To care about the environment
Technologies of government in forest conservation - Khasi Hills, India

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Abstract

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Involvement of communities in forest conservation and other forms of environmental governance is proliferating. Reduced emissions from deforestation and degradation (REDD+) is one mechanism, designed to reduce emissions of greenhouse gases by reversing deforestation trends in low-income countries. The benefits of involving communities in conservation projects have been recognized, but one aspect of environmental governance that so far has received less attention is how the interests and attitudes of people towards the environment are altering over time and with new institutional arrangements. Based on interviews and group discussions during fieldwork in the Khasi Hills REDD+ project, Meghalaya, India, profound changes in environmental subjectivities were found among the people in the area. New regulations, changes in the environment, raised awareness, and changed practices have turned forests into an entity seen as important for protection. Using a governmentality framework, the objectives and rationalities of forest protection have been internalized among the population. Further, the material characteristics of nature was found to be an aspect in subject formation. This thesis argues that local attitudes towards conservation correspond to changes beyond governance structures that ought to be taken under consideration for why people come to perceive the environment as they do.

Key words: political ecology, environmental subjectivities, governmentality, forest conservation, community management, REDD+, India.
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Summary

This thesis has as its aim to better understand changes in attitudes, practices and awareness, the “environmental subjectives”, of people, as forests become increasingly important for protection. Based on group discussions and semi-structured interviews from fieldwork in the Khasi Hills REDD+ project area, profound changes were found among the population. Interviews were also made with project staff and community facilitators to get an overview how forest conservation is conducted in the area. Diverse views and experiences were found, which is reflected in the decentralized, community management of forests, organized around traditional indigenous institutions. The collective decision making and identity of these institutions are believed to be a powerful tool of consent. A multitude of answers regarding forest use, regulation and activities were the outcome of the fieldwork. The initial point of entry, to see if a formalization process was unfolding, as a result of REDD+ methodology and objectives, was early discarded. The strong tradition of community forest ownership and management in the area seems to be more or less untouched by the recent conservation project. It appeared like an alien thought that the project would implement its own regulations. Instead REDD+ is working through awareness campaigns to make people more aware of the environmental problems in their surroundings. It was a generally held belief that people in the area have started to think and care more about forests than was previously the case. Inspired by Arun Agrawal's (2005) historical study of changing environmental subjectivites in northen India, forests have emerged as a ”critical domain of thought and action”.

Four main themes were found that can explain these changes: a proliferation of new rules and regulations around forest use, a decline of forests with related increased dryness, an increased awareness of forests as these become seen as important for protection, and changes in and a shift away from perceived environmentally destructive practices. Using a governmentality theoretical framework, these are viewed as a form of “technologies of government”, a set of strategies and rationalities, around which the disciplining of human behavior is internalized into the mindset of people. By adopting a view of nature as partially socially constructed, power is operating in the way forests are talked about and perceived. These are not all conscious strategies towards a goal of set finalities, but also work through the daily lives and actions of the population. Further, the materiality of nature was found to be one aspect of changes in environmental subjectivities, as people were experiencing the effects of deforestation and a dryer climate. To conclude, the aim is not to frame conservation or development projects in particular ways, but to suggest that community attitudes and identities towards the environment should not be taken for granted. In order to understand local responses, successful environmental governance should consider the technologies involved, together with local ecology and resource use.
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Abbreviations

ADC – Autonomous District Council  
ANR – Assisted Natural Regeneration  
CDM – Clean Development Mechanism  
tCO2e – Ton of Carbon Dioxide-equivalent  
NGO – Non-governmental Organization  
NTFP – Non-timber Forest Product  
PES – Payment for Ecosystem Services  
REDD+ – Reduced Emissions from Deforestation and Degradation

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1. Introduction

Climate change poses challenges over and across a variety of different scales. The negative effects of changing weather patterns are believed to be felt hardest in low-income countries, as a result of geography, but also from a lack of financial means. A lag in time and space between the source of emission and their impact makes reduction incentives harder to achieve. Governance to mitigate these effects has to confront the unequal relations between large emitters and local vulnerability, while at the same time address matters of efficiency and cost. Under this conditions, the world's forests are emerging as a domain for increasing climate governance, as their potential as carbon sinks has been further recognized. Forests store huge amounts of carbon globally, and play an integrative part in the planet's carbon cycle. The Intergovernmental Panel on Climate Change (IPCC 2007) estimates that deforestation contributes to 17 % of global anthropogenic emissions of greenhouse gases, even if its share might be falling as other sources of emissions continue to rise.

To curb deforestation has been identified as an highly cost-effective way of reducing greenhouse gas emissions (Stern 2005). At the same time, Larson and Petkova (2011: 88) notes that: "Globally over one billion rural people depend on forests to some extent for their livelihoods, the majority of them extremely poor". Forests are important bearers of economic, as well as cultural values, whose sustainable development is subjected to the larger political economy, e.g. see (Adams 2009). Good forest governance requires reforms across various sectors, as multiple interests and policies interacts. The idea that poor countries, where the majority of deforestation is occurring, could get some benefits for conserving their forests is beginning to take form through the United Nations Framework Convention on Climate Change (UNFCCC). REDD+ (Reduced Emissions from Deforestation and Degradation) is a mechanism designed to link forest- and climate governance in a performance based payment scheme, where developing countries will get financial grants for forest conservation projects, based on their emission reductions from reversing deforestation trends. Part of a larger strategy of carbon offsets, where the idea is that polluters can compensate for their emissions by investing in reductions elsewhere, REDD+ incorporates a view of nature as an entity with separable functions, that is best preserved based on payments for ecosystem services (PES).

This study is set in one such project area in the Khasi Hills, Meghalaya, India. A region with a long history of community forest ownership, where traditional indigenous institutions still govern forest use. The Khasi Hills REDD+ project is managed by local communities through a federation of native states, to restore old growth and degraded forest lands. The intersection, where decentralized institutions are entwined with the objectives and rationalities of a conservation project, is thought to produce some changes in local human-environment relations. Previous research on carbon offset projects have emphasized the importance of project methodology, governance and ideology for understanding their consequences for local populations and the environment, e.g. (Leach and Scoones 2013; Boyd 2009; Bäckstrand and Lövbrand 2006). Development trajectories bring their own sets of visions and governing in the making of new landscapes, but can also redefine how the environment is perceived, an important realization as decentralized governance is becoming more popular in the world of conservation. Coming from this, one aspect of environmental governance that has so far received little attention from scholars is the “[…]alterations of the subjective relationships of people with each other and with the environment as part of changing relationships of power and governance[…]” (Lemos and Agrawal 2006: 304). Following a post-structuralist tradition, this invites us to look at how knowledge is situated and the way power operates to shape human subjects. Previous case study research has shown how people came to internalize conservation friendly attitudes as they were given more control over their natural resources (Agrawal 2005). This thesis sets out to investigate if institutional and environmental changes are also accompanied with changes in attitudes and the perception of self among the population in the
1.1 Research Aim

The aim of this study is to better understand why and how people come to think about and perceive the environment, as it become a target for protection. It is believed that changes in governance brings subsequent changes in attitudes, as the objectives of government are internalized into the people's mindsets, as changing environmental narratives. The first aim of the study is thus to understand how governance works in the Khasi Hills REDD+ project area, which institutions govern forest use and which are the rationalities and strategies they deploy, their "technologies of government". The second part of the aim is to see how people in the area think about forests and forest conservation. Inherent here is to understand how people use forests in their daily lives, which attributes are important and how forests are valued. Thirdly, the aim is to see if environmental subjectivities have been changing in the area, and which factors that can explain such changes. A governmentality perspective is used to think about how power operates through institutions and the actions of people. The following research questions can summarize the study:

- How are forests governed in the Khasi Hills REDD+ project area? Are forests emerging as an important domain for protection, and if so, is it useful to think of this in ways of "technologies of government"?

- What is the perception of forests and do people in the project area agree with the objectives of forest conservation?

- Have environmental subjectivities in the area been under change, if so, which factors have been important for this change?

1.1.1 Scope of the Study

The research for this thesis was carried out during a field study in the Khasi Hills REDD+ project area. Beforehand a literature review was made in the large fields of environmental governance, governmentality and political ecology, as well as a contextual background of forests politics in the state of Meghalaya. The geographical scope of the study is confined to the REDD+ project area as a natural boundary. The fieldwork was based in Mawphlang village, but 11 other villages were visited to conduct group discussions and interviews. Linkages to outside the project area were not part of the study, even if of course external factors are important, e.g. to understand drivers of deforestation. The choice to limit the scope to the project area was done out of practical reasons. A comparative study between villages inside and outside the project area could be done as an alternative approach. Time wise, the study concerns the last one to two decades, and especially the last ten to five years. Over this period, particular changes have taken place, that for the study are deemed as important. To go further back will provide a background, but seems unpractical when interested in subjective alterations. To understand historical processes, literature were reviewed in prior to the field study. As a thematic scope, the REDD+ project was used as a framework to study environmental subjectivities in the area, though it quickly became clear that many other factors have been important for shaping human conduct and attitudes. From starting off by primarily looking at if REDD+ governance had created a process of formalization in human-environment relations, e.g. a need for more stable land tenure, new ways of demarcating and classifying lands,
new values of trees etc., the research shifted more towards the traditional governance structures that were already in place. The thematic scope became to understand how power operates, in a governmentality view, in the creation of environmental subjects. The focus always remained to try to understand how people living in the project area experience and think about forests and their protection.

1.1.2 Thesis Structure

The thesis is structured in eight chapters. After the introduction, the theoretical background will be presented in chapter 2. An overarching perspective of political ecology is used to situate the research within an ontological and epistemological framework found in critical realism. Nature is discussed as an entity that is, in part, socially constructed. In additional, governmentality is introduced as a way of analyzing power, as well as previous writings on governmentality and the environment. In chapter 3, an overview of environmental governance is given to understand how REDD+ and other carbon offset strategies emerged as important mechanisms in climate change mitigation. The role of communities in decentralized governance and changes in conservation policies are also discussed. Chapter 4 introduces the Khasi Hills REDD+ project, the project area, the role of traditional institutions in the area, as well as the contested nature of forests in the state of Meghalaya. The field study is explained in chapter 5, as well as its methodological choices and limits. Chapter 6 forms the empirical part of the thesis, where the results of the field study is presented in four main themes. These findings are discussed more in detail and in relation to the theoretical framework in chapter 7, where the research aims are related to the empirical material. Finally, chapter 8 concludes the thesis and its suggested findings for future researchers and project designers.
2. Theoretical Framework

This chapter presents and discusses the theoretical framework used in the thesis. The role of theory is discussed in its relation to the empirical material gathered during field research. Theory here is a tool, from which empirical data can be looked at and interpreted from a theoretical position. Such a position draws from previous studies and strains of thought from relevant academic literature. The literature used often share a common concern over society and nature, labeled political ecology, which together with the Foucauldian concept of governmentality, form the theoretical base. Together they provide an alternative explanation to matters of subject formation, environmental narratives and the materiality of nature, in the “struggles” over the environment, in which this study takes its place. The term critical realism is used to approach the issue of a contested natural- and social world.

2.1 Theoretical Overview

A short introduction to the theoretical perspectives is given here. As shall be seen, the unity of these perspectives comes more from a way of writing and an interest in telling a specific story, than from a unified body of theory. Common is an emphasis on environmental change and conditions that takes seriously alternative explanations and the language, discourse, and power relations of such.

Political ecology has been described as a research endeavor that “combines the concerns of ecology and a broadly defined political economy” (Blaikie and Brookfield 1987: 17). It draws from a large number of research fields and practices, united by a certain type of texts and and community of practice (Robbins 2012). The themes covered in a political ecology research are often concerned with the environment and society in a dialectic fashion, studying political-economic systems as well as ecological processes. This makes for an appealing brand to approach forest conservation, land degradation and resource management, among other things. Political ecology allows us to engage in both the social- and the natural world, even if it has been criticized for downplaying local empiric ecology, in favor of a priori importance of larger political and economic systems (Vayda and Walters 1999). The strength for this study in using a political ecology theme of writing is to capture a broad range of spectrum around forests and their meanings. It opens up to a view of nature as an important actor in itself, together with the type of narratives that surrounds it. A type of post-structuralist inspired political ecology, that “highlights the interwoven character of the discursive, material, social, and cultural dimensions of the human-environment relation” (Escobar 1999: 2), is used, e.g. see Peet and Watts (1996); Forsyth (2003).

A second theoretical perspective comes from the area of subject formation and techniques of governing, most associated with Michel Foucault (1991). For Foucault the works of government, as "the right disposition of things" (1991: 92), goes well beyond simply exercising power to tell people what to do. In a much deeper sense, it seeks the proper way of disposing the individual in relations to all other things, in which “...increasingly vast domains of daily life are appropriated, processed, and transformed by expert knowledge and the administrative apparatuses of the state. ” (Escobar 1999: 6). This way of viewing government, as the “conduct of conduct”, the effort to shape, guide, or affect the conduct of some agents (Agrawal 2005: 269), Foucault called governmentality. It entails the rationalities and strategies of the modern states and its various institutions that works through the individual citizen. A governmentality perspective looks at how the ideas, goals and norms of an actor, e.g. a forest conservation project, are internalized in the subjects it seeks to transform. Through which strategies does power operate and what are the knowledges attached to
its exercise? These are questions of governmentality, a view of power that lets us ask how subjects are formed, instead of viewing power as a coercive top-down approach. For Foucault it was clear that power operates in a large web throughout society as a whole in the way of discourse. Power is exercised by everyone, all the time. The goal of government is the pursuit of a multitude of finalities, the disciplining of the individual and the aggregate effect of population (Foucault 1991). Even if governmentality has been mostly used in the context of the modern, western, nation-state, its scope has been broadened to the domain of the environment and non-western settings as well, see Agrawal (2005); Agrawal and Debord (2001); Bose et al. (2011), and to the scene of global climate change mitigation, Bäckstrand and Lövbrand (2006). For this thesis, a governmentality perspective is used as a lens to subject formation in relation to forest management and environmental change.

2.2 Use of Theory

The main components of the arguments presented within this study are made up of: (a) empirical observations; (b) a theoretical assumption; and (c) a merging of the two into a theory driven discussion. A link between the empirical material and the use of theory becomes necessary for theory to enrich our conclusions.

Theory can be seen as a framework, through which the world is interpreted and explained. In this way, its a form of “making sense” of what we see around us, to categorize the multitude of relations we are interested in as researchers. Theory makes for a simplification of the world in which plausible inter-linkages and modes of explanation are sought out. Such simplification, however, can give a deeper understanding of what we as researchers encounter by building on the accumulative work already carried out before us. Theory becomes the universal language in which to interpret our findings. The word “interpret” is used to emphasize the subjective role of the researcher as well as the role of theory in relation to the empirical material. First, theory does not take away any of our own biases from the research, but rather adds another layer of subjectivity. The choice of theory, in itself, becomes important for what we see and takes interest in. This study has chosen a set of theory drawn on political ecology and post-structuralist ideas of subject formation. Another theoretical framework would by itself come up with other explanations and relations. Theory makes up the empirical material, even if the material world remains the same. Secondly, theory can be used in different ways depending on the interest of the study. A study could be theory-driven, i.e. organized around testing the validity or the generalization of a theory, or as in this case, case-study specific, i.e. interested in the specifics that makes up a certain case, in which theory is used in a “consumable fashion”, Esaiasson et al. (2012). The use of theory for the thesis is to apply theory onto the empirical material in order to place it within a previous research context. Focus lies on the specific relations of the case study, not on putting a chosen theory to the test. The discussed material can thus be seen as a selection of empirical data interpreted through chosen theoretical lenses. Other theoretical lenses would out of necessity generate other types of questions and answers. Acknowledging that our choice of theory is critical for the result is not a retreat from empirical driven research. Rather it follows an larger debate over the ontological and epistemological nature of science and what constitutes “good research”. It invites us to reflect upon the role of both our knowledge of the world and the natural reality we are interested in. The natural conditions turned out to be an important factor in the field research, something that requires a further inquiry into the philosophical debate over the environment.
2.3 Critical Realism

The representations of nature is a key theme within the thesis and many other political ecology works, e.g. Escobar (1999); Forsyth (2003). The core question remains to what degree nature can be studied as a real entity, or only as a social construct. Between a fully positivist, realistic, approach and a hard-constructionist one, a philosophical embrace of the environment as having an ontological base, but one that is always socially mediated in our understanding, represents a “natural turn” in the social sciences, known as critical realism (Zimmerer and Bassett 2003: 3). Critical realism states that nature exists as a reality, independent of our knowledge, and thus can be studied, but that our scientific descriptions will always be situated representations of such reality. This way, critical realism provides a “third way” between full realism and relativism (Neumann 2005: 50). For a political ecology study of forest management, it contains some interesting leads. First, it allows for a serious integration of the materiality of nature as a political object in itself. As will be seen, the material reality, in this case trees, interfere with the social world. With risk of stating the obvious, trees matter in forest conservation and the way people come to think of their environment.

Land degradation, a phenomena of relevance for the study, may serve to illustrate how a critical realism perspective can be used. Land degradation corresponds to some natural change, like the loss of top soil or deforestation. But land degradation is also a social problem, a loss of capability to satisfy the demands made upon the land for human purposes (Blaikie and Brookfield 1987: 12). To study land degradation is also to study the depending social variables. Furthermore, land degradation might mean different things to different people and its causes can be perceived very differently. A critical realism explanation would try to understand the biophysically grounded explanations of environmental change, together with science's political and social framing. Forsyth (2003), influenced by post-structuralist thinking, calls this a “critical political ecology”. The role of the researcher is not to try to move out of such frames, but to be aware of their existence What types of view of nature are we portraying with our research? If there are forest degradation, we might ask: degradation for whom? A critical perspective of the environmental narratives we encounter, challenge “environmental orthodoxies” (Forsyth 2003), and looks how one truth about the environment became dominant over others and what the consequences are. This is the second lead of a critical realism-guided research. Could a claim or concept that we think of as natural in fact be socially constructed? To answer this, Robbins et al. (2010: 120) propose to ask at least one of these four questions:

1. Is this claim or concept natural, inevitable, timeless and universal?;
2. If not, at what point was it invented? Under what conditions?;
3. What are the social, political, or environment effects of believing that this claim or concept is true, natural or inevitable?;
4. Would we be better off doing away with the concept altogether, or rethinking it in a fundamental way?

Applying these questions to a phenomenon like land degradation is a step towards a political ecology with a critical realism approach over the “question of nature”.

2.4 Nature in Political Ecology

Escobar (1999) refers to political ecology as the latest investigation to ”the question of nature”, that is nature's ontological and epistemological meaning. In fact, much political ecology themes concern the social constructiveness of nature, e.g. see Robbins (2012); Neumann (2005). Forests and the
politics of forests conservation are no exceptions. Forests are “complex and contested spaces” (Adams 2009: 248), understood differently by different actors. For conservation strategies this remain a key obstacle to socially just and inclusive programs. Conservation schemes often do not correspond with the social- and ecological complexities on the ground (Lele et al. 2010). In a market type of conservation, organized around payments for the preservation of deemed important ecological functions, such complexities are actively reduced to harmonize for (global) standards of environmental protection. There is a need to look into the theoretical framework of how nature is being constructed.

The complete integration of nature as a commodity into production have led way to ways of thinking over how nature is shaped by human labor, and also humans themselves through this encounter. Smith's (1990, cited in Robertson 2012: 388) concept of “second nature”, responds to a profound change in our conditions of life, compared to earlier type of industrial production. Second nature, in relation to “first nature”, as the biophysical world unaltered by humans:

“[...]is more than just the industrial rationalization of ecosystems. It is the creation of a set of general abstractions adequate to allow nature to circulate – not just as commodified bits of material, but as financial and service commodities.”.

It is the production of nature on a global scale, in constant new forms, that leads to a near total disappearance of what is here called first nature. Escobar (1999) discuss, not just two forms of nature, but hybrid, “nature regimes”. Ecosystems represents much different realities depending on their position within production, but is interlinked in a process of greater global integration. If a local environment represents a variety of different meanings according to its position in production, it appeals us to ask how these meanings are made up and are open to change. A forest is likely to have different values for local users and a conservation NGO. How does new types of nature replace old ones? To answer such question we are helped to embrace a perspective of social constructiveness

To say that nature is socially constructed is to say that natural objects, ideas or process are, at bottom, an expression of human imagination (Robbins 2012: 123). It require us to look at at the historical, political and linguistic forces that make us perceive the world as we do. Degradation of forests gets a new meaning if we think of degradation as the normative ideas held by some actors and the resources mobilized to “naturalize” social phenomenon. Political ecologists often turn to local narratives and knowledge in attempts to counterweight dominant environmental orthodoxies. However, this is by no mean unproblematic or a way around the social constructiveness of things. In this field research, local inhabitants interviewed often shared, with project-conservation staff, the same type of views of forests degradation and their causes. To say that our relation with the environment is a factor of social construction is not to say that all dominant, or expert narratives of environmental condition and change are wrong. Such a position will ultimately lead to absolute relativism. Rather we should ask ourselves what underlying normative assumptions that form our understanding of the environment. If forests are degrading, it implicitly assumes that there is a non-degraded state as well. Categories and taxonomies are representations around which our world view is formed, and all representations depend and are a result of the politics involved in selecting and highlighting specific attributes of an entity (Agrawal 2005: 34). Robbins suggests that a dialectical understanding of human-environment relations, one where nature is constantly being co-produced with humans influences, allows us to move away from a traditional view of land degradation as human caused destruction from an a priori state; “In this view, the landscape is produced from the very ideas through which it is apprehended, even while those ideas are rooted in the material activities and changes in the landscape.” (Robbins 2012: 141). To say that nature is being co-produced is to acknowledge a process of re-making, stemed from human expectations and environmental change. For this study, the relevance of talking about a co-production of nature is to
complicate the view that there is a baseline of nature that we can somehow return to.

Representations of nature take many forms, often involving some expert knowledge, from local decision making to global institutions. A useful way of understanding the construction of policy choices that make up these institutions is to unravel the global scientific and political narratives surrounding them (Boyd 2009). The logics of market solutions are inherent within the policies of “flexible mechanisms” in climate change mitigation (Corson et al. 2013; Bäckstrand and Lövbrand 2006). The idea that ecological functions can be reduced to measurable units has become dominant in the prevailing market economy as “ecosystem services” (Dempsey and Robertson 2012). The rise of ecosystem services indicates a transformation, found within the concept of second nature. Corson et al. (2013: 4) notes that the incorporation of “[...]market logics into environment and conservation policy over the past two decades has led to a reconceptualization of “nature” as an entity that can pay for its own reproduction”. As service commodities, the environment achieves a new legibility in the minds of environmental regulators, market designers, development planners etc. (Robertson 2012: 387). Many authors have highlighted the role of scientific methods and knowledge in carbon sequestration projects, e.g. Boyd (2009); Osborne (2013); Leach and Scoones (2013). The crucial point made is the way nature is re-imagined as a collection of properties important for a particular project. In carbon offsets the important property is of course sequestration of carbon in the biomass. How and from where the carbon mitigation takes places becomes irrelevant, even more, it is a requirement for exchangeable, standardized carbon credits. The act of separating a specific thing or entity from its supporting context, Castree (2003) calls individuation. To gain value for an offset project, i.e. to be made into a commodity, carbon has to be individuated and made abstract from its supporting ecosystem. Altogether Castree identifies six aspects in the commodification of nature: privatization, alienability, individuation, abstraction, valuation and displacement. All of these aspects might not be present in every occasion, but it gives us a lens though which to view a commodification process. In a more simplified manner “The commodification of nature requires the reduction of complex ecological processes to sets of easily recognizable—i.e. “legible”—traits.” (Osborne 2013: 123). Commodification is one way to co-produce nature, and brings with it its own set of ideas and logics.

Several political ecology studies focus on the mismatch between local knowledge and practices, and those of outside authorities, researchers, experts etc. Even seemingly unpolitical environmental knowledge can be ripe with potential conflict and misinterpretation². Understanding local perspectives should be a priority, not just for political ecologists, but for project planners as well. Boyd (2009) notes that without understanding community perception of external groups, forest management is likely to fail. Cultural differences might correspond in unexpected ways with conservation. Local property systems are often complex, including land tenure, which have proven problematic for many carbon sequestration projects in Africa (Unruh 2008). All this invites us to ask what happens with local perceptions when faced with changes in management systems. What type of nature will be imagined? Again, and it is an important point to make, the argument pursued here is not to frame project designers or external experts as being inaccurate or indifferent to local conditions. Rather, it is a way to try to probe deeper into the discursive element of all type of claims over the environment. Forest conservation might produce not only a certain form of nature, but also a certain form of people. Governmentality provides us with a theoretical understanding to approach the question of subject formation in environmental governance.

²In his study of forest change in Rajasthan, India, Robbins (2003) found competing views of forest cover between local inhabitants and forest officials. The use of satellite imagery was not an objective tool to determine the real forest cover in the area, but uncovered competing views of categories of land found in the various interests between different actors. The technology itself became a tool of agency from which the landscape could be interpreted.
2.5 Governmentality and the Environment

In his book *Environmentality*, Agrawal (2005), writes a historical narrative of forest management in Kumaon, northern India. In the beginning of the 20th century, villagers protested fiercely against British colonial regulations to delimit forest use, setting hundreds of forest fires. Up to this point of time, colonial rule over the community forests were tightening, from an expansion of scientific forest management in the 1800s, to the appropriation of more land by the state forest department. New regulations made illegal a range of customary uses of forests. The situation was getting out of hand for state officials, who recommended a more decentralized form of government to repeal the unrest. Regulatory power were handed over to community forest councils and the number of rule violations subsequently dropped. During his field research in the late 1980s, a profound change had taken place towards a conservation friendly attitude among many of the villagers, who were now protecting their forests. In the words of Agrawal they had become environmental subjects, “*those for whom the environment constitutes a critical domain of thought and action*” (Ibid.: 16). He traces this emergence of new environmental identities through changes in state-locality relations, the creation of self-regulatory communities and the making of environmental subjects, as a set of “technologies of government”. Applying Foucault's concept of governmentality to the environment, “environmentality”:

“[...]refers to the knowledges, politics, institutions, and subjectivities that come be linked together with the emergence of the environment as a domain that require regulation and protection.” (Agrawal 2005: 226), and as the:

“[...]simultaneous redefinition of the environment and the subject as such redefinition is accomplished through the means of political economy” (Ibid.: 23-24).

As such, environmentality marriage exceptionally well with a political ecology approach in the study of human-environment relations and subjectivity.

Governmentality is the association of the rationalities of the state, the technologies of power and the processes of subjectification, understood in the broad sense of governing human behavior (Bose et al. 2011: 665). If Foucault noted that government is the right disposition of things towards a set of finalities, a study of governmentality would try to identify which rationalities and strategies that are deployed to achieve these finalities, as “the art of governing”. Researchers need to pay close attention, first to how objects of government are defined and how problems are framed, “rationalities”, and second, how they are governed through “technologies” (Dean 1999, cited in Lovell and MacKenzie 2012: 112-113). The individual is in the center of this attention. It is individual behavior that need to be disciplined, the everyday life which in mass makes up the whole population. Foucault (1991: 102) notes:

"discipline was never more important or more valorized than at the moment when it became important to manage a population; the managing of a population not only concerns the collective mass of phenomena, the level of its aggregate effects, it also implies the management of population in its depths and its details”.

To manage in depths and details is exactly what it means to appropriate the realm of individual behavior. For government to work effectively, the individual must come to agree and identify with its goals, and there is no more effective type of governance than the self-governing individual. Governmentality is thus the study of how the rationalities of government are internalized in the individual as a form of self-discipline. In Kumaon, villagers came to internalize the objectives of the forest department only after they were given more control over their environment. Village communities started to manage their forests in a more precise and regulatory manner than state officials could ever do.
As exclusionary, state-centric models are receding and giving way for a rhetoric of community participation, right based approaches and market solutions in environmental governance, there is a growing interest in political ecology in the way environmental management and governance become normalized within communities and individuals (Robbins 2012: 75). In Agrawal’s study the locality became governmentalized as new institutional arrangements were made that allowed villagers to control themselves. It is in the normalization of things, in the daily actions and work of people that a governmentality study is to be localized. In this view, action precedes identity in the making of subjects. Agrawal (2005: 166) notes that people often first come to act in response to what they see as their short-term interest and only later develop beliefs to defend their actions. Or put in another way; “people's beliefs and attitudes do not lead to new environmental actions, behaviors, or rule systems; instead, new environmental actions, behaviors, or rule systems lead to a new kind of people.” (Robbins 2012: 216). The consequences of this reasoning are great if we are interested in subject formation. Our focus should not be on the arguments people use to justify their beliefs, but on the actions and rule systems that normalize the beliefs held. We need to pay attention to the practices that people make a living from, the type of regulations that exists and the way the environment is managed, as well as the language, symbols and knowledge that constitute the dominating narratives over environmental change and condition. Additionally, something that has proven important for this study, we also need to take seriously the materiality of nature, how the material characteristics of natural objects and environmental change are important for people's attitudes towards the environment.

Governmentality has mostly been associated with the rise of liberal forms of government, in the way responsibilities are handed over from government to the individual. It is in the individual that the site of politics takes place in liberal government in the achievement of a set of finalities. The most celebrated of finalities is the one of rationality. The rational acting individual is the goal of government. Climate change policy and action is one area where a governmentality perspective has been used by scholars to investigate the creation of subject positions (Dowling 2010). Bäckstrand and Lövbrand (2006: 54) calls tree planting projects, as a climate change mitigation strategy, a form of “green governmentality”, a notion of stewardship of nature and an all-encompassing management of its resources. A governmentality perspective on climate change include both the logics and expert knowledges that make up climate change policies and the type of interventions deployed by governments and/or other actors to manage the lives of its constituents. A carbon offset is a construction that require the individual to be a responsible, carbon-calculating citizen. However, the idea of the responsible citizen is inevitably unstable, as people challenge such constructions in sometimes unforeseen ways (Dowling 2010: 492). As Agrawal shows in his study of environmentality, many forces shape people's relation with the environment, among the most critical are institutional changes and the related environmental scarcities they force people to confront (2005: 98). The emergence of forest councils in Kumaon and the variable participation in these effected how environmental subjects came into being.

Consumer behavior is one side of the new green governmentality in climate change. But, of interest here is those who are on the receiving end of carbon offsets and development projects. Some authors have portrayed this as a clash between local perceptions over the way trees are viewed, used and managed, and what they see as global blueprint solutions to climate change, driven by actors who subscribe to a certain pragmatic, managerial, scientific and political discourse:

“human responses to global environmental change have been driven on the one hand by underlying discourses of environmental management, control and of economic integration, and, on the other hand, by resistance to globalization and new perspectives on vulnerability and resilience” (Adger et al. 2005, cited in Boyd 2009: 2391).
Such a position accounts for the, almost hegemonic, influence of global environmental narratives, their supporting institutions and their alleged unequal effects on local populations, a common theme within political ecology studies. But more troublesome, it seems to assume actors with a set of given interests and identities. Here, the local is seen as a place of resistance to oppressive economic and political structures. Indigenous knowledge and practices are in contrast to scientific and expert interventions. The global, represented by transnational corporations and political institutions, is the scene of environmental decision making that trickle down through governance systems. Scale is important as diverse ecological processes interact with social processes differently on multiple scales, something that require us to take in account environmental variability and spatial variations. Blaikie and Brookfield (1987) emphasize a chain of explanation-model of how multi scale political economic processes affect local resource use. But instead of conceptualizing scale hierarchical “as a series of pregiven sociospatial containers”, e.g. local versus global, Zimmerer and Bassett (2003: 3) suggest viewing scale as socially and environmentally produced. The local is not one pregiven scale with uniform interests, spatial variations can produce significant differences in interests also within communities. Following this way of thinking, Agrawal (2005: 211) criticizes political ecology writings for not addressing the question of subject formation carefully. The subject seems to be already present beforehand. Environmentality offers a perspective to how subjectivities can change over time with the emergence of the environment as a critical domain for action.

In her book on development work and governmentality in Indonesia (Murray Li 2007) focus on development workers and their “will to improve” the landscapes and lives of the local population. Probing the ideas and values behind development, she turns the view from those who are subjects to development programs to the rationalities and professionals in the development business. Underlying the logics of development is that there is something in need to be improved and that the improvement can best be archived with the expertise of development professionals. Following Foucault, development is to pursue a set of finalities in the caring for a population, which in turn require the framing of problems as a set of solvable solutions. In translating the will to improve into development programs, Murray Li identifies two key practices: problematization and rending technical. She writes:

"A central feature of programming is the requirement to frame problems in terms amenable to technical solutions. Programmers must screen out refractory processes to circumscribe an area of intervention in which calculations can be applied. They address some problems, and necessarily not others” (Ibid.: 2).

To rend things technical, amenable to calculations and technical solutions is vital to development practices of governmentality. Technical solutions assure the need of expert knowledge offered in development programs, it is a way of framing questions as non-political3. What Murray Li tells us is to look closely both at how questions are problematized (rationalities) and how they are governed (technologies). The methodological choices of a program, its calculations, measurements, taxonomies etc. are technologies of rending technical. In forest carbon projects, certain type of forest landscapes are emerging with new protocols focused on counting and accounting for carbon as a commodity, Leach and Scoones (2013: 958). Importantly, a chosen path of development exclude other possible futures. When landscapes are formed, alternative trajectories become harder to imagine.

3 Here Murray Li draws on James Ferguson and his work on development in Lesotho as an "anti-politics machine".
3. Communities, Governance and Forests

The role of communities in managing local resource use have been increasingly highlighted in environmental governance policies. As the study focus on the effects of regulations and various technologies of government on the way people come to perceive forests, a section on forest governance and community management is presented here. Environmental decision making is today highly coupled together across multiple scales of issues and actors (Andonova and Mitchell 2010). A realization that environmental problems can not be effectively solved in isolation of other policy areas requires a broad government undertaking. The rise of truly global environmental problems, most notable ecosystem degradation and climate change, undermine the possibilities of even the most powerful states to act alone. New actors, such as NGOs, corporations, local communities and research groups, are influencing and creating new modes of government. In sum, governance refers to a:

“forms of steering that are less hierarchical than traditional governmental policy-making [...] rather de-centralized, open to self-organization, and inclusive of non-state actors that range from industry and non-governmental organizations to scientists, indigenous communities, city governments and international organizations” (Biermann et al. 2009, cited in Corbera and Schroeder 2011: 91).

REDD+ constitutes one form of governance that brings together a variety of actors with concerns over regulation effectiveness and forests as a global good. It corresponds to much of the changes that have taken place within environmental governance and the turn towards market solutions. As REDD+ is possible to become an integral part of climate change mitigation architecture, researchers are beginning to look into its governance structures and its relation to other forms of government, e.g. Larson and Petkova (2011); Corbera and Schroeder (2011).

3.1 Environmental Governance

Environmental governance is a “[...] set or regulatory processes, mechanisms, and organizations through which political actors influence actions and outcomes” (Lemos and Agrawal 2006: 298), aiming at changes in environment-related incentives, knowledge, institutions, decision making, and behaviors. The changes that occurred within global environmental governance has brought with it a greater multiplicity of issues and actors across more scales. The rescaling of politics described here answer to a growth in magnitude and complexity of environmental problems in the world (Andonova and Mitchell 2010). Environmental problems are today increasingly coupled together in a way that the actions of people in one place are linked with the threats and opportunities faced by people in distant places. Climate change is an example of this, where emission of greenhouse gases, the most important being carbon dioxide (CO2), have historically taken place dominantly in high-income countries, but where the effects are believed to be most severely felt in low-income countries, and by people with the least capabilities to adequately respond. Such problems severely challenge the feasibility of scales in which we often think of government as national, sub-national, international etc. An effective response necessarily require solutions across traditional government scales. A rescaling of environmental politics, both horizontally, “increasing linkages between actors and environmental issues that cross traditional boundaries between jurisdictions, institutions, sectors, and actor groups” and vertically, “shifting or linking of political action across geographical space and/or jurisdictions from the local to the global level” characterize the changes in environmental governance (Andonova and Mitchell 2010: 257).

An increasing importance of cross-scale governance, including market instruments and individual
initiatives, within the world of environmental governance represents an emergence of alternative institutional arrangements, or “hybrid governance” (Lemos and Agrawal 2006). The merging of different actors in new forms of governance blurs the roles and responsibilities traditionally held, e.g. by the state in environmental protection. Such change is best understood within the existing relationships among market, state and civil society actors. A notable trend is the withdrawal of the state as the sole provider of public goods due to greater fiscal restrains. Public-private partnerships, community-state co-management schemes, and market-community solutions are becoming more common in its wake.

3.2 Communities in Environmental Governance

The multiplicity of actors that demand their voice to be heard within decision making regarding the environment challenge the role of the state. Some new actors complement state government in partnerships, expertise, credibility etc. Other set up their own governance structures that completely bypass the state. Individual and market incentives can be examples of this, nevertheless the state is often needed as a guarantee and facilitator for legitimate environmental governance. The flexible market mechanisms within the climate change mitigation framework is an example of this, where private actors can play a vital role as implementors or as brokers, but which ultimately rests on state support. Uncooperative state interests have perhaps been the biggest obstacle to successful community based approaches within nature conservation (Lele et al. 2010; Kashwan 2013).

Economic forces that challenge the capacities of the state and a shift towards more democratic political systems throughout much of the developing world have facilitated a move towards higher levels of participation and greater involvement of citizens in processes of governance (Lemos and Agrawal 2006: 302-303). Since the mid-1980s, decentralization of authority to govern renewable resources have been increasing. Political ecology and common property research, emphasizing the capacity of communities to manage natural resources, have provided the intellectual grounds for a shift toward co-management, community-based natural resource management, and environmental policy decentralization4 (Ibid.: 303). Justifications for decentralization of environmental governance include: a greater efficiency from competition among sub-national units; higher participation and accountability by bringing the decision making closer to those affected by governance; and the ability to take advantage of more precise time- and place-specific knowledge (Ibid.). The alterations in subjectivities among people and the environment from changes in governance is another, yet understudied aspect of the decentralization processes (Agrawal 2005).

Communities have thus been brought into the light of environmental governance and are allowed more decision making over their own natural resources and livelihoods. A shift has taken place in the view of communities and indigenous populations in resource management, from one of ignorance to one of stewardship. In conservation policies participatory, or community oriented conservation, and more lately, payment-based schemes, are replacing exclusionary strategies, however with mixed success in reality (Lele et al. 2010). The addition of communities to environmental governance is seen to help solve complex environmental problems and allow for a more equitable allocation of benefits from environmental assets (Lemos and Agrawal 2006: 311). Indigenous knowledge, and the idea of communities is vital for this process, willing cooperation is another. Representations of indigenous knowledge focus on detailed knowledge of local

4 Elinor Ostrom's Governing the Commons: The Evolution of Institutions for Collective Action from 1990 remains the core text within studies of common property. Ostrom highlights the importance of institutions in sustainable managing common property resources. Challenging the view that privatization or nationalization of natural resources are the only way away from over use, Ostrom shows that communities can effectively govern their own resources under the right conditions.
environmental conditions, as a basis for development from below (Neumann 2005: 86-92). Here indigenous knowledge is seen in contrast to western, scientific generalizations about the environment. What is missing in this argument is the social and economic forces that operate at a distance that often determine local development. Communities are not monolithic entities, but can be full of internal differences in the distribution of power, knowledge and interests. Indigenous knowledge may serve as an imagery communities deploy to defend customary rights in their negotiations with the state or other agents over livelihoods and control over land and resources (Neumann 2005: 88-89). Similarly, communities can respond to dominating discourses around conservation and authenticity to attract funds and support that favor some groups and practices over others (Sundberg 2003). There is no contradiction between indigenous knowledge and modernity, rather communities can seek to acquire modern technology as a way of cultural survival. A further interest takes us to look at how decentralized decision making and conservation projects forge consent and how community identity and indigenous knowledge are produced.

3.3 Forests and Conservation

The Food and Agriculture Organization of the United Nations concludes that net deforestation at the global level occurred at the rate of 0.14 percent per year between 2005 and 2010 (FAO 2012: 16), however a slowdown compared to deforestation rates in the 1990s. In India forest cover is rather increasing, largely because of afforestation and reforestation and the expansion of tree planting on farms (Ibid.:13). Forest conservation is an important policy area, not just for biodiversity preservation, but from an increased realization of the role of forests in the world's carbon balance. Attempts to bring forest conservation into climate change politics is well underway, as afforestation and reforestation projects under the Kyoto Protocol's Clean Development Mechanism (CDM), and REDD+ schemes show. Forest conservation policies is thus becoming coupled with other forms of environmental governance. Traditionally, conservation in the forms of protected areas and natural parks, have led to the exclusion of local people (Adams 2009: 275-298). This typically involved the forced removal of people from their homes and/or significant curtailment of their activities (Lele et al. 2010: 95). In India, the historical legacy of colonial forest regulation lives on through numerous forest acts, creating a ground for conflict between state conservation and local communities living in or around the forests, often members of the so called scheduled tribes, or Adivasis (Kashwan 2013; Bose et al. 2011). Under the British colonial rule, scientific management of forests had the purpose of generating revenue for the state. Other uses of the forests were actively discouraged. The closure of tracts of forests for subsistence use and the banning of customary practices, such as shifting agriculture, lead to widespread protests.

For communities living in or in the proximity of forests, local uses can be considerable. Trees are used to claim or denote land-use rights, land ownership and use of forests, while providing shade, fodder, soil protection and watershed conditions. Trees play an integral role in defining local cultures and institutions, and have traditionally been used as important indicators of rights within society (Saunders et al. 2002: 1765). Forests can be a tool for poverty alleviation and the primary development asset for communities. The process of commodification, inherent in carbon forestry projects, alter the relation between people and forests, their rights and values. When trees as treated more as private property, abstracted from its surrounding environment, alternative uses are at the same time displaced. As been pointed out previously, such simplification fall short of the social and ecological complexities on the ground. Saunders et al. (2002: 1767) notes that forest rights are multidimensional, a tree and a forest need to be viewed as a bundle of rights, where different parts of a tree or forest often differ in terms of who owns, inherits, can use, or dispose of a tree or other forest products. In many small holder tenure systems, trees are used to demarcate boundaries and
the planting of trees can serve as a land claim. Writing from an African context, Unruh (2008: 703) notes that afforestation and reforestation projects in the continent often encounter significant difficulties due to the perceived changes in land rights that result.

Deforestation narratives, portraying the world's tropical forests in a state of crisis, are powerful imaginaries, even when the cause, rate and direction of forest change are complex and uncertain. Local populations have often been blamed for the destruction of forests as an act of ignorance. Traditional conservation thus forced the removal of people from forests for the preservation of “nature”. Challenges to coercive conservation schemes have pointed to the fact that these seemingly natural places have been shaped by human influences over long times, and that they are in reality cultural landscapes. The removal of people from the very landscapes they have created is not only unjust, but represents a flawed image of a pristine nature as something to return to. Since the 1980s reforms of paternalistic forestry have been attempted to reconcile the needs of local forest users with those of conservation, referred to as social forestry (Robbins 2012: 189). Social forestry is devised to simultaneously provide local development with sustainable forest management. The economic, social and cultural rights of communities to forests are to be recognized. In reality, mixing conservation and development goals have proven a difficult task. The inclusion of communities in conservation in a right based approach have faced systematic barriers in practice (Kashwan 2013; Lele et al. 2010). The latest addition in people-oriented conservation is various payment-based schemes, a larger trend in support of PES. Here communities are linked directly to the market with a performance based payment in proportion to the ecosystem services provided.

3.4 REDD+ and the Carbon Market

Reduced emissions from deforestation and degradation, under the framework of UNFCCC, is emerging as an important strategy to halt deforestation and land-use changes in developing countries, while at the same time binding up carbon in the existing carbon stock. However, much uncertainty still remain in what direction REDD+ will take in the future; if its financing will be provided by public funding, with or without a link to carbon markets and involvement from the private sector, or as a mix of the two; as well as its governance (Corbera and Schroeder 2011). At its basic, REDD+ share the same principles as other PES and market solutions to environmental problems, by giving actors an economic incentive to preserve forests for the climate benefits they provide. Multilateral and bilateral funds have helped developing countries create their own national REDD+ strategies and to monitor their forest cover. At the same time, there is a proliferation of private actors and initiatives engaged in voluntary carbon markets, setting up their own projects, often involving communities and small stakeholders. The development of REDD+ is shared between the UNFCCC policy framework, focused primarily on methodological and technological issues, and the multiplicity of initiatives and actors involved in the voluntary carbon markets and pilot projects (Ibid.: 90). Given its uncertainty, not least in the difficulty in calculating emissions from forest changes, REDD+ is yet not a part of the CDM under the Kyoto Protocol, which allow industrialized countries to meet parts of their reduction targets by investing in greenhouse gas reduction projects in developing countries, while at the same time contribute to sustainable development goals in the host country. Afforestation and reforestation projects are allowed in the CDM, but have so far been a negligible part of the total emissions offset (Lovell and Liverman 2010: 259). Never the less, forests are advancing to become part of an emerging carbon market.

The carbon economy is not made up of one carbon market, but of several interconnected markets, including systems of emission trading, carbon offsets through the UN controlled compulsory market, as well as various voluntary markets (Boyd et al. 2012). The difference between the
compulsory- and voluntary markets refers to entities with our without binding emission reduction targets. Under both systems buyers purchase emission reduction credits from a project to offset for emissions from their own activities. Credits are acquired to the buyer for the total emissions offset for, measured as the forcing effect of one ton of CO2-equivalent (tCO\textsubscript{2}e) being released into the atmosphere per credit. Carbon becomes a commodity to be assigned a legal title, privately obtained, traded and exchanged (Bumpus 2012). Emission reduction credits are created from various activities and the respective technologies involved. For the voluntary market a number of certification standards exists, with their own protocols and verification methods. The bureaucratic procedures and high transaction costs associated with the CDM has been identified to risk cancel out small actors. The voluntary market, which primarily supplies and purchases non-CDM credits, has potentially more scope to invest in small scale projects with high sustainable development benefits (Taiyab 2006). Taking into account the huge potential for forests as carbon sinks in tropical countries, it should be no surprise that they have generated much interest as a low cost option for climate change mitigation. For example, in Africa, carbon-forestry projects make “intuitive sense” (Desanker 2006), given the high rural dependence on forest products and the low technology requirements for these projects. Still the total number of carbon forestry projects remain at a low level. In particular many forest- and agriculture carbon sequestration projects are associated with a high level of uncertainty of measurement (Broekhoff and Zyla 2008). It is acknowledged that to reach positive local development in carbon-forestry projects, small holder consultation and participation are crucial (Boyd 2009).

3.5 Carbon Offset Technicalities

The particular form of methodology in both the compulsory and voluntary offset markets involves measures to address carbon- additionality, reversibility, leakage, verification, quantification as well as sustainable development goals (Leach and Scoones 2013; Taiyab 2006; Broekhoff and Zyla 2008). In short, every project must prove that its emission reduction effect is real, i.e. additional, from a hypothetical, baseline, business-as-usual scenario. To be additional, project designers must be able to prove that the reduction in emissions would not have taken place without the project. This can be the case due to lack of local finance, expertise, technology etc. To measure the size of the emission reduction, a baseline measurement of the climate forcing effect in the baseline scenario is calculated in prior to the project. The difference in emissions between the baseline and the emissions after the project has been implemented is the actual offset of CO2e that has been taken place, and which will generate emission credits to the purchaser. To make sure that the offset is permanent and not going to be reversed in the future, the project designer is required to make measurements of pre-considerations, e.g. establishing a buffer or insurance system that can cover future carbon releases. This is especially the case in carbon forestry projects, with the chance of carbon stored in trees or soils being released back to the atmosphere due to fires, land-use changes, or other disturbances. Assessing the risk of carbon leakage refers to the unplanned displacement of emissions outside the project area due to project activities. If this happens, there might be no net decline in emissions, e.g. from increased deforestation outside an forest conservation or afforestation project. To address this issue, project methodology might require a leakage belt around the project area to account for this risk. Carbon offsets should be verified to prove that the promised emissions reductions have actually been realized. This can be done by a third-part member to increase project credibility, including a number of voluntary certifications that guarantee certain commitments in areas such as sustainable development. To be able to trade in emission reductions, offsets are quantified and standardized to be traceable in the carbon market and to avoid double counting, i.e. the same offset generating emission reduction credits multiple times.
3.6 Carbon Offset Controversies

REDD+ and other market mechanisms to climate change mitigation are not without their contentions. Proponents argue for the overall efficiency in the market will create more emission reductions at a lower cost. The argument is straightforward: as the lower costs for setting up a project in a developing country allow more emission reductions to be made at the same price, compared to if the same reductions would have been made in an industrialized country. If carbon is made into an exchangeable commodity, the market will optimize the most cost-efficient reductions, as actors seek to maximize their own benefits. This is exactly what has happened in the CDM, where the majority of the credits issued have come from investments in low cost, industrial gas projects, with large climate change potentials. In the matter of anthropogenic climate forcing, it does not matter where or how an emission reduction takes place, the effect on the climate will be the same. Carbon reductions are treated as equal, reductions from forest conservation equate hydro power, landfills equate biogas etc. The aspects of the commodification of nature (Castree 2003) is evident in the logics of REDD+ and PES-schemes. For carbon forestry projects, balancing reduction goals, i.e. containing sufficient amount of carbon in the biomass, and local social- and ecological benefits can be a difficult trade off. Focusing on the local effects of carbon forestry, researchers have started to look into the methodologies, technologies and ideologies behind such projects.\footnote{For a comprehensive critic of the carbon market, see Lohmann (2006).}

Carbon offsets have been criticized on an ethical- as well as a technical basis (Lovell et al. 2009). The distribution of costs and benefits between different stakeholders in offset projects is a main concern. REDD+ and carbon forestry connects corporations, consumers and forest landscapes across scales. From their research on carbon-forestry projects in Africa, Leach and Scoones (2013), argue that dominant narratives of deforestation from unsustainable local practices are interacting with the new imperative methods of the carbon political economy, in ways that strengthen both, something which: “[... ]have a series of layered framing effects, promoting particular visions of a carbon landscape and potential pathways of change while excluding others” (Ibid.: 960).

Addressing deforestation and degradation can risk excluding local knowledge and practices if the project design lies sole in the hands of outside experts. It call into question just what constitutes good governance, not least as deforestation can be driven by external processes. Greater recognition of local community rights in REDD+ require governance across scale (Sikor et al. 2010), and reforms over various sectors (Larson and Petkova 2011). The diversity available in carbon offsets interacts with local conditions differently depending on the type of technologies involved. Technologies here refers both to the practices, in a governmentality sense, and the material technologies involved, like a tree, in carbon offsets (Lovell and Liverman 2010). These differences are dismissed in the final product, the emission reduction credit, but are of key importance in the study of subject formation. Bumpus (2012: 19) argues that “it is only within the historical, material and social context carbon exists we can understand what is the carbon we are reducing”, and thus calls us to look at the local conditions in which a carbon offset takes place. The materiality of carbon technologies have their own form of assets and risks. A carbon forestry project is likely to have different challenges compared to a industrial gas project. Especially the unpredictability in carbon forestry (fire, diseases, storms etc.), creates its own risks and need of regulations. The disciplining of behavior, central to governmentality studies, are internalized in subjects accordingly to these material characteristics. In line with this, Lovell and Liverman (2010: 267) argue that the material technology and its social connections are central to achieve the conduct of conduct in carbon offsets in the voluntary market. For researchers it compels us to look at both...
the social- and material technologies in carbon forestry to understand why people come to perceive the environment as they do.
4. Khasi Hills REDD+ Project

In the in the eastern Himalaya foothills of north-eastern Indian state of Meghalaya, situated on a rolling plateau, among steep hills and valleys, lies the Khasi Hills. The inaccessible terrain thwarted most colonial expansions and left the tribal population known as Khasis to a high degree of self-rule. Even after independence in the Indian nation state the Khasi Hills, as many other districts of the north-east, kept significant autonomy, under the jurisdiction of so called autonomous district councils (ADCs) and traditional indigenous institutions. The fundamental reason for this set-up has been to protect the tribal communities’ traditions and way of life from a perceived threat of outside dominance from people of other parts of India (Kumar 2008). One such area is forests and the strong community control over forest resources. In Meghalaya, in contrast to India as a whole, the vast majority of all forests are owned by communities, clans and families. Of all the state's forests, less than 10% are under the authority of the state forest department, and these are largely limited to national parks and wildlife sanctuaries. In the Khasi Hills, where the majority of the rural population is engaged in agriculture, forest products like timber, firewood charcoal and other non-timber forest products (NTFPs) constitute to a significant portion of subsistence and income. But in spite of the community control, forests in the region have been decreasing over the past decades. In some parts of the district very rapid deforestation has been recorded. Initiated in 2010, the Khasi Hills REDD+ project, one of the first in India, has as its main goal to reverse deforestation and degradation trends in the project area by building community capacity to monitor and implement forest conservation activities (CFI 2012a). Based on a performance based payment scheme from the sale of carbon credits, incomes will go towards improving the livelihoods of participating households, as well as enhancing the environmental services in the area. The project is a cooperation between a federation of ten native states (known as himas), under the name Ka Synjuk Ki Hima Arliang Wah Umiam, (hence forward the synjuk), Community Forestry International, an American NGO working with community forest- and resource management, and Plan Vivo, a Scottish charity with its own carbon offset certification standard, as well as technical collaboration with the NGOs Bethany Society and BioClimate. The project has been certified by Plan Vivo since April 2013, according to the “Plan Vivo Standard”, and has to date entered into brokerage agreements with two buyers in the voluntary market, with just short of 22,000 tCO2e issued to date.

4.1 Project Area Description

Meghalaya, carved out from the state of Assam in 1970, shares an international border with Bangladesh in the south and west, and is surrounded by Assam in the north and east. The project is situated in the east Khasi Hills District and cover an area of 27,000 hectares, located in the Umiam River Watershed (see figure 1). The altitude of the plateau range between 150 m to 1961 m above the sea level, steep slopes and valleys, dotted by intersecting rivers and hills characterize the landscape. Approximately 25,000 people make their lives here, spread around in villages and hamlets, of which 62 participate in the project. The project area is defined by the boundaries of the ten himas, centered around the Umiam river. Most people are engaged in agriculture, the main crops grown being rice, maize, potatoes and vegetables. Livestock such as cows, sheep, goats, pigs and poultry are kept to supplement incomes. Traditional swidden, shifting, cultivation known as jhum is decreasing in the area as farmers turn over to permanent field agriculture. Charcoal is commonly

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6 The use of the word 'tribal' should not be thought of in a condescending way. Tribal identities continue to play important roles in regional self-determination and forest politics in the state.

7 This section is based on the Khasi Hills REDD+ project design documents. For further project specifications details, see (CFI 2012a; CFI 2012b).
used for cooking, but charcoal making in the area is less frequent today. A village survey conducted for the REDD+ project indicated that in most project communities 80 to 90% of the households were below the poverty line, and average annual income per household of five or six members were just Rs. 30,000 (~ SEK 3,500). Lack of employment opportunities and poor infrastructure are two pressing problems. Both dense and open forests are found, the majority being community-, clan-, or privately owned. In addition, several remnants of sacred groves represents important values in Khasi culture. Stringent conservation practices are often the case around these groves, which in return can hold great biodiversity. Forest types comprise of sub-tropical pine forests as well as mixed evergreen cloud forests. The most common vegetation type found are grasslands, which have developed with the removal of their forest cover. The climate of the region follows four distinct seasons: a dry spring (March to April), a hot, rainy, summer monsoon (May to September), a mild autumn (mid-October to November) and a cold winter (mid-November to February). Temperatures vary from a few degrees in the winter, up to +30°C in the summer. Rainfall is very abundant in the area, Meghalaya being the rainiest state in India, and most of it is received in the monsoon months. The world's highest rainfall is actually recorded just south of the project area. Despite its heavy rain, increasing water shortages as well as droughts in the dry season are experienced. Large forest fires in this season, fed by thick layers of dry tree litter on the ground, burn down large tracts of forests each year.

![Figure 1: Khasi Hills REDD+ project area. Source: CFI (2012a).](image)

### 4.2 Politics of Nature in Meghalaya

The political ecology of Meghalaya, or the “politics of nature” (Karlsson 2011), concerns an

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8 For an overview of forests in Meghalaya, see Marak (2007).
contention over many of the state's natural resources. In spite of being rich in forests, minerals and rivers for hydro power, Meghalaya remains poor in capitalizing on its assets. Over the last decades, a commercialization of the state's forests has been accompanied with large scale felling of trees for timber, and an associated timber industry. The distribution of benefits from such operations is part of the politics of nature, another being the connection to tribal politics. As in much else in Meghalaya, ethno-tribal identities play a vital role in understanding environmental issues. Customary laws and practices are still important regarding who got the right to use, and own, forests and land. The two basic categories of land in the Khasi Hills are common land (*Ri Raid*), which can be used by members of the community, and private land (*Ri Kynti*), which is held by individuals or clans. It is also worth noting that only indigenous tribal members are allowed to own any land in Meghalaya, something that has spurred controversies over what tribes are really "indigenous". Traditionally, common land has been allocated to individuals for use without the right to ownership. As long as the land was cultivated, or labor investments were put into it, the individual would be treated as having the right to use it. But an increased commercialization of natural resources has put pressure to convert *Ri Raid* into *Ri Kynti*. Karlsson (2011) argues that an erosion of the traditional landholding system has occurred from the very notion of land as property, something introduced under colonial times, and that "[…] land tenure has since been increasingly molded into a modern property regime based on individual ownership." (Ibid.: 165). Deforestation has occurred within a process of privatization of community forests and the concentration of lands in the hands of elite groups. This has allowed a few people to earn a lot of money, but also left increasingly number of people without access to land. The situation for the state's forest, with large clearings for timber sales, reached critical levels in the 1990s. An estimation of the volume of trade is that, in the years 1993-94, Meghalaya and three other states of the north-east provided over 70% of the timber (excluding teak and sal) supply of the country (Kumar 2008: 13). This eventually led the supreme court of India to issue a complete ban of logging, a decree that is still in effect today. The “timber ban” came as a big shock, with widespread effects on livelihoods and cash income for a large class of farmers who owned forests, as well as for people indirectly involved in the trade (Nathan 2000; Nongbri 2001). In addition, the effects on the state's forests have been dubious. Illegal logging operations thrives in the absence of effective control, and many farmers, who found themselves in a situation where they could no longer gain any economic value out of timber, resorted to other practices, often as environmental damaging as the felling of trees. Opposition against the supreme court's order was compact, from the economic- and social impacts of the decision, but also because it was seen as an interference with regional self-rule. McDuie-Ra (2007) sees controversies around environmental issues, and opposition to development projects, such as mining operations, in the Khasi Hills, as having little to do with environmental concerns or development itself, and more to do with ethno-tribal identities. Despite serious environmental problems, demands for change have only been raised by civil society actors when the development issue can be linked to an “outsider” discourse. A tribal identity has been used to mobilize political support that looks away from environmental destruction by actors within communities. He concludes that contesting environmental degradation from within challenge the construction of tribes as ecologically aware socio-political entities (Ibid.: 55).

Autonomy in Meghalaya, secured under the Sixth Schedule of the Indian constitution, overseen by the ADCs, grants the right to cultural self determination and greater control over local resources. In reality a three-tier system of governance between state authorities, the ADCs, and the traditional institutions have created an overlap in authority and an absence of effective management relating forests. Kumar (2008) argues that it is in this absence that the commercialization of trees for timber has been possible to take place. The bulk of the forest in the state are, however, owned by

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*When you enter Meghalaya by car from Assam, the extractional nature of the state's economy becomes visible before your eyes, with lime stone quarries and convoys of trucks as frequent sights along the roads.*
communities, under the formal jurisdiction of the ADCs. Still widespread deforestation has taken place, something that calls into the question the very notion of the effectiveness of community management\textsuperscript{10}. For Karlsson (2011: 97) it is not community management that has caused environmental degradation, but rather the lack of it, and notes that: “deforestation is taking place in a situation of multiple and changing property regimes in which communities play a significantly diminishing role as resource managers”. Jhum cultivation is commonly singled out as an explanation to deforestation due to peasant ignorance and unchecked population growth. But jhum in Meghalaya is under pressure from other land uses as well, something that has resulted in shorter fallow periods and subsequent loss of soil fertility. Large scale extraction of timber and unsustainable modification of jhum have together create a vicious cycle of environmental degradation. To fully understand the causes behind environmental change in Meghalaya a chain of explanation is required that look into the economic and political process described above.

The traditional institution for decision making in the Khasi Hills is an assembly, known as the dorbar. A dorbar exist at the village level (dorbar shnong), an intermediate level (dorbar raid) and at a native state level (dorbar hima). Here matters of the appropriate dignity are discussed and decisions are taken on a consensus basis. A dorbar shnong is presided over by the village headman. Only adult males are allowed to attend a dorbar, which has made some to question their democratic nature (Baruah 2003). Still the dorbar remain of great importance for community decision making. Regulation of access to community forests, demarcation of boundaries or the maximum firewood collection allowed are examples of issues which will be made by a dorbar shnong. Voices for a renewal of the traditional institutions in Meghalaya, and increased authority vis-a-vis other tiers of government, have been turning into a political movement in the state since the beginning the 21\textsuperscript{st} century.

\textsuperscript{10}The status of the forests in Meghalaya is though still far from clear, with different scources claiming state forest cover between 18 – 70 \% (Karlsson 2011: 91). This large difference hints about the difficulty in reliably measuring forests and the political nature of variables and taxonomies.
5. The Field Study

The empirical part of the thesis is based on field research conducted in the Khasi Hills REDD+ project area, from March 6 to April 13, 2014. 10 group discussions and 20 interviews were carried out over this time (for a list of respondents and occasions, see Appendix I), with the aim to understand if and why environmental subjectivities had been under change. In addition, field observations of community forests and visits to tree nurseries complemented extra perspectives. The findings of this field research is presented in the next chapter. The Khasi Hills was chosen as a case study out of operability. Making initial contact with U&WE, one of the two brokerage firms which retail Khasi Hills REDD+ project carbon credits, it was possible to arrange a field study through contacts with Community Forestry International, the project designer NGO. A case study was chosen because of its opportunity for in-depth understanding and personal testimonies of people living inside the project area. Since the interest is on people's own experiences, perceptions and visions of forests, a case study provides unmatched access to first-hand empirical material. It is difficult to see how the research could have been constructed without the personal encounters with people, which makes up its methodology. As the case is in focus, the role of theory is to help understand processes, rather than make general statements of causal relationships. The empirical material represents the particular visions of the respondents, one view of social reality in this small part of the world. Further, it is open to interpretation from the side of the interviewer, as well as in the stage of compiling the text. The findings presented is an attempt to account for the views of the respondents in the most honest way possible. Caution has been taken not to over-simplify the answers given, or to mold them into pre-existing models of thought. Every person who took part in interviews were, prior to their participation, informed of the purpose of the study, that their participation were based entirely on free will, their right to not answer any question if so desired and that there were no expected, right or wrong, answers to any of the questions. People who participated in interviews also gave their consent to appear with name in this text.

The field study was based from the synjuk office in Mawphlang, the biggest settlement in the project area. Day trips were made to surrounding himas and villages by car or bus, some which could only be reached by walking the last part by foot. 11 villages were visited, located in the 10 different himas which together form the project area. A geographical spread between villages was opted for to avoid any possible local bias. Supplementing the group discussions and interviews with villagers, interviews were also held with four of the synjuk staff and the nine community facilitators of the REDD+ project. A community facilitator is selected by each hima in facilitating the implementation of awareness campaigns, to sensitize people on the need of forest conservation, and to train local working groups on project work. As respected members of the community, they form the link between the synjuk and the population of their hima, thus they have a key role, with the help of youth volunteers, for the daily work of the project. For the fieldwork, a research assistant was hired to translate in group discussions and interviews, and to act as a local guide in the area. The advantage of having an assistant was indispensable, Khasi the main language of the region, was used in contact will respondents, while English is spoken by some as a second or third language. To have a translator in contact with people was necessary most of the time. Also, to have someone from the area who could introduce the research in the local language felt like a way of gaining trust and made people more at ease. To Williamson et al. (2011) the benefits of using a interpreter in a setting of unfamiliar language and culture should be carefully considered. Matching the research assistant and respondents on a variety of sociodemographic characteristics can enhance participants’ comfort with the interview situation. The assistant is an active producer of research data, whose “assumptions, values, experiences, and concerns” inform their interpretations in a “three-way production of data” (Ibid.). Still, working with an interpreter brings its own challenges, words and
nuances risk being lost in translation. As every citation from respondents have been interpreted from Khasi to English, their exact meaning should not be taken as a word-to-word translation. Also, culturally different understandings of words like forest, or technical descriptions such as demarcation can have affected the interpretation stage. To avoid as many misunderstandings as possible, the purpose of the research was explained to the research assistant in prior to the first interview, as well as her expected role and research ethics.

5.1 Methodology

Semi-structured interviews and group discussions compromise the methodological choices for the thesis. Field observations were used when given the chance, which turned out to be infrequent. On every occasion, a notebook was kept for taking notes, which were later typed on a computer. A recorder was not used out of choice to not disturb the confidence of the participants. Taking into account the outdoor environment in which these conversations often took place, and the cross-language interpretations between Khasi and English, the potential use of a recorder was limited. After the weeks of field research, all the material were read through again and organized after recurrent answers. Given the qualitative approach of the research endeavor, the work to transform the material into quantitative bits of data was not always easy. The categorizations that appear in chapter 6 should be thought of as simplifications of often multiple answers in group discussions and interviews, and not as solid, exact categories. The categories capture trends in answers, but vary in depth and detail between locations. The choice to quantify answers were made to enhance clarity and strength of arguments.

5.1.1 Selection of Respondents

Upon arriving in the Khasi Hills, no arrangements had been made concerning participants for the research. Help was provided by the synjuk secretary to contact the nine community facilitators, with whom it was possible to arrange a meeting in one of the villages in their respective hima. The purpose of the study was explained beforehand, i.e. to meet and speak with ordinary villagers. Thus, it was the community facilitators who would make the selection of villages visited and were responsible for contacting people for the interviews and group discussions. Perhaps as a result of this, villages among a main road were often selected, due to ease of transport. An interview was conducted with the community facilitator at each location. Dependent on how many people who showed up, the process of interviewing would look a bit different. If there was a larger group, it was easier to start off with a group discussion were everyone could take part. Afterwards, it was asked if someone would be willing to stay longer for an individual interview that would be done at site. This was often problematic as people had work and other engagements to get back to. With fewer people, it was more often the case to just have one group discussion, or a single interview with two persons. At some occasions some villagers were willing to show the community forest or other points of interest in the surroundings. Towards the end the field research, some himas were re-visited, to complement with some more individual interviews.

5.1.2 Semi-structured Interviews

20 interviews were made, nine with community facilitators, four with synjuk employees and seven with villagers in the project area. To Valentine (2005), the advantage of an interview is that it is
sensitive, without the aim of being representative, to understand how individual people experience and make sense of their own lives. The interviews lasted for about one hour and followed a semi-structured form, meaning that they covered beforehand made up questions and topics, without being too rigid in their structure. They were designed in such a way to allow for open ended answers and to give room for follow-up questions if interesting themes came up. Two interview guides were used, one for community facilitators and synjuk staff, and one for villagers (see Appendix II and III). Not every question were always used for all the interviews, nor did the order of the questions always follow that of the guide. Often questions were added based on the respondent's answers. The interviews with the community facilitators and synjuk employees provided perspectives on the workings and organization of the REDD+ project. Here the interest was more on their role as informants than on their own perceptions and experiences. The questions were designed to probe into how the synjuk is working to implement awareness and conservation activities in the project area. Thus, they gave more of an overview of forests and people in the hima or project area, than a personal testimony. Contrary, this was exactly what the interviews with villagers were after. The question were more open-ended, and the respondents were invited to reflect on their own situation.

5.1.3 Group Discussions

Group discussions were held in nine of the 10 himas of the project area. Between three to 17 people attended the discussions, which usually went on for one hour. These seemed like the most practical way of hearing a group of respondents who had turned up. Some of the most interesting findings were also the outcome of these discussions, when people could speak freely, exchange perspectives and talk about forests in an informal way. At the start of each group, people were encouraged to not just listen, but to also discuss among themselves. No template were used for these meetings, they developed naturally as they went on, and were directed in a way so the research themes were covered. Notes were taken of what was being translated from Khasi to English by the research assistant. Depending on the level of engagement of the participants, the group discussions varied considerably. In some villages people were reluctant or shy to speak up, while in others lively discussions and jokes took place. Clearly, it was the latter ones that provided most in terms of research material. It was also frequently the case that a few individuals would assert the role of leaders and speak on behalf of the rest of the group. To counter this to the largest extent, questions were directed to the group as a whole or to individuals who took lesser part, e.g. if they all agreed with what had just been said.

5.1.4 Limits of the Methodology

A general problem during the field research was to find time for interviews. Since it was unknown how many participants there would be at each occasion, it was not possible to plan any interviews beforehand, except those with the community facilitators. To do interviews right after a group discussion was not an optimal choice, but somewhat required as people could not be expected to take more of their time off later. Sometimes it was also difficult to find private places to conduct these, often people preferred to do the interview in groups, or standby observers would give their own comments on the questions asked. Influences, both from other villagers and the personal values of the researchers, are hard to assess for the final material. As a researcher it is important to be reflexive on how your own identity will shape the interaction with others, and especially to recognize different power relations between yourself and informants (Valentine 2005). A risk that respondents felt obliged to give answers they thought were expected of them was always there. To reduce this risk, the purpose of the study was carefully explained beforehand. Counter questions
were raised if answers felt vague or in risk of being too affirmative to the question. This was especially the case around topics of changes in attitudes, where most people had difficulties to be specific in which ways attitudes had changed. For example a counter question could be asked if people had not just changed their behavior in response to new types of regulations, rather than out of new attitudes. Women have a relatively strong position in Khasi society, with a culture of a matrilineal system of inheritance, but have a limited role in traditional institutions. During group discussions, the ratio of women and men were fairly equal, but women tended to keep more quiet, a difference that was not seen in interviews. The absence of women voices can have limited the empirical material from these discussions, even if they certainly did not lack individual women who spoke up.
6. Research Results

Over the course of group discussions and interviews with villagers and community facilitators a multiplicity of different views, uses and regulations regarding forests became visible. Even to seemingly simple questions, like how forests could be used, or if forests were decreasing, varying, or even contradictory answers sometimes appeared. Not only between community facilitators and villagers, as could be somewhat expected, but also differences within communities themselves. Like previous studies in the district, a diverse range of views on forest management were found, see Kumar (2008). It signals the contested nature of forests, their different meanings for people and how these are linked to experiences, status within society and so on. Still, a number of visible patterns emerged out of the questions asked, which form the main topics for this section. Together they form a set of technologies of government, or governmentality, around which human conduct is shaped.

The field research started out with an intention to find out if a formalization process had occurred with the establishment of the Khasi Hills REDD+ project, and if this could be described as various technologies of government. For a PES-scheme to be workable, it is out of necessity to rework nature into measurable units of ecosystem services, to make it accountable, legally owned and abstracted from its surroundings. Such alteration, it would seem, would have an effect on human-environment relations, in the form of the need for secure land tenure, new types of regulations and rules regarding use and access, clear project boundaries and more, i.e. a process of formalization. Few of these expected changes were found. No instance of changes in land tenure were reported, rather land tenure seems to have remained stable for a long period of time. Demarcation of forests varied greatly between different villages and himas. Traditional boundaries, including stones, rivers and fire lines are frequently used. Some villages only demarcate privately owned forests, while others also demarcated other types. Neither was land being classified in new ways. The open/dense forests classification, based on canopy closure, used for the REDD+ project, does not seem to have affected how the forests can be used. All in all, little direct evidence for changes in the way people use or perceive forests can be directly attributed to activities of the synjuk. It would be difficult to claim that human-environment relations in the project area is becoming more formalized due to the PES-scheme. The novelty of the project can be a possible explanation to this, after all systems of rule take time to change. But the questions were often met with a sort of incomprehension of the question itself. It seemed like a unheard notion that the synjuk would regulate village community forests or make up new classifications for forest lands. This does not mean that forest management in the project area has remained static. By some means, like forest rules and regulations (see 6.1) a formalization has indeed occurred. The difference is that these changes seem to generally have been going on since before any PES-scheme and can thus not be said to be the cause of REDD+.

What appeared from the group discussions and interviews was a scattered, decentralized forest governance, based around the dorbar shnong. Basically every village has its own types of rules and regulations, classification of land, various tenure rights and different ways to demarcate boundaries. It makes sense to talk about local community management, bound together by traditional institutions. The dorbar is central for this arrangement, it is through the dorbar that decisions are made relating community forests, but more, it also seems to function as the medium to spread information, organize community work, raise awareness, settle disputes and in general forming consent within communities. The last point is an interesting one in a study of governmentality, and one we will have reason to come back to later in the discussion.

Synjuk activities have prepared the area in accordance to carbon offset methodology. The project
area has been mapped out, the carbon stock measured and calculated, land classified, tree nurseries set up, open forests have been planted with saplings, under so called assisted natural regeneration (ANR), drivers of deforestation identified together with strategies to confront them, alternative livelihoods for targeted groups though out, as well as other socio-economical impacts of the project, and more. Key to these practices has been to raise awareness and information among the population in the area. It is through these awareness programs, organized at each one of the 62 villages and hamlets, that the synjuk is working towards raising support for conservation practices. In short, the synjuk has not set up its own set of rules and regulations, something that would seem inconceivable under a system of community forest management, but is striving to revitalize the traditional decision making bodies in local forest conservation, overseen by a federation of himas. The dorbar shnong is the body through which awareness about the project is raised and decisions about regulations are made. The project is “rebuilding regulations”, as one community facilitator put it, indicating that the regulations nowadays have been made clearer than before. The synjuk might not be implementing its own rules, but it is enhancing the role of the dorbar to do so.

Early on in the field research it became clear that the questions regarding land tenure, classification and demarcation, i.e. signs of formalization, did not rend the answers sought after. Few instances of changes were found, and which can not reliably be assumed to be linked with the REDD+ project. As the group discussions and interviews progressed, certain other patterns started to appear which seemed to be common factors concerning forests and emerging environmental subjectives in the different communities. These are: a proliferation of new rules and regulations around forest use, a decline of forests with related increased dryness, an increased awareness of forests as these became seen as important for protection and a shift away from perceived environmentally destructive practices such as jhum cultivation and charcoal making. Not all of these four processes were evident in every location, nor did they have the same relevance everywhere, but they stand out as significant themes in people's responses. The empirical findings form a lens through which subject formation are viewed as technologies of government (see figure 2). The four themes are presented below and further discussed in relation to the theoretical framework in the next chapter.

6.1 Rules and Regulations of Forests

Every village have some way of controlling practices regarding their forests from unwanted over-use. Regulations exist that prevents people from cutting unlimited firewood, from felling trees
under certain sizes, from grazing cattle, from producing charcoal, from burning the forest for agriculture, and more. A string of rules and regulations determine how people are allowed to use the community forests around the project area. For private forests it is not as clear how the regulations look like, but it is reasonable to believe that private forest owners are more free to exploit their forest resources after own judgment. Decentralized forest management under the dorbar shnong forms the basis for these regulations. It is up to every village to create their own rules in accordance with the will of the dorbar. Not surprisingly, the regulations also vary a great deal between different villages and himas. Some villages have had a long tradition of regulating forest use, during one group discussion, the villagers recalled 70 to 80 years old rules regulating jhum cultivation and charcoal making in the area. Another village, on the other side of the spectrum, stated that rules and regulations only started to come into effect five years ago. Clearly, in such varying settings, it becomes difficult to talk about a uniform system of rule. A regulation against setting forest fires seems to be most commonly spread among all the villages. Some system for collection of firewood and other NTFPs is also generally present. Villages allocate firewood collection to specific community forests, or parts of forests, sometimes on a rotational basis. For some, this was a cause of drudgery, especially if the community forest was located far away from the village, while, others said that the rules had small effect on their lives. What uniformly came out after meeting people was a sense of strong belief in the importance of regulating forest use. Everyone seem to agree to the need of rules, and the destructiveness of unchecked human behavior that would be the result in their absence. “If there are no rules, there will be no more forests out here”, as one group expressed it. Consequently, no one ever stated any unhappiness with their present rules, or voiced any critic against the dorbar.

Very rarely were rules being broken, must groups had difficulty recalling any such instance. One group claimed that it is the responsibility of people to follow the rules that has been implemented by the dorbar. Such feeling of duty may of course not be representative to all, but hints about the form of consent that is being forged through communal decision making. On several occasions people thought that the rules were also being followed out of fear of getting caught. Many communities have a system of fining violations (albeit this must be rare) of forest regulations, perhaps the most prominent being setting forest fires. The fine would vary between offenses, but is generally around Rs. 500 up to a few thousand. Again, it is uncertain how strictly these policies are being pursued in reality. The social control of regulations is another aspect to why people follow rules, “you feel embarrassed if you get caught”, one woman said in an interview. It is the villagers themselves who monitor that the regulations are being followed. This is the case in each one of the villages visited. In this way, members of the same community watch over each other and will report to the dorbar shnong if a violation of the rules is spotted. The effectiveness of such system of surveillance must be hard to match. Rule breaking seems to be rare, and when they did happen people believed they were acts of ignorance or carelessness. Only in a single village did people say that they would like to hire a forest guard, but were unable to do so because of the cost. It appears that the communities are self-regulating units, which monitor themselves with an efficiency that would be very costly and difficult to archive with external means.

<table>
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<th>Villages with an increased number of rules</th>
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<tbody>
<tr>
<td>Yes</td>
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</tr>
<tr>
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</tr>
<tr>
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<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
</tr>
</tbody>
</table>

Table 1: Proliferation of regulations

The majority of the villages felt like the number of rules and regulations have increased over the years (see table 1). As noted, the history of regulating forest use varies a lot between villages. What seems to have appeared generally in the area is a proliferation of rules and regulations concerning forests. Exactly when all this started is difficult to say, but for most villages it was clearly before the initiation of the
REDD+ project. Two villages reported that the new regulations started to appear within the last five years, while most claimed changes within the last 10 years or more. It is worth taking note that this have not taken place in all villages, some groups did not think there were any changes in rules, but as a trend, more rules regulate how people can use forests today. “There are so many rules these days”, as one group pointed out. At some places, this seems to be a continues process, with rules being reworked every year. Also, in some villages the rules were reported as being enforced more vigorously than before. What seems to have been the case is that the rules that did exist did not always matter. Groups explained that nothing happened if you broke a rule before, whereas the rules are stricter today. The need for strict rules, most people would approve of. When asked why these new regulations have come into effect, people would state as a response to unchecked forest loss in the area and a need to better protect the forests. A dryer climate was felt by many and with it a need to react against the negative effects of deforestation. Thus, the community regulations can be seen as a form of adaptive management to changes in the environment and unwanted forest use (see 6.2 and 6.4).

6.2 Environmental Conditions

According to satellite imagery, forest cover in the East Khasi Hills District is in retreat, with an annual rate of forest loss of 5.6 % between the years 2001 and 2005. Further, it is supposedly generally accepted that the quality of forests is declining (CFI 2012a). Group discussions and interviews during the field research confirmed the version of environmental change described in the REDD+ project document; deforestation and degradation have reduced the forests (see table 2). It was not difficult for people to remember a past, more forested landscape in their surroundings. Several people gave testament of previous larger forests tracts and their decline. Many remembered dense forests, whereas the forests of today had fewer and smaller trees, “the forests are ruined” one group pessimistically concluded. With the decline of forests, wildlife has been reduced, as well as other ecosystem services obtained. The most serious one, it appears, is a dryer climate experienced by the communities. Less rainfall was widely cited, and a cause for concern, “the winters hold no rain at all these days”, one person claimed. This is consistent with an overall decrease in seasonal mean rainfall that has been recored over the Indian sub-continent, even if seasonal mean rainfall over South Asia shows interdecadal variability (IPCC 2014: 6). With less trees, the hydrological function of forests was believed to be diminishing, people linked together the decline of forests with a dryer climate. This is probably the main reason people engage in conservation practices in the area. Often it was said that it is because they have seen or experienced dryness that people have started to change their behavior, as well as being a reason for new regulations. Fresh air is a regulatory service many stated as an important function of forests, erosion control is another one named by a few. Several villages stated being negatively effected by deforestation and a decline of ecosystem services.

Two villages stand out with respect to the direction of environmental change. In these two villages, forest cover have been increasing over the last years. Both may very well represent exceptions in their surroundings, but do provide interesting points of comparison to other communities for under which conditions deforestation can be avoided. More stringent rules and regulations were believed to be the reason to why the village forests had been able to grow back. Rules have been increasing over the last 10 and 20 years. Both of the communities also regulate jhum cultivation which is not

| Villages with deforestation |  
|---------------------------|---|
| Yes                       | 9 |
| No                        | 2 |
| Total:                    | 11|

Table 2: Deforestation trends
practiced by the villagers anymore. Charcoal making does exist, but at a very limited scale, involving only a few individuals at destined places in community forests. Strict controlling of firing were also reported, as were the construction of fire lines. Both of the villages are engaged in planting trees which is supplemented to them by the state forest department. Information has been spread through community meetings, e.g. to keep less goats, an animal that consumes much forest fodder. All in all, a number of conservation practices have been deployed in the two villages which can explain the re-growth of forests. However, all of these practices have also been reported from other villages where forests are decreasing, although tree planting is probably less frequent and organized. What can explain the different environmental outcomes? When asked, most people in the project area blamed population growth as the cause of deforestation. More people mean more demand for forest resources and a vice to cut down more trees. Even without local statistical data, it seems clear that population has been growing in the project area. However, this is also the case in the two villages with an increase in forest cover, both claiming a doubling of population in the last 20 years. Forests have both increased and decreased under a raising population. Clearly, population growth can not alone explain deforestation in the project area. Other believed explanations to deforestation include; accidents/ignorance causing forest fires, jhum and charcoal making, lack of rules, and increased dryness. All of these could have some truth to it, but can not sufficiently explain why deforestation occurs at some places and not in others. A possible determining factor of environmental change could be the awareness of people regarding forest protection. If people would be more aware of forest loss, deforestation trends could be reversed. As we shall see this belief is very well spread.

6.3 Raised Awareness

The most significant trend in all the answers obtained was that of a change in attitude towards forests over the years. Forests are seen as more important for protection and people more aware of how to do so. Everyone seemed to agree to this, synjuk employees, community facilitators, as well as villagers themselves. It is perhaps not surprising that such view is held by staff directly involved in the REDD+ project, after all to raise awareness is the objective the project builds upon. It is a spread view that before the project was implemented, people did not know, or did not care about their forests. One of the synjuk staff explained that before people were not worried about water, but whereas today they are experiencing a dryer climate. One of the community facilitators was on the same track and said that before there were less problems, so people did not have to consider the forests as much. Others suggests a more profound change in human-environment relations, claiming that more people today love or care about the environment, “people want to return to dense forests”. What is more striking though, is that this view is also spread in each one of the communities visited, “people have changed, they care about the forests these days” one group expressed it. There is the generally held belief that people today are more aware than before about the importance of forests and this has made a change in the way they act. The fact that there are less forest fires nowadays was explained by one group as the result of more careful attitudes. In other places, villagers have started to clear the ground of vegetation to enhance tree growth. “Most people nowadays know how to care of the forests” one group pointed out in a discussion. When asked to name the main reasons for protecting forests, most people during interviews would name regulatory services, such as water and air control, ahead of direct uses like firewood collection (for a compilation of answers by villagers, see table 3). Regulatory services were more common answers than when the community facilitators were asked what they thought were the main reasons people engaged in protecting forests. If anything, it indicates a spread awareness of the ecological function.

11 According to the Indian census, the East Khasi Hills District had a population growth of 24.96 % between 2001 – 2011, a slight increase from the years 1991 – 2001. (Available at: http://www.census2011.co.in/)
At least three different explanations to why awareness has been raising can be found within the answers. The first involves the spread of new information about the role of forests, organized through awareness programs hosted by the synjuk, sometimes in cooperation with state department officials. All 62 communities in the project area have participated in a series of awareness raising activities, which have been facilitated by the the dorbar shnong. Practical information such as tree planting, and fire control, as well as the ecological function of forests and the objectives of the REDD+ project have been raised at these meetings. Even if it is likely that the outline has varied from village to village. Many believed that people have gained more information these days, and that this can explain why they have changed in their attitudes. The fact that most people in the area are uneducated was pointed out as a hindrance to awareness, even if changes were also beginning to be seen in schools. Still, for many the causes and consequences of deforestation and degradation were something that is not unknown, but part of the practical knowledge one gets from his or her upbringing and living experience. Accordingly, people have known the importance of trees for a long time, sometimes described almost as an ancestral knowledge to the people in the area, something that is passed down the generations. One woman explained in an interview that she learned about the water supplying role of trees from her childhood. It seems logical that people with a dependence on forest resources have an understanding of local environmental conditions. In this view, the awareness programs might not have taught people the importance of forests, but rather facilitated a base for community action. The second explanation to the raising awareness stems from changes in the environment, which forced people to confront new scarcities and make sufficient responses, e.g. to a dryer climate. People have seen the decrease of forests before their eyes, before they did not think this could happen, one group said. The material characteristics of nature, i.e. trees and their functions, interacts with how people engage with and come to think about the environment. Thirdly, it was proposed that the new awareness came out of the implementation of new rules. It was often affirmed that people agreed with what the dorbar decides. One aspect of this can be that it is the villagers themselves who decide, implement and monitor the rules through the dorbar shnong. A collective effort that precedes new values, a form of learning by doing.

### 6.4 Changing Practices

People in the project area have various uses for forests, firewood collection and timber for building material are perhaps the two most dominant. The level of dependence on forest resources can be said to be generally high, even if this varies between settlements. More remote villages, with poor road connection, claimed higher level of dependence. In these places everyone used forests for firewood, while in larger villages, with better access to transport, it was not uncommon for people to instead buy their supply. This was, however, not always made out of choice, deforestation and stricter regulations of community forests prevented people from collecting as before. Herbs and leaves are two other NTFPs mentioned as important resources. When asked about their uses of forests, direct use such as timber for building houses, was the most common answer, even if many also named the regulatory services obtained. This is the reverse of what was thought as the most

<table>
<thead>
<tr>
<th>Reasons for protecting forests (multiple answers possible)</th>
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<tbody>
<tr>
<td>Direct use (firewood, timber)</td>
<td>3</td>
</tr>
<tr>
<td>Regulatory services (air, water)</td>
<td>9</td>
</tr>
<tr>
<td>Cultural/aesthetic values</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 3: Reasons for protecting forests
important reasons to protect forests. In about half of the villages visited, a lesser dependence on forests today would come up during group discussion (see table 4). This is a very crude estimation, and does not has to be representative either for the general trend in the area or for every person of the community. Most of the villages which reported a lesser dependence are in connection to a main road. A possible explanation to this is that more people nowadays are engaged in new types of occupations, which have raised incomes. With more money, it is easier to buy your needs instead of resorting to forest resources. The dependence on charcoal and firewood for cooking has also been dwindling as more people have gained access to electricity. Electric rice cookers were mentioned as a source of less dependence for many, rice being a staple food in the area.

<table>
<thead>
<tr>
<th>Villages with less dependency of forests</th>
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<tbody>
<tr>
<td>Yes</td>
<td>5</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
</tr>
<tr>
<td>Not available</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
</tr>
</tbody>
</table>

Table 4: Forest dependency

charcoal making in their surroundings (see table 5). The decrease has happened as more regulations have been implemented over the years by the communities. Some of these regulations date back many decades. *Jhum* is perceived as an environmentally degrading practice, and cited as a cause of deforestation. The making of charcoal follows the same trajectory, but is still practiced at some places. The production is though on a small scale and can not involve that many people. Quarrying is still found, the area being rich in lime stone, even if the *synjuk* is working to reduce their numbers. When asked what the people who used to be engaged in these activities do now, it was only known that they have turned to some other livelihoods. The cutting of trees is being regulated more in detail today. Many communities stated a prohibition against the cutting of small trees, and other have decided that villagers have to replant the trees that they cut down. For firewood, many have resorted to only cutting the branches to let the tree live on. One woman described how she had started making a supplement to charcoal made out of leaves. The *synjuk* is teaching alternative livelihood strategies and resource management. Fruit tree orchards have been established throughout the project area and people have been taught to not cook pig feed to reduce firewood consumption. Some villages, with the help of the *synjuk* and state departments are actively trying to reforest the landscape by planting saplings. However, few people who took part of the group discussions or interviews said that they had participated in any such activity. Constructing fire lines is another community effort common in the area, one group explained they just started five years ago in the village, just as many new rules and regulations started to appear. For others, this has been a long time practice to control forest fires. Nevertheless, the changes in practices that have taken place in the area resembles a move towards a more concerned use and conservation of forest resources.

<table>
<thead>
<tr>
<th>Villages with previous jhum or charcoal making</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>6</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
</tr>
<tr>
<td>Not available</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
</tr>
</tbody>
</table>

Table 5: Previous jhum or charcoal making

*Jhum* cultivation as a practice is today almost absent among the villages visited. Only in one location did *jhum* still exist at some degree. It is however not clear to what extent *jhum* has ever been popular in the area, but for certain it has been decreasing from a higher level. Most villages stated some previous *jhum* or...
7. Environmental Subjectivities

This study started out with the intention to research if new environmental attitudes could be linked with the emergence of a formalization in human-environment relations. Based on previous research on REDD+ governance and other PES-schemes, the practices as well as the rationalities behind such undertakings point to several critical aspects. The need for stable and secure land tenure, the measuring and accounting process, the abstraction of carbon from its surroundings and the technologies involved in carbon offsets have all been items of scrutiny. What was found during field research was a decentralized forest management, that has largely remained intact from the integration in a market relation. The dorbar system seems to have gained more capability through the organization of a federation of himas. That does not mean forest management has remained unchanged in the project area. More and stricter regulations, a loss of forest cover and dryer climate, raising awareness, and new practices are all trends which have affected the way people use and think about forests. This chapter of the thesis will reason how changes in environmental subjectivities in the area can be understood in connection to these trends. The theoretical perspectives offer some insight if these can be considered as a form of technologies of government in the governmentality of forests.

Has a process of formalization taken place in the project area? The answer to this would depend on the time perspective one use. Over the last 10 – 20 years profound changes seem to have occurred around forests. A proliferation of rules has definitely made things more formal, whereas forest previously would be used more unrestricted. There is also a move away from practices that are seen as unsustainable by the communities. The importance of the REDD+ project to facilitate these trends is not given. In some villages, recent changes have most probably been influenced by awareness programs and new livelihood strategies. In most places though, this is a process that has been going on for several years. It is likely that the synjuk staff and community facilitators exaggerate the impact of the project on people's minds. People are at best vaguely aware of its existence and know even less of its objectives. So far, though still in its first phase, the REDD+ project has probably had limited direct effects for most people. It is more likely that the synjuk has been preforming as a catalyst for social change within the communities by empowering the traditional institutions, e.g. through awareness campaigns and spread of information. In fact, this is what the project documents are describing as its course of action. One community facilitator described the relationship between the synjuk and changes in attitudes as: “once people have heard about the project, they take their responsibility to take care of the forests”. From a governmentality perspective this is also the way power operates within society, as the subtle everyday actions of normal life. Power do operate from these institutions as a way of controlling and forming individual behavior. What was evident is the strong social control found in the workings of the dorbar, an example of community identity.

7.1 Deforestation Rationalities

During the field research, normative statements of how forests ought to be emerged. References to “green”, or “dense” forests were frequently used as visions of a past landscape to return to. These are part of the rationalities behind the governing of human conduct. Governmentality invites us to look at how problems and objects are framed, and through which technologies these are governed. The problem and objects in question, deforestation narratives and the human population in the area, are framed by actors in ways that require their own set of solutions. Deforestation is quite uniformly described as the cause of human conduct, especially from an increasing population. This is a shared
narrative among villagers, community facilitators and the synjuk staff. It constitutes the dominant description of environmental change in the area. That forests have in reality declined over the years seems well established. In the work of the synjuk deforestation is, what Murray Li describes as, “rendered technical”. Forests are made amenable to technical solutions within the REDD+ framework. Some activities are being restricted, but not others. To delimit problems is necessary to any development program that seeks to “improve” the population. Political and economical processes are left out. The complete causes of deforestation in the area is well beyond the scope of this study, but would require more careful reflection on larger scale influences. The attitudes and awareness among people are, in contrast to deforestation, framed in an almost dualistic manner, something that seems problematic for conservation projects. At one hand, Khasi indigenous culture is celebrated as being ecologically aware, and the Khasis seen as stewards of nature. This is an identity deployed to gather support for the traditional institutions, and most certainly a great deal of pride for many. The synjuk president, for example, mentioned that people want the dense forests to grow bigger because it is part of Khasi culture. Nowhere is this more prominent than around the Khasi sacred groves, which are heavily marketed as examples of traditional conservation practices, even if these vary heavily in both ages and sizes. More than anything, the groves are powerful symbols in a deforestation discourse to gain external support. On the other hand, people are labeled to be unknowing and careless about the environment, this is especially the case for the traditional practices of jhum and charcoal making. Among synjuk employees and community facilitators there is the idea that people did not know the importance of forests, or how to sustainable manage them prior to the project. Among many villagers similar thoughts are heard, not as an act of ignorance, but rather from a lack of education. How can people be both holders of indigenous knowledge and unknowing peasants at the same time? Assessing the impact of new information and awareness is difficult, a diverse range of answers and views were found, and no firm or detailed conclusions can be drawn on the basis of this study. An interpretation of the empirical material from group discussions and interviews with villagers points to that there has not been a lack of knowledge, but rather agency. Through awareness programs people are made to confront these issues and given practical information of how to reverse forest loss, as a strengthened institutional, social and practical base for agency in the area.

7.2 Technologies of Government

Agrawal traced the emergence of environmental subjects through changes in knowledges, politics and institutions, as “technologies of government”. It entails the strategies and practices from which new subjects come into being. He summarizes technologies of government as: “being founded on some combination of knowledges, regulations based upon these knowledges, and practices that regulations seek to govern[…]accompanied by changes in conceptions of the self[…]” (Agrawal 2005: 220). In Kumaon, technologies of government operated both as the discursive representations of forests, as scientific forestry became standard procedure, and as political and institutional rearrangements in the area. Changes in subjectivities from forms of governing are also visible in the Khasi Hills REDD+ project area. The four main themes found in field research: new rules and regulations, deforestation, raising awareness, and changing practices, can all be seen as forms of technologies of government, as they have been found to shape conducts and perceptions of forests. The element of governmentality is thus extended from the institutions of the state, to the social control of community management, and even the materiality of nature. REDD+ methodology and activities impose its own version of forests, but can not be said to have altered the strong tradition of community forest management and ownership. The concept of environmentality is useful to describe the changes that is taking place as the environment gradually emerge as a domain that require regulation and protection. Likewise events that happened in Kumaon has also occurred in
the project area. Just like in Kumaon, the communities are self-regulatory units, where neighbors, friends and families have the responsibility to monitor each other. Foucault wrote similarly about the surveillance of modern institutions as a "gaze of power", in which those who are subjected undergo changes in their subject positions. Regulatory rule of communities creates awareness and knowledge through direct participation. Those who take part are more likely to come to appreciate the fragility of the environmental resources they are trying to preserve (Agrawal 2005: 163).

Participatory regulation of forest resources is one source of environmental subjectivities. People described an unwillingness to go against the regulations of the dorbar because the decisions were seen as a collective effort of the community. Forests are being discussed more together with the spread of new information. It was suggested that people compare their community forests to those of other villages as a spur to have denser forests in their surroundings. Through actions and rule systems come new types of people. Among the same line did Agrawal find that people who were actively engaged in forest management were more inclined to have conservation friendly attitudes than those who did not. When people participated in forest councils, they would also more often agree that the environment is important to protect. Socio-economic backgrounds, such as gender or caste, were not found to be as important variables for conservation attitudes.

An interesting element of the field research is the environmental change that is occurring in the project area and how nature is interacting in subject formation. People have "learned by experience" the importance of trees, or they have "seen before their own eyes" that the climate is getting dryer. Several community facilitators believed people in their hima had changed because they are experiencing forest loss and its subsequent effects, like a decline in water supply. This agency of nature as an actor in itself is embraced by the perspective of critical realism and as a theme within several political ecology studies. Nature is not just a background where social action takes place, but influence human action and set its own limits. People are forced to react to changes within their environment, which becomes part in their perception. With the negative effects of deforestation, forests are occupying a greater part of people's awareness. While this may seem obvious, the material aspect of nature has not been thoroughly researched in carbon offsets. Forests have their own sets of values, practices and services that are important to people. As noted, a loss of the hydrological function of trees have been part of changing environmental subjectivities in the project area. The level of dependency on local forest resources is likely to be one factor for how a carbon offset project will affect perceptions of the environment. Inherent within the REDD+ framework is a contradiction between the individuation of carbon (abstract, exchangeable, transient) found within a commodification process, and the materiality of trees (durable, slow growing, lasting). The materiality of trees can be said to be uncooperative to the objectives of carbon offsets and thus most be compensated with some security measures in the form of buffer zones or other insurance systems. The risk of reversing the carbon back into the atmosphere will always be present from forest fires and land use changes. The contradiction between trees and carbon offsets is that the latter can only have some abstract value for a community. Bumpus (2012: 17) takes note of this:

"Carbon offsets have some very specific attributes associated with their commodification that contrast them to commodification in other 'natures'. The most important of which is that, in contrast to commodifying a unit of nature in order to govern its existence, like timber, carbon offsets create a commodity and value out of a piece of nature - carbon dioxide in the atmosphere - that, if achieved properly, does not exist."

Local ecology is displaced and alternative uses for trees are not reflected in the final value of a successful carbon offset. Actors within the carbon market, especially from the small voluntary market, are trying to address this by adding various sustainability benefits to their products. To show positive local development becomes crucial to sell a carbon offset. Smith's concept of second nature adequately captures this trend in the way nature is being co-produced from an extension of new market relations. As been shown, nature and humans alike are open for transformation in the
process. The findings from this field study hints that the technologies involved in conservation and the environmental conditions play part for how people come to think and act in relation to their local environment.

7.3 A Case of Environmental Subjects?

Does the changed attitudes that were reported also correspond to new identities for those involved? The field research found that forests in the area are emerging as important for protection. Accordingly, people had changed as a response, nowadays they “care about the forests”, were more careful and took steps to preserve them. Everyone agreed with the importance of regulating forest use and saw many benefits, not only direct uses, but also regulatory services obtained from forests. More, a desire for “green”, or “dense” landscapes was believed to be held by large parts of the population. ANR is taking steps to replant the open forests in the project area. All in all, it seems like the environmental subjects Agrawal (2005: 16) described as “those for whom the environment constitutes a critical domain of thought and action”, are highly prevalent within the villages visited. It is a very difficult task to assess to what degree new identities are actually taking form. Further, deeper and more detailed interviews would be needed. The findings of this study suggest that forest conservation has become more important for people in the project area. Water and air provision are held as the main reasons for protecting forests. This may represent a shift in valuation, from a primarily economic, to an ecological understanding of forests. It can not be said with certainty that communities have found new values for forests today, but the conclusion drawn from the empirical material is that faced environmental scarcities have opted people for greater awareness and new perceptions of the fragility of ecosystems. The described modification of practices verifies that real changes have been taking place in the area, that goes beyond a will to appear ecologically aware. In turn, new environmental subjectivities can be said to take form as forest conservation is turned into an agenda. Likewise it is likely to say that a change in awareness has taken place, where people have been made more inclined to take action against deforestation. It does not mean that forest regulation is something new in the area, quite surely, people have known of the importance of forests and conserved their local natural resources far longer than was sometimes suggested. The ecological functions of forests form the basis for most people's livelihoods. Community responses to deforestation and a dryer climate show this. Lesser dependency on forest resources from new occupations and electrification has reduced the workload in some of the villages. It is unclear in what future direction this will push conservation attitudes. Possibly it will make it easier to raise awareness when people are not strictly dependent on forests for their livelihoods.

Over the years human conduct has been increasingly tied to forms of forest governance, both as rationalities and technologies to discipline individual behavior. Thus it makes sense to think in terms of a governmentalization of forests, as more of daily life around forests are appropriated and managed by community institutions. This entails both the direct regulations of human conduct through new rules, and the internalization of its rationalities. Villagers have been seen to internalize the objectives of the dorbar in a striking fashion, “people always understand after the dorbar”, in the words of one community facilitator. Awareness programs and new information have certainly played part, but the daily routines, the experience of environmental change and regulations of practices have had an equal, if not bigger, role in shaping conduct and attitudes towards the environment. The REDD+ project constitutes the latest phase of a governmentalization process, when expert knowledge mounts the role of the benefactor of sustainability. Forest conservation works through the individual, as a mean to control human behavior. The near disappearance of jhum cultivation among the villages visited is perhaps its most visible effect. The everyday actions, like collection of firewood, is where the governmentality of forests is found.
8. Conclusion

The question of subject formation in relation to environmental governance is what this thesis has been based upon. As decentralized and hybrid systems of governance, e.g. the inclusion of communities to manage their natural resources, are likely to further complement the state in conservation projects, the question deserves more research efforts. The role of communities in achieving sustainable development is recognized by policy makers, from global negotiations on climate change to various co-management schemes and public-private partnerships. In India, joint forest management is supposed to involve and respect the rights of the country's many tribal communities for whom forests form an integral part in their livelihoods and culture. REDD+ and other PES-schemes represent a recent form of environmental governance, where ecosystems are to be preserved based on performance based payments. To understand how perceptions and attitudes of the environment are linked to governance would help the implementation of such projects. According to Agrawal, political ecology studies often neglect the prospect for changes in subjectivities, the subject is already present. This fail to take into account how interests, attitudes and practices are open to change and the social constructiveness of much what we take for granted in human-environment relations. Community identities and interests are two such things, which in turn allows us to challenge the view of communities as uniform, ecologically aware, entities. Sometimes the dominant narrative contains contradictory elements, such as the description of Khasi culture as conservation friendly and at the same time, peasants as unknowing of environmental conditions. This study has shown changes in subjectivities, largely as a reaction to forest loss among villagers in the Khasi Hills. At some places the REDD+ project has facilitated these changes by awareness programs and other activities.

When forests emerged as important domains for protection and regulation, it was followed by new attitudes and practices. Communities respond to changes in their environment which makes people confront these issues in their daily lives. In participatory management, forests are a source of discussion, monitoring and learning. It shows that community management is not static, but adaptive to its surroundings and capable of change. More, the field research has shown accompanied changes in perceptions of the environment to be widespread. A proliferation of stricter rules and regulations, deforestation and a dryer climate, raising awareness and information, and changes in practices have been prevalent to internalize a disciplining of individual behavior. Deforestation rationalities, framing forest loss as the consequence of unsustainable practices, and technologies of governing human conduct have given raise to new environmental subjectivities. People who took part in the group discussions and interviews expressed a situation where forests over time have gained attention for greater care. Not just in the daily actions, but also in the mindset of people. Forests are seen as important for protection, for personal use, as well for its regulatory services and as an entity in itself. This is reflected in the values people attributed to forest protection, where the ecological functions more than the strictly economic uses were the most frequent reasons stated.

A governmentality process has unfolded as forests become a domain for controlling individual behavior, in the caring for the population as a whole. The governmentality of forests entails the strategies of conservation and its discursive elements, the imagery and the narratives circulating among communities. Consent is crucial to make people internalize the objectives of government. The traditional institutions have been successful in this regard, probably because of the collective element of the dorbar and participatory control. But as has been shown, this is not only a matter of conscious strategies towards a set of given finalities in the art of governing. The material aspects of trees have been significant to understand how subjectivities have changed. A perceived degradation
of the environment has mobilized support for conservation practices as much as any awareness program. It is worth repeating how Agrawal noted that people often first come to act in response to what they see as their short-term interest and only later develop beliefs to defend their actions. The short-term interests in the project area concern a lack of resources and water due to deforestation. It is in this environment that the REDD+ project has raised awareness for forest conservation. Whether this stems from experienced degradation of environmental services or a perceived threat of such is open for further investigation. Through their actions people can come to experience and see the environment in new ways, which perhaps would not have been the case without also new information. A parallel can be drawn to climate change and the other end of carbon offsets, where the purchase of carbon credits is a way of showing a “green” identity. Likely, such new identities foster social action in ways that strengthen both.

It should be obvious by now that the aim of this thesis has never been to view certain narratives of environmental change as inaccurate, or portray expert knowledge as hegemonic in its relation to local conditions. To fully trace deforestation in the Khasi Hills, a chain of explanation should look into how forests and land are becoming commodified in the district and the role of ethno-tribal identities for political action. Neither has the intent been to call into question the serenity of conservation strategies, the legitimacy of community management, or the good will of development projects. The question of subject formation goes beyond what is right or wrong. The future success of the Khasi Hills REDD+ project is tied to external factors far away from the project area, not least the development of the carbon market and climate change politics. No negative voices over this particular form of forest conservation was heard during field research, if anything people have adopted conservation friendly attitudes, something that prove a supportive opinion. For geographers, REDD+ and other PES-schemes should be of interest because they link together several scales of governance in the making of a particular carbon landscape. The influence of such multiple scales on people and the environment have been cautiously left out of this study. It provide opportunities for more research to grasp how environmental governance affect subject formation over various scales. Studies of decentralized environmental governance has so far paid little attention to subject formation as part of political and institutional arrangements. This is an important task as decentralized governance builds support from the view of local communities as ecological aware units, but a pre-given set of interests or understandings of actors can and should not be assumed. People respond to changes in their environment, rule systems and practices, among other things.

The field research shown four recurrent themes as important for environmental subjectivities, but it can not be said which variables that have been crucial for subject formation. People reported changes in attitudes under conditions of deforestation as well as forest growth; high and declining forest dependency; proliferating and stable rule systems; changes in traditional practices as well as small or no changes; involvement and no involvement in project activities, and likely many other factors which were not considered here. Further research would be needed to say under which conditions environmental subjectivities are inclined to move in certain directions. For REDD+ projects the findings compels us to look closely at the technologies involved at a particular site, technologies both in a governmentality sense, as the rationalities and governing of human conduct, as well as the material technologies in carbon offsets. This study reaffirms the conclusions made by previous researchers that the material technology and its social connections are crucial in the governmentality of carbon offsets. Instead of ignoring the offsetting technologies, as done in the final emission reduction, we should look at which landscapes and perceptions that sprung from their existence. A landfill gas project is likely to produce different subjectivities than a reforestation project, energy efficiency is likely to be different to hydro power, and so on. It is suggested here that the materiality of trees provide their own complexity to a PES-scheme, found within their
uncooperative nature. The small number of forestry projects within carbon offsets hints this and methodological uncertainty has so far kept REDD+ outside the CDM. What this thesis has tried to show is how new subjectivities can be formed and their consequences for environmental governance. Importantly, the formalization believed to be part of any PES-scheme is not always in the front of this process. Governmentality also works through existing governance structures and the environmental conditions in an area, which was shown to be highly effective in building support for forest protection. In the Khasi Hills, traditional institutions provided the context that made changes in land tenure and demarcation obsolete. Instead it has been through the decentralized forest management that a governmentalization has occurred in the making of environmental subjects. For a conservation project it is worth noting that new identities rather than new structures can be the determining outcome for conservation goals.
Reference List


Murray Li, T. (2007). *The Will to Improve: Governmentality, Development, and the Practice of


Appendix I. List of Respondents

Interviews (* community facilitator or synjuk staff)

12/03/2014*  L. S. Majaw, Accountant, Mawphlang village
12/03/2014*  Velerie Janai Marboh, Project Assistant, Mawphlang village
17/03/2014*  Hamphrey L. Rynatathiang, Treasurer, Mawphlang village
18/03/2014*  David Khasain, Community Facilitator Hima Pamsanngut, Tyrsad village
18/03/2014  Saralin Rynjah and Soon Khasain, Tyrsad village
20/03/2014*  Shri Willfringson Umdor, Community Facilitator, Hima Mylliem, Tyrsad village
20/03/2014  Jesse Andy Khongsit, Tyrsad village
22/03/2014*  Flystar Synrem, Community Facilitator Hima Laikroth, Lait Kynsaw village
22/03/2014  Jacinta Lyngdoh, Wahstew village
25/03/2014*  Rolandstar Jyrwa, Community Facilitator Hima Nonglwai, Nonglwai village
26/03/2014*  Wanbok Rani, Community Facilitator Hima Nongspung, Tyrsad village
27/03/2014*  Lewis Nongbri, Community Facilitator Hima Sohra, Jathang village
02/04/2014*  Shri N. K. Lyngdoh, President of the Synjuk, Mawphlang village
02/04/2014*  Donkupar Lyngdoh, Community Facilitator Hima Mawphlang, Mawphlang village
05/04/2014*  Aiborson Umdor, Community Facilitator Hima Lyniong, Lyngdoh Phanblang village
07/04/2014  Wiarta Shabong and Pritmon Shabong, Synrang Sohnoh village
07/04/2014*  Tanbor Wanniang, Community Facilitator Hima Mawbe, Synrang Sohnoh village
08/04/2014  Phranstar Rani, Mawliepoh village
08/04/2014  Wansynstar, Mawliepoh village
11/04/2014  Bringson Nongbet, Rampna village

Group Discussions

20/03/2014  Hima Mylliem, 9 participants, Tyrsad village
22/03/2014  Hima Laikroth, 9 participants, Lait Kynsaw village
22/03/2014  Hima Mawbe, 9 participants, Wahstew village
25/03/2014  Hima Nonghwai, 11 participants, Nonglwai village
26/03/2014  Hima Nongspung, 7 participants, Tyrsad village
27/03/2014  Hima Sohra, 5 participants, Jathang village
02/04/2014  Hima Mawphlang, 7 participants, Umtyrniut village
04/04/2014  Hima Nonklaw, 3 participants, Sohrarim village
05/04/2014  Hima Lyniong, 17 participants, Lyngdoh Phanblang village
05/04/2014  Hima Lyniong, 15 participants, Lyngdoh Phanblang village
Appendix II. Interview Guide Community Facilitators

1) Tell me about the forests in your hima.

2) Who owns the forests here? Has this changed?

3) Do you know if forests are being demarcated in your hima? For how long? How is this done?

4) Has there been deforestation/degradation of forests? What do you think are the main drivers of deforestation and degradation?

5) Tell me about the rules and regulations of how the forest can be used. Have these rules changed? How? When? Are there more rules today?

6) Do people follow the rules? Why/why not? Does the villages monitor themselves?

7) What kind of activities has the project organized in your hima?

8) Tell me how the project work to raise awareness among the people?

9) Would you say there is a difference today compared to some years ago in how people use and think about the forests here? Reason? How is this expressed?

10) Do you think people living in your hima have gained new knowledges of forests? Is there any specific type of knowledge that you think has been important here?

11) How aware would you say the people are about the objectives of the REDD+ project? Do you think there is a difference in attitudes between those who participate and are aware of the project and those who does not?

12) What do you think are the main reasons people engage in protecting forests?

Is there anything that you would like to add or comment upon?
Thank you!
Appendix III. Interview Guide Villagers

1) What role does forests play to you and your family?

2) Tell me about the forests of your village.

3) If you compare to 10 or 5 years ago, are there any differences?

4) Who owns the forests here? Has this changed?

5) Do you know if forests are being demarcated for different purposes in your village? For how long? How is this done?

6) Tell me about the rules and regulations of how the forests can be used. Have these rules changed? How? When? Are there more rules today?

7) Do people follow the rules? Why/why not? Does the village members monitor each other?

8) According to you, what is the main importance of protecting forests?

9) Have you been participating in activities (meetings, planting trees etc.) to protect forests? Have you gained any new knowledges that you think are important?

10) Have you heard of or participated in any activities to preserve forests for containing the carbon inside trees? If so, what do you think of this?

11) Would you say there is a difference today compared to 5 or 10 years ago in how people use and think about the forests here? Reason? How is this expressed?

12) Have you or your family made any changes in how you use forests over the last years? If so, what are the reasons?

Is there anything that you would like to add or comment upon?
Thank you!