. Similarly, when the first man bought a hammer mill, residents were certain that ‘he must have bought it with satanic ideas’²⁸⁸.

While farmers’ opportunities to participate in the cash economy was limited and growth was the exception, civil servants such as teachers, agricultural extension officers or nurses had a stable and relatively high income. However, they also refrained from buying vehicles or iron sheets and saved their cash instead. Equally, people returning from work in the mines or town did not buy iron sheets as they did not want to be identified as a rich person. In order not to arouse suspicion, money was not spent but rather left to their children, because ‘money you can hide, but other goods you can’t easily, so your family will ask where you have brought this from’²⁸⁹. People did not only avoid accumulating visible wealth as they were of afraid of witchcraft, but also as others could have attributed it to witchcraft (cf. Fisiy & Geschiere 1991): economic success was hardly associated with education, diligence or fortune, but with witchcraft that is either practiced by themselves or through a witch doctor (*Mganga*)²⁹⁰. On the other hand, diseases are also said to be the result of (failed) witchcraft: one man of the community, about 25 years old, was considered to be mentally ill. Many years ago, he wanted to boost his business, and was told to kill his child to make his wish come true. As he refused to do so, he eventually got into today’s mad state of mind. Not only bad (mental) health, but also diseases, sudden death, or misfortune of any kind, can be attributed to *others* ‘who have put the *chams* under your doorstep’²⁹¹. During the group discussions, I have been constantly affirmed that ‘there are many who have been bewitched! They are feeling cold, have fever, but no malaria can be diagnosed. Or when you see rain clouds during the *dry* season and then someone is struck by lightning’²⁹². One lady remembers that, after living for 15 years in a neighbouring community, her child unexpectedly passed away. After her second also died a few weeks later, she thought:

I had that fear that maybe my husband will die, maybe it's better to shift, to leave this Farm, maybe it will also come to me, because of the poor diet, I am not feeding them well, maybe it's diarrhoea, cholera – but we as people, we don't consider that, what transpires is, we just think that it is from witchcraft.²⁹³

Witchcraft is, as the quote illustrates, one of different competing explanation approaches to make sense of personal hardship. As a result of this omnipresent danger – being bewitched or being associated with witchcraft – ‘growth’ was not aspired to for long. Signer (2004) has

²⁸⁸ Joshua Mumba during the group discussion at his Farm in the Serenje N. Forest (Chibobo) on June 24, 2015.

²⁸⁹ Sunday Chonaule during an interview at his Farm in Lumpampa on May 8, 2015.

²⁹⁰ *Mganga* is applied for both ‘witch doctors’ and ‘traditional healers’, yet witchcraft is not to be conflated with ‘herbal medicine’ though boundaries are fluid at times.

²⁹¹ Vincent Musonda during an interview at his Farm in northern Chibobo on July 19, 2015.

²⁹² Moses Chunga during the group discussion at Sitwala Farm in Kansenga on June 20, 2015.

²⁹³ Christin Kalale during an interview at her Farm in the Serenje Nat. Forest (Chibobo) on July 16, 2015.

argued that this ‘economy of witchcraft’ has in fact been the fundamental cause of slow economic development found in many African countries.²⁹⁴

Today, (the belief in) witchcraft is still present, though far less pronounced. It was mainly during the narrative interviews, when I realized that it *was* an issue, which was in contrast to the impression I had received during the previous months where the topic never surfaced.²⁹⁵ Interviewees henceforth vigorously described their experiences with the supernatural and the factual existence of witches. That I had not encountered them by myself may have also, according to one informant, been due to the fact that ‘witches fear White skin’²⁹⁶ (cf. Seur 1993: 20). The 2010 Census of Population and Housing in Central Province (CSO 2014: 55) confirms the prevalence of (the belief in) witchcraft: the major reported cause of death for a lately deceased household member were illness/disease (75.2%) and witchcraft (5.8%), with the first being closely interrelated with the latter. The clinical officer, a certified nurse who describes himself as an ‘objective believer in God’, can vividly tell many stories of his patients consulting a witch doctor before coming to the clinic. Witchcraft, he points out himself, ‘is certainly there, but there are also natural causes of death’. When someone passes away due to age or a disease, however, he struggles at times to explain it to the relatives of the deceased as

there is nothing like a natural death because of age. Somebody is always responsible for it, often somebody who was envious of you, even if you are HIV positive. If you have just bought cattle for example, witch doctors will advise you to sell it again. They have stopped to directly accuse people of having bewitched someone, but they just describe a person – then you will most certainly find a very dark, tall man aged 50, so it could be actually anybody. And this is really dangerous, because it often leads to accusations and creates mistrust at best.²⁹⁷

Overall, the number of people coming straight to the clinic has increased over the years, as pharmaceutical painkillers, antibiotics and antimalarials are trusted more these days than so-called ‘herbal medicine’, even though the ingredients are more often than not the same, as the nurse points out. Several residents have stated that they prefer ‘real medicine’ and do not *really* believe in witchcraft, as

²⁹⁴ While I do neither share Signer’s heavy emphasis on witchcraft as decisive factor, nor his bold and essentializing hypothesis about ‘us and them’, including sweeping generalizations about Africa, his book about ‘Why there are no skyscrapers in Africa’ (2004) offers a great many of anecdotes on witchcraft in francophone West Africa.

²⁹⁵ The fact that witchcraft only appeared after several months in the field has also been observed by other ethnographers as well – the longer one is ‘in the field’, the more likely the presence of witchcraft.

²⁹⁶ Christin Kalale during an interview at her Farm in the Serenje National Forest (Chibobo) on July 16, 2015.

²⁹⁷ The clinic officer continues by giving an example: a mother whose baby had high fever was told by her neighbours to get dirty underwear and circulate it around the baby. Suddenly, the fever went down but when the body temperature rose high again, she came to the clinic. The nurse tried to convince her that any kind of wind would have brought down the infant’s temperature (Clinic officer during an interview at Chibobo’s Clinic on July 18, 2015).

the new generation now understands that *Mgangas* are crooked. Only a few are recognized by the government, they are certified, but the others, they just want to make money. They always lie, you see, they can never say that they don't know why you are feeling sick.²⁹⁸

While some residents of Chibobo do not like, trust or believe in *Mgangas*, others will let them even come to cleanse their territory,²⁹⁹ or are said to even practice it themselves (cf. Eriksen 2007: 249). Chibobo's traditional leader, the *Chilolo*, attested to the power of witchcraft, explaining at length how it is associated with the night, and with the bush (*Mpanga*). Not only the bush is feared, also professional witch doctors are met with caution: when I wanted to visit the only *Mganga*, who had only recently moved into the community, I could not convince my research companion to come with me for necessary interpreting. He did not fear the *Mganga*, he said, but to be seen by others who then may think that he came to get some *chams* to detrimentally bewitch others or to make a financial fortune. Both kind of *Mgangas*, witch doctors and herbalists, are featured in prominent Zambian TV and music productions, which not only mirrors the popular belief but has also contributed to their existence being kept alive. While some have re-narrated examples which arguably proof the existence of witchcraft in the community, others have rendered it 'a primitive belief only the generation of the past is believing in! People with iron sheets or bicycles don't die or get immediately sick'³⁰⁰. According to them, witchcraft has vanished from the community and its only 'remains' are being 'made up' by the *Mganga* himself to find clients.³⁰¹ They argue that 'only in the past, many things moved with ignorance'³⁰², whereas nowadays, the belief in witchcraft is on the wane. This, however, is not to suggest that it will disappear in the near future: contemporary research (e.g. Geschiere 2013), but also a review of the media, amply demonstrates that (the belief in) witchcraft and sorcery is very alive in a number of Sub-Saharan countries and elsewhere. The belief is not a static phenomenon, but rather depends on the situation: people who usually describe themselves as very rational and deny witchcraft, might believe in it in certain situations, for example once they encounter a big snake near their house.

In comparison to the past, however, witchcraft has remained just *one* of many causes of fortune and misfortune. According to the residents themselves, this transformation is mainly the result of what they call *Buyantanshi* (development) or *Ukufuma mu Bututu*

²⁹⁸ Vincent Musonda during the group discussion at Chisala Farm in Kansenga on May 30, 2015.

²⁹⁹ Clinic officer during an interview at Chibobo's Clinic on July 18, 2015.

³⁰⁰ Vincent Musonda during the group discussion at Chisala Farm in Kansenga on May 30, 2015.

³⁰¹ One of Chibobo's residents elaborated during an interview that 'if the *Mganga* goes where there is no witchcraft, he has to make it himself in order to get clients. They mainly come for business, so when they receive a client with symptoms, they make the *chams* themselves and hide them somewhere over night – then they find 'someone else's' *chams* and claim to have found the reason' (Kenji Nkoma during an interview at his Farm in northern Chibobo on April 28, 2015).

³⁰² Vincent Musonda during the group discussion at Chisala Farm in Kansenga on May 30, 2015.

(civilization), literally translated as ‘the wiping away of the uncivilized mind’³⁰³. This, in turn, is caused by the exposure to new ideas through the media, the internet, increased mobility and interaction with people(s) from different backgrounds that comes along with it. In Chibobo, encounters with the Tonga People, who are said to be laborious and successful tobacco farmers, has inspired others to step up their income-generating activities. Access to formal education and so-called ‘academic medicine’ have equally brought about change. Nowadays, ‘tradition rules less’³⁰⁴ and accumulating cash or material goods, or having a bank account, is, by most households, not considered to be dangerous anymore. The rise of small-scale farming and the farmers’ wish to expand as quickly as possible, or any other wish to step up business activities, mirrors the pronounced ‘desire to aspire’ of nowadays, experienced by the younger generations but also elderly people.

This newish desire is not only a result of the decreasing belief in witchcraft, but also of better access to markets. Previously, there were limited sources of income in rural communities as

[...] money was only in the mines but here, business was no idea, there was no market where you could take your produce easily, but only the depots from NamBoard for maize, sunflower and soya beans, but selling was difficult, there were no stringent conditions or channels.³⁰⁵

Today, agricultural depots are set up by private companies and the government across the rural communities, including the remotest areas. This has heavily increased the number of farmers growing crops for sale: previously, subsistence farming was the major livelihood and very few households stepped out of line, but ‘these days, there is a market for all sorts of crops, so you can’t fail selling!’³⁰⁶ Furthermore, regular transport has enabled rural dwellers to market their produce in *Boma*, *Mkushi* or *Lusaka*, which has also motivated some to venture into off-farm businesses: farmers, timber and charcoal traders alike can ferry their products to the markets, sell them and immediately or later re-invest the money.

The relatively easy access to urban areas has not only created the possibility of selling different crops and garden products, but at the same time stimulated consumption: the availability, affordability and the exposure to goods and services, both new and newly available, has re-enforced old desires and arguably generated new ones. People get ‘enchanted by the abundant promises of the marketplace’ (Belk et al. 2003: 345), of which there are arguably more than ever before. In this regard, friends and family members regularly ask for ‘urban souvenirs’ from those travelling to *Boma* or *Lusaka* – small

³⁰³ Interestingly, there is no local term for ‘civilization’, but rather for the opposite, *Ubututu*, explained as ‘the state of a shallow, uncivilized mind, that only knows the traditional things and cannot think out of the box’ (Kenji Nkoma during an interview at his Farm in northern Chibobo on April 28, 2015).

³⁰⁴ Vincent Musonda during the group discussion at Chisala Farm in Kansenga on May 30, 2015.

³⁰⁵ Sunday Chonaule during an interview at his Farm in Lumpampa on May 8, 2015.

³⁰⁶ Isaac Niambi during an interview at his Farm in the Serenje National Forest (Lumpampa) on April 30, 2015.

presents, such as sweets, white bread, or beer. Importantly, prices for basically any item measured in the consumer price index, including food, has been on the rise over the last years as reflected in the soaring index (ZVAC 2010: 40; CSO 2017), which has also been contributing to the need to increase economic activities. And indeed, for Central Province, the monthly disposable income per capita has been increasing over the years (CSO 2017).

One farmer has also pointed out that only through this access to urban areas, people have seen that ‘no witchcraft is needed, but one can simply *buy* things’³⁰⁷. Furthermore, not only the income of many farmers’ has increased, but also the government employees’ after annual salary revisions. On top of that, pensions have been adjusted upwards and more people have come over the years onto the state’s payroll such as Chiefs and constituency counsellors. Higher incomes, in turn, increase the number of affordable goods and services, and arguably create new feelings of desire again. Transport has equally enabled rural dwellers to buy goods from town for re-sale in Chibobo, thereby extending an urban way of life into the rural community (cf. Long 1968: 88; cf. Seur 1993). In that regard, grocery owners have pointed out that doing business has become much easier: previously, the government was strict, checking traders’ licences and receipts. Nowadays, informalities are the norm and the alleged long arm of the law is not feared anymore: the shops in the community are flourishing, many of them for years, but most of them, if any, do not have a trading licence, nor do they pay taxes.

Regular and affordable transport to *Boma* has also enabled farmers to access banking facilities, which previously was always associated with high efforts in terms of travel costs and time. For long, rural dwellers were saying ‘I can’t sleep in this house while my money is sleeping in *Boma*!’ and my research companion sums up why saving money *at home* was no option as well:

Because whatever simple problem you have, you go to your pillow and you end up overspending. And instead of getting the exact amount, you spend the change on the way home. [...] You were also fearing the [bush] fires or termites destroying the notes, so you did rather spend it.³⁰⁸

Another man testifies that ‘paper money can go to waste easily cause it breaks like a dead leaf when there was no ventilation for long. Even the rats can eat it, you can watch people crying, “come and see how I have died, I am finished!”’³⁰⁹ Only a few elderly people reported that they had put their savings into a tin which they then buried underground. Whenever money was needed, they got back to it at night. Over the last years, however, saving has become a rather common aim and special accounts for farmers where banking fees are

³⁰⁷ Vincent Musonda during the group discussion at Chisala Farm in Kansenga on May 30, 2015.

³⁰⁸ Vincent Musonda during an interview at his Farm in northern Chibobo on July 25, 2015.

³⁰⁹ Boyd Changwe during the group discussion at Chisala Farm in Kansenga on May 30, 2015.

waived have contributed to this upcoming culture of putting something aside. In 2015, there was only a single bank in *Boma*, which was not in the position to cope with the rising number of customers – queuing was the order of the day, and worst around payday, during the first days of the month. A few months after I ended fieldwork, a second bank was opened in response to growing demand. Access to banking but also new credit facilities have accelerated the accumulation of material goods in rural areas. In this regard, it is worth recognizing that overspending has become omnipresent in the community: the local word for debt, *Inkongole*, has been one of the first words I have learned. It is commonly used on a day-to-day level, for example when the baker or owner of a beer place is told ‘*nalaleta*’ – ‘I’ll bring money later’, to which they usually respond ‘*Inkongole ni mailo!*’ – ‘Your debt is due tomorrow!’. Debt is accepted and in order to satisfy the range of immediate needs and future aspirations, many households have stepped up their economic activities. In combination with the decreasing belief in witchcraft, any income-generating activity, yet first and foremost farming, has been allowed to flourish. In the previous chapter on farming, further reasons for the expansion of fields have been outlined, such as the presence of a reliable and well-paying buyer, the farmers’ identity, as well as ‘the love for *Nshima*’.

Importantly, the communities on the central plateau have, since about 2010, experienced constraints with regard to the expansion of their fields: many had hit the limits of the land available to them, and customary authorities had no land to distribute anymore:

In the past, you went to the Chief and he will ask the stream where you want to establish your Farm, and where you will be drawing the water, then you can settle, or you talked to the *Chilolo* and *Sulutani* and they sent you to settle where there is nobody, but nowadays, they have nothing to offer.³¹⁰

When my research companion mapped out the settlement structure of the entire community after I had been around for a few months already, I realized for the first time that there was ‘no land left’ anymore within the community at all. This was in sharp opposition to ‘the dominant narrative that Zambia has an abundance of freely utilizable arable land in customary areas’ (Sitko et al. 2015: 1). Especially during group discussions and narrative interviews, when imaginations of the future were discussed, the condition of land abundance was fiercely disputed, with land scarcity being the foregrounded experience. The unsettled land I had regularly observed in Chibobo and its surroundings was not ‘free’, but either belonged to somebody but was not yet transformed, was too far away from a source of water and thus inhospitable, or characterized by hills, stony or sandy soils unsuitable for agricultural production. This experienced land scarcity, in turn, also bears on Zambia’s extensive forests. Before elaborating this argument, it is helpful to first

³¹⁰ Collins Miselo during an interview at Musonda Farm in northern Chibobo on July 19, 2015.

take a look at how land is owned and governed throughout Zambia today. For that purpose, I will start by depicting the evolution of Zambia's land tenure system.

8. Looming land constraints on the plateau

Legal pluralism then and today – traditional and state authorities governing the land

Prior to colonial times, land was fragmented into different chiefdoms that had evolved along ethno-linguistic lines. It was governed by traditional authorities, namely chiefs and chieftainesses, headmen and headwomen, who applied customary laws – laws that are unwritten and orally handed down from one generation to the other. Back then, land was the most treasured possession and never perceived as a commodity that can be sold (Chinene et al. 1995). During colonialism, this legal system was perceived to be inferior and undeveloped by the colonialists (Chinene et al. 1995). Against this background, so-called Crown Land was demarcated along major infrastructure corridors and emerging urban centres. Such land excluded ‘native Africans’ and was destined to attract European settlers who should engage in commercial agriculture, mineral exploration and trading (Honig & Mulenga 2015: 2 f.; Sitko et al. 2015: 3). It was administered under British common law principles by the BSAC³¹¹ and later ‘the crown’ – the colonial government of Northern Rhodesia (Jones 1944: 40). In order to stimulate European settlements, the BSAC focused on constructing a railway line that connects, until today, Livingstone with Lusaka, today’s Copperbelt, and the copper mines in Katanga (DRC). Once the newly appropriated land along this so-called line of rail was ‘over-saturated with White settler agriculture’, Mkushi on the central plateau became the next focal point of colonial agricultural developments on Crown Land (Honig & Mulenga 2015: 2). The remaining land, about 94% of Northern Rhodesia’s total area (Adams 2003: 10) remained indigenous: the colonial government divided the land into so-called Native Reserves after 1928³¹² and built on the existing customary system. According to the colonial state’s policy of indirect rule, ‘the natives’ should continue to manage their own affairs (Jones 1944: 40). Land was henceforth administered through chiefs and headmen, whose task was to collect hut taxes on behalf of the colonial government. In return, chiefs and headmen could administer their lands with a high autonomy of decision (Colson 1971 and Berry 1993, cit. in Sitko et al. 2015: 3). When a further influx of European settlers failed to appear, unutilized Crown Land as well as ‘unassigned’ land, forest and game land was returned to the indigenous population in 1947

³¹¹ The British South Africa Company (BSAC), a chartered company, was founded in 1889 by Cecil Rhodes for the purpose of economic exploitation of what in 1911 became Northern Rhodesia. The expropriation of indigenous lands and forceful eviction of its residents that came along with this (Adams 2003: 6) were based on territorial concessions from October 1900 that the BSAC was granted by Lubosi Lewanika – the Paramount Chief of the Lozi People. Lewanika was furthermore the King, or, ‘Litunga of the Barotseland’, today’s Western Province. Importantly, even land outside Barotseland was appropriated with reference to such land treaties (Honig & Mulenga 2015: 3).

³¹² With regard to the establishment of Native Reserves, Sitko et al. (2015: 3) refer to an order by the colonial government of 1928. Jones (1944: 40) claims that they eventually came into existence in 1936.

and subsumed as Trust Lands (Adams 2003: 6).³¹³ Land rights on both Native Reserves and Trust Lands, about 94% of the entire land at independence (Adams 2003: 3; Honig & Mulenga 2015; Sitko et al. 2015), were henceforth granted solely based on customary law (Chinene et al. 1995; van Loenen 1999). After independence, the dual system of land management was upheld, with Crown Land being simply re-named State Land, that ever since has been administered by the Ministry of Lands in accordance with statutory law. Both Native Reserves and Trust Lands were first upheld,³¹⁴ and only following the Land Act of 1995, fused into customary land governed by traditional authorities. Following independence, they were sidelined by the government as ‘remnants of colonial oppression’ and did not regain their powers before the 1990s (Mickels-Kokwe & Kokwe 2015: 129). The same Land Act of 1995 also provided guidelines for converting pieces of state or customary land into private leasehold titles (Brown 2005; Malambo 2014; Sitko et al. 2014; Nyirenda & Munkosha 2015: 73) – which are, after conversion, governed by state institutions according to statutory law (GRZ 2015: 90).

Apart from a set of land reforms, the dual system of land tenure that evolved during colonial times has largely remained the same for more than the last 100 years. Land in present-day Zambia has been governed under two legal systems, customary and statutory, and both have created their own geographies: the colonial government’s focus on areas suitable for commercial agriculture and mining is reflected along Zambia’s line of rail and around Mkushi, where over half the Zambian population lives and the majority of commercial farms and copper mines are located – mostly on land that is on private title. Importantly, the two legal regimes, either run by traditional or state authorities, do not compete, but there is only one legitimate, responsible institution – depending *on whose land* any type of development occurs on or is planned: while the local District Council is responsible for state land, customary land is governed by traditional authorities such as Chiefs and their local representatives – the *Chilolos* and *Sulutanis*. If one wants to acquire customary land that already belongs to somebody, one can directly negotiate with the landlady or landlord and pay them out, depending on the physical assets involved, such as a man-made well for drawing water, a piggery, or the proximity to a stream. The traditional authorities are then responsible for issuing a new Farm Book (*Amabuku*), which certifies recognition of land ownership.

If a Chief or a Chieftainess intends to sell off parts of their land to the government or private individuals, it will be converted from customary into state land, and the Chief or Chieftainess is compensated for this irrevocable loss. In the same way, new Forest Reserves

³¹³ For a more detailed description and discussion of the stages, see Roth & Smith (1995), Adams (2003), as well as Honig & Mulenga (2015).

³¹⁴ Barotseland remained as an exception and was still governed by the Litunga and his representatives under customary law. This special status has only been removed in 1991 by the Zambian High Court, yet until today, the ‘Barotseland Agreement 1964’ has remained an unsettled issue with interest groups lobbying for independence.

or National Parks can only be created by the government through negotiations with the respective traditional authorities. As a loss of land comes along with a loss of power, however, such a conversion needs a prospective buyer with a strong bargaining position. When the Zambian Ministry of Health for example wanted to construct a clinic within the community of Chibobo in 2010, land was bought from the individual holding the desired piece of customary land. After negotiations with, and compensation of the owner and the traditional authorities, the land at stake was turned into state land and henceforth exclusively governed by state authorities under statutory law. On top of this, more land has been converted by individuals from customary into state land by getting a title deed for it. Thereby, traditional authorities have been losing big amounts of their land to the state, bit by bit over several decades and more rapidly since the Land Act of 1995 was passed, which usually comes along with a loss of power. However, traditional authorities were officially recognized by the Zambian Government in the Lands (1996) and the Forest Act (2015), and their overall standing has increased over the last years, mainly for two reasons: first, they still govern access to vast amounts of land in Zambia, for which demand is ever increasing. Second, Chiefs and Chieftainesses usually enjoy high respect from ‘their’ subjects and thus have the power to influence them. This influence can become relevant during elections, hence the government is well advised to secure their loyalty. As the President recently stated, the government is well aware that the important role of traditional leaders cannot be ignored anymore when it comes to community mobilization (Lungu 2017). Furthermore, in order to facilitate land deals with foreign investors (Mickels-Kokwe & Kokwe 2015: 129), to administer and promote traditional affairs, the government created a new Ministry of Chiefs and Traditional Affairs (MoCTA) in 2011. Besides this integration into central government structures, all Chiefs and Chieftainesses, 288 in total, have been put on the payroll of the government, receiving an allowance of 4,000 ZMW a month. They can furthermore choose between three popular 4x4 cars and are promised that the Royal Palace will receive a radio mast and be connected to the power grid in the near future. Just before the last general elections in August 2016, the government increased the salaries from 4,000 to 15,000 ZMW with immediate effect, which was said to be a campaign goody. In addition, following the new constitution of 2016, traditional authorities are allowed to engage in active state politics without abdication, which was not possible before.³¹⁵

Apart from such changes, the dual system of land governance that dates back to colonial times has not transformed much until today. That system applies across the country, hence in the vast district of Serenje as well: while most land of urban Serenje is owned and

³¹⁵ In 2015, there were about 288 Chiefs and Chieftainesses in all Zambia, including 42 seniors and 4 paramounts. Once a leader dies, the royal family elects a new one along family lines. As the position is for a lifetime and increasingly comes with privileges, it is a highly contested one. In fact, in the case of Muchinda Chiefdom, which Chibobo belongs to, the throne was vacant for about six years as a result of succession disputes among brothers.

governed by state authorities, most rural land is customarily owned and hence governed by traditional authorities. As already mentioned, about 94% of all land was under customary tenure and thus theoretically available for smallholder utilization at independence. Ever since, this figure has not been amended. As a result of this often-cited 94%, Zambia is, until today, often seen as land-abundant (Sitko et al. 2015). The rural populations' perception, however, differs sharply from this account, with land constraints or no access at all being the foregrounded experience. The leading Zambian research institute for agricultural policy research, IAPRI, has alluded to the flaws involved in the official statistics on land availability. I will now briefly summarize their arguments, which I then supplement with my own ethnographic findings.

'The paradoxical landscape of land constraints [...] amidst a seeming abundance of land'³¹⁶

First, a closer look at the Zambian landscape reveals that large areas of the often-quoted 94% are not suitable for settlements and farming. While some areas are too dry or too distant from streams or rivers that are indispensable for the production of staple grains,³¹⁷ another big share of land is not accessible as it is taken by wetlands such as lakes, rivers, flood plains and swamps. Further land is not accessible as it is delimited as 'state land', including farm blocks and urban settlements. On top of that, National Parks, Forest Reserves and Game Management Areas, where settlements or agricultural activities are either prohibited or 'subject to ambiguous or competing regulatory frameworks' (Sitko et al. 2015: 5), deduct further assumed customary land (EC 2014: 18 f.). In addition to that, land has been converted by individuals from customary to leasehold titled land since the 1995 Land Act was passed. By 2012, at least 280,000 ha alone have been converted into state land for agricultural purposes (Sitko & Jayne 2014: 197), with many more large-scale acquisitions for mining and infrastructure developments (Chu et al. 2015). Precise information about the magnitude and location tracked by the Ministry of Lands is scant, inadequate and outdated (Chu et al. 2015; cf. Sitko et al. 2015: v, 1 f.), yet if such numbers would be updated and included, the land available to smallholders would diminish even further (Sitko et al. 2015: 7; cf. Vandermeer & Perfecto 2005: 12). Land conversions were not only pushed by private individuals or corporations, but also by central and local governments, that converted significant tracts of customary land into private land in order to accommodate the rapidly growing urban populations – after all, with more than 4%, Zambia has one of the highest urbanization rates in the world. The central government has

³¹⁶ Sitko et al. (2015: 3).

³¹⁷ While pastoralism would also be suitable in drier regions, it has rarely been practiced by the Lala People and thus does not present a natural alternative.

also alienated customary land in order to establish commercial farm blocks and agricultural settlement schemes (Sitko et al. 2014; Sitko et al. 2015: 3). By virtue of those land acquisitions from a multitude of buyers, the status quo of Zambia’s land looks markedly different, as visualized by the figure below (Fig. 18): Zambia has become a mosaic of different land uses on state land with rather little customary patches available to smallholders.

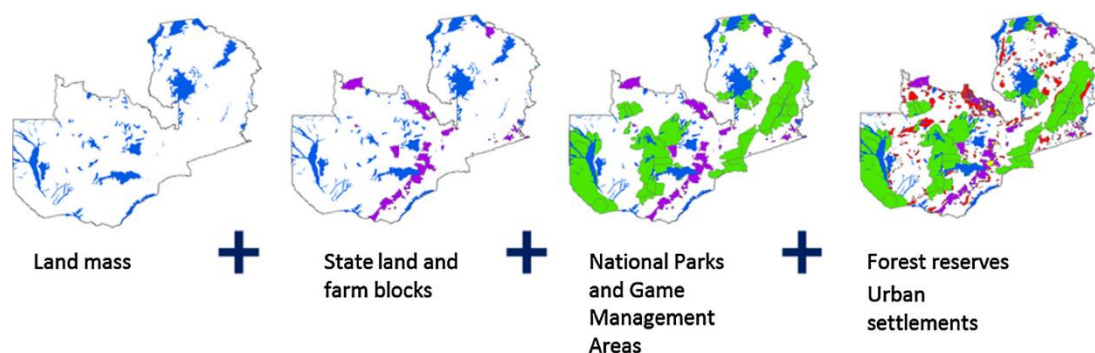


Fig. 18 Sequence of maps showing land unavailable for smallholders³¹⁸

Importantly, large amounts of those patches have already been allocated to individuals – with no land being left anymore in several communities all over the central plateau and Zambia in general. Sitko et al. (2015: v, 5) estimate that only 54% of land has remained under customary control, potentially available to smallholder cultivation. Similarly, Honig and Mulenga (2015) estimate the available land to be not more than 60% anymore. Another source, citing the *Zambian Committee on Agriculture and Lands* (2009, cit. in EC 2014: 16), even estimates the remaining land to be as little as 37%. Still, such figures are misleading as they do not indicate how much of the land is actually *arable*. Whereas the government has often discussed the issue of land pressure, it remained unaddressed and land policy documents still frequently quote 94% (e.g. ZDA 2014; Mickels-Kokwe & Kokwe 2015: 128). Based on that, the *Zambian Development Agency* (ZDA 2014) claims that 86-90% of Zambia’s arable land is unutilized, which however, is ‘fundamentally disconnected from reality’ (cf. Sitko et al. 2015: 1). During the nationally representative *Rural Agricultural Livelihoods Surveys* (RALS) in 2015 (IAPRI 2016), 51%-75% of all smallholder households indicated that traditional authorities do not have any land to allocate to them available anymore (Sitko & Chamberlin 2015; Sitko et al. 2015). Equally, within the district of Serenje, 41-60% of smallholder households³¹⁹ stated that ‘there is no land available’ (IAPRI 2015) –

³¹⁸ Figure from Sitko & Chamberlin (2016).

³¹⁹ Imprecisely referred to as ‘smallholders’, the unit of analysis were households (pers. comm. with Antony Chapoto, Research Director of IAPRI, on April 5, 2016).

despite the district's population density being the lowest in Central Province and one of the lowest in the whole country (CSO 2015).³²⁰

Importantly, not only the *total* amount of customary land available is much smaller than usually considered, but also access to 'seemingly idle' customary land has been diminishing. On the following pages, I will illuminate the conditions around which arable land has turned from an abundant into a highly competitive asset, which ultimately has contributed to rising levels of deforestation in Chibobo and many other communities across the country.

Foraging for land

During recent years, with growing population numbers and land conversions from customary into state and private ownership, land has become *the* most contested asset, over which a protective watch is kept – not only in Chibobo, but all across Zambia (IAPRI 2015). While in the past, land was not scarce in the community, these days, landowners tend to reserve their land as a precaution – even when they are unlikely to be capable of utilizing all of it themselves, 'when the family is small and weak, just making baskets for example'³²¹. While this 'reservation' has been motivated by mounting land constraints, it has in turn exacerbated them. A related and recent phenomenon is that landowners may not even allow the legitimate inheritors – their daughters, possibly sons-in-laws, and their children – to cut off land to open up their own Farm, which was common in the past. Equally, expanding the fields of their own household now depends on the consent of the landowner. Even if the daughters are given land, it might be too small or the soil too poor to feed the entire household. Therefore, today, women can also face land constraints in the teeth of their customary entitlement to land. On the other hand, men have also come to see the 'system of working for the in-laws' – without the prospect of self-determination in the future – as unfair and humiliating as 'you have to start begging for everything and you are under permanent control'³²². Besides extended probation periods, men also face the constant chance of 'being chased' by their wives' female relatives claiming the land, which had not been an issue when land was not scarce. After a divorce or the death of the wife, men could be chased, staying behind without any land – unless they choose to live as a widower. In the past, this was equally of no concern as land was always available, usually within the district. Even though it was uncommon, moving back to the parents' land was also an option, which

³²⁰ While Sitko et al. (2015: 9) come up with a population density in Serenje District of 'less than 20 people per km²', CSO (2010) offers a more precise though older figure, namely 6.9 people per km². Importantly, the escarpment area of the district is hardly settled, whereas the 'northern half' – the wet *Miombo* woodlands on the plateau – are more densely populated.

³²¹ Vincent Musonda during an interview at his Farm in northern Chibobo on September 28, 2015.

³²² Boniface Chibuye during the census interview at his Farm in the National Forest (Chibobo) on May 18, 2015.

nowadays has been ruled out. Especially against the background of land scarcity, this constant insecurity has prompted especially men to hunt for land. In order to have easier access to land, but also in order to escape or avoid control by the in-laws, and also social conflicts that often arise out of this, it is a great desire of men to have their own Farm:

Land will be gone completely in the near future, so instead of wasting time at your in-laws, there is a desperate run, everybody is looking for a chunk to cultivate.³²³

Not only married men, but also women want to leave precarious situations, enjoy more freedom and have more control over a life *they* want to live, which is why they are equally interested in owning land further away from the family's Farm.

At first sight, there still is empty land in Chibobo, yet a closer look reveals that seemingly idle land cannot simply be utilized. While land seems to be a material asset, it is much more than that – it is a social space, which carries the ties of an individual Farm owner and, if applicable, her or his (extended) family. It is only them who determine who can access and use the land, as well as the natural resources standing on it or growing in its soil (cf. McCarthy 2006: 3). Even when a Farm is excessively large, partly unoccupied, fallow, or forested, it is highly respected as 'already taken'. While I found myself wondering why one particular Farm with large forested parts is not split and re-allocated to people in need of land, this very idea was absurd to the locals. It was not seen as unjust that some had inherited or were allocated much more land than others decades ago – when land was not scarce. The owner of that land, one of my closest interlocutors, had no intention to sell parts of it, as he was rather keeping it for future agricultural expansions by himself or his family, future grazing land, and, as an insurance which he can resort to when his harvest fails or he is in need of money.³²⁴ Even when only a tiny fraction of the Farm is settled and the remaining family members are in town,

it is not easy to interfere with [their] wealth, because it's family land. If they want to come and settle, that's the only land they rely on. Some people go to Mkushi to work on the farms, sell land, and then come back for several reason and trouble the Chief again asking for new land, so you better keep your land as a reserve for your family.³²⁵

In a similar vein, another landowner explained that 'as long as the owner doesn't need the money, there is nothing you can do, you can't force him to sell'³²⁶. This convention is socially recognized and neither the Chief nor the *Chilolo* would be in the position to simply re-

³²³ Boniface Chibuye during the census interview at his Farm in the National Forest (Chibobo) on May 18, 2015.

³²⁴ Collins Miselo during an interview at Musonda Farm in northern Chibobo on July 19, 2015.

³²⁵ Vincent Musonda during an interview at his Farm in northern Chibobo on September 28, 2015.

³²⁶ Collins Miselo during an interview at Musonda Farm in northern Chibobo on July 19, 2015.

distribute un-used customary land. While such interference is theoretically possible as all traditional land *belongs* to the Chief, it is unimaginable under most circumstances and the Chief would rather enter into negotiations with the owner who is recorded in the Farm Book. Only when an *entire* Farm is laying idle, the customary authorities would try to negotiate with the owner and quickly re-allocate the Farm. Similarly, if ‘newcomers’ do not occupy an allocated Farm on time, it is offered to other people again. In any other case, land is inherited along the matrilineal line (see p. 50 f.).

Apart from a few large, unoccupied Farms in Chibobo, the fact that there was no land left anymore was uncontested. However, officers from both the Ministry of Agriculture as well as the Forestry Department in Serenje adhered to the idea of Zambia being land abundant (cf. Sitko et al. 2015: 2), pointing out that land poverty is a localized problem only, and people should move elsewhere.³²⁷ To most rural dwellers, however, moving elsewhere is no simple undertaking as they say themselves: ‘We are not exposed, so we don’t know where to go in the first place’,³²⁸ and when following streams as in the past, land has most likely already been taken. Above all, *if* suitable land is available elsewhere, moving is very costly, and needs the support of, amongst other authorities, the Chief. His absence since his demise in February 2010, however, has prevented households from relocating into distant regions, as summed up well by the following statement made during a group discussion:

It’s not an easy thing to do, to just move, because you will arouse suspicion when moving to an alien place. Where locals do not know you, they will say ‘you are running away from witchcraft!’, especially when you have white hair like me, you can walk up and down looking for a Farm.³²⁹

Apart from the Chief or Chieftainess, there is no one to give credible proof of a household’s origin – and innocence. Without an official letter, migrating elsewhere could stir confusion and bring new problems instead of relief:

For somebody to cross a border, he needs to be scrutinized thoroughly. Why are people crossing the border? They might have been chased by witchcraft, or are they thieves? Do they run away? Can they bring problems? Just like the way you travel with visa and passport, and you will be welcomed. If you don’t have any records, you are protected and most welcome. But when you don’t control [movements], there is too much war, that’s why Europe is having problems.³³⁰

³²⁷ Forestry officer during an interview in Serenje *Boma* on April 20, 2015; District Agricultural Officer (DACO) during an interview in *Boma* on May 7, 2015.

³²⁸ Agnes Chilanga during the group discussion at Chilekwa Farm in Kansenga on June 22, 2015.

³²⁹ Boniface Ruben during the group discussion at Sitwala Farm in Kansenga on June 20, 2015.

³³⁰ Judith during the group discussion at Sitwala Farm in Kansenga on June 20, 2015. Judith referred to the so-called ‘European refugee crisis’ of 2015 when more than 1 million people migrated into the European Union.

The absence of the Chief has not only prevented people from searching for agriculturally suitable land elsewhere, but it also obstructed land negotiations between him and the government, for example about exchanging unsuitable customary with suitable state land. Equally, the avenue of de-gazetting and opening up state-owned Forest Reserves for agricultural use has been blocked since only the Chief would be in the position to officially negotiate land deals. While this would arguably have relieved pressure on land, further fears have prevented people from moving: several residents of Kansenga have argued, for example, that ‘you can go but you may find it difficult to live with different tribes like the Lozi or the Tonga’³³¹. While some fear incompatible cultural differences, some fear being bewitched and others point to the challenge of acquiring a new language. The fact that Chibobo and the wider region have experienced an influx of, amongst others, Tonga from Southern Province (see Chapter 6.2), is seen as a proof that ‘they run from something, they come from other areas, so they can’t be better for living. We found ourselves in a good place already, so Lalas don’t move’³³². Furthermore, living in the vicinity of two farm blocks, Luombwa and Nansanga, has created a feeling of ‘being at the mercy’ of more powerful people or corporations once suitable farmland is needed by them. Rumours about neighbouring villagers being currently evicted from their land, as ‘the Whites’ have come for large-scale farming (cf. Chu et al. 2015), have certainly contributed to people’s hesitation to relocate. Last but not least, the existing amenities of the community, such as a school, a small clinic, groceries and monopumps are further factors that prevent people from moving out of reach. Moving to *Boma* or any other urban place is, to many, no option as well, even if children living there have offered to take care of them. A number of elderly people recount stories of how they have lived, or rather have tried living, in town at the behest of family members, but soon asked relatives back in the village to take them home. In the same way, my research companion’s mother vividly summarizes what made a trip of four days to town so awful:

Yesterday, the person who went to buy relish came late, so we ate late, which never happens in the village! And all the people here, I don't know them. After taking a bath for example, if it's in the village, I'd have gone to visit Misses Who and Misses Who, but here, it's just sitting, watching people, ah, no, no, no, you can't live here [...] and it's difficult to die where you're not known, that's our tradition.³³³

For all the reasons enumerated above, searching for new lands beyond Lala chiefdoms, that is, outside the district of Serenje, is not an option. As a result of this, coupled with the population increase of the recent years, Kansenga is – as are most villages on the plateau –

³³¹ Judith during the group discussion at Sitwala Farm in Kansenga on June 20, 2015.

³³² Agnes Chilanga during the group discussion at Chilekwa Farm in Kansenga on June 22, 2015.

³³³ Violet Musonda at her Farm in northern Chibobo on July 27, 2015.

completely ‘saturated’. Several households are thus forced to remain on land, on which they do not have any say and are often restricted to cultivating a minimal area only: in Serenje, about 63-73% of all households are expected to have access to only 2 ha or less of arable land (ZVAC 2010: 38; IAPRI 2015). Besides land constraints for farming, a number of the households in Kansenga experience limited access to trees and thus timber, fibre, medicinal products, or charcoal.

A few households have come to terms with stagnation or suffering, even labelling their shop ‘Sluggish Grocery’, yet many others have opted for a possible way out: they have entered the National Forest (*Kapenda*) adjoining to the community’s south, that was once gazetted for environmental protection (see Fig. 6). The reserve represented the only space for change because in contrast to customary land that belongs to *somebody* and is governed by traditional institutions, the National Forest is owned and theoretically governed by the state. With the Forest being on state land, moving into or clearing it is forbidden by statutory law, which was well known and has never been disputed by anyone I have talked to. However, precisely because it is state land, which is not associated with any *person* or traditional authorities, the encroachment has become the only viable option. State land, in contrast to customary land, is not entrenched into everyday social relations or practices, and thus no social space. Moreover, the state is a rather distant actor that exercises little power over rural spaces, but has been far away in the truest sense of the word, but also with regard to a national identity. On the other hand, it is also the absence of customary power and control by a Chief, that has facilitated, or at least not prevented, people’s encroachment into state land. In times where customary land has ‘come to an end’, Forest Reserves seem to be the only remaining space for settlement and agricultural expansion, but also the commercial production of charcoal, which inevitably has contributed to deforestation in many parts of the country (cf. Gumbo et al. 2013: iix f.). Importantly, the National Forest was not only utilized by ‘desperate’ households that did not have any land left anymore. Households that disposed of unutilized land but want to secure more land for future investments or speculation equally resorted to the Forest. The new forest users were not only coming from Kansenga and other villages of Chibobo, but also from neighbouring communities and from *Boma*. As they were the first to utilize the Forest after decades, levels of deforestation were unsurprisingly higher and much more visible than on customary land within the communities surrounding the Forest (cf. Babigumira et al. 2014: S67).

On the following, I will first present a short history of the Serenje National Forest and then trace how the communities’ relationship with it has changed over time.

Part IV

9.1 Claiming new lands: from the village into the Forest

As elaborated on when introducing the site in Chapter 4, Chibobo lies amidst the *Miombo* woodlands which are home to a number of streams and their sources. In order to protect them and to conserve relatively undisturbed mature *Miombo* trees, seven Forest Reserves were gazetted around independence in the district of Serenje. Due to a lack of historical data, the colonial and pre-colonial state of the Forests, as well as the precise year of delimitation are difficult to reconstruct. Whereas little is known about their historical state, the size and dispersal of trees in most forests suggest that they had been utilized even after being gazetted as Reserves, for example as a source of timber by a state-owned Tobacco Scheme in one of Chibobo's neighbouring communities.³³⁴ Long (1968: 28) also reported that one of the Chiefs from the southern Lala Plateau, His Royal Highness Chief Chibale, gave permission to an individual to establish a Farm in the newly opened, protected Serenje National Forest. Unfortunately, he does not further comment on the establishment of the Forest or on the legality of the Chief's approval to settle it. It is precisely this Forest, which will take centre stage in the following part of the thesis.

Framing an area of about 300 km², the Serenje National Forest is the largest of the seven Reserves within the district. Beginning just a kilometre south of the Congo Pedicle, it stretches in total over about 65 km north-eastwards along the Great North Road up to *Boma* and beyond (see Fig. 4).³³⁵ Since being gazetted, it had been relatively undisturbed which is why it had remained dense and contiguous. Having been well-defined against the adjacent cultivated land for decades, a Forest belt stretching more than 100 kilometres along the Great North Road can be easily seen on satellite imagery from before 2010.³³⁶ Beginning in 2010, however, the Forest came under pressure from its surrounding communities and gradually gave way to new settlements and farmland, which has been visible from both nearby and afar.

³³⁴ For the more recent involvement of the Mulilima Tobacco Scheme into utilizing the Serenje National Forest, see Chapter 6.2.

³³⁵ The official size of the forest amounts to 29,680 ha (GRZ 2015: Ch. 199). Its precise boundaries are lined out in reference to streams, their sources and individual's Farms in Chapter 199 of The Forests Act (GRZ 2015). While it might seem to be very precise, it is prone to diverse interpretations as, amongst other reasons, sources are extensive, and Farm boundaries have changed over time.

³³⁶ Impressively, on satellite imagery from before 2010 provided by Landsat/Copernicus, the Forest's green sets itself apart from the surroundings even at an altitude of more than 500 km.

Imagining and accessing the Forest around Kansenga

In the southernmost village of Chibobo, Kansenga, the Forest is no more than 10 km away from any household, yet to many too far away to be of any relevance. For long, it was nothing but a strange, protected land, only visible from the outside. Most of the frontier area to the Forest was characterized by two major streams,³³⁷ and once they are crossed and the last Farm passed,³³⁸ there was still the *Mateshi* – a thick riparian forest imagined to be infested with wild cats, monkeys and deadly snakes. Therefore, direct access to the Forest remained very limited and its ‘interior’ a blind spot to the majority. However, since the main gravel road that links the community with the tarmac cutting straight through the Forest for about 3 km (see Fig. 19), everybody who travelled in any direction but North had to pass through it, either ‘footing’, by bicycle, or on the back of a *Canter*.

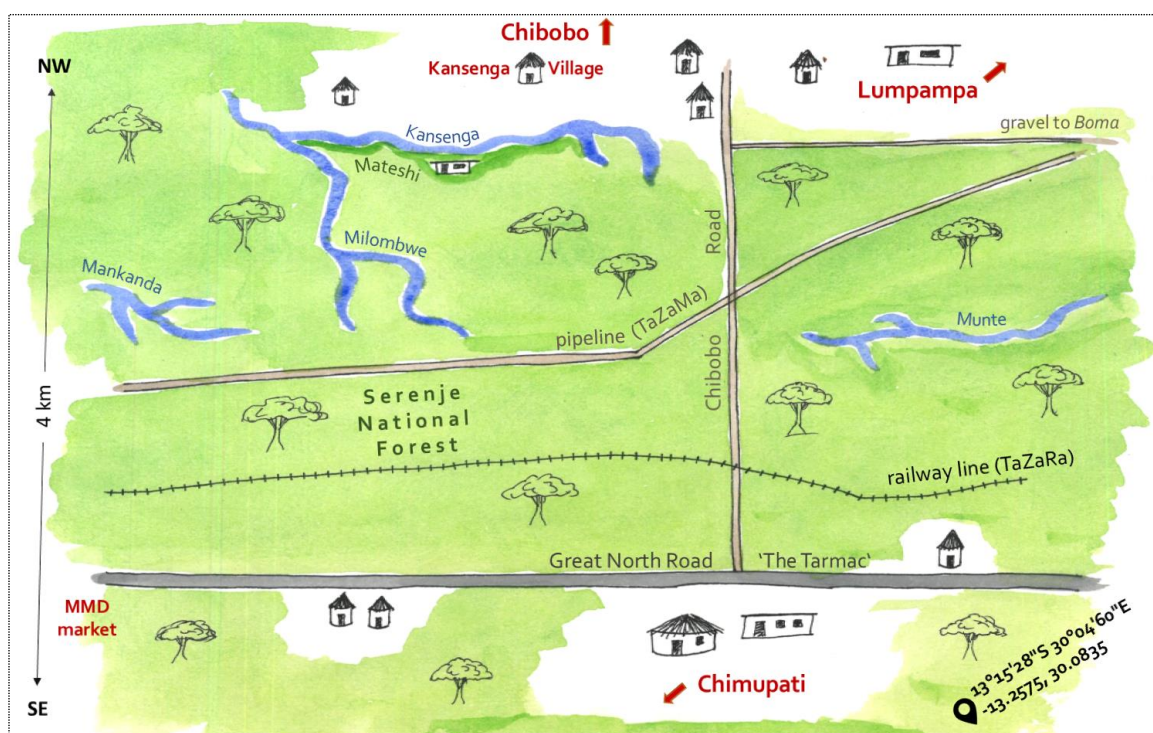


Fig. 19 Map of the Serenje National Forest in late 2009 (map created by author)³³⁹

Furthermore, a few individuals, who owned cattle or goats, utilized the Forest’s interior as grazing grounds. As the *Mateshi* was considered to be impenetrable and too dangerous, they

³³⁷ While Kansenga Stream comes from the east and Milombwe from the south, they merge after a few kilometres and become Chichele Stream.

³³⁸ It is the oldest and largest Farm of Kansenga, which arguably is located within the Forest (see p. 54, fn. 81). As it is located within a dense forest stretch, it is called ‘*Mateshi* Farm’.

³³⁹ The map is not drawn to scale, but represents a horizontal expansion of about 8 kilometres. The GPS data in the bottom-right corner refers to the crossing of the pipeline with Chibobo Road.

always took a long way round, using a cleared stretch above an underground pipeline.³⁴⁰ They usually brought their livestock to one of the several saline river sources found within the Forest:

Animals liked eating the salt that came out of the stream [...] it can be found even today but it's less salty these days. Just as Mister Simukoko [an elderly man of the community who owns most cattle], I used to go into the Forest to bring my oxen to Mankanda and Milombwe [streams in the Forest] and even up to the tarmac. The land at the source was like a swamp, so you had to walk on small grass layers, but now the rains are gone.³⁴¹

One of the major streams bordering the Forest is named *Chichele*, derived from 'salt' in the local language. Importantly, at those saline sources, bringing the livestock for roaming around was possible without running the risk of them feeding on somebody's crops. At the same time, however, being within the Forest came with other, more existential risks:

When the cattle went missing one day, we found two or three attacked by lions, so you only moved in a group and carried a knife. And some day, we found big snakes on a path so we never went back there.³⁴²

As soon as such news had spread, even more people refrained from going there. The fear of wildlife – big cats but in particular snakes – was a major reason for most people never entering the Forest at all. Besides wildlife, others were deterred by guards deployed by the Forestry Department, who went on patrol at least twice a week from as early as 1966 until the late 1990s (cf. EC 2014: 34). The officers, who always came on bicycle, have ever since been called *Kapenda Mabula*, leaf counters. Besides them, armed men in uniforms labelled 'paramilitary forces' were stationed between the 1970s and late 1990s in the National Forest. Their task was to patrol the cleared 60-feet-wide dirt road running over the pipeline. After one incident, local residents supposedly drilling for raw oil at nighttime, the government stationed five or so armed guards every few kilometres along the pipeline. They were feared by the locals and importantly – as many have argued – mistakenly perceived as being also responsible for guarding the Forest.³⁴³ The pipeline had become an important point of reference and landmark, and the easiest, safest access point to the Forest for cattle holders. When they were walking on the dirt road above the pipeline, they could spot the guards when they were patrolling around the river sources, when they were 'sitting in the trees in

³⁴⁰ The pipeline links the port of Dar es Salaam with a refinery in Ndola on the Copperbelt. It belongs to TAZAMA (Tanzania Zambia *Mafuta*), which is not to be confused with TAZARA, the Tanzania-Zambia Railway, which also originates from Dar es Salaam, and also runs through the National Forest.

³⁴¹ Boyd Changwe during the census interview at his Farm in Kansenga on March 4, 2015.

³⁴² *Ibid.*

³⁴³ A single informant argued that the guards were not protecting the pipeline, but the railways in fact, yet neither argument could be officially verified.

their green clothes'³⁴⁴, or when they gathered in colonial-style round huts made out of and covered by iron sheets. While livestock owners were tolerated, no one else dared to walk along the pipeline or to enter the Forest – ‘not even for honey’³⁴⁵, as the guards were expected to arrest you and take you to jail. Besides this fear, the guards were also a respected resource of security: ‘When people of the surrounding villages were drunk or started fighting, they were taken to this uniformed guys and they got slapped, they helped us [a number of self-organised neighbourhood watches] to restore order’³⁴⁶.

In the wake of structural adjustment programmes (SAPs), Zambia was, being classified as a heavily indebted poor country (HIPC), obliged to do away with the forest guards in 1997 (EC 2014: 23). Until then, the collective knowledge about both the guards and paramilitary forces had been passed on to the next generations, year after year. Even after 1997, when both groups had already gone, it took some more years before the memory, or rather fear, faded away. Only slowly, the residents believed with certainty that no one was there to protect the Forest from external influences anymore. Paramilitary forces were not seen anymore and the state was recognized as being far away as well, with the forestry officers being restricted to *Boma* and hardly ever seen. Beginning around the year 2000, the residents of the adjacent communities started extracting a diversity of non-timber forest products such as edible fruits, mushrooms, *Munkoyo* roots and *Chikanda* tubers, honey, and at times also wild yams, and wild okra (*Delele/Mulembwe; Abelmoschus esculentus*). On top of collecting such products, which became a common practice, a few households went into the Forest to grow winter maize and vegetables during the dry season along the streams. Moreover, as the number of wildlife within the bush (*Mpanga*) surrounding the Farms had diminished considerably over the last generations as a result of both hunting and human expansion, some men tried their luck hunting duikers, hares and rabbits in the Forest (*Kapenda*). However, except for one man, who got well known after this incident, they always returned empty-handed. In one case, which is similarly remembered, a hunter was bitten by a huge snake, after which he had to spend a full month in hospital. While this initial run into the Forest, according to the residents' own observations, contributed to a decline of non-timber forest products, *trees* were not brought down on a regular scale. As the years passed by, however, still no forestry officers were to be seen. Due to a lack of funding,³⁴⁷ they were not in the position to afford transport and thus patrol the Serenje National Forest but also other Local and National Forests within the district. While there

³⁴⁴ Chibuye Simukoko during the census interview at his Farm in Kansenga on March 6, 2015.

³⁴⁵ Kunda Malikuki during the census interview at his Farm in Kansenga on February 10, 2015.

³⁴⁶ *Ibid.*

³⁴⁷ While the District Office also generates revenue through the tree nursery and by licensing forest products, with target earnings of around 75,000 ZMW per year, I was not provided with figures about the actual earnings. A blackboard in the office suggested that 172,846 ZMW had been generated in the first 9 months of 2015, yet officers pointed out that this money is not at their disposal but belongs to the headquarters.

were a few of field activities in 2014,³⁴⁸ 2015 was characterized by work in the office and the adjoining tree nursery. In particular the younger generations of rural Serenje, and rural Zambia in general, were thus born into a ‘local governance vacuum’ (Mickels-Kokwe & Kokwe 2015: 131).

After the Forests had remained largely unmonitored for more than a decade, the extraction of firewood or timber, the production of charcoal, as well as agricultural expansion ‘into the Forest’ – which are all forbidden by statutory law – seemed to be an option again. As a result of this governance vacuum, people residing nearby the Forests began to encroach on them without the need to fear the law. In the same way, beginning in the year 2010, people from different directions began to enter the Serenje National Forest for the production of charcoal, and to open up new settlements including farmland. Both, of course, entailed the cutting down of trees, which heralded a new age of deforestation in the entire district: while previously trees were lost mainly on customary land, the Forests on state land that had long remained intact also began to decrease. This encroachment, which I will retrace on the following pages, originated from different directions and took place simultaneously in different parts of the Forest. In order to provide a complex description and deeper analysis, I will concentrate on a single ‘window’ of the Forest, which touches on three communities (see Fig. 19): first, Chibobo, which lies to the Forest’s north and took centre stage during the previous chapters of this thesis. Second, the north-eastern community called Lumpampa, and third, the community to the Forest’s south, which is ‘across the tarmac’ and goes by the name of Chimupati.³⁴⁹ All three are home to hundreds of small-scale Farms, yet the latter two are part of Kabamba instead of Muchinda Chieftdom, were established earlier, and have historically been more densely populated. While my research emanated from Kansenga, Chibobo’s southernmost village, my focus on two further communities is not arbitrary, but the result of following some individuals from Kansenga and their interactions (see Chapter 3). The inclusion of these two communities is also crucial for contextualising and comprehending the behaviour of Chibobo’s residents regarding their conduct over the National Forest.

³⁴⁸ In 2014, Serenje’s forestry officers recount having had three highway patrols carried out in collaboration with the police, inmates and the Warden of Serenje to confiscate illegally sourced charcoal, fuelwood, poles and logs. Moreover, they visited the manganese melting plant in Kanona, conducted one sensitization meeting with charcoal producers, and one with all Chiefs and Chieftainess Serenje. The latter were done in collaboration with the NGO ‘Community Markets for Conservation’ (COMACO).

³⁴⁹ Similar to Chibobo, each of the community is governed by a *Chilolo* and split into several villages like Kansenga, which are each governed by a *Sulutani*.

Phase I: Opening up the Forest

In 2009, one man who was living just along the Great North Road in Chimupati, the community adjacent to the Forest's south, had an appointment with the Forestry Department in *Boma*. As he saw neither forest guards nor paramilitary forces for more than a decade, he wondered whether the status of the Forest had changed. Since he did not have enough land to feed his family, he asked for permission to get a plot with some farmland in the Forest, which the Department however refused. Notwithstanding that refusal, he illegally went 'to make at least some charcoal to sell'³⁵⁰, and very soon, many others from the same community followed. From 2010 onwards, several men and women entered the Forest on a daily basis in order to produce charcoal for sale. Besides, many also planted millet on the remaining ash fields, similar to the earlier practice of *Chitemene*. They first targeted the trees closest to their homes – a stretch between the Great North Road and the railway line (see Fig. 19). When this area was depleted of the trees most suitable for the production of charcoal, production continued northwards, up to the oil pipeline, targeting an area of more than 500 ha.³⁵¹ Importantly, this initial encroachment also triggered further extractive activities as inhibitions about clearing are much lower once a forest begins to show signs of depletion (Elias 2011: 66, 71 f.). Equally, with increased access via more and more trails and thus lower transportation costs, the encroachment accelerated even further (Mickels-Kokwe & Kokwe 2015: 129; cf. BCP 2013). At the same time, the area north of the pipeline remained largely unpenetrated, most likely as it clearly neither belonged to 'their' community, nor to their chiefdom. Legally, a National Forest is on state land and thus officially governed by state authorities following statutory laws. However, certain areas are considered to 'belong' to one community or another: the pipeline as well as Chibobo Road functioned as a natural boundary, allocating the Forest to one of the three adjoining communities, which implied a certain entitlement but also responsibility. The 'southern Forest' was considered to be part of Chimupati, the northern stretch part of Chibobo, and the eastern stretch part of Kabamba.

When all the largest trees between the tarmac and the pipeline had been finished, a 'second round' in the same area began: the burners began to also cut down larger fruit trees they had initially spared (cf. Dlamini et al. 2016), and the less suitable trees for charcoal. As no customer returned or complained, the producers were not concerned about the quality. Eventually, a few producers crossed the pipeline and continued up to a point they considered to be private land again – up to the so-called '*Mateshi Farm*' (see Fig. 19). This clearly confirms the observation that land associated with a *person* is more respected than

³⁵⁰ Leniwe Mambwe during an interview at her Farm along Great North Road in Chimupati on July 27, 2015.

³⁵¹ Similar to the part of the Forest under investigation, charcoal production within the Serenje National Forest has been observed around other communities as well, especially in the direction of Lusaka.

land that belongs to the state (see Chapter 8). After about two years of encroachment, hundreds of old-growth trees had been extracted from the entire Forest, yet as households from many different parts of Chimupati had been involved, some Forest areas were left bare while others had hardly changed. As mentioned above, access from the side of Chibobo was limited due to the *Mateshi*, and for many households, the Forest was also too far away. As a result of this, the northernmost area of the Forest – the transition zone to the village of Kansenga – has been largely untouched and had, still in late 2015, the closest and presumably oldest forest stock. Importantly, the producers from southern villages only entered the Forest for the production of charcoal, or for growing millet on the ash fields, yet they returned home on a daily basis. The bags were usually sold to wealthier community members, or along the Great North Road to passing motorists, or to traders from Lusaka at MMD.³⁵² The following two examples of Leniwe Mambwe and Albert Ngosa, two of the charcoal pioneers from the south, shall help to better understand some motivations behind this initial phase of the encroachment.

The charcoal pioneers Leniwe Mambwe and Albert Ngosa

Leniwe Mambwe was born in 1960 and raised in Chimupati, where she spent almost her entire life. During secondary school, she lived in *Boma* for three years. After having finished grade 9, she stopped schooling and returned to her parents' Farm, where she eventually got married. When she became a mother of two, she moved together with her husband and children onto a new Farm of a few hectares, just along the Great North Road. Since then, the household has engaged in small-scale farming activities, yet due to depleted soils, the harvest has never been enough to feed the family. Therefore, the household's major livelihood became the re-sale of beer and fish they had purchased in Lusaka. On top of that, Leniwe has been working part-time as a pre-school teacher, for which she receives a symbolic salary of a few hundred Kwacha per year. In 2010, Leniwe added another activity to her livelihood portfolio – the commercial production of charcoal within the National Forest. Before that year, she explains, herself, her family and also her neighbours never went into the National Forest. It was clearly government land and everyone feared the forest guards – even after they had not been seen for long: 'UNIP [the ruling party until 1990] and the Chiefs of that time were much stricter [...] there was proper enforcement by the *Kapenda Mabula*'³⁵³. But by the year 2010, when forest guards had been laid off and even the pipeline was not guarded anymore for the last decade 'people had to leave this fear [...] We just went

³⁵² 'MMD' denotes a marketplace along the Great North Road (see Fig. 19) that is mainly used for trading Irish potatoes and charcoal to wholesalers from Lusaka. It is named after the party which had constructed it – the Movement for Multi-Party Democracy (MMD), which ended the since-Independence rule of Kenneth Kaunda in 1991 and ruled the country for the following two decades.

³⁵³ Leniwe Mambwe during an interview at her Farm along Great North Road in Chimupati on July 27, 2015.

there without being scared, instead, it was the opposite, the forestry officers were scared of us!’³⁵⁴ In fact, during a number of interviews, different officers have admitted their fear of the charcoal burners, who first, suddenly come in large numbers, and second, might beat them or even use their axes to defend their activities. The same attitude was found in a number of district offices, yet most prominently where Forest Reserves were at stake.

Since there was no state authority to intervene, it suddenly became an option to produce charcoal, which Leniwe had never done before. Remarkably, clearing the trees on her own customary land was no option to her: ‘I did not want to spoil my Farm, we want to keep the trees. I can't cut on my own land, because I will need it for firewood, for constructing houses, shelters, what are my children going to use?’³⁵⁵ When it became possible to utilize the trees on state land, in the Forest, she thought to give it a try. Through watching others, she quickly learned the process by trial and error and produced her first bags. In order to market them, she eventually collaborated with other producers who each contributed up to twenty sacks to fill up a *Canter* or a truck to Lusaka. Leniwe sold all her charcoal at Lusaka’s big charcoal market ‘Mandevu’, and from the profit she made, she bought a few gallons of fertilizer and goods for re-sale: second-hand clothes, beer and fish. As the charcoal business went well, she soon managed to employ pieceworkers for cutting trees and piling logs, who she paid in beer and rarely in cash. When asked about her incentives for venturing into the business and possibly risking being caught by the forestry officers, she explains:

We as human beings, we had to get some little money, as part of a starter, for me to become a *real* farmer. Charcoal was an addition [to beer and fish], I am having children after all and I am still reproducing. Isn't it me, through the mercy of God, who brought this children on earth? They should be educated, should get land, I should pay for my children, for their school fees, to buy blankets, that's how I afford that.³⁵⁶

Driven by the wish to enable her children to have a good future, the desire to raise money for farm inputs was thus the driving force behind her engagement in the Forest. She sums up that charcoal means ‘quick cash’, which is a major benefit in contrast to farming, where money is available only once every year after the harvest. After every one to four months, she therefore uses charcoal as a booster, producing 20 bags at most each time. While farming continues to be the major business, charcoal provides an additional income, but she never intended doing it for long. After two years in the Forest, Leniwe entirely stopped producing charcoal as it is, first, a tough job, and second, out of environmental concerns:

³⁵⁴ Leniwe Mambwe during an interview at her Farm along Great North Road in Chimupati on July 27, 2015.

³⁵⁵ *Ibid.*

³⁵⁶ *Ibid.*

Because cutting the trees is part of destroying the nation. The area that I'm cutting, it's remaining as a desert, that's why we experience this climate change, I have come to see that, we, who are cutting trees, are causing this.³⁵⁷

In the same way, Albert Ngosa, another 'charcoal pioneer' from Chimupati, proudly told to me that he had 'learned something very strong about trees. Trees can keep water, what and what, this rain, the forestry officers from Serenje were teaching me'³⁵⁸. About ten years earlier, the district office had invited ten well-respected adults from the three communities adjoining the Forest to join a two-day workshop on the importance of trees. After another National Forest within the district had been severely encroached, this meeting was aimed at initiating a sensitization process about the Serenje National Forest. Accommodation and food was taken care of by the Forestry Department, and the participants received a pleasing daily allowance. Representatives from different NGOs, from the Ministry of Agriculture, as well as forestry officers gave some inputs and collected several recommendations for improving the management of the Serenje National Forest. While Albert Ngosa and other workshop participants willingly tried to spread the word to their neighbours, their knowledge did not prevent them from cutting down trees in the Forest themselves. In the dry season of 2010, some years after that workshop, Albert was amongst the first to encroach on the National Forest. As he remembers, he wanted to purchase fertilizer for the upcoming farming season – and some new lingerie for his wife. In order to quickly raise some cash, he opted for the production of charcoal within the National Forest, 'just over the tarmac'³⁵⁹. He eventually sold his produce at MMD to traders from Lusaka, but also in *Boma* and locally. For the bags to be sold in *Boma*, he applied for a licence in order to avoid conflicts at the marketplace, but for those ferried to Lusaka, he avoided paying. In that regard, Albert argues that the Forestry Department itself is responsible for the depleted state of the Forest:

Without knowing the origin of the charcoal, the officers issue certificates to just anybody, so we went rampant since they were not paying attention to it, they didn't do anything, so they gave us permission to go and destroy it! They knew about it, they even confiscated some bags in 2013, which was already too late.³⁶⁰

After several sales, Albert managed to purchase fertilizer, and even earned enough money to buy iron sheets and a small music system. His living standard had improved, but his main

³⁵⁷ Leniwe Mambwe during an interview at her Farm along Great North Road in Chimupati on July 27, 2015.

³⁵⁸ Albert Ngosa during an interview at his Farm along Great North Road in Chimupati on July 27, 2015.

³⁵⁹ Another source of income was the *Changanya* (to mix) Business: several households living along the Great North Road stopped Zambian and Tanzanian lorries in order to buy petrol from their tanks, which they then sell for a competitive price, locally or even just next to the petrol station in *Boma*. While this presents an additional income to the drivers as well, their companies are unlikely to notice the 'higher fuel consumption' considering the distance of around 2,000 km between Lusaka and Dar es Salaam.

³⁶⁰ Albert Ngosa during an interview at his Farm along Great North Road in Chimupati on July 27, 2015.

worry, which was constantly at the back of his mind, remained: just as countless other households, he was looking for his own Farm which is big enough to feed the family, if possible in the nearby, so he can continue to take care of elderly relatives. All the other producers I was talking to equally bemoaned – without exception – the lack of arable land. Some men were still living with their wives on their in-laws' land, where they had to prove that they could source enough money to support a family. The lack of land, therefore, was a prominent topic outside the first research community as well, with many households hoping that me or my research companion would know of available land within the nearby. The struggle for land has not only been pervasive during all interviews and group discussions, but also far beyond Chibobo and its neighbouring communities, all across the Lala Plateau. Ultimately, both Leniwe Mambwe and Albert Ngosa, as well as many other households, stopped making charcoal, but besides the environmental concerns they referred to, they also stopped for another reason: most land within the Forest had continuously been settled or at least allocated to people by traditional authorities – a development which I will discuss further under Phase III. As both were illegal, Leniwe and Albert did not apply for that land, out of fear of one day being dispossessed by the government again. While both were confident of not being prosecuted as a commuting charcoal producer, a *permanent* Farm on state land would have been too delicate. With more and more land in the Forest being allocated to people over the years, most of the charcoal pioneers stopped coming to the Forest in order to avoid conflict. Because in contrast to previous times, when the government did not intervene in any way, Farm owners are imagined to defend their land even by violence. In fact, some of the people who continued the charcoal business within the Forest run into opposition. While other charcoal producers argued about who had the right to access the remaining forested spots, it was mainly the new landowners who resisted. One of the new landlords remembers:

I found someone on my plot cutting trees and harvesting the pumpkins I had planted, just close to the railway line. He asked me: 'Is this your Farm? This is the National Forest!', and then he came towards me with an axe. I feared to go to the police now, because I am also settling here illegally.³⁶¹

Another landlord took resolute steps against charcoal producers: when he discovered a fresh charcoal kiln and the producer was absent, he 'confiscated' his hoe, put a lot of firewood onto the kiln, and set it on fire. When I was about to conduct an interview with the landlord, the charcoal producer returned, found his entire produce destroyed and accused the landlord: 'You have planted where our charcoal kilns were! *You* can feed your families so

³⁶¹ Joshua Mumba during the group discussion at his Farm in the National Forest (Chibobo) on June 24, 2015.

you should not deny others to do so. We get because we are hungry, we are not stealing'³⁶². In order to pacify the tarnished relationship, he and a few other landowners allowed the burners to assist them in clearing new fields, and use the trees for charcoal as a payment, which was considered to be a win-win situation.

The Forest encroachment for charcoal I have described above began in the year 2010, increased quickly and then slowly phased out over the following four years – mainly as a result of the land getting sold to people and sometimes settled. Within the same period of initial encroachment for the production of charcoal, large tracts of land, further away from the 'charcoal hot spots', were allocated to people by traditional authorities.

Phase II: Populating the Forest

By 2010, much of the Serenje National Forest further west and east, and other Forest Reserves within the district, in particular the Kanona National Forest, had become known to be partially settled already. On top of that, the evening news on TV regularly reported on other Forest Reserves across the country being subject to illegal activities such as squatting and farming, especially on the densely populated Copperbelt. With no legal steps such as evictions being taken against illegal settlers or farmers, distributing land within Forest Reserves had become a viable option to customary authorities who were increasingly confronted with demands for land by their subjects.

While Chibobo was part of Muchinda Chiefdom, Chimupati and Lumpampa were part of Kabamba Chiefdom. Beginning in 2010, His Royal Highness Chief Kabamba started giving out land within the Forest 'on his side', that is, east of Chibobo Road, between his two communities (see Fig. 19). The land was distributed by him on the grounds that 'his subjects are quite many and his land is not enough'³⁶³. First applicants from both within and outside his Chiefdom were offered Farms of about 20 ha (500 by 400 metres), but when increasingly more people applied for the only available land – which was in the Forest – the portions got smaller so as to accommodate more Farms. Since there was no legal basis for the traditional leadership to allocate state land at all, all emerging Farms were considered to be illegal dwellings by statutory law. While this has been denied by neither the traditional leaders nor the new landowners, they made efforts to officially legalize the settlement. In the following, I will present three different households, who were amongst the first to acquire land within the Serenje National Forest.

³⁶² Charcoal producer from MMD while talking to Kenji Nkoma at his Farm in the Serenje National Forest (Chibobo) on April 27, 2015.

³⁶³ Isaac Niambi during an interview at his Farm in the Serenje National Forest (Lumpampa) on April 30, 2015.

Isaac Niambi

Before around 2010, Isaac Niambi and his wife had been living on a Farm of about 6 ha in Kansenga. They shared the Farm with two daughters, their husbands and three children – nine people in total. After the family had been cultivating the same land for many decades, the soils, sandy in the first place, were eventually depleted. Feeding the entire family was always a struggle and the water table was very low, so sourcing it was costly in terms of time. When Isaac heard by word of mouth about land being available in the Forest, he decided to apply for land, and leave his two daughters, who had the customary right to inherit the old Farm, behind. As one of the earlier applicants, Isaac received about 20 ha for which he paid 500 ZMW to the Chief, and 300 ZMW directly to pieceworkers for demarcation. Arriving in the Forest, Isaac has been the first to clear virgin land after at least half a century. He started with growing maize and sweet potatoes, and since the soils had been unused for decades and were thus extremely fertile, he did not have to apply any fertilizer. As a result of these conducive conditions, his standard of living has been improving ever since. Equally, the daughters' households, who have remained in Kansenga, report on a better living as they can now utilize the released land as well: besides rearing chicken and goats, they manage to grow a variety of crops for home consumption, and to sell a surplus of maize and sweet potatoes.

By May 2015, Isaac and his wife had cleared 2.5 ha altogether and planned to expand their fields for another 1.5 ha the following season. For clearing the land, they have and will employ pieceworkers, who will be allowed to produce charcoal as a payment. Isaac was personally told by the Chief, as were all new landowners in this part of the Forest, not to produce any charcoal for business. However, 'burning charcoal after *clearing* is very much okay, because nobody can use so much firewood'³⁶⁴. While conducting the interview, the oldest resident from Kansenga, Mister Chilekwa (see p. 141), appears on his bicycle (see p. 141). *Ba* Chilekwa, who has been clearing land for several landowners in the Forest already, gets off his bicycle, pulls out his axe from behind, walks into the Forest and soon begins to swing it in a distance. With the distinctive sound of an axe striking hardwood in the background, Isaac points out that the Forestry Department does 'not even temper with the charcoal from here'³⁶⁵, which indicates, according to him, that its production is not discouraged and possibly even legal. As the government had allegedly already approved this new settlement after a meeting with Chief Kabamba, he was equally positive about the settlements being legalized very soon, that is, being titled or converted from state into customary land. While he did not know any details about this approval, he and many others from both within and outside the Forest independently referred to it.

³⁶⁴ Isaac Niambi during an interview at his Farm in the Serenje National Forest (Lumpampa) on April 30, 2015.

³⁶⁵ *Ibid.*

During the first years, the status of this new settlement was less clear and many people refrained from acquiring land in the Forest, but as time passed by, even government employees from the surrounding communities begun to settle here. After Chief Kabamba had been distributing land within the Forest for less than a year, he unexpectedly passed away in late 2010. As the written documentation of all new Farms was nowhere to be found, harmonization took some time, with further land being distributed by his successor in 2012 only. One of the buyers during that second phase was the head teacher of a nearby primary school. Despite him being a civil servant and well-known resident of the wider area, he was not hesitant in acquiring land in the Forest – and certain not to jeopardize his career by doing so.

Sunday Chonaule

Currently, Sunday Chonaule is living with his wife, his daughter and her husband on a spacious Farm on customary land in Lumpampa. Apart from having worked as a head teacher for more than 16 years and thus being amongst the best paid residents of the area, Sunday owns a *Canter* that regularly commutes between Chibobo and *Boma*. That business, mainly operated by his son-in-law, runs well for both people and goods, several times a week. On top of that, about twice a year, he transports charcoal in bulk to *Boma*. Besides this regular income from the transport business and school, he furthermore keeps turkeys for sale, operates a hammer mill, and grows several hectares of white and popcorn maize for home consumption and sale. Besides this Farm in Lumpampa, Sunday owns a house in *Boma*, which is occupied by his children currently attending secondary school. Sunday and his wife are living a good life – the small truck, vast fields of maize, and a private well behind their houses are the most visible symbols of their privileged position.

In 2012, Sunday acquired a small Farm in the Forest of 4 ha, for which he paid 850 ZMW – 4.5 times the amount other applicants had paid, which is likely to be due to his well-known position, but also the fact that his application was ‘late’ and thus competed for the remaining land. No conditions were given to him by the Chief, except the caution ‘to use the trees best’ – not to clear any tree without the intention of practicing farming on that spot. According to the official certificate for his Farm, which was renewed by the Chief in October 2015, ‘land is for farming and not for charcoal burning’. This rule, however, does not cover the production of charcoal as a *by-product*, for example after clearing land for housing or farming. The second ‘village rule’ on this certificate clearly states that ‘[i]f you fail to develop the land within two years, the land will be repossessed without notice’.

By May 2015, he had cleared 1 ha in the Forest, for the production of maize. The trees cut were used as firewood but the bulk of it was turned into charcoal by pieceworkers. According to Sunday, they produced about twenty 90 kg bags and sold them to a female

trader who ‘was driving up and down in the Forest because she could smell the kilns’³⁶⁶. Since then, he does not intend to clear more land in the Forest as his fields on customary land will yield enough maize to feed the family and even sell a surplus. Instead of expanding his fields in the Forest, he wants to move his livestock from his Farm in Lumpampa onto the Forest Farm:

The Farms here are too close, when my neighbours paid me a visit, this meant trouble, they just came to bring a case. But now, my neighbours and me are very happy, the animals don’t disturb here, all appreciate this decision which made life really easy.³⁶⁷

Sunday did not yet regret his decision to acquire a Farm in the Forest, yet in late 2013, all Farms within the Forest on Chief Kabamba’s side – east of Chibobo Road – received eviction letters. However, he remains positive about being allowed to stay, for similar reasons as the case presented above: the current Chief is not only aware of all the Farms, but he has even endorsed them *again* in October 2015, after all new landowners had paid 20 ZMW to receive a signed Farm Book. Besides this recent formal approval, he points out that even the head of the District Forestry Office, a good friend of his, has acquired land in this Forest:

He can’t disclose this to you, but he’s my friend. I think he was misled by the Chief when he claimed to have reached an agreement with the government. But in the end, the powers of the Chief will help indeed. You see, if a Chief goes all the way to Lusaka, and even the outcome is negative, he has informed them [the government], so he can go ahead. A Chief is so respected, even the president kneels down.³⁶⁸

Importantly, irrespective of the outcome of the negotiations, *de facto* control over access resides with the local authorities (cf. Unruh et al. 2005b: 194), which is why most landowners are certain never to be dispossessed of their Farms on state land.

A few days after that interview, I had an appointment with the *Chilolo* of Chimupati – the community south of the Forest. Mainly people from his community had autonomously moved into the National Forest to produce charcoal, and many had applied for land here as well. This third and last case of the *Chilolo* is peculiar inasmuch as his own Farm is located within the National Forest as well, thereby implicitly sending out a signal of connivance to his subjects.

³⁶⁶ Sunday Chonaule during an interview at his Farm in Lumpampa on April 30, 2015.

³⁶⁷ *Ibid.*

³⁶⁸ *Ibid.*

Chimupati's Chilolo

Riding my motorbike on a bumpy dirt road on a very warm day with a blue sky and strong winds, I could see a solar panel of about 2 m² at a distance. Behind the panel that reflected the sun into my eyes, a stately house that must belong to a wealthy person appeared: a cement floor, burnt bricks, a wooden door, glass windows, delicate lace curtains, a round satellite dish at the corner, and iron sheets on top. I was certain to have found the *Chilolo's* house and was soon welcomed by him. Inside his living room, my first impression was confirmed: a sofa set welcomes me and I notice the TV, a sound system, runners on the table, and fabrics covering every single armchair. After having explained my research topic in detail, he explains that here, we are also in the National Forest. Coming from *Boma*, it is on both sides of the road but due to the unavailability of maps or clear-cut boundaries, it is difficult to know, he admits.³⁶⁹ Before moving onto this Farm, he was 'squeezed on family land' and since there was no other land left within his community, and not even the entire Chiefdom of Kabamba, he decided to move into the National Forest:

We are 18 *Chilolos* in the Chiefdom and this community here is definitely amongst the most populated ones. People are multiplying and the same applies to me. We are not just going into a State Forest for nothing, we have increased in numbers, so more people are chasing fewer land. As of now, there is no land good enough to be settled and the only dormant land is hilly.³⁷⁰

Apart from allocating land to himself, he supported the landless, by giving them between 12 and 25 ha within the Forest east of Chibobo Road for 800-1200 ZMW. According to him, the fee he charged was

just an appreciation for the Chief's effort to secure land for his subjects. It's even much cheaper than on [previously occupied] customary land because of things like a well, planted fruit trees, or a nearby stream, which make such plots more expensive. You can pay like 4,000 Kwacha for 12 hectares.³⁷¹

Depending on the location, assets, or even crops standing on that land, 12 ha on customary land were indeed sold for between 3,600 and up to 12,000 ZMW. Due to the high demand, it rarely becomes vacant, but is re-sold on the quiet in no time at all. If the same land, 12 ha, is on title already, it will even cost around twice as much. Therefore, land within the Forest was in the highest demand – as it was the only land available and on top of that, unbeatably

³⁶⁹ According to the boundary description of the Serenje National Forest (GRZ 2015: Ch. 199), which has not changed since 1981, his Farm is *not* located within the Forest, but according to local understanding – including the forestry officers' – his and many others' Farms south of the tarmac are within the Forest. I have treated those Farms accordingly.

³⁷⁰ Chimupati's *Chilolo* during an interview at his Farm in the Serenje Nat. Forest (Chimupati) on May 2, 2015.

³⁷¹ *Ibid.*

cheap for most applicants. Furthermore, the *Chilolo* himself living in the Forest seemed to imply a certain legality, which even increased demand. During the long interview, the *Chilolo* points out that he did not give out land just anyhow, but always warned the new landowners not to produce charcoal, unless they are clearing land for farming. ‘Trees protect us from the wind and tall trees stop the clouds so we get more rain’³⁷² – out of this conviction, he condemned the commercial production of charcoal, which he considered to be the worst driver of deforestation. If the new landowners would still produce charcoal, he would request the Chief to re-allocate the Farm ‘to real farmers’. This points to a widespread double standard, which will be discussed in the final chapter of this thesis (see Chapter 10). As there is no idle customary land available anymore, he hopes for the de-gazetting of the National Forest and is very optimistic about it. While he has not seen any official announcement, he refers, similarly to many others who acquired land in the Forest, to an agreement that had been reached between the late Chief Kabamba and the central government. Arguably, he had ‘negotiated with *Boma*, Kabwe and Lusaka’ – the respective forestry offices at the district, provincial and national level – about the status of the National Forest on his side. Even the District’s Agricultural Coordinator provides assurance that an agreement was reached: 2,000 ha of the Forest shall be de-gazetted, onto which the Chief can settle his people. In exchange, he will sign over about 10,000 ha of less fertile, drier, rocky and mountainous land to the Ministry of Lands, which can be converted into a new National Forest.³⁷³ A suitable area for this had already been identified, but during the process, the Chief passed away in late 2010. Since he had started to issue Farm Books, the new Chief continued in 2012, which left others to assume that the government concurs with this new settlement on state land. However, since the Forest had not been de-gazetted and converted into customary land by late 2015, any activity within the Forest was – according to the forestry offices at all levels – still illegal, which is why ‘the squatters’³⁷⁴ should be prepared for eviction. However, the following statement of the *Chilolo* sums up a crucial reason for most of them remaining rather unstressed:

I don't know whether the government will come and evict, but what I can say is, the government nowadays, there is a lot of politics in whatever issue. We can never be evicted, because it's not just happening here but all along the [Great North] Road, and it's a lot of people. If one person rises to say ‘we are not going to vote for this government, because they have evicted us’, then the government will think ‘No, no, no, we're going to lose the elections’ while in the actual fact the one who's talking doesn't even have the voters card [laughs].³⁷⁵

³⁷² Chimupati’s *Chilolo* during an interview at his Farm in the Serenje Nat. Forest (Chimupati) on May 2, 2015.

³⁷³ District Agricultural Officer (DACO) during an interview in *Boma* on May 7, 2015.

³⁷⁴ During fieldwork, the terms ‘squatter’ and ‘squatting’ was used in Zambia by forestry officers and in the media when referring to illegal Forest settlers or their settlements.

³⁷⁵ *Chilolo* during an interview at his Farm in the Serenje National Forest (Chimupati) on May 2, 2015.

Most certainly, politics were just another crucial factor why utilizing the Forest had become an option since 2010. Since then, land continued to be in high demand, and the allocation east of Chibobo Road continued until it was completely ‘sold out’ in late 2012.

At least 40 Farms had come into existence, as pictured in the map below (Fig. 20). They were now considered to be a new village of Lumpampa – the community to its immediate north. Some of the Farms were *settled* by people from the surrounding villages, others were used by them for farming only, and again others are used for farming by residents from *Boma*. Over the last two years, the stretch between the tarmac and pipeline has been depleted due to the production of charcoal. The land east of Chibobo Road has been entirely ‘sold out’, and more houses and shops have been put up along the tarmac. In the meantime, on the other side of Chibobo Road – west of it – a number of people had settled as well, but on their own initiative.

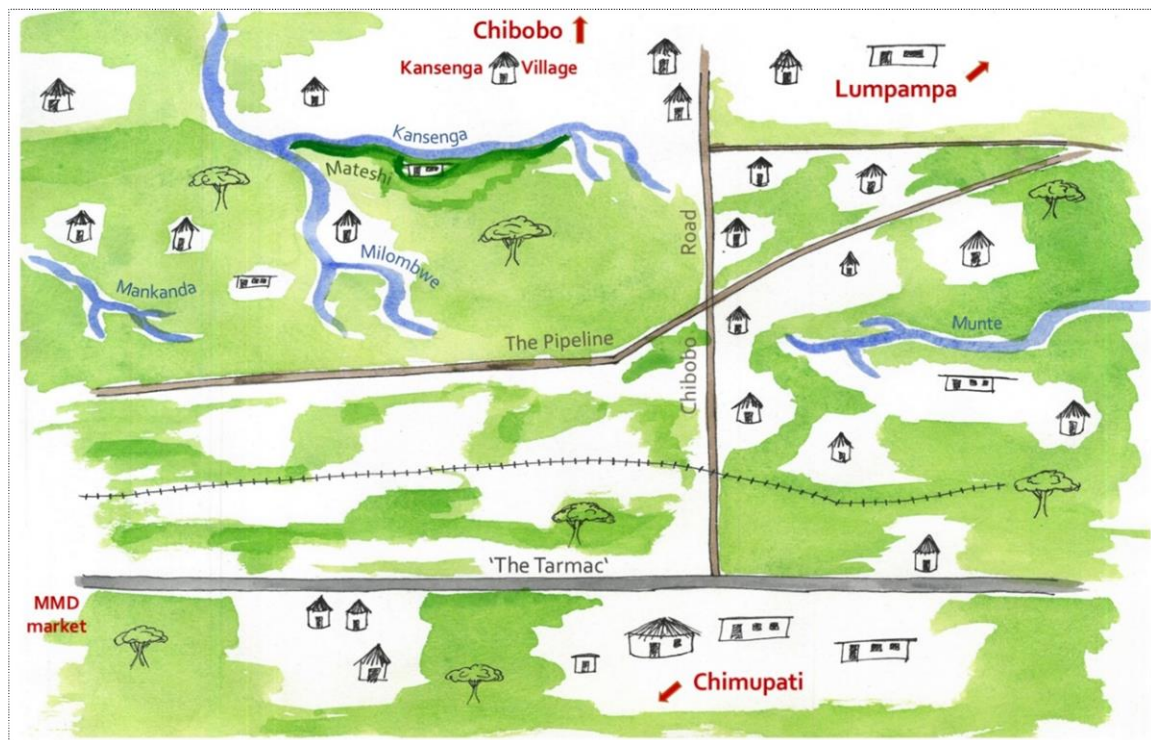


Fig. 20 Map of the Serenje National Forest by late 2012 (map created by author)

The vast majority of the new settlers had come from Chimupati and settled between the two streams of Mankanda and Milombwe, as this area was relatively deep within the Forest and thus expected to have the best virgin soils. Moreover, it was far enough from their home villages, yet still close enough to the tarmac and MMD. Their *Chilolo* from Chimupati was not involved as this land was considered to be part of Chibobo and thus even another chieftom. Only now, in 2013, the *Chilolo* of Chibobo also begun giving out Farms ‘on his side’, that is, west of Chibobo Road. The next section will shed light onto this third strand of change.

Phase III: Converting the Forest – the emergence of two new villages of Chibobo

For the very first time, just before the onset of the rainy season in 2010, two men from the community to the South – from where also most of the charcoal burners were coming – had moved on their own initiative deep into the Forest. Without informing any authority, they had just settled with their core families, several kilometres apart from each other. As they were the first, they did not demarcate a certain plot, but moved relatively deep into the Forest, close to Mankanda stream that allowed them to do gardening and grow manually irrigated so-called ‘winter maize’ during the dry and cold season. They were soon followed by former neighbours and family members – and the settlement began to grow.

About two years later, Chibobo’s *Chilolo* was walking on the road above the pipeline. While it was monitored by paramilitary forces more than a decade earlier, nowadays it was slashed annually to provide a clear view, allegedly for remote surveillance via satellite. Precisely on that road, the *Chilolo* accidentally ran into some people he never met before. After a short interrogation, he found out that they – and a number of other households – had already settled in the Forest on their own initiative some years ago. While the *Chilolo* is always well aware of his subjects leaving or returning to his community, it is beyond his powers to control ‘squatters’ coming from outside the chiefdom (Mickels-Kokwe & Kokwe 2015: 128). As those newly established Farms were closer to Chibobo than to any other community, however, he felt responsible regardless of the new settlers’ origin. While in the other two communities, the Chief played a major role in allocating land, in Chibobo, it was actively initiated by the *Chilolo* only, partly because no Chief had been enthroned back then.

In order to allow for better government of the new settlement, the *Chilolo* appointed the head of the first settlers’ household to be the new *Sulutani* of the entire Forest settlement ‘on his side’ – and a new village of Chibobo was born. It was named after the biggest stream, which not only changed the name from *Kapenda* (National Forest) to Mankanda, but thereby also its perceived status – from a National Forest to a village, equal to Kansenga. In the following weeks and months, the *Chilolo* began to announce that new land was available and applications could be submitted. Through word of mouth, the news spread rapidly and land was quickly allocated by him to his own subjects who were desperately waiting for land, but also to people from other communities and from *Boma*. Receiving land was hardly a question of money, but often really depended on contingency – being in the right place at the right time. While in the past, customary authorities only distributed their *own* land to *their* subjects, increased competition for scarce land resources gave rise to such less regulated ways of distributing the remaining ‘pieces of cake’ (cf. Sitko et al. 2015: 16). In the case of the Forest, some people settled on state land without informing *any* authority, while others *were* settled on state land by customary authorities, both of which violated statutory law.

Similarly to the other traditional authorities, the *Chilolo* advised all his applicants that the Forest shall not be used for the commercial production of charcoal. He furthermore announced that those who clear more land than they can eventually cultivate will be punished. This caution is due to the experience that farmers regularly tend to overestimate their own capabilities with regard to money and labour, and clear more land than they can eventually utilize for farming. When a previous harvest was successful due to good rainfall, for example, farmers may open up more land that they ultimately will not cultivate when the rains fall short of the previous season. In several cases across the communities, farmers pointed to fallow land they had used during the last season, but now abandoned due to the loss they made.

By 2015, after less than three years, most land in Mankanda was ‘sold out’, albeit not entirely settled. In March 2015, the *Chilolo* called for a meeting, during which he appointed ten male settlers from Mankanda to form a committee, whose task it was to properly demarcate all Farms and to ensure that boundaries were upheld. During the same meeting, the size of the plots was discussed and determined to be 12.5 ha (500 by 250 metres) each, with the pipeline henceforth designating the physical boundary between the Farms, and the railway line marking the village’s border to the south. The recently appointed first *Sulutani* was agreed to be paid an undefined, small amount of appreciation by the newcomers, which was partly set aside for paying workers demarcating the Farms. During the early dry season of 2015, many rumours arose about the *Sulutani* having given bigger portions of land to those he drank beer with. Others accused him of ‘chewing a lot of money’, instead of properly paying pieceworkers for demarcating the Farms. Apart from such quarrels, the newly emerged village of Mankanda got too big to be governed by one *Sulutani*. Consequently, Mankanda was split into two – and another village of Chibobo came into existence. It was also named after its biggest stream – Milombwe – and its new *Sulutani*, similar to the first arrangement, was the head of the household that had first settled in *this* area. His case will be presented on the next page. Instead of 10 villages, Chibobo was henceforth made up of 12, with Mankanda and Milombwe being the newest, each at least 1,300 ha large.³⁷⁶ By the year 2015, the land between Mankanda and Milombwe had been entirely settled and cultivated. Along the tarmac and east of Chibobo Road, more houses were put up and farmland was extended. The entire National Forest within my research area had been ‘absorbed’ by its adjoining communities and thereby chiefdoms, namely Chibobo (Muchinda Chiefdom) and Lumpampa (Kabamba Chiefdom), with minor parts being ‘included’ into the community of Chimupati (Kabamba Chiefdom).

While the earlier chapters of this thesis have focused on Kansenga, Chibobo’s southernmost and oldest village, the following pages will deal in detail with Milombwe only

³⁷⁶ If the oldest and biggest Farm of Kansenga, the so-called ‘Mateshi Farm’, which arguably lies within the Forest’s boundaries, was to be included, the new section of Milombwe would be at least 200 ha bigger.

– the youngest village of Chibobo. I will begin by depicting the case of Michael Kazumba, who first settled within the Forest on his own initiative in 2010, and later became the *Sulutani* of the village he had ‘founded’. Thereafter, I will include the several new settlers and new landowners who have changed the Forest since 2013 and continue to do so.

9.2 The evolution of Milombwe

Kazumba the pioneer and Milombwe by 2015

During the dry season of 2010, one man from Chimupati – the densely populated community south of the Forest – came into the Forest in order to find new land for farming. By that time, Michael Kazumba, as the man is called, was permanently living with his wife and eleven children, a son-in-law and two grandchildren on his mother's Farm. Previous to that, they lived, following customary law, on his in-laws' Farm for ten years. The in-laws' land, however, had become too small to accommodate, not to mention to feed, the entire family properly. They moved back onto his own parents' Farm, where more land was available though also limited. Moving back onto your parents Farm is very uncommon, yet for a *man* to move back onto his parents' Farm, he must be desperate, even more so when bringing along his wife and children. Even here, all land had been exhausted after a while, which precluded any expansion in the future. Due to these constraints, he decided to search for suitable farmland in the Forest, to which he could commute on a regular basis. In mid-2010, he crossed the tarmac, had to pass through relatively undisturbed parts of the Forest, cross a stream, walk uphill and eventually negotiate his way within the *Mateshi* – a forest stretch along Milombwe Stream (see Fig. 20), that is characterized by much higher trees and a thicker undergrowth than anywhere else in the Forest. Along the banks of the stream, the soil seemed to be most suitable for gardening and farming even during the dry season. He constructed a temporary shelter out of tree branches, elephant grass and plastic sacks, and began cultivating the land. After having worked and stayed here for about two weeks, he began to consider moving here for good. A few days before turning 47, Michael Kazumba decided to bring his wife and all their children except the firstborn daughter into the Forest to settle for good. Without involving any traditional leaders, he opened up a new Farm on his own initiative, only about 3.5 km walking distance from his former village in Chimupati. Their firstborn daughter initially remained there, together with her husband and two children, but four years later, in 2014, they followed him into the Forest.

Since Michael and his dependants have settled in the Forest, they have cleared about 2.5 ha for their houses and farmland, out of which 2 were already cleared during their very first season. The number of trees cut down for the purpose of creating farmland was unprecedented due to the Forest's density. Instead of wasting them, Michael tried to make charcoal for the first time, together with his wife and their four oldest boys. Eventually, they produced about 90 bags, which his wife sold over three trips at Mandevu market in Lusaka. They even had a licence for this so there were no disruptions along the road. In order not to raise suspicion, he wrongly told the forestry officers when applying for the licence that the

charcoal will be produced in Chimupati, the village from where they came and were also known to be from.

On the fields created, they have been growing soya beans, millet and cassava on small fields, but mostly Irish potatoes and maize, even during the dry season along the stream. Since the land had remained untouched for at least half a century, they expected the harvest to be very good even without any fertilizer, and they were proven right. Ever since, they have never applied any fertilizer. As one household member is part of a cooperative, they receive one subsidized pack for farming, yet over the last five years, they have re-sold the fertilizer. Still, they produced enough crops to feed the family, and to even sell a surplus of Irish potatoes and maize. Thanks to this good annual harvest, the charcoal sales, and the sold fertilizer, their living standard has improved tremendously within only a few years. Today, the household manages to buy relish in *Boma* several times a month, they have bought bicycles, a solar set and a music player, they can employ pieceworkers for preparing the fields, and they can even send about 100 kg of dried maize to their elderly mothers every year, supporting them for several months. All this has given them new vitality and incited them to now work even harder. In order to afford other consumer goods such as clothes, pots and plates, and one day, even cattle for ploughing, they have decided to follow market demands with regard to which crops to grow.

Besides such material advancements, Michael points to another advantage which they enjoy here – they save a lot of time. Instead of walking far in order to find timber for construction and firewood on a daily basis, ‘everything is just around our house, so we don’t have to collect it in bulk, we can even go in the night’³⁷⁷. On top of that, the household members have come to enjoy fruits, mushrooms and wild vegetables from the Forest, which they previously collected but less often and in far less quantities. Along the stream, wild *Physalis* locally known as ‘jam fruits’ grow here and there, and within the old-growth parts of Milombwe, where Kazumba has settled with his family, there is a special fruit that grows on the dry ground and is often hidden in amongst bracken – the so-called *Intungule* fruit (*Afromomum*). The fruits, which have a blazing red colour, are usually collected and traded during the dry and late dry season.³⁷⁸

Such a positive description as provided by Michael’s household was not a unique case at all, but sums up well the overall picture *all* households drew throughout fieldwork in different parts of the Forest.

Within the first three years after Michael had settled in what later became the village of Milombwe, no *permanent* settlers arrived here. However, as described above, charcoal

³⁷⁷ Michael Kazumba during an interview at his Farm in Milombwe on May 14, 2015.

³⁷⁸ In order to remove undergrowth to improve visibility, people collecting *Intungule* have also been accused of causing wild fires in the Forest. Other names for it found in the literature were Guinea Grains, Grains of Paradise, Longoza Plant, Mlelgueta Pepper, and Madagascar Cardamom. On Madagascar, it has been extracted by the luxurious goods company Dior, as an ingredient of their anti-ageing cosmetics. Locally, however, both its medicinal and commercial value were unknown.

producers had entered from the south during that time and moved up to the pipeline. In 2013, when the Forest to the west of Milombwe (Mankanda), east (Lumpampa), and south (Chimupati) was ‘sold out’, three more households arrived in Milombwe. In 2014, six more came into existence, and a further seven households were set up in 2015, summing up to 18 households (on 15 Farms) in total (see Fig. 21). By now, the entire land within Milombwe was ‘sold out’ – on both sides of the pipeline. Most of Milombwe’s households were established just before the imminent rainy season, between June and November, just in time to prepare the fields for farming.

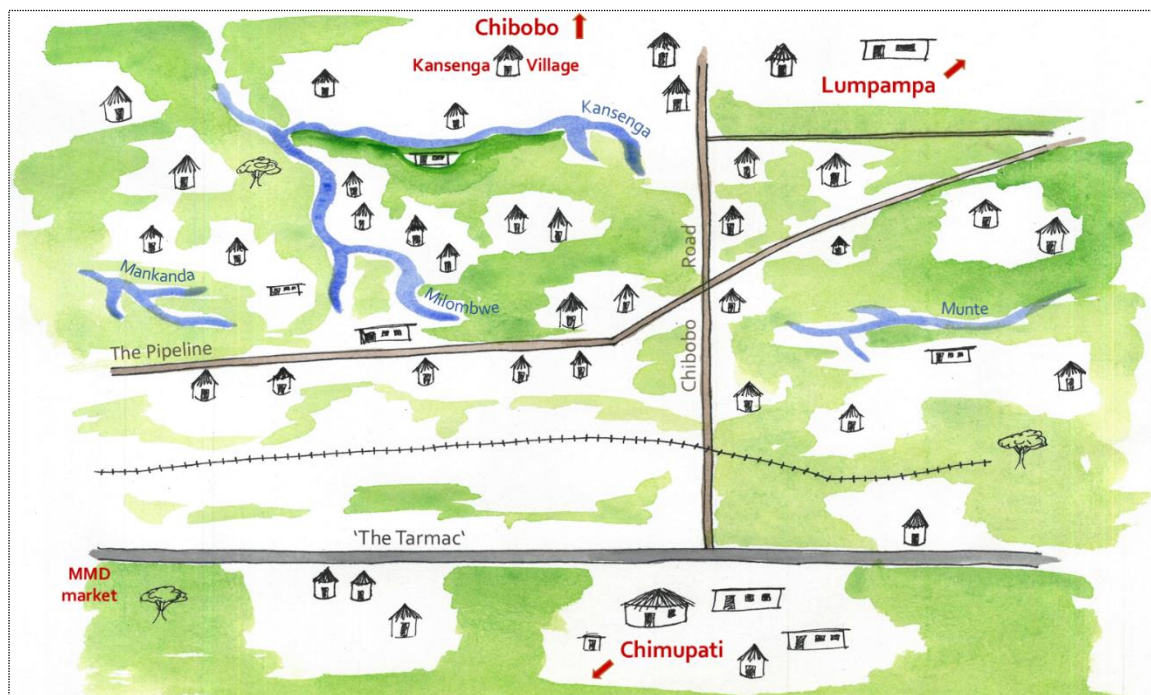


Fig. 21 Map of the Serenje National Forest by late 2015 (map created by author)

In contrast to Michael Kazumba’s household, which settled on his own initiative, all the following had been ‘recruited’ by the *Chilolo*, who began to advertise this land beginning in 2012 after he had run into settlers he never met before (see p. 213). Three years later, by October 2015, Milombwe consisted of 35 Farms in total, yet only the 15 Farms mentioned above had been settled and cultivated. By now, 115 people resided in the Forest, of whom 51% were male, and 70% below 18 years of age, which makes Milombwe even ‘younger’ than Kansenga. Remarkably, households from there, but also from other villages of Chibobo, had always dismissed the upcoming Farms in the Forest. However, in the course of my stay, more and more people confessed that they had also applied for land there, or that they would have loved to also do so – especially after having realized that there seemed to be no evictions.³⁷⁹ Remarkably, the 18 households *that had already settled* by October 2015 had

³⁷⁹ This is another example that clearly speaks in favour of long-term fieldwork – in particular when illegal, informal, or possibly objectionable actions are researched.

previously lived in the nearby surroundings, mostly in the southern, densely populated community of Chimupati (9 households), where most of the ‘charcoal pioneers’ as well as most settlers occupying other parts of the Forest had come from. The remaining households also came from nearby, namely Chibobo (4), Lumpampa (3), and *Boma* (2). As a result of men’s cultural obligation to establish their own household or Farm after a few years of uxori-local residence following marriage (see p. 50 f.), the newly established Farms were all but one ‘owned’³⁸⁰ by men. This is in contrast to Kansenga, where more than half of all Farms are owned by women due to the matrilineal inheritance of land. However, as the Farms in the Forest are equally considered to be quasi-customary or to become customary in the future, their inheritance will follow the Lala tradition and thus be matrilineal.

Not only land *within* the Forest had been allocated to people, but also the small stretch between the Great North Road and the railway line, which was the most depleted of trees due to charcoal production, underwent change: the land was split into five plots of about 1.800 m² each. In contrast to Farms, plots are generally much smaller and meant for residential or commercial purposes only, without much space for farming or gardening. Similar to the Farms, they were sold for a low price to five individuals from Chibobo (3), Lumpampa (1) and Lusaka (1). While the first four, including one lady and the *Chilolo* himself, were amongst the more privileged rural households, the landlord from Lusaka ran an environmental NGO that has been active on the Lala Plateau for long. When I was leaving the region in October 2015, such plots had not yet been developed in any way.

Since the Forest has not been officially de-gazetted since, it is, until today, officially owned by the government, with no one else having any legal right to own land or reside in the Forest. Nevertheless, it has gradually transformed from a National Forest Reserve into a rural settlement with farmland and a few commercial plots. This transformation has, as a matter of course, significantly contributed to the loss of trees, and is likely to do so in the future. On the following pages, I will turn towards the different actors who have acquired land in Milombwe. For a differentiated analysis, it is helpful to cluster the new households with regard to their *de facto* land ownership status: I will first portray a few households living *on their own* land, followed by those who occupy other people’s land, and eventually depict some of the landowners that, by late 2015, had neither settled in the Forest themselves nor allowed others to do so.

³⁸⁰ For the purpose of analysis, I will in the following write about ‘landowners’, which refers to the person who bought land in the Forest and is since considered landlord or landlady. This, however, does not imply any official legal status or entitlement, which all people concerned are well aware of.

Group 1: The shifted farmers of Milombwe

Settlers owning their land

Jonathan Chunga, a resident of Chibobo who earns his living as an employee of the orphanage, was one of the first to get land in Milombwe. Besides this job that provided him with privileges and a regular, relatively good income, he also engaged in small-scale farming. When he heard about land being available in the Forest in late 2012, he wrote a letter to the *Chilolo* in which he explained that he was interested in bringing his cattle and goats to the Forest, and to do a bit of farming there. His idea was to utilize the Forest for farming, while reserving land on his older Farm in Chibobo for his children and possibly retirement. While waiting for a reply from the *Chilolo*, one of his friends went to the Forestry Department, assuming they are responsible for the allocation of land. He was told off and informed that this new settlement was illegal and settlers would be evicted sooner or later. With this information, Jonathan went straight to the District Commissioner (D.C.), a high-ranking politician at district level, to validate these statements. The D.C. warned him that 'it's still government's land, and it's of a particular importance because of all the river sources',³⁸¹ so he should not get involved, let alone to put up any structures. Jonathan followed this advice, which provoked the *Chilolo* to allocate this Farm for a second time, to people who would mark the land as their own, preferably through physical structures. A second applicant was quickly found and soon given the land. The new settler was Ive Chilambe, who happened to be a sister to the widow of the late Chief Kabamba. When he passed away in late 2010, she and her sister had to leave the Palace to give way to the incumbent Chief, his family and staff. Since then, she was living with her sister and her own children on a small Farm within the National Forest on Kabamba's side. This indicates that even people who were close to the highest traditional authority of the entire Chiefdom and presumably knew the land well, did not have access to any other but state land. On their new land within the National Forest, the soil was sandy and dry, thus not suitable for farming and much less gardening. The Farm was not only infertile and thus too small, but also very far away from the clinic and the primary school to which she wanted to send her children. When she got to know about the remaining Forest plots on the other side of Chibobo Road in the dry season of 2014, she went straight to the *Chilolo*. Because she was relatively late, she was allocated land south of the pipeline, the area most cleared already by charcoal burners, and furthest away from Milombwe Stream. This stretch was less desirable as the soil was considered to be less fertile than towards the *Mateshi*. Moreover, more trees had already been depleted by charcoal producers, which not only removed charcoal production from the possible livelihood options, but also impacted negatively on the

³⁸¹ Jonathan Chunga during an interview at his Farm in northern Chibobo on May 4, 2015.

number of fruits, mushrooms, and obviously timber. Since she did not have much choice, she agreed to relocate onto this Farm soon. Still before the onset of the rains, she started burning bricks for constructing a house, and grew a small area of millet, which had a very good stand due to the fertile, virgin soil. Millet grows best on the ash beds of former charcoal kilns, as was well known from *Chitemene* times. Once the house was finished, she moved over with her children and prepared the fields for growing maize. While her life has improved ever since, she is still afraid of being evicted one day. In this case, she would be free to return to her sister's Farm, which, however, is too small and itself located within the National Forest and thus not secure.

Another of the early settlers was Robert Ngosa, a tobacco producer from Chibobo. Similarly to most settlers, he came to the Forest in search of good soil, and as a tobacco grower, a stable supply of fuelwood for curing his tobacco (see Chapter 4). By mid-October 2015, 10 further households *owning the land* had come into existence, occupying 9 Farms in total. On top of those, there were 6 more households (on 6 Farms), which had established themselves but did *not* own the land. They only occupied it on behalf of other, absentee landlords, which will be depicted on the next pages before I sum up the characteristics of the 18 settled households.

Tenant households and absentee landlords

One day, just when finishing piecework in Chimupati, a man named Douglas Kalunga runs into an elderly, well-dressed man. The man asks Douglas whether he is married and whether he already has an own Farm or not yet. By that time, Douglas Kalunga was in his early 50s and still living with his wife and three children on his in-laws land in Chimupati. Since the area was characterized by high population density and a scarcity of land, they were confined to a few hectares and could not expand their fields. They hardly produced any surplus and were often afraid to finish their maize before the next harvest. On top of that, living with the in-laws has been a major hassle as they were under constant supervision and did not have any say over the land. The same constraints – not being allowed to cultivate their own fields, let alone to expand them – was reported by most households within the entire Forest as well. Especially *husbands* felt under constant control and were experiencing tensions. Even after marriage and becoming fathers, they often felt unfairly treated. Eventually, the elderly man offered Douglas a Farm in the Forest, to which he happily agreed for the mentioned reasons. Douglas was excited to relocate, especially when the landlord mentioned that he had already built a house covered by iron sheets and that he did not have any intentions of shifting there himself. On finding out that the new Farm – about 12.5 ha big – is even close to the tarmac and a stream, Douglas and his family could hardly wait to move into the Forest to prepare the fields for the approaching rainy season of 2014/2015.

The man who had offered land to Douglas and his family was living in *Boma*, where he works as the head teacher of a primary school. Apart from this regular occupation and payment, he also practices farming on three different Farms he owns in the vicinity of *Boma*. When he found out about ‘new land for little money’, he wanted to seize the opportunity. According to the landlord himself, he paid 2.000 ZMW to the *Chilolo* for 25 well-forested hectares, that were later cut down to 12.5 ha in recognition of the high demand for land. Even then, the land was very cheap, especially considering its virginity, notwithstanding the fact that urban landlords were generally overcharged in comparison with rural applicants. However, he did not hesitate to pay the money as he was pushed by circulating rumours of large-scale investors coming and buying up large tracts of land for farming (see Herre 2013, and Chu et al. 2015).³⁸² While the rush into the Forest was fuelled by the fear of others grabbing the land, it ironically contributed to ‘small-scale land grabbing’ as well and thereby worsened the scarcity of customary land available (cf. Gumbo et al. 2013: 60 ff.).³⁸³

Douglas’ landlord eventually ‘got a piece of the cake’, on which he intended growing maize for sale and opening up a plantation for pine and eucalyptus in the near future. Retirement might also be an option, but this depends on whether Milombwe becomes a legalized settlement. Moreover, if it is connected to the power grid, he might consider relocating here for good. As soon as a new Chief is enthroned, he wants to convert the land from customary into private land, and get a title deed in order to secure his claims. The landlord points out that he essentially bought the Farm ‘to be responsible’ for his extended family, arguing that his government salary of 4,000-5,000 ZMW per month is not enough ‘to keep up a decent life one should be living’³⁸⁴. In order to make sure nobody will temper with his land, he decided ‘to put people’ onto it, as he is aware that *settled* land is highly respected. Since he has many Farms he can resort to when he has to vacate his urban plot after retirement, he promised Douglas and his family to never chase them from the Farm in Milombwe – as long as they keep his fields and crops well, they can live here forever. Douglas and his wife are very happy with this supposedly secure situation.

Nine months after they had moved into the Forest with their three children, their living standards had already improved tremendously. When they came, they first cleared 2.75 ha

³⁸² Two of Zambia’s largest commercial farm blocks, Luombwa and Nansanga (see pp. 116 ff.), are located on the Lala Plateau. Both have been expanding considerably over the last years, and they are closely associated with ‘the Whites’ – large-scale farmers from Zimbabwe and South Africa. With me being White, one of the landlords, who was working with the Ministry of Education in *Boma*, questioned my research mission in the Forest, thinking that I was rather exploring investment opportunities. He insisted on seeing me in his government office in *Boma* to produce my ID and residence/research permit. When I found him there a week thereafter, he was obviously surprised, and scared that his colleagues could find out about him being involved ‘in dubious land deals’, he said. However, he understood my research intentions, answered my ‘delicate questions’, and emphasized that ‘this is very confidential, it’s tricky and sensitive information you are noting down somewhere’ (Landlord during an interview at the Ministry of Education Office in *Boma* on July 12, 2015).

³⁸³ Whereas ‘land grabbing’ is mostly linked to large-scale foreign investments by multinationals, local elites hardly figure in the debate (cf. Claessens et al. 2014: 82). Cases of small-scale land grabs by locals, both rural and urban, however, do exist and are equally important regarding subsistence and small-scale livelihoods (Hilhorst & Ansoms 2014: 204) – and have also contributed to forest clearance.

³⁸⁴ Douglas’ landlord during an interview at his plot in *Boma* on June 26, 2015.

of forest for the landlord, on which pieceworkers – not the settlers – farm maize, sweet potatoes and groundnuts. They also cleared 0.5 ha for themselves, on which they grow groundnuts, sweet and Irish potatoes for sale. This has given relief to the parents' respective in-laws' Farm, but due to overused soils on these Farms, the harvest was still bad, 'no matter how much fertilizer you apply'³⁸⁵. In the near future, they want to expand their fields in Milombwe, and open a small garden to grow rape, cabbage and tomatoes. As the landlord has warned them not to finish the trees quickly, he has limited the tenants' expansion to 3 ha maximum – which will be sufficient for several years to come. Instead of 'wasting' the trees after clearing, the household produced charcoal for the very first time, which was also their payment for clearing the land. Where they came from, they never had a chance to produce charcoal as extension was not possible anymore and there were no big trees left. But since 'all were doing it here', they quickly acquired the skills. Together with some of their neighbours in the Forest, the wife got a licence from the forestry office in *Boma* and sold the first bags at MMD to buyers from Lusaka. From within the Forest, MMD is, similar to their previous Farm, 'very close, you can even start off [from there] at sunset and reach here before darkness'³⁸⁶. Later on, she sold a further 200 charcoal bags or so at Mandevu market in Lusaka.

Besides the production of charcoal, they have continued a business they already engaged in before settling in the Forest: they came here in order to collect mushrooms and wild fruits, which they were selling locally and to motorists along the tarmac and at MMD. Even though mushrooms can generally only be collected between November and February, and wild fruits are finished within about two weeks, both products have contributed and continue to contribute a few hundred Kwacha to the household's annual income. *Munkoyo* roots are also high in demand – locally, in *Boma*, but also from the hospitality industry: since 'people from town have come with money and clothes'³⁸⁷, many women in the Forest, including Ines Kalunga, Douglas' wife, have started digging for it all year round. Thanks to this stable flow of income, which is new to the family, they already managed to satisfy some old needs – they bought clothes for their children, as well as new blankets and plates, a sofa and a music system, which will allow them to finally receive guests *properly*. Moreover, they manage to travel on a weekly basis to *Boma* in order to buy different types of relish, which previously was not possible due to a lack of money, not only for relish but for transport in the first place. They also re-invested some money into fish for re-sale, which has been a stable business as well. In the near future, they wish to be able to fix their only bicycle, for which they have been waiting for a long time. As more land – either for the landlord or themselves – will be opened up in the near future, further wishes are likely to materialize.

³⁸⁵ Douglas Kalunga during the census interview at his Farm in Milombwe on May 22, 2015.

³⁸⁶ Ines Kalunga during the census interview at Kalunga Farm in Milombwe on May 22, 2015.

³⁸⁷ Douglas Kalunga during the census interview at his Farm in Milombwe on May 22, 2015.

In this regard, Ines Kalunga, but also most other farmers in the Forest have pointed out that they do not indiscriminately cut trees down:

We do not just clear anyhow, but we make sizable fields, we can't finish the Forest when farming. You see, near the source I have left a line of big trees to protect the water source, I don't want to destroy the trees here, so I have not planned to pursue the charcoal business.³⁸⁸

When saying that she does not want to continue the charcoal business, she means 'not professionally' or 'commercially', but only after clearing land for farming. Once 'enough' land has been cleared for that, the production of charcoal will come to an end as well. Instead of producing charcoal for sale, she wants to focus on re-selling fish from Luapula – a major river and province – for re-sale.³⁸⁹ Overall, the lives of Ines, Douglas and their children have already improved a lot, within a relatively short period of time, and as the overall upswing is likely to endure due to the fertile soil available, they do not have any plans to move away from here again.

Besides Douglas Kalunga's, there are five more households that occupy someone else's Farm. The positive depiction provided by Douglas and his wife very much reflects the overall atmosphere in these households, with all of them having experienced an economic upswing since having relocated to Milombwe. While all tenant households still desired their *own* Farm, they were particularly grateful towards the landlords, to whom they were never related, but only got to know by accident or through word of mouth. The five landlords were residing in *Boma* (3), Chibobo (1) and Lumpampa (1), were all in well-paid wage labour, or had another regular income: one was with the Ministry of Education, another one runs a barber shop and a carpentry, the third owns a shop for bicycle repairs and clothing, and the remaining two are comparatively successful small-scale farmers. Their major reason for acquiring land in Milombwe was the desire for agricultural expansion in order to farm more cash crops. Besides speculation, some also had the idea to plant exotic trees for sale, and to possibly move here for retirement. In all cases, they paid their tenants a very good piecework wage for clearing the needed land, depending on the density of the Forest,³⁹⁰ or allowed them to produce charcoal from the cleared trees in return. While some also pay their tenants to do some farming on their behalf, others send money with which the tenants can employ pieceworkers. Furthermore, all landlords have put up or paid for a decent house – with a concrete floor, burnt bricks and iron sheets – in which the tenants are allowed to live for the

³⁸⁸ Ines Kalunga during the census interview at Kalunga Farm in Milombwe on May 22, 2015.

³⁸⁹ Instead of buying fish in Lusaka after selling charcoal, she will continue to source fish from the regionally well-known Tuta Bridge, which crosses the Luapula wetlands a little less than 200 km north of Milombwe. Certain fish types from here are highly demanded and fetch a good price in *Boma*, at MMD and also locally. Marketeers often make a clear distinction between fish from here, and fish from Siavonga at Lake Kariba, which feeds the rural population of Southern province and also Lusaka.

³⁹⁰ Due to bigger stem diameters and a higher density of the forest, clear-cutting 1 lima in the National Forest can take a week and longer, for which pieceworkers are paid about 120 ZMW in total (cf. p. 97, fn. 151).

time being. On top of that, some landlords bring small amounts of money or *mielie meal* whenever they come by. By allowing other people to occupy their Farms, they would ensure that no charcoal producers would clear their land, and that it would not be re-allocated to 'more productive' people by the *Chilolo*.

Altogether, by October 2015, 15 Farms hosting 18 households, including 6 'tenant households' had come into existence in Milombwe, which were all made up of small-scale farmers in search of land. Most of the households (13 in total) were distressed by the lack of *fertile* land, or of any land, which had often brought about conflicts with neighbours, but first and foremost with the Farm owners, that is, the (grand)parents or in-laws. Against this background, they were 'forced to open undeveloped forest lands', which is why Bodley (2012: 47) aptly labelled them *shifted* farmers. The remaining households, five in total, only followed other 'shifted farmers' – namely their parents or in-laws. Assuming that all the new 'squattling households' must have left behind their old Farms, forestry officers from *Boma* expected them to go back there, or blamed them for having sold the land. This claim, however, could only be confirmed in a single case. One of the new settlers, an elderly man, had sold his Farm for little money

because for 11 children, it was too small and we had less than 2 hectares of arable land. There were wetlands all around us and other places were too sandy, so you can't make a field there. Now we can relax here but we can't go back to this Farm because the property is not ours anymore and now occupied by other people, we also don't own the houses anymore.³⁹¹

In one case, a rented council house was given up, and in another, an adult son was left behind. In all the other cases, the (grand)parents respective in-laws, or female relatives of the Forest settlers had remained on the old Farm. The *Chilolos* of Chibobo and Chimupati, from where most settlers had come, support this observation, indicating that none of their land became idle, which they would necessarily be aware of.

As a matter of course, the evolution of Milombwe entailed deforestation for several reasons: trees had to give way to houses, kitchen huts, yards and roads, and – more extensively – to new fields for farming for both settlers and absentee landlords. The agricultural activities of both parties, in turn, entailed the extensive production of charcoal, as will be discussed on the following pages.

³⁹¹ Pattson Kunda during the census interview at his Farm in Milombwe on May 18, 2015.

The charcoal farming nexus within Milombwe

In the course of opening up a new Farm, including agricultural land, all households had to cut down trees to different extents. Instead of passing up the chance to utilize the trees cut, all but three of the 18 households converted them into charcoal. Because even after using up all suitable poles and branches for construction purposes, the remaining trees were too much to be used as firewood, as it cannot be stored for long: it will either rot away or be attacked by weevils. Interestingly, most of the producers rarely use charcoal themselves. Only when the dry months become extraordinarily cold, they collect bits and pieces from old kilns, after larger chunks have already been sold. Two households that did not participate in the production, simply did not have any suitable, that is, bigger trees, left on their land. They had already been extracted by charcoal burners between 2010 and 2013, leaving behind land that, at least, could be cultivated without the effort of clearing. The third household that did not participate utilized the trees for curing tobacco instead. All the others, 15 in total, were currently involved in the business. Electricity tariffs had been increased and, most importantly, load shedding (see pp. 150 ff.) had been going on for a long time. There were no prospects of improvement, so the demand for charcoal was high as never before. Especially during the cold season, that is around June and July, the demand from urban centres was particularly high as charcoal was the cheapest available source for heating. When traders from Lusaka – always women who came via public transport and then rented a truck to pick up and ferry charcoal – were asking at MMD for more supply of charcoal, the word quickly spread. In order to stimulate a vivid supply, they promised instant cash or sound systems – not only at MMD, but in many villages along the Great North Road towards Lusaka. Consequently, instead of ‘wasting the trees’ after clearing land, most households tried to respond to this lasting demand and gave it a try. The participating households pointed out that they have never produced charcoal before, but only became inspired by others when coming here. Where they came from, there were no bigger trees left suitable for charcoal at all, and the very few straight ones were spared for construction purposes. Here in Milombwe, they are just learning the difficult craft of making charcoal: ‘Have you seen the tiny kiln at the roadside? It’s my first one, we don’t even know how to pile it and put the soil nicely, you can tell how bad it looks’, one settler explains to me, pointing to a collapsed kiln.³⁹² Apart from initial difficulties, they all manage to produce a few bags which they either bring on a bicycle or a rented ox-cart to MMD, where several resellers from Lusaka spend days and nights waiting for fresh supply. Those households settling within the more densely forested parts of Milombwe quickly produced dozens and

³⁹² Ezron Mutapa during the census interview at his Farm in Milombwe on May 19, 2015.

even hundreds of bags each.³⁹³ During peak times, this could amount to up to 60 t within a single week. The photo hereunder shows one of the longer kilns, which quickly increased in size as the land cleared for farming was densely forested. The charcoal was eventually packed in old fertilizer bags that were sealed with fibre extracted from *Musamba* trees – the brownish ropes visible on top of the bags. Most bags are usually fetched along the pipeline. The right photo shows one of the trucks that is loaded with several tons of charcoal destined for Lusaka before the tarpaulin cover was fixed. Whereas the majority of all households were feeding Lusaka, a single household sold all charcoal to the public Council Guest House in *Boma*.



Fig. 22 Charcoal from the National Forest leaving for urban consumption

The question of whether the charcoal producers here had a licence for *producing* charcoal was always denied. According to most households, those picking the charcoal ‘are friends with the Foresters’,³⁹⁴ so the trade is highly unlikely to ever be suppressed. However, those producers travelling on a truck to Mandevu to sell their produce themselves possessed a licence for *conveying* it in order to avoid trouble at the road blocks. If the carrier provided the licence, the price for transport increased accordingly. Similar to what other producers had reported, none of them was asked at the Forestry Department in *Boma* where exactly their produce came from, or is to come from. They simply indicated their home villages instead. While the officers knew that all such places, especially Chimupati, were already depleted of suitable trees and that the National Forest might be the actual production site, they never questioned the given information – allegedly in order to sustain the flow of revenue.

³⁹³ The ‘most active’ farmer had made 12 kilns with 40 bags each within the last two agricultural seasons, which his ‘madame’, as many men affectionately refer to their wives, sold in Mandevu, Lusaka’s major charcoal market.

³⁹⁴ Christin Kalale during an interview at her Farm in Milombwe on May 15, 2015.

Similar to what producers from Kansenga had reported (see p. 142 f.), it had been a common tactic of the applicants to pay for a smaller amount of bags than actually carried. In case the traffic or forestry officers at the road blocks did not agree with the papers, ‘you simply leave some small money’, which you fold and give out.³⁹⁵

With regard to deforestation, it is important to consider that *none* of these households produced ‘charcoal only’, that is, without utilizing the cleared land for another purpose such as farming or housing. That is why, even without the settlers’ production of charcoal, the same amount of land would have been cleared in the initial phase of settling and opening up fields. However, at the same time, the initial profit from charcoal sales may have enabled the participating households to purchase more inputs and hence cultivate more land within a shorter period of time, which in turn brings about the *opportunistic* production of charcoal (see Chapter 6.5), and so forth (cf. Elias 2011: 72).

Especially during the first years after settling in the Forest, they were euphoric and motivated to literally gain ground. During this time, all household members capable of work concentrate on cultivating and harvesting the land, which is why there is little time to additionally engage in the *professional* charcoal business. One settler emphatically announced during a group discussion: ‘People from Muchinda [the Chiefdom] are farmers, we don’t make charcoal, we eat first!’³⁹⁶, to which all participants agreed amicably. This confirms the observation of the ‘farmer’s identity’ of rural but also urban dwellers I have referred to earlier (see Chapter 6.3). Two landlords have even warned their tenants not to produce charcoal ‘for sale only’, without the need to clear new land. Similarly, several individuals from the surrounding villages have urged the settlers not to overdo it. Within Milombwe, there is a widely shared consensus that charcoal ought to be an opportunistic side-product only. The relatively large amount of salient charcoal bags was due to the fact that ‘even the first lima’ – the usual area cleared for a first agricultural field – yields too many trees to be wasted, especially on the densely forested Farms north of the pipeline. So far, none of the households had cleared more than 4.75 ha, which is already a relatively big area considering the short period of residence. In the future, however, households have pointed out that agricultural expansion, and thus the production of charcoal, will slow down or even come to an end for several years – at the latest when ‘enough land’ is cleared for practicing crop rotation. That is why, they are convinced that ‘even in fifty years, you can find trees here if nobody comes for charcoal burning’³⁹⁷. Due to fertile soils and sustainable farming practices such as intercropping, this scenario is indeed possible, but it is not very likely for a number of reasons: first, increased agricultural profits from agriculture – which all have in comparison to the past – can be an incentive for further expansion (cf. Byerlee et

³⁹⁵ Joshua Mumba during the census interview at his Farm in Milombwe on May 19, 2015.

³⁹⁶ Julius Kabanda during the group meeting at Kazumba Farm in Milombwe on April 22, 2015.

³⁹⁷ Michael Kazumba during the group meeting at his Farm in Milombwe on June 22, 2015.

al. 2014; Hou Jones & Franks 2015; Franks & Hou Jones 2016). Even increased productivity per hectare can thus rebound instead of decrease the area used, which is known as ‘the Jevons Paradox’ (Alcott 2005). Second, most households will need to produce more food with their children growing. Third, they will also attract both young and grown-up relatives from their places of origin, and fourth, they will eventually split up the Farms for their daughters’ families, who will also be reproducing. Furthermore, rising living standards as well as the desire for such (see Chapter 7) are likely to bring about the expansion of fields. In the end, as all settlers have conceded that ‘land will never be enough’³⁹⁸ and depending on each household’s resources, needs and capacities, which can all vary over the years, the clearing of land is most likely to continue. That is why, a number of settlers have suggested that ‘everyone should have limited fields and not extend all the time’³⁹⁹.

Besides the settlers, absentee landlords also play their role: none of them had cleared more than 5 ha so far, yet it is especially them who manage to clear more land, in less time, as they have the financial capacity to employ several pieceworkers for both clearing and farming. Ultimately, the likely continuation of agricultural expansion by both absentee landlords and settlers will allow for the production of charcoal, which in turn will increase the disposable incomes that can be re-invested in farming, and so on (cf. Elias 2011: 72). Besides opportunistic production, it is most likely that households will resort to the production of charcoal when in need of cash – either as an insurance to cover for unforeseen expenses, or an initial boost. However, all settlers have made clear that farming remains their major intention. I was vehemently assured that nobody was producing charcoal *professionally* and no one is considering ‘going commercial’, that is, producing charcoal as a central livelihood – production is very time-consuming, back-breaking, seen to be dirty, and too many deductions make the business unattractive. Moreover, in contrast to the opportunistic production, commercial production is seen as destructive to the environment. Therefore, farmers have pointed out that the ever increasing demand for charcoal from Lusaka will *not* corrupt them. Whereas traders from Lusaka jokingly told me at MMD: ‘Please ensure your friends [from the Forest] bring charcoal, otherwise we starve’, the Forest households repeatedly assured me that even ‘if they want more, we refuse, otherwise we can finish the Forest, we don’t just cut!’⁴⁰⁰ Another landlord equally explained to me that:

We only cut for a reason! I don’t want to destroy the trees here, and I also want to protect the water source, so I have not planned any charcoal business. I also cannot allow others, because I bought this plot to have trees, to have this natural beauty. Even fruits we collect there, and if you clear it, you’ll be in the desert! Even oxygen it produces, and rain, moisture [...].⁴⁰¹

³⁹⁸ Christin Kalale during the group meeting at Mumba Farm in Milombwe on June 24, 2015.

³⁹⁹ Joyce Kazumba during the group meeting at Kazumba Farm in Milombwe on April 22, 2015.

⁴⁰⁰ Julius Kabanda during the group meeting at Kazumba Farm in Milombwe on April 22, 2015.

⁴⁰¹ Adrian Kazubika during an interview at his old Farm in Lumpampa on July 28, 2015.

This statement clearly shows that the *commercial* production of charcoal is directly associated with deforestation and its ramifications. Clearing for farming and the opportunistic production of charcoal along the way, on the other hand, are hardly seen as an environmental challenge, even though the underlying driver, farming, is more invasive and arguably less sustainable due to uprooting and clear-cutting. This peculiarity will be further discussed in the concluding chapter of this thesis. With regard to the future, it remains to be seen whether production will continue to be opportunistic only, or whether households will opt for ‘going commercial’ as well. In any case, moving into the Forest and leaving behind their old Farms has enhanced all settlers’ overall quality of life, on which the next section will elaborate.

From absence to abundance

Remarkably, the improvement did not come gradually, but was rather experienced as a clear rupture to their previous lives. This change within a short period of time was due to a number of factors: first, most land in the Forest had been virgin and very fertile, allowing the farmers to have a better harvest than they used to have. The soils here are not only much more fertile than where they came from, but even much better than others had attested from anywhere else – even without high expenditure on fertilizer. This was in sharp contrast to their previous experiences:

No matter how much fertilizer you applied, the maize harvest was bad, it was not enough to take us to the next season, we were even starving. People were teasing me for having settled in a sandy area, but here, we can’t run out of food early. Even without fertilizer, you will harvest something. It’s really a big difference, I am so happy about the sweet potatoes, the two ridges are flourishing, it’s telling me that the soil is good here, we can even give [food to] pieceworkers.⁴⁰²

Ukufukika was still the dominant farming practice (see Chapter 6.3), and while most households did not apply any fertilizer at all, the seven households being further away from the streams, on sandy and less fertile parts, still apply fertilizer on maize or tobacco, though in minimal quantities. Having tried to use as much fertilizer as possible throughout their lives, they did not dare to entirely do without it here. Due to a better harvest and sales in the Forest, many households managed to buy rare and lucrative seed varieties, which fetched higher market prices. Also as a result of better sales, they managed to employ pieceworkers for farming, who were paid in cash, with gallons of maize, and sometimes dried fish. After the first harvest in the Forest, the households suddenly found themselves on a par with

⁴⁰² Julius Kabanda during the group meeting at Kazumba Farm in Milombwe on April 22, 2015.

other successful farmers, which has not only increased their self-esteem, but also given new hope and motivation to work even harder now. Having leapfrogged several stages between subsistence and quite profitable small-scale farming, they now wanted cattle for more professional ploughing, which could also be rented out, and be capitalized for rearing and sale. Another reason for the rapid upswing was the opportunistic production of charcoal after clearing for farming or gardening, which further increased disposable income. In that regard, living near the tarmac was beneficial as well, as it meant lower transport costs. Not only charcoal, but also crops and vegetables could thus be ferried to the market for less money than previously. Living nearby the tarmac has furthermore enabled the settlers to attend distant funerals more easily, and to regularly travel to *Boma* in order to visit the hospital, to attend cooperative activities, to spend money on goods and services, or to meet friends – which all had been a rare occurrence in their previous lives. The occurrence of Milombwe Stream and its ample marshes allows for manual irrigation and has thus brought about even more possibilities: most households begun to grow rape, aubergine, cabbage and tomatoes, all year round, which has provided additional income of at least 2,000 and up to 6,000 ZMW a year. A number of households have also started planting Irish potatoes and ‘winter maize’ along the stream, thereby extending their harvest period into the dry season. Moreover, shallow wells along the stream would guarantee access to water all year through, even when water levels are low. Interestingly, all households have reported much higher levels of rainfall here than where they came from, which was attributed to the existence of trees.⁴⁰³ All such new possibilities with regard to both farming and gardening have safeguarded food security, which is not only about calories, but also about a more diverse diet: instead of having only one meal per day and going to bed hungry, all households could now afford to have *Nshima* twice a day, with different sorts of relish, including fish, which previously was a rare treat. Mushrooms and fruits, freely available in the Forest, have equally contributed to that diversification. Nowadays, in between snacks such as boiled sweet potatoes or cassava, or even a third meal have become the new normal to many of the settlers. During the farming season, breakfast is still often skipped, though not due to a lack of food, but in order to ‘wake up early and work hard on the fields, because the sprint of a short man starts early’⁴⁰⁴, as a saying goes. Remarkably, during most of the interviews in the Forest, my research companion and I were offered roasted maize, boiled pumpkin, and many other foods, which was in sharp contrast to Kansenga, where the provision of any food during interviews was the rare exception – arguably as a result of food being abundant here in the Forest, but a scarcity ‘next door’. In this regard, my research companion pointed out

⁴⁰³ At the same time, however, they also concede that, in comparison to their childhood, overall rainfall has decreased.

⁴⁰⁴ Pattson Kunda during the census interview at his Farm in Milombwe on May 18, 2015.

that this is not only the result of conducive farming conditions, but also of the new settlers spending less money on beer, and being more active due to their enthusiasm.

Besides food security, which was a major concern to most households before coming to the Forest, they now all manage to afford the so-called 'basic household needs' such as *saladi* (cooking oil), soap, relish and salt. The higher disposable incomes have furthermore allowed for investments that were previously beyond their means: they could pay for school fees, buy consumers goods such as a mobile phone, artificial hair, or body lotions, or replace broken plates and pots. Being in the position to purchase clothes and shoes, as well as pen and paper, was also crucial for some households, as they were too ashamed to attend church services, to see the clinic officer, or to send children to school without appropriate clothing. In that regard, Milombwe is characterized by another benefit – it is relatively close to both the primary school and the clinic, though still more than 7 km away. Besides smaller goods, more expensive ones such as a bicycle, a sofa, a car battery with solar panels, a sound system, or even iron sheets were suddenly affordable or within reach. Five households even managed to regularly send remittances such as maize, salt and relish to their parents or in-laws. As things have been going so well, most households want to pursue a single income strategy in the future, which will not come as a surprise: they want to earn a living from growing maize, and in three cases from maize and tobacco. Depending on market prices and demand, they might add other goods for sale and barter, such as vegetables, dried and fresh fish, chickens, forest fruits, or mushrooms. Even soya beans, which are more expensive and labour intensive, might also be added.

On top of all such benefits outlined above, living in the Forest has brought another relief to all households – they can now easily access firewood, which previously was a big burden:

Where we came from, we were mostly stealing from neighbours or we had to walk far. Sometimes we also came with the bicycle to the Forest! For the very first time in 2009 maybe, when it got too scarce on our side. We had to cross the tarmac, and now it's just surrounding us.⁴⁰⁵

Instead of begging your neighbours or relatives, firewood is now within easy reach, so it can even be collected after sunset. Similar to firewood, timber and fibre for construction purposes is now readily available. Even those Farms that were widely depleted by charcoal producers still provide enough timber, though finding suitable poles will consume more time here. Interestingly, when moving into the Forest, households always concentrate on farming and construction is secondary. During the first days, only a quick and temporary shelter is made out of a few soft pillars in order to save time, with harder trees and unburnt

⁴⁰⁵ Dan Mpundu during the census interview at his Farm in Milombwe on May 14, 2015.

bricks only being used later.⁴⁰⁶ For both firewood and timber, two particular trees, which only occur in the Forest, are always avoided: first, a tree known as *Akafifi*. Besides having a very bad smell when burnt, it is believed to supernaturally induce quarrelling when cut down. Similarly, the *Mofwe* will under no circumstances be cut down, even if large and in the middle of a prospective (maize) field:

I can't because you need to take medicine before, otherwise the whole tree will cry and your family starts dying one by one. I've no idea whether it is just a belief or done by God. It was not to be found where we come from but our elders told us about it. 'Wherever you go, you should never cut it!', we knew this already. Can I give you the axe and you try? [laughs] You can die straight, David! You cut, you die. The entire family will perish, one after the other.⁴⁰⁷

The same tree was said to be used for dugouts, though only when it had broken down naturally, for example by other falling trees during a storm. Referring to the two tree species that are spared from clearing, Milombwe's *Sulutani* jokingly asserts: 'Make a *Mofwe-Akafifi* Forest and there won't be deforestation!'⁴⁰⁸

On top of timber and firewood, the Forest provides a number of freely available NTFPs such as mushrooms, honey, wild fruits and vegetables,⁴⁰⁹ which all diversify the diet, and can be used for sale when found in larger quantities. During the census, *all* settled households stated that they collected fruits, with ten households (56%) even selling several buckets a day during the peak period of a few weeks between October and January,⁴¹⁰ which can account for a handsome additional income. Though no household recorded the sales, the 'most successful' one estimated the additional income to be at least 600 ZMW. Households that did not participate in selling them pointed out that they simply did *not yet* have time to do so as they focused on opening up their fields for farming. Not only fruits are collected during the rainy season, but also basins full of mushrooms. 11 households (61%) gathered them for direct consumption and preservation, with 6 households trading them at MMD. Similar to fruits, the additional income could be considerable.⁴¹¹ Due to their value, both fruits and mushrooms are also desired by people living outside the Forest, who – before the settlement – came to collect them for sale. Interestingly, similar to the discourse on the initial charcoal production, their encroachment was described as being 'rampant' as

⁴⁰⁶ The widespread *Mutondo* and *Kasaba* trees were widely used for initial construction as they grow straight and are easy to cut, though they do not last long as they get attacked by termites easily. For permanent roofing, the hard *Mubanga*, as well as the *Musuku* fruit tree were preferred then – preferably 'the male ones', which do not flower and thus not bear any fruits.

⁴⁰⁷ Michael Kazumba during the census interview at his Farm in Milombwe on May 14, 2015.

⁴⁰⁸ *Ibid.*

⁴⁰⁹ For a more detailed description and discussion of all the following NTFPs, see Chapter 5.

⁴¹⁰ The most commonly collected tree fruits were *Masuku*, *Mifungo*, *Tusongole* (bush oranges), *Wasansa* (elephant oranges). Especially *Masuku* were offered in plastic basins (5 ZMW) or buckets (30 ZMW) to motorists or traders from Lusaka at MMD. Only one lady picked unripe fruits in order to ferry them to Lusaka for sale.

⁴¹¹ A bowl of fresh mushrooms, which can be regularly collected over a period of at least 8 weeks, fetches 5 and a basin about 25 ZMW. The 'most productive' household thereby generated an extra income of at least 350 ZMW.

it attracted many people from all directions. Besides fruits and mushrooms, *all* households indicated that they collected and sometimes sold wild vegetables, roots or tubers during the dry season.⁴¹² Just as with fruits, these products were also sold at MMD to motorists and traders from Lusaka, by 4 households in total. On top, young boys and girls sold them from time to time to neighbours or community members they run into. As a handful of those products only fetch a few Kwacha, it is ‘not counted as income because – we just forgot. We concentrate on things we get from the field’⁴¹³. However, especially since *Munkoyo* is in high demand from the hospitality industry and can be collected almost all-year-round, it also contributes to some households’ livelihoods. Households have also tried to collect caterpillars, another NTFP, though they are difficult to find here, which is why a few households travelled to the woodlands of Kapiri Mposhi, and – just as people from Kansenga – to Mailo, another Lala Chiefdom. Most households, however, indicated that they would rather buy them at the market in *Boma*. Honey, on the other hand, is successfully collected by every second household, either accidentally or on purpose – from trees or abandoned termite hills. Especially after the bushfires have ‘cleaned’ the Forest, snakes can be seen more easily, which is why more households start looking for honey during this second season.

Mice were also collected, or rather chased, by every second household. Lastly, households occasionally and rather spontaneously engage in hunting duikers, rabbits and hares with dogs, cane rats with a can trap, birds by hand or with catapults,⁴¹⁴ and cricket-like insects (*Bamushale* and *Nyanze*) with a stick smeared with glue extracted from a tree. Besides the many edible products, the Forest was, much more than the bush in Kansenga – seen as an ‘open pharmacy’: almost all trees are used in order to cure the most prevalent symptoms (see p. 72. f.). Whereas the clinic would be the preferred choice nowadays, it is still relatively far away, which makes plants not only first aid, but often the only remedy.

With regard to medicine and all the other NTFPs found here, all households have pointed out that they have encountered a higher variety and quantity in the Forest than where they came from.⁴¹⁵ However, they have also observed a decline of NTFPs since they have come, which they attribute to the uncontrolled and eager extraction of the products from literally all directions, but also wild fires along the streams, which both impinges on seed production and dispersal. Moreover, the rapid spread of dwellings and fields, which

⁴¹² Most prevalent are *Kanunka* (*Bidens pilosa*), *Ichitashi* and *Impumpule*, *Intungule*, *Chikanda* tubers and *Munkoyo* roots, of which the latter are found all-the-year. Especially the latter three have experienced increasing demand from Lusaka.

⁴¹³ Christin Kalale during the group meeting at Kazumba Farm in Milombwe on June 22, 2015.

⁴¹⁴ In particular during the early rainy season, that is, around November, when birds are hatching their young ones, the parental birds are chased, while the small ones, who cannot yet fly far distances, are collected, up to a dozen at a time. One household indicated that they had caught more than 200 small birds and pigeons since coming to the Forest.

⁴¹⁵ Several households have also indicated that, in comparison to where they have come from, there are many more tree species in the Forest than they had ever seen before.

involves the loss of shady places necessary for mushrooms, was also mentioned as being responsible for the decline.

Besides all these products, the Forest or rather trees also provide a wide range of benefits: shade, nitrogen fixation, natural beauty, cooler temperatures, less wind, higher levels of rainfall, and generally higher water levels are the most common associations in Milombwe (cf. Meijaard et al. 2013; cf. Ellison et al. 2017: 59). Against the background of such a variety of NTFPs and additional benefits, many parents have pointed out the value of an *intact* Forest, which their children should also be able to enjoy. In order to conserve such benefits, settlers and absentee landlords alike wish to preserve the trees, especially along streams and sources, surrounding one's houses, and in rows between farmland (cf. Kokwe & Mickels-Kokwe 2012: 9). While the settlers are aware that their own well-being goes hand in hand with the existence of trees, they were also reminded by the *Chilolo* to cut reasonably: 'Forests are very important, and we should have somewhere to point saying "this is how a Forest should look like"'⁴¹⁶. While being surrounded by a Forest has mainly come with benefits, one new aspect is rather an ordeal, which became obvious during most of the interviews and meetings held in the Forest: tiny flies coming 'in incredibly large numbers to join in eating, the moment you put down the fish'⁴¹⁷. This, however, is forgivable and outshone by the availability of food, forest products, and other environmental benefits associated with trees.

Besides all such advantages, the new Farms have come with more independence and self-determination. Whereas the settlers' previous lives were characterised by the absence of freedom and autonomy, nobody has to feed them and their children anymore, and they have a say over their own land. Whereas earlier times were characterized by friction with the neighbours or family, especially the parents or in-laws, the settlers have pointed out that now they can live in peace, go wherever they want to go, and expand fields whenever they want to. Especially the phrase 'living with the in-laws' had become an expression for the every-day experience of trouble, which suddenly was of no concern anymore. In a similar regard, the new Farms are far apart from each other, which has also resulted in less quarrelling – a major aspect of what settlers need, according to themselves, to live a good life:

There were every day struggles, 'your child is stupid', and when moving you need to move like a cat so nobody can see that you are leaving home, I was monitored all the time. You cannot question things and you become docile. Here, I can just concentrate on my work, nobody wants to find me at home at 8 hours, 10 hours, I have no worries at night, so I can focus on my own chores and plans. We

⁴¹⁶ Chibobo's *Chilolo* during a meeting with all Forest settlers at his Farm on May 9, 2015.

⁴¹⁷ Christin Kalale during the group meeting at Kazumba Farm in Milombwe on June 22, 2015.

are independent, there's no noise, no family conflicts, it's like in town where there is a fence, you have no neighbours, that's good!⁴¹⁸

While most settlers were content with their new lives, a few things were still missing. While people from any village I visited during fieldwork were admiring fertilizer so much, people in the Forest had, due to the availability of good soils, other desires: every second household wished to have collectively-run hammer mills, followed by cattle. 3 of the 6 tenant households longed for, first and foremost, having their own land, as they still feel to be controlled and restricted (cf. Mutamba 2004: 108). Moreover, when the owner passes away, the settlers might be chased by the relatives of the deceased.

The evolution of Milombwe, that is, the conversion of the Forest into a settlement with farmland and forested patches, materialized rapidly. All households invested money, time and physical labour into their new Farm, establishing permanent structures and farmland from close to scratch. Their standard of living has improved materially and health-wise, and the constraints of their previous lives are largely gone. While many of the new settlers had come to terms with the previous state of suffering, they had now gained new courage and vitality, and sustained their intention to stay for good. Amongst both the settlers and landowners, the emergence of new Farms also created a momentum of pride and confidence, while at the same time, they were in a constant state of insecurity, which I will portray on the following pages.

Dealing with uncertainty

The Serenje National Forest has, until today, not been officially de-gazetted. On these grounds, every single Farm or farmland within it is still, by law, considered illegal, with the settlers being labelled 'squatters' by the government. The official stance of the District Forestry Office was equally strict and irreconcilable, with the relationship between the settlers and officers being shaped by suspicion and mistrust (cf. Mutamba 2004: 110 ff.). The officers' disapproval and anger allegedly culminated in officers coming to the Forest by car, confiscating charcoal bags and axes, and torching the house of one of my informants in order to give emphasis to their words. In the end, the chased settler returned and quickly started moulding bricks as she knew the officers would not return soon if at all:

We often think about being evicted but we know they can't chase us because we don't have somewhere to go [...]. We wish to own this Farm forever, we don't want to be taken anywhere ever again. Where are we going to settle if it's still in the hands of the government? I

⁴¹⁸ Royce Kambobe during the census interview at his Farm in Milombwe on May 28, 2015.

can't fear them, they can't just chase me, not without giving me a plot for my children.⁴¹⁹

While being certain not to be chased, tensions are there as she, at the same time, does fear eviction. To her, this would be the worst thing they could do: 'if we go back where we came from, it's like going into slavery again. The land belongs to my in-laws so we have limited freedom, we can only return into conflict and embarrassment'⁴²⁰. Just like her, other landowners have pointed out that they do not think of ever abandoning their Farm. The very idea of being evicted and starting over again literally causes nightmares, as most households were already compelled to leave their *previous* Farm. Now, those 'shifted farmers' (Bodley 2012: 47) have even more to lose: by late 2015, most of them were in the process of establishing new fields and transforming their houses out of logs and plastic bags into houses out of moulded bricks and durable roofs. Against the background of these efforts, none of them considered moving ever again. Even if good land with access to water was provided, the *Sulutani* himself and his subjects cannot like the idea of moving again:

This is the best place to live and I have *chosen* to live here. I can only go if the land is bigger and the soil is even better than here. I am very happy with this land, and we can't go back to where we came from, so I make an appeal to everyone: We don't want to be disturbed in this Forest! Everybody should know this.⁴²¹

In the same way, one settler approached me in private after an interview, hoping that I am in the position to put in a good word for him. Similar to the way forestry officers had hoped to have found 'a fellow combatant' in me, many settlers put great hopes in me and were convinced that I would advocate for their case:⁴²²

I just have an appeal: nobody should try to take me anywhere, because here, I have seen a very big difference in the soil, the crops performed very well this time. [...] Many have already spent all their pension on iron sheets, so the government should leave them, otherwise, they will start a war. I *also* don't want to be disturbed from anyone because then I can't even concentrate on farming, I will think too much about it and can't go to the field and hunger will strike me, because fields will be too small.⁴²³

Against such a background, the sound of my motorbike had caused some fear during the early period of my fieldwork: settlers repeatedly thought 'now they have finally come to evict us', but after months had passed without a sign from the forestry officers, and even more people had moved into the Forest, the situation relaxed and the sound of my motorbike

⁴¹⁹ Christin Kalale during an interview at her Farm in Milombwe on July 6, 2015.

⁴²⁰ *Ibid.*

⁴²¹ Michael Kazumba during the census interview at his Farm in Milombwe on May 14, 2015.

⁴²² According to Benjaminsen, the settlers' eagerness to spread their perspective can also be interpreted as an attempt at "covert resistance" against the government' (2014: 390).

⁴²³ Pattson Kunda during the census interview at his Farm in Milombwe on May 18, 2015.

rather caused anticipation. In contrast to the households who owned the land, tenant households were willing to move again: ‘As long as it’s free and permanent, and the land becomes ours, the government is at liberty to relocate us anywhere’⁴²⁴. In the same way, the absentee landowners pointed out that they ‘will be able to adjust somehow’⁴²⁵ when they are forced to abandon their Farm in the Forest. However, as they have to ‘make money to keep up [their] lifestyle, to sustain the extended family and many orphans’,⁴²⁶ they hope not to be troubled.

Remarkably, both owners and settlers, and also the traditional authorities, have pointed out that their presence has had some positive effects, which is why the Forestry Department should not trouble but rather thank them. They were convinced that, without them, the Forest would have been subjected to much more deforestation during the last years. In fact, the quasi-conversion of the Forest into customary land had discouraged many of the previous charcoal producers who had previously come to the Forest on a daily basis. They now refrained from doing so because the Forest was ‘sold out’ and thereby turned into a social space that is respected much more than state land. Even those people from the surrounding villages who disliked the upcoming Farms in the Forest admitted the positive impact they had. For that reason, Chibobo’s *Chilolo* has thanked the settlers for ‘doing the right thing’⁴²⁷ – taking matters into their own hands and doing the forest officers’ job, to which another landlord adds: ‘Now this foresters get a salary for nothing! [...] Our heads of state are just wasting money on fancy meetings and conferences, many words but no roots, no implementation’⁴²⁸. While the government certainly failed to protect the Forest, the act of actively populating it allegedly halted the high rates of deforestation: many of the new settlers did *not* have to clear land to establish their houses, but utilized the land that was previously cleared by charcoal producers. They only opened paths and farmland, and ‘cleaned’ the immediate surroundings of their houses to present a neat place to visitors, and to scare snakes away. Setting off the farmers’ impact against the charcoal producers’ is difficult, yet the amount of additional farmland already cleared has been considerable, and is likely to increase in the future. Nevertheless, the phrase ‘We conserve the Forest’ has become one of the most prominent justifications for settling here:

If they [the government] say they want to protect the trees, it’s a mistake to send us away from this Forest. It’s a wrong thing because we are all protecting the trees. The government is not here, and we also know that we don’t need to finish the trees. They can’t come every day to monitor the trees, so they should even put people to

⁴²⁴ Patrick Chisebuka during the census interview at his Farm in Milombwe on May 15, 2015.

⁴²⁵ Landlord during an interview at the Ministry of Education Office in *Boma* on July 12, 2015.

⁴²⁶ *Ibid.*

⁴²⁷ Chibobo’s *Chilolo* during a meeting with all Forest settlers at his Farm on May 9, 2015.

⁴²⁸ Lawrence Kombe during a meeting with all Forest settlers at the Farm of Chibobo’s *Chilolo* on May 9, 2015.

other parts of the Forest! If they remove us and nobody will guard it, it will be finished very soon.⁴²⁹

This approach challenges the dominant method of Zambian conservation, which assumes that 'keeping people outside' is necessary to preserve the natural environment.⁴³⁰ In the same vein, the *Chilolo* claimed that he gave out land in order to protect the Forest from being cleared by professional charcoal producers. Admittedly, apart from this genuine intention, he also had financial gains from selling the plots,⁴³¹ could increase his popularity and political base (cf. Unruh et al. 2005b: 194), and alleviate land poverty, including related conflicts, through the allocation of land at one go. Moreover, existing 'communal pressure' resulting from intra-Farm conflicts could be reduced, thereby stabilizing the community and preventing further friction. While both the *Chilolo* and his subjects have seized this window of opportunity for practical concerns, they have appropriated an environmental discourse to justify the settlement. This, however, was not just an 'illusion of consent' (Benjaminsen 2014: 392) – a strategy to convince the Forestry Department of the settlement's benefit – but also a truthful concern, as they are opposing deforestation as well – or rather practices that are considered 'Deforestation' (see Chapter 10). In that regard, the Forest settlers and landlords, as well as the involved traditional authorities – Chief Kabamba, the *Chilolos* and *Sulutanis* of the three different communities – have always emphasized their disapproval of 'charcoal professionals'. In fact, commercial charcoal producers should be punished more than, for example, people illegally extracting timber from the Forest. They have also argued against tobacco producers, as the process of curing demands tonnes of fuelwood every season. In order to avoid that, both local authorities and neighbouring households have asked the few tobacco farmers to quit that business or to vacate the land, if they do not want to be chased away by the Chief to come.

While many are convinced that they have protected the Forest, being evicted by the government is still a threat that comes along with permanent emotional stress, especially for those who have nowhere to go. This constant state of tenure insecurity has created an environment in which both the landowners and settlers work even harder in order to demonstrate their determination to stay:

We don't know what the future holds, so we'll build big houses with burnt bricks and iron sheets just after the rains [...] it needs a big good house to show that we are serious and we have not just established shelters to make charcoal.⁴³²

⁴²⁹ George Kambobe during the census interview at his Farm in Milombwe on May 28, 2015.

⁴³⁰ Besides so-called 'fortress conservation', Community-Based Natural Resource Management (CBNRM), Joint- and Sustainable Forestry Management (JFM and SFM) has also been tried out, yet the site-specific effectiveness of all such approaches is yet to be evaluated (cf. Börner et al. 2016).

⁴³¹ Settlers have paid the *Chilolo* between 200 and 900 ZMW for each Farm, while others were told by him to directly pay the *Sulutani* of Mankanda, who was later removed. Two landlords from *Boma* claimed to have paid 2.000 and 6.000 ZMW, which was not confirmed by the *Chilolo*.

⁴³² Agnes Chilanga during an interview at her Farm in Kansenga on July 22, 2015.

As was pointed out earlier, most households did not establish houses when they came, but were busy opening up and cultivating fields in order to benefit from the upcoming rainy season. Instead, they slept in small shelters made quickly out of wooden poles and elephant grass, hardly stable enough to brave the drenching rains. Such weak structures are an indicator of charcoal producers, who just come on a daily basis. In order to make it clear that the new settlers had come to stay, they were 'building to claim' (cf. Unruh et al. 2005b) the land. Only later, when farming activities are less time-consuming, a permanent house covered with iron sheets is constructed. This conversion is illustrated in the two photos below:



Fig. 23 Quickly-built shelter and permanent housing in the Forest

This strategy of 'building to claim' is similar to what Unruh et al. (2005b) found during the longitudinal Gwembe Tonga Research Project (see p. 86) in Southern Province, where migrants from within the region were '*clearing to claim*': in order to secure rights over the land they were promised, they started clearing forested land – more than they could utilize – to create clearly visible claims (Unruh et al. 2005b: 191). This strategy of clearing land to protect existing rights or secure claims has also been found elsewhere in Zambia (Mwitwa et al. 2013: 5), in Brazil's Amazon region (Araujo et al. 2009), in the Philippines, and in Uganda (Unruh et al. 2005b: 92). While the landowners and settlers of Milombwe dismiss excess clearing as undesirable and wrong, the observation is still comparable: when the *Chilolo* advised all landowners to put up physical structures to mark their land, a few did so in spite of not (yet) living or working there, fearing the land would otherwise be re-allocated (cf. Unruh et al. 2005b: 194). While in the case presented by Unruh et al. (2005b: 192 f.) only *migrants* – but not the 'host community' – were '*clearing to claim*', in Milombwe, *all* settlers were migrants in the first place – and illegal –, so they tried to exploit the land as

far as possible before possibly being evicted.⁴³³ In a similar way, one Farm owner from Kansenga, whose land is arguably within the Forest – the so-called *Mateshi* Farm (see Fig. 19) – also put several households onto of his land in order to claim it – not only against the Forestry Department, but also against the new Forest settlers who could otherwise possibly expand onto his land. On top of ‘clearing’, ‘allocating’, and ‘building to claim’, having paid the traditional authority ‘a small token’ has also increased the settlers’ sense of security and could be seen as ‘paying to claim’. All these claiming activities were strategies to deal with constant uncertainty and the difficulty of planning the future properly.

Though still living in times of uncertainty with regard to land tenure, this new phase of life seemed to be full of chances, was characterized by positive expectations and an overall optimism regarding the future. During my farewell session, one of the attendants confidently told me: ‘May God be in front of you, I spare accommodation for you. The next time you come, you will find an iron-sheet house’⁴³⁴. Within only a few years, life had already become much better. Besides, the general non-eviction of ‘squattling households’ in Milombwe and across the country, as well as the planned opening of a secondary school and a maternity ward in Chibobo have been further pull factors, and are most likely to attract the settlers’ or landowners’ relatives in the future as well. As mentioned above, the Forest was entirely ‘sold out’ by late 2015, with 35 Farms making up the new village of Milombwe. 20 out of those, however, with 5 being owned by women, had not yet been opened up. In the future, however, the landowners are most likely to develop their Farms soon – either by themselves or through tenants – and thus have their stake in the larger transformation of Milombwe. After having conveyed an idea of how the settlers and absentee landlords have changed the Forest so far, I will now attend to this third group of people – the landowners, who have not yet settled or utilized their Farms.

Group 2: Landowners of Farms not yet settled

The majority of the unsettled Farms, 15 out of 20, were allocated to people who were born and raised in Chibobo, out of which 9 were still living here. The remaining 5 Farms were allocated to ‘outsiders’ – people who were not from the community, and all residing in *Boma*.⁴³⁵ Besides their place of origin, another more helpful analytical category would be

⁴³³ Interestingly, in Southern Province, the migrants even shared the ethnic and geographical origin with the ‘host community’, spoke the same language, practiced similar forms of agriculture, and shared many social and religious institutions, however, they were treated differently in times of land dispute (Unruh et al. 2005b: 192 f.). In the Serenje National Forest, however, none of the new settlers or landowners including the few from other provinces and ethnic groups, reported different treatment by other new settlers, old residents, traditional or state authorities.

⁴³⁴ Pattson Kunda during the census interview at his Farm in Milombwe on May 18, 2015.

⁴³⁵ Interviewing those people not living in the community (anymore) was relatively difficult as I had not established a similar rapport. On the next pages, however, I will present some empirical findings.

their concerns or motivation, which can shed light onto what is driving people onto protected state land. In Milombwe, two major conditions with regard to land access were underlying land acquisition: while 13 landowners did not have access to *any* land and thus felt compelled to shift, the remaining 7 did want to secure land and expand their fields despite having access to unexhausted land. In the following pages, I will present both groups, beginning with those landowners with virtually no land available.

Shifted farmers, continued

Similar to many settlers described in these chapters, 8 out of 13 owners who had not yet shifted into the Forest were driven by the desire ‘to get away from the family as soon as possible, even this season [as] they talk too much and it’s always a struggle’⁴³⁶. This statement sums up very well the feeling of 8 owners – all adult men living at their in-laws or parent’s land for years and even decades. They all desperately want to escape supervision, to have their own say over the land, to expand fields, keep livestock, and to enjoy future tenure rights – and not to depend on the parents’ or in-laws’ mercy anymore. All this could only materialize through acquiring further land. Apart from the owners escaping social tensions, 3 men acquired land in the Forest as they did not have *any* – they were working as a civil servants, living on state property for the period of their contracts, 1 in Chibobo and 2 in *Boma*. They are from other districts and speak another native language than Lala, but they have spent several years within Serenje already and were unlikely to move, or to be transferred elsewhere in the foreseeable future. While they regularly visited their village of birth, moving back one day was hardly an option for a variety of reasons, but mostly due to ‘waiting family conflicts’ there, and a lack of arable land. Thanks to their stable and relatively high salaries, they do not need to engage in farming at the moment, yet as land within Serenje had become a scarcity and is likely to become much more expensive, they rather wanted to be on the safe side (cf. Hilhorst & Ansoms 2014: 206). The only land available, which was also inexpensive, was in the National Forest. While two of the three men already own a residential plot in *Boma*, they all intend to do farming during their elderly years. Even after having worked decades in government offices, they are still ‘farmers by citizenship’ (see Chapter 6.3). In order to top up their future pension, but also to keep themselves active, they want to engage in farming themselves, and also employ pieceworkers. ‘Coming home’ after retirement and doing farming in one’s own village was already promoted under ‘K.K.’, the first Zambian President, yet nowadays, it had become a challenge due to the widely experienced scarcity of customary land. That is why, civil servants and other people who have worked in town do not necessarily ‘return home’ after retirement anymore, but rather

⁴³⁶ Adrian Kasubika during an interview at his Farm in Lumpampa on July 28, 2015.

try to remain in the region where they have worked. Interestingly, their cases demonstrate that a total lack of land is not necessarily linked to economic poverty.

On top of the 8 'fleeing' farming households and the 3 civil servants, further land was given to an elderly couple who moved to Kansenga from Luapula Province in 2010. Since both are physically impaired and thus hardly managed to produce enough food for home consumption, they followed their daughter, who is currently working as a head teacher in the district. As there was no land idle within the entire community of Chibobo back then, the *Chilolo* gave them a small portion of his parents' land, which he also occupies himself. Since then, they have received remittances from their daughter, who has now bought the Farm in Milombwe for them. It shall allow her parents to live closer to the tarmac in order to travel to different health care facilities more easily. Last but not least, the 13th unsettled Farm was acquired by a young man who owned another Farm in Lumpampa already. However, with a few hectares, which, moreover, were characterized by heavily depleted soils, it was not enough to properly feed his wife and children. While they already struggled to grow enough maize and greens, the land was not big enough to grow different crops for diet diversification. As a result of that, he feels as if he has 'failed because according to Lala tradition, [one is] obliged to grow at least sweet potatoes, beans and groundnuts'⁴³⁷. Besides food security, making profits was impossible. Due to a lack of any other income opportunities or support, he has not managed to acquire fertilizer, and 'sometimes not even salt', which is considered a basic household need. When the firstborn turned 7 years old, they could not afford the obligatory school uniform for 25 ZMW, which is why she was not allowed to attend classes. This was a particular tough moment for the parents, as it was just another aspect adding to the general poor quality of life:

When I was younger, I put on shorts without a shirt just because I didn't have. Even now, I cannot buy clothes, I have no beddings to cover myself during the night, and witchcraft is also bothering me a lot.⁴³⁸

In order to leave this kind of life behind, they collectively decided to relocate into the Forest soon, where they expected to have a less monotonous diet and no longer go to bed hungry. They want to move there before the onset of the rains – to start cultivating the land. Their original Farm will not remain vacant, as others have already asked to occupy it. As the soils in the area are known to be overly used, the Farm would not leave any profit. Therefore, they have decided to keep it but to allow others to stay there, which is also of benefit to them: until the ownership status of the Forest is not settled, they could always return here.

While none of the 13 'absent owners' had settled their Farms or allowed others to do so, by October 2015, most of them had already started clearing land for houses, clearing

⁴³⁷ Levy Mlenga during an interview at his Farm in Lumpampa on July 24, 2015.

⁴³⁸ *Ibid.*

footpaths, moulding bricks, or planting hectares of maize. In the course of this, a lot of charcoal was produced opportunistically, which also contributed to the image of massive amounts leaving the Forest. By the time this thesis is read, all but the civil servants' households will most likely have shifted into the Forest due to their *total* lack of land, adding to the 18 households of 'shifted farmers' already present.⁴³⁹ Similar to the current residents, the absent owners have pointed out that clearing land for farming will take place carefully:

I can't just extend my fields further, it's a command, because we can finish the trees and we remain dry. God told us to care those trees, because we get rain, mushrooms, *Masuku*.⁴⁴⁰

For the same reasons, there was a consensus on not growing any tobacco, as it consumes too much fuelwood for firing the barns. Besides those households with a total lack of land, there was another group of people, 7 landowners in total, who had acquired land in Milombwe despite having access to land elsewhere.

Limited access to land

One of the oldest women of Kansenga, born in 1942, is Ruth Chisala. Together with her husband, she is living on customary land that was given to her by the *Chilolo* in 1989. The Farm that is about 18 ha lies just along Chibobo Road and also close to a mono pump. The elderly couple is occupying a decent house made out of burnt and unburnt bricks, with a concrete floor, rusty iron sheets and old metal windows. They own a sofa, a TV, a radio, a mobile phone and a bicycle each, almost 20 chickens, and they belong to the few households that can afford to buy and use charcoal for cooking most of the time.⁴⁴¹ While her husband worked for the national Food Reserve Agency (FRA) and thus now receives a pension, Ruth was employed as a nurse and has been working at Chibobo's orphanage for the last 12 years, which earns her up to 400 ZMW a month. Moreover, they are one of the few households that regularly receive remittances from their children, six in total, who are all working in urban areas of Zambia and South Africa. Every two months, Ruth and her husband receive goods via bus: clothes, food, blankets, and money, which they also provide to other relatives living within Chibobo. When discussing 'decision-making' during the census interview, Ruth said:

We don't have to decide over bigger goods, we are just sent by our children [...] we have all those things and money is too much to be

⁴³⁹ For empirical accuracy, I decided not to include them into the 'shifted households' portrayed earlier.

⁴⁴⁰ Brighton Kalunga during an interview at his plot in Chimupati on May 4, 2015.

⁴⁴¹ While firewood is only used for heating water as it works much quicker, the couple is mostly using charcoal, about four 50kg-bags every month.

counted [...] A few days ago, we even received 1.000 ZMW from our grandson in South [Africa].⁴⁴²

On top of that, they manage to employ pieceworkers to farm their maize, producing a *surplus* for sale of at least 3 t, yielding more than 4,000 ZMW. In addition, they grow sweet potatoes, beans and groundnuts for home consumption. Living a life with stable, reliable and diverse sources of income, they only desire to get a loan for a car.

In 2014, after the *Chilolo* had campaigned in Kansenga, advertising land in the Forest, Ruth handed in an application, together with two colleagues from the Orphanage.⁴⁴³ She attached 700 ZMW, and was eventually allocated slightly more than 20 ha of land. Later on, when further people were ‘crying for land’, the Farm was split into two. Even then, the price was fairly ‘cheap, because if you buy somewhere else, you can even ask for 1,000 per hectare, and others from *Boma* have paid even thousands because they were in a hurry to buy’⁴⁴⁴. As Ruth was late, she received a Farm in the northernmost part of the Forest – furthest away from the tarmac, but closest to Kansenga, just along Chibobo Road, and well-forested as it was not reached by commercial charcoal producers from the south. As both Ruth and her husband are afraid of snakes and of getting lost, they have never ventured deep into the Forest. However, they knew their new land already: living nearby Chibobo Road, they came here about three times a month by bike in order to collect firewood. On their Farm in Kansenga, there are no trees suitable as firewood left and the few bigger trees around their houses are kept for shade, as a wind blocker, and partly for the production of Guava fruits.

While Ruth and her husband were not desperate to find better or more land for farming, they still took time by the forelock. They were well aware that ‘even outside of Chibobo, nowadays, there is nowhere you can go, within the District I can say, I have never heard of land where you can go’⁴⁴⁵. Having more capital to be spent than land to be cultivated, they were happy with this option of buying virgin land, which will also cut down costs on fertilizer. For the 2015/2016 farming season, she had cleared 1 *lima* in Milombwe, 0.25 ha only, and kept the remaining land for future expansion. If some of her children want to return to Chibobo for retirement, for example, she is happy to offer such good land to them. While their return to the village is not very likely, it is still a welcome option as otherwise, Ruth would be obliged – following customary law – to share the old, small Farm with her daughters. Besides having access to new fertile land now, she is also happy about having one of the precious *Mukula* trees on her Farm, which, once grown big enough, can be cut down for sale. Since the Farm is just along the main gravel road, nobody will temper with it, even when remaining unsettled. Ruth has decided to first wait for the restoration of the

⁴⁴² Ruth Chisala during the census interview at her Farm in Kansenga on February 16, 2015.

⁴⁴³ One of the other cases, Jonathan Chunga, has already been presented on pp. 220 f.

⁴⁴⁴ Ruth Chisala during the census interview at her Farm in Kansenga on February 16, 2015.

⁴⁴⁵ *Ibid.*

Chief, who shall then judge whether the land will become customary or ‘given back’ to the state.

Another resident of Chibobo who acquired land in the Forest is Collins Miselo. In contrast to Ruth’s new Farm in the Forest, his is located south of the pipeline – the area that had been widely cleared by charcoal producers already. Being one of the most successful small-scale farmers of the community, he bought new land in the Forest for the same reason as Ruth – to expand his agricultural fields. While his old Farm in northern Chibobo is vast, it is also characterized by depleted soils, which is why acquiring land in the Forest was a welcome option. As the charcoal producers had cleared rather selectively there, leaving large, particularly hard trees completely aside, Collins had to employ pieceworkers to ‘finish clearing’ the land. While doing so, they discovered a single *Mukula* tree, which was spared from cutting. So far, Collins has planted groundnuts and sweet potatoes in the Forest, which he wants to sell in Lusaka. Similar to the practice of *Chitemene*, he also utilized the ash fields of the former charcoal kilns for growing some millet. On top of that, he even harvested the millet planted before the land was sold to him by former charcoal burners. Aside from a few conflicts, Collins points out that they have understood that ‘they cannot come here anymore, they have cut all the trees and had their benefit already’⁴⁴⁶. That is why, there is no need to settle the land, yet in order to claim it for now, he has put up a small hut made out of branches and plastic bags, prepared some paths and planted flowers along them. In the future, he would like to help other people, by allowing them to dwell on his Farm:

I’d like to empower the poor by giving them inputs and fertilizer to make sure they don’t steal and they feel responsible for this Farm. They will get their own portion for farming, they can have enough for consumption and sale.⁴⁴⁷

Only in the more distant future, he might want to move here, yet only when Milombwe is connected to the power grid. In that case, he will leave the old Farm to his four sons and shift onto the new one in the Forest. As he does not have any daughters but only sons, nobody could chase them from the old Farm, but he points out that ‘if they are too many, they start fighting over the land’⁴⁴⁸, which is why in the long run, some of them may come to the Forest Farm as well.

Collins does not expect the Forestry Department to dispossess him, because, if at all, ‘they just watch from the tarmac, they come with jackets and nice suits’⁴⁴⁹, but they will not temper with the allocated land. Similar to the absentee landlords from *Boma* whose Farms in the Forest are already settled, he points out that even if he loses the few hundred Kwacha he paid, ‘that’s not too bad, I have another Farm, so even if I’m evicted, I won’t be

⁴⁴⁶ Collins Miselo during an interview at Musonda Farm in northern Chibobo on July 19, 2015.

⁴⁴⁷ *Ibid.*

⁴⁴⁸ *Ibid.*

⁴⁴⁹ *Ibid.*

affected'⁴⁵⁰. Another interesting aspect is Collins's notion of the future, which has probably facilitated his decision to – in his own words – 'destroy the Forest': he is the only person I met during fieldwork who ever explicitly referred to the Bible when talking about deforestation. Being a Jehovah's Witnesses elder, he believes in the end of the world – which is already apparent by the reduction in rainfall, famine, droughts, diseases, and earthquakes across the world. While he is sure that the apocalypse is near, he has bought land in the Forest, as there is little to lose. In fact, as Collins jokingly points out, in the near future, God 'is going to hang us using the fibre from the *Musamba* tree'⁴⁵¹.

Another man from Chibobo who acquired land in the Forest is Kenji Nkoma. While he still has about 3 ha of unused, partly forested land left on his old Farm, he wants to keep that land for conservation. As land had become scarce, he first wanted to buy more customary land within the district, yet since there was no Chief to give his consent and to provide a Farm Book, he handed in a hand-written application for Milombwe, stating that he wants to keep goats there. Accordingly, for 250 ZMW in total,⁴⁵² he was allocated about 10 ha in 2013, close to Milombwe Stream with grassland to graze on. The Farm lies almost 10 km away from his home Farm, but since he owns a Canter, transport is not a challenge.

By late 2015, he had extracted some suitable poles for the construction of a livestock enclosure, and cleared only 1 *lima* for growing cassava. That *lima* was cleared by charcoal producers, who he had first chased after they had made a kiln on his land. Eventually, in order to pacify them, he allowed them to clear the land and produce charcoal in return. In this regard, Kenji points out that without the Farms in the Forest, its state would have been more worrisome by now. In the near future, he also wants to open up a softwood plantation in Milombwe (see p. 178). His idea is to leave his old Farm to his two boys, and to settle in Milombwe for good. In the Forest, he wants to put up a hammer mill, 'because people there are craving for it', but before relocating, he first wants to 'wait until things have normalized'⁴⁵³. While he wants to wait first, he is very certain that Milombwe will sooner or later be authorized officially – just as the part in Kabamba Chiefdom has allegedly been. Besides, a number of government workers have also bought land in the Forest for retirement as they do not have any land in the district they have been working in for years and even decades. Another widely held claim, which could not be officially confirmed, is that even

⁴⁵⁰ Collins Miselo during an interview at Musonda Farm in northern Chibobo on July 19, 2015.

⁴⁵¹ Not being sure how humanity will perish this time, Collins states that 'during the time of Noah, God destroyed people using water, during Sodom and Gomorrah, He destroyed them using fire, then He said "I will never use water and fire to destroy human beings" [...] Jesus said neither the Son nor any human being knows when God will bring Armageddon' (*ibid.*).

⁴⁵² While 150 ZMW were given as appreciation to the *Chilolo*, 100 ZMW were paid for demarcation, which was inexpensive as only an eastern boundary needed to be marked as all other sides had 'natural' boundaries – the Pipeline in its south, a minor dirt road in its west, and Milombwe Stream to the north. As his Farm is densely forested, there were many trees left after demarcation, which were utilized by tobacco farmers, who granted Kenji cattle and a plough in return.

⁴⁵³ Kenji Nkoma during an interview at his Farm in northern Chibobo on April 28, 2015.

Forestry Officers bought land in the Forest – ‘they just send other people to farm their land in the Forest, so you don’t know it’s them behind’⁴⁵⁴.

Similar to the three cases described above, four further households – 2 from within the community and 2 from *Boma* – acquired land in the Forest without having settled yet, while still having access to other land. Whereas all households want to utilize the Forest Farm in order to intensify farming, three have the additional idea to convert parts of their Farms into a softwood plantation. In all seven cases, the households are well-off, measured by their material assets but also spending, for example on surgeries, consumer goods, or regular trips to urban centres. All of them are successful farmers with easy access to fertilizer, and have further additional, stable sources of income such as a pension, a grocery, NGO funding, church offerings, or even a civil servant’s salary. Furthermore, they are all occupying iron sheeted houses, and get, apart from the two in *Boma*, economically supported by their children.

Their own Farm, either inherited or bought, were not yet fully cleared, and they did also enjoy full rights over it – either as they had a title deed on it, or as there is no customary inheritor. In other cases, inheritors had already bought their own Farms and were unlikely to claim the old land. Despite this access to and security over arable land, they all want to keep the old Farm as an insurance: when there is an urgent need for money, they can sell parts of the old land. As access to land was not a problem to them, they were in no hurry, and definitely not desperate, to occupy the land in the Forest. Even in the future, they are more likely to allow other people to occupy their Farms.

In any case, new settler and tenant households will contribute to the growth of Milombwe, with absentee landowners also clearing land at the expense of forest cover. While deforestation in Africa is more often than not linked to rural poverty (e.g. GRZ 2010a: 5, and Kokwe & Mickels-Kokwe 2012: 24; see Chapter 1 and 10), wealthier households from both urban and rural areas also play their role in the decimation of forests (Angelsen & Wunder 2003: 1; Moonen 2016). As (future) absentee landlords of Milombwe are, moreover, not emotionally attached to the Forest and not directly benefitting from its products or environmental services, they are arguably less hesitant to clear it. At the same time, however, landowners acquiring land for speculation or retirement rather than essential production have been reported to underutilize their land. Small-scale ‘forest grabs’ by local elites can thus worsen the issue of land poverty (cf. IAPRI 2015; cf. Sitko et al. 2015: 2).

Interestingly, the residents of the communities surrounding the Forest increasingly complained that *their Chilolos* should have given priority to people born within the same community or ‘at least the same chiefdom’ only. Moreover, about half of all Forest Farms

⁴⁵⁴ Kenji Nkoma during an interview at his Farm in northern Chibobo on April 28, 2015.

had been allocated to well-to-do people, which is often the case in situations of unclear tenureship (cf. Claessens et al. 2014: 83, 100; cf. Sitko et al. 2015). With regard to those who do not desperately need the land, one lady from Kansenga has pointed out that ‘keeping the land dormant is wrong when people are crying for land in the meantime’⁴⁵⁵. Apart from complaints, however, the discontent about the unfair distribution of land did not grow into a conflict (cf. Hilhorst & Ansoms 2014: 204-205).

By late 2015, as the latest map of the Serenje National Forest (Fig. 21) has illustrated, Milombwe was entirely ‘sold out’, and henceforth considered by the local population to be a part of Chibobo, and merely a ‘political Forest’ (Vandergeest & Peluso 2015). The new settlement had become quasi-customary land and was henceforth not called – and perceived as – *Kapenda* (National Forest) anymore.

On the following pages, I will briefly summarize the developments described and analysed above, and thereafter provide an educated guess about what Milombwe is going to look like in the near future. It is based on the data collected during fieldwork but also recent communication with the residents of Chibobo.

Brief summary and outlook

The following timeline summarizes how the National Forest adjacent to Chibobo has transformed over the years. While between the 1960s and late 1990s the Forest hardly changed, beginning in the year 2010, the encroachment into it began. Within only 5 years, large parts of the Forest have given way to charcoal kilns, houses and farmland, with many more Farm owners raring to come.

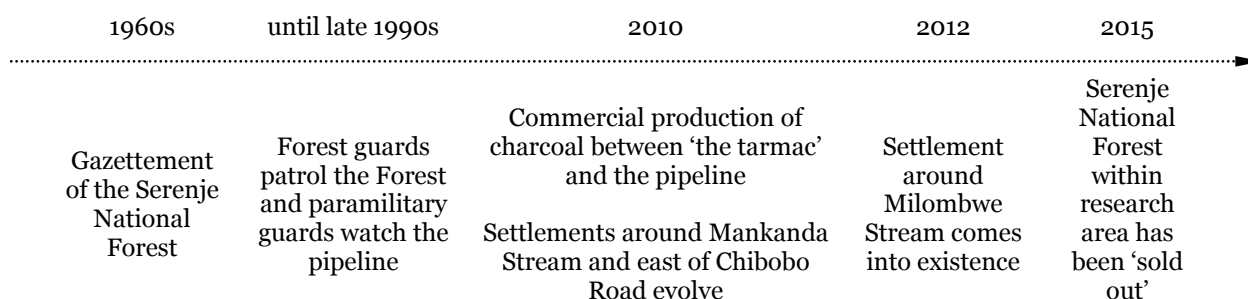


Fig. 24 Timeline of Forest conversation

A comparison of the following two satellite images from late 2009 (sse Fig. 19) and seven years later (see Fig. 21) captures this development from afar.

⁴⁵⁵ Mandalena Mbulo during the group discussion at Chilekwa Farm in Kansenga on June 23, 2015.



Fig. 25 Satellite imagery⁴⁵⁶ showing the Serenje National Forest in late 2009

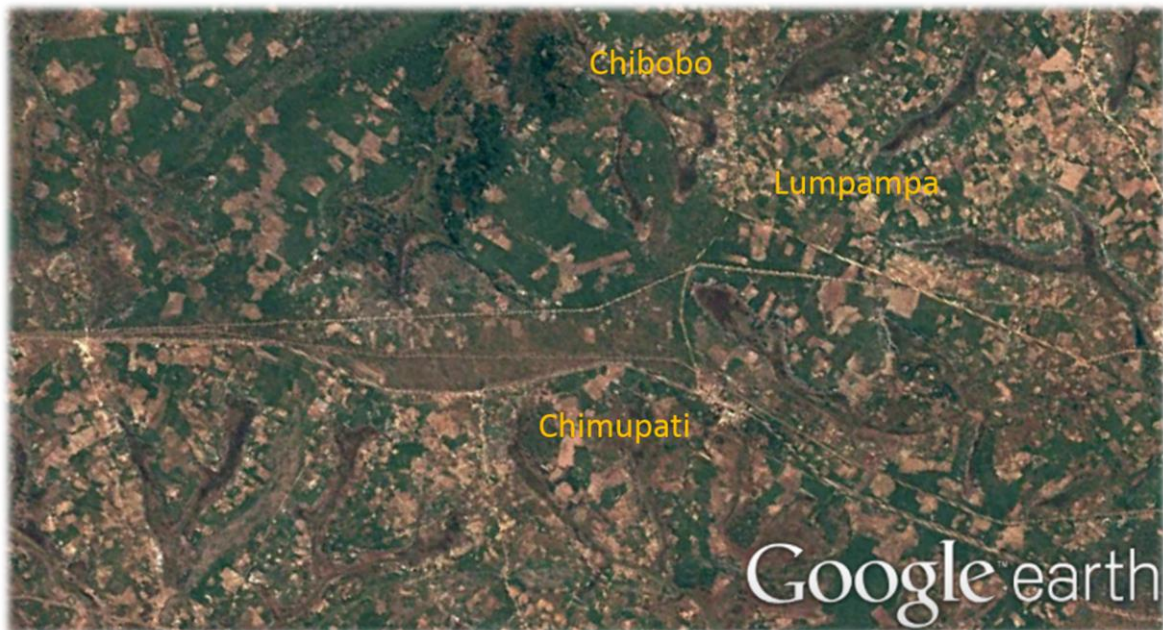


Fig. 26 Satellite imagery⁴⁵⁷ showing the Serenje National Forest in late 2016

Similar to the images provided above, Forests in the entire district and beyond have been in steep decline during the past years. In sharp contrast to the years preceding 2010, today, the Forest belt can hardly be recognized on remote imagery anymore.

While the land in the Serenje National Forest – and many other Forests – has been appropriated or allocated and, as time passed by, become quasi-customary, thousands of

⁴⁵⁶ Labels by author. Image date: 31 Dec 2009. Image source: Landsat/Copernicus, Google Earth. For reasons of comparison, both images provided (Fig. 25 and Fig. 26) were taken at the end or shortly after the dry season.
⁴⁵⁷ Labels by author. Image date: 31 Dec 2016. Image source: Landsat/Copernicus, Google Earth.

people are still waiting to ultimately get secure rights over ‘their’ land. Equally so in Milombwe, none of the involved stakeholders know what the future holds, which has created mixed feelings of confidence and insecurity.

Since landowners as well as settlers are well aware that they are still living on protected state land, they were hoping for the ongoing succession disputes of the Chief’s family to come to an end. The Chief to be elected, they said confidently, will support their claims on the land:

As soon as a new Chief is installed, it will be traditional land and we will demarcate it nicely. *Ba Chilolo* has put my name in a table and said once the Chief is installed, he will give out Farm Books to each and everyone, and we will have to pay.⁴⁵⁸

Though the amount was not clear, settlers and landowners were prepared to pay a further few hundred Kwacha for the Farm Book – and the security associated with this formal document. Since Farm Books had been issued to Forest dwellers in the neighbouring Kabamba Chiefdom already by a Chief, who is – as any Chief – highly respected by the government, Milombwe’s Farm owners and residents were optimistic to be able to continue ‘business as usual’ as well. Furthermore, they expected the traditional authorities to have their own interest in enlarging ‘their land’: while the Chief could thereby increase his authority during government negotiations, Chibobo’s *Chilolo* is known to still live on his parent’s land himself, while his sisters are currently working in town. This presents a subtle threat as he does, according to customary tradition, not enjoy any rights over the land. Once his sisters return in order to claim the land, he might have to leave. Besides, traditional authorities as well as a number of government employees had acquired land in the Forest, which was seen as an insurance that they will speak up for legalizing the settlement. Apart from those individual stakes, everybody involved was certain to be allowed to stay in the Forest for *political* reasons. With a rising number of settlers, eviction has become more unlikely as the ruling party fears losing the votes of the displaced and their dependants during the next elections. Similar to what von Hellermann (2013: 131 f.) has observed in Nigeria, the situation in Zambia had changed over the last years: whereas in the beginning, farmers were very obedient and used to obey laws with regard to Forest Reserves, nowadays, they often enjoy the support of politicians even when violating forestry laws. On the other side, officials working in the forestry offices do not always enjoy full support from their superiors, but rather fear losing their jobs *if* they implement policies or penalize squatters. Against this background, the voting population – including the settlers and landowners of the Forest – is quite powerful. Equally, the powers of the Chief – who can influence his subjects’ voting decisions – have increased over the last years as outlined earlier (see p. 188). Arguably, for that reason, eviction notices distributed to Farms within the Serenje

⁴⁵⁸ Christin Kalale during the census interview at her Farm in Milombwe on May 15, 2015.

National Forest east of Chibobo Road never came true. Equally, several other Forest Reserves across the country, but most notably Kanona National Forest in Serenje, as well as Mwekera (see p. 19, fn. 29) and Luanshya on the Copperbelt had been illegally utilized and populated for many years already, with no evictions taking place (cf. Kalinda et al. 2008; cf. ZEMA et al. 2013: 67-69; cf. EC 2014: 17). On the contrary, the de-gazetting of thousands of hectares has been under discussion, which only seems to be a matter of time. While there are no current figures available, between 2000 and 2007 alone, more than 1,000,000 ha of National as well as Local Forests were de-gazetted already (Kalinda et al. 2008; EC 2014: 17).⁴⁵⁹ Against this background, encroaching on the Forest can be interpreted as 'bottom-up policy alterations', with 'squatting' having the chance of being legalized, while official policy reforms addressing land constraints are absent or too slow (cf. von Hellermann 2013: 17, 142).

By the time my fieldwork had come to an end, it was not clear whether the settlement will be legalized or not. Only seven months later, in May 2016, a new Chief – His Royal Highness Senior Chief Muchinda – was finally enthroned, after many years of a power vacuum. However, some relatives of the 53-year-old were still contesting the results at the Lusaka High Court. Consequently, many in Chibobo expressed their doubts whether he will ever be officially accepted and rule. When the Chief travelled from his Palace in Lupiyah to Chibobo two months after being elected in order to give an inauguration speech, the *Chilolos* of all three communities that laid claims onto the Forest – Chibobo, Chimupati and Lumpampa – attended to ask the Chief questions. One of the aspiring landlords of a Forest Farm posed the question whether the land will be included into the community or not, whereupon the Chief responded:

I am not the one who gave you the right to go into the Forest, but if the government comes to chase you, I will protect you from eviction, because you are my people.⁴⁶⁰

After the meeting, he offered to issue official Farm Books, for which applicants were asked to contribute 300 ZMW. While those landowners who had money at hand received it the very same day, others were given it later by the *Chilolo*. While most landowners and settlers were hoping for the land to also be *officially* converted into customary, wealthier owners would also be comfortable with it remaining state land on which they can get a private leasehold. In May 2017, one year after Chief Muchinda had been installed, he was shot dead at night at his Palace. While nothing has been made public about the background of the

⁴⁵⁹ In other instances, such as the Kanona National Forests in Serenje, the Forest has not been de-gazetted and thus remains 'a Political Forest' (Vandergeest & Peluso 2015), even though it has widely been cleared.

⁴⁶⁰ Chief Muchinda in Chibobo in late July 2016, independently quoted by Vincent Musonda and Jonathan Chunga via phone.

murder, it will certainly slow down the process of officially converting the Forest.⁴⁶¹ In other parts of the country, however, the allocation of land within protected Forest Reserves has continued in the meantime. Importantly, the extraction of trees continues well beyond the process of opening up a Forest – for all those practices that have been described in detail and discussed in Chapter 6. The drivers for engaging in these practices as well as their characteristics are largely similar, which is why they will not be repeated here.

What has been most striking during my entire fieldwork in the Forest is the way both owners and settlers have univocally pointed out that they are ‘not just clearing anyhow’ as they also want to protect the trees to their own and their children’s benefit. While a few individuals conceded having a negative impact through agricultural expansion, most households rather saw their presence as protective against commercial charcoal producers. In the same way, the forestry officers did not bemoan the ongoing clearing for farming, but rather deplored the *illegality* of the settlement. In contrast to farming, both settlers and forestry officers unequivocally condemned the professional production of charcoal as destructive and morally wrong. While both activities – farming and charcoal making – have contributed to the loss of forests, they are not necessarily seen as ‘deforestation’. In the closing chapter of this thesis, I will now take a closer look at this inconsistency.

⁴⁶¹ The court ordered the royal family to appoint a successor within three months. Since people now fear to ascend the throne, three months elapsed without a decision. Following this, the Lusaka High Court has suggested splitting the Chiefdom amongst the neighbouring chiefdoms, which is still debated.

Part V

10. Seeing deforestation, continued

What has become apparent in the first two chapters of this thesis is the conspicuous way in which the issue of deforestation has been conceptualized, is talked about, and portrayed in everyday discourse and by the media in contemporary Zambia (see Parduhn & Frantz 2018). One practice in particular has been blamed for the country's often-quoted high deforestation rates, namely the production of charcoal. More than any other activity, it is associated with deforestation: seeing white sacks full of charcoal piled along the roadside or on markets is inevitably associated with the issue. Equally the other way around, the phrase for cutting trees (*ukutema miti*), or 'loosing the bush' (*ukulofya impanga*) will first and foremost evoke pictures of charcoal burners. Consequently, the open census question 'Have you ever cut a tree?' was spontaneously answered with 'no' by those households who had never engaged in the commercial production of charcoal – even though they may have felled many trees for agricultural expansion and a number of other purposes. Whereas the precise contribution of the charcoal production and its trade to deforestation has not been well researched, it however dominates the public debate (Gumbo et al. 2013: 52) and is unequivocally seen as objectionable. While the focus is dominant, there are a number of other practices also seen to be responsible for the decline of Zambia's forests. Illegal logging for example has been condemned by the government for being unsustainable, and for being associated with uncontrollable activities that do not even generate revenue. Besides, 'unnecessary' clearing for farming is seen as wrong, that is, if one does eventually not manage to cultivate the field already cleared – either as one was too ambitious, overestimated one's own capacity, got ill or had to be absent due to unforeseen circumstances. One particular farming activity, growing tobacco, is also seen as destructive as much fuelwood is needed for the process of curing. *Chitemene*, the slash-and-burn agriculture long practiced in Northern Zambia amongst the Lala People and the Bemba in general, is seen in a similar way, and even as a 'backward' practice.

In Chibobo and across the country, the construction of this understanding begins as early as primary school: when the issue of deforestation is discussed, there is a clear focus on *Chitemene* and charcoal, without much space for other activities contributing to forest loss.⁴⁶² At a community meeting in Kansenga during which an NGO tried to promote agroforestry, one attendant summarized it well:

⁴⁶² For future research, an analysis of teaching material might be of interest, while spoken language should not be neglected: statements made by teachers within the classroom, during gardening trainings, but also during leisure time towards pupils, can help understanding of how a perception on deforestation or certain drivers is constructed early in life.

What we learn at school about deforestation is: charcoal, cutting trees for charcoal. So it is something new for us that here, in Kansenga, it has to do with farming. Also, people never used to encroach the [Protected] Forests for farming, but only for charcoal production, so this view is pretty strong. Some people even stopped burning because they have learned it is bad, and now they concentrate on farming.⁴⁶³

Farming, as the statement illustrates, is seen as an alternative to the production of charcoal, and hardly associated with deforestation. Besides farming, there are a number of other activities that entail the cutting of trees, but are rather viewed in a positive light. Cutting for firewood, for example, is seen as a productive activity, since old or dry wood is utilized by humans instead of ‘going to waste’:

It’s natural, it’s like cleaning up, you climb onto a fresh tree and only cut the dead branches, the dry ones. Even if you leave them there, they will just end up rotting, that’s a very good way of harvesting firewood. Sometimes trees are dangerous because eventually a branch comes down, so if it’s harvested, that’s cleaning up the Forest. Not when you cut fresh trees and wait until they are drying up to collect them, that’s not a good way, that is detrimental to the Forest.⁴⁶⁴

At times, fresh trees are cut down, for example during honey hunting or collecting caterpillars. However, from the local perspective, it is equally seen as productive – as long as the trees are carried home where they can be utilized as firewood or timber. Small-scale logging for construction purposes – for huts, wooden bridges, furniture, granaries or mortars – is literally seen as ‘constructive’, especially against the background that the practice is erratic and the impact thus rather minimal. Equally, *legally* produced timber, even when produced at large-scale, hardly becomes a topic of public debate. In the same way, clearing for infrastructure developments such as, amongst others, the construction of rural and urban settlements, minor and major roads, hydro-dams, softwood plantations, power stations, or power line corridors is seen as constructive – and inevitable for keeping up with those who are ‘already ahead’, as the residents of Chibobo put it. In the very same way, when hectares of forests have to give way to open-pit mines, factories, or large-scale agriculture, a positive attitude prevails. During such land conversions, ‘valuable’ trees, that is, trees that are easily marketable and fetch relatively high prices on the market, are usually extracted before clearing, which even increases the ‘productive value’ of clearing. The charcoal produced *opportunistically* along the way is – at least at the community level – seen to be clever, as the felled trees will not be wasted but put to use. All those ‘productive’

⁴⁶³ A number of meetings took place in September/October 2015; they were conducted by three Zambian undergraduate students from the University of Lusaka (UNZA) as part of their internship with the NGO Green Living Movement (GLM).

⁴⁶⁴ Vincent Musonda during an interview at his Farm in northern Chibobo on July 19, 2015.

and ‘constructive’ activities – or rather their products such as bridges, plantations, mines or maize fields – are associated with (new) economic opportunities, job creation, stable and better salaries, social mobility, and everything imagined to come with it. They carry the notion of a decent life and are thus even visually pleasing. Importantly, in contrast to a number of ‘destructive practices’ outlined above, the latter ones are *not* linked to deforestation in the first place.

On the very first page of this work, I presented that eye-opening experience, which made me realize that the cutting of trees does not necessarily count as ‘deforestation’: when passing by and openly discussing the vast farm blocks of Mkushi and Lusaka’s northern periphery with my research companion, he was bewildered by me linking (large-scale) agriculture to deforestation. By saying: ‘Sure, trees are brought down, but this is not deforestation!’⁴⁶⁵ with a confused voice, he confirmed my previous assumption, that *forest loss* is not necessarily the same as *Deforestation*.⁴⁶⁶ While we viewed the very same landscape, we did not *perceive* the same (cf. Klein 2004: 11; cf. Karlsson 2011: 10). In fact, seeing vast wheat fields with centre-pivot irrigation did, in a number of instances, not trigger thoughts about clearing forests, but rather caused admiration and passion. In a similar way, whenever I revealed my less differentiated understanding of deforestation as ‘the general loss of trees’, government officers from the district to the provincial and national level were surprised by this odd view.

It stands out that in particular practices that are mechanized or industrialized are usually seen to be ‘productive’. Equally, practices that legally occur on state including private land are hardly tagged with the label ‘unsustainable’. The conversion of a rural space into an industrialized or urban one, such as the development of a large-scale mine or new housing facilities, for example, is hardly seen as problematic with regard to Deforestation. Such conversions were always presented to me as having a localized impact only, which is in sharp contrast to the commercial production of charcoal, which would arguably go on and on until no trees are left. Also with regard to urbanized spaces, (absentee) landlords from town clearing rural spaces, the urban consumption of forest products such as charcoal or timber, as well as load shedding fuelling the *consumption* of charcoal is usually side-stepped in the ‘discourse of local blame’ (Leach & Scoones 2015: 17; cf. Munro 2009: 114), with a few exceptions (e.g. Symapungani et al. 2009, and Chidumayo & Gumbo 2010).

As the examples suggest, ‘deforestation’ is a perceptual term: while the replacement of forest by large-scale mines is, in the literal sense, rarely seen as deforestation, the replacement of forest by charcoal kilns always is (cf. Blaikie & Brookfield 1987: 4). This ‘dichotomy of understanding forest loss’ (see Table 2) also carries a moral and emotive

⁴⁶⁵ Vincent Musonda during an informal conversation on Great North Road in Mkushi District on July 31, 2015.

⁴⁶⁶ In order to pronounce the difference between deforestation as forest loss, and Deforestation as denominator for certain practices only, I will distinguish between deforestation with a small, and Deforestation with a capital D (cf. Hart 2001: 650).

component: while productive and constructive practices are usually desirable and perceived to be good, destructive ones are wrong, objectionable and shameful. This is also reflected in feelings when cutting down trees for certain purposes: when clearing is done productively or constructively, ‘you don’t feel anything apart from getting tired, you even feel happy when you find a good pole after looking for a long time’⁴⁶⁷. In the same way, a small-scale logger points out that when a big tree falls down with a loud, crackling noise after a strenuous ‘fight’, a feeling of gratification unfolds as well:

We are happy, we even clap hands, it’s good because it will give us something to eat – or rather to drink [giggles]. I can’t feel pity about the tree, my father didn’t tell me to have mercy with a tree or to feel bad when it is very good to me. If you find the right one, you even wish they were hundreds.⁴⁶⁸

In contrast to this, commercial charcoal producers have described their own activities as rather humiliating. Even though they are pleased when a kiln yields good pieces of charcoal, while cutting down the trees – without the intention to later utilize that spot – they have a guilty conscience. Equally, when trees near a Farm that have provided fruits or shade are felled, it would simply not feel right and may end in dispute with other households of the same Farm.

While some practices are clearly ‘productive’ or ‘destructive’, for the appraisal of others, context matters to a greater extent: from the perspective of the state, for example, governability and legality regarding *statutory* law plays a crucial role. Along those two axes, it is judged whether a certain action is good or bad, right or wrong, productive or destructive. During a recent speech, the Zambian President called on his people ‘to curb the rampant illegal activities’ (Lungu 2017), which equals the stance of the Forestry Department: the main offences lamented by the officers were the *illegal* production and transportation of charcoal and timber, as well as farming and squatting *in Forest Reserves* (EC 2014: 34). Importantly, this suggests that the *legal* production and transportation of charcoal and timber, as well as farming on customary land, is less problematic – if at all. More often than not, deforestation is linked to illegality, whereas legal activities cannot contribute to or *be* Deforestation. Before turning to the implications of the observations discussed above, the following table brings them together, which should serve as a road map that is open to exceptions and change over time:

⁴⁶⁷ Mandalena Mbulo during the group discussion at Chilekwa Farm in Kansenga on June 23, 2015.

⁴⁶⁸ Alan Nsakanya during a transect walk in the Serenje National Forest (Chibobo) on May 4, 2015.

predominantly destructive	pred. productive/constructive
e.g. slash-and-burn farming (<i>Chitemene</i>), curing tobacco, illegal logging, charcoal production	e.g. input-based agriculture, legal logging clearing land for mining, factories, roads, hydro-dams, power stations, power line corridors, plantations
rural, non-industrial	urban, industrial / urbanising, industrialising
illegal or unregulated; ungovernable	legal; controllable
country-wide, ever-expanding	site-specific, limited expansion
unsustainable	sustainable
calls for action, needs interventions	unproblematic
environmental impact inexcusable	environmental impact negotiable
pejorative labels such as ‘encroachment’, ‘squattling’, ‘culprits’, ‘rampant’, ‘indiscriminate’	positive labels such as ‘opening-up’, ‘developing’, ‘modern’
condemnable, objectionable, embarrassing	valuable, desirable, fruitful, useful
Deforestation	Development

Table 2 Dichotomy of understanding forest loss⁴⁶⁹

Apart from those practices that can be clearly allocated to one side or another, others are more context-specific, such as the harvest of caterpillars, honey, or firewood, as described earlier. Equally, the lighting of bushfires depends on the purpose: whereas a fire against snakes, to prepare a field, or ‘to cleanse’ the surrounding is likely to be seen as proper, wild fires caused by children hunting mice would be labelled destructive.

The dichotomy constructed above is almost a binary opposition, with two mutually exclusive sides: if a practice is likely to bring about development in the widest sense possible, it cannot be, ‘by definition’, Deforestation. ‘Development is not negotiable’⁴⁷⁰ and seems to be the determining concept here: even if large-scale forest loss is involved, there can be a trade-off with regard to conservation (Munro 2009: 114) or legality (Kneen 2013; MiningWatch 2013;⁴⁷¹ cf. Miller et al. 2014).

⁴⁶⁹ Since I was initially researching all practices entailing forest loss, which have been extensively discussed throughout this thesis, I only realized later that not all of those practices were actually considered to contribute to, or to be, ‘deforestation’. The ‘dichotomy of understanding forest loss’ (Table 2) was constructed by myself only during the last months of my fieldwork, thereafter refined and probed during a number of informal meetings and interviews. Due to this ‘delayed insight’, however, I failed to *systematically* investigate the dichotomy. Nevertheless, the following insights will help to better understand the prevailing ‘Zambian way’ of seeing deforestation.

⁴⁷⁰ Around 2010, I attended a conference at the Heinrich Böll Foundation in Berlin during which a high ranking Indian politician stated that ‘Development is not negotiable’ and growth will not be hindered by environmental concerns or climate change, not least because ‘the Global North also had their go’.

⁴⁷¹ Being an NGO, MiningWatch is arguably biased and pursues an agenda. However, since they have published relevant regulations and the original communication history with the mining company, as well as the agreement between Chief Musele and FQM, their statements are credible.

Apt analogies are always difficult to find, but the following example might be suitable: a White man flying into a private game management area in order to shoot game for a fee is likely to be considered ‘a hunter’ who is indulging in a legal hobby which even supports the country’s economy. ‘By definition’, this cannot be ‘poaching’, which is illegal, unsustainable, and supposedly done by a poor Black man, who is either ignorant or desperate. As long as a practice has the potential to create a greater economic benefit, the loss of trees – or wildlife – is seen in another, less critical light.

As the previous pages have illustrated, the term ‘Deforestation’ does not simply describe a physical activity, but rather is a value-laden concept ‘that evokes a complexity of [specific] images and understandings’, and is bound to a certain set of associations (cf. Munro 2009: 109). In the Zambian context, the focus lies on ‘destructive’ practices, whereas all ‘productive’ or ‘constructive’ practices are simply no *subject* of Deforestation (cf. Munro 2009: 111). This focus on some practices, with the neglect of others, is not only symptomatic for the way Zambia’s high deforestation rates are interpreted, but it also feeds into and thereby reproduces that discourse, which almost seems to represent unquestionable facts (see pp. 7 ff.). This, in turn, has fundamental implications in terms of approaching forest loss: since productive practices are not acknowledged as part of the problem in the first place, even when thousands of hectares are clear-felled, they are omitted in discussions on the same.

Practices constructed as destructive, on the other hand, will be paid most attention. Because within the discourse, certain approaches to curb Deforestation, that is, what counts as it, are more self-evident than others (Arts & Buizer 2009: 342; Kamelarczyk & Smith-Hall 2014: 21). Even more, the discourse only allows for ‘a restricted field of conceivable solutions’ (Scoville-Simonds 2009: 33). While Zambia’s and many other countries’ REDD+ projects for example target ‘unsustainable’ farmers and charcoal producers, other causes of large-scale forest loss remain unaddressed (Leach & Scoones 2015). Equally, in the latest draft of Zambia’s National Policy on Climate Change, the high rates of deforestation are attributed to ‘the usual suspects’ – charcoal *production* and ‘unsustainable agricultural methods such as shifting cultivation’, as well as firewood consumption (van Rooij 2014: 6). Clearing land for ‘modern’ farming, however, is not linked to climate change. This deployment of a double standard with a focus on the rural poor ‘as the ignorant agents of deforestation’ (Munro 2009: 110) is not unique to Zambia, but very much reflects the strong discourse on tropical deforestation (Fairhead & Leach 1996; Leach & Mearns 1996; Adger et al. 2001; Munro 2009; von Hellermann 2013; Leach & Scoones 2015). As von Hellermann has aptly put it: ‘Because something went wrong, someone needs to be blamed’ (2013: 132 f.) – in Zambia, it is especially charcoal producers. Remarkably, there has been a conspicuous harmony across society, from the local to the national level, with little

resistance to what counts as Deforestation – and what does not. But a crucial question that remains is *why* the perception is so selective.

Before returning to this question, I briefly take up the model of analysis that was presented in the introduction:

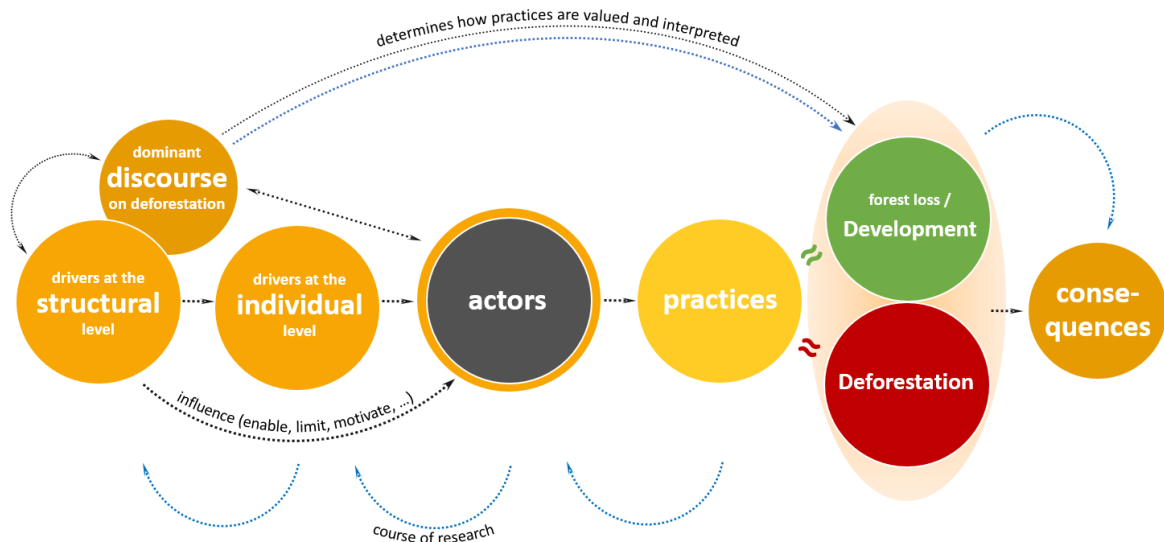


Fig. 2 Model of analysis employed during the research process

While in the opening chapter it represented an abstract model, the thesis has populated each sphere with content. Applying the model to any practice will, in most cases, point to the entanglement of many drivers underlying the decline of Zambia’s woodlands. Maize farming, to use just one example,⁴⁷² has been favoured by a complexity of interconnected actors and drivers: bio-physical and geographical endowments, material and ideological support by both the government and the private sector, but also growing population numbers to name a few. This backing in turn, combined with weak forest governance, facilitates agricultural expansion at the expense of forests, including densely forested ‘protected’ areas. On a more individual level, an unconditional love of *Nshima* and the ‘desire to aspire’ in combination with a declining belief in witchcraft have equally promoted agricultural expansion with a marked focus on maize. Clearing land for maize is then linked to other practices which are equally associated with deforestation, with the *opportunistic* production of charcoal being the most prominent. Interestingly, while charcoal production has been blamed for its destructive conduct, maize production continues to receive substantial political and social support.

I now return to the question of *why* this is, or rather might be, the case.

⁴⁷² Findings about *how* maize farming is carried out will not be repeated here; see chapter 6.3.

Expecting the Big Push

‘The way [the problem] is constructed reflects something about the perceptions and interests of the ones who pose’, as Scoville-Simonds (2009: 32) has rightly argued. However, how and why such a dichotomous perception outlined above (Table 2) has come into existence and been perpetuated is difficult to conclude unambiguously. At a macro level, one may argue that politicians either overlook or deliberately turn a blind eye to the ‘productive causes’, such as large-scale agriculture or mining. Ignoring this elephant in the room could be a manoeuvre in order to not scare away investors, and with them, employment opportunities, tax revenues, and satisfied voters. Moreover, filing a case against multinational companies is much more difficult than pointing the finger at ‘poorer, politically weaker groups’ (Munro 2009: 104, 109) such as charcoal producers, which is all summed up well by the sayings ‘crawl to the bigwigs and bully the underlings’ or ‘kissing up and kicking down’. In the end, blaming *someone* upholds the illusion of doing *something* against the high rates of deforestation (cf. von Hellermann 2013: 132 f.). The superiority of economic concerns over conservation may not come as a surprise, yet it is important to note that the denial of ‘productive’ and ‘constructive practices’ as part of Deforestation is not simply a red herring (cf. Kamelarczyk & Smith-Hall 2014) or strategical framing.⁴⁷³ The contemporary dominant discourse in Zambia, which is relatively ‘closed’ (see Hajer 1995), has not been officially agreed upon but rather has emerged ‘naturally’ over time – around the general quest for Development (Munro 2009: 114; cf. Ferguson 1990: 67; cf. Hart 2001: 650), particular Development agendas for the near future (GRC 2006a; GRZ 2006b; GRZ 2011c; GRZ 2017), and expectations of Modernity (Ferguson 1999). Furthermore, some of the underlying causes of Deforestation, such as land shortage or local governance, are rarely addressed as they are politically too difficult (Mickels-Kokwe & Kokwe 2015: 131) and cannot be addressed with appealing quick fixes. At a more individual level, the saying on bigwigs and underlings also holds true, with smallholders admiring large-scale farmers and blaming comparatively poor charcoal producers. Overall, after having worked their entire lives as farmers, which continues to shape the national, as well as personal identities, and having blamed charcoal for years, re-assembling this configuration is not a simple endeavour. The desire to aspire (see Chapter 7) as well as notions of their near future, with a special interest in Development, has equally shaped the way certain practices are assessed.

One particular practice, or rather entire industry, occupies a prominent role for the entire Zambian society, which is large-scale copper mining. Thanks to that industry, Zambia was acclaimed early as one of the most prosperous, urbanized and industrialized countries

⁴⁷³ According to Entman (1993: 52), ‘[t]o frame is to select some aspects [...] and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation’. While all this certainly comes along with the Zambian discourse on Deforestation, the *intention* to do so is yet to be proven.

of sub-Saharan Africa, which also brought about rapid social transformations (Bates 1976). There was no place in Sub-Saharan Africa urbanizing faster: by 1969, Zambia's urban population had grown tremendously, and 20% of the entire population were in wage employment, mostly in Lusaka and on the Copperbelt. Mining towns had sprung up and the country eventually became the third largest exporter of copper, producing about 700,000 to 750,000 t of copper in 1973 (Fraser & Lungu 2009: 8; ZDA 2015: 3). Zambia had grown to a middle-income country with one of the highest GDPs in Africa – and even compared to the then emerging economies of Brazil, Malaysia, South Korea and Turkey (Ferguson 1999: 1-6). Zambia's dependency on large-scale industries was reflected in smokestacks literally rising up all over the Copperbelt (Ferguson 1999: 6), as well as the decline of forests: 'where [...] fifty years ago forests once stood, there now stand copper mines' (Bates 1976: 1). Still, the country was not only lauded for leading 'the African Industrial Revolution', but also for moving along the path of so-called 'modernisation' (Ferguson 1999). Against this background, the region attracted the attention of researchers with a special interest in social change, and eventually found its way into university libraries through the works associated with the Rhodes-Livingstone Institute (RLI).⁴⁷⁴

After Zambia had experienced unprecedented growth, however, the export earnings from copper drastically declined during the 1970s. Falling copper prices coupled with rising oil prices and declining terms of trade (Ferguson 1999: 269, fn. 5) caused a steady decline to only 200,000 t in the late 1990s (ZDA 2015: 3) – less than 29% of what had been produced in 1973. In the course of that steady economic decline, and for more than two decades, mass layoffs brought about increased levels of urban poverty and the gradual reversal of the rural-urban migration (Ferguson 1999: 11). Eventually, Zambia dropped to the bottom 26 of World Bank's hierarchy of 'developing countries' (Ferguson 1999: 6). The dream of an African Industrial Revolution, as well as the 'overdramatic and exaggerated narration' of industrialization and urbanization (Ferguson 1999: 3), had gone as quickly as it appeared. Similar to the rapid social transformation it spurred before the 1970s, the extreme economic crisis thereafter brought about unexpected social upheavals. Undertaking fieldwork about how the economic crisis was affecting mineworkers around Kitwe on the Copperbelt, Ferguson found an 'overwhelming sense of decline and despair' everywhere (1999: 12) and fears about the future (Ferguson 1992; Ferguson 1999: 19, 255). After a long downturn, however, the industry experienced a re-boom: following the privatization of the mining sector in 1997 (van Alstine et al. 2011), and rising copper prices due to a new 'demand from emerging markets and limited growth in supplies' (van Alstine et al. 2011: 3), the industry increased its production by 311% between 2000 and 2013. The

⁴⁷⁴ Set up in 1937 by the British government, the RLI was to further social research in British Central Africa, with a focus on industrialisation, urbanization, labour migration, and the rapid social change brought about by it (Ferguson 1999: 24-26).

existing mines were growing, small-scale copper mining took off, and new mines were opened up (ZDA 2015). Even after the 2008 global recession, copper prices recovered to the highest levels ever, attracting ever more multinational companies (van Alstine et al. 2011: 6). Zambia eventually surpassed production levels of the 1970s and became the largest producer of copper and cobalt on the entire continent (ZDA 2015: 3), with a tremendous importance for the national economy.⁴⁷⁵

In the atmosphere of that upswing, the government and many people hope to ‘get back on track’, or ‘to catch up’, as the residents of Chibobo put it. Instead of decline, they are anticipating a second Big Push – a push that brings back the living standards of the mining boom, when miners could eat meat regularly, feed their families, afford a car, or get tailored suits mail-ordered from London (cf. Ferguson 1999: 12). While many young Zambians have not experienced this Zambia themselves, people who have witnessed that time recount how much better life was back then. However, both macroeconomic parameters and micro-level experiences of late point towards a bright future. The continuing growth of the mining industry is seen by the government as a potential driver for further economic growth and poverty alleviation through taxes, job creation, and the provision of education and health services (GRZ 2014b: vii). In order to sustain the upswing and thereby promote the official aim of turning Zambia into ‘a prosperous middle-income country by 2030’ (GRZ 2011c: i), the mining industry is expected to grow considerably over the next years with government incentives targeting foreign investors (ZDA 2015: 3). The prioritisation of mining, which has recently been confirmed by the President (see Lungu 2017) and the Development Plan for the years 2017-2021 (GRZ 2017), is most likely to be at the expense of woodlands and Forests. Having attended to small-scale mining earlier already (see Chapter 6.4), I will now briefly turn towards large-scale mining, with a focus on the three most recently established large-scale mines.

The blind spot of large-scale mining

While Zambia’s mining industry has been predominantly associated with the Copperbelt since the 1930s, little attention has been paid to mining operations in regions previously unaffected (Lindahl 2014: 9). Besides a few districts where manganese mining is gaining a foothold (see Chapter 6.4), Solwezi District in Zambia’s North-Western Province is another such region. For the last decade, the district has been experiencing a mining boom, providing jobs to thousands of permanent and seasonal employees. While the environmental impact of the operations within ‘the new Copperbelt’ (van Alstine et al.

⁴⁷⁵ With over 8.72 billion US-Dollar, copper accounted for at least 77% of Zambia’s total export revenues in 2014. The second major export good, raw tobacco, accounted only for 282 million USD, followed by cobalt with 232 million USD (Simoes & Hidalgo 2016).

2011: 3) is not yet well documented (Lindahl 2014: 10; cf. Mwitwa et al. 2012), it is likely to be substantial as the entire district and thus all the mines are located in Zambia's most densely forested region, with about 80% of the surface being covered by mature *Miombo* woodlands (URS 2012: 70; GRZ 2016: 3).⁴⁷⁶ It is not only the most forested, but also the least populated one (van Alstine et al. 2011: 6), facilitating the creation of a mining province without facing resistance.

Beginning in the year 2005, a subsidiary of the Canadian mining company First Quantum Minerals (FQM)⁴⁷⁷ has started mining operations, for both copper and gold, at the old Kansanshi Mine near Solwezi *Boma*.⁴⁷⁸ After several expansions, 340,000 t of copper were produced in 2015, making Kansanshi Africa's largest and one of the most productive copper mines in the world (FQM 2016). Importantly, the entire mining site lies amidst the *Miombo* woodlands. While the land had been previously used for mining, farming, cattle rearing and timber harvesting (URS 2012: 70), the new mine expanded into the surrounding forests over the next years, including a National Forest.⁴⁷⁹ Since the entire Province is sparsely populated, encroachment has not been an issue and the Forest was, according to the impact assessment, very dense and home to tall trees (URS 2012: 70). By 2012, seven years after the mine was opened, the forests had been partly replaced by the mining site, which is, however, not addressed in the environmental impact assessment. Instead, conciliating references are made to the non-existence of 'critical habitats' or rare wildlife species within the mining area (URS 2012: 71, 81). In contrast to this statement, the tree type *Pterocorpsis angolensis*, which has recently been added to IUCN's Red List as 'near threatened', occurs frequently in the area. Besides this species and fruit trees, the mining area was also home to a wide range of birds, mole rats, common duikers, and bush babies, which is acknowledged in the report (URS 2012: 70 ff., 151). Over the years, several thousand hectares – more than the entire size of Milombwe or Kansenga – gave way to the core mining site, processing plants, waste water treatment reservoirs, an airfield, a road network, and housing facilities. In the future, production numbers are expected to increase with a projected site expansion of more than 1,000 ha for further housing facilities and a hydro power plant (FQM 2016). Against the background that the Zambian state holds about 20% of the mine, operations are likely to continue smoothly. Moreover, since FQM employs about 1,700 people and is the country's largest taxpayer, paying 605 million USD to

⁴⁷⁶ Due to North-Western Province's vast and dense forests, it has repeatedly been mentioned during interviews conducted outside the province as the only place in Zambia where 'real forest people' are living, imagined to fiercely protect their forest, like 'ecologically noble savages' of the neighbouring DR Congo (cf. Vayda 1998: 574). This idea, however, appears to be based on othering rather than empirical evidences.

⁴⁷⁷ While 80% of the mine are owned by FQM's subsidiary Kansanshi Mining PLC from Solwezi, the remaining 20% are owned by a subsidiary of Zambia Consolidated Copper Mines Investment Holdings (ZCCM-IH), itself majority-owned by the Zambian state (FQM 2016).

⁴⁷⁸ Kansanshi is one of the oldest mines on the continent, dating back to the 4th century. In 1899, the mine already yielded about 80,000 t of copper (van Alstine et al. 2011: 6-7).

⁴⁷⁹ Mbonge National Forest (URS 2012: 70; see GRZ 2015: 27).

Zambia's Revenue Authority (ZRA) through direct operations, subsidiaries and partnerships (FQM 2016), operations are even likely to expand, and to be widely supported by both the government and society.

In 2008, three years after FQM started operations, Barrick Gold, another Canadian investor, opened a similarly big large-scale site – the Lumwana Copper Mine – about 80 km south-west of Kansanshi. The large-scale mining licence covers an area of 135,500 ha (1,355 km²), with a further 25 exploration prospects all over the province (Equinox 2005: 26). How much of this area will be eventually cleared is hard to foresee, yet the mining process was expected to disturb about 8,700 ha, of which almost 5,000 are within a National Forest⁴⁸⁰ again (Equinox 2005: i f.). Over the following years, parts of the surrounding forests gave way to the mining site itself, plus maintenance, bulk explosives, and administration blocks. 500 ha of land were officially converted into a new township for hosting and providing social services to new employees of the mine (Equinox 2005: 118). According to historical satellite imagery, between 2008 and 2016, at least 3,000 ha had been converted (see Fig. 27). Similar to the other mine, the Forest had previously provided a habitat to a number of animals, such as duikers, bush babies, and vervet monkeys, as well as small reptiles and birds (Equinox 2005: i f., 81), and it had been used for beekeeping and woodcarving (Equinox 2005: 62, appendix). While the mine's large footprint is acknowledged by the operators, the impact assessment points out that the severely impacted area is small 'in relation to the total area of woodlands in the North Western Province' (Equinox 2005: ii). Moreover, it claims that loggers, charcoal burners, mineral exploration activities and slash-and-burn agriculture had left the area disturbed anyway (Equinox 2005: 45, 51, 103), which according to the satellite imagery was only true for a small share of today's site. While the company has promised rehabilitation (Equinox 2005: iii), their own experience has shown that the transplantation of trees is difficult due to the coarse and loose nature of tailings, and that trees growing on copper clearings are severely stunted. Therefore, instead of balancing out the impact, grassland and acacia woodland will be the preferred substitute (Equinox 2005: 51, 134). The missing trees, in turn, cannot absorb the sound pressure anymore, which results in increasing noise levels (cf. Equinox 2005: 65) and thereby increases the indirect, more subtle footprint. Within a few years after the mine was opened, the nearby town of Manyama (see Fig. 27) attracted around 20,000 job-seekers, leading to urban expansion and infrastructure development, which in turn pulled more people into town and thereby exacerbated the pressure on the surrounding woodlands (cf. Mwitwa et al. 2013). The comparison of the two images below shows the change that occurred within about a decade, while the entire mining licence exceeds the area captured by multiple times. However, whether the mining site will be extended or not remains to be seen.

⁴⁸⁰ Acres National Forest (see GRZ 2015: 55).



Fig. 27 Satellite imagery⁴⁸¹ showing Lumwana Mine in late 2005 and in late 2016

The third and last mine that was recently opened up is also run by a subsidiary of FQM. In August 2015, they started operations at the Sentinel Mine nearby Kalumbila, where about 300,000 t of copper are to be produced every year (FQM 2015: 2).⁴⁸² With regard to forest loss, the mine has already played and will play a great role in the future: the land on which the site was developed was completely virgin and forested, comprising of *Miombo* and riparian forests, extremely diverse vegetation and even threatened and endemic mammals (FQM 2014: 18, 35, 38). The forests did not only give way to the mine itself, but also to a new town with a clinic, schools, a fuel station and supermarkets – all developed from scratch. On top of that, about 7,000 ha were cleared for an airport (FQM 2017: 22). Instead of ‘wasting’ the cleared trees, they were processed in a newly built sawmill, and turned into posts and structural supports deployed at the mine site, as well as furniture for company offices and local schools (FQM 2017: 22). With such infrastructure, more than 1,700 employees on-site and over 1,200 contract workers (FQM 2015), the Zambian government was unsurprisingly committed: President Edgar Lungu and the Minister of Mines, Energy and Water Development opened the plant, which indicates the national importance attached to it. FQM already pledged to carry out tree planting and distribute seeds of indigenous and exotic varieties, including fruit trees for the purpose of mitigation (FQM

⁴⁸¹ Labels by author. Image date: 31 Dec 2005 (left, shortly before prospecting activities began), and 31 Dec 2016 (right). Image source: Landsat/Copernicus, Google Earth.

⁴⁸² Similar to Kansanshi Mine, Sentinel is run by one of FQM’s subsidiaries, namely Kalumbila Minerals Limited (KML) from Ndola.

2014: 76, 83), yet it remains to be seen whether this will be a marketing exercise, eventually lead to *net* re-forestation, or even further increase the area of indigenous forests lost – for example when the local population opt for clearing *Miombo* trees to replace them with ‘more profitable’ trees. In any case, re-forestation activities are energy-intensive, which limits the supposed carbon offset.

While the new Sentinel Mine was widely welcomed, it also faced some resistance: on top of several legal irregularities, the operators constructed on Chief’s land without his consent, thereby ignoring customary law. As a result, residents have begun to contest the ongoing land grab, fearing the loss of access to their land, to dams for fishing, and to woodlands for collecting mushrooms (Kneen 2013; MiningWatch 2013; Miller et al. 2014). The population’s resistance was supported by many civil society organizations, for which they were allegedly charged with ‘hindering development’ by the government (Miller et al. 2014). Furthermore, the responsible Ministry even overruled the decision of the parastatal ZEMA – the official institution created to ensure environmental protection in Zambia – to stop operations for further investigations (MiningWatch 2013). This is the most recent example for the double standard outlined above.

On top of those three mines of Solwezi District, the three districts to its south have also experienced mining operations, which equally brought about population growth and agricultural activities at the expense of Forests, including the Ndenda National Forest in Kabompo (ZEMA et al. 2013: 69).

Another, more subtle driver of forest loss related to the mines is their massive energy consumption. While before independence, the mines consumed wood from the surrounding forests as a major source of energy, the copper smelters of today are run by electricity (ZEMA et al. 2013: 60) – which itself is closely linked to the issue of load shedding and thus deforestation. According to the latest data available from 2006, about 68% of the country’s entire load is consumed by the mines (GRZ 2006b: 20). More than ten years later, at least three more large-scale mines have come into existence while the electricity infrastructure has not been upgraded accordingly. Since mines and their compounds are prioritized with regard to load shedding, a higher demand for charcoal is created elsewhere. Apart from that, there are a number of forest-related environmental side-effects of mining. On top of the forest loss caused by *clearing*, sulphur dioxide emissions from the smelting process can negatively affect trees as well and prevent plants from growing (Fraser & Lungu 2009: 15; 33).

Despite a number of possible negative impacts on the human health due to emissions, noise, and occupational hazards, the new mines have attracted many people searching for direct employment and other economic opportunities. This, in turn, has led to the emergence of mining compounds and the growth of towns, which as a matter of course entailed considerable forest loss within the last ten years (ZEMA et al. 2013: 58, 60, 69; cf.

Mwitwa et al. 2012; cf. Mwitwa et al. 2013). The emergence of new towns, in turn, fostered anticipation of health care facilities, infrastructure and schools, as well as shopping centres, sports and cultural facilities (cf. van Alstine et al. 2011: 6 f.; cf. FQM 2017: 22), which further attracted more locals and migrants. Interestingly, the mines have not ‘absorbed’ the alleged culprits of deforestation: even those employed by them have continued to engage in ‘unsustainable agricultural practices and other income-generating activities such as charcoal production’ (Matakala et al. 2015: 17). Even though the term ‘unsustainable’ is not refined, and it does not become clear whether charcoal might have been a side-product only, farming *in general* is likely to have additionally contributed to forest loss due to the locality in North-Western. The idea that off-farm work reduces farming activities therefore needs to be qualified.

On top of all those side-effects already mentioned, the construction of a vast array of physical structures, such as expanded mining sites, housing, fresh water dams, tailings, waste rock dumps, corridors for power lines, access roads, or processing facilities (GRZ 2016: 42 ff.; cf. Mwitwa et al. 2012) has and will entail further forest loss. With regard to construction work, supply chains can be unexpectedly long and complex: during preliminary research in North-Western, I got a lift from an engineer from Bhutan and his intern from India. They both worked for a New Zealand company that specialized in setting up electricity poles that will link mines with a power plant. For constructing a pole’s base, sand of a certain quality is needed as a building material. While browsing the promising, densely forested district of Kasempa for suitable river sand, the two men first ran into me, and a few days later found what they were looking for. The construction of feeder roads to the river could begin, which obviously brought about forest loss, and soil sealing hindering re-growth. Moreover, roads facilitate access to forested areas, which empirically comes along with increased deforestation (Mwitwa et al. 2013). Especially in North-Western, this has led, and will lead in the future, to the fragmentation of wildlife, and an impact on the production of honey, of which the Province is a stronghold. At the same time, it also threatens beekeeping (Husselmann 2008: 2), which is crucial for pollination, thereby raising critical questions related to food production.

Importantly, in contrast to non-industrial deforestation, mining sites are cleared within a short period of time. Besides pace, the ‘quality’ of deforestation is also alarming: as trees are entirely uprooted and disposed of, seed dispersal and re-growth of a forested landscape is rendered extremely difficult and slow. This is made worse by soil sealing as it affects water drainage and eventually the regenerative capacity of the site. Since the mines’ life span does not exceed 20 years, depending on the reserves and mineral prices (Equinox 2005; FQM 2016), re-forestation would be possible, provided funding is available. However, the experiences of Lumwana Copper Mine in Kansanshi has shown that re-forestation is not an easy endeavour, with transplantation being difficult and tree growth severely hindered

(Equinox 2005: 51, 134). In any case, environmental compliance – not only with regard to clearing but also dumping and emissions, for example – is difficult to enforce due to a lack of manpower and the technical capacity of the Zambia Environmental Management Agency (ZEMA) (Lindahl 2014: 2). Small-scale farming as an alternative land-use after mining operations come to an end will also be hardly possible as the land is likely to be too degraded, which in turn will increase the pressure on other forested land in the region. All such problems related to large-scale mining are not only encountered in North-Western Province, but also on the Copperbelt, in the neighbouring Katanga Province of the DR Congo (Mwitwa et al. 2012), and most recently even within the boundaries of the Lower Zambezi National Park in Zambia's Lusaka Province (Leigh 2014). Other open pit mines, such as for coal or nickel in Southern Province, have equally contributed to the removal of woodlands.

While all this is happening, the Ministry of Mining and Mineral Development (GRZ 2016: 7, 16) does not explicitly link deforestation in Central Province and on the Copperbelt to mining, but instead, in a project aimed at 'the remediation and improvement of the mining environment', to charcoal production, clearing for farming, bushfires, and curing of tobacco. While the loss of vegetation due to construction is also mentioned, the report points out that the process of remediation will entail new construction.

Most strikingly, even the latest report on 'environmental degradation caused by mining activities' by the Zambia Auditor General (GRZ 2014b), a report by a Swedish government agency (Lindahl 2014), as well as the most recent 'environmental threats and opportunities assessment' commissioned by USAID (Cadmus 2016), did not mention the loss of trees, habitat and biodiversity due to mines *at all* – but the production of charcoal and slash-and-burn farming, *illegal* logging, firewood collection, climate change, fires, and encroachment for settlements and farming. The first causes are mentioned most often, which again points to the one-sided and misleading representation of the issue.

The technology and staff required to properly assess the mines' impact onto Zambia's forests are available, for example at the National Remote Sensing Centre (NRSC) in Lusaka. Especially where forests are dense, like North-Western, the data generated is more reliable than in areas with different land-use practices (see Hou Jones & Bowers 2017), yet no data has been generated or made available on the exact amount of woodlands lost to contemporary mining activities. The political interest in understanding that side of the coin seems to be marginal, as potential 'Development' is given priority over environmental protection (cf. Munro 2009: 109). Even if knowledge-based suggestions, for example by the Zambia Environmental Management Agency (ZEMA), are not in line with the idea of 'Development first', they might be disrespected or overruled, as has been the case with the 2015 opened Sentinel Mine described above. This kind of political interference has not only been experienced by ZEMA, but also by Zambian journalists and researchers publishing

inconvenient information (cf. Mutamba 2004). Lastly, it has also been experienced by forestry officers, which will be the last topic before the concluding remarks.

On political interference and the politics of appeasement

In the course of this thesis and especially in the second chapter, I have described at lengths how the Forestry Department has been ‘incapacitated’ (Mickels-Kokwe & Kokwe 2015: 131). I deliberately use this passive form, as the officers’ inaction was often not of their own making. Instead, they have been held back – either indirectly through the allocation of no funds by the Ministry, or even directly by their superiors. In fact, incompatible targets within government ministries or agencies have complicated cooperation and prevented solutions (cf. Franks & Hou Jones 2016: 3 f.). Despite the clear rhetoric against deforestation and its ‘culprits’, the district offices were not technically and financially equipped by the Ministry. While there has always been a proposed national budget for ‘Agriculture, Forestry and Fisheries’, the actual allocation to the Forestry sector is unknown since the year 2000, or has not been distributed accordingly (EC 2014: 22; FAO 2015: 234). While the officers themselves are usually well-educated and seriously motivated to protect the woodlands – though only against certain practices – they are not empowered to do so. The officers have argued that the central government does actually not want them to execute their official mission for political reasons. Commercial charcoal producers, for example, are not restricted but are even issued licences. The most popular explanation for this, by the producers themselves, was that in the end, they, their families, and the wider community all represent the voting base. According to Franks and Hou Jones, politicians exploit the fact ‘that voters tend to judge them mainly on short-term development outcomes rather than longer-term sustainability issues’ (2016: 4).

Arguably for the same reason, illegal encroachments into National Forests continue unopposed, and continue to be facilitated by the politics of appeasement. While the local officers in Serenje are prepared to translate eviction notices into practice, they have never received the go-ahead from their superiors. In order not to risk their jobs, they have so far refrained from penalizing ‘squatters’ according to law, which has likewise been observed by von Hellermann (2013: 131 f.) in Nigeria. The announcement of evictions, as well as the rare interception of charcoal sacks, seem to be rather geared towards the media and general public, with no upscaling being desired. In fact, from the perspective of the districts’ forestry officers, superiors holding back local officers was mentioned as *the* major obstacle to curb deforestation (cf. Mwitwa et al. 2013: 7). Similarly, at the Provincial Forestry office in Kabwe, responsibility for taking action was directed upwards to the headquarters in Lusaka:

‘Our hands are tied if the government does not want to protect the National Forest’⁴⁸³. Instead of protecting, the head of the Provincial Forestry Office explains, they want to pacify landowners and settlers, their families and friends, in order to ultimately secure their votes. Importantly, those actors clearing the woodlands and forests of Zambia are well aware that the central government has purposefully curtailed the capacity of local offices to enforce policies. The government’s wish to remain popular, in turn, has become a ‘weapon of the weak’ (Scott 1985) and (prospective) offenders: since no power is exercised by the government, illegal actions – that are publicly blamed – remain unpunished (cf. Mickels-Kokwe & Kokwe 2015: 131). Over the last decades, the situation in Serenje, and most likely beyond, has changed: while prior to the millennium people were used to obeying forestry laws, nowadays, they often enjoy the support of politicians (cf. von Hellermann 2013: 131).

While political interference seems to have rendered local forestry officers absurd as they cannot execute their official mission, keeping as many as possible in power is supposedly expected by the ruling party to secure their and their dependants’ loyalty for future elections as well.⁴⁸⁴ At the same time, the connivance of practices leading to forest loss keeps down social conflicts that could arise around land or food scarcity. By not paying attention to those practices, the available livelihood options are more diverse, which in the long run can level social inequalities (cf. von Hellermann 2013: 150; cf. Ellison et al. 2017: 58).

Eventually, the decisions – or rather neglect – of the Forestry Headquarters are not necessarily based on empirical insights, but a political agenda, with little to no transparency and accountability regarding the decisions it takes (EC 2014: 23; Franks & Hou-Jones 2016: 3), or, as I would add, it does *not* take. Ironically, such a hands-off approach to forest loss leaves little space for antagonism and has mostly created beneficiaries: those who have cut the trees, and those who allowed or did not stop them from doing so. To describe this as ‘governance failure’ would be misleading as the ‘deforestation crisis’ has not only been the result of a lack of capacity or awareness, but also governmental intentions. ‘Deforestation’ has long been recognized as a national challenge – yet only certain practices are perceived and literally seen in the first place. Such a setting makes it extremely difficult, if not impossible, to contribute to policy-making or provide feasible recommendations for action to better the situation with regard to forest loss. While this is a rather dystopic view with regard to forest protection, it is important to recognize that the dominant discourse on Deforestation in Zambia is not set in stone.

⁴⁸³ Forestry officer during an interview in the Provincial Forestry Office in Kabwe on August 7, 2015.

⁴⁸⁴ I was alerted to this ‘obvious strategy of the ruling party’ by primary school teachers discussing how public servants often have hardly any work to do but are still kept in numbers for political reasons. As police officers and their families, as the example went, are likely to support the hand that feeds them, the current government can ensure that it remains in power through increased employment opportunities (Informal discussion with three primary school teachers at ‘The Junction’ in northern Chibobo on July 3, 2015).

Concluding remarks

It stands out that the moral judgements and narratives about responsibility for ‘destructive’ practices have not only penetrated the popular, media and political, but also the scientific discourse (cf. Leach & Scoones 2015: 15; Kamelarczyk & Smith-Hall 2014), which all seem to confirm one another and thereby re-construct one strong discourse on deforestation in Zambia. In this regard, it is not important whether the assumptions involved are true or false, but rather that they do exist (Arts et al. 2010: 58), and that they are always repeated when Deforestation is talked or written about (cf. Arts & Buizer 2009: 341). Remarkably, even those blamed have subscribed to the same discourse and hardly challenged it, which confirms how hegemonic discourses in general can be.

The focus on charcoal production and *Chitemene*, however, is misleading as elaborated on in the previous chapters: in both Kansenga and Milombwe, the old and new settlements respectively, charcoal was *mostly* produced as a by-product of agricultural expansion, but far less often as an end in itself. Moreover, it was driven by massive load shedding of electricity in Lusaka and other urban centres. Furthermore, the production of charcoal, but also the practice of *Chitemene* – which has almost vanished on the Lala Plateau – have been observed to be less invasive and unsustainable than mechanized farming (Syampungani 2008; Chidumayo 2013; von Hellermann 2013: 142; Jew et al. 2016). In order to change what has become a paradigm, assumptions that have long been taken for granted need to be re-thought. In that regard, it is also necessary to admit mistakes made, following the example of Davison Gumbo, the head of CIFOR’s Zambian country office:

A typical case is charcoal, where everybody says, ‘charcoal leads to forest loss’. But when you look at charcoal very, very closely, where it does take place, it is done in conjunction with agricultural expansion. So the question is: What is it, charcoal that comes first, or is it agri-expansion?⁴⁸⁵

Citing this should not be misconstrued as denying the impact of charcoal production, because beyond doubt, the commercial production of it *has* been contributing to serious environmental disturbances, and is not only part of an alarmist discourse. However, the often-quoted 250,000 hectares include all ‘deforesting’ practices, so if there is a genuine interest in understanding and keeping the decimation of forests in Zambia under control, the dichotomy of forest loss described above needs to be overcome, with other practices, drivers, agents, and their various causes taken into account. I have examined a great many in the previous chapters, such as the governance crisis, load shedding, maize subsidies and politics of acquisition, or land scarcity, to mention just a few. None of those factors can be exclusively held accountable for the status quo, yet they have certainly contributed to it.

⁴⁸⁵ Gumbo 2014.

While ‘Deforestation’ has been a relatively fixed concept that was hardly susceptible to multiple or even contradictory ideas, it is likely to undergo a transformation. While discourses usually shape the perspectives of actors over longer periods of time, they can also be re-shaped by the actors themselves though this is usually a tardy process (Arts et al. 2010: 58, 70), especially when the discourse has been – like an ideology – firmly existing in the minds of people for a long time (Arts & Buizer 2009: 342).

During the most recent speech on the relevance of trees, President Lungu (2017) has, for the first time, to my knowledge, explicitly named agricultural expansion, mining and infrastructure developments, and even urban charcoal consumption as being responsible for the high rates of deforestation all over the country.⁴⁸⁶ This statement seems to be a first indicator of a changing discourse, and is indeed likely to contribute to its shift.⁴⁸⁷ At the same time, however, the President emphasized that ‘[his] government will continue to promote mining and infrastructure development’ (Lungu 2017). He also criticized the *illegal* and uncontrolled harvest of timber and firewood, which excludes legal and controlled extraction practices. Lastly, he framed trees as being crucial for the country’s socio-economic development – asking for increased investments into plantations. This focus on fast-growing tree species as a vehicle for development carries the risk of entailing the replacement of commercially less valuable forests such as the *Miombo* forests.

Moreover, against the background that Zambia’s population is growing rapidly, villages, towns and cities are likely to grow – at the expense of forests. With growing population numbers, food demands will also increase, making agricultural expansion inevitable (cf. Kokwe & Mickels-Kokwe 2012: 29). Even along the paths of ecological modernization or sustainable development, with forest-friendly farming practices⁴⁸⁸ and efficiency gains through technological advancements,⁴⁸⁹ agriculture is most likely to remain one of the most relevant practices causing forest loss and a number of consequential repercussions (Arts & Buizer 2009: 344; Arts et al. 2010: 60 f.; Byerlee et al. 2014; Hou Jones & Franks 2015; Franks & Hou Jones 2016).

By 2030, African countries do not only intend to fully meet their domestic food demand and at the same time increase their exports, but also to halt deforestation. The Sustainable Development Goal to achieve food security and end hunger (SDG 2) will then clash with the goal of environmental sustainability (SDG 15), which will obviously entail challenges and trade-offs (Hou Jones & Franks 2015; Franks & Hou Jones 2016). Finding a balance

⁴⁸⁶ Ironically, Lungu (2017) mentioned ‘the average’ of 276,021 ha of annual forest loss, which, in any case, cannot be accurate to the last digit.

⁴⁸⁷ Why such discursive shifts occur is difficult to determine conclusively as it is hard to identify the precise actors, institutions and mechanisms behind them in the first place, especially when they are still in progress. Therefore, they have been hardly analyzed (see Arts & Bruizer 2009: 341 ff., and Arts et al. 2010: 71 f.).

⁴⁸⁸ The two practices of agroforestry and conservation farming are well-known in Zambia, though yet to be implemented on a grand scale. In Chibobo, all but a very few farmers have refrained from adopting it as both are expected to take a few years before the yields is similar to conventional farming.

⁴⁸⁹ As mentioned earlier (see p. 229), increased efficiency can also rebound.

between socio-economic development and the conservation of natural resources, however, is a very old conflict (Vandana Shiva, foreword to Vandermeer & Perfecto 2005: viii) and will remain a tug of war in the future, which will be dominated by some, and 'lost' by other practices. The conflict is not only 'fought out' between conservation and development, but also within each side: while some forests are more relevant to biodiversity, others have a higher capacity for carbon storage, and again others have a crucial impact on the water table. The question about which of the forests deserves to be protected, is a contested one already.

I am positive that my empirical findings on contemporary forest loss on Zambia's central plateau depict local realities elsewhere on the Plateau as well, and in the wider *Miombo* region. However, continuous research in Zambia, with an examination of both the quantitative and qualitative impacts, continues to be necessary for a number of reasons: first, actions leading to forest loss, or rather their actors, are influenced by a number of both slowly and rapidly changing economic, social, political and cultural factors. Therefore, the individual and structural drivers and ramifications of forest loss are even likely to have already changed when this work is read. Second, the critical importance of the local context cannot be stressed enough (Unruh et al. 2005a: 324): while some communities will predominantly make their living from the production of cash crops, others engage in the commercial production of charcoal, while others have not cleared any trees beyond firewood consumption for a long time. While this thesis was about people using their bare hands and axes to manually cut down trees on a regular basis, a focus on multinational corporations investing in forested land, and on chainsaws and bulldozers appears timely as well.

With regard to potential future research sites, two provinces in particular appear to have become 'hotspots' of deforestation: first, the new mining Province of North-Western, or more precisely the District of Solwezi (see above), which has more recently also become a logging target. Moreover, North-Western has been number 1 amongst all of Zambia's provinces with regard to detected fires between 2012 and 2017 (WRI 2017b), and Solwezi, the second-most fire-prone district. Besides this area, the Province of Luapula, where a number of open-pit manganese mines and processing plants have popped up recently (see Chapter 6.4), causing and continuing to cause forest loss and a number of spillover effects, is an important area for future research. Equally to North-Western, Luapula has been amongst the most fire-prone provinces of the country (WRI 2017b). Luapula is also worth a look for another reason: communities around the province's numerous lakes and rivers are increasingly experiencing overfishing. As a consequence, the population has begun to open up land for farming further in-land. Moreover, growing population numbers in the entire province but especially in the capital town of Mansa, as well as the demand for charcoal due to a lack of electricity, have further increased pressure on the province's woodlands. Third, firewood has already become scarce in some areas here, exemplified by piles of logs for sale along Mansa Road referred to earlier (see Chapter 6.1). According to the latest estimations

available (Chidumayo 2012, cit. in Vinya et al. 2012: 9), Luapula was the Zambian Province with the highest annual deforestation rate between 1995 and 2005 – with 2.47%, followed by Eastern Province with only 0.85%. The comparison of several Zambian communities within the *Miombo* woodlands seems to be feasible and has much potential to do science and society a service at the same time (cf. Schnegg 2014: 69). In order to do so instead of just reproducing dominant ideas, a serious engagement with the research subjects, that is, the effort to talk *with* instead of *about* the alleged ‘culprits’ is necessary. In that regard, it is important not to extrapolate ‘the view from the road’ or railway into the interior (Ribot 1999: 296). Woodlands adjacent to the road often remain undisturbed over hundreds of kilometres, while the interior is depleted already. If research is to investigate contemporary or even imminent deforestation – as has been done by the work at hand – local and long-term fieldwork has proven to be beneficial. First, for the purpose of establishing rapport, which becomes particularly important when illegal practices or politically charged environments are researched. Only such an approach has enabled me to identify actors, practices and drivers, which are not part of the prevailing deforestation story. Second, a long-term engagement allows space and opportunity for serendipity.

After fieldwork, using one’s findings as a force for good has become a prominent idea, which, however, is often impeded by the dissemination and discussion of research results at (expensive) conferences or in subscription-only journals (Kara 2015: 38, 161). In order to reach policy makers in the first place, a *prompter* dissemination of scientific findings is also desirable, for example through direct interaction, in non-technical language, which has already been suggested (Cerutti et al. 2017). While I support the approach of applying findings, I am sceptical about its feasibility against the background of political interference and aspirations of Development, which are often but not always interrelated, as described above. Nevertheless, the recent speech of President Lungu (2017) implied the first signs of a changing way of seeing deforestation – which may result in another way of combating it. Having said this, I would like to close with a confident and optimistic statement. In the preface to Norman Long’s *Social Change and the Individual* on the Lala Plateau (1968: v), Ronald Frankenberg asserts:

Sociologists and Social Anthropologists are fortunate in that, if they are shrewd, they can at once contribute to the development of their subject and to the development of the welfare of mankind.⁴⁹⁰

While this is very ambitious, I hope that the work at hand will be of use to academics and practitioners alike, used to bring about change for the better with regard to both social and environmental justice.

⁴⁹⁰ Ronald Frankenberg, a student of Max Gluckman and Elizabeth Colson, worked during the first years of independence at the then newly founded University of Zambia (UNZA) in the field of medical anthropology.

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Appendix A List of the most common trees found in Kansenga and Milombwe, ordered by prominence

Lala⁴⁹¹ (Singular)	Botanical name⁴⁹²
<i>Mutondo/Umutondo</i>	<i>Julbernardia paniculata</i>
<i>Kasabwa</i>	<i>Brachystegia floribunda</i>
<i>Musamba</i>	<i>Brachystegia boehmii</i>
<i>Mutobo/Umotobo</i>	<i>Isobertia angolensis</i>
<i>Muputu</i>	<i>Brachystegia spiciformis</i>
<i>Mubanga</i>	<i>Pericopsis angolensis</i>
<i>Mulombwa/Mulombe (Mukwa)</i>	<i>Pterocarpus angolensis</i>
<i>Mulimba/Mukula</i>	<i>Pterocarpus chrysothrix/Pterocarpus tinctorius</i>
<i>Umulambe/Milama/Mulama</i>	<i>Combretum molle</i>
<i>Msokolobwe</i>	<i>Uapaca sansibarica</i>
<i>Mutenge/Akatenge</i>	<i>Dichrostachys cinerea africana</i>
<i>Mofwe</i>	<i>Entandrophragma deveoyi</i>
<i>Mabelemabele</i>	<i>Ozoroa reticulata</i>
<i>Kalunguti/Mulunguti</i>	<i>Erythrina abyssinica (lucky bean tree)</i>
<i>Imipande</i>	<i>Magnistipula butayei</i>
Fruit trees	
<i>Musuku</i>	<i>Uapaca kirkiana</i>
<i>Mufungo</i>	<i>Anisophyllea boehmii</i>
<i>Mupundu</i>	<i>Parinari curatellifolia</i>
<i>Tusongole/Kasongole</i>	<i>Strychnos cocculoides</i>
<i>Sansa/Wasansa</i>	<i>Strychnos spinosa</i>
<i>Makonko</i>	<i>Uapaca banguelensis</i>
<i>Musafwa</i>	<i>Syzygium guineense guineense</i>

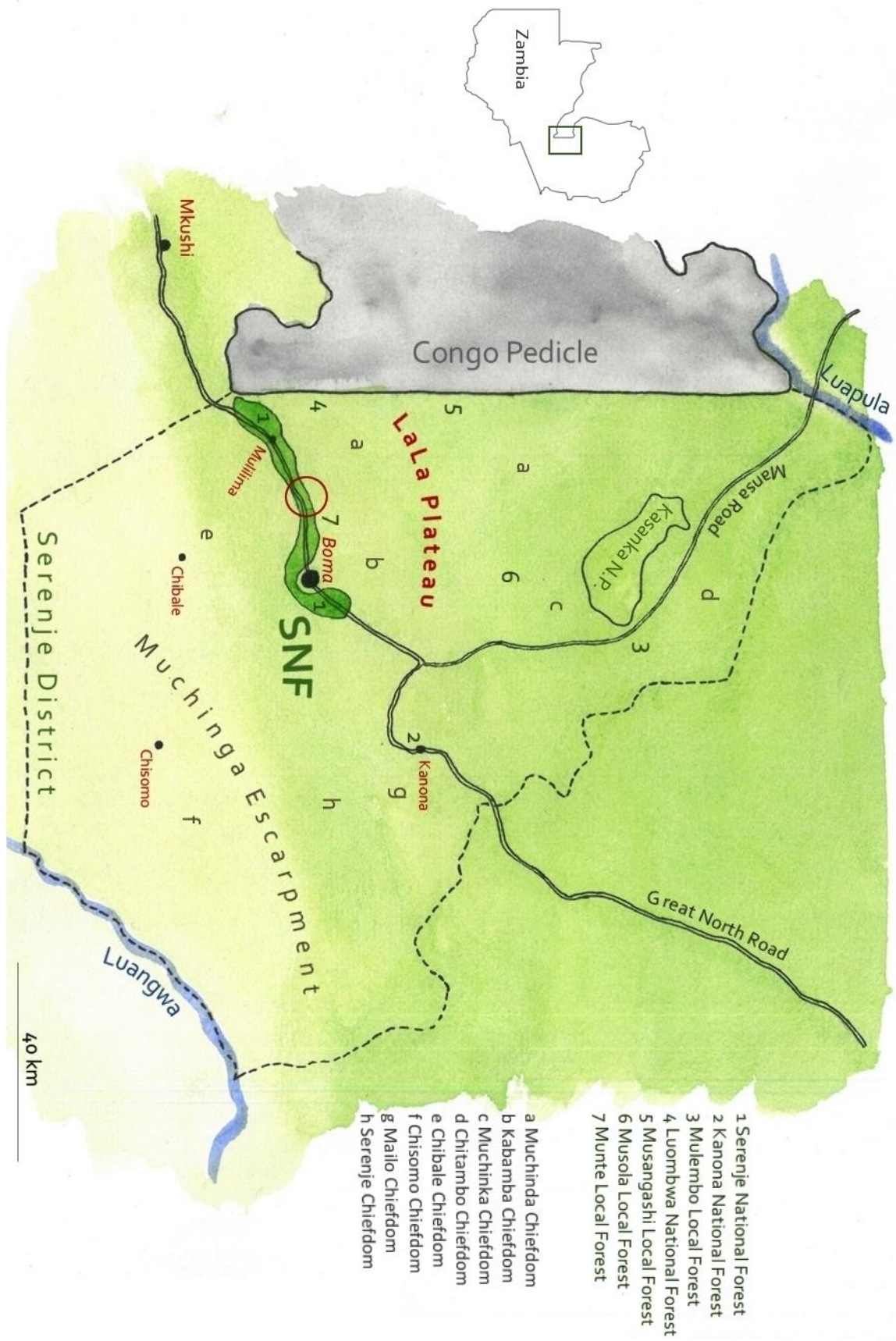
⁴⁹¹ For cross-cultural analysis, attention must obviously be paid to the difference of local names for the same tree. Even more diligence is required due to the similarity of names across languages for different trees: whereas the *Pterocarpus angolensis* is called *Mukula* in Lunda, Luvale, Kaonde and Tonga, the *Mukula* tree in Lala and Bemba denotes the *Pterocarpus chrysothrix*. Similarly, *Mulombwa*, including similar spellings, denotes different trees in different languages.

⁴⁹² The scientific names are mainly taken from Fanshawe (1995), and compared with other, mostly anonymous lists found in Serenje's Forestry Office. In cases where the local names differed, all are given. All lists contained contradictory information, which is why this list shall only serve as a starting point for further investigation.

Medicinal trees (in addition to many of the above)

<i>Kafungo/Munsokansoka/ Musambamfwa</i>	<i>Cassia abbreviata</i>
<i>Indale</i>	<i>Bobgunia madascariensis/Swartzia madagascariensis</i>
<i>Umusase</i>	<i>Albizia antunesiana</i>
<i>Mukoso</i>	<i>Burkea africana</i>
<i>Akafifi</i>	<i>Acacia heteracantha</i>
<i>Saninga</i>	<i>Faurea intermedia/saligna</i>
<i>Akapempe</i>	<i>Hymenocardia acida</i>
<i>Kafulamume</i>	<i>Maprounea Africana</i>
<i>Kabumbu</i>	<i>Lannea discolor</i>
<i>Chibangalume/Changalume</i>	<i>Zanha Africana</i>
<i>Musolo</i>	<i>Pseudolachynostylis maprouneifolia</i>
<i>Umusombo</i>	<i>Syzygium cordatum</i>
<i>Msamba mfumu</i>	<i>Protea welwitschii</i>
<i>Tembushe (no tree)</i>	<i>Aloe spp.</i>
<i>Mufuka</i>	<i>Combretum molle</i>
<i>Chimpampa</i>	<i>Monotes africanus</i>
<i>Muntufita</i>	<i>Diospyros batocana</i>

Appendix B Map of Serenje District (Fig. 4)



Appendix C Census questionnaire

Unit and location:

Community: Chibobo

Village/Section (*Ichiputulwa*): e.g. Kansenga

Farm#: e.g. KF24

Household#: e.g. H2 of 3

Household code: e.g. KF24H2

GPS coordinates: S 13°13.____' E 030°04.____'

Introduction:

As you may know, I am working for a research project hosted by the University of Hamburg in Germany. My aim is to understand how and why people in Kansenga utilise products related to the bush and the forest, such as trees, fruits, or mushrooms. For the study, it is important to get an overview of your background and everyday life. I would like to ask you some questions regarding your age, schooling, and family relations. I would also like to gather information about your economic activities, as well as your consumption of firewood and charcoal.

All information will be treated confidentially, and all names will be changed afterwards, so none of the respondents can be identified anymore.

It will take us about 45 minutes to complete this survey, but you can also stop your participation at any stage. Do you consent to participate?

Thank you very much for your cooperation! If you do not understand any of the questions, you can always ask for clarification. Do you have any questions so far?

Background

Interview No: Date:

Interviewer: David Parduhn

Interpreter: Vincent Musonda

Language of the interview: English Lala Bemba Tonga Kiswahili Other:

Names of informant(s):

Position (e.g. household head, spouse to the head, firstborn to the head):

Section 1: Farm, Migration, Household composition

The first section of this questionnaire is about the history of this Farm, and the composition of your household. We would like to gather basic information for every household member, like his or her birth date and occupation.

001	Who owns the Farm (<i>Ifamu</i>)?	
002	When was this Farm established?	
003	What is the name of the head of this household (<i>Ishiko</i>)?	
004	In which month and year was this household established?	
005	Where did the head of the household stay before?	
006	Why did the household settle here?	
007	Have you since noticed any changes in your surroundings?	
008	What are the benefits of living in this community?	
009	What are the challenges of living in this community?	

	How many people belong to this household? incl. lastborn, in-laws, workers 010: ____	male/ fem?	What is (name's) relation to the household head?	In which year was (name) born? <i>or calc. from approx. age</i>	Where was (name) born?	What is (name's) religion?	What is (name's) marital status? Single Married Divorced Widowed	What is (name's) ethnic background?
		011	012	013	014	015	016	017
1								
2								
3								

add fields when necessary

	Copy all names here, use same order as above	Where did (name) go to school? Note name of last institution and place, or 'never attended'	At what grade did (name) finish school? <i>or indicate grade and 'still at school' (S.S.)</i>	Is (name) able to read and write?	If attended until grade 12: Did (name) receive any further education? Specify institution, degree
		018	019	020	021
1					
2					
3					

		What language(s) has (name) a good command of?	Is (name) having a special function in the community (headman, committee, church) or is active in an organisation? <i>If appl., Indicate allowance</i>	Does (name) have any health problems, is permanently sick or has any disability?
		022	023	024
1				
2				
3				

		How much alcohol does (name) consume per week?	How often does (name) go to urban areas? <i>Note weekly, annually</i>	For what reason?
		025	026	027
1				
2				
3				

Use name or same number as above	Which women of this household have ever given birth to a child, incl. those children not living (anymore) in this household, and those who have already passed away? <i>Indicate number of children, date of first- and lastborn at least (still alive, residence, occupation, ...)</i>
	028

Section 2: Land Tenure, Movement of People

Now we are coming to the 2nd section of the questionnaire. Within this part, we would like to find out more about your land, ...

030	Did you buy the piece of land you live on?	
031	Who owns this land?	
032	Is it customary land or on title?	
033	How large is the entire Farm?	
034	How big is the farming land?	
035	What do you grow?	
036	Does this hh use any other farming practice than conventional?	
037	Is any member of this household a cooperative member?	
038	Do you use fertilizer? (bags, gallons?)	
039	Do you pay any regular taxes, fees or levies for land, ceremonies, water, churches, school? Note weekly, annually	
040	Are there any rain or irrigation gardens belonging to this household? Note location if not on this Farm	

Section 3: Living conditions, household assets, economic activities, consumption

In the following section, we would like to find out more about how you make your living, and on what you spend money.

050	How many rooms does the main house have?	
051	What are the main materials of the main house? e.g. unburnt bricks, soil floor, grass-thatched	
052	If burnt bricks, where firewood/charcoal from?	
053	What is the HH's power supply? e.g. solar bulbs, Chinese light, <i>Ichilaita</i> , candle, parafin	
054	Does your household have ... If yes, how many?	1 charcoal braizer 2 ox or donkey cart 3 saw 4 axe 5 sofa set 6 small radio 7 music/sound/CD system 8 TV 9 DVD player 10 well 11 generator 12 solar panel
055	How many people living permanently in this HH do own a	1 bicycle 2 motorbike 3 car 4 mobile phone 5 bank account
056	Does this household possess any livestock If yes, how many? Note usage and if rented	1 Chicken 2 Goat 3 Cattle/Oxen 4 Turkey 5 Guinea fowl
057	What energy source do you use?	1 Firewood 2 Charcoal 3 Batteries 4 Solar Power

058	If charcoal, why so instead of firewood?	
059	How many meals does your household consume during the rainy season / during the dry season?	

Working salary, pension, Social Cash Transfer

Do persons belonging to this household earn a salary at the moment? Who?	What is his/her position? Specify location, institution	Is (<i>name's</i>) employment situation permanent or temporarily?	For how long has (<i>name</i>) been employed and/or will be employed?	How much does (<i>name</i>) earn net per Clarify per week/month/year/season
060	061	062	063	064
Do persons belonging to this household receive a state pension or a Social Cash Transfer? Note person, amount, period				
065				

(Re-)Sale of goods, produce, services, pieceworks

Do members of this household offer any products or services for sale, here, in <i>Boma</i> or in any other town? e.g. alcohol, garden products, agricultural products/crops, livestock, fresh fish, dried fish, fruits, mushrooms, charcoal, grocery, bar, transport of people/goods, saloon, barber, tailoring, repairs, mechanical work, construction, pieceworks, carpentry, brick burning, bakery				Do you work in exchange for food, goods, services? If yes, what kind of? Bartering
	066	067	068	069
Name or number as above if not the entire household/workforce participates	Kind of good/services	amount, prize	regularity, seasonality	
070	How often has a member of this household not been able to work because of poor health within the last two years? Note name and reason			

Money borrowing and remittances received

Have members of this household borrowed money from somebody else within the last two years?	How much was it?	What was it for?	From whom? What is the relation to the borrower?
080	081	082	083

<p>Does this HH receive any support like money, food, clothes from people working or living somewhere else?</p> <p>Be precise: how many ZMW, kg, litres ... include irregular support, special occasions</p>	<p>How often does this support take place?</p> <p>Be precise</p>	<p>Which is the supporter's relation to the household?</p>	<p>Where does supporter stay, what is his/her occupation?</p>
o84	o85	o86	o87

Money lending and remittances sent

<p>Have members of this household lent money to anyone within the last two years?</p>	<p>How much was it?</p>	<p>What was it for?</p>	<p>To whom? What is the relation to the lender?</p>
o88	o89	o90	o91
<p>Does this HH support any other people who are working or living elsewhere with money, food, clothes?</p> <p>Be precise: how many ZMW, kg, litres ... include irregular support, special occasions</p>	<p>How often does this support take place?</p> <p>Be precise</p>	<p>Which is the household's relation to the beneficiary?</p>	<p>Where does the beneficiary stay, what is his/her occupation?</p>
o92	o93	o94	o95
o96	<p>Do members of this household EMPLOY people to do any kind of piecework? Note job, regularity, salary paid</p>		

Decision-making, income strategy

o97	Who decides what to buy?	
o98	Who decides over bigger goods?	
o99	Who is buying goods of everyday life?	
100	Is there any good or service or investment (education, surgery) you would like to purchase in the future?	
101	What is your income strategy for the future?	
102	Has the household's standard of living improved, stagnated or deteriorated? Please elaborate. Since when?	

Section 4: Access to natural resources and resource use

Now we have already come to the last section of the questionnaire.

110	If you need timber for any kind of reason, where do you cut it? Note status: own Farm, other people's land, state land	
111	How often do you extract timber, for what purpose?	
112	For which purpose did you cut down more than a single tree for the last time? Note regularity if appl.	
113	Where was that? Note area, status	
114	What happened to the wood after clearing?	
115	Is there any tree you would never cut? If yes, which tree and why not?	
116	Have you ever cut down a fruit tree?	
117	Do you use trees, incl. roots, leaves, bark, as medicine? If yes, which trees and what for?	
118	Do you have access to water all year through? From where do you collect water? How far is it?	
119	Who is collecting firewood?	
120	How many times do you collect it per month?	
121	Where do you collect firewood from? Note status; differences between rainy and dry season	
122	How much firewood do you usually collect every time you go, and how is it carried?	
123	Do you have to go further to find firewood, or is it just the same as in the past?	
130	Have you ever produced charcoal in Serenje?	
131	If not, why not?	
132	Who is making it?	
133	When did he/she start?	
134	For what reason?	
135	Who taught the skills?	
136	Is any member of this household having or preparing a kiln at the moment?	
137	If yes, is it on your own or on other people's land, or on state land?	
138	Kiln size : bags (50/90kg)	
139	Do you have a licence for producing, selling, or ferrying it?	
140	To whom did and do you sell?	
141	What has your experience with the forestry officers been?	
142	How many 50 kg bags do you use for home consumption per month?	

Consumption of non-timber forest products

List all: mushrooms, caterpillars, fruits, honey, *Inswa*, bush rats, *Munkoyo*, *Chikanda*, ...

150	Do you collect any products from the bush or the forest besides firewood and timber? If yes, which products?	
151	For what purpose do you collect them? Home consumption (indicate if stored/dried), sale medicine	
152	Who is collecting them?	
153	Where do you collect them from? Note seasonality	
154	How often do you collect them? Be precise	
155	In which quantities, how are they carried?	
156	Do members of this household also buy products from the bush or the forest? If yes, which?	

Weather, environmental change

160	Have you noticed changes in water availability the streams or in the well? Please elaborate.	
161	... in rainfall patterns?	
161	... in the number of bushfires?	
163	... in soil quality?	
164	... in the number of mosquitos, pests, insects?	
165	... in the number of plant or tree species?	

Last but not least...

Open

170	What makes you happy, in a good mood in everyday life?	
171	What makes you sad, angry, unhappy in everyday life?	
172	More generally, what makes a 'good life' for you? Needs for being satisfied, incl. non-material	
173	Is there anything you would like to add? Or do you have any questions? Note them down.	

Thank you very much for taking your time!

Would you be willing to further participate in my research?

Would you be available for an interview for example, or for group meetings later this year?

If appl., ask to assist in clearing land, producing charcoal, harvesting mushrooms ...

Natotela sana!