FROM LANDSCAPES TO ASSEMBLAGES AND EVERYTHING IN BETWEEN - COMPLICATING ATEWA'S FOREST VALUES THROUGH LANDSCAPE RELATIONS.

An anthropological investigation of the 'Ecosystem Services' framing conducted in Sagyimase and surroundings, Eastern Region, Ghana.

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ACKNOWLEDGEMENTS

I would like to thank the course coordinators and Lustra + for providing the opportunity and enabling me to go and do research in Ghana. The experiences and memories will forever be treasured.

Many thanks go to A Rocha Ghana and their team in Kyebi for letting me in on their work and ambitions, which was an incredible learning experience for me, and for always being welcoming and accommodating.

I would like to thank Sabine for arranging this collaboration in the first place, for supporting me throughout many doubts and difficulties and for believing in me even when I didn't.

Thank you to Paula for some very productive brainstorming sessions and for making me feel that I am doing academia right, breakdowns and all.

And to James, without whose love and support; emotionally, academically, physically – I could have barely gotten through this journey.

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LIST OF ABBREVIATIONS

AAA – American Anthropological Association

CI – Conservation International

Defra – Department for Environment, Food and Rural Affairs

EPA – Environmental Protection Agency

ES – Ecosystem Services

IUCN – International Union for Conservation of Nature

MA – Millennium Ecosystem Assessment

1. INTRODUCTION

Figure 1: Nyame Dua – "God's tree", a common species around Atewa.

“When the last tree dies, the last man will die.”

When I asked people in Ghana’s Eastern Region about their perspectives on the importance of nature, several people responded with this saying. Nature is an integral part of our existence and although this is widely acknowledged, capitalism has transformed our natural environment into a commodity ready to be compartmentalised into more marketable parts, to be traded for the benefit of some. In line with this commodified thinking, policy makers have attempted to assign concrete value to different parts of nature. A common approach for this procedure is an Ecosystem Services (ES) Valuation after the model proposed in the Millennium Ecosystem Assessment (2005). While this model fits with neoliberal conservation initiatives, it is based on a standardised and simplified understanding of value, for which it has been criticised widely in anthropological literature. Local ideas about the value of nature may not align with the proposed categories offered by the ES (*cf.* du Bray et al. 2019, 22-23).

This thesis was written in conjunction with the Policy in Practice track of Leiden Universities Cultural Anthropology and Development Sociology MSc. I collaborated with the conservation NGO A Rocha Ghana, whose work concerns the protection of the Atewa forest reserve. They have also based some of their recent reports on an ES Assessment. To this end, my approach has been to write a policy document which can be used to improve A Rocha's understanding of communities in the Atewa range. This has informed my approach throughout and influenced my structure. Investigating the global ES model on a local scale, I set out to understand how members of communities on the fringes of Atewa forest, Ghana, interact with the forest. I aim to demonstrate the model’s weaknesses show how anthropological concepts of value can help to nuance A Rocha’s approach, improving conservation outcomes.

The wide spread commodification of forests in Ghana makes for a specific perspective on forest landscapes. Logging, agriculture, mining and inefficient policies are majorly responsible for the depletion of about eighty percent of Ghana’s forest resources in the last century (CI 2007, 36). As a result,

pressures to better protect forest reserves are rising. Equally, this has led to concern about such activities taking place within the Atewa forest reserve. Lack of awareness and economic desperation are commonly named as reasons for partaking in such activities (*cf*. Amanor 2001, 76; Ayivor et al. 2011). Understanding behaviour towards nature and its motivations is pivotal to finding new approaches in conservation strategies.

This thesis aims to investigate the relationship between people and their natural environments by analysing interactions between the Atewa forest and the people living on its fringes, in order to offer a different understanding of the role that value plays in behaviours towards the forest.

I will start by introducing the theoretical concepts and their implications upon which I am basing my analysis. First, I will look at the conceptualisation of the ES framework, as this is what has been used by A Rocha to understand the value of Atewa forest to its surrounding communities. I will then discuss some of the problems this framework poses from an anthropological perspective. Following, I will discuss how value is understood in anthropological theory. I then propose landscape as a more anthropological way to approach the relationships between people and forest. Then, I will briefly introduce productive bricolage as one approach to understand landscape relationships. Finally, I will discuss the concept of assemblage as a way to locate landscape relationships.

After outlining my methodology and ethical concerns, I will introduce my study area in Chapter 4. Forces of governance are a vital aspect of the Atewa landscape; therefore, I will start off by introducing actors from civil society and the state and discuss their role in the Atewa landscape. Following, I offer a description of Sagyimase and its surroundings, which constitute my study area.

In the following three chapters, I aim to demonstrate the various interactions that I observed between people and the forest and understand how these interactions relate to the landscape. Before we can begin to propose an anthropological alternative to the Ecosystem Services valuation, we must get to know the field which it is trying to assess. This requires examining the ways in which people interact with the environment.

In ‘Stitching together a livelihood: Living with Mary’ I introduce one of my key interlocutors. Following her around in her daily tasks, I outline how Mary interacts with the forest landscape in various ways. Doing so, I examine how the landscape is utilised to build a livelihood by generating income and produce. The aim of this chapter is to outline how economic and subsistence factors influence how Mary interacts with the forest landscape. Introducing the issues of legality and access to land, I frame these interactions as shaped by specific limitations and possibilities.

Following this, I introduce a carpenter; Davies, to examine how locally extracted wood is engaged with. I then widen my perspective to include a net of different people who interact with the forest in the context of timber extraction. I analyse these separate interactions to show how they cumulate a set of different landscape relations in ‘assemblages’. The concept of assemblage will be important throughout the rest of the thesis, as it captures interactions between an actor and landscape elements as informed by their specific settings.

In ‘Bodies of water’ I broaden our understanding of landscape relationships, so far considered mainly in economic terms, to include cultural relations. By exploring work patterns of miners, I demonstrate how certain cultural values are intertwined with labour. I then investigate further entanglements of cultural values and labour by looking at hunting.

In ‘Beyond Politics’ I examine wider structures of governance as performed by individuals in a local setting. I frame the Forestry Commission’s laws and A Rocha ‘s policies as enacted through people, who are themselves embedded in the Atewa landscape, thereby affecting how national and international guidelines play out in practice.

In ‘Value revisited’ I aim to bring together the various interactions considered thus far. Knowing what interactions between people and forest look like and how they are situated in the Atewa landscape, we can now revisit the Ecosystem Services model to assess how well it captures local forest values and what it misses. To this end, I use the existing Ecosystem Services Assessments carried out on Atewa to compare their conceptualisation to my

own observations. Based on this, we can now understand the problems of this conception of value and by extension, problems in effectively conserving the environment.

Drawing on anthropological theory, I then aim to find an alternative explanation of what role values play in the interactions previously discussed. For this purpose, I use specific local experiences rather than the generalised, global criteria used in an Ecosystem Services approach. I bring together the landscape relationships and conceptions of value to understand how and why people interact with the forest in particular ways.

Finally, I summarise my findings and consider the implications that this rethinking of forest values might have for A Rocha moving forward. I particularly emphasise the need to integrate social and cultural factors into all areas of forest or ecosystem valuations, including the economic. I furthermore highlight that forest values, as well as activities based around them, are situated in specific landscapes and thus intertwined with landscape relationships. Understanding them is crucial to understanding the value that nature has to people living with it.

2. THEORETICAL FRAMEWORK

2.1. Assessing Value

Ecosystem Services

When I first conceptualised my research, I did so on the basis that it would be a collaboration with IUCN/ A Rocha Ghana, who shared one of their most recent reports with me to get an idea of their areas of interest. “Towards a Living Landscape: using modelling and scenarios in the Atewa-Densu landscape in Ghana” (IUCN 2018) assesses different land-use strategies and their potential to advance toward various sustainable development goals. This potential is measured via an Ecosystem Services assessment. In a similar fashion, IUCN/ A Rocha Ghana carried out an Ecosystem Services assessment in 2016 which “presents the economic basis for actions needed to enhance the conservation and sustainable use of forest ecosystem and its contributions to meeting human needs” (IUCN 2016, 6). Ecosystem Services is the term used to describe the various benefits that an ecosystem can provide to humans, both directly and indirectly (MA 2005, v) - in other words, it aims to assess the value of nature. Globally, the Ecosystem Services (ES) model is used frequently to advise policy frameworks concerning land use and the protection of nature. It was first conceptualised in the Millennium Ecosystem Assessment (MA) of 2005, which was initiated by the United Nations.

The ES model posits that the different services can be organised in four distinct categories. These are supporting, regulating, provisional and cultural services. Supporting services are those that enable all other services to arise, they build the basis of the ecosystem and “underpin the capacity in ecosystems for the other categories of ES to be generated“ (Value of Nature to Canadians Study Taskforce 2017, 14): providing habitat, soil, nutrients, producing atmospheric oxygen, et cetera. Regulating services include regulation of climate, floods, diseases, but also purification of water – usually a process, they maintain the ecosystem as a habitable environment. Provisioning services can be described as tangible things and include all products that can be found in an ecosystem, such as food, wood, fibre, water, medicinal plants and others.

Finally, cultural services are described as any non-material benefits and experiences, such as cultural diversity, spiritual or religious knowledge, education, inspiration, aesthetics, social relations and more (For all categories: *cf*. MA 2005, 40).

Furthermore, the ES model assumes people to be an essential part of any ecosystem, thus posits certain dynamics between humans and the different elements of an ecosystem (MA 2005, v). In describing nature's benefits, it ultimately suggests a framework for assessing how valuable different aspects of ecosystems are to humans. When put into practice, the ES model is often used to ascribe economic value to each service, enabling policy-makers to perform a cost-benefit analysis by comparing such value and base policy decisions on this (*cf*. Defra 2007, 13). Thereby, the ES model's purpose is not to calculate a total value of ecosystems, but rather to address a change in value through changes in the provision of ES (Defra 2007, 12).

Characteristics of an ES perspective on assessing nature's value

In using comparable, standardised units an Ecosystem Services assessment can be useful to 'measure' nature's assets, make policy decisions and communicate value or benefits globally. The fact that it is used often by organisations acting internationally on one hand offers comparability and ease of communication across different stakeholders. However, this also means that natural assets have to be standardized globally. A problem then arises when this global framework is applied on a local scale. While the sorts of ecosystem services might be limited and recurring all over the planet, how exactly they benefit different people, meaning how they are perceived, made use of or valued (or not) is likely to not only vary but be highly locally specific.

Therefore, such an approach has its limitations. As mentioned above, it does not tell us how people locally engage with the ecosystem on an everyday basis, or what position such interactions have in people's lives, nor does it question how appropriate its own assumed categories are in local contexts.

Because of this, the ES approach has been met with ample criticism from anthropologists.

One major concern with the ES model lies with its economic framing of nature's value. Though the model in itself does not necessitate an economic analysis of ES, most applications of it do reflect an economic approach (du Bray, et al. 2019, 24).[1] Du Bray et al. (2019, 22) point out that the ES model was designed in an effort to reframe the conservation argument to fit with neo-liberal logics. This economic focus neglects the potentially diverse approaches of different people, or 'stakeholders', to valuing nature. While market principles suggest that value can always be expressed in monetary, quantitative terms, it should be acknowledged that many people assign different qualitative values to environmental aspects. Assigned market value may reinforce our perception of intrinsic value, but market value may also be reinforced by intrinsic (local) value (du Bray, et al. 2019, 22).

Value beyond money is often likely to be locally distinct. Therefore, the ES model, in its common usage, might not always be reflective of lived realities; as "locally resonant values of nature may not follow market logic" (Du Bray, et al. 2019, 21).

Additionally, economic ES valuations tend to neglect cultural services; they lack the comparable and commensurable qualities that supporting, regulating and provisioning services have and it is therefore difficult to ascribe monetary value to them (du Bray, et al. 2019, 23, 24).

A major point of critique of the ES model is its westernized conception of society and human actions as distinct from nature. Shore (2012) argues that policies, and in this case the models they use, act as condensed symbols of the culture they were created in. Their feasibly understandable and standardised conceptualisation, like culture being different from nature, uses scientific language, calling upon a universalist morality (*cf*. Shore 2012).

Having been conceptualised under the auspice of the United Nations, the ES model is inherently based on a western perception of nature and it prescribes

[1] See for example IUCN (2016), *The Economics of the Atewa Forest Range*

that culture is separate from other ES, and notably distinct from any material benefits. This is the criticism that Schnegg et al. (2014) bring forth. The MA (2005, 40) specifically describes cultural services as non-material benefits. However, Schnegg et al. (2014, 2) point out that actions that make use of material benefits may also contribute to Cultural Ecosystem Services such as identity or feeling of belonging. On the other hand, decisions for example on what food to eat may not solely be informed by the physical environment, but equally by cultural values (ibid). Du Bray et al.'s (2019) work on local valuation of river-ecosystems highlights that locally specific, inalienable value is ascribed to various ES – not just those that fall under the cultural services category (ibid, 21).

In summary, there are two main critiques of the ES model: 1) The role of 'culture' in assessing nature's benefits or value has been misunderstood, especially in how it interacts with material ES – an investigation of cultural perceptions of nature and their effects in land use is missing in an ES assessment. 2) An ES assessment traditionally focusses too much on economic valuation, neglecting how aspects of nature are valuable beyond monetary terms - A deeper understanding of value is needed.

Value, action and the environment

So, what definitions of value would be suitable to reflect how people in specific locals perceive and engage with the surrounding natural environment? Discussions on value often take place in the realm of economics, coined by theories of Karl Marx, who thought that value arises from labour, or George Simmel, who argued that value arises in exchange (Graeber 2001, 31). Such approaches are concerned with commodities, products, or generally; objects. Graeber (2001) outlines that the objectification of value is largely due to the general philosophy that underlines all modern sciences, which is based on Parmenidean thinking – things either are or they are not – instead of on a Heraclitean approach, which presumes everything to be in flux (*cf.* Graeber 2001, 50). As has since been proven by these sciences of course, no things

are really fixed or static, but assuming them to be may often be the only way to render reality workable (*cf*. ibid).

Only at the end of the last century did anthropological theory experience a turn, towards theories of value that centre around actions rather than objects. As my thesis aims to explore how people interact with certain parts of the forest, this approach promises to yield insights about conceptualisations of value that are based on specific scenarios rather than generalised categories. Graeber names Nancy Munn as one of the pioneers of this line of argument, who suggested that value is not intrinsic to objects, but that "Value emerges in action; it is the process by which a person's invisible "potency"—their capacity to act—is transformed into concrete, perceptible forms." (Graeber 2001, 45) Her approach however does not exclude value as the desirability of objects. As the interactions that constitute a large part of my observations are always in relation to something, i.e. with a specific element of the landscape, this is an important detail. Instead, she proposes that both the production of commodities and the maintenance of social relations require distributing one's energies, time and capacities, and it is thus the investment of these capacities that creates value (ibid). This required weighting or decision-making is always a social process, but it is always rooted in a person's individual capabilities, which Graeber concludes is what distinguishes this theory from most others (Graeber 2001, 47). He takes this approach further, considering value in terms of action rather than objects. Like Munn and Terence Turner, he argues that value is produced in action, which is no longer limited to only labour (Otto& Willerslev 2013a, 3).

Lambek (2013) distinguishes between two kinds of action, namely 'making' and 'doing', or labour and acts. While labour produces objects, acts primarily result in consequences, although a clear separation of the two is not always possible (Lambek 2013, 144). (Performative) acts furthermore have the power to institute, reproduce and secure belief or validate it (ibid, 145). Lambek specifically looks at such performative acts as (re-)producing value, but not those that are primarily physical. Whilst I also aim to examine the role of value in (inter)actions, I will consider physical ones. This is firstly because, as I will explain in the following sub-chapter, I am considering these actions in a

specific, physical landscape. Secondly, my scope is one of rethinking conservation arguments that aim to prevent destructive activities – Lambek acknowledges that in leaving primarily physical activities out of the equation, he is neglecting many such destructive actions (Lambek 2013, 146).

Another common way of understanding value is using it “as shorthand for different worldviews or cultural systems, where the emphasis is not on the exchange of things but on how people express their religious and social values and how this informs their actions” (Otto& Willerslev 2013b, 3). Otto advocates for an approach that merges both value as worldview and as exchange, by “looking at how action is informed by values and simultaneously creates value” (ibid).

The MA somewhat acknowledges this theory of value in that it describes ‘intrinsic’ values of ES as one of two factors driving human actions that influence ecosystems, the other one being the pursuit of human well-being (MA 2005, v).

In line with this, Ramcilovic-Suominen et al. (2013, 236) state that the common sociological understanding of value is as the factor explaining human action. Furthermore, they argue that values “influence individual and public perceptions and responses to forest management and policies” (Ramcilovic-Suominen, et al. 2013, 237). However, discussing value creation and circulation in the specific context of the natural environment requires some further considerations.

One of the critiques of the ES model has been its conceptualisation of culture and nature as a dichotomy. Graeber argues that “the basic schema of action, […] is one of the application of human labour to transform nature into culture, […].“ (Graeber 2001, 70) This closely resembles the model that Ingold (1992) suggests when trying to conceptualise the relationship between humans and the environment (see Fig. 2/ Ingold 1992, 50). He describes the relationship between the person and the environment as shaped by production as action and consumption as perception. Adopting the ideas of Gibson (1979), he refers to what the environment has to offer, and what is essentially referred to by the MA as ‘Ecosystem Services’, as ‘affordances’. Affordances could also be described as use-values, however Ingold points out that this term often raises

the question if such values are inherent properties of objects or whether they are culturally assigned (Ingold 1992, 48). Ingold thus purposefully uses the term to avoid such discussion. Opposing these environmental affordances are person effectivities, or what Munn referred to as capacity to act. In this model, the perception of elements of nature informs the realised person effectivities, which in turn inform actions, which impact the environment's affordances and so forth.

Ingold thus provides a model for looking at actions that people do to, with and in their natural environment, with the potential to frame this process in terms of value. I will use this conceptualisation in chapter 8.2, where I attempt to locate the role of value in the specific interactions observed in the Atewa landscape.

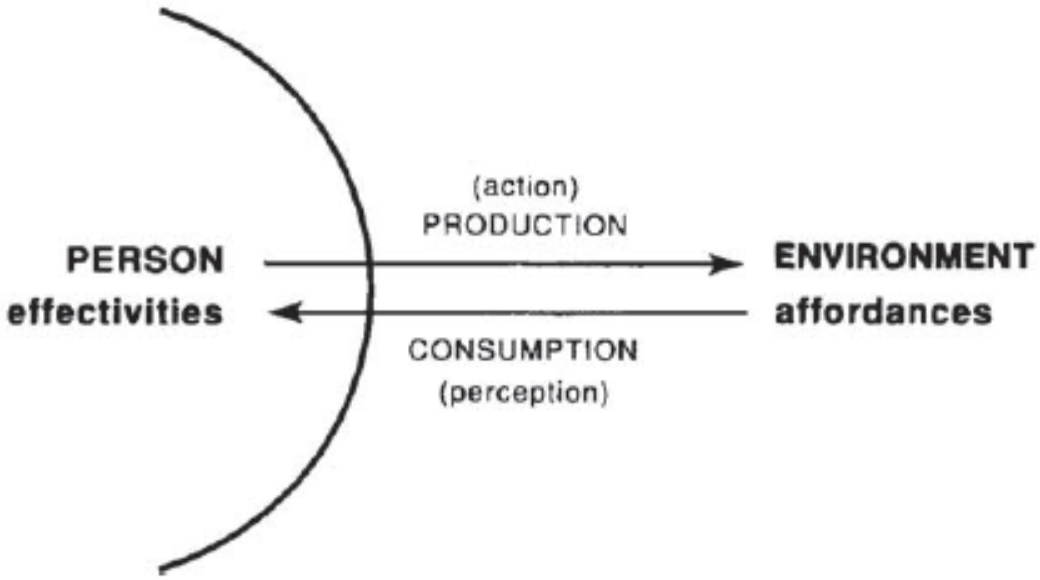

Figure 2: Ingold's model of the relationship between person and environment, Ingold 1992, 50.

As we have seen, contemporary anthropological ideas of value are strongly linked to action. As interactions are the primary object of my research, examining them in their specific social and geographical settings promises to shine light on locally relevant value tied to Atewa forest.

2.2. Approaching interactions in a landscape setting

To investigate the application of the ES model in a specific setting, and to propose an alternative route to understanding how and why Atewa forest specifically is valuable to local communities, I suggest the concept of landscape as a frame for analysing value creation between people and forest.

When writing my research proposal, I knew my aim was to understand the relationship that humans have with surrounding forests. But how do you do that? I decided on interactions - physical activities, as the most tangible way to approach the problem, as E. H. Zube states that "the way we see and value landscapes is in large part a function of what we do in them" (Zube 1987, 39). Additionally, interactions are helpful in investigating human-environmental dynamics; *inter,* something 'between' things, directly implies a relationship, while actions are observable happenings with intent and effect. Such interactions would have to be either directly with the physical forest, meaning inside it, or with an element of the natural landscape in the wider forest perimeter; within the forest ecosystem.

To a degree, some of the interactions or activities taking place around Atewa could already be assessed beforehand; literature has extensively discussed various activities attributed to the degradation of Atewa forest (*cf*. IUCN 2018, esp. mining, CI 2007, hunting). However, such discussions mostly frame people-forest interaction in terms of legality and frequently neglect to ask why people engage in illegal activities or how the interactions function in peoples' lives. This leads me to want to shift the perspective away from questions of (il)legality and towards how different interactions may contribute to people's lives, and subsequently urged me to look anew for interactions between people and the forest landscape during my fieldwork.

I have used the landscape concept both as a physical demarcation of my field as well as a framework to analyse interactions and contextualise relationships.

Conceptually, the landscape approach is aimed at providing a holistic view of an area and the relations between things within it. These include the political, economic, ecological, socio-cultural, and historic relations.

Landscapes are composed of various elements that are in relation to another. This framework poses the forest as one such element (Louman, et al. 2009, 23), without rendering it as an isolated thing; it exists in context. This is an important frame to avoid dichotomies such as 'forest – village', 'nature - human' et cetera, providing a useful scope to look at the connectivity of humans and their environment. The Atewa landscape therefore consists of the reserve, surrounding buffer zone[2] including different land use practices, villages and towns, animals living in the forest and various human actors who are in diverse relations to each other.

Moreover, landscapes are "conceptualized space" (Wels 2015, 17). How a landscape is conceptualized shapes the possibilities and limitations of how it can be interacted with, and thus, how the landscape is in turn shaped by actions. IUCN/ A Rocha (IUCN 2018) think of the landscape as composed of a clearly demarcated reserve, a buffer zone and communities that are outside the reserve. However, this is not necessarily how the environment is perceived by people living in these communities. For example, while going to hunt in the forest might from the perspective of A Rocha or the Forestry Commission be an act of entering the reserve 'illegally', to people in the community this trip to the forest is a more complex decision-making process than simply a matter of (il)legality. This is an idea I return to throughout this thesis. Irrespective of intent, landscapes are shaped by actors' conceptualisations of them and how they act within them. Equally, these conceptualisations can shape actors within the landscape. Further, while the concept of landscape acknowledges agency, this is not limited to humans – any one element within a landscape can act as an agent, by influencing its environment.

When talking about management, using the landscape concept therefore can be useful, as it recognizes that land can be put to different uses, can be shaped in various ways through actions, and also acknowledges that land

[2] Forested land that is not part of the reserve but surrounds it.

changes over time due to activities of different actors. This helps us understand that the environment may not only shape people's values, but people's values may also indirectly shape and construct the environment.

As I aim to critically look at how international conservation organisations conceptualise the situatedness of humans in the natural arena, it is further noteworthy that the IUCN (2018) report on which my research question was initially grounded also uses the landscape scale to analyse how Atewa's Ecosystem Services (ES, more on that later) affect people in different locations. While IUCN defines landscape as „a socio-ecological system, which is organized around a distinct ecological, historical, economic and socio-cultural identity" (IUCN 2018, 5), they use this concept as a demarcation of scale in which their international policies and ambition can be translated onto a local setting; the 'landscape scale' serves as "a manageable unit" (ibid) for their report.

Additionally, the landscape scale can serve as a geographical demarcation of my field. IUCN (2018) uses 'landscape' in that way to describe all areas affected by the Atewa ecosystem/ that are receiving ES. Due to reasons of feasibility, my Atewa landscape is limited to the eastern side of the Atewa forest reserve and buffer zone, and the land and communities limited by the town of Bunso in the North and the Densu river in the South.

Productive Bricolage

I will further use the concept of productive bricolage. Productive bricolage was first conceptualised by Croll& Parkin (1992) to describe a kind the engagement in multiple forms of work, both paid and unpaid, to constitute a livelihood, "in which tasks are carried out according to available materials, weather conditions, availability of land, and the health, skills and disposition of the producer." (Croll& Parkin 1992, 12) As this draws attention to environmental (and social) circumstances, it is a helpful way of looking at how people use a given landscape according to their needs. I will therefore discuss this concept further in chapter 5 to understand how landscape relations influence people's livelihood options.

Assemblages

In chapter 5.2 I will frame my analysis of interactions in terms of assemblages. The concept of assemblage, as introduced by Anna Tsing (2015), describes “open-ended gatherings” (ibid, 23): different actors coming together, both accidentally and purposefully, sometimes consumptive and sometimes productive. Initially introduced by ecologists, the term was meant to deconceptualize the working together of different organisms as fixed, static unions (Tsing 2015, 22). Instead, assemblages are momentary and specific. As I follow particular individuals through their interactions with the environment, the concept allows me to retain an ethnographic point of view. Furthermore, assemblages urge us to ask how particular encounters shape the ones yet to come and the lifeways of those involved (ibid, 23). Tsing postulates that assemblages capture different ways of life as well as produce them. In chapter 5.2 I will look at interactions as assemblages to reveal the lifeways that underlie them and those that are produced by encounters between different actors and between people and elements of the landscape.

3. METHODOLOGY& ETHICAL CONSIDERATIONS

This thesis draws on ethnographic fieldwork carried out in communities along the eastern side of the Atewa forest Range, Eastern Region, Ghana, between 3rd of January and the 17th March 2020. I stayed, together with my fellow student Samantha, in a house in Sagyimase. Due to my location, most informants were from the village of Sagyimase, although contacts through the NGO A Rocha enabled me to travel further to Kyebi, Odumase and Potrease, and some of my own contacts connected me with participants in Asiakwa, Bunso and Akyem Adukrom.

My main methods were observation, informal conversations and semi-structured interviews. Through A Rocha, I was also able to attend two community meetings, which served as focus groups consisting of hunters one time, and farmers the other.

The first month of field work was spent finding my footing and getting to know different people, locations and forms of land use. A 'Hanging around' approach became useful (*cf.* Bryman 2012, 438) which involved some observation and allowed people to become more comfortable with my presence; as Bernard points out, "Hanging out builds trust, or rapport, and trust results in ordinary conversation and ordinary behaviour in your presence." (Bernard 2011, 368)

I met Richard, a local forest-guard, on my first day in Sagyimase, and he took on the role of my personal guide and organiser.

Through him, I was introduced to the different activities taking place inside and just outside the forest reserve, as well as to some of my future research participants and interviewees. Even though I did not consider it a necessity before starting research, Richard took on the role of translator when introducing me to interviewees. Although English is Ghana's official state language, and many people in my area did speak at least some English, it was often not sufficient to have topic-specific conversations or proper interviews.

Therefore, some of my closer interlocutors, such as Richard, would stay for interviews and translate after introducing me to new people.

During the first month, I spend a lot of time just walking around and looking for people to speak to. As people noticed both Samantha and me immediately anywhere that we went, our skin clearly marking us as outsiders, this approach worked out well; especially during the first month, most people we approached were eager to speak to us or even show us their farms.

Observation of the settings that include the use of all senses also proved insightful. As outlined by Bernard, discussions about such impressions can open up conversations about people's lived realities (*cf.* Bernard 2011, 358). This was definitely true with observations of the natural environment, which, once shared with interlocutors, resulted in some interesting conversations. This was the case for example after I had spent a weekend in Accra and upon return expressed how much more comfortable the heat felt in Sagyimase; several people were eager to agree and describe how the forest provided them with fresh air.

Semi-structured interviewing was one of my most important methods. It "tends to be flexible, responding to the direction in which interviewees take the interview and perhaps adjusting the emphases in the research as a result of significant issues that emerge in the course of interviews" (Bryman 2012, 470). As such, semi-structured interviews were pivotal at the start to elicit my participants' priorities and interests, but continued to be my most important research method throughout the duration of my fieldwork.

I used both audio-recordings (and transcriptions) and written notes to record my interviews. This way, I could capture all important points, even when the quality of the audio-recordings later turned out to be insufficient or words unintelligible. Taking notes in the moment is also important, as Hiller& Diluzio (2004) point out, "the researcher is also to look for non-verbal cues, such as tone of voice, facial expressions and emotional state", (Hiller& DiLuzio 2004, 2) which cannot be grasped in audio.

Ethical considerations

Ethical concerns arise in any fieldwork situation. As stated by the American Anthropological Association (AAA), commitments and obligations to the research participants should generally be considered as priority (AAA 2012). A priority should always be transparency and honesty about one's research and aims. Collaborating with A Rocha brings about questions of transparency. However, as our collaboration only existed in loose terms and I never considered myself as researching for them, I only brought up the affiliation when it made sense in the context, for example when talking about conservation efforts in the area or when people asked how I decided to stay in this area. When explaining the purpose of my research, I prioritized my role as a student and my ambition to learn about interactions in the area, stressing that it is not my purpose to judge or even come up with solutions. Furthermore, Mosse (2006) argues that even though anthropological knowledge is informed by personal relationships built during fieldwork, it is important to distance oneself from such relationships in the writing process to enable an analysis. He highlights the importance of ethnographic accounts of the practices of institutions. I therefore did not consult with A Rocha after data collection, in an effort to avoid bias on the basis of possible desires A Rocha may have, instead examining their framework (Ecosystem Services) independently.

Getting informed consent from participants is a general ethical necessity. Furthermore, a thorough reflection on possible impacts of research and avoiding actions that may lead to harmful consequences for participants is necessary. This implies that the participants' confidentiality should always be protected. During my fieldwork, particular consideration had to be put into the topic of legality. As I traced human interactions with the forest, some of these interactions included lumbering, agriculture, hunting and mining within the forest reserve. These however are illegal if not supported by the correct documents. This led to me witness activities several times that were potentially illegal. Furthermore, I interviewed a couple of people about their occupation, which sometimes involved illegal activity.

Illegal activities often evoke strong, negative responses. Following the guiding principle of not doing any harm to my research participants (AAA 2012), any information concerning illegal activities in such detail that it may lead to legal consequences for a participant will therefore be withheld. When conducting interviews concerning potentially illegal activities, I made sure the interviewee consented beforehand to discussing any such problematic topic, and with the (anonymized) information being used for my master thesis. If an interviewee was uncomfortable with the topic, I refrained from asking if activities were legal.

When making research accessible, one must be cautious “that raw data and collected materials will not be used for unauthorized ends“ (AAA 2012), in other words, that access will not cause harm (*cf.* AAA 2012). To ensure that anyone who did talk about illegality will not be exposed by my thesis, I anonymized all interlocutors by giving them different names or just not using names. Furthermore, if not absolutely necessary, I will be careful to not give additional, personal information about such persons, which would make them identifiable. Additionally, when describing sites of illegal activity, I will not give specific locations.

Anonymisation is more difficult when talking about people of specific positions in organisations, especially the Forestry Commission. When using information from such a source, the source is often a vital part of the information. For example, if law enforcement personnel are seen to cooperate with chainsaw operators, it is important to know that I am talking about law enforcement personnel. In my research, my main interlocutor was a member of the forestry commission, who was valuable specifically because of their position. When talking about this person, I will keep information about them as unspecific as I can. If I wanted to eradicate all ethical concerns on this subject, I would have to forgo using any information on the topic of legality in my thesis. However, a particular aspect of my thesis concerns issues regarding legality/ illegality and forms of authority and access related to it, thus, this information needs to be included for me to be able to write my thesis and talk about forest-human interactions.

It is important to avoid moral judgment, particularly when writing about illegal actions. I will therefore contextualize everything, such as giving explanations for taking part in illegal actions, or explaining how the concept of illegality may not be applicable. This is important to avoid a portrayal of law enforcement and persons partaking in such activities as “the bad guys”, instead highlighting wider socio-political structures that enable illicit behavior or sometimes deny the chance to strictly stick to the law. This is relevant especially when considering whom I will share my thesis with. As I collaborated with the NGO A Rocha, I plan on sharing my results with them. However, there is a tendency (both with A Rocha and law enforcement) to blame other parties for failed conservation efforts, which may lead to worsened relations with communities. To combat such a narrative, I will keep sensitive information anonymous, contextualize illegality where mentioned, and generally shift the focus away from thinking in terms of legal/ illegal.

4. SETTING THE SCENE

4.1 Actors in governance and civil society

The Atewa forest reserve is part of the Atewa Range and is located in Ghana's Eastern Region. The Atewa Range is part of the Guinean Forests of West Africa, one of forty-three global Biodiversity Hotspots (CI 2007, 35). The reserve spreads over two-hundred and fifty-four km^2 of forest (IUCN 2016, 18), outside of which are located some forty settlements (CI 2007, 38). Land (including forest) that is located within the forest range but not part of the reserve is referred to as the buffer zone (IUCN 2016, 18), in which different land use practices take place, including farming, mining and logging (*cf*. ibid, 12).

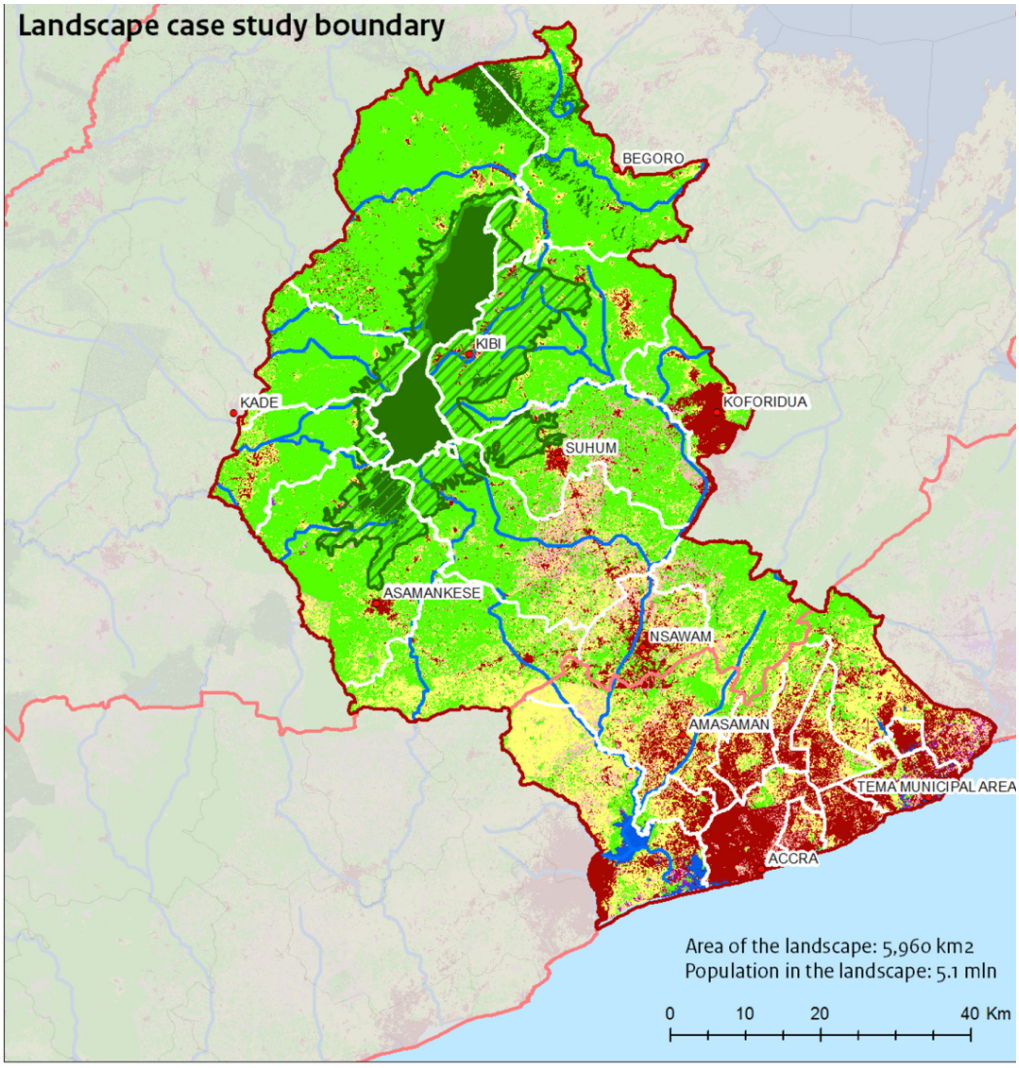

Figure 3: map showing the Eastern Region, Ghana, including Atewa forest reserve (dark green) and buffer zone (striped dark green). PBL and Ghana Forestry Commission in IUCN 2018, 14.

My research area was within the East Akim municipality, of which the capital is Kyebi (Kibi), originally named “Kyebirie”, after a hat worn by a hunter in the area (Ghana Statistical Service 2013, 3). The Atewa forest is part of the Akyem Abuakwa traditional area, also referred to as ‘Okyeman’ or ‘Kwaebibirem’ – ‘dense forest’ (Nyarko 2018, 13; 20). The largest ethnic group in the area is Akyem, a sub-group of the Asante. In Asante traditional belief, the relationship that humans have with nature is described as being of high importance (Abel& Busia 2005, 113).

The area has been a hotspot for resource extraction for economic purposes since the end of the nineteenth century (Amanor 2001, 25-27), when it became the centre for export-oriented commercial agriculture. Its richness in natural resources and, at that time, still uncultivated land attracted cocoa farmers and prospective concession owners alike (Amanor 2001, 31). This has led to an increase in deforestation over the last century, but resulted in the establishment of the Atewa forest reserve already in 1926, although it was only properly recognized in 1935 (CI 2007, 38). To this day, most members of the surrounding communities are either involved in (cocoa) farming or gold mining.

When first established, the reserve included some existing farms that were allowed to operate normally. However, as populations since then have grown, and with them needs for resources, entrenchment of farms has become an issue. People that originally owned land in the reserve still rely on such land, however their needs for resources and income have grown with their families.

Traditionally belonging to the paramount chief, the reserve is now legally owned by the state. With that, it is now managed under the Forestry Commission’s Forest Services Division. The Forestry Commission is in charge of managing all of Ghana’s natural resources, forests and wildlife. Not only the forests, but technically every natural resource including ground minerals and, notably, all trees belong to the state of Ghana, requiring anyone who wishes to extract such resources to obtain a permission from the Forestry Commission. The Forest Services Division specifically is responsible for safeguarding all timber resources and issuing permits for the cutting of trees. When requesting a permission to cut a tree (or more), a specific purpose needs to be given and

proven, such as construction or fixing of a roof, but even business purposes are considered a valid reason (for example when owning a carpentry workshop). If the reason is considered valid, the exact number of trees, where to find them, as well as the dates that the permit is valid for will be stated on the permit.

For management purposes, the Atewa forest Range is divided into three sections, which are each managed by a Range supervisor (Ayivor, et al. 2011, 58); the Suhum range (south), the Kibi range (centre) and the Anyinam range (north)(ibid).

The regional Forest Services Division office is located in Kyebi, about a ten-minute taxi-drive away from Sagyimase. The Forestry Commission's work consists, to a large part, of enforcing laws in place to protect the forest. For instance, the 2002 Forest Protection (Amendment) Act 624 (Forestry Commission Ghana 2020) forbids the damaging of trees, farming, building, general damaging, the obstruction of water flow, hunting or fishing, collecting of forest produce and more "without the written consent of the competent forest authority " (ibid) within the reserve. Persons involved in any such activity without consent (a permit) are subject to fines and/ or prison sentences of up to three years. Enforcement happens through forest guards, which are based in the communities closest to the reserve. Ayivor et al. (2011, 58) state that there are at least four forest guards for each of the three sections of the Atewa range that go on regular patrols. This number however stands in stark contrast to Richard, a forest guard in Sagyimase, telling me that almost every community has a forest guard, as well as the Kibi range manager stating in an interview that he has around one-hundred and forty-five subordinates (although he did not specify how many of those had the position of forest guard or what other positions there are). Although many activities within the forest reserve are criminalised, research, education and leisure activities are generally excluded from this (ibid, 59). This means that access to the forest reserve is not generally prohibited. Furthermore, the borders of the reserve on the ground are not clearly demarcated, but bleed into the surrounding buffer zone. Subsequently, any person can easily walk into the forest, but will have to anticipate confrontation with forest guards, who will inquire about the intent of one's presence and ask persons to show required permits.

Apart from enforcing laws, the Forest Services Division works to restore degraded land by supplying and planting trees in and around the reserve.

The Forest Services Division's duties partially overlap with other state agencies, which sometimes may convolute perceptions of responsibility. For instance, when I asked the Kibi Range Supervisor about waterbodies within the reserve, he stated that the protection of those is also part of their responsibilities. This means that degraded areas, which put waterbodies at risk of drying out, might have to be reforested by the Forest Services Division, or that people who own farms in the forest are prohibited from farming too close to a water body. However, technically, the Water Resources Commission is responsible for all water bodies with the mandate to "regulate and manage the utilization of water resources" (Water Resources Commission Ghana 2020).

Moreover, although no human activity is supposed to take place within the reserve, and because it is unclear whose responsibility it is to enforce laws, some members of local communities do hunt in the forest. While the local Range Supervisor admitted to me that all such hunting is in fact illegal, the Forest Services Division is not technically responsible for protecting wildlife – that is the Wildlife Division's responsibility. Being based in Koforidua however, roughly fifty kilometers east of the forest, the Wildlife Division has little control over illegal hunting happening within Atewa forest.

Such overlaps of responsibility give an insight into some of the issues of managing the forest reserve. While management and responsibility are planned out and compartmentalized on a national level, such planning does not always translate in a local setting. The same is true for mining activities, which, if inside the reserve, are managed by the Forestry Commission, but if outside not necessarily addressed. As Hirons (2015) states, the Environmental Protection Agency (EPA) is formally responsible for such activities, but because the EPA lacks resources and because of a "lack of collaboration and co-ordination between agencies at the local level […] a discursive and governance gap" (ibid, 6) is created that misses practices such as small-scale mining.

Additional actors make the socio-political landscape more complex. Another important actor in the Atewa area, and specifically for my research, is

A Rocha Ghana. A Rocha is a Christian nature conservation organisation with regional branches across the globe. Their aim is to protect biodiversity and promote conservation through community projects. A Rocha Ghana has one office in Kyebi. Around Atewa, they aim to raise awareness on problems the forest is facing, provide education to local communities, work to restore degraded land and offer options for livelihood diversification. While A Rocha does a lot of lobbying and advocacy for the conservation of the forest to the Ghanaian government, there has in the past also been collaboration between A Rocha and the Forestry Commission as a state agency. Specifically, both the Forestry Commission and A Rocha supported the 2016 report on “The Economics of the Atewa Forest Range, Ghana” (IUCN 2016) – a report assessing the economic value of Atewa forest’s water sources using an ES assessment. Both state agency and NGO are united by the ambition to protect forest resources from over-exploitation.

4.2. Sagyimase and its surroundings

One major road runs along the eastern side of the Atewa Range, dotted with several towns and small communities. Centre-south along the paved road lies Kyebi (Kibi), the region's capital and biggest town in the area, with many houses and little green space within. Just outside however, plenty of green stretches in either direction: the hills of Atewa forest reserve. Roughly ten kilometres north lies the small town of Sagyimase.

Figure 4: map showing the road along the eastern side of Atewa forest reserve (lined in dark green) and communities along it. (A Rocha Ghana 2015)

Figure 5: satellite image showing Sagyimase, with paved road running through it and Atewa forest reserve adjacent in the west. (Google Maps)

The main, paved road runs right through the middle of Sagyimase, dividing it into two parts.

There's the eastern part where most people seem to live, the houses are built closely next to each other. It has "the market", a criss-cross of essentially three streets with various stalls selling food-stuffs, sometimes clothes, there's one or two pharmacies, two pubs, and there's always people. In the evening, a handful of people bring tables and cooking equipment, offering fast-food for hungry night-dwellers. As in most Ghanaian towns, there are several churches. At the far end of Sagyimase's eastern side lie some cocoa plantations before the town bleeds into the bush, where you might find the occasional mining site.

The western part of Sagyimase houses two schools, a church, more residential houses and a big football field, which gets used mainly by students for sports activities. Some of the houses have yards or gardens with cocoa or

orange trees. Right at the edge of the town is where Samantha and I found housing with a middle-aged woman and her teenage son. The town grounds end just two or three houses further, and after that again spread the hills of Atewa forest – of all the forest fringe communities, Sagyimase is said to be the one closest to the reserve.

5. STITCHING TOGETHER A LIVELIHOOD: LIVING WITH MARY

Figure 6: Mary carrying fire wood that she picked in the forest.

This chapter introduces Mary, one of my close interlocutors. Her daily routines are based around interactions with the forest. The aim of this chapter is to examine how Mary's interactions with the forest are informed by certain landscape relationships and serve to fulfil livelihood purposes. This gives way to the framing of her interactions as shaped by a set of specific limitations and opportunities situated in the Atewa landscape.

Samantha and I shared a bedroom, shower room and toilet. The rest of the house, including the outside cooking area, was shared with Mary and her son Jerry. Although the whole house was owned and rented to us by a landlord who did not live in Sagyimase himself, Mary took it upon herself to care for us and I am deeply thankful for all the ways in which she supported us on a daily basis.

After we moved in, I was eager to get to know Mary, what she did, who she might know. It proved more difficult than I had expected at first. Not only because of a language barrier, but she also seemed to be out of the house most days, leaving and coming back at ever-changing times of the day. This meant that it took me a while to understand what Mary does for a living, who she socializes with, where she goes. And while a lot of that understanding could not be acquired in conversations, living with her meant that I was able to observe many aspects of her daily life and over time get a sense of recurring patterns. When she left the house in the morning, she would sometimes tell us that she was going to the farm. Sometimes she would come back in the afternoon with a headload of sticks, or with a basket full of cocoa-yam, cassava, different flowers or leaves.

Seeing Mary come home with piles of wood is what sparked my interest; did the wood come from the forest? One day, after a number of days of Mary bringing home wood in the afternoon, and after a substantial pile of it had been established in front of our house, I asked her what it was all for. Fire wood, she said. I asked what she would use it for and she said it was for cooking. I got curious. Mary had been cooking for us regularly in a little outside area of our house, usually with us sitting nearby, writing up notes, and she did it over a gas-powered stove. Once or twice she ran out of gas and did not have the money to buy a new tank, so she used charcoal to make a fire for cooking. I asked

further and learned that Mary sold the firewood to other people who could not afford a gas cooker and who did not want to, or could not, go out and pick fire-wood themselves. One day at the end of February, Mary took us to pick firewood with her. We marched for about fifteen minutes, passing some houses and cocoa farms in the buffer zone until we reached the forest, where we made our way through sometimes thick vegetation and up and down hills. Using a cutlass, Mary and a friend in common of ours hacked away at branches from fallen trees or picked up sticks from the ground. As we walked back, I could barely lift my feet, but Mary was carrying a basket full of forest produce as well as a headload of fire wood.

Back at the house, Mary lay down on the patio and, like most days, complained about her recurring back pain; now I could understand where it was coming from.

She explained that this is how she makes a living. Once she has sold all the wood from her pile, she hopes to have enough money to be able to buy a new stovetop for her gas-cooker, as her current one is partially broken.

This puts Mary in a relatively privileged position. According to the 2010 Population& Housing Consensus, only fifteen and a half percent of residents in the East Akim district use gas for cooking, while three quarters rely on wood or charcoal (Ghana Statistical Service 2013, 56). Given the high demand, Mary's wood-selling business should be doing quite well. However, both the speed at which her pile of fire wood was reducing and the diversity of income-generating activities Mary takes part in, on which I will elaborate in the next sub-chapter, would suggest otherwise.

Besides collecting fire wood, Mary regularly brought home baskets of different produce from the forest and its surroundings, including berries, which she sometimes used in her cooking or to make medicine, and flowers, which she would dry on metal sheets in her garden and also use in traditional medicine. One time I found Mary having dinner on her own, which - to my horror - included a snail the size of the palm of my hand, which she had collected in the forest.

Another activity that I observed almost daily did not strike me as relevant at first, although vital for Sam's and my well-being: Almost every night Mary or her son went out to a near-by borehole to get themselves and us buckets of clean water to be used for showering, washing and cleaning. Mounted on their heads, they would carry the buckets (each containing around ten litres or more) to the house and fill up a big barrel, their private storage of clean water. The bore-hole did not immediately occur to me as part of the forest landscape, but later inquiry and interviews made the connection quite apparent. It draws on groundwater which is closer to the surface in the Atewa area than elsewhere, as the forest vegetation enables water storage, it rains more, and because of the plenitude of nearby rivers.

I passed the borehole every day coming from or going to the house, and most times there would be people, often school children, hanging around, filling up buckets, sometimes doing their washing in situ. Some would also drink from the borehole directly. Mary would usually boil off water from the borehole for drinking. In the East Akim district, this is common, with around thirty percent of people sourcing drinking water from boreholes or pumps (Ghana Statistical Service 2013, 59). The situation changed a bit by the end of February, when rain started becoming more frequent; Mary's house is fitted with pipes to a private borehole. This one is closer to the surface than the public one however, making groundwater accessible only when rainfall is high enough. In this, we can see how Mary has an active relationship with her natural surroundings. She depends on the forest ecosystem for drinking water. Every day, she has to walk towards the forest to fetch water from the public borehole. But come the wet season, the relationship changes. The ground water rises and fills the pipes leading into her house. Now, the water comes to Mary. Their relationship is dynamic.

Contrary to this borehole relationship, I initially thought I would observe people's relationship with forest water in farming. I pictured farmers fetching water from a river and using it to water their crops – this was far from reality. For one, a main crop in the Atewa area is cocoa, which does not need watering. When I saw people working on cocoa farms, they would be fertilizing, or harvesting, separating the beans from their shells and sorting out spoiled pods.

Most of these cocoa farms, the ones I initially saw many of, lie in the buffer zone and on the outer perimeters of a village. These are usually bigger plantations and their purpose is commercial. They are an important source of livelihood and income, as a third of the East-Akim employed population works in agriculture, forestry or fishing (Ghana Statistical Service 2013, 37).

But not all farming takes place on that scale, in fact, a lot of people are engaged in subsistence farming, with fifty-six and a half percent of households in the area engaged in agricultural activities (Ghana Statistical Service 2013, 47).

Mary is one such person. Many mornings she would leave the house, shouting “I’m going to farm!” to us, as she opened the gate with one hand, the other holding a cutlass and balancing a basket on her head. One day Sam and I accompanied her. Her farm is inside the reserve, and on our way there we met another person on the way to his farm, who accompanied us for most of the way. On the patch of land that he works there is mostly cassava. We stopped briefly, Mary dug out some roots to plant on her own farm, then we continued our march until we got to a sloped, bushy area with few trees. “This is my farm!”, Mary proudly told us. The farm was about two-hundred square metres large, longer than it was wide (imagine a skinny tennis court). There were a lot of cocoyam, some maize and a few pepper plants, but Mary explained that she would like to plant some vegetables also. However, this would require a source of water nearby. The yam, cocoyam and cassava plants do not need any watering, the rainfall is usually sufficient, but vegetables need more water. You would need a stream nearby, or a pond. She then led us down the slope, to show us a small abandoned mining pit filled with water, which she said she could use for farming.

Mary further explained that she had rented the plot of land from someone in the Forestry Commission, although the logistics of this transaction are unclear. Sadly, because of the existent language barrier, Mary was unable to explain to me if she directly approached an official of the Forestry Commission and asked for land, or if she started working on the land and then was discovered by a forest guard who asked her to pay them. What can be derived

from her explanation is merely that Mary paid someone to be allowed to farm here, and the use of the land was specifically limited to farming and weeding. Mary takes responsibility over the plot of land. This also means, she said, that if someone were to do any activities on the land that were not farming or weeding - such as mining-, then she would be accountable for it, if the Forestry Commission found out. This puts her in a difficult position. She expressed that she was worried about letting the Forestry Commission know about illegal mining going on on her land, because people in Sagyimase could consider her to be a snitch.

But Mary has had run-ins with the Forestry Commission before, and she does not want to get in trouble again. Before she started working on this current piece of land, she had another farm in the forest. Wanting to have her own farm, Mary recalled wandering from her house into the nearby forest one day, looking for a patch of land that would be suitable for farming. When she found such a spot, she just began farming there, on her own account and without consulting anyone about it. She had another person work on it at one point, when a forest guard found them on their patrol. The guard arrested the person and was going to put them in jail, but apparently Mary was able to negotiate with the guard and pay for her friend's release. Because of this incident however, Mary had the desire to do things 'properly' this time around, hence, she paid someone in the Forestry Commission and obtained the permission to farm on this land.

Things got interesting however when I later interviewed the head of the Forest Services Division in Kyebi. According to him the Forestry Commission neither owns nor rents out land, and inside the reserve, no new farm can legally be established. And yet, it happens, and people like Mary might even think what they are doing is legal. More than that, she wanted a farm because she does not own any land otherwise and needs the farm to give her some food security. She found the space because it was close to her house, and she was able to establish the farm because she trusted in the authority of a local Forestry Commission official. This interaction shows the problem of land as political space, which according to Berry (2009, 24) is much of the problem of conflict over land in Ghana and elsewhere in West Africa. Where land becomes political space, power struggles of different authorities and their claims of control

convolute local governance; here, such struggles are reflected on a personal level, where even within the Forestry Commission officials may try to seize authority of their own. This convolutedness in this case can hinder the effective execution of policies and even laws. Like Mary, members of local communities might experience unclarity about who is, effectively, the authority, and whose rules to follow.

As we can see, describing Mary's farm as either legal or illegal does not help to clarify the situation. While legality is usually thought of as a fixed concept of right and wrong, Mary's interaction with the Forestry Commission official and my own interview with the Range Supervisor show that in fact, what is considered legal or illegal is flexible and dependant on who claims authority in any given situation. If anything, the concept of illegality serves to demonize anyone involved: Mary as a 'criminal' when she first established a farm, the Forestry Commission official for what could be understood as 'taking a bribe' to allow Mary to farm, and again, Mary as a snitch if she 'follows the rules' and exposes further illegal activity in the forest. Similar issues arise with 'illegal miners', who are villainised while land owners are cast as victims (Hirons 2011, 348).

Moreover, thinking of Mary's farm as legal or illegal neglects any importance the farm has for her.

Instead, two angles should be considered: Firstly, the role of authority and the relationship between different authorities in determining action, and secondly, the motivations and circumstances underlying Mary's initiative to establish a farm in the forest. The latter can be analysed using what Croll& Parkin (1992) called productive bricolage.

This concept is useful to understand how many people in the Atewa area build their livelihoods. From what we have learned so far, and what I will elaborate on further throughout the rest of this chapter, it appears that many people-forest interactions serve to support livelihoods. This relationship has been utilised in relevant literature to argue for the importance of Atewa overall. For example, a 2011 study in the area showed that ninety-five percent of the participating farmers engaged in Non-Timber Forest Product extraction to

“supplement their earnings and dietary needs“ (Ayivor, et al. 2011, 59) – they engage with the forest to support their livelihoods.

Productive bricolage, as suggested by Croll& Parkin (1992), describes this behaviour - the engagement in multiple activities - focusing on those that are not necessarily part of regular, waged work. Such activities can be executed at the same time or depending on seasonality. In a productive bricolage process, activities are chosen and pursued according to availability of resources and both external and internal circumstances. If we remember Mary’s mode of acquiring drinking water, we can see that she too choses the source depending on availability; similarly, I once asked an interlocutor how people choose between getting water from the river or a borehole. His answer was that people will source water from the river if no borehole is nearby.

Ros-Tonen (2012) further applies the concept to Non-Timber-Forest-Products (NTFPs) to understand the role that they play in people’s livelihoods and their interactions with forests. She defines productive bricolage as “the flexible and dynamic crafting together of various livelihood options and its associated impacts on the landscape” (ibid, 35). She argues that NTFP extraction in a productive bricolage process is mainly showing of a general economic precariousness, thereby it has limited potential for lifting people out of poverty.

Moreover, Ros-Tonen compares productive bricolage with the idea of livelihood diversification as proposed by Ellis (1998). According to Ros-Tonen, Ellis sees livelihood diversification as a means to stabilize income and improve overall income security (Ellis in Ros-Tonen 2012, 35). Both Ellis and Ros-Tonen agree that the surrounding landscape influences what options for diversification there are, but the ladder proposes productive bricolage as a more encompassing concept, as it does not only recognize the constraints imposed by the physical environment, but also the possibilities it offers, by considering interaction “between livelihood activities and changes in the landscape” (ibid, 36). This links to the idea of agency that is described by Croll& Parkin (1992) in their original conceptualization and fits with my experience in the field. In one of my interviews, I asked a miner his opinion on the bauxite mining endeavour

planned in Atewa forest. Even though he was insistent that “they are not allowed”, he admitted that, if the operation did go into action, he would take the opportunity and partake in the bauxite mining, thus adapting to changes in land-use.

Additionally, Ros-Tonen (2012) suggests that both human’s creativity in shaping the landscape, as well as a forced adaptation to a changing landscape is involved in how people make use of the landscape, and thus, how processes of productive bricolage come to be. Livelihoods experience diversification both by people’s choice and by necessity (ibid, 39).

Ros-Tonen (2012) aims to understand landscape dynamics through analysis of productive bricolage processes. However, she stresses that an entirely local approach would fail to accomplish that; “multiscalar influences” (ibid, 40) need to be recognized and included in analysis. These should include geographical as well as institutional or jurisdictional scales (ibid). Following this, her productive bricolage is (part of) a livelihood system, that is influenced and shaped by ecological, economic, political and socio-cultural factors (aka the landscape) on varying spatial, temporal and jurisdictional scales[3] (*cf*. ibid, 41). This model is helpful for analysing the valuation and use of the Atewa landscape in livelihood terms. It helps us understand that such uses are located in a specific landscape and underlie institutional and geographical forces. However, on its own, the concept neglects ways of use-making besides the economic. But things are not valued only because they are needed to live. Thus, productive bricolage offers explanations for only one type of value creation in people-forest interactions. I argue that instead, things are valued because people are in dynamic relationships with them. Like Mary walking to fetch water every day, or entering the forest and collecting firewood, the relationships might shift on either end when circumstances change; it starts raining, making the public borehole obsolete to Mary, or other sources of income become available, causing Mary to temporarily halt her fire wood extraction. Productive bricolage can serve as a tool to understanding economic

[3] Ros-Tonen (2012, 41) mentions that other scales exist and should be considered, but the beforementioned three form the most researched and fit with those most relevant and apparent in my own research, although the temporal scale was not investigated in depth.

relationships, but it neglects differently oriented relationships. To solve this shortcoming, I will take a look at different forms of relationships that people have with elements of the forest landscape in later chapters.

Productive bricolages are flexible and dependable on circumstances. Another example of productive bricolage that I encountered was when I met a professional hunter by the name of Kofi. Kofi was trained to become a hunter in 1986 and has been hunting since then. He sells a lot of what he catches, but sometimes he would also take some animals home for his family to eat. Additionally, Kofi has always also engaged in subsistence-farming. Now, his old age makes it hard for Kofi to go on hunting trips. He says he only rarely goes hunting nowadays, but he continues to farm. His livelihood has changed due to circumstance. Likewise, Mary's forest-farm is part of her livelihood system now, but it hasn't always been, and likely will not always be.

5.1. Accessing land

Owning a farm is not something that is accessible to everyone. Most land that could be farmed is already owned by someone, especially in the favourable buffer zone, where at present, virtually no uncultivated land exists anymore (Amanor 2001, 20).

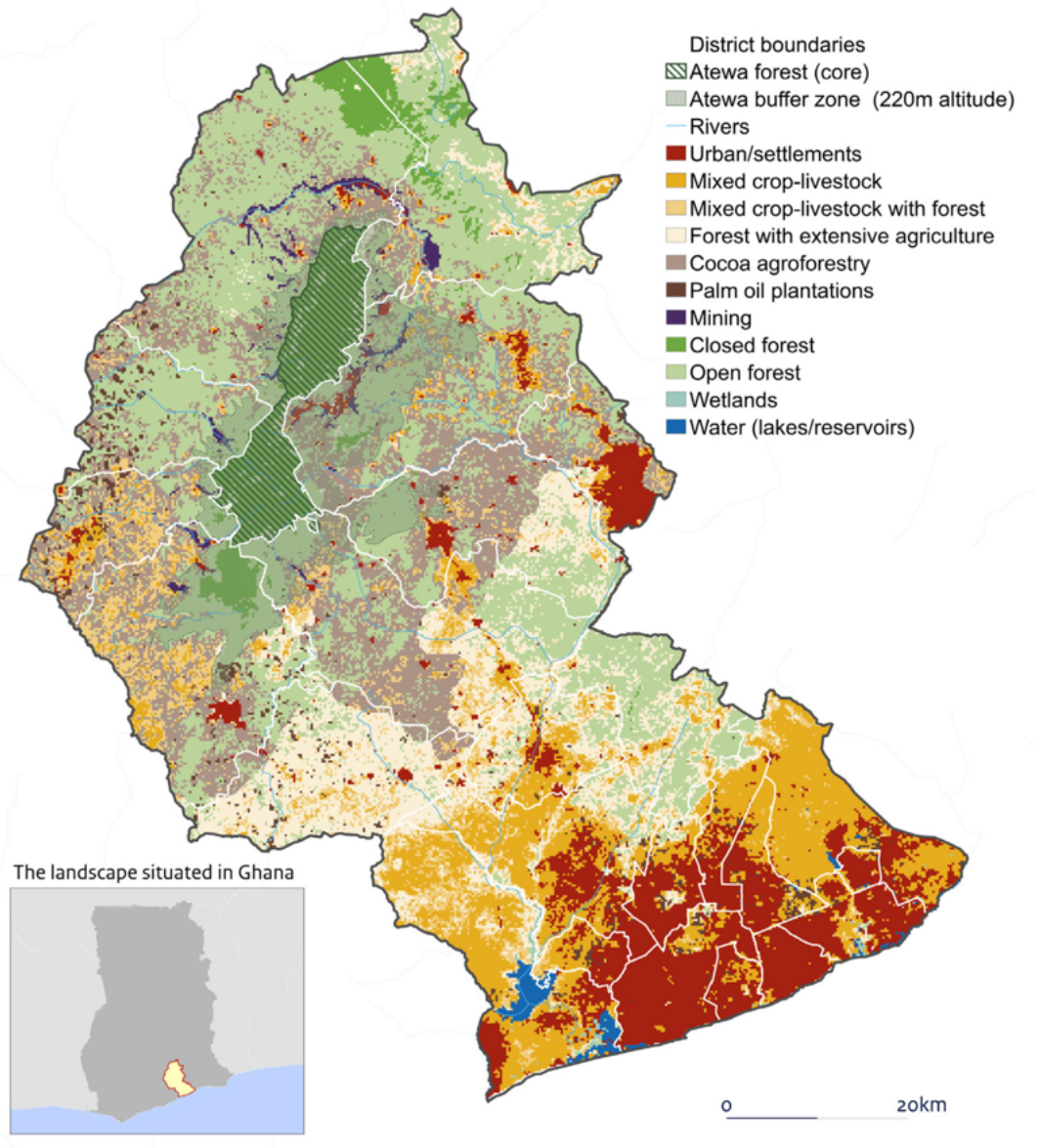

Figure 7: land systems in the study area of IUCN 2018, including Atewa reserve and buffer zone. PBL in IUCN 2018, 6, "Landsystems in the Atewa-Densu landscape, 2015".

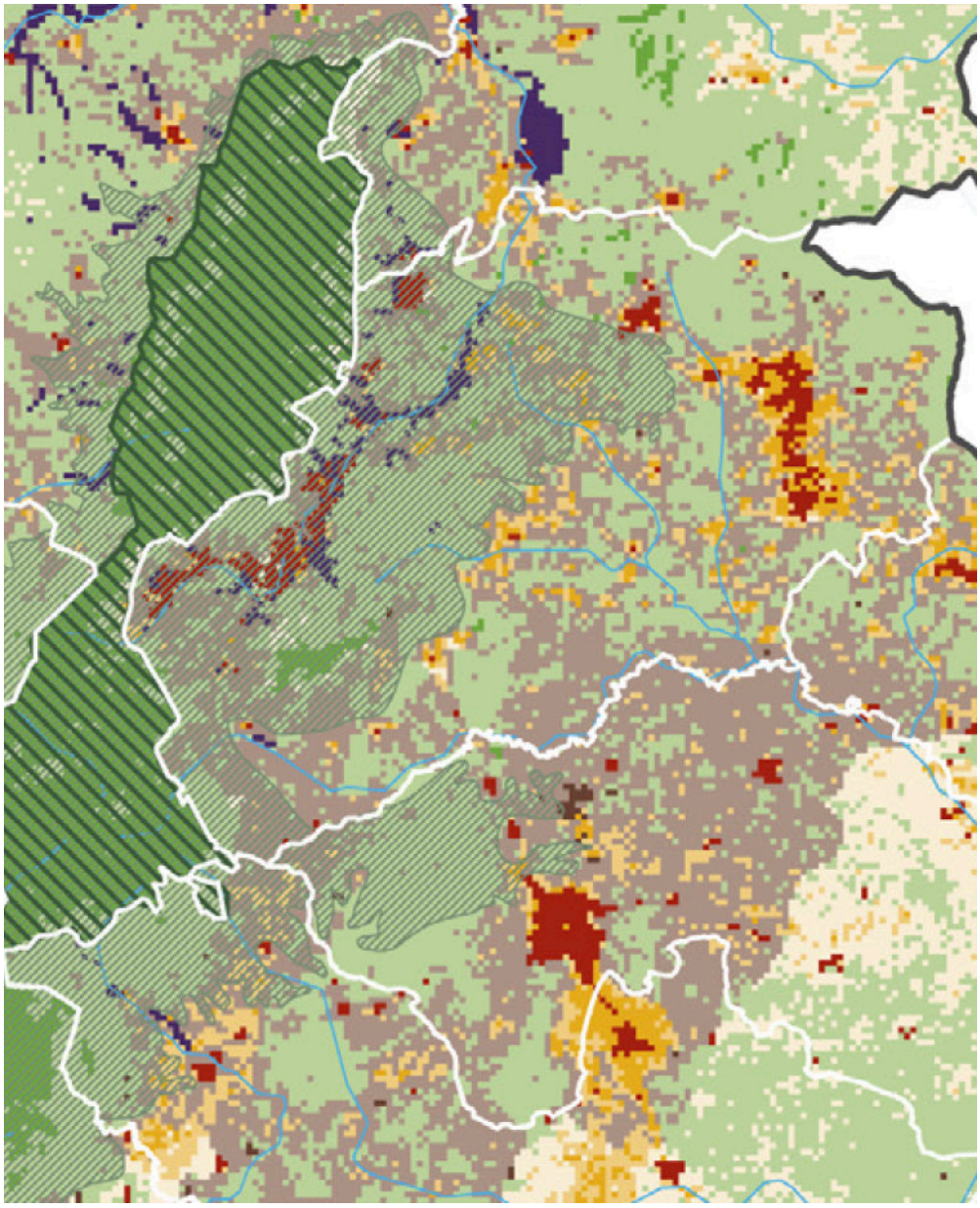

Figure 8: Enlarged section of Fig. 7, including reserve (left) and buffer zone, showing cocoa plantations, settlements, mining, mixed-crop livestock to be prevalent land uses (see fig. 7 for colour key). Excerpt from PBL in IUCN 2018, 6, "Landsystems in the Atewa-Densu landscape, 2015".

Most land is now used for cocoa plantations, settlements, mining and mixed-crop livestock (see Fig. 7/ 8). In the reserve itself, some legal farms exist. These are the ones that have been established before the constitution of the reserve, but they are prohibited from expanding over the original boundaries. No new farms are legally allowed to be founded within the reserve.

Land claims in Ghana have intensified in the last century because of population growth, urban expansion and an increase in use of land (Berry 2009, 23). Besides other effects, Berry (2009) points out that such struggles over land can interfere with sustainable resource use (ibid, 23); when no other land is available, encroaching on the reserve becomes a valid option.

In the Akyem area, access to land is commonly regulated by a customary land tenure system. According to this system, the highest right to land is vested in stools, which is the allodial title. This “is acquired either by being the first to cultivate the land or by succession from the first owning group” (Bymolt, et al. 2018, 9). The allodial title extends its rights to sub-groups or lineages through customary law freehold (ibid).

Amanor (2001) names seven basic ways through which one can gain access to land based on customary land rights; “1. Through clearing mature forest land which has not been cultivated for a long period; 2. Inheritance through matrilineal kin; 3. A gift of land from a relative; 4. The loan of land by a relative, affine or friend; 5. Land purchase; 6. Through crop share arrangements; 7. Land leasing.“ (ibid, 70). However, examining two contemporary Atewa settlements, he states that four basic methods could be observed, namely through kinship by marriage; sharecropping; purchasing (mainly by men) and illicit clearing of forest reserve land (ibid, 76).

Mary paid for the land, but she did not purchase it; she rents it. Yet, her transaction does not really fit with the customary land right system. It could be considered leasing, as previously considered under Amanor (2001), however in order for the Forestry Commission employee to be able to lease the land, he would have to previously have owned it – This is not the case. Mary’s situation is further complicated by the fact that she is not originally from the area. As she is also unmarried, this means that Mary does not have any relatives that could give her land or any customary land rights. It seems that Mary’s transaction is a making-do with both the impositions of state-controlled land ownership and its implications of illegality, as well as customary land rights that do not apply to her.

Although Mary does have friends in Sagyimase, there also seems to be a stigma attached to her; several times she would complain that people were talking badly about her or spread rumours. It is possible that Mary, in the Sagyimase setting, is considered to be a stranger and maybe this perception made her more susceptible to being coerced into paying rent for a plot of land that should not be rented out to start with. Berry (2009) argues that Ghana has a history of migrant farmers being extracted for rent, who would ask the chief for land and then were made to pay substantial sums of money (ibid, 28). A similar relationship is mirrored in the Forestry Commission official claiming authority and taking rent from Mary. Yet, several authors also argue that African models of landholding are flexible, thereby not necessarily comparable to western ideas of property (Peters 2013, 544). This means that the assumption that the forest is owned by the state, and therefore that anyone else selling this land is engaging in illegal actions, might be too narrow a perspective, as it neglects perceptions of traditional land rights.

At any rate the existing shortage of cultivatable land means that the forest may be the next available option for building a new farm. But as this is considered illegal – in the sense that getting caught might mean facing real, legal consequences, this option is a risky one. So sometimes, Mary works on other people's farms to earn some additional income through casual or "by day" labour (*cf.* Amanor 2001, 50). Farm owners might want helpers to increase productivity or because they cannot cover the area of land all by themselves. Others have inherited land but follow other occupations, sometimes making land available for other people to work on. This is a leasehold in the traditional sense under customary law. But looking at ownership status of farmers in in the Eastern Region and the rest of Ghana shows that gaining access to farm land through lease arrangements or sharecropping is not the norm, with seventy-two per cent of farmers in the Eastern Region report owning the farm that they cultivate (Hainmueller, et al. in Bymolt, et al. 2018, 11).

5.2. Meeting-ground: people-forest assemblages as manifestations of landscape relations

One of my interlocutors was Davies, a middle-aged carpenter and workshop owner from Sagyimase. He inherited a farm from his mother, but rarely works on it himself – he lets other people farm on it in a sharecropping arrangement, taking some of the profits. But his efforts are focused on his main occupation, carpentry. Farming, or rather owning a farm, provides merely a lucky side-income for Davies.

I frequently ran into Davies talking to people on my way to the market, which gave the impression that he was an influential figure. It was not long after I had first met him that I found out why that was the case; besides running a workshop with several employees, he also was in charge of the village's "service centre". The service centre is a small room with a computer that had probably seen better days, and an audio-sound-system, mounted on a wooden desk. Two microphones were propped on the desk with a handcrafted fixture. The sound system allowed for informational announcements to be made via a loudspeaker on the top of the building. Every day – or so it seemed – a voice would announce who was selling what, what events were coming up, or which projects under way. Sometimes, Davies told us, the announcements are in the style of a radio show, where interviews would be conducted. Davies was responsible for the service centre being built and he regularly made announcements himself, including promotion for his free workshop-apprenticeships. On top of that, when I first met him, Davies was currently running for the position of assemblyman, although he eventually lost the race to his opponent in the neighbouring village Akyem Adukrom. With all his involvement in community activities, it was no longer a surprise that he was well-known and always busy. This also explains why, even though Davies owns a farm, he barely works on it himself.

When I started my research, I had heard much about logging taking place in the area and even in the forest reserve. I had walked in the forest and seen sites of chainsaw activities, and the sound of a chainsaw buzzing somewhere in the distance was seemingly ever-present in Sagyimase. But I

had neither knowingly met anyone actually involved in logging, nor anyone that was using wood cut in the area - until I met Davies.

Davies worked hard for his own carpentry workshop. He always knew he wanted to make and construct things; ideally, he said, he would have become an engineer. But his family could not afford for him to go to secondary school, so becoming a carpenter seemed to be the next best option. After finishing his training in Accra, he knew he wanted his own workshop, with his own machines. But those are expensive, so Davies took a side-road, working in galamsey until he had saved enough money to get started. Now he has around five different machines, and besides providing an income for himself, Davies can now offer training to prospective carpenters for free. He builds bed frames, doors, wardrobes and more for people in Sagyimase, thereby supporting the groundwork of newly built houses and supplying items for daily use.

When I interviewed Davies, he said that he gets wood mainly from local lands, meaning privately-owned land around the forest, and sometimes from the forest itself. Realistically though, he might not always know where his wood is coming from. As he explained, he does not go out to fell trees himself and he hardly ever specifically orders people to do it for him. Instead, he knows some chainsaw operators who will come by if they have cut wood, and Davies will buy it if he needs and can afford it. This also means that he is not the one responsible for where the wood actually comes from.

For other people, who actively order wood, this can pose a problem. The common procedure starts with an individual needing wood for a specific purpose, such as fixing their roof or building a house. This individual then, ideally after obtaining a permit from the Forestry Commission, hires someone who knows how to operate a chainsaw and orders them to cut down whichever tree(s) were assigned to them by the Commission. Especially with larger quantities of wood, the individual might also hire additional people that will help carry the wood into town.

As it happened, Mary in her usual state of productive bricolage is one of those people. One night we were sitting down on the patio, and I had planned to do an interview with her. I had brought a common friend, Kwabena, to

translate and was chatting with him when Mary unexpectedly left the house. When she came back it turned out that she had helped some chainsaw operators carry wood out of the forest, an opportunity that came up spontaneously. She got paid by the same person that also paid the chainsaw operators. Irregular work like this might be preferable to more regulated work, as “it provides more money for less work” (Amanor 2001, 51). As such, beam carrying in the communities closest to Atewa forest is a valuable source of (irregular) income (ibid).

Problems can arise for individuals ordering wood even when a permit was obtained. In one instance reported to me, Sam was walking in the forest reserve just behind Sagyimase with one of our main-interlocutors, Richard, a forest guard. They ran into two chainsaw operators who had just cut down a tree that was blocking the road. Richard inquired who authorized them to do so, and they mentioned the name of a man, who they claimed had hired them. Richard, who knew the man and did not believe he would initiate such a reckless action, then called the man. It turned out that the man had in fact hired the chainsaw operators, but the permit he had obtained was for a different tree than the one they had cut. In consequence, the individual fired the chainsaw operators; he did not want to be associated with the wrongful cutting of a tree, in fear that he would be denied any further permits.

If a permit is obtained through the Forestry Commission (and adhered to), trees will not be cut inside the forest reserve, but in the buffer zone. Nevertheless, some (illegal) logging does take place inside the reserve, especially during the night.

We have now seen different interactions between people and trees in the landscape. The interactions involve cutting, transporting, processing and selling trees and include a net of different people, from chainsaw operators, to casual labourers, house-owners, forest guards and carpenters. People’s interactions with trees in the Atewa area take place in the buffer zone - on farms and plantations, on local lands, in villages - and in the forest reserve. We have further seen that interactions are embedded in a specific net of relations: economic relationships concerning labour, socio-cultural relationships like

ownership and networks, ecological relationships concerning resource availability, and political relationships in the form of law and order.

Furthermore, it is now apparent that the act of cutting down a tree, whether illegal or not, is not an isolated action. When a tree is cut down, it has impacts on various people. It creates a path of many possibilities, providing livelihoods along the way. This net of interactions, here created by the pursuit of livelihoods, is adequately described with the concept of assemblages, as introduced by Anna Tsing (2015). She thinks of assemblages as "open-ended gatherings", allowing us to think about the options that arise from them (ibid, 23). Furthermore, her concept captures how, when different ways of life meet, new assemblages are created (ibid).

Tsing states that assemblages "are sites for watching how political economy works" (Tsing 2015, 23). If we understand political economy as the study of the relationship between economic opportunities or scenarios and law, custom and the state, then we can see, looking at the example of cutting down a tree for profit and having to obtain a permit, that this is in fact true. However, it is not only economic and political relations that come into play here. When the two chainsaw operators cut down the tree inside the reserve, just off the village perimeters, disobeying the instructions of their employer, and when they were then caught by Richard, the assemblages were also influenced by ecological and social relationships. Thus, I suggest that assemblages are sites for watching how landscapes work. In this way, they act as manifestations of the different relationships found within a landscape.

To illustrate how "ways of being are emergent effects of encounters" (Tsing 2015, 23) I will recall an interview I conducted with a chainsaw operator in Sagyimase, who I will refer to as William. William is forty-six years old and started working as a chainsaw operator eight years ago, after becoming dissatisfied with his previous job's salary.[4] Before he came to Sagyimase, he used to work in a forest reserve somewhere between Kumasi and Mole National Park. He told me that he and his friends, who had taught him how to operate a chainsaw, used to regularly enter the reserve and cut trees without a permit.

[4] He previously worked as security officer in Accra.

But William recalls that the job was like playing hide and seek; law enforcement numbers were high and he was constantly scared of getting caught, only the lack of alternative jobs forcing him to still enter the forest. He got caught and arrested several times. When he came to Sagyimase, he pledged to never enter the forest here, because he doesn't want to get arrested again. Now, William no longer works in the forest, but only on stool lands in the buffer zone. His encounters with law enforcement in the forest have changed his way of being.

To illustrate further how assemblages are manifestations of relationships, we can think again about Mary and her interactions with water (and wood), mentioned earlier in this chapter. Here, her relationship with water manifests in two differently shaped assemblages, in both of which one actor moves to meet the other. In one, Mary has to leave the house and walk to the borehole to fetch water. This is the case most of the year, her relationship with the borehole impacts her day-to-day life – water is needed every day. In the second assemblage, the rainfall causes the groundwater to rise, leading it to reach Mary's house. This is an exceptionally pleasant easement to Mary's daily physical labour; thus, it too impacts her life. I was able to observe this relationship only through the encounters of Mary with a) the borehole and b) the tap. Thus, these assemblages are manifestations of her relationship with water, marked by necessity, physical labour and the relieving arrival of rain.

This conceptualisation will help further in chapter 8, where I will look at assemblages as manifestations of valuation processes.

6. BODIES OF WATER

„Because of the centrality of water in all aspects of human life, visual, textual and other representations of water are useful in articulating the cosmological beliefs and values – and the concomitant practices – that compose societies' broader relationships with the material world" (Strang 2011, 213)

More than just representations of water however, my observations of people's interactions with water themselves were enlightening for understanding relationships with the landscape. Introducing Mary and looking at her dependence and use of water, I have suggested productive bricolage as one way to understand the sort of relationship that people have with elements of the forest landscape. Using the case of water bodies, I aim to illustrate a different kind of relationship that people in communities around Atewa may have with the landscape. Recognising the existent use-value of landscape elements through briefly introducing the mining sector, I aim to broaden this conception of people-forest relationships to include socio-cultural relations and illustrate their interdependence and intertwinement.

6.1. Introduction to mining

A major form of land-use in the Atewa area is gold mining. On a national scale, gold mining too is an unneglectable activity, as licensed mining accounts for about forty percent of gross foreign exchange, while small-scale mining employs about one million people in Ghana (Hirons 2015, 5). As such, gold miners make up an important group of the employed population around Atewa and mining sites are a notable landscape element. Furthermore, gold mining is a regular topic of debate when it comes environmental safety and protection. Specifically targeting illegal mining activities and addressing its effects on water sources and forest reserves, the government of Ghana placed a temporary ban on small-scale mining in 2017 ((IUCN 2018, 14), which has however since been lifted. Hence, visiting mining sites and talking to miners about their perception and use of the forest landscape was immediately of interest to me.

I asked Kwabena if he knew a miner that would be willing to do an interview with me, and he introduced me to his friend Eric. Eric is twenty-eight years old and also builds his livelihood through productive bricolage, periodically working on different mining projects in the area. He engages in mining more as a side-hustle, while also selling marijuana, arguably a more stable source of income.[5] Having worked on various mining sites, he explained to me the different methods being used; "dig-and-wash", *trome,* underground mining, and using a metal detector. "Dig-and-wash" refers to any mining where dirt is dug up and then washed and sifted for gold, pumping water from a river or stream directly into the mining pit. *Trome* is what Eric called the type of mining where you work on a larger site by a river and big machines are used to sift the gravel for pieces of gold. Underground mining explains itself, however no underground mining sites were mentioned or visited during my stay. With the metal detector technique, which was repeatedly described as being 'new', about one-meter deep holes are dug in close proximity to each other. Once the hole is deep enough, a metal-detector-operator will come by and screen the pit as well as the dug-up gravel for pieces of gold or stones that have veins of gold, which are then collected. Then a new whole is dug and the dug-up soil is used to fill up the previous hole. I visited two mining sites that used the metal detector technique, and both times the mining took place on a cocoa plantation. The owners of the cocoa plantation had allowed this because, as was eagerly pointed out to me both times, the metal detector technique is environmentally safe; it does not bring heavy metals to the surface as the pits are too shallow, so the land is safe to be used for cultivation again after the mining has stopped.

One of the plantation-mining-sites I visited belonged to a family and the cocoa plantation had been in place for at least two generations, but it was ceasing to be profitable. Now the family was eager to put their land to a different use and mining promised to bring in more money. The mining activities here were supervised and partly done by members of the family, but they also had additional people mine who were allowed to keep a share of whatever they

[5] Mining sites are only active until all gold accessible according to the technique used is extracted, after which the sites are abandoned or re-used for other purposes. This means that after a mining site is 'fully extracted', especially in small-scale or artisanal mining, miners have to find a new site to work on if they so wish.

found. According to my interlocutor, a grandson of the original owner, the family was planning on planting new crops on the land once all gold had been extracted.

On the other site like this that I visited, the cocoa trees were carefully dug around. The plantation owner had allowed for people to mine with the metal-detector technique, leaving his cocoa trees intact. The plantation owner gets a share of any profit. As Hilson (2016) showed, in Ghana and elsewhere costs associated with farming are relatively high (Hilson 2016, 555), work is often seasonal, and land is limited by forests, creating an economic void that mining has the potential to fill (ibid, 557). After the gold is extracted, the plantation owner can go back to farming. As one of the miners on site explained to me, this is because the pits are shallow so the soil does not get turned around; the practice is environmentally safe.

It seems likely that this environmental awareness is at least in part an effect of the government's recent bans on mining and preceding discussions on the environmental impact of mining. Additionally, increased activities of the civil society sector in the area certainly play a part. A coalition of different environmental NGOs in the area, including A Rocha and a local initiative called 'Concerned Citizens of Atewa landscape', organised a demonstration in January against planned bauxite mining activities in the reserve, which Samantha and I joined to get an insight into local activism. After the march, which took us from the Sagyimase forest gate to Kyebi, different people made speeches and some media was present. When the leader of 'Concerned Citizens of Atewa landscape' was interviewed about the organisation's arguments, his biggest point was that the bauxite mining would turn over the forest soil completely, bringing toxic chemicals to the surface and thus dooming the forest. The similarity between this argument against the methods of bauxite mining and the one for metal-detector mining seems more than just mere chance; the increased dialogue about environmental protection and sustainable resource use, promoted by an increased presence of civil society organisations in the area, evidently has an effect on public awareness of such issues.

6.2. Complicating work-relations through water myths

However, when Eric told me about the different mining techniques, I was especially interested in the two techniques that involve the use of rivers, since these are integral parts of the landscape in many aspects; in one instance, the name 'Atewa' was explained to me as meaning "the source of many waters".[6]

Eric mentioned several sites that use these techniques. One such site is located by the Birim river, about a thirty-minute-walk in the Eastern direction from Sagyimase. At the site, the river is made use of through several pumps transporting water to nearby mining pits, enabling miners to wash out the gold. Additionally, a large sifting-machine is on-site, separating larger chunks of dirt and stones from smaller gravel potentially including gold, which then gets washed in the pits.

When we visited this site, it was a Tuesday. Upon our arrival, and faced by a deserted mining site, Kwabena explained that nobody was working today. The issue of not working on Tuesdays came up repeatedly throughout the course of my research and anytime I talked to a miner: there is no mining on Tuesdays. When asked why, people tended to give a simple answer: "Because of the Birim.", as though this was obvious. I interviewed Eric at a later point, to find out what exactly the role of water is in mining, and why no mining takes place on Tuesdays. I learned that the Birim is also called 'Abena' – Like most people, the Birim and other rivers carry names that indicate the day of the week they were born. 'Abena' is a traditional name given to females born on Tuesdays. I asked Eric what the connection was between rivers and the days of the week, to which he consulted with Kwabena first before answering,

> *"it is made by the olden days, the old old old people, they made that. Some of the rivers have gods about it, they serve the gods, so even the god can come around the town and say 'these days, nobody goes to work … on this river'. For the old days, that's what they used to do."*

[6] This translation was given by A Rocha's Kibi office manager Theophilus Boachie-Yiadom, however at a later point in a meeting with A Rocha Ghana's National Director, Seth Appiah-Kubi, he translated Atewa as meaning "dark forest", referring to a history of wars where soldiers had to cross through the forest.

Due to this phrasing, it is not entirely clear whether the rivers are thought of as beings themselves or if they merely inhabit or serve such beings, however Ayivor et al. (2011) writes that “some rivers within the forest are considered *as* deities” (ibid, 58, emphasis added).

This personification of rivers, executed through name-giving, became clearer when Kwabena told us a story about the river Birim. The story reads almost like an anecdote. It tells of a man who wanted to go fishing in the Birim, but he chose to do so on a forbidden day. He got to the river and started setting up his gear, when an old woman appeared. She told the man that it was a forbidden day, and that he was not allowed to fish on this day. The man, who had not previously known of the forbidden day, subsequently left. In this story, as Kwabena explained, the old woman was thought to be the river, pleading to the fisherman to respect it. Although this would be mere speculation, one has to wonder what role the fact that the woman was described as old plays here – at least from my own perspective, it serves to specify the river’s respectability.

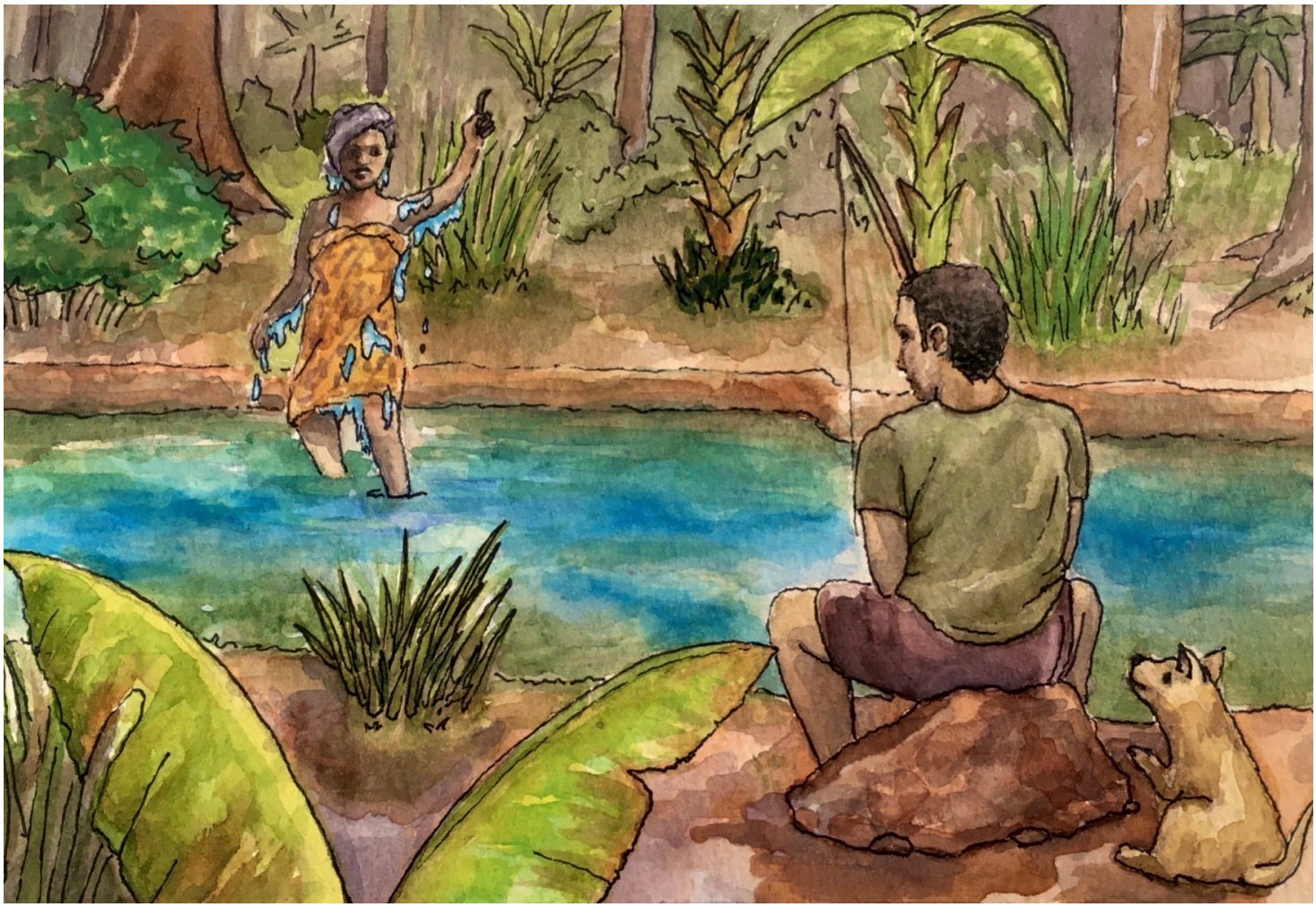

Figure 9: Painting of Birim river myth.

Ayivor et al. 2011 write that some rivers in Atewa forest “are considered […] objects of worship by the local population” (ibid, 58). I would argue that the term ‘worship’ might bring about inaccurately strong associations. People that I interviewed only ever talked about the rivers when directly asked about it, furthermore, the majority of Atewa’s residents consider themselves to be Christian (Ghana Statistical Service 2013, 30). However, Kwabena told me that some miners – known to often pollute the waters with toxic chemicals – occasionally make sacrifices to the river, for example sheep or goats, in order to excuse using the river on rest-days. Furthermore, even though you should not work with a river on its rest-day, Kwabena told me that some people use these days to make wishes. For this purpose, one has to drink from the river three times and then make a wish. However, the river will know if your wish is actually necessary; it only grants wishes for things that are really needed.

When asking different people what would happen if someone knowingly ignored rest days, I often received a very general response like ‘you will face consequences.’ But Kwabena told me another story, which illustrates potential repercussions for disrespecting the rivers. In this story, a white man came to the area and wanted to build a bridge to cross one of the rivers. He finished construction on one day and went home for the night. When he came back the next morning, the bridge had been destroyed. The white man suspected that someone had blown up his bridge, so he had guards positioned next to the bridge after rebuilding it. Again, he went home for the night. In the night, the river in shape of a woman appeared to the guards and told them that they could not build a bridge over the river, and the river rose and destroyed the bridge, causing the guards to run off scared. The next day, the guards told the white man what had happened. The white man, determined to build the bridge, saw that he had to show the river that he did not respect it, and so he urinated into the river. He re-built the bridge again, and this time, it was left standing.

This story brings up several interesting issues. Firstly, it is specified that it is a white man who is disrespecting the river. Secondly, it illustrates that the river deity has in fact (or is perceived to have) powers to defend itself. Thirdly, while the river is fighting to be respected, it is not an ultimate authority – when the man chose to not respect the river, the river surrendered. This paints a

highly interesting picture of the perceived relationship between humans and nature: Parts of nature are perceived as beings that are to be respected, and unknown consequences might be faced if not done so. But rivers, although thought of as deities, are not 'total gods' to which humans can only surrender – they are equal players. This illustrates again the dynamic relationship between people in the Atewa landscape and the water in it. The modern modes of mining affect the relationship between people and waterbodies, in that miners regularly need to negotiate whether to respect the river and how to treat it, sometimes leading them to make sacrifices. Moreover, economic pressures might see a shift in prioritisation from respecting rivers to making a living.

However, the relationship between people and waterbodies equally has tangible effects in itself. Virtually everyone that I have talked to about the different water bodies was knowledgeable of the fact that rivers are deities, which get angry if disrespected. The rule that you cannot work in the Birim on a Tuesday is not generally questioned, and having Tuesdays off is embedded in hundreds of miners' weekly routines. With the Birim being the closest river to Sagyimase, most miners in the village (that work by a river) mine gold with the Birim, and thus do not participate in mining on Tuesdays. The example of mining illustrates that miners are influenced by two very different but entangled landscape relationships in their work environments. Mining is a large employment sector in the area, the need to generate income leads people to mine, and on some sites, this means making use of the rivers; Miners utilize sources of water for economic fulfilment. At the same time however, the socio-cultural relationships that exist impose limits of this utilisation of water; rivers should be treated with respect and therefore, their respective rest-days prescribe a work-stop on certain days of the week or require counter-measures.

But rest-days affect life even outside of mining. Lenking Falls is a small waterfall in the forest West of Sagyimase, within a walking distance of about twenty minutes. It is a popular hangout spot for teenagers and young adults alike. On one side of the small pond below the waterfall a look-out spot has been constructed and improvised stairs made from planks of wood lead down to it. When my boyfriend came to visit me on a weekend, we planned to go to the waterfall together on Sunday. We invited Kwabena to come along and

explained our plan. “If you go Sunday, you can’t bathe.” The waterfall is part of the tributary known as Supon, which is equally perceived as a deity. Its rest-day is Sunday – meaning no bathing for us.

When I actually got the chance to go to Lenking Falls for the first time I was accompanied by Sam and Richard. It was a Thursday this time, so we were allowed to bathe, although only after Richard performed a libation, where he greeted the water asking “*Ago?*” – “Is there anyone there?”. He then stated our intention and asked for permission to bathe. As he had explained to us previously, after stating your mission, you then have to wait for a sign that you are indeed allowed to proceed, like leaves blowing in the wind. He finished his invocation with “*Medase*” – ‘thank you’, and signalled us to come. Permission had been granted to us.

As we can see, the relationship between people in Sagyimase and local waterbodies, coined by their appreciation as deities, permeates different aspects of life, both in work and in leisure. Through this, we can see that interactions with water are shaped by economic, ecological and socio-cultural relationships.

To introduce a different field in which, like in the example of mining, economic needs collide with cultural perceptions, I will hereafter discuss hunting in Atewa.

6.3. Further entanglements: Conceptions of wildlife

The hunting sector had been on my radar from the start, as it is mentioned in IUCN (2018) as one of the pressures contributing to the degradation of the forest (ibid, 28). Moreover, it is one of the only activities that I was aware of that happens exclusively inside the forest reserve. Although only limited information on hunting is available, it is estimated that three-hundred and seventy tonnes of bushmeat are harvested annually in the Atewa area (IUCN 2016, 36).

Hunters around Atewa forest hunt many types of animals, such as grass cutters, antelopes, pangolins, rats and different birds. Some stories even tell of

crocodiles and monkeys, although these are not common. When I interviewed Kofi, the mostly retired hunter from Sagyimase, he initially said that he would shoot whatever he came across. But he then paused and added that he would not shoot a monkey, firstly because nobody would buy it and secondly because shooting a monkey is illegal. Kofi explained that he used to have some regular customers that would ask for a specific animal. More often however, he would shoot what he could and find a buyer afterwards. Sometimes he would sell his quarry to road-side merchants or restaurant owners, but other times he would take his catch home for his family to eat.

A hunter cannot go into the forest to hunt every day. Sometimes, Kofi explained, months would pass before he would go into the forest again for another hunting trip. Part of the reasoning here is the law on hunting, requiring you to get a permit specifying the number of animals you can kill or forbidding hunting activities entirely during the breeding season. Another reason is the associated danger of the activity, such as getting bitten by a snake, getting lost or mistakenly shot by a fellow hunter. Because of this seasonality of hunting, Kofi has always farmed in addition to hunting, although technically hunting might be more lucrative than farming. Other hunters have adapted their profession in alternative ways in order to avoid seasonal limitations, for example by rearing grass cutters instead. Likewise, as mentioned before, many famers (especially in subsistence farming) will supplement their income or available food sources through NTFP extraction, including hunting, which is a lucrative endeavour in the area (Ayivor, et al. 2011, 59).

Still, there is a clear distinction between what is perceived as professional hunting and subsistence hunting. This became evident when I joined a meeting organised by A Rocha in Potroase, a village near the southern end of the forest reserve, located in the buffer zone just north of the Densu river. The aim of the meeting was to establish a hunters' association, as A Rocha has already done in some other communities, in order to facilitate easier communication and organization between different hunters, educate them on laws and also to gain a better understanding of the hunters' habits. One of the members of A Rocha voiced concern at the beginning of the meeting about the number of hunters that showed up: While about fifty hunters were expected,

only about eleven showed up. This is because, when A Rocha announced the meeting, they asked for any hunters to come. Only professional hunters responded to this call. Meanwhile, many more community members are involved in hunting, but do so more for subsistence purposes or have a differing main occupation, such as farming. Hence, they do not identify as “hunter” and did not think A Rocha’s call was directed at them.

In the meeting, the group discussed hunting as an occupation, including the benefits and disadvantages. They agreed that hunting was not for everyone, as it takes a lot of bravery. Some of the associated dangers they mentioned were getting bitten by a snake or haunted by a ghost (on which they sadly did not elaborate). Likewise, when I asked Kofi if anyone could become a hunter, he answered that you cannot be a coward and that when hunting, the hunters have to be careful not to shoot one another.[7]

In another instance, I went to the customs check point near Bunso, to find out if any forest products end up on a bigger market. When I talked to the customs officer, I asked if they ever checked cars for illegally hunted bush meat (a phrasing I would now avoid). Besides this not falling under their responsibility, the officer was offended. He took my question to mean that I was condemning hunting (further proving my point that a focus on legality serves only to villainise those involved) and thus took defence, arguing that “it is part of our culture”. Similarly, when a member of A Rocha asked the hunters present at the meeting for any benefits that humans could gain from wildlife, one of the hunters answered “culture”. Following, the group discussed some myths that are derived from hunting, one of which I shall recall shortly. The hunters concluded that ‘their’[8] culture was based on observations from local wildlife, giving the additional example of the symbols used to represent clans in Ghana. For instance, the official symbol of the Akyem Abuakwa state is the leopard (see Fig. 10), king of the animals of the forest, at the same time representing

[7] This referred specifically to hunting during the night, where a flashlight reflecting in somebody’s eyes could easily be mistaken for the eyes of an animal.
[8] They seemed to refer to the consortium of all communities around Atewa.

Figure 10: State symbol of Akyem Abuakwa. Ofori Panin Fie 2020, https://twitter.com/OforiPaninFie/photo, accessed 16/08/2020.

the king of the state, the 'Kwaebibremuhene' (king of the dense forest) (Nyarko 2018, 20; *cf*. Francis 2009, 69).

It seems from all these examples that hunting and contact with wildlife both on a personal and a societal level has a strong link to notions of identity.

Further, the act of hunting and its associated dangers is strongly tied to traditional belief systems. When interviewing Kofi, I inquired about the specific dangers a hunter might face. He explained that he could accidentally kill a spirit or get taken away by dwarfs. Kofi elaborated that animals have spirits and could plead to you to not kill them or even intimidate you. If you continue to kill such an animal, it could have bad consequences; for example, it may happen that if your wife is giving birth, she will birth the animal that you have killed.

What exactly Kofi meant by 'spirit' is not entirely clear. At the time I conducted the interview, I was still largely hanging on to the premise that the Ecosystem Service's categories, simplifying as they may be, were based on common categories that may generally be a starting point for 'benefits' acquired from the forest. Subsequently, whenever I was exposed to information that broadly fit into the Cultural Ecosystem Services category, I thought of examples

of cultural services that had been mentioned in the literature I had previously read, such as the MA (2005). In this context, when I first heard someone mention the word 'spirit', I thought of it in the context of spirituality, where such spirit might refer to some sort of higher being. However, as Minkus (1980) posits, "the universe in traditional Akwapim Akan thought is not divided into separate spiritual and material worlds but is most accurately regarded as one inspirited universe" (ibid, 182). Likewise, when asking Kofi to elaborate on what he meant when he said that one could kill a spirit by accident, his answer was rather short and did not elude to a distinct spiritual universe. I now wonder if what he meant by spirit was more kin to the nature or character of an animal. According to Minkus, in Akan traditional philosophy, the Akan word translated as spirit is '*sunsum*', and in Akan belief, every worldly thing has *sunsum*, giving rise to the thing's characteristics or agency – she thus uses *sunsum* interchangeably with 'essence' (Minkus 1980, 182).

In facing the danger of meeting or offending spirits in the forest, going hunting inevitably brings the hunter in conversation with cultural perceptions and knowledge systems.

Moving away from direct interactions between hunters and the hunted, there is a body of myths that tell of the social contributions that hunting has brought in the past.

For one, Boaten (1990) points out that Asante hunters have long been known to contribute largely to knowledge about edible foodstuffs, using dogs to test the suitability of a food in question (Boaten 1990, 20). One of these foodstuffs is palm wine, which I was first introduced to by Davies.

When I walked from our house into town, I usually passed a hangout-spot by the road, where on some days, a group of middle-aged men would sit and drink. One day, when Samantha and I passed by, we saw that Davies was part of the group. He spotted us and waved, signalling us to join the group. Two of the men were holding calabashes[9] from which they were drinking. Davies

[9] The dried, polished and halved shells of the calabash fruit are often used as containers or cups.

proceeded to fill another calabash up with a milky-white liquid for Sam and me to try. It was palm-wine, and as Davies emphasized, it was locally made by one of the men in the group - and thus much better tasting and healthier than any store-bought counterpart. Palm-wine is a popular alcoholic drink all over Ghana (and elsewhere), it has a fresh taste, is sweet and a little fizzy.

When we visited a cocoa plantation a little later, it was Richard who showed us how the local palm-wine was made. A palm tree is cut down and, leaving it to lie on the ground, a cavity is cut into the stem with a hole through which the liquid can drip into a canister. The hole in the stem is covered with leaves and finally sealed with a flap of the bark. The contraption is left like this for a couple of weeks, over which the canister will fill up with palm wine. Throughout our fieldwork we saw several of such palm-trees lying on the ground, used for palm wine production, usually on cocoa plantations. Even though palm wine is drunk all over the world, I was lucky to be told an entirely local story of how the people discovered palm wine. This story was told to me by a hunter at the Potroase hunters'-meeting.

The story goes that a long time ago, a hunter was on a trip in the forest when he came to a clearing. Here, a fallen palm tree lay on the ground and a horde of monkeys was jumping around it. Some of the monkeys were seemingly drinking from the tree, while all of them seemed joyful and ecstatic. The hunter wondered why the monkeys were acting this way, so he walked to the tree and drank the liquid that was coming from it. He liked the taste and the mildly intoxicating effect, so when he got home again, he started producing it himself. Through the monkeys in the forest, palm-wine was supposedly discovered and ultimately became the traditional and popular drink it still is today.

The time for discovering new foodstuffs has of course long passed, making the hunters' task the provisioning of bushmeat. Some of the most popular bush meat is the grass cutter, which is quite commonly eaten in Ghana and considered a local delicacy. The same is true for pangolins, although hunting pangolins is now illegal according to Kofi and Richard. However, legal boundaries in the area in regards to hunting are quite loose. Different from, for example, mining, hunting (even without a permit) is socially widely accepted.

When I asked people if they considered hunting to be a threat to the forest, most people did not think so. Furthermore, buying meat of animals that are not supposed to be shot is not a taboo; buying a freshly shot pangolin to make traditional stew was openly discussed in a shop in Sagyimase.

Apart from that, some hunters have limited knowledge about existing laws. The meeting of hunters that A Rocha organised was in part aimed at educating the hunters about existing laws. When the group discussed the topic, it became clear that, even though they knew that laws existed, they mostly did not know what the law stated exactly. For instance, they did not know that a permit had to be acquired before hunting, or which tools are allowed or not. Still, none of the hunters present knew of anyone ever getting arrested for 'illegal' hunting – there is no law enforcement present. As mentioned before, the only law enforcement in the area is the Forest Services Division, who do not have enough staff to prioritise hunting. However, the perception of laws by hunters in Potroase is in stark contrast not only to Kofi, who seemed knowledgeable of all laws, but to other communities as well. When the regional manager of A Rocha told me about the upcoming meeting in Potroase, he said that previous attempts to meet with hunters in other communities had failed – hunters did not show up out of fear that A Rocha was going to hand them over to law enforcement.

In summary, we can see that hunting is intertwined with cultural knowledge systems and notions of identity. Animals hunted for bushmeat are enjoyed in traditional dishes, leading to the perception of hunting as 'part of the culture'. Furthermore, bushmeat serves as a food source for both hunters and their customers and constitutes a form of income, although often combined with other livelihood ventures in productive bricolage systems. Jurisdictional scales impact some hunters in their methods and options but not all. This is due in part to low capacity of law enforcement as well as social norms that render hunting to be acceptable even when in contradiction with laws.

7. BEYOND THE POLITICS: POLICIES AND LAWS IN PRACTICE

We have looked repeatedly at interactions that were shaped by the general concept of legality on the one hand, and the Forestry Commission or A Rocha Ghana on the other. But how do individuals act according to their institutional setting? We have seen that jurisdictional and political relationships affect various interactions of members of local communities with the forest landscape. Following, I aim to show that enforcing of laws or promoting of policies through individuals in institutional bodies is in itself shaped by landscape relationships. Further, I will discuss how individuals may act as extensions of their respective organisation in some scenarios, but face specific localised social or personal struggles in enacting policies, ambitions or laws in others.

A Rocha Ghana, as the most active NGO in the Atewa area, aims to initiate "programs that benefit both communities and the environment" (A Rocha Ghana 2018). As part of A Rocha International, their global mission is to combat "the global crisis of biodiversity loss by carrying out community-based conservation projects" (A Rocha International 2020). During my fieldwork, I had several opportunities to see and hear about their work around Atewa and its effects. The initiatives that I was aware of were mostly aimed at diversification of people's livelihoods and restoration or reforestation of degraded land.

One such initiative took place in the community Owuratw, east of Potroase. Theo, manager of the A Rocha Ghana Kyebi office, took me to the very small community that is embedded within the eastern part of the forest. Tree seedlings had been supplied to the community previously, and a communal activity was organized for the seedlings to be prepared. When I visited the community, the participants – mostly middle-aged farmers, some with their small children - were gathered under a palm thatch which was enclosed on two sides by thick vegetation and on one side cut off by a small stream. The present participants (mostly women) were currently preparing the seedlings by pressing soil into little black plastic bags, while others (mostly men) sat by and watched. Afterwards, the seedlings were to be added and,

using the stream, soaked in water for five days. Once the preparations were finished, the seedlings could be planted on participants' cocoa farms, where the trees are supposed to provide shade to the cocoa trees.

Some problems crystallised while I was there. A few of the participants started a discussion with Theo, arguing that participants should be compensated for the time spend preparing seedlings instead of doing paid work. Theo explained that A Rocha could not provide that, but suggested instead that lunch would be paid for, which the participants agreed to. Then, some women complained that the men did not do any work but instead just used the time to hang out, to which the men responded that preparing seedlings was women's work, due to the fact that it is done while sitting. It is possible that this perception is linked to housework traditionally being a key women's task (Logan& Cruz 2014, 207), where activities are typically perceived as less physically exhaustive as opposed to men's physical labour for example in hunting (Opoku-Agyemang 1999, 129-130). The argument did not reach a conclusion. However, there was a general fear of people claiming they would partake in the seedling-initiative, but then not actually participating, thus unfairly benefitting from it. In a wider setting, the fact that A Rocha's initiatives can only ever target a limited group of people seems to cause some problems.

When I first arrived in Sagyimase, Richard shared his perspective on A Rocha, recalling that the NGO regularly entered the forest whenever they wanted. He complained that A Rocha allows researchers into the forest, who then write 'whatever they want' about Atewa, without consulting local communities. Hence, Richard had developed a generally rather negative view of A Rocha. One has to wonder how exactly Richard's view of the organisation was formed.

The most relevant aspect here seems to be that Richard is part of the Forestry Commission; when talking about issues with A Rocha, he would often say that 'we' – meaning members of the Forestry Commission – have to deal with them. The Forestry Commission assumes authority over Atewa reserve. Richard enjoys the respectability of his employer and the authority that is granted on him by extension; people in Sagyimase know and respect Richard

for defending law and order. When A Rocha enters the forest, possibly without acquiring a permission from the Forestry Commission first, or even bring other people into the reserve, they clearly contest the Forestry Commission's judicative (issuing permits) and executive (taking people into the forest) power. Again, there is a problem caused by the politicisation of land. As Berry (2009) points out, the state, here represented by the Forestry Commission, exercises "power, in part, through the control of territory, setting conditions for entry into areas" (ibid, 24). Further, locally acting organisations, here the NGO A Rocha, may reflect similar ambitions in their practices, thereby "challenging or disrupting state control over local loyalties and resources, or seeking to enhance their own visibility and influence in regional [or national] political arenas under their jurisdiction and regulating conduct within their boundaries" (ibid). As we can see, this issue reflects onto individuals like Richard, who sees himself and his institution challenged by the presence of A Rocha.

However, Richard, like any forest guard, is not solely an extension of state law. He sees himself imbedded not only in structures of authority and employment, but in social relations like kinship and loyalty that affect him in his enactment of state laws.

One of the times that Richard took Samantha and me into the reserve, he was going to show us sites of illegal activity, thinking it would be relevant for our research. He had just shown us a mining site in the forest and purposefully continued speed-walking through the underwood. Richard slowed down every couple of minutes to listen for any sounds. At one point he stopped to make a loud "kakaw" sound, imitating a bird. A second passed and then a matching sound resonated from the forest in front of us. Richard started walking again, and after a couple of minutes, we reached our destination. In front of us was a hilly stretch of the forest, and up and down the hills lay scattered several cut-down trees. There were three men there, but the chainsaw had stopped before we got there. Richard was talking to the men in a calm voice while pacing the area. He then said to us, "we need to carry the wood. Will you carry the wood?". Unsure whether he was being serious or not I denied and was instead instructed to carry one of the cutlasses. Richard then signalled us to lead the way out - seemingly confident that we were in fact capable of finding our way

out, whether that was grounded in his own knowledge of the area or a misplaced assumed intuition for navigation. The four men followed us through the bush, each carrying a slab of wood over their heads. After about twenty minutes, we were back on solid paths and surrounded by houses.

I waited until the wood had been put down somewhere and Richard had said goodbye to the men. After double-checking that the logging we had just witnessed was in fact illegal, I had to inquire about Richard's position in this. "If it is illegal, how come you just helped them in carrying out the wood?" I was relieved when Richard seemed to not be offended by this confrontation. Instead, he reiterated that the logging was illegal, but explained that the men were actually part of his family. "I know that it's hard sometimes", he commented.

In a later interview I tried to find out how people like Richard decide which people to arrest or persecute for which illegal activities. Extensive laws and correspondent penalties have been written down about the Atewa reserve. They dictate what you can or cannot do in which geographically defined areas. But when Richard talked about different illegal activities in the forest, it was clear that in enforcing the law, he sometimes had to make complicated negotiations between laws, kinship, empathy, power and various forms of responsibility.

Another concern that Richard had about A Rocha was he claims the organisation spends all their money on holding meetings, instead of doing anything for the communities. While I do not want to assess the effectiveness of A Rocha's endeavours at this point, it is evident that they do work with some (groups from) communities. However, it is clear to me only because I was in personal contact with members of A Rocha. I could personally ask them what work they were doing in the area, and they subsequently took Samantha and me to see one of the sites they were working to restore.

It was an abandoned mining site, located just off the road between Sagyimase and Asiakwa, adjacent to the forest reserve in the west. The land was supposedly mined by Canadian mining company Xtra-Gold, who owns most mining concessions in the area. However, a member of A Rocha

explained to us that such large, international companies often illegally sublet land to local miners, getting profits while diverging responsibility. Thus, while local miners in this case did get (some of the) profit, it is the local communities that have to “bear the associated social and environmental costs of extraction” (Hirons 2015, 2). The plot of land, roughly a hectare in size, had been left bare after mining activities had stopped, leaving trenches in the ground and the soil contaminated with heavy metals, rendering it unusable for farming activities. The land was privately owned and now useless to the owners. A Rocha offered to collaborate with them in restoring the land. First, the trenches were filled with stones and soil, then wild beans were planted to pull toxic minerals out of the soil, which are to stay for one year. According to A Rocha, about fifty members of the community were recruited to help restore the land, although it was not clarified which community they referred to. Once a year has passed, A Rocha will provide tree seedlings to be planted on the land. The agreement with the land owners states that the trees will have to remain in place for at least twenty-five years, after which the soil will be restored and the owners may cut the trees and sell the timber if they so please. However, thirty percent of any profits are to go to A Rocha. Interestingly, when this collaboration was explained to me, no mention was made of the fact that the trees to be planted, irrespective of who planted them or on whose land they are, would still legally belong to the state and would require a permission from the Forestry Commission to be cut. It is unclear whether this has been considered in the arrangement.

One of the times that Richard complained to me about the inactivity of A Rocha, I mentioned this site and initiative to him. Even though the abandoned mining site was a mere kilometre away from Sagyimase, Richard was utterly unaware of such activities. This raises questions about how A Rocha finds, selects and reaches out to communities or specific members.

One exemplary story of A Rocha’s outreach approach was introduced to me as a failed livelihood diversification project at the meeting of hunters that A Rocha had organised in Potroase. The project aimed to offer new livelihood options to a few members of the community by establishing grasscutter rearing farms. The initiative was organised mainly through contact with the local Assemblyman, who selected members of the community to benefit from the

project; grasscutter farms were established. Ultimately however, the project failed. Hunters at the meeting complained that the farms were not successful or profitable to the community. According to A Rocha, the problem lay in contacting the Assemblyman; he allegedly selected participants based on personal relations, instead of looking for people that have the skill and interest to handle animals. A Rocha now realises that hunters should have been contacted directly for such efforts, which may be one of the reasons for the effort to establish a hunters' union.

Finally, Richard claims that members of A Rocha are frequently entering the forest reserve without consultation with local actors. Throughout my fieldwork, I heard several stories about the organisation taking its members and visitors into the forest for bird-watching activities or for research purposes. Partially validating Richard's concerns, these activities hardly involve members of local communities, but rather visitors from elsewhere in Ghana or the world. However, A Rocha is making an effort to include members of local communities in such activities. At the hunters' meeting in Potroase, one hunter recalled a positive experience. A while ago, some visitors came to the area to see the local wildlife. The hunter was contacted by A Rocha and paid to take the visitors into the forest for three days and bring them to the animals. He had been paid up front, but managed to find some animals when they entered the forest on the first day, satisfying the visitors to the point that they did not wish to go back on the second or third day. Because of this, the hunters are hoping that the creation of a hunters' union would make it easier to connect with visitors and thereby give rise to new job opportunities.

8. VALUE REVISITED

Throughout the previous chapter, we have seen how different people in the Atewa landscape engage with the forest and its various elements. We learned that many people-forest interactions serve the purpose of living, both through subsistence opportunities and livelihood options. These options are situated in a landscape shaped by ecological, political, economic, socio-cultural and historical relationships, thereby also providing specific circumstantial limitations. Using the concept of productive bricolage, I have shown how people make use of available options to support their livelihoods. The essentialised argument that follows from this, and which has been made in the past (*cf*. IUCN 2016), is that Atewa forest hence has value mainly for economic reasons – because its resources can be turned into revenue. Value is created through the commercialisation of nature.

However, we have also seen that some interactions, especially those with water, have significance intertwined in them that goes beyond making a living. Strong links can be found between elements of the forest landscape or interactions with them and cultural beliefs and social norms. It has become evident that the forest has characteristics and provides opportunities that feed strongly into the social life of the communities closest to Atewa reserve. Therefore, a closer look needs to be taken at how we conceptualise the value of the forest and how it is created. I have further illustrated in the previous chapter that people-forest interactions can be framed using the concept of assemblage, which manifest the different relationships at play in the landscape. In this chapter, I will discuss how the policy model Ecosystem Services might neglect locally specific forest value(s) or frame them inadequately, and show how assemblages, and the landscape relations they unveil, may give new insights.

8.1. Atewa's Ecosystem Services

A Rocha uses the Ecosystem Services model to understand how communities on the forest fringes might benefit from Atewa's ecosystem and to assess the availability of different forest's value(s) over time. Using Ansah (2016, 9-10) and IUCN (2016, 36), I will discuss Atewa's Ecosystem Services and compare the categorizations with my own findings, in order to analyse the limits of the ES model in understanding the value of Atewa to local communities. For demonstrative purposes, I will adhere to the proposed distinction into four separate categories; provisioning services, supporting services, regulating services and cultural services.

Provisional Services

There is a multitude of provisional services in and around Atewa that fringe-communities are benefitting from daily. Provisional services include foods, water, timber and non-timber forest products.

Ansah (2016) lists five wild foods that can be acquired from the forest: bushmeat, honey, snails, mushrooms, fruits. From my data I can confirm that bushmeat, snails and fruits are commonly consumed foods collected or hunted in the forest, with bushmeat being the most prevalent. Although I did not see or hear of anyone collecting or consuming honey or mushrooms, the scale of my research and limited number of research participants might account for that. Additionally, crabs and fish should be added to the list. Although not pursued by many, community members in Owuratw do collect periwinkles and crabs from the stream passing their village, and I was informed that if the water levels are high enough, people sometimes catch fish from it as well.

In terms of how (much) local communities might benefit from these services, it is notable that bushmeat hunting is often done in an occupational format generating income, while the collection of snails, fruits, periwinkles and crabs and any fishing usually happens as a subsistence activity. However, some hunting is also done for subsistence purposes. Additionally, collecting foods from the forest seems to over all be of limited prevalence in my study

area, with Mary being my only interviewee stating that she enters the forest for collection purposes. Apart from that, the hunting and consumption of bushmeat is also seen as a cultural tradition. Another benefit from forest animals, as mentioned by a hunter at the meeting in Potroase, is ‘to make people happy’. Animals found in the forest (and those that used to be found in it) have also inspired various myths and serve as symbols for stools. Hunting animals brings about certain risks that are tied to locally specific belief systems, such as encountering or killing spirits. Additionally, it has to be said that hunting is legally regulated, although this is seldom enforced. Still, accessing bushmeat might come with legal risks.

Water is an essential service for the wider Atewa area, as evident in it being the central theme of “The Economics of the Atewa forest range” (IUCN 2016). The eastern side of the Atewa forest benefits from the three major rivers Birim, Densu and Ayensu as well as their tributaries. Water from the rivers is often used for washing, bathing or cooking. As my interlocutor Kwabena told me, drinking water is usually acquired from boreholes, with rivers used instead when no bore hole is near or when the water supplied by the bore hole is unpotable, which, as he recalled, may happen when infested with oil. Besides providing water for drinking and household activities, water bodies in Atewa are also used for farming, given that the farm is near a river. For example, Mary told me that she would be able to farm vegetables if she found a place near a stream. Additionally, water, both from the ground and from rivers or streams, facilitates some of the mining activities in the area. Miners may use river water directly to wash out gold in smaller streams, or indirectly by diverting water into artificial lanes to use for washing. On top of water being a tangible thing that concrete uses in daily life, water bodies in Atewa have several non-production, non-subsistence characteristics and effects. For example, rivers can be used to make wishes, or they can bring about consequences if not respected. This may require sacrifices to appease the rivers, which are perceived to be deities. As such, water bodies provide fringe-communities with a variety of myths and cultural practices.

Thus, fringe-communities benefit directly from potable water provided by Atewa, when used for drinking or in household activities, as well as indirectly

by facilitating production - both material (e.g. subsistence farming) and economic (e.g. mining) – and by providing or supporting a set of beliefs. However, as recalled in chapter 6, access to water bodies is regulated and sometimes limited by the cultural practice of rest-days.

Timber is another important service in the Atewa area. Although no large-scale commercial logging is going on around Atewa at the moment, unregulated logging is a prevalent activity (IUCN 2016, 36). Wood is needed for construction and repair. Furthermore, timber that originated largely from stool lands and in small amounts from inside the reserve, is an important source of income for a variety of people, as outlined in chapter 5. Thus, timber offers benefits both in the form of material use as well as provision of income. However, timber extraction in Ghana is strongly regulated. Thus, a lot of chainsaw activity is criminalised, leading to the livelihood option 'chainsaw operator' to be associated with some risks. Trees can be cut legally if a permit was obtained, however this brings about additional costs and efforts. Hence, accessing benefits from timber is complicated, as jurisdictional, ecological and social relations come into play.

While Ansah (2016) refers to the remainder of provisional services as "Raw materials" (ibid, 9), I will use the term Non-Timber-Forest Products (NTFPs) to categories the remaining provisioning services, in line with the productive bricolage concept as outline in chapter 5**.** A main benefit of NTFPs in Atewa is the provision of fire wood. As we have seen, fire wood is needed by a majority of people for cooking. Furthermore, it can be a source of income. If not used as fire wood, bigger branches of trees can be cut, collected and used for creating mortar and pestle or Fufu pounding sticks, which are used by essentially every household in my study area. Additionally, such branches can serve as construction poles, and smaller ones as canes (Ansah 2016, 9). Apart from wood, NTFPs from Atewa include medicinal plants, herbs and spices, which can be used for traditional medicine and cooking. Ansah 2016 further mentions rattans, twines, chewing sticks and (chewing) sponges (ibid), all of which I did not encounter during fieldwork, although definitely used elsewhere (*cf*. Ansah 2016, 5).

Hence, NTFPs can be used for a variety of purposes in daily life and serve various functions including income generation, subsistence, cooking and tradition. NTFP extraction has both economic and cultural relevance.

Supporting Services

Supporting services are not tangible, therefore hard to observe. However, their property being that they give rise to other services, effects of supporting services can be observed in the interactions with other services that would not be possible without certain supporting services. Generally, in a functioning Ecosystem, a series of supporting services can be assumed to exist. Ansah (2016, 9) lists the “maintenance of life cycles of migratory species”, which entails the provision of habitat with food and water sources and which can be seen in the diversity of species existing in Atewa. Related to this is the maintenance of biodiversity and gene pool protection (ibid) as another supporting service.

From my observations and interviews, soil formation can be considered another important service. The MA (2005, 40) states that most provisioning services depend on soil formation, but furthermore, it is a specifically integral part of the Atewa landscape. Soil formation does not only support the forest ecosystem, but it also provides fertile soils, the making-use of which turns many of the fringe-communities into farming communities, thereby shaping livelihoods, food, identity and social relations; the MA (2005) states that agricultural societies, informed by the available ES, have distinct social relations (MA 2005, 40).

Additionally, water cycling is a noteworthy supporting service in Atewa. Especially in a rainforest environment like Atewa, water cycling is essential to ensure growth and support of plant species, upkeep of soils and to prevent rivers from drying out. During interviews, it was mentioned to me several times that water sources from Atewa are valued especially because, unlike many other rivers and streams, the ones closest to the forest tend to not dry out during the dry season.

Other supporting services include photosynthesis, primary production and nutrient cycling (IUCN 2018, 33) (MA 2005, 40).

Thus, supporting services inform livelihoods, food and water provisioning and aspects of culture.

Regulating Services

Regulating services, being processes, are equally intangible in themselves, although capable of yielding physical results that can be observed. Thus, I can describe Atewa's regulating services primarily on the basis of previous ES assessments like IUCN 2018 and Ansah 2016. They include carbon storage, pollination, pest control, water regulation and water purification (*cf.* IUCN 2018, 33). Water purification is especially important not only for communities immediately by the reserve, but also communities downstream, as most people depend on the freshness and cleanness of either rivers or groundwater as sources of drinking water. In conversations and interviews it was expressed to me that the - often year-round - availability of clean water, provided by Atewa, was highly valued by people of diverse positions. However, access to freshwater is endangered by mining activities from both local, national and international operators and fought for by different parts of civil society. As was mentioned in several conversations, regulation of water is in some cases already disrupted. Where forest degradation is advanced, smaller rivers tend to dry out during the dry season. Thus, the regulation and purity of water bodies in the Atewa area is strongly shaped by political, economic, ecological and social relationships. An important regulating service is furthermore climate regulation and air quality regulation (Ansah 2016, 9) as both make for a locally specific and appreciated climate. This was reiterated multiple times in conversations I had with members of local communities.

Cultural Services

Ansah (2016, 9, 10) lists aesthetics, recreation, inspiration for culture and art, spiritual experiences and education as Atewa's cultural services. However, he does not discuss who the beneficiaries for these ES are specifically. Based on

only local community members' interactions with the forest landscape, aesthetics, recreation and education are not recognised benefits for many members of the communities around Atewa. However, these services are benefitting mainly outsiders, both from elsewhere in Ghana and from different countries, who come to Atewa for recreation or research purposes. On the other hand, spiritual experiences are had especially in interactions with water bodies, as mentioned above, for example in using rivers to make wishes and in their conception as deities. Similarly, accessing bushmeat can bring about spiritual experiences, or more specifically, experiences with spirits. In this context, beliefs and knowledge systems should be added to the list of cultural ES. As already discussed under supporting services, the MA (2005, 40) furthermore mentions social relations as a possible cultural ES, and as most fringe communities are agricultural communities, they can be seen as being influenced by the surrounding ecosystem in this way. Additionally, cultural identity is provided by some aspects of the ecosystem, such as hunting for bushmeat and the activity being seen as part of the culture, similarly people may identify as being part of a farming community.

Another important cultural aspect of Atewa's ES is that of cultural heritage, as there is a historical link between the forest and the chief, who is considered the custodian of it (*cf*. Ansah 2016, 8) and the traditional state of Akyem Abuakwa as a whole, as can be seen in it also being called Kwaebibirem.

Two important observations can be made from this discussion of Atewa's Ecosystem Services:

1) The described and observed ES could not easily be ordered into the given categories, especially in the case of those ES that would otherwise fit in the Cultural Services section;

2) Some of the describes ES, like timber and bush meat, unveil problems in the accessibility and scope of their benefits, mainly due to legal limitations.

It is evident that Cultural Services contributing to identity, heritage, knowledge and belief systems are found throughout various ES. In fact, I argue like Schnegg et al. (2014, 2) before, that they are inherently tied to specific

elements of the landscape or interactions between those elements: 'Spiritual and Religious values' can be found in interactions with rivers and animals of the forest, 'Knowledge systems' and 'Inspiration' arise from hunting bushmeat, collecting plants, and from the myths that rivers bring into existence. 'Social relations' specific to farming societies come about through the soil formation and climate regulation provided by Atewa, and 'Cultural heritage values' are found in animals acting as symbols for traditional states and the paramount chief being the custodian of Atewa forest.[10] Furthermore, actions associated with the extraction of different resources like hunting, where the immediate benefit might be economic or subsistence-oriented, may also serve to reinforce cultural values. As Schnegg et al. (2014) state, "such actions serve livelihood needs and simultaneously contribute to the constitution of identity and belonging" (Schnegg, et al. 2014, 2).

Moreover, while the ES model aims to outline "the benefits people obtain" (MA 2005, v), it is rarely discussed how local communities are supposedly benefitting from different ES. It generally seems like the concept of benefits is often used interchangeably with value, and without reflection on how accessible benefits are in practice.

Ansah (2016) takes the Ecosystem Services themselves to be the general categories of habitat (synonymous with supporting), provisioning, regulating and cultural and amenity services. He aims to specify the services by listing local benefits derived from them, such as bushmeat (as a food item) under provisioning services. Bushmeat in this case is seen as a benefit (*cf.* Ansah 2016, 9). However, benefits here are again taken as theoretical givens instead of the result of actual interactions. At the same time, A Rocha Ghana& Forestry Commission (2016), in an attempt to advocate for the transition of Atewa forest into a national park, admitted that "Further investigation into the value that the different category of stakeholders including the fringe communities place on Atewa and the services it provides" (A Rocha Ghana& Forestry Commission 2016) was necessary.

[10] Cultural Services categories taken from MA 2005, 40.

The issue of what is meant by ‘benefits’ became clear to me in one of my first interviews with Davies. After discussing his work as a carpenter, I tried moving the conversation more towards his perception of the forest. I asked if he knew about the concept of Ecosystem Services, knowing that A Rocha had already done some substantial advocacy in the area. He asked if I was telling him that he was receiving

benefits from the forest. Somewhat surprised by the immediate connection he made between ES and the specific word ‘benefits’, I confirmed that ES was in fact about the benefits from the forest. Without any further inquiry from my side he argued the following:

“if you want to benefit you see; like food, wood, everything, animals you like to eat - from there, that’s illegal. Until you go to forestry commission. You get it? So, it’s more benefit there, but you cannot go there to take it like your own”

Clearly there is an issue in how benefits are thought of in ES – as potentialities, not realities - to the point where Davies seemed almost offended by me asking about Atewa’s benefits. Davies too realised that there were potential benefits from the forest, but he clearly highlighted the limitations of accessing them.

Ansah (2016), like other ES assessments, does not tell us if the listed ‘benefits’ are actually locally valued – that is, perceived as real benefits –, in what way they might be valued or for which reasons. In the case of Atewa, accessing timber and bushmeat especially can come at the risk of legal persecution. Many such extractions are done illegally because of economic restraints such as the lack of alternative employment or the costs of acquiring permits. At the same time, ‘illegality’ is sometimes rendered acceptable by socio-cultural and jurisdictional factors, such as insufficient staff to track down on unauthorized hunting, hunting generally being perceived as environmentally unproblematic and socially acceptable or even as culturally important.

Hence, I argue that any locally specific values and actual benefits that Atewa forest might have for fringe communities cannot successfully be understood using the ES model, because it neglects local dynamics that

determine access to and use of any ES theoretically given and does not shine light on how they benefits people in practice.

Looking at landscape relations has given some of these insights, by showing how economic restraints, social norms and jurisdictional forces enable or inhibit how people engage with and benefit from natural landscape elements. But what role does value play in specific interactions and how can it be conceptualised in a way that goes beyond the economic realms of the Ecosystem Services model? To answer this question, we need to revisit anthropological understandings of value and reconsider the relation in which people and environment stand.

8.2. Understanding Atewa's value anthropologically

I have demonstrated that different kinds of relationships play a role in how people living by and with the forest interact with the forest landscape. Rather than looking at what value the forest has as an object to be commodified, I will look at specific interactions with forest elements in the context of landscape relations. I aim to analyse what role value plays in these processes. I will use previously discussed assemblages - as the 'happening' that binds a (human) actor to an object or secondary actor through action - as a starting point for analysis.

My basic assumption, supported by literature previously discussed, is that value is bound to action. Let us start off by looking at one of my earlier assemblages: Mary going to the borehole to fetch water. The action here of course is the act of fetching. But Graeber argues that we should see "society as arising from creative action, but creative action as something that can never be separated from its concrete, material medium" (Graber 2001, 54). Graeber (2001) points out (in line with Marx's argument, that economic and ethical uses of value are inextricably linked (*cf.* Lambek 2013, 142)) that even 'immaterial' actions are always bound to objects. Recognising the importance of 'things' is necessary, because I am examining interactions between people and forest elements. The action of fetching water can only happen in the in the presence

of the borehole, and the freshwater it provides clearly is valuable in itself. But the object 'borehole' is not the initiating source of the action, and thus not my main concern here. Zube (1987) states that needs and personal utility functions are possible factors influencing human response (ibid, 37). Mary of course goes to the borehole every day because she needs water to drink, wash and cook – to satisfy basic desires and needs.

However, in order to do this, Mary first needs to know of the existence of the water source. In this context, it is helpful to remember Ingold's (1992) framing of environment affordances and person effectivities, highlighting both what is there and what one can do. This offers the possibility to incorporate landscape relationships and the opportunities and limitations they impose. In an iterative process, perceptions are informed by actions, which are further informed by landscape relations and values, thus impacting the conceptualisation of environmental affordances. By 'conceptualisation', I mean the categorising e.g. of water as a means to quench thirst. These considerations are relevant, because the action of fetching water itself is also determined (that is, selected within the bounds of certain possibilities and

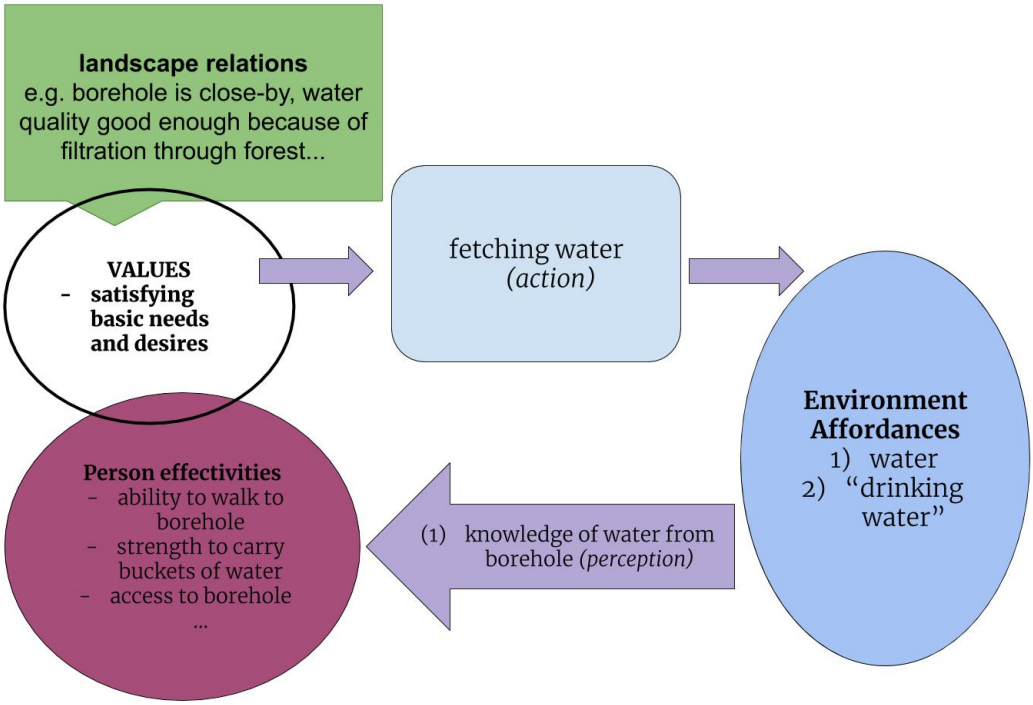

Figure 11: Diagram based on Ingold 1992, 50. Values and landscape relations as factors influencing interaction with water bodies as conceptualized in specific ways.

limitations) by the given landscape relations: The borehole is the nearest possible source of water, the quality of the water is good enough because of the filtration properties of the bordering forest (see Figure 11).

We could equally look at Mary going into the forest to collect firewood; she does this for economic reasons (read: value), but she chooses it as a livelihood option because there are few job opportunities available, because she lives close to the forest, and because the majority of people in the area need firewood for cooking.

Mary's decision to collect firewood is influenced largely by her desire to achieve financial stability. As far as I can assess, the value of financial stability in her case does not collide with other desires, moral understandings or needs. However, many other situations are complicated by the fact that a certain action might fulfil one value, but endanger or weaken another. To illustrate this, let us remember the instance in which Richard, occupationally obliged to arrest or fine illegal chainsaw operators, instead chose to help his uncle out with carrying beams out of the forest.

Lambek (2013, 143) states that where several values are relevant for deciding over a certain act, a balancing of such values becomes necessary. As we have seen before, Richard highly values his job and doing things correctly, because to a degree, he sees himself as an extension of the Forestry Commission. But he also values his relationship with his uncle (I will refer to him as James), to whom he is very close. So, should Richard arrest James or not? From my observations it is evident that Richard carefully considers various factors including landscape relations in making this decision. For instance, the economic situation in the area is tough – when I asked him why he did not arrest James, he acknowledged this by saying "I know that it is hard sometimes". How then does Richard balance his values; doing his job well and being on good terms with his uncle? In the situation I witnessed, Richard had apparently chosen to safeguard his personal relationship. But when I interviewed him, he admitted that he has arrested James in the past.

"I used to arrest him. I can't remember… about 3 days ago or… yes, last Tuesday. I seized over 80 pieces of wood from him. … Do you see? Because I used to… I deal with him accordingly to the law."

Therefore, the act of balancing different, competing values might show in acting upon one value one time, but others the next. This requires wisdom and knowledge of external factors (is someone going to find out if Richard helps out his uncle? Will James react with anger if he does arrest him?). As Lambek (2013) points out; "Achieving the balance is not a matter of simple calculation or preference but entails the exercise of judgement to fit the circumstances, according to cultivated disposition and prior commitments rather than rational choice." (Lambek 2013, 143)

We have established that one can look at objects or at actions (or both) to 'find' value. In the same manner, there is a distinction in how we term such value. Most authors distinguish between two kinds of value. Du Bray et al. (2019), discussing the shortcomings of the ES model, distinguish 'values' as moral understandings, from 'value' - "how much someone is willing to give up to obtain something" (du Bray, et al. 2019, 21). They importantly point out that both actions and objects informed by such moral values are inalienable and cannot or should not easily be separated from their social contexts (ibid). Other authors use different terminologies, such as 'ethical' vs. 'material' (*cf*. Lambek 2013) or 'basic' vs. 'object' value (*cf.* Ramcilovic-Suominen, et al. 2013). The difference between Ramcilovic-Suominen et al. (2013) and du Bray et al. (2019) is that the former's 'object' value, as the name would imply, is assigned only to material objects, whereas the latter point simply to the commensurability of their 'value', which could equally be an action or labour not bound to specific moral contexts.

The act of felling a tree could itself be considered commensurable – trees are felled everywhere and often fulfil the simple purpose of producing income. It hence suggests itself to skip from the act of felling straight to the end-product, timber, when thinking about this opportunity offered by the forest – this is how wood is conceptualised in the ES model. However, let us switch perspective from the previously discussed assemblage to test this assumption. From the

perspective of James, felling trees certainly is a means of producing income. Wood is valued by James for its economic potential as timber. But this material value is clearly not the only factor determining his decision to cut a tree in the forest. He knows that chainsaw operations in the forest, without a permit are illegal. He also knows that his nephew is a forest guard who has the power to arrest him. Maybe James should find employment elsewhere to escape this risk – Richard and James have a very close relationship; it would be in the interest of both to not taint this relationship through legal quandaries. Again, James has to balance any values he holds, like good social relations with his relative, physical safety[11] and financial stability. When I met James in the forest, Richard not only let him pass, but he helped him out with the work. This past experience is likely to influence James' next decision: He prioritised financial stability the last time, but avoiding straining his relationship with his nephew may take priority the next time (see Figure 12).

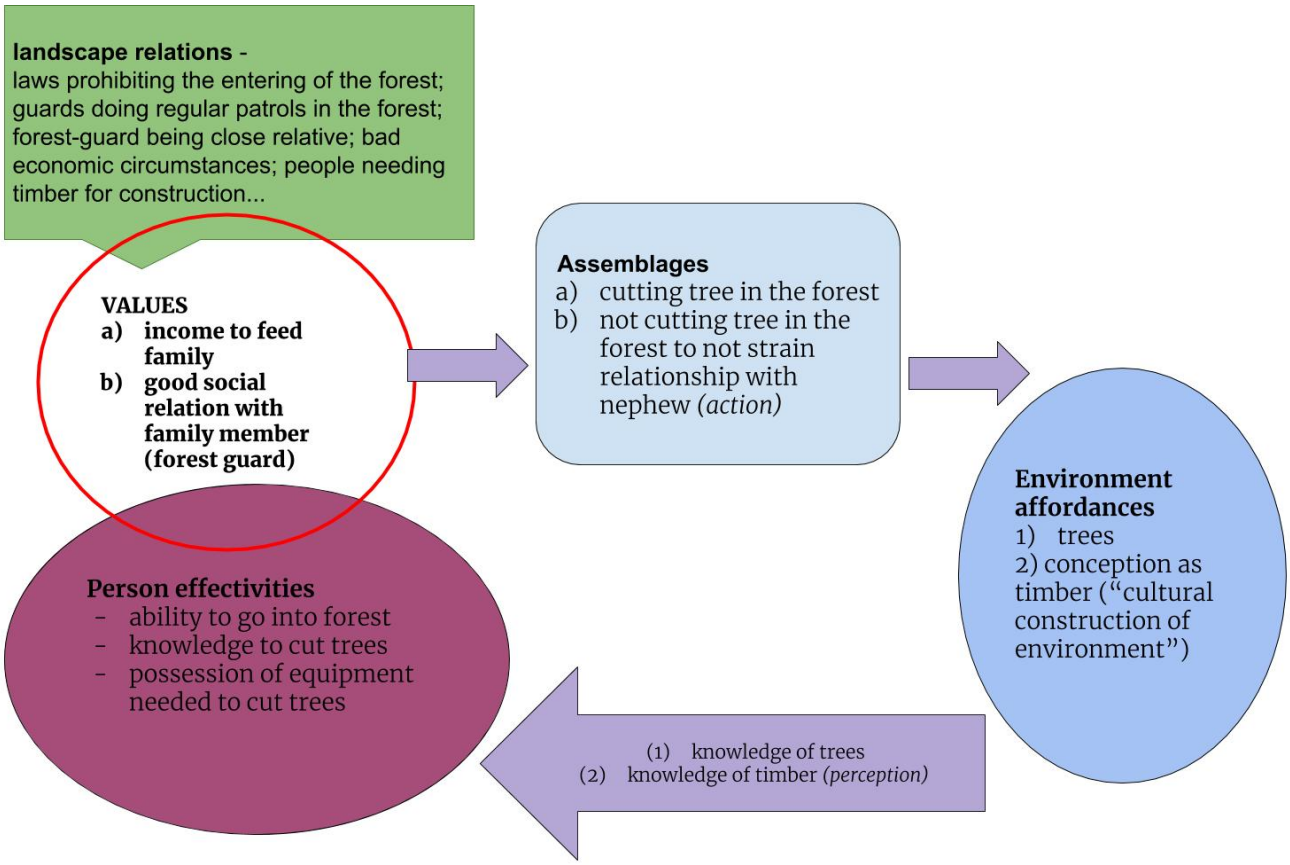

Figure 12:Action as based on a variety of values that require balancing.

[11] Confrontations between forest guards and offenders in the forest reportedly have a potential for physical escalations, including but not limited to the use of pepper spray (according to Richard).

While the object value of timber might be the reason for James to even consider felling a tree, ethical values come into play in each decision about where or when to operate. These values are inextricably tied to the social context and other specific landscape relations like legality, proximity to the forest and the job market.

Let us return to the example of James and cutting down a tree. So far, I have discussed value(s) mainly as a factor influencing actions. But In this example, his labour produces a value of its own. This is the kind of material or object value mentioned previously.

Other forms of actions however might produce other kinds of value(s); Lambek (2013) mentions specifically that acts (as opposed to labour), are "*not* reducible to economics, but to the contrary, constitutive of ethics" (ibid, 145, emphasis in source). To examine this, let us return to the concept of rest-days of rivers and their perception as deities. With the exception of the act in this case being more of a non-act, this example illustrates the (re-)production of ethics described by Lambek. Mining is a major employment sector in the Atewa landscape, helping many people fulfil their economic values. And yet, miners working by the Birim will not go to work on Tuesdays. Working in mining and not mining on Tuesdays, for a miner living in Sagyimase, are shaped by circumstantial factors; there is plenty of work available in mining but little elsewhere, there are a lot of minerals in the ground, there is a river nearby that can be utilised for mining, and there is a general perception of the river as a deity. It is apparent that there is some sort of cultural value linked to the river, in addition to the economic value of mining by the river. This means that again, a balancing act is necessary. It seems that achieving this balance is easier than in the example of Richard and James. The decision not to mine on certain days is likely aided by the fact that economic value can be pursued any other day: the Tuesday-rule prescribes in itself a certain balance. However, the act of abstaining from work on Tuesdays has significant consequences, in that it reinforces the cultural value of deities/ rivers – and vice versa. And because everyone follows this rule, anyone who newly starts mining is made aware of this cultural value and subsequently acts accordingly as well. Cultural value not only influences the behaviour of miners, but it gets reproduced with every act

of abstaining from mining on Tuesdays, as this act reinforces the conceptualisation of the river as deity (see Figure 13).

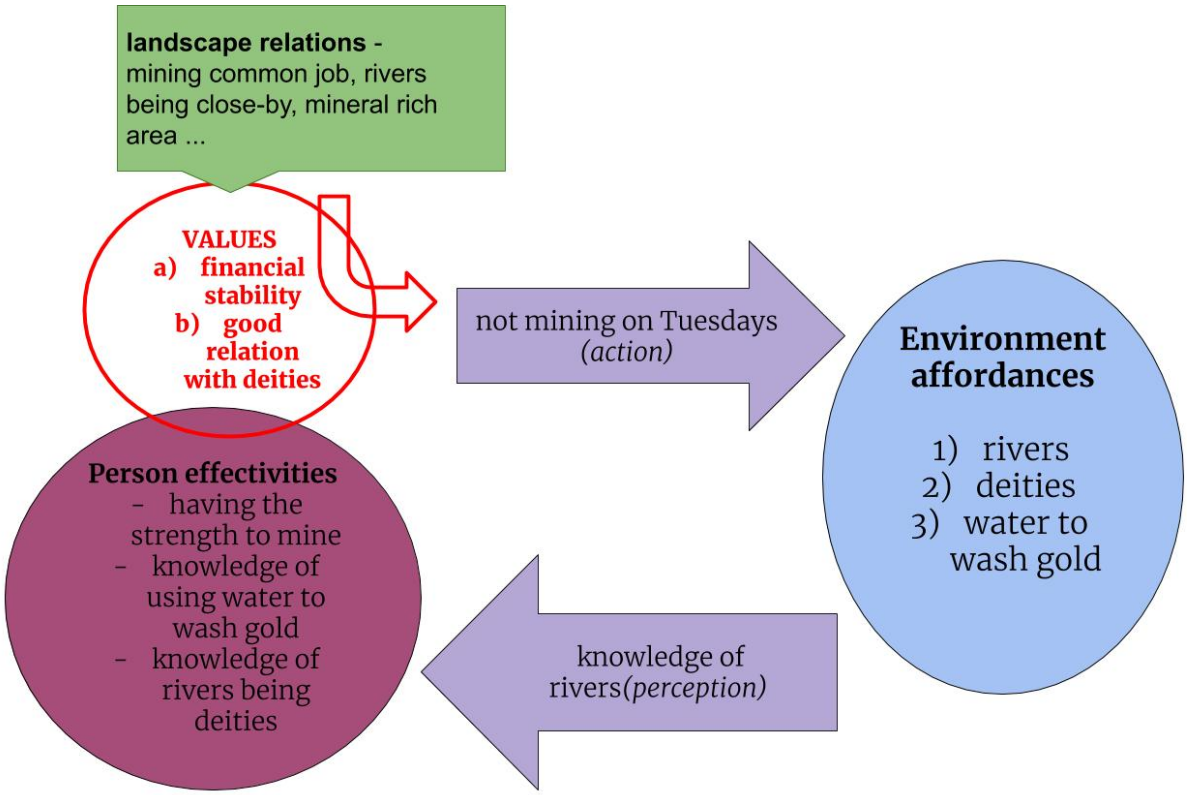

Figure 13: Act leading to the particular perception of rivers as deities, reinforcing the value of good relations with deities.

Summarising this analysis, several observations can be made:

1) There are at least two general types of value; those that are akin to ethics and material values. Most ES represent material value, because they are purposely conceptualised as commensurable. Material value like timber might be the immediate object of people-forest interactions, but the importance of the object, or landscape element, arises only through the values that inform interactions with them. An object's value is prescribed by local landscape relations.

2) When considering what values inform activities, that is, are called upon in decision-making, ethical values affect actions more directly. In addition, these ethical values also get reproduced through acts.

3) Landscape relations enable certain actions and thereby enforce some values over others. Where several ethical values are relevant in an action, a balancing act becomes necessary. In a landscape where stable livelihoods are hard to come by for instance, financial stability might be prioritised over other values, as activities capable of fulfilling livelihood values might be harder to realise. In the Atewa landscape, being a law-obliging citizen might be a less relevant value than supporting one's family if offered the opportunity to, say, participate in chainsaw operations inside the reserve. At the same time, looking at Richard's situation could suggest that once one has a 'stable' job, other values like social relations might become more immediately relevant. This means that values informing actions are made specific and inalienable through landscape relations.

If we compare this understanding of value to that of the Ecosystem Services model, we can understand where some problems might arise. While the model includes objects (e.g. timber), processes and structures (e.g. carbon sequestration or social relations) equally, it objectifies them all in an effort to render them commensurable. As Graber puts it, "the way economists talk about 'goods and services' already involves reducing what are really social relations to objects; an economistic approach to values extends the same process even further, to just about everything." (Graeber 2001, 9)

As is the case especially with 'cultural services', the flaws of the ES model become clear when examining them in the context of actions. The framing in terms of services and benefits suggests that ES represent use-value: these things are offered and are of use to people. Cultural ES, like 'spiritual and religious values' in the case of rivers as deities do not serve to fulfil a specific purpose, but they are the purpose itself – as ethical values that long to be fulfilled. Furthermore, cultural values do not necessarily culminate in products (that fulfil uses), but they constitute relationships – between people and between people and their environment. These cultural values reflect in activities such as hunting, making sacrifices and libations, or even non-acts like avoiding mining on rest-days.

The interactions that I observed in the Atewa landscape are informed by values and landscape relations, however it should be said that additional factors might play into decision-making about such activities. In the case of Mary for example, an adequate balancing of values could not be achieved when she decided to establish a farm in the forest. This is because, while being a law-obliging citizen might have normally been a value to consider, Mary was lacking the knowledge of the illegality of the act. As was also evident in some of the reports from hunters, the same issue might apply in hunting. Decision-making based on values can be complicated through misinformation or lack of knowledge.

As values that determine how we perceive, use and interact with the environment are ultimately shaped by specific landscape relations, looking at commensurable values of a specific ecosystem will never capture motivations for interacting with natural landscape elements. As Graeber states; immaterial value “can exist only within a web of social relations” (Graeber 2001, 9), and social relations are always specific. This is a fact that the MA openly acknowledges: “Ecosystems influence the types of social relations that are established in particular cultures” (MA 2005, 40) – and what are ‘cultures’ if not structures of specific social relations?

9. CONCLUSION

My initial interest in the forest was to understand the kinds of relationships that people living by the forest have with it, and how this can be used to strengthen conservation efforts. In this thesis I was able to gain insights about the relationships between people and forest by examining landscape-specific factors and by investigating local value-creation.

Introducing Mary enabled me to show how she chooses interactions with the Atewa forest in order to fulfil economic and subsistence values. These interactions, following a process of productive bricolage, are chosen on the basis of given limitations and possibilities. Such limitations and possibilities are tied to the characteristics of the Atewa landscape. Thereby, Mary's actions, like farming in the forest, are informed by problems like access to land and issues of illegality, as well as opportunities like proximity to the forest and good agricultural conditions – which in total constitute the specific landscape relationships.

Framing people-forest interactions as assemblages allowed me to show how different actors engage with the same ES. Assemblages, as encounters that shape lifeways and livelihoods, manifest landscape relationships and inform future interactions.

Focussing on bodies of water allowed me to investigate the role of cultural values and beliefs in interactions with the landscape. Additionally examining the practice of hunting, I demonstrated how cultural values are tied up with economic values and work patterns. Traditional beliefs and knowledge systems impact nature perception and thus how citizens of the Atewa landscape interact with it.

I furthermore was able to frame local governance actors – namely the Forestry Commission and A Rocha – as comprised of individuals that are themselves embedded in the Atewa landscape. There is a tendency to think of such institution and organisations as 'super-beings', existing outside of lived realities. Taking them as embodied by individuals however allows us to

understand why policies and laws might be difficult to enforce in any specific local setting: governmental agency- and NGO employees are embedded in this landscape setting, thereby exposed to the same forces acting on those, that their policies wish to control or manage.

Attempting to match up an ES assessment with my observations of perceptions and actions proved difficult. These problems became more evident when juxtaposed to my own attempt to frame interactions with the environment and the value tied to it anthropologically. Two main problems with the ES conceptualisation can be seen from my analysis.

Firstly, issues specifically with the category of cultural services arise because of the objectification that underlies all ES. This is because these 'cultural services' really present relationships, which are embedded in the specific Atewa landscape. This explains why cultural ES are commonly neglected in ES assessments (*cf*. du Bray, et al. 2019, 24), as it is difficult to assign economic value to relationships. This also makes it apparent that 'culture' is not afforded by an ecosystem, but it is created and recreated in the interactions that people have with an ecosystem. For example, 'cultural identity' is not provided by the ecosystem, but it is constitutive of and re-enacted by the action of hunting animals. This of course shows that the value is tied to the ES commonly labelled as 'bushmeat', but the value is not simply given, it is created. In this example, it is also evident how the ES categories are problematic in the sense that they are based on a standardised, western perception of nature. Animals in the Atewa forest can be perceived as bushmeat, but they can equally be perceived as a being with a spirit; this might inform decisions on how the animal is interacted with.

Secondly, the critique that the ES's understanding of value in primarily economic terms is too limited is further supported by my analysis. In the communities I visited around Atewa economic value of course plays an important role in how people interact with the forest and natural landscape elements. However, in terms of what impacts decisions on certain activities, economic value is intertwined with other kinds of value, such as personal relationships, cultural values or physical health; each of these values only

become directly relevant following a balancing act. Furthermore, the economic value of an environmental affordance is not directly given by the object itself, but is constituted by particular landscape relationships and only following the conceptualisation of an affordance as a commodity, such as in trees being perceived as timber or animals as bushmeat.

An ES approach might be helpful for thinking about natural resources on an (inter-) national scale, because it enables policy-makers to view them in their totality, i.e. it can give information about what is there. However, if we want to understand how specific communities, groups, cities etc. actually benefit from the availability of certain ES, then the actions tied to these ES should be taken as a starting point, not the objectified services themselves. Understanding these actions requires an understanding of particular landscape relations, thus revealing problems of access, criminalisation and other consequences of interacting or using certain ES. While the ES categories enable policy-makers to conduct a cost-benefit analysis of resources nationally, the (inter-)actions tied to them reveal the cost-benefit analyses that necessarily take place in every individual interacting with these ES.

In summary, my research has shown that the principle of ‘the whole is greater than the sum of its parts’ holds true for the ES model. The Atewa ecosystem is not valuable merely because of the things or objects that the forest affords, but because of the inalienable relationships that the inhabitants of the Atewa landscape have with these affordances, and because of the way that they interact with the forest to fulfil and reinforce a range of values - themselves interrelated with particular landscape relationships.

9.1. Suggestions for A Rocha

In terms of using ES as forest values to showcase the importance of Atewa forest, I think improvements can be made. The ES model looks at objectified forest affordances, making them comparable on a larger scale. However, this means that ES inherently have limited potential to tap into desires, needs and beliefs of communities in a specific, local setting. Instead of looking at Atewa's value as based on the objects comprising it, it might be more insightful to examine concrete actions in Atewa's landscape and how such actions relate to Atewa's affordances. This could be helpful in conceptualising strategies for community outreach.

Employees of A Rocha have posited that cultural links between ecosystems and those living within them provide a strong conservation argument. Based on my data, I agree that this approach has substantial potential. Cultural values and beliefs in certain instances have the capacity to – and in some cases already do – inform decisions about when, where and how to do certain activities involving environmental affordances. If A Rocha's approach is to be based on the ES model, I suggest examining in what context these ES are or are not interacted with – this has shown to provide valuable insights about existing beliefs related to Atewa forest and conceptions of natural landscape elements. Particularly, this was the case with bodies of water. It would be interesting to further investigate how beliefs tied to water bodies are maintained and circulated. Such insights could provide new points of entry for community-based conservation projects.

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