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Passing Environmental Knowledge on to the Next Generation in Nepal - A Narrative Analysis

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Abstract

This Master of Science thesis in International Environmental Studies investigates the research question: How do environmental narratives from home and (pre-) school shape children's environmental knowledge at an early age in Nepal, and to what extent does the education system integrate local environmental knowledge in the teaching?

The research question is investigated through a narrative analysis. The analysis is based on primary information, which was gathered during 4 months fieldwork in Nepal in July 2014 and from mid-September to mid-December 2014. The analysis starts with a presentation of two narratives that emerge through the collected data. It compares these narratives to already established narratives and discourses. Further, the narratives' productive power is investigated. I analyse how these narratives frame nature and actors, how they are produced and reproduced, and what actions these narratives make preconditions for. Finally I analyse how the narratives are challenged and changed.

Declaration

I, Anette Leivestad, declare that this thesis is a result of my research investigations and findings. Sources of information other than my own have been acknowledged and a reference list has been appended. This work has not been previously submitted to any other university for award of any type of academic degree.

Signature.....

Date.....

Preface

This thesis is my final work in the Master of Science in International Environmental Studies programme at the Norwegian University of Life Sciences (NMBU), Ås. My MSc thesis presented me with the opportunity to use my practical experience in an academic setting. More than 10 years of work experience with young children as a Montessori teacher, kindergarten owner and manager have influenced my belief in the importance of early year development for people's relation to nature. I am grateful for the opportunity to do my research in kindergartens, schools and families.

I owe thanks to all the people that helped me during different stages of the research process. Thanks to all the interviewees that shared their time and knowledge; this research is a result of their contributions.
Thanks to Tor Arve Benjaminsen at NMBU for good supervision during all stages of the research. Thanks to Paul Beaumont at the NMBU Writing Centre for his ever patient support, and Afshan Bibi for proofreading. Thanks to the people at Kathmandu University that helped me with accommodation and a translator. Thanks to the people at Early Childhood Education Centre for teaching me about kindergartens in Nepal and establishing contact with kindergartens and schools in Lalitpur, Kathmandu and Bhaktapur. Thanks to Nepal Federation of Indigenous Nationalities for teaching me about indigenous people in Nepal and finding a good research site. Thanks to the Dura Community for inviting me to their village, and for their hospitality during my stay. I owe a special thanks to my translators Cuzaan Dura and Vijaya Tamla for their efforts in the field.
Thanks to all people that taught me about Nepali culture and kept me company during my stay. A special thanks goes to the families I stayed with, and the managers and girls at the girls' hostel in Lalitpur. Thanks to Manisha Tamang for her patience teaching me Nepali and Kedar Gandhari and the Gandharba people for beautiful folk music.
Finally, thanks to my family for their unwavering support.

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1. Introduction

1.1. Choice of topic

The world today faces global environmental challenges such as the loss of biodiversity, natural resources and climate change. Ensuring sustainable development is one of the UN's millennium development targets, along with other development goals like education for all and eradication of extreme hunger and poverty ("UN Millennium Project", 2006). In the last decade, international agreements on environmental issues and global environmental management ideas about how to solve both environmental issues and develop countries have shown that blueprint solutions seldom work out (Escobar, 2012). Nepal serves as one example where a western model of education encouraging rural transformation as a way to develop has not served its purpose (Parajuli, 2014b).

The Human Development Index (HDI) ranks Nepal among the world's least developed countries with two-thirds of the labor force engaged in agriculture. According to the Human Development Report 2014, there are large social inequalities due to factors such as: caste, ethnicity, gender and also regional differences in Nepal. The report recommends the Nepali state to focus on (among others) agriculture and education to decrease inequalities, and to transform agriculture from subsistence to commercialisation and modernisation to develop the country (Nepal Human Development Report, 2014). Along with the need for rural development, Nepal faces environmental challenges like deforestation and climate change (Sherpa, Sherpa, Ghale, & Rai, 2010). Because blueprint solutions neither serve to solve environmental problems nor bring forth development (Roe, 1991), it is thus necessary to see Nepal´s development challenges from a local perspective. The environmental knowledge of people that has sustained their lives through agriculture for generations can play an important role in the country`s transition towards development.

Environmental education has become an important part of preparing for future environmental problems, and is also seen as important for development. When UNESCO (2005) launched the Decade of Education for Sustainable Development 2005-2014, environmental education was a part of the programme. Preparations for the Decade of Education for Sustainable

Development in Nepal see a potential for improving education on sustainable development and including local people´s environmental knowledge (Bhandari & Abe, 2003). However, by the end of the decade the Nepali education system still has a long way to go to recognise and integrate local people´s environmental knowledge (Parajuli, 2014b).

To really understand the nuances of the situation you need to step beyond the traditional methods of measuring. This thesis investigates how two different narratives about the environment pass environmental knowledge on to children between 3 and 9 years old in Nepal. One narrative is based upon traditional spiritual beliefs and the other is based upon scientific knowledge represented in the education system. Further, the thesis discusses how these narratives relate to other discourses. The narratives have productive power and frame nature and actors in specific ways that have political implications. They are produced and reproduced in different ways, and they are also in change. These aspects may give some insight into why education does not manage to play its intended role in rural transformation and development.
An analysis of differences in the two narratives can shed light on the challenges of integrating local environmental knowledge in formal education.

1.2. Research questions

This thesis investigates the following research question:

How do environmental narratives from home and (pre-) school shape children's environmental knowledge at an early age in Nepal, and to what extent does the education system integrate local environmental knowledge in the teaching?

During the analysis the following questions have helped illuminate different aspects of the main research question:

- Which narratives emerge through the collected data, and what other discourses and narratives do these narratives resemble?
- How do the narratives frame nature and actors?
- How are the narratives produced and reproduced?

- What actions do the narratives make preconditions for?
- How are these narratives challenged and changed?

These questions differ from the sub-research questions that guided the interviews during my fieldwork. Out of the initial sub-research questions, questions 1 and 3 and to some extent 4 are covered in the above questions.

Initial sub-research questions:
1. Which environmental narratives are told to the children, and how do these narratives explain the relationship between society and nature (storyline, actors, and metaphors)?

2. How is "a healthy environment"/the preferred state of surrounding nature described, and what human attitudes and practices support a "healthy environment"?

3. How do the narratives from formal and informal education differ in ontological understandings of society-nature relations?

4. What are the benefits and challenges from integrating parents' local environmental knowledge in the visited kindergartens and schools?

1.3. Initial perspective and perspective evolving through the collected data

My initial perspective was political ecology, recognising the interconnectedness between the environment and political decisions. I wanted to see how different discourses on the environment and human-nature relations influenced children, and also their parents and teachers. To understand the entire complexity of the discourses was not my scope, I looked for narratives about the environment and what ontological positions these narratives represented. My main aim was to investigate how different understandings of the world - represented by spiritual beliefs and science may merge or create tension. However, during the analysis the perspective changed and other aspects became central, as shown in the change of sub-research questions. Ontological positions of the narratives became a part of the thesis instead of the main focus. The end result is a more Foucauldian approach to how power and

knowledge are interlinked. It became relevant to shed light on how the narratives I found relate to and are strengthened by other discourses and narratives. Further, I analyse the productive power of the narratives – how they produce nature and actors and how this affects children's identity formation. I then discuss how the narratives are produced and reproduced, what actions these narratives lay preconditions for, and how the narratives are challenged and change. By choosing such a perspective the political implications of the narratives become more visible.

1.4. Theoretical framework

1.4.1. Nature and environmental knowledge

"Nature" is a very complex word that can refer to a very wide range of phenomena, and can thus be tricky to understand. The word "nature" can refer to the entire physical world, the non-human world, the essence of something, or an inherent power or force. Terms for nature include: ecosystem, wilderness, biology, reality, genes, life, human, instinct and environment (Castree, 2013).

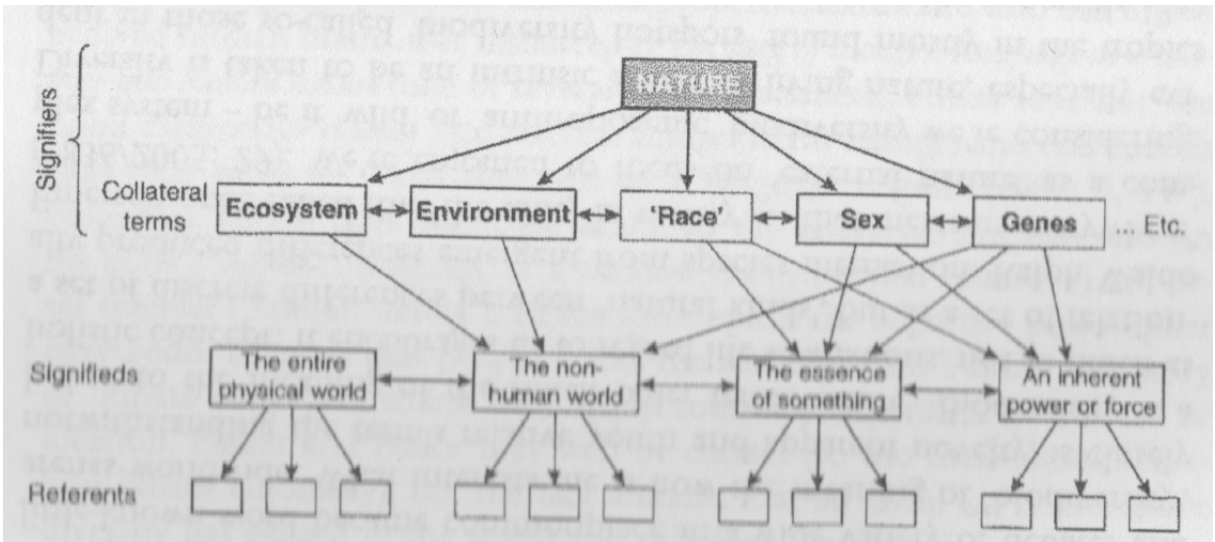

Figure 1.4 Nature and its collateral concepts

The principal meanings of the word nature (i.e. what it signifies) are routinely attached to all manner of material referents by way of other words (i.e. collateral terms). The words and meanings become conjoined in often complicated ways; however, these collateral terms may also signify meanings *beyond* the four signified by 'nature'.

Figure from Castree (2013, p. 18).

"Environment" simply means the surroundings, and the term is often used to mean the surrounding nature. In this study nature is understood as more-than-human nature. It therefore includes fields, forest, plants, animals, sky and mountains, weather… in one sense, "everything" that is not human (Abram, 1996). Environmental knowledge thus refers to people's relations to the more-than-human nature. This relation consists of people`s socially constructed understandings of the environment and people`s actions – actions that both result in, and come from understandings.

As I study how environmental knowledge is passed on to children aged between 3 and 9 years old, the terms "nature" and "environment" must include what the children are able to grasp at their developmental stage. For the 3 year olds, "nature" in the beginning means the very concrete - other than human world – in our surroundings. Up to 9 years old the children have a higher level of abstraction, and nature and environment include ideas about nature. Thus, I am also interested in "the nature of nature". As a simplification, these ideas about nature are understood to come from Western science, spiritual beliefs and experience-based practices. The ideas are seen as passed on to children from the older generation as narratives. Thus I am also interested in the environmental knowledge of parents and teachers, and also of people who work with educating teachers or in other ways with the curriculum of kindergartens and schools.
Using fuzzy concepts as "nature" and "environmental knowledge" instead of choosing a specific area (as forests or climate change) has some challenges. It may have resulted in scattered data; on the other hand, a benefit is that the interviewees talked about what was most relevant for them. This may have given more insight in which discourses people are influenced by, and thus have more interest from a political ecology point of view.

1.4.2. Political ecology and discourses.

Political ecology as a field emerged out of the need for understanding both the biophysical and social background for environmental issues. It built upon research fields such as political economy and cultural ecology, and added the dimension that ecology is inevitably political. Political ecology investigates the relation between society and nature in a critical, political way. Research cannot be neutral; its concepts have a historical heritage (Robbins, 2012). Instead of scientific "truths", the different versions of environmental issues can be critically evaluated by looking at how they are presented in different discourses (Blaikie, 1995).

Discourses are defined by Adger, Benjaminsen, Brown, and Svarstad (2001) as "knowledge regimes", or shared understanding of a phenomenon. A field of knowledge evolves through discourse, and is in itself a discourse. Discourses are then a set of statements that provide knowledge within a field, and thus pretty much determine how we interpret our world/reality in that field. There are often many competing discourses in a field at the same time or evolving through time. Different actors like: national or international organisations, activists, scientists, states and local populations – present their versions of reality, which both shape and reinforce the actors' agenda. Leading discourses are powerful in shaping our understandings of the world, and they are related to power in society as they influence policies and decision-making.

Power relations have been central in critical evaluations of different discourses in political ecology. Topics such as: degradation and marginalisation, conservation and control, environmental conflicts, environmental subjects and identities, political objects and actors are central in political ecology (Robbins, 2012). Political ecology has evolved during the last decades from structure-oriented, to more mixed actor and structure-oriented explanations (Escobar, 2007). According to Arturo Escobar (2010), today's third generation of political ecology arises out of a broader transformation in social theory, what is called the "ontological turn". "Political ecology can be defined as the study of the manifold articulations of history and biology and the cultural mediations through which such articulations are necessarily established" (Escobar, 1999, p.3). Political ecology as a field has no central theory; it is more a community of practice that critically examines the existing discourses or truth regimes (Robbins, 2012).

This thesis examines how environmental narratives contribute to truth regimes, what other discourses they are related to, and how power and knowledge is interlinked. I discuss the topic degradation and marginalisation, and also touch upon environmental subjects and identities through analysing how the narratives affect children´s identity formation. As primary data of investigation this paper examines the discourses about nature found in a small sample of homes and schools, and how they influence the formation of children as environmental subjects. Unable to cover a full understanding of the existing discourses (in a country foreign to me, through interviews conducted within a limited time), a suitable

approach is to examine the narratives about nature and the environment that emerge from the interviews and observations.

1.4.3. Discourses and narratives

Michel Foucault has been central in the development of discourse analysis, both through theoretical work and empirical research. Foucault states that knowledge is situated, which means it is found in a certain place and time. People produce and reproduce systems of understanding the world through representations, and there is no realm of extra-discursive truth beyond discourse. This is a post-structuralist stand which means that discourse - rather than reflecting the world in an objective way, systematically forms the objects of which they speak (Foucault, 1980). For instance, if lightning struck a house, one person may speak of this as a natural phenomenon, while another person may say this proves that the house is impure. The event is the same, but how it is spoken about depends upon the structuring of a discursive field.

There is a symbiotic relationship between knowledge and power; they mutually reinforce each other. Foucault claims that in studies of power institutions like "the state", the institution has gained too much attention; rather, to understand power one must pay attention to small everyday physical mechanisms, systems of micro-power (Foucault, 1980). The everyday statements of people on a micro-level produce and reproduce discourse. Power is dispersed, and so in a sense even a child reproduces discourse. "… discourse constructs the social world in meaning, and that, owing to the fundamental instability of language, meaning can never be permanently fixed" (Phillips & Jørgensen, 2002, p. 6). Discourses are thus not fixed and stable, but always in flux and are constantly transformed through contact with other discourses.

Such is the case with environmental discourse; Hajer (1995) shows that a discourse on acid rain can include discursive elements from various disciplines like: physics, ecology, tree physiology, mathematical modelling, economics, engineering and philosophy. This discursive complexity and flexibility often goes unattended when policy makers base their decisions upon facts provided by different discourses. Even if power is dispersed and discourse is produced and reproduced through systems of micro-power, some actors have more social power than others and their productions of discourse are more likely to achieve hegemony.

Different discourses, with their respective representations of the world, constantly struggle with each other to fix the meanings of language in their own way. When one particular perspective dominates, this discourse has achieved hegemony (Phillips & Jørgensen, 2002).

Power must be understood not only as coercive but also as productive with a dimension of how discourse produces different representations of the world (Foucault, 1980). Discourse analysis can help us understand how the seemingly unchanging and "natural" phenomena that constitute our worlds are actually shaped through human history. "Discourse analysis makes the social world more transparent by demonstrating how its elements interact" (Neumann, 2008, p. 76). Further, discourses contain internal rules that structure people's lives by enabling or constraining behaviour. Some questions would be impossible to ask within an existing knowledge regime, and some cases would be almost impossible to argue (Foucault, 1980). For instance would it be impossible to include an argument that menstruating women should not get close to endangered species in an environmental conservation discourse in Norway. The Norwegian culture has no connotations of purity and impurity, and such an argument would have no power. In Nepal however, connotations of purity and impurity are very much embedded in the culture, which would enable such an argument.

> "Because a discourse maintains a degree of regularity in social relations, it produces preconditions for action. It constrains how the stuff that the world consists of is ordered, and so how people categorize and think about the world. It constrains what is thought of at all, what is thought of as possible, and what is thought of as the 'natural thing' to do in a given situation" (Neumann, 2008, p. 63).

Discourses describe a complex reality, and their agenda is based upon interpretation of this reality. Being complex, their main messages are transferred to many people through simplifications as myths, metaphors and narratives. A narrative is a story, a simplified version of truth that is easy to remember. It contains a storyline and archetypical actors. The storyline contains a beginning, middle and end, and also predicts what will happen in the future. A typical cast of actors in narratives are the victim, the villain and the hero. These archetypical figures simplify the facts, and actors are categorised as "weak", "bad" or "good" (Adger et al., 2001). A narrative is designed to stick in our mind, make the agenda clear, and often has a dramatic structure that appeals to our emotions. The purpose is to create meaning for the receivers, to execute productive power. This created meaning can in turn inform political decisions (Hongslo & Benjaminsen, 2002) for example on environmental issues.

"Environmental narratives have been defined as convenient yet simplistic beliefs about the nature, causes and impacts of environmental problems, which also influence the generation of further environmental research and proposed solutions" (Leach & Mearns, 1996). Adger et al. (2001) identify major discourses associated with global environmental issues: climate change, deforestation, desertification and biodiversity use. Two main discourses on all these issues are a global environmental management (GEM) discourse and a populist discourse. The GEM discourse is based upon the belief that technological development and external policy intervention can solve environmental problems. The populist discourse presents local actors as victims, and external interventions as exploiting natural resources. However, the findings from local-specific research do not fit these discourses. Rather, the dominating discourses can obscure the complex interactions between people and environment that take place in a specific place (Fairhead & Leach, 1998).

Similarly, Emery Roe has investigated development narratives in Africa. According to Roe (1991), development narratives contribute to blueprint development – a belief in premade plans for rural development. Such premade plans based upon broad generalisations about development seldom work as planned. Other researchers have recommended abandoning blueprint development, and adopting a learning process approach towards development. However, development narratives persist even if empirical evidence from the field proves that they are based upon faulty assumptions. Roe (1995) describes two development narratives about Africa; one is the "Except-Africa" narrative. It is a crisis narrative which the media frequently presents, which concludes that development works except in Africa where everything gets worse. The other narrative is a neo-Malthusian Doomsday Scenario. This narrative describes how population growth and animal population growth accelerates and results in overutilisation of scarce resources. This, in turn, leads to political unrest and a situation where the government´s rural development policies are helpless. Roe states that:

> '… crisis narratives are the primary means whereby development experts and the institutions for which they work claim rights to stewardship over land and resources they do not own. By generating and appealing to crisis narratives, technical experts and managers assert rights as "stakeholders" in the land and resources they say are under crisis' (Roe, 1995, p. 1066).

Development narratives thus function as stabilising assumptions for policy making in situations that are complex and uncertain (Roe, 1999). Based upon blueprint generalisations, there are empirical problems with these narratives. They do not provide estimates about which levels of human and animal populations could secure sustainable resource use and lead to economic growth. Roe states there is a need for more policy-relevant scenarios - counter-narratives that can help stabilise policymaking. Counter scenarios require a reversal of old patterns of thinking. As an example – if African people describe poor education and not population growth as the main development problem, experts should investigate how this narrative can be true and what could be done to improve education (Roe, 1995).

In oral cultures, narratives: preserve knowledge, allow for adapting to changes by changing the stories according to the local situation, and pass on knowledge to the next generation (Bharucha, 2003). Narratives can be related to important natural sources; the information to be remembered can be memorised in stories that produce meaning far beyond the mere facts about the natural source. Humans, nature and supernatural entities may interact in a way that sustains the environment as it is today (Abram, 1996). These narratives represent not only a different culture than the modern western one, but also another understanding of reality – another ontology. One example is the song-lines of the aboriginal Australians. The song-lines are songs that are sung as people travel through the landscape, describing the journey of a "creator-being" in the time of Dreaming. Through the descriptions in the song people are able to navigate vast distances and find what they need in terms of food, shelter and other natural resources in the scarce desert-like landscape. Australia contains an extensive system of these song-lines, some of them hundreds of kilometres long. Even if they cross territories of tribes with different languages and different cultural traditions, people are able to recognize where they are through the song due to its melodic content and rhythm. By repeating the song-lines, people reproduce the narrative and thus keep alive a mythological map over a vast area and its natural resources (Abram, 1996).

1.4.4. Ontology, traditional ontologies and modern ontologies

While narratives are simplifications of discourses, ontology refers to the understanding of the underlying reality the discourses are based upon. I use ontology in the philosophical sense of theories or understandings about what exists (Pedersen, 2001). The term ontology indicates basic assumptions about the world and the forces that govern the world. In social science

disciplines like anthropology, there has been a shift recently towards speaking about ontologies instead of indigenous cultures when describing different knowledge systems (Blaser, 2013). “Some recent trends discuss the multiplicity of socio-natural worlds or culture-natures, relational versus dualist ontologies, networked versus structural forms of analysis, and even a renewal of the question of what constitutes life” (Escobar, 2010, p.92). This implies a shift towards an anti-essential understanding of reality and opens up for multiple realities. Ontologies differ from cultures in the way that one essential reality can foster different cultures, and also in that our experiences of the world are more direct. Not through linguistic or symbolic reference representations, but through our bodily experiences (Fosshagen, 2014). It can thus be said that we enact our realities (Mol, 1999). “…instead of studying people's knowledge of the world ..(one) ..has begun to take people's worlds seriously and instead study how they produce their worlds” (Ziegler Remme, 2013, p. 9). This thesis recognises that multiple ontologies are represented in the collected data. In some areas they merge and co-exist, and in other areas they oppose each other. Two main distinctions are presented in the analysis.

The term traditional ontologies represents the spiritual-based animist ontologies found in the local (and also national) culture. I (admittedly unfairly) treat them as one group, to represent traditional ontologies other than modern ontologies. Origins are Shamanistic traditions, Buddhism and the former state religion Hinduism. Some characteristics of these ontologies are a belief in gods and supernatural powers as strong determining forces, nature as a place where gods reside, and reciprocity between humans and gods.

Modern ontologies refers to an essentialist understanding of reality, a reality science can uncover. The Cartesian divide between the abstract ideas and the concrete matter allows for this understanding. It is seen as a product of western culture, and has greatly influenced discourses on environment, development and education. Even though questioned and contested in social science today, these ontologies hold a strong stand (Hornborg, 2010). Analysing ontologies can provide insights into the human-nature relationship presented in the narratives. It thus provides insight into different perceptions of environmental knowledge, and how this is passed on to the children.

1.4.5. Children and human/nature relations

Anyone under 18 is legally a child, in this paper my main focus is on children between 3-9 years old. Children relate to nature through their own sensorial and practical experiences and so human/nature relations for children are thus performed. What kind of experiences they will get obviously depends on the biophysical reality of the nature they are exposed to. Equally as important are the people around the children who let them get different experiences, and who help them interpret these experiences. The social construction of our understanding of nature starts in early childhood with the help of important people around us (Breidlid, 2013). These important people around us can be family, friends/peers/classmates, neighbours, teachers at kindergarten and at school. Family in this context means the ones that the children live with. It is the social aspect – time spent together – that is important for influencing the children. I am not going into descriptions of how they are actually related, if the interviewees are called "sister", they are referred to as "sister" in the thesis even if they might actually be niece. These important people around us not only share their knowledge in the form of ideas with us, they also perform their relations to nature, and influence/encourage children to perform relations to the surrounding nature through informal education. Hence, children's relations to nature are in this thesis understood as a performed relationship.

How do children learn – about nature as well as other things? My underlying assumption is that of Montessori pedagogics. In the age between 3-6 children have an absorbent mind; they take in all sensorial impressions in their surroundings and after 3 years they sort and categorise. From 6-9 the imagination is the main driving force for children's learning (Montessori, 1967). Children learn by doing, and learn from their surroundings; therefore both physical and social environment are important. Kindergartens and schools are institutions that provide formal education for children. Education means a process of teaching, training and learning to improve knowledge and develop skills (Montessori & Carter, 1963). Kindergartens and schools in Nepal follow a state curriculum (Ministry of Education and Sports, 2005). The curriculum is a working tool for the teachers, it states what children are expected to learn at different grades, and also informs them about the overarching goals of the education.

1.5. Limitations and remarks

This research explores the above-mentioned concepts and attempts to do so within the field of political ecology. Other fields such as anthropology, pedagogics and philosophy could add more insights to the topic, but are not a part of this study. Several areas are left out or only touched briefly upon, and this represents some limitations to the thesis.
First, the historical and present political situation in Nepal lays the foundation for present power relations in society, and has a central role in shaping the education system.
Second, language plays a central role in environmental knowledge, and the exclusion of native languages in the education system is a factor that contributes to the marginalisation of people and their knowledge. Third, this thesis does not investigate local people´s knowledge about the environment, and thus the collected data does not go into the specific skills and knowledge of local people. Nor does the thesis go in depth on spiritual traditions.
Finally, this is not a study in pedagogics. The thesis does not give an overview or analyse the content of the curriculum at school, only highlight some examples to support the argument. Criticisms of the education system with its strong emphasis on rote learning and academic performance at an early age occurred frequently in the collected data and were seen as a hindrance for children´s learning about the environment. However, this is also omitted from the thesis.

1.6. Thesis structure

In the next chapter I present my choice of research method, how I did the data collection, and my own role in the research process. In *chapter 3* I present background information about Nepal. First I present the natural basis of Nepal and relevant environmental issues, then the research sites Lamjung and Kathmandu. Further this chapter contains: cultural aspects of Nepal, a brief history of Nepal, education in Nepal and political ecology in Nepal.
In *chapter 4* I present the findings from the collected data and analyse them. First the two narratives are presented, followed by resembling discourses and narratives. Then I discuss the productive power of the narratives, followed by a section on power in the narratives. Further I discuss the preconditions for actions the narratives lay the foundation for, and end up with discussing how the narratives are challenged and change. In *chapter 5* I gather the threads and present a conclusion.

2. Data collection and methods

2.1. Qualitative research methods

Research on passing environmental knowledge on to the next generation in Nepal could perhaps theoretically have been done by other methods – as statistical surveys or mixed methods. However, the advantage of qualitative research is that it aims to get an in-depth understanding of how people understand and enact their relations to the environment. Qualitative research can answer other kinds of questions and can capture insights in complex nuances that are lost in quantitative data collection. "Qualitative research, thus, refers to the meanings, concepts, definitions, characteristics, metaphors, symbols, and descriptions of things" (Berg & Lune, 2012, p. 3). Qualitative research has its strength in describing specific situations or people, detecting meaning from interviewees and observations and understanding processes that lead to actions and outcomes (Maxwell, 2013). "Researchers using qualitative techniques examine how people learn about and make sense of themselves and others" (Berg & Lune, 2012, p. 8).

2.1.1. Key premises for discourse analysis

Narrative analysis forms a part of discourse analysis - a qualitative approach where theory and methods are intertwined. As I have presented discourses and narratives in the theoretical framework section 1, in this section I only sum up some key philosophical premises underlying discourse analysis as a method. Discourse analysis is based upon the social constructionist approach towards culture and society. This means that the social world is constructed socially and discursively, it is not pre-given and determined by external conditions. The first key premise for discourse analysis is a critical approach to taken-for-granted knowledge; language is not a reflection of a pre-existing reality and there is no objective truth beyond products of discourse. The second key premise for discourse analysis is historical and cultural specificity; our knowledge about the world is a product of interchanges among people at a specific time in history and at a specific place. The third key premise for discourse analysis is a link between knowledge and social processes. It is through social interaction our ways of understanding the world are constructed. The fourth key premise for discourse analysis is a link between knowledge and social action (Phillips &

Jørgensen, 2002). Discourses are preconditions for actions as they enable some forms of actions and marginalise other forms (Neumann, 2008).

2.1.2. Discourse and narrative analysis.

Discourse analysis focuses on claims concerning a phenomenon, the actors who make the claims, and the process in which the claims are made (Adger et al., 2001). The main aspects of discourse analysis are: analysis of regularities in expressions to identify discourses, analysis of the actors that produce, reproduce and transform discourses, and social impacts and policy outcomes of discourses.

While discourses refer to frameworks for construction of broader and more abstract phenomena, narratives refer to social constructions about specific cases (Benjaminsen & Svarstad, 2008). Thus, narratives are a way of expressing discourses. Narrative analysis covers a broad range of approaches that are "concerned with the search for and analysis of the stories that people employ to understand their lives and the world around them" (Bryman, 2008, p. 55). In this research the interviewees told bits and pieces of what I during analysis divided into two categories - a modernist narrative and a traditionalist narrative. I examined the data for regularities and information that shed light on these narratives.

2.1.3. Validity

In discourse analysis there is no method to validate that the relationship of the analysis to reality is captured in a correct way. The analysis is an interpretation of the collected data, and thus the subjectivity of personal reflections is what adds quality. Whether other researchers could have replicated the research is therefore not a criterion for validity. Further, discourses are always in flux, and the collected data will contain diverging statements. The data contains several possible patterns that could have led to different analysis. The validity and quality of discourse analysis can be evaluated in terms of how trustworthy it is, and whether the analysis can be said to be fruitful. To make this thesis trustworthy, I try to make the research process transparent. In the methods section the reader should get an insight into how the research was conducted, and how I have influenced the process. I account for my researcher bias so that the reader understands how my own interests, values and expectations have influenced the research (Maxwell, 2013). I also present the analysis as transparently as possible, as I

document the interpretations and give the reader access to empirical material. Further, the analysis is based on a range of interviews and observations to be as solid as possible. I aim for a comprehensive analysis, and illuminate different aspects of the data as suggested by Phillips and Jørgensen (2002). For an analysis to be fruitful, it has to add something new to the research field and eventually foster new types of thinking and actions (Phillips & Jørgensen, 2002). This thesis adds insight into how narratives about the environment influence children in the field of political ecology.

2.2. Personal involvement and choice of topic

Closeness to nature has been important for me since my childhood days. I have early memories of planting flowers with my mother in our garden at springtime, of the salty water and sandy beach in summer, the bright yellow, orange and red colours of fallen leaves in autumn, and crossing a small snow-capped field in our neighbourhood on my first skis with my parents. I played outdoors all year round with my friends, climbed our garden's apple trees searching for fruit, tobogganed on the nearest field in winter, and later when we got older – explored the native-like forest around the river in the nearby canyon. For me, having grown up on the outskirts of Norway`s largest city Oslo, nature is a source of relaxation, inspiration, adventure, and recreation. It is a place where I am reminded of how we share the earth we live on with a myriad of other beings, from the tiny saplings to the huge trees, insects, birds, mice and moose, a gratefulness for being here and a reminder of our complete dependence on nature.

My own relation to nature is socially constructed by the influence of the people close to me, my formal and informal education and the culture I grew up in. And by all the things I have done, like the ones mentioned above. The basis for people`s relation to nature is formed in early childhood years, and leads to the wide range of understandings of what nature is and how to relate to it.
I am interested in what, and how children learn about nature. Further, how this learning is not neutral, but political - and will inevitably affect how we relate to nature and treat nature. My choice of thesis topic has evolved gradually. My interest for Nepal started with my first visit to the country in 2012, when I visited a friend who worked at the Norwegian embassy in Kathmandu. She worked with (among other things) education, and presented me with the

current situation in Nepal. From the point of early childhood education, Nepal caught my interest. The government works towards education for all children from 1st to 5th grade, and also tries to include pre-primary education in the compulsory education programme. From the point of nature-society relations, Nepal is interesting due to huge diversity in nature and culture. When it comes to how natural resources are used in the future, education is important. What kind of stories are told, what ontologies they represent, and how they implicitly or explicitly create and recreate power relations interests me. Being among the world's least developed countries, there is much nature and little money in Nepal's rural schools and kindergartens. I believe it lays opportunities in integrating local people's environmental knowledge in the teachings, and it also opens up for new solutions based on local initiatives.

2.3. To do research in a country that is new to me, in a field that is known

Nepali culture and language were new to me, and that certainly affected the data collection and analysis. I came with my own experiences and understandings of the world. There are so many aspects of Nepali culture that I was not able to grasp during a four month stay - insights that might have improved both choices during fieldwork and the final analysis. Coming as an outsider from a rich country, people in the village regarded me as an educated, developed person being very different from them. That caused both interest and shyness. Language was a barrier in the village, while in the city the interviewees spoke English and were used to foreigners. In the village the gender differences were at times very visible; some of the male interviewees seemed to have difficulties in establishing eye contact with me and focused entirely on my male interpreter Tamla. Gender discrimination in the form of regarding menstruating women as impure is still common in many parts of Nepal, but did not pose a problem for me.

My host family in the village told me that previously menstruating women had to sleep outside in the barn with the animals, but I could sleep inside since this practice has vanished. Another aspect of being a foreigner in Nepal is the social hierarchy of the caste system. I was told that white people have a position somewhere in between – not as pure as the higher Brahmin and Chhetri casts, and not as impure as the Dalits. The cast system permeates the society, and people unavoidably position others they meet according to caste belonging. In the

village I was frequently asked which cast I belonged to, and it seemed to come as a surprise when I told people that Norway does not have a cast system. Being an outsider represented problems due to language, and being a white female affected my social status. At the same time being an outsider had some advantages as people found it interesting to speak with me.

Doing research in a known field represents a bias. "Objectively, social scientists should recognize that research is seldom, if ever, really value neutral. After all, the selection of a research topic typically derives from some researcher-oriented position" (Berg & Lune, 2012, pp. 208-209). I had some assumptions about quality in education, and I assumed many of the interviewees regarded me as an expert in education. Still I believe my background rather helped me open doors. The parents were likely to find my interest for their children authentic and thus trust me. Teachers and others working with education seemed to be more open in the interviews due to our shared work experiences. Nepalese kindergartens and schools differ from Norwegian kindergartens and schools in many regards, so in one way I researched something that was new to me.

2.4. Initial face – "getting in" – choice of sites.

As emphasised by Berg and Lune (2012), access to relevant research sites, good translators and "getting in" – gaining the interviewees trust and establishing good communication – was crucial for the quality of the collected data. A contact person at Kathmandu University (KU)[1] helped me to find a qualified translator and get in contact with Nepal Federation of Indigenous Nations (NEFIN) to identify an appropriate research site. My aim was to do research in a place where people's livelihoods were based on agriculture, and where there was a well-run kindergarten and school. Many schools and kindergartens in Nepal are poorly run; to get good data I preferred a best-case study to investigate education in schools and kindergartens that were regarded as well run. NEFIN suggested a research site in Lamjung where they had a project, and put me in contact with local resource persons – the chairman and vice chairman of the Dura community. They invited me to do research in two villages, and suggested a local translator and homestay. Together with the local interpreter I made a

[1] NMBU`s partner university in Nepal

three days trip to the villages to check if the site was suitable before I decided upon Lamjung as the research site.

2.4.1. Preparation phase, first plan and final plan

After choosing the research site and translators, I prepared for the fieldwork in Kathmandu together with the translator from KU- Vijaya Tamla. After a brief background literature search about the Dura community, Tamla and I discussed how to frame the research questions. We did a pilot interview together with one woman that did not speak English to try it out. Then we shared the purpose of the research and how we planned to do it with the local translator, Cuzaan Dura. I did a pilot group interview with 3 students at the hostel I stayed at, and a pilot observation with interviews at a nearby kindergarten.

My first plan was to stay in Lamjung for two and a half months, with the help of Tamla for three weeks. This would be more of an ethnographic study on the Dura community, with interviews and observations from two villages and two schools. After a month the data collection from one village was done. I adjusted the plan to have data from only one village, and include three schools and a kindergarten in Kathmandu, Lalitpur and Bhaktapur. The schools and the kindergarten were all private schools with a reputation of good quality, and were thus also best-case studies. The change of plan shifted the focus of the thesis from looking at a specific community towards interviewing more teachers and others that worked with education. As many urban schools have English as a teaching medium, I could do this without a translator.

2.4.2. Translators

In Lamjung few people knew English, and I was dependent on a good translator for good data quality. The ability to speak two languages well and provide good translations was only one part of it. According to Turner (2010), translators influence research in the same way as researchers – by appearance and background knowledge. Both Tamla and Dura had valuable contributions to the data collection that I could not have done without. Tamla worked as an

English teacher, and had done related research for his master's thesis [2]. Due to his previous experience with qualitative research he showed much interest for the topic during the interviews, he was good at establishing trust with the interviewees and making them tell their stories. He helped me frame the questions well and could tell small anecdotes that helped to keep the interest of the interviewees. Dura was in family with a respected person in the village, and her family had high status. Due to close relational bonds among the Duras she had many relatives in the village. Even though she grew up in Kathmandu, she knew much about the village and was central in getting access to the families.

As discussed by Uddin (2011), it is important to reflect upon how researchers can reduce the effect of being a stranger interviewing "others", establish trust and let peoples' stories be heard to get reliable data. The data collection in Lamjung was a result of the shared efforts of me, Tamla, Dura, and the interviewees – it was something we did together. Dura as an insider of the community and Tamla as an insider of the investigated field helped me to reduce the "colonial legacy of ethnographic fieldwork" (Uddin, 2011). Two translators turned out to be useful, as the family interviews took 1-1 and a half hours. As one translated, the other focused on the interviewee. To make sure all central points and interesting details were translated I recorded the interviews. As I wrote transcriptions Tamla checked if I had missed information, and conferred the record. One challenge with not doing the interviews myself was that the translator could put more emphasis on what he thought the researcher was looking for and thus filter the information in a biased way. As we all lived together, we got time to discuss both in advance and after the interviews in order to get reliable translations.

2.5. Sampling strategy

For family interviews my target group was mainly caretakers of children between 3 and 9 years old. I used purposive sampling (Berg & Lune, 2012) to find interviewees within the target group that would represent both genders, different age groups (both of the children and caretakers) and different kinds of knowledge.

[2] "COCK-A-DOODLE-DO!" A CLIMATE CHANGE ALARM (Tamla, 2013), narrative analysis of indigenous knowledge related to climate change.

In schools I interviewed as many teachers as possible that taught at the relevant age group. To get in contact with the target group I presented my research to Early Childhood Education Centre (ECEC). First I did a group interview with 3 principals recommended by ECEC, and then they invited me to one kindergarten and one school for further interviews and observation. This was a snowballing sample strategy. The last school visited was through a personal contact. For four interviews with others that worked with education I used a snowball sampling approach (Berg & Lune, 2012) starting with a contact at KU, the fifth interviewee I got in contact with through ECEC. These five interviews included two curriculum experts, one government resource person, a teachers trainer and a pre-school teachers trainer (Appendix 1 – Overview of the sample for interviews). Purposive sampling and snowball sampling were useful to find interviewees with relevant information, but as a non-probability sampling approach it does not allow for generalization to a larger population (Berg & Lune, 2012). However, through "saturation" – asking the same questions until I did not get new information – the idea is to achieve representation.

2.6. Interviews

I did semi-structured interviews, and the longer time the interviewees had set aside the more conversation-like the interviews were. The questions were open ended to allow for flexibility and unexpected information to occur (Berg & Lune, 2012). I wanted the interviewees to reconstruct their experiences related to the topic, to understand the lived experiences of people and the meanings they make of that experience. In the family interviews I used the three-interview approach by Seidman (2013). The first interview establishes the context of the interviewees' experience - background and current situation. The second interview goes more into detail about their experiences, and the third interview encourages the participants to reflect more in depth. With the families I had the opportunity to do three separate interviews. In the shorter interviews with the teachers I tried to include all stages within one interview. For all interviews I went through the purpose and ethical concerns of the research in advance and got informed consent from the interviewees (Appendix 3 - Interview guide).

2.6.1. Families

In Lamjung I did in-depth interviews with nine families from the Dura community to understand how environmental knowledge was passed on to the children. All participants lived in the same village, they did subsistence agriculture and some of the families received income from remittances or other work. Although we spoke to different people in the families, our main participant was the main caretaker. We asked to speak with the one that spent most time with the child, and thus was likely to have largest influence on the child. However, we may have ended up with the one that wanted to speak with us, the one available or the one with main responsibility in the family. It was common for three generations to live together, and also in extended families with in-laws or other relatives. To find the people and make appointments, we went from door to door in the morning or evening when people were at home.

2.6.2. Teachers, principals and others that work with education

I interviewed principals and teachers from one government school in Lamjung, and two private schools and one kindergarten in the city. Before I started research at schools and kindergartens I introduced my research to the principal for consent. Schools and kindergartens are busy places, and as I interviewed teachers in their work time I had to adapt to the school's schedule. Thus, the interviews were done in different ways. I decided to talk to as many teachers as possible rather than many times with each teacher.

The school in Lamjung was a government school with about 100 children and 15 teachers. Pre-primary and class 1 were together, with children from 3-6 years old. The school in Lalitpur was a private school with more than 1000 students from pre-primary to class 12. The kindergarten and school in Bhaktapur was a private school with more than 1000 students from nursery class (2 years) to class 12. The Kindergarten in Kathmandu was a private kindergarten with about 70 children from nursery class (2 years) to upper kindergarten (5 years).

To get some insight into the experiences of people that worked with the education system, I did five additional interviews. I interviewed two curriculum experts that in different ways

contributed to curriculum development, one government resource person that supervises and controls governmental schools, one teacher's trainer and one pre-school teacher's trainer.

2.7. Observations

I spent four months in Nepal and had good time for informal observation of everyday life and festivals both in the village and in the city. This resembles ethnographic fieldwork (Berg & Lune, 2012), and gave me insight into how people relate to the environment in their everyday life. The time spent on informal observation adds to the solidity of the thesis, as I learned more about the Nepali culture. After some months I learned some basic Nepali which made it easier for me to get in contact with all kinds of people, not only those who were fluent in English. I took some notes from informal conversations related to the research, which have been useful for my analysis.

2.7.1. Village life and homestay

In Lamjung I stayed with a family with one child in the relevant age group. This gave me an opportunity to see family life, observe daily activities as cutting grass for cattle and cooking food, and see how the child in the family and children in the neighbourhood lived and related to their environment. During my reconnaissance trip to Lamjung in July I could observe ploughing and planting rice in terrace fields. When I arrived in September people finished the last days of *parda* (shared work on the fields), and I could join them to celebrate when they finished the *parda*. People were also preparing for the main festival *Dashain* with brewing alcohol, slaughtering goats and buffaloes, and making the Ferris-wheel-like swing *roteping* for the children and youth. I attended the main festival *Dashain* and two traditional weddings.

2.7.2. City life and homestay/hostel/rental

In Kathmandu I first stayed for three weeks at a girl's hostel with Nepalese students, where I did my pilot study. I stayed for two weeks with a family with two children, which allowed me to speak with the parents and see how these children related to the environment in their daily

life. After a week in a hotel I stayed six weeks in a rented apartment, and got to know the house-owner's family. At the *Tihar* festival I visited a family for *laxmi puja* and *bhai thika*.

2.7.3. Kindergarten and schools

In kindergartens and schools I did formal observations as a supplement to the interviews. Prior to observations I received signed consent from the principals, and gave an account of the ethical concerns as full anonymity, no pictures of children, and that my presence would not disturb the class. I am fully aware that observations are not likely to show a "regular" class. Still, it gives me an impression about what the teachers talked about in the interviews. In one school they seemed to have planned the classes well and switched their subjects when I came; in another school more of the teachers seemed to be nervous and insecure when I came. In the two places where I did most hours of observation, the teachers seemed to have a more relaxed attitude towards me. Prior to the fieldwork I visited one kindergarten in Lalitpur for a pilot study, where I observed for two hours and got an impression of what I could expect from observation. During fieldwork I spent approximately a week for the observations in the same kindergarten and schools I did the interviews. The time spent on observations varied from two lectures a day – one and a half hours - to six hours. I followed regular classes, with an exception at Bhaktapur school. There I also participated in two full-day fieldtrips to the forest, one with kindergarten children and one with class 2 children. The observations gave some insight into how the curriculum is taught in different schools, and gave practical examples of what the interviewees told in the interviews (Appendix 2 – Overview of the sample for observations).

2.8. To gather the material myself

To gather primary data required good recording of interviews and observations. With only a few exceptions, the interviewees gave consent to sound recording the interview. Even if I took notes during the interview, I went through the sound records as I transcribed. Some interviews were fully transcribed, while for other interviews I transcribed only the relevant sections. In Lamjung where the interviews were done in Nepali I discussed with Tamla as I wrote

transcriptions, to be sure it covered the main content. I also took notes from informal observations of everyday life.

Good data collection depends on people's willingness to speak openly with the interviewer during interviews. It is an interaction, which means the interviewer's appearance and the way she conducts the interview influence the result. Therefore collecting the data myself allowed me to get the information from people; I believe that these primary data are more fundamentally connected to my chosen topic than if I was to use secondary data from other researchers. However, gathering the material myself limited the amount of data I had access to compared to gathering secondary data, which could have given a larger amount of data in less time.

2.9. Limitations with the collected data

Firstly, the collected data are not representative for any group other than the sample group. I have chosen to do a study of well-run kindergartens and schools, which implies that the classes I observed and the teachers I interviewed are probably not representative for Nepali schools. I interviewed nine families, which is also a small sample. These families must not be interpreted as representatives for Nepali families.

The language barrier limited the flow of information during interviews. English was the second (or third for some) language for the interviewees in the interviews I conducted myself. Even if they spoke English in their daily work, I assume some aspects got lost in translation. Further, many of the interviewees had a simple language with poor grammar. This may not pose a hindrance to convey meaning, but makes some of the collected data less suitable for direct citation. The interviews with translators lasted up to one and a half hours. Even if two translators secured that I got the essential information they could not possibly do a direct translation of a long, conversation-like interview. Thus, the transcripts from these interviews are partly English summaries of longer descriptions in Nepali. Because of this, I decided not to present them as direct citations in the analysis. The language barrier caused some of the empirical data to be less suitable for direct translation. I have chosen to use both direct and indirect citations to present empirical data, which I see as a limitation of the collected data.

3. Background information about Nepal

3.1. Nature

A discursive approach implies that environmental knowledge does not exist as essential truths independent of context, but occurs in interplay between specific actors, at a specific time and at specific places. The specific environments in the places I did my fieldwork are where the children and the interviewees have their daily connection with the environment, and thus where they have their practical experiences they base their knowledge on.
I first present general information about Nepal, to give a broad impression of the country as a whole; I then present the specific research sites.

3.1.1. Nepal

Nepal is a South Asian country that borders Tibet in the north and northwest, and India in the east, south and southwest. With an area of 147 181 km², it covers 5 climate zones. Nepal is one of few places in the entire world where climate zones changes the most over short geographical distances. The country is divided into 3 regional belts- Terai, Hill or Middle Hill, and Mountains. The Terai region consists of the plain lands that border India;its lowest point is 59 meters over sea and has a tropical and subtropical climate. In addition, the Terai is the most important region for agriculture. The Hill region, also called the Middle Hills, is difficult to access due to the slope hills. They range mostly from 700-3000 metres above the sea. The Hills region has a temperate to subalpine climate, and sustenance agriculture like rice production and animal husbandry is the main livelihood outside the cities. The Mountains range from 3000 metres above the sea to Himalaya range, with 8 of the world's 14 highest mountains including the Sagarmatha – the world's highest peak on 8 850 metres above the sea. It has a subalpine to alpine climate (Geography of Nepal, 2015).

> "The dramatic changes in elevation along this transect result in a variety of biomes, from tropical savannas along the Indian border, to subtropical broadleaf and coniferous forests in the hills, to temperate broadleaf and coniferous forests on the slopes of the Himalaya, to montane grasslands and shrublands, and finally rock and ice at the highest elevations" (Geography of Nepal, 2015).

Nepal's unique geographical position with great altitudinal and climatic diversity results in a rich biodiversity. Adapting to the local places a vast amount of endemic species are found in Nepal. Protected areas include 10 national parks, 3 wildlife reserves, 6 conservation areas, 1 hunting reserve, and 12 buffer zone areas; these cover 34,185.62 sq. km (23.23%) of the total geographical area of Nepal (Government of Nepal, 2015). The wet season lasts from June to September and the monsoon during these months is crucial for agriculture as it provides rain for rice seedbeds (Geography of Nepal, 2015). Geologically Nepal is located towards the southern limit of the diffuse collisional boundary where the Indian Plate under thrusts the Eurasian Plate, and thus frequently experiences earthquakes (Nepal Earthquake, 2015).

3.1.2. "Dura Village" in Lamjung

The first research site was a village located in the Hills region in Lamjung district, Gandhaki Zone in the Western Development Region. Southwest in the hilly parts of the district is a mountain range called Duradanda, consisting of 6 Village District Centres (VDCs) this is the main dwelling of Dura people. The majority of the villagers were Duras. To keep anonymity of the interviewees, I refer to the place as the village in Lamjung.

Getting to the village took roughly 10 hours by bus from Kathmandu; in the final stretches of the journey, the bus climbed uphill at a slow pace. Villagers estimated about 1000 people living in the village; the main livelihoods in the village include agriculture and animal husbandry. The farmers practiced the traditional *parma*– a system of labour exchange, but in recent times hired labour had also become common. On my first visit during the monsoon season in July, the farmers were occupied with ploughing the terrace fields and planting paddy. However, the interviewees told me that the crops did not last for a whole year and so they were also dependent on remittances from relatives. Many of the old men I spoke to had joined the Indian army, which seemed to be the main employee at that time. They now got pensions that supported the family. Some men still worked for the Indian army, others had migrated to work in cities such as Kathmandu or Pokhara, or to work in the Gulf States. This left the village with predominantly women, children and elderly people.

The Dura society is patriarchal, with the oldest man as the head of the family. Some men had two wives. Families traditionally lived 3 generations together in joint families, with the

married women moving to the husbands and in-laws house. The houses were painted with orange-brown clay, traditionally round shaped to have a place for the fire in the middle of the house. Newer houses were square, many with 2 floors. LPG gas bought in bottles and biogas produced of manure from the farm was a supplement to the traditional firewood. In many places I saw the firewood used outside for cooking food for the animals and brewing *raksi* (alcohol), while the gas was used inside in the kitchen to avoid smoke. Most families had animals, with a shelter for goats, buffaloes and chicken. The village had got water taps, toilets and electricity in the last 10-15 years. People told me how this had eased their daily life, as they previously had to spend between one and three hours to fetch water every day. At the village health post, the assistant said that the health situation had improved when they got water and sanitation.

The Duras are a tibeto-burmese indigenous people. They speak Nepali as the Dura language which is a sino-tibetan language, is now forgotten. Duras divide into five *thars* (clans), which have equal social recognition. The *thars* (clans) Dhingal, Pache and Darde are seen as too close to marry each other. Similarly, marriage does not take place between Puhi and Kyausa (Adhikari, 2005). The 2011 census counted 5394 Duras (National Population and Housing Census, 2011). Duras have been assimilated into the dominating culture through hinduisation and sanskritisation. Many have also registered as Gurungs in order to join the armed forces (Adhikari, 2005). Duras have their own culture, but have adopted much of Hinduism and Buddhism. They celebrate the major Hindu festivals *Dashain* and *Tihar.* For rituals they may call a Brahmin Hindu priest, a Buddhist Lama, a Gurung Ghyabre shaman or the local Jhankri who could be of any cast. Recently, awareness of preserving the Dura culture has increased among the Duras. For example, my interpreter had a t-shirt with the print “proud to be Dura” and during my first days in the village in July there was a program on TV about the Dura people.

According to the Nepal Federation of Indigenous Nationalities (NEFIN), not much research has been done on the Dura community. NEFIN had a REDD + project with the Dura community because they had very well-functioning community forestry. The old people told me that a long time ago it was a long way to the forest, and people could just take what they needed. After the previous village head made rules for use of the forest, the forest grew.

There were some environmental challenges perceived by the interviewees - the monsoon was more unpredictable now. Some interviewees also mentioned that in some years there was not enough water for irrigation and as a result, they did not get good crops. Now, the crops did not last for a whole year. One interviewee claimed the cause of fewer yields was the use of modern fertilisers. Landslides occurred, one interviewee told me about a landslide that almost took away his house. After the village got taps, there were also mosquitoes. Previously they had not had mosquitoes, and some claimed people got sick because of mosquito bites.

3.1.3. Kathmandu

Kathmandu valley in Bagmati district is the flattest area in the Hilly region, Kathmandu city is built on a dried up lake. Previously it was 3 kingdoms - Lalitpur, Bhaktapur and Kathmandu. Now the 3 cities are parts of Kathmandu, also described as "The Valley". This is where Nepal´s political power is centred. During the civil war (1996-2006) several people migrated to the city. As a result, the city grew quickly whereas infrastructure lagged behind- bad roads, encroachments and irregular settlements characterise the city. Kathmandu faces severe problems with air pollution; there is a traffic jam in the morning and evening, the cars are generally old and in bad shape, and there are many motorbikes. People wear masks to avoid the dust when they go in the traffic.

In the city people supply their food with growing corn, vegetables and keeping chickens in small plots or in their gardens. Cows are sacred and go around freely in the traffic, and so do a large amount of stray dogs. The Bagmati river flows through Kathmandu, and separates Kathmandu and Lalitpur. Hindus regard Bagmati as a sacred river; when they die they are cremated at the Pashupatinath temple by the banks of Bagmati and the ashes are thrown in the river. Bagmati is heavily polluted by untreated sewage and garbage, and there has been an effort to clean it so it is better now.

Many people come to the city to study; private schools have a better reputation than government schools, and there are many private schools where English is the teaching medium. I went to Bhaktapur, Lalitpur and Kathmandu for observations and interviews in schools.

3.2. Cultural aspects of Nepal

> "In Tibetan, **Ne** means **wool** and **Pal** means **house**. So, Nepal is a house of wool as it has the Himalayas, the yaks and the sheep. … In Newari language, **Ne** means **centre** and **Pal** means **country**. So, Nepal means a country located at the centre. … In Lepcha language, **Ne** means **holy** and **Pal** means **cave**. Nepal is a country of **pilgrimage** for Hindus and Buddhists alike. So, it was called a **holy cave** or Nepal. …Still others say that Nepal was named after the **Nip dynasty**. The Nips were the earliest **settlers** in the Kathmandu valley" (Timothy & Niroula, 2012, p. 71).

Culture – how people live their lives - is an important aspect of environmental knowledge. Due to the specific geographic conditions with mountains and steep hills that make many places hard to access, Nepal has a great cultural diversity. In addition Nepali society has for a long time had a very hierarchical structure, with many ethnic groups and cast systems.

3.2.1. Population and indigenous peoples.

According to the 2011 Census, Nepal's population is about 26.5 million. More than 4.5 million live in urban areas. The Census reports 125 different casts and ethnic groups, speaking 123 different languages. Nepali is the mother tongue of 44.6 % of the population (National Population and Housing Census, 2011). Most Nepali people claim to descend from migrants. Linguistic analysis and textual chronicles date that most of both the Indo-Aryan and Tibeto-Burman speakers arrived within the borders of Nepal around one thousand years ago (Campbell, 2004).

The National Foundation for the Development of Indigenous Nationalities (NFDIN) Act - 2002 identified 59 nationalities of indigenous peoples in Nepal. The criteria for being an indigenous nationality was "Communities who consider themselves as distinct groups and have their own mother tongues, religions, traditions, cultures, written or unwritten history, traditional homelands, geographical areas, and egalitarian social structure" (Sherpa et al., 2010, p. 12). The indigenous peoples had their own independent states with collective ownership of the land until Prithvi Narayan Shah unified Nepal in 1769. Today most indigenous peoples have low status in the society, and their cultures are in many ways assimilated into the main culture (Sherpa et al., 2010, p. 12).

3.2.2. Caste system

The Hindu caste system is hierarchical, where normative social differences are based upon a system of ritual purity. People experience various forms of privileges or social oppression based upon their "purity". There are four main castes, conceptualised as "high" and "low" castes. Caste discrimination allows for little social mobility. People are born into their caste, and children of mixed caste take the "lowest" of their parent's caste. The caste system is defined from the perspective of those on top – the Brahmins (also called Bahuns). The system of ritual purity defines what kind of food people can eat, the ritual places they can enter and what kind of work people can do (Nightingale, 2011). The Brahmins were the priests or teachers. The Chhetris were the warriors and rulers. These were regarded as the two high castes. Vaishyas were the traders and farmers. Dalits (also called Shudras) were the labourers who worked for the other castes, and they were previously regarded as untouchables (Timothy & Niroula, 2012). Although caste based discrimination was legally abolished in 1963, the power structures of society have changed little and the law has little practical significance (Pherali & Garratt, 2014). According to Bista (1991), most people of the Chhetri and Brahmin castes have been brought up according to a belief system that states their lives are fated, their social circumstances have been determined by the Gods. However, the high caste people are a minority, and a stratified caste system has only marginally influenced the ethnic groups' social systems. Still – due to the political and social power of the higher castes, the two hallmarks of the caste principals – fatalism and hierarchy – are the most influential value system in society (Bista, 1991). After the peace agreements in 2006, these value systems have been challenged (Pherali & Garratt, 2014).

3.2.3. Religion

The 2011 Census reports ten types of religious categories. Hinduism is the largest group with 81.3% of the population, Buddhism the second largest group with 9% of the population, and Islam the third largest group with 4.4% of the population (National Population and Housing Census, 2011).

Map of Nepal

source: http://www.manasluguide.com/map-of-nepal.html

3.3. History of Nepal

Today´s territory of Nepal was unified as one kingdom by King Prithvi Narayan Shah in 1769 (Sherpa et al., 2010). As a part of the national unification campaign the king proclaimed that Nepal was a garden of four castes and thirty-six sub-castes. The Shah kings ruled until 1845, when the Ranas took over. The Rana family ruled from 1846-1950. In 1854 they introduced a National Code to regulate caste relations as a legal system within Nepali society (Pherali & Garratt, 2014). At the beginning of the 20th century Nepal`s population was 5 million. Beyond a minimal respect for the dominance of Hindu norms, the government was not concerned in promoting ethnic or national homogeneity. The state was considered to belong to the rulers – the Kings and the Ranas. Their positions were justified in Hindu terms – they were born to rule and privileged by their relationship to the Gods. The territory of Nepal – lack of roads in hilly areas with many remote villages – secured its independence from British India. In the Rana period the state was harsh and unpredictable, and the people had to supply the needs of the rulers. The Ranas did everything they could to prevent dissent, and restricted the access of

foreigners. They also discouraged education, and Trichandra College established in 1918 was only for sons of the aristocracy (Gellner, 2007).

The Ranas were overthrown with support from the King in 1950, and Nepal opened its borders for foreigners and development. When Nepal opened up to the outer world in 1950, education was given high emphasis as a means for development. In 1951, the literacy rate was 2% (Gellner, 2007). The 1955 report of the Nepal National Education Planning Commission (NNEPC) stated that the country was in a state of "utter barbarism and ignorance", and that there could be little improvement without technology and education. Without scientific knowledge and help, the natural resources could not be exploited. According to Parajuli (2007), NNEPC's message was that if people wanted development they should follow the Western model of schooling and education. This was proposed by the ruling elites with the support of Western advisors. Nepali knowledge and practices followed for generations were seen as worthless. The NNEPC also contributed in creating a divide between people oriented towards development – cultured, scientific and high class/caste, and the poor, illiterate, superstitious and not oriented towards development. The NNEPC report was adopted in the First Five Year Plan (1956-60) (Parajuli, 2007). The end of the Rana oligarchy and beginning of a more egalitarian regime provided universal access to education as a right of "free people". Education was seen as essential to gain access to the modern world (Pherali & Garratt, 2014).

Urban intellectuals formed the Congress Party, which won national elections in 1959. However, in 1960 the new King Mahendra threw the leader of the Congress Party in jail and established Partyless Panchayat Democracy. The Panchayat on-party rule through monarchy was authoritarian, but mild compared to the previous Rana rulers. The regime set in motion powerful sources of social change as they attempted to bring education, health and development to the whole country (Gellner, 2007). The New National Code, which prohibited caste based discrimination, abolished the caste system in 1963. However, in reality the upper castes continued to monopolise political and social institutions and the social inequalities persisted (Pherali & Garratt, 2014). The Panchayat regime increasingly relied on foreign aid with large amounts of money being concentrated in Kathmandu. The people of Kathmandu – both the elite and the less well-off – improved their living standards and got access to global culture. This caused a gap between the urban areas and the rural areas. In the rural areas most people were without electricity or the consumer goods that were seen as signs of development

and modernisation in the urban areas. The living standard in rural areas was also falling, due to declines in crop yield in some areas, and a reduction in the purchasing power of labourer's wages (Gellner, 2007).

Under the Panchayat rule there was a strong promotion of national unity, and one way this was promoted was through education. School textbooks came from Kathmandu and reached schools all over the country – they also reached out to remote places where there previously was little or no information from the state (Bennike, 2015). The Nepali state propaganda spoke of one nation, and education evolved around the legitimated culture – Hinduism and Nepali language. From 1956, people's mother tongues were not allowed in the classrooms. This was done to develop a Nepali Nationality, strengthen the nation and create a unity evolving around the culture of the ruling elites. The National Educational System Plan (NESP) of 1971 was committed to the idea of nationalisation of the society. It influenced both the educational process and the whole societal process in Nepal during the Panchayat rule that lasted until 1990 (Parajuli, 2007).

During the 1980s contradictions grew between the state´s goals of national solidarity and development for all, and the corruption and social inequalities in wealth and power. The regime's legitimacy declined, and the banned Congress and Communist parties united in a protest in 1990. The King opened up for elections and a new constitution, which was ratified in November 1990. The Constitution defined Nepal as a multi-ethnic, multi-lingual, democratic, Hindu and Constitutional monarchical Kingdom. The exclusion of other religions in the Constitution caused considerable protests. The new multi-party system established its legitimacy even more firmly on development than the Panchayat regime. Panchayats were renamed as Village Development Committees (VDCs). The budget for development came mainly from abroad, which resulted in national dependency and much inefficiency. Development was sought through imposing new rules. Legislation to protect forests were put in force without sensitivity to local conditions, which resulted in villagers being criminalised for what they always had done in order to survive. The new system of government was executed by many of the same people in power as before, and with a higher level of corruption (Gellner, 2007).

The lack of progress and widespread public dissatisfaction led to the rise of the Nepali Communist Party (NCP), a radical Maoist group. In 1996 they presented a 40-point plan to

the government that included a call for social reform, quality education and good governance. The two points related to schooling stated that education should be provided in the mother tongue, and that education should be free and non-commercial. The government refused to negotiate with the Maoists, who shortly after launched a "People's War" (Standing & Parker, 2011). The Maoists recruited people from ethnic groups that were largely ignored by the ruling elites (Pherali & Garratt, 2014). An estimated 13 000 people was killed during the conflict. The majority of development activities were disrupted, and the conflict also led to forced migration of young men to seek work abroad in order to avoid recruitment to the war. In 2006 a peace agreement was signed, where Nepal ceased to be a Hindu kingdom and became a Federal Democratic republic (Standing & Parker, 2011).

All former regimes of Nepal have promoted one language (Nepali), one religion (Hinduism) and one caste group (Hill Brahmin and Chhetri) in order to shape a homogeneous, unitary state. Education has played a central role in this process, and still perpetuates inequalities in terms of caste, gender and ethnicity. After the peace agreement, there has been an explosion in demands for more equitable political representation from various castes, ethnic groups and political groups. The Maoist rebellion has altered the fabric of Nepali society, but educational politics have not been concerned with identity formation and redefining the idea of national identity in the new socio-political context. Formal education and the curriculum have remained largely the same. As an exception, in the current School Sector Reform Plan (SSRP) the government plans to provide multilingual education in 7500 schools by 2015.

This can be seen as an initiative to nurture the linguistic identity of children from non-Nepali speaking ethnic and indigenous nationalities (Pherali & Garratt, 2014). Since 1956 Nepal has implemented 12 periodic plans, and is now moving on with the 13th. The role of education in development has been emphasised in almost all of the plans, but nevertheless education has not managed to contribute to rural transformation. Some of the reasons for this are an education system based upon a western model, which emphasises academic skills rather than integrating local knowledge (Parajuli, 2014b). The new political situation after the peace agreement offers opportunities for reconstruction of the education system relating to local needs. "…the emerging new education system has provided ample opportunity to incorporate notions of inclusion and diversity (plural national and ethic identities) within the concept of a "new Nepal" (Pherali & Garratt, 2014, p. 49).

3.4. Political ecology in Nepal – conservation as an example.

Conservation and control are one of the areas that has caught interest in political ecology (Robbins, 2012). In Nepal, regulations for protected areas developed in the mid-70s as a result of efforts by foreign conservationists and government members. Some of these developments came as a response to the theory of the time – the Theory of Himalayan Environmental Degradation (THED), which represented the mountain areas as fragile environments. Whereas the aim of biodiversity conservation is to preserve "wildlife", it pays little respect to humans already there, and treats nature as something pristine that is in its natural state without humans. Much conservation in Nepal has been done in a "fortress" model, which includes armed guards to ensure regulations are followed. Also, these conservation areas are sites of tourism (Campbell, 2013).

Chitwan national park in the Tarai became Nepal´s first protected area in 1973. The indigenous Tharu people experienced many changes in their livelihoods in this period. Migrants from the hills bought up land on the Tarai, and the resources of the forest were made off-limits to them. National and international institutions built the goals of the park around strict nature protection, while local people's needs were ignored. It became harder for the Tharus to graze their cattle, and they could not use the park area for fishing and plant collection. Wild animals had also previously killed domestic animals and taken crops, but now people could not find a compensatory balance through access to forest products. The relation between the Tharus and the park authorities was hostile, and resettlements were implemented with massive force (Campbell, 2013).

The Langtang and Sagarmatha national parks are examples of protected areas that have significant resident populations of village settlements. The indigenous Sherpa people live in the area of Sagarmatha national park. When new regulations to protect biodiversity were introduced, the distance between the decision makers and the local people contributed to inefficacy. The Sherpa´s own regulatory system functioned better, but the local governance system was replaced by the new regulations. Although biodiversity science was among the arguments for conservation, biodiversity science was absent in the park activities. In addition most of the experts that came with claims about the environment stayed in the area only for a short period and did not observe the seasonal changes during a year. Studies found that the

plant biodiversity in fact was highest at a place close to a heavily used pasture (Campbell, 2013).

Campbell (2013) studied how the indigenous Tamang people that lived in the area of Langtang national park were affected by and perceived the conservation. Langtang national park was established in 1976, and was the first national park in the Himalayas. The park had both immediate long-term effects on land and local environmental practices. Slash-and-burn cultivations were prohibited, as well as hunting for the control of crop-damaging wildlife, and unlicensed use of the forest. Previously the forest was a part of their livelihood which they could use in critical times when the crops failed, now they were no longer allowed. The conservation idea is based upon a divide between humans and nature that is not known to the Tamang people. Tamangs relate to the environment on many levels, including non-humans and unseen forces, but they don´t have a term for "environment". The villagers perceived the park as a regime of control and punishment rather than biodiversity conservation. According to Campbell (2004) the park officers have far less botanical knowledge about the area than the local people, and neither does the park have any active conservation science programme. While the local people's livelihood activities were seen as leading to degradation of the environment, the effect on the environment by park officials and tourists were not taken into consideration (Campbell, 2013).

In third world states, international environmentalists and national park authorities draw their mandates from a storyline where nature is threatened by the local people (Robbins, 2012). When indigenous knowledge of biodiversity is taken into account by these actors, it is often in an attempt to adapt to western science's understanding of the environment, with a list of useful plants, as a complement to modern science. The relational aspects of indigenous people´s ontologies are not easily translated into the language of modern science (Ingold, 2004). Participatory approaches thus tend to be biased due to power relations, where pre-made categories make the premises and marginalise local people´s knowledges (Escobar, 2012). A seemingly apolitical concern for biodiversity has political implications – for whose voices are heard, for power relations, and for what is recognised as environmental knowledge (Robbins, 2012).

4. Findings and analysis - Narratives about the environment.

In this section I present content from the interviews under two different narratives about the environment that influence children between 3 and 9 years. When I asked the open-ended research questions, the interviewees spoke freely upon the topic of passing environmental knowledge on to the next generation. Elements of different narratives occurred in the different interviews, and also within one interview. The first narrative was most present in the interviews with the parents, and the second most present in the interviews with the people that worked with education. The two narratives exist side by side, and while at some points they contradict each other, they support each other on other aspects. In this section I first present one narrative and the collected data that supports it, followed by an overview of how the narrative is part of larger discourses that influence people´s relation to the environment. I present the second narrative in the same way, and then analyse different aspects of the narratives.

4.1. The traditionalist narrative – the environment and spiritual beliefs.

The traditionalist narrative recognises environmental knowledge as relating to the divine forces in nature, and emphasises ritual practices to achieve the desired outcomes in the environment. Spiritual beliefs seem to be omnipresent in Nepali culture. They are visible from burning incense in shrines in houses and stores, in schools, along rivers in villages, in small temples in the city backyards and to the largest temples at world heritage sites. Different traditional spiritual beliefs exist side by side with seemingly little conflict; they originate from local shamanistic practices, Buddhism and Hinduism. With Nepal being a Hindu kingdom for 250 years, Hinduism is the main spiritual tradition in the country. Using a storyline with premises that presents the current situation and required actions and a conclusion that presents the desired future outcome, the traditionalist narrative presents a simplified version of human relations to nature.

Here follows the main elements in the traditionalist narrative: *The environment sustains people's livelihoods by providing all they need – as food, firewood and shelter. It can also cause harm through droughts and other calamities. Humans are dependent upon the environment, which is inseparable from divine forces. The gods are responsible for what happens in the environment, and can both cause fortune and misfortune. There is a natural order to everything, created by the divine forces. To have knowledge about the environment one needs to maintain consistent communication with the gods. Examples of communication are paying respects to gods that reside in the environment through worshiping and rituals. A hierarchical system of spiritual purity in the society gives the Brahmin priests the strongest power to mediate between humans and gods. Others with such abilities are the Lama and the Jhankri. Even if all situations are fated by a divine will, spiritual rituals can alter outcomes. To get the best possible yield from the farm and to avoid harm, humans need the goodwill of the gods. If the gods are dissatisfied, they can harm people. A desired outcome is secured by the gods' goodwill.*

I break up the narrative in two sections – premises and conclusion. The premises describe humans' relations to their environment through relating to omnipresent divine forces that can cause fortune or misfortune. Many of the interviewees describe that paying respect to the gods plays an important role in their own, and in general, people's relation to the environment. The old people in the village are the group that speak most about this relation to the environment, but the other interviewees also describe it.

First I present examples of the omnipresence of gods, and give some examples of internal qualities of species. I learned that people regard nature as a place where many different gods reside. During my first visit to Lamjung, my guides took me for a walk around the village. When we came to a water tap that was led out from a small river, I saw a small temple with a stone inside. The guides told me that Zal Devi resided there. Later I found more temples dedicated to Zal Devi next to other water taps in the area. The local Lama explained that Zal Devi is a goddess connected to water sources (Lama, 15/10). Chandi – a Buddhist god - resides in a special stone under the tree where a traditional Dura ritual called *Sati Ghatu* is finished (grandmother family 7, 25/9). Another example is that the Hindu god Shiva comes with the rain after a time of drought (mother family 2, 16/10). The example most referred to by the interviewees is that gods reside in big trees, and thus must be paid respect to. One example of how people understand the presence of the gods is in the following interview:

Father family 8, interview 3, 8/10.
The father says that people believe the god and goddess stay in the higher areas, not in the lower lands. The gods protects the wild animals. In the forest people do not cut the high trees. They should not spit or go to toilet in the area of the gods near the big trees, and this practice will also maintain the source of water. He says that if people disobey the gods by spitting or urinating, the gods may be dissatisfied and harm the people.

Interior qualities of certain plants and animals were also a central part of people´s knowledge about the environment. This knowledge both structured how people related to these specific plants and animals, and also created a sense of divine – or natural – order of things that influenced how people related to their environment. A hierarchy of purity and impurity was one aspect of how people made sense of their environment. Certain plants have a special position in people´s communication with the gods, and some are worshipped as gods.

Teacher 2 Kathmandu kindergarten, interview 20/11.
The teacher explains how different trees and plants have a position in the culture. The Peepal trees (Ficus religiosa) *are worshipped as Gautama Buddha. Other plants have qualities used for worship and rituals. Plants as* titipati *(*Artemesia Subia) *and* marigold (Tagetes) *are used for worship. She says that* Tulsi (Ocimum tenuiflorum) *are planted outside the houses for protection*.

"Cow dung was used for special rituals, and cow pee is also supposed to be a purifying liquid and used to purify the worship space"(Principal Kathmandu kindergarten, interview three kindergarten principals, 31/10) .

Cows are sacred animals for Hindus, and worshipped as the Hindu goddess Laxshmi. During the *Tihar* festival I observed people worshiping cows by putting *tika* on cow`s foreheads in the city. *Tika* is a religious symbol in Hinduism. It is a mark on the forehead made by a special paste, often in the colour red, and many Hindus wear tika every day. It is forbidden to eat cow meat in Nepal, also for people that belong to traditions that do not regard cows as sacred animals. In the interview with kindergarten principals they tell that when the kindergartens prepare food, they need to keep in mind that people from different traditions have different restrictions. The principal of Kathmandu kindergarten says this is due to the

cast system, and provides the example of how Brahmins do not eat buffalo meat and that some Brahmins do not eat meat at all (31/10). Plants and animals can also have unfortunate qualities. Teacher 4 in Lamjung says that people believe a special species of tree attracts lightening (14/10). The principal in Lamjung tells that vultures are said to bring bad luck if they sit on a house (12/10).

In the village, people live closer to nature than people in the city; it was here I had the opportunity to conduct an in-depth study of peoples' relations to the environment. The people were farmers and dependent on the environment for their livelihoods, and for their daily needs such as food, firewood and shelter. This was repeated in several interviews. Since the spiritual aspect seemed integrated in their understanding of the environment, I wondered if the Dura people had a specific Dura tradition. I asked some people in the village if there was a Dura cosmology that connected the different elements they talked about, which they denied.

Grandfather family 5, interview 2, 10/10.
We ask if the Duras have stories about the origin of the world. Grandfather tells us that previously Duras had their own language, and that so much of these stories were embedded in their language. Now much of it is forgotten, he says.

The collected data revealed a blend of traditions. The local Lama gave a good description of how the spiritual beliefs represented different traditions.

Interview local Lama, 15/10.
The spiritual beliefs in the village are in some way Buddhist, in some ways Hindu, explains the local Lama. When people are born and when they die, they call a Buddhist Lama. Since ancestral times there has been a belief of gods residing in the village, that protect the village. Sacrificing has been going on. This is a Hindu tradition. The gods have resided in the stones even before the ancestors came here. The Lama says that if people stop worshipping the stones, the village will be harmed in one way or another.

Interviewees told that the gods may grant rain, good harvest or success in other ways – and thus care is taken to follow the traditional rituals. This is carried out both on a daily basis and during specific times of the year in connection to the cycle of crops. Further rituals and worship are done in connection to special places in the environment - at the water source and

big trees, and other rituals are done for protection. The gods can offer protection for both the whole village and individuals against bad fortune in the form of calamities such as lightening, drought and landslides. On the other hand, care must be taken not to upset the gods because they can also cause harm. During observation and interviews it became obvious that it was the ritual practices in themselves that were central to people rather than defining themselves as belonging to a specific religion or knowing the mythological stories related to the practices. *Puja* (worship) is integrated in people´s everyday life and seen as a required part of keeping a good relation with the surrounding gods. The effect of the *puja* is what is central – for instance *harialo puja* for good crops described by grandfather in family 9 is followed because this is the way to secure good crops (7/10). People also say they do it because their ancestors did this, and it is their tradition. As both grandfather in family 1 and grandmother in family 7 emphasised – the feeling in the heart is most important – they do not emphasise the mythological stories behind the practices. The enacted practices were important for people, and they saw it as central both for relating to the environment, and as an important part of their identity. The following quote underlines that worship is central for how this woman defines not only her own but the whole community´s identity.

"Our community is known as the worshipper of gods" (Grandmother family 7, interview 1, 25/9).

Seen as the driving forces behind changes in the environment, I wondered how the children were introduced to the spiritual aspect of nature. Both from what I observed and what the interviewees told me, the children between 3 and 9 years old participated in some of the daily chores at the farm. Examples were the 3-year old girl in family 2 being with her mother when she worked on the field, the 4-year old boy in family 7 feeding the chicken, to the 9-year old girl joining her parents on the field planting, cutting grass and fetching clay for painting the house. The children got more responsibilities as they grew older. They learned by doing, by following their parents and peers. The families saw it as they learned by following, and even if the spiritual aspect was central for people, the children were not explicitly taught about this.

Father family 8, interview 2, 6/10.
When I ask about how they teach the children about the spiritual traditions, the father says that they do not tell them so much. It is more passed on through how the children mimic them.

The children copy whatever the parents do. About stories, he says it is more the children that tell him stories they have learned at school.

Information from these interviews and observations form the premises of the traditionalist narrative, where humans are dependent upon an environment that is inseparable from divine forces. Several species have internal qualities related to a spiritual aspect of reality. The gods are responsible for what happens in the environment, and can both cause fortune and misfortune. Even if there is a blend of traditions in society, people relate to the environment as there is a natural order to everything, created by the divine forces. These data form the premises of the traditionalist narrative.

The conclusion of the traditionalist narrative presents getting the desired outcome through maintaining good communication with the gods that reside in the environment. It also states that there are hierarchical differences between people.

The families did not explicitly teach children by explaining how they connected to the gods for good crops and other desired outcomes, rather they told me that the children would acquire this knowledge as it was seen to be the natural order of things. One reason for this being accessible was the presence of a wide range of practices children were exposed to. Worship and rituals were described as religious activities integrated in people´s actions related to the environment. First I present examples of how this related to harvesting timber, crops and bringing rain during droughts.

Grandfather family 9, interview 1, 7/10.
Grandfather tells us that people must apply to the village committee for permission to cut down a big tree for construction. Before they cut it down, the people sacrifice a chicken to the tree. This is a traditional custom from the ancestors. He says that the god and goddess reside in the forest; people need to seek permission from them to cut down the trees. The sacrifice is done the day before cutting down the trees, as an apology for cutting them. It is a way of saying "please don`t harm us" to the god and goddess. He tells us that the sacrifice prevents harm from nature to humans. When people take something, they also have to give something back. A stone is kept on a big tree, on the first one they cut down, not on the other trees.

Father family 8, interview 2, 6/10.
The father says that the spirit of the gods resides in the big trees. To place a stone on the root is a way to say: "God, I took your shelter, please don`t do me any harm."

Important rituals of worship were connected to the yearly cycle of crops, and as in the following example they often involved animal sacrifice.

Grandfather family 9, interview 1, 7/10.
Grandfather says that during the month of Bhadra *(mid-August to mid-September) when the paddy has grown knee high, people perform a worship ritual for good crops called* harialo puja *in their fields. They pray – "O God let our crops not be infected by pests, give us good crops." Some sacrifice chicken while others just burn incense, he says*.

Special rituals were related to situations as drought, landslides and lightening. These are unwanted situations that require interaction with the gods, mentioned in many of the interviews from the village. On a height between two villages I went to see a sacred place where they sacrifice if there is drought. Some of the interviewees, for instance mother in family 2, confirmed that this ritual always secured rain (16/10).

Grandfather family 9, interview 1, 7/10.
Grandfather tells us that there is a Kalika *(goddess) temple in the neighbour village. One member from each house brings offerings that are poured in the fire. People believe the goddess brings rain. There will be a Brahmin priest there to facilitate the ritual. It might rain the same day, or within the coming 2 days. He says that this kind of worship is not done every year, only when it is drought.*

The ritual for rain during drought requires a Brahmin priest; this underlines that people have different roles and abilities in worship and rituals. *Puja* (worship) on a daily basis is the women´s duty. Both in the villages and in the city it is common to have a shrine in the house where the women light candles and incense and pray in the mornings. The responsibility for leading the worshiping on public rituals and festivals is taken care of by men. The ones most commonly called upon in the village in Lamjung were the Buddhist lama or the shaman called the Jhankri. For leading the Dura´s traditional *Sati Ghatu* ritual there is a Jhankri and a male

Guruba who leads the song. From a village some hours away comes a Brahmin (Hindu) priest when the rituals require it.

The Brahmins are traditionally the cast of priests and scholars, and were regarded as the highest caste. Brahmin priests are born into the Brahmin caste. Although caste-based discrimination is abandoned by the new constitution, the Brahmins have a special position in performing the rituals. This is an inherited position. Farmers were seen as belonging to the Vaishya caste, which traditionally is inferior to Brahmins and Chhetris, but superior to Dalits. In the village, the Brahmins' special role was confirmed by their privilege in conducting the drought ritual. I observed a Brahmin priest perform a ritual on *Fulpati* day of *Dashain* (1/10), where nine types of sacred flowers and plants are worshipped. Dashain is the main festival, and the priest was called upon every year because this ritual was of mayor importance and required a Brahmin. I also observed the Buddhist lama perform a ritual to send back the lightening (12/10). In contrast to the Brahmin priests, lamas do not come from any specific caste and thus their position is not inherited.

The Brahmin priest and Buddhist lama are not the only ones who can mediate between humans and the gods that reside in nature. The Jhankri is a shaman that takes part in some public rituals to summon upon the gods, and is also called upon for protection and for help when people are sick. He can get into a trance and locate and remove bad spirits, often accompanied by drumming. The Jhankri also knows how to use medical herbs and perform ritual sacrifices.

Father family 8, interview 3, 9/10.
The father also knows a little of this himself. He says it is like a study; he learned it from his father (his uncle, which he calls father), who is a Jhankri. His medicine is against bad spirits; he can treat beginning of fever. Whatever medicine he has is brought from the forest, mostly roots and fruits and some herbs. If the case is serious, the spirit is in the patient and it is troubling, he does some special procedure to get it back where it belongs – to the tree or to the stone.

Father family 8, interview 4, 11/10.
The father gives a description of his practice. If a person suffers from bhot pichat *(bad spirit), he will first enchant and then blow. If this does not work, he will sacrifice a huge rooster near a steep place.*

Father family 8, interview 2, 6/10.
I ask about the difference between the Brahmin and the Jhankri, and the father says that a Jhankri could come from any caste. It could be anyone that can speak with the gods.

When it comes to learning the skills of a Jhankri, he would teach his son if he were interested.

Father family 8, interview 4, 11/10.
The father says that if his son would like to, is interested and enthusiastic, he would definitely teach him. When it comes to his daughters, a female Jhankrini has to be chosen by the spirit. She cannot choose to be taught as a man can do.

That a woman cannot choose to be taught the skills of a jhankri is another example of a hierarchical difference between women´s and men´s ability to relate to the gods that reside in the environment. Besides not leading major rituals, women have another restriction to their practices. During their period women are regarded as impure, and at this time they cannot do *puja* or enter temples. This is still a strong tradition – in my homestay in the city the mother did not enter the family´s *puja* room or make food during her period. However, there has been a shift away from some of the most excluding practices. In the village in which I stayed, the women in the family no longer had to sleep in the barn with the animals during their period. The presented interviews and observations exemplify hierarchical differences with regards to how people can communicate with the gods that reside in the environment. Purity and impurity is one aspect of this hierarchy where caste belongings, trained skills and gender differentiate people.

The conclusion of the traditionalist narrative presents rituals and worship as required actions to get one's desired outcome from the environment. In addition to daily worship and rituals related to specific situations as timber harvesting, festivals play an important role both related to crop cycles and other aspects of humans' connection to the environment. Festivals are also important for the children`s exposure to ritual practices, since they have time off from school

and kindergarten and participate in the family`s celebration. With 50 festivals in Nepal the different festivals play a significant role in Nepali culture, and also in the village. The different ethnic groups have their own festivals, which are also public holidays in Nepal. *Dashain* and *Tihar* are the main Hindu festivals.

Dashain is a Hindu festival that comes after the harvest, and celebrates goddess Durga`s fight over evil. It is 15 days long, with each day having its own significance. According to my interpreter Tamla, there are many elements of the Nepali festivals that refer to a communication between humans, gods and nature. One example I saw was people flying kites. Tamla said it is seen as a way to remind the gods not to send rain anymore, and is an important part of *Dashain*. Another example is the *jamara,* which is made on the first day of *Dashain*; I observed how people made *jamara* – the women made *tapari* (small baskets of leaves) and planted seeds of corn in them. On the tenth day of *Dashain* people prepared *tika* out of yoghurt and rice grains. The elders in the family blessed the younger with *tika* on their forehead, green grass from the 10 days old corn seeds from the *jamara* together with the sacred plant *titipati* in their hair, and a gift of money. The *jamara* is seen to carry the blessings of the goddess Durga.
Also, during *Dashain* animals are sacrificed for granting wishes from the gods. This was mentioned by some of the interviewees, and for the farmers it often included a wish about prosperity in the form of good crops. In the house I lived, a goat was sacrificed near the door of the house for peace and prosperity. In each ward of the village they sacrificed a buffalo. This happens on *Asthami* – the 8th day of *Dashain.* The meat is later cooked as *prasad,* food blessed by divinity, which is seen as auspicious to eat.

Father family 9, interview 1, 7/10.
The father tells us that people can ask the god for a wish – for instance for good crops – and make a bhakal *(a promise to the gods). If the gods fulfil their wish, they will make a sacrifice. He says that if one has made a promise like this, they sacrifice on the* Asthami *day of* Dashain.

Soon after *Dashain* comes another important Hindu festival, the 5 days long *Tihar.* It is called the light festival, and is a good illustration of the traditionalist narrative because it celebrates the divine attachment between humans and animals. During this festival reverence is shown not only to humans and Gods, but there are also days for crow *puja*, dog *puja* and cow *puja*.

The crow is seen as a messenger, the dog as a guardian, and the cow as goddess Laxshmi that symbolises prosperity and wealth. I was in the city at *Tihar,* and observed how people put out food for the crows and put *tika* on the forehead of cows as a part of the festival.

Where *Dashain* is celebrated after harvest, *Tihar* celebrates the attachment between humans and animals. The different ethnic groups have their own festivals that strengthen their spiritual connection with the environment. The Dura community have a tradition called *Sati Ghatu.* During approximately 14 days, a story about a king that died in war and a queen that committed sati (committed suicide by joining her husband's cremation) are told through song and dance. Hunting of different animals is also acted out in the ritual, and after the animals are hunted down they are brought back to life. Two girls that have not reached puberty and thus still possess ritual purity are chosen to perform the *Sati Ghatu* dance, and the spirits of the king and the queen enter these girls during the ceremony. I was told that the gods that were summoned upon were those who resided in the nature.

Grandfather family 5, interview 2, 10/10.
Grandfather says he is the Guruba of the Sati Ghatu*, which means that he leads the ceremony with his song. They also need a Jhankri during* Sati Ghatu*. The Guruba summons the spirit of the god through song. He is calling the spirits from the mountains, from all around the space. When the spirit enters the bodies of the girls, their eyes close. By shaking his folded hands in front of him, grandfather shows how the spirit is expressed.*

Some interviewees mentioned *Sati Ghatu* as the ritual where they got the strongest experience of the God's presence.

2nd grandma family 4, interview 2, 4/10.
Grandma says that the spirit of this sati *is stronger than the spirit of any other God, for instance is it stronger than the spirit that comes to the Jhankri.*

The different festivals are celebrated by the whole community, and are thus special events in the lives of the children. One day at school we saw two pre-school girls quarrel over who should be the *Sati Ghatu* dancer. When I asked the families how children learned about the spiritual dimension of the environment, the answer I got was that the children learn by observing others. Gradually they will know how to do it themselves. They seem to put no

emphasis on teaching the children; it is more like this dimension is such a "natural" or unquestioned part of the world that the children without doubt will "get it". The following interviewees told me how the traditions are passed on by observing the acts themselves.

2nd grandmother family 4, interview 3, 6/10.
We ask why people do tika *on* Dashain. *Grandmother says the reason for why people do* tika *is not known for her. She does it because their ancestors did. They have always seen it happen.*

Teacher's trainer, interview 5/7:
The teacher's trainer explains that Hinduism is part of the culture, and is more a set of cultural traditions than a religion. People have automatised that when they pass by a temple they do a greeting, pay respect, without thinking that they shall do it. She tells that when children are exposed to the practices of their family and the society, these practices become internalised as a part of their culture.

The presented data support the conclusion of the traditionalist narrative by giving examples of actions that are required to secure the god`s goodwill and thus desired outcome for people`s needs from the environment. Worship, rituals and festivals are an important and integrated part of how people relate to their surrounding environment, and this knowledge is indirectly passed on to the children as they observe and participate in the family´s and community`s doings. Data also reveal a hierarchy in society where the Brahmin priests are responsible for the most important rituals, and women face several restrictions.

While the first part of the traditionalist narrative´s conclusion describes required actions, the second part of the conclusion describes possible outcomes. Even if situations are fated by a divine will, rituals can alter outcomes. If the gods are dissatisfied they may cause harm to people. To get the best possible yield from the farm and to avoid harm, humans need the goodwill of the gods. The following data provides a few examples on how communication with the gods resulted in wanted outcomes.

One point some of the interviewees made was that it always rained after the *puja* for rain during drought was held (for instance: mother family 2, interview 3, 16/10). Grandfather in family 9 explains that the divine are responsible for the family having their needs met.

Grandfather family 9, interview 1, 7/10.
Grandfather tells us that the family has had enough to eat, this must be due to the will of the Gods.

Some interviewees described how rituals successfully prevented calamities, as in the following quote.

Grandfather family 8, interview 5, 13/10.
Some years ago there was a landslide nearby, says grandfather. He had gone out in the night with a torch light and wondered if his house would be taken by it, but it did not. After the landslide, they did puja *and sacrificed a young goat, they poured the blood around the area where the landslide occurred. Grandfather tells us that since then they had not had another landslide.*

Lightening occurred frequently (Father family 5, interview 3, 15/10). When I was there, there was lightening several nights. One night there was very heavy thunder and lightening, as I went outside the whole area was lit up. This night lightening struck the school. A few days later (12/10) we went to interview family 9, and the grandfather asked us to join him for a ritual to return the lightening at the school. The Lama conducted the ritual, and villagers came with offerings.

Father family 5, interview 3, 15/10
The father tells me that lightening troubles this area. Wherever there is lightening the Lama is called upon. People bring 5-10 rupee, rice grains as offerings.

From the list of names, and the whole sack of rice the Lama had collected (each family came with a small cup of rice grains), I could see that most families in the village contributed. For some hours before the school started, the Lama and his assistant played the drum and chanted mantras while the villagers came with their sacrifices. The ritual finished when the Lama poured distilled alcohol on a fire, which caused a large fire burst.

Interview local Lama 15/10.
The Lama tells us that in the present moment, around the world, the God that used to protect the area is no longer protecting the area. Where the insect khajura (a millipede) *is, lightening*

is found. Also, on hilltops lightening occurs. 5 weapons occur with the lightening. Axe cleaves trees, humans and animals die. Oil kills trees and dry out vegetation. Fali *–metal on hollow (plough) – cleaves floors. Fire comes like a volcano. Sound leaves people traumatised; they can have problems with, or not be able to, listen. When the Lama does the lightening ritual, he tries to return back the lightening. He also purifies the place, as lightening happens in unholy places. He tells me that they worship 5 gods and goddesses as a part of this ritual.*

Grandfather family 9, interview 2, 12/10.
Grandfather tells us that the ritual is there to make the lightening go back. Once the Lama returns the lightening, it will not return again

The collected data on the environment and spiritual beliefs supports a narrative where the human-nature relation is characterised by negotiations with the gods. The different spiritual beliefs that have long traditions in Nepal may differ in many ways, but they have existed side by side with seemingly little conflicting views when it comes to how humans relate to nature. The will of the gods determines things such as rain and outcome from crops. Angry gods can cause harm. Environmental knowledge is thus to know about the gods and rituals, the taboos, and who to contact for help if something goes wrong. This is how order and harmony is kept.

4.1.1. Fatalism – a discourse that resembles the traditionalist narrative.

The traditionalist narrative resembles the discourse on fatalism discussed by Bista (1991) in *Fatalism and development : Nepal´s struggle for modernization*. Fatalism means that circumstances and events are predestined and control is out of people´s hands. All aspects of people's lives are fated, also crop yield and environmental calamities. Gods and spirits are omnipresent, and especially ancestral spirits reside in nature. According to Campbell (2013), the hierarchical structures of the Hindu caste system have their resemblances in how different species are related. During his fieldwork among Tamang people Campbell (2013) found several stories, for instance about marriage between species – and why different species cannot marry - that extends the hierarchy of a caste system to plants and animals and also underlines such a hierarchy as a natural order (Campbell, 2013). As the caste system was believed to have divine origin and be a natural order of society, peoples' place within this hierarchy was a result of karma. Karma literally means action, and refers to actions in previous lives determining one's circumstances in this life. However, karma tends to be taken

as predestined, as something that cannot be altered. Fate cannot be changed by actions only by rituals aimed at affecting powerful supernatural forces. Under these conditions, the individual accepts that the prime movers in the world are powerful external forces (Bista, 1991).

Fatalism affects how people perceive actions towards solving problems and reaching goals, also when it comes to environmental issues. Since the role of fate is so fundamental, it makes little sense that individual efforts influence the outcome of events. The holy book *Bhagavad Gita* emphasises that one should free oneself from desire, purpose and any instrumental action. It is the gods and spirits that grant fortune and misfortune, and people turn towards these forces for a good life. Whereas anyone can worship, the Brahmin priests have the highest status in the hierarchy and their rituals are the ones most likely to give future success. Other practices as shamanism and Buddhism are not seen as competing but rather subordinated as parts of Hinduism. These practices have their place in society, and Jhankri Shamans and Buddhist Lamas have their specific rituals that people call upon them for (Bista, 1991). In the Hindu caste system farmers belong to the Vaishya caste, which is below Brahmins and Chhetris, and above the Dalits. Their work is seen as neither pure nor impure (Dumont, 1980).

From a fatalistic viewpoint, education is looked upon as another act of ritualistic behaviour and not as a means to acquire skills. Manual work does not have status in society, and educated people are associated with the higher castes who do not have to do manual work. Labour is related to pain, and it is considered wise to avoid work. Personal success as a result of competence thus poses a threat towards the social order that states that everything is decided by fate. However, Bista (1991) distinguishes between high and low castes, and the main targets of his critique are the higher castes. Low caste people have always worked hard and developed high levels of endurance, and also experienced that this has led to success (Bista, 1991).

The outcome of fatalism is the status quo in society - efforts are put into ritual practices and class and hierarchy are not questioned. Fatalism does not foster responsibility; it is displaced to the external divine forces. Divine forces provide pleasure, prosperity and punishment. The individual does not have control. Although Bista (1991) ascertains that fatalism is a sub culture in Nepal, it is an influential one. It relates to people that have high status in society,

and permeates Nepali culture on many levels – also when it comes to how people connect to the environment (Nightingale, 2011).

The traditionalist narrative resembles the fatalism discourse on the point that the divine forces determine outcomes. Efforts are directed towards ritual practices. Although Bista`s concern in *Fatalism and development : Nepal's struggle for modernization* is not environmental knowledge, his description of fatalism resembles how the traditionalist narrative relates events in nature to the will of divine forces. The traditionalist narrative clearly has a fatalistic storyline. Everything is predestined, and what people can do is to worship and pray. There is a hierarchy among people, where some people possess more spiritual power (either inherited or taught) than others and are more likely to guarantee future succes.

4.2. The scientific narrative – the environment as presented through formal education.

The scientific narrative recognises environmental knowledge as western science taught in schools, and emphasises the importance of education. Through a storyline with a beginning that presents the problem in the current situation, a middle that presents the action to be taken and an end that presents the possible future outcomes, this narrative presents a simplified version of humans' relations to nature.

Here are the main elements in the scientific narrative: *Nepal is an undeveloped country where a growing population demands more resources, and increases pressure on nature. In rural areas many people are uneducated, and agriculture and forestry is not efficiently practiced neither with regard to the economy nor the environment. In urban areas people are disconnected from nature, and unaware of how their actions influence the environment. To solve these problems current education in school should teach children the scientific basis for knowledge about nature. These premises imply that increased problems in the future can be avoided by a scientific approach to environmental problems. To conclude, this means that children who use a scientific approach are more likely to take responsibility for nature. They will manage to both conserve and utilise nature in the future, and preferably they will bring it home and also teach their parents.*

The patterns of the scientific narrative emerged mainly from interviews with teachers, observations at schools, and through the curriculum and textbooks. I divide this narrative into premises and their resulting conclusions.

The premises of the narrative describe the current situation, which is seen as unfavourable. Nepal is seen as undeveloped, where an increasing population results in increased pressure on nature. An excellent example of the scientific narrative describing Nepal is found in the curriculum for grades 1-3 from 2008. In seven points the national objectives of education are defined. The points describe what should be done, and the desired outcome, and especially point 5 reflects the idea of Nepal as an undeveloped country in need of modernisation.

Point 5: "Develop human resource potentials for the development of a country for the modernization of the society" (*Primary Education Curriculum Grade 1-3*, 2008, p. 3).

In this citation it is implicit that Nepal is a developing country – development and modernisation are among the national objectives of education. Viewing Nepal as a developing country in need of modernisation is also implicit in many of the interviews. For example, in a group interview with two 2nd grade teachers at Lalitpur school 3/11, they complained about water scarcity and load sharing (no access to electricity for several hours a day). Teacher 2A says that even if Nepal is ranked 2nd in the world when considering freshwater access, people do not have water and electricity when they need it. Teacher 2B says that she does not know whether this deficiency is a lack of governance or new machines. In this interview they state a few times that the resources are there, but that the country is not able to utilise them and thus people suffer. Several people describe rural Nepal as less developed than urban areas. During informal conversations in the village around festival time, two of the young men that still lived in the village explained that they would migrate if they got the opportunity. They stated that the village was poorly developed, and there were little chances for development (15/10). Visitors during *Dashain* also described the village in similar terms – they saw the village as their home place, but would rather live in urban places with more modern life after having tried it for the first time (7/10).

The interviews indicate that scientific knowledge represents modernisation and development, creates awareness about environmental issues, and refutes superstitious beliefs that are

regarded as backwards. The premises of the scientific narrative do not only represent an unfavourable situation of an undeveloped country in need of modernisation. The narrative also presents an increasing problem that it is urgent to solve. The population grows, and thus increases pressure on nature. The textbooks are built on the curriculum, which means they represent the official, standard thought about the environment in education. The textbook in science for grade 3 used in Lalitpur school is an excellent example of the scientific narrative.

> "**Human Beings are Destroying the Environment.** We are the most intelligent animal on the earth. We can change the environment according to our own needs. The human population is increasing rapidly. This increasing population needs more and more space to grow crops and to build houses. So, human beings cut down forests. This is known as **deforestation**. This reduces the fertility of soil and causes floods and landslides. Deforestation also **reduces rainfall**. It also **destroys plants** and **shelter of animals**" (Bantawa, Jha, & Timothy, 2012, p. 84).

In the classes I observed, the teaching was directly based on the textbooks. Teachers explained in interviews that to follow the books closely is a common teaching method. I observed a science lecture in 3rd class on the above chapter. The following quotes are from the teacher´s lecture, and support the beginning of the scientific narrative where overpopulation and pressure on nature is the current situation.

Observation class 3D Lalitpur school 4/11.
Teacher: "The nature is destroyed day by day for the convenience of humans". Both children and teacher gave examples as water pollution, deforestation, endangered animals. Teacher: "Every day thousands of trees are being cut down. What is the use of wood – furniture, construction work. … Few years back, Kathmandu was green and beautiful, you might have heard it from elders. Now we have to go far away to see it. Why? Overpopulation, many people are coming here due to education, and then trees and plants are cut down." The class discussed the pollution of Baghmati river, and a lack of sanitation. Teacher: "We human beings destroy our natural resources. One day we will have no water and no trees. Will we survive then?. … Now thousands of trees are cut down around the world. And the trees make oxygen; we will not get enough oxygen. Now there are many endangered animals. When the trees are cut down, there is no place for the animals to go. … They will die. Human beings

also depend on the plants – grains, foods, seeds and all that. If there are no plants, we will also starve to death."

This lecture serves as an example of the scientific narrative, and also demonstrates how the textbooks present the current situation taught in class. Of all the classroom observations I did, this class was among those who most clearly focused on the environmental crisis. Although this lecture was quite unscientific, it was taught in the subject science and was regarded as a scientific explanation. However, population growth as a cause of environmental degradation occurs in the interviews as well, as in this interview with teacher 4 from Lamjung.

Teacher 4 Lamjung school, interview 1,12/10.
The teacher says that together with the growth of the human population, there has been environmental degradation. Human activities have adversely affected the environment – for instance deforestation. Such environmental degradation has caused floods, landslides, claimed loss of wealth and harmed houses and adversely affected the people, he explains.

The presented data shows the premises of the scientific narrative, where Nepal is represented as an undeveloped country with a growing population that causes increased pressure on nature. The scientific narrative continues to explain why the current situation is a problem by pointing out that a lack of education results in unwanted practices. Teacher 6 in Lamjung describes the problem in the scientific narrative when he links environmental degradation to illiteracy among parents. Due to illiteracy, agriculture and forestry are practiced in ways that are not environmental friendly. The parents do this to fulfil their needs, but since the practices are not environmental friendly they need to be changed.

Teacher 6 Lamjung school, 15/10.
The teacher tells us that the literacy rate among Nepali parents is just above 60%. Due to this, there has been a lot of environmental degradation going on. For example children see their parents make forest fires in the hillsides, so that the ashes would come down in their fields and would work like a fertilizer. The children might see their parents cutting down young trees to fulfil their needs for firewood. He explains that the school tries to improve these habits in the behaviour of the students.

Teacher 4 from Lamjung also speaks about the parents' practices in the same way. He brings in other examples of practices that are not environmentally sound, as burning forest to clear land, clearing the area outside the house for greenery in order to prevent wild animals getting close, and cutting down a tree that is said to attract lightening (14/10).

The premises of the scientific narrative also describe the current situation by stating that agriculture and forestry are not economically efficient. This is supported by the following paraphrase.

Principal Lamjung school, interview 2, 13/10.
The principal tells us that it is proved that planting rice, wheat and traditional farming cannot uplift the economy and sustain food for a whole year. Thus, this is a failed project.

This was supported in interviews with the families – most of them tell that the crops do not last a full year.

Further, the scientific narrative describes people being unaware as a part of the problem. This occurs in several interviews. This lack of awareness refers to both urban dwellers being disconnected from nature and thus having little environmental knowledge, and to people being unaware about their impact on the environment in the sense that their actions damage their surroundings. The children´s knowledge about the environment is affected both by not learning about people´s connection to and dependence on the environment, and also by seeing their environments get polluted.

Interview three kindergarten principals, 31/10
The principal at IK tells me that the children who grow up in the city have few ideas about where the grains come from. They believe it comes from the shop, and the kindergarten has to tell them where it all comes from. The principal at PK tells that people are not aware when it comes to pollution. Even if people see stones as gods and other natural elements as sacred, it is not reflected in their actions. Even if Bagmati river is regarded as holy, it is the most polluted river. The principal at IK confirms this general lack of awareness among people. She describes how adults pick up garbage from their own place and throw it in front of somebody else´s door. Parents may teach children to worship trees and that some plants are special

because they are used for worship. But this counts if you are in your own area, if you go to someone else's area or public, the same values do not apply there, she says.

The teachers in the urban schools talked about garbage and different kinds of pollution as the main environmental problems. They say this is due to both growing population in cities and a lack of awareness among the people - sometimes talked about as parents. This lack of awareness gets connected to uneducated people that don´t know better or have superstitious beliefs, or as shown in the above quote – to selfish people that only care about themselves. One of my observations that support lack of awareness as a part of the problem was on a fieldtrip where children were taught about garbage.

Observation notes from Bhaktapur school 10/11.
I joined a full-day excursion (called forest school) with 2nd grade in Bhaktapur school. 89 children 6 teachers, principal and his wife and M (block responsible for kindergarten and 1-3rd grade) and I went by bus for half an hour to the forest in the outskirts of the city. After about 1.5 hours' walk through the forest we arrived at the destination where the children played and had lunch. It was close to the hilltop, and had a beautiful view over the valley and the snowy mountain range. We passed by a temple, and behind it there were some barren terrace fields. It was covered with the garbage of previous picnickers. A teacher arranged the children to go group wise and pick up garbage. After 5 minutes the area was free of plastic, and all garbage was gathered at one spot. The children lined up, and the principal said they had done a great job. He told me that they should not litter nature, neither at home. He asked where the garbage should be thrown, and the children suggested that it should be brought back to school and put in the dust bin. The principal explained that plastic is non-degradable, and when it covers the ground plants cannot grow through it. Here, the wind may blow the plastic down to the forest and be harmful for the forest.
As we sit down to eat, the principal tells me that the school used to pick up garbage on school-trips. He hopes this will change the children´s attitude. By influencing the children to keep the environment clean and not litter, he also hopes they will bring this attitude home to their families. The families are often not so aware, the parents did not learn about these things at school. People litter mostly because they are not aware of the consequences – thus education is very important.

This observation and conversation with the principal supports the premises of the narrative, which both states that problems arise because people are unaware, and that education can be seen as a solution to the presented problem. The principal´s statement shows that he believes knowledge about environmental effects will result in improved actions – in this example keeping the environment clean from litter. He emphasises the importance of education.

The premises of the scientific narrative present a solution to the described problem. The required action to solve the problem is a shift towards a scientific basis for knowledge about nature. This is done through education, and will affect people´s ability of both protecting and utilising the environment in the future. For the kindergarten, knowledge about nature and environment are taught topic wise. The kindergartens teach subjects as in schools, and there is no subject for nature/environment. This means environmental knowledge is integrated into the subjects on the curriculum (Ministry of Education and Sports, 2005).

Formal education aims at teaching children the scientific basis for knowledge about nature, and with the purpose of creating livelihood skills. As it is formulated in the curriculum:

"Objectives of Primary Education, number 3: Develop basic knowledge and applied skills for the livelihoods focusing on science, information, communication technology, and environment and health" (*Primary Education Curriculum Grade 1-3*, 2008, p. 3).

The subject science is introduced in the following way:

> "Science is considered as the storehouse of knowledge and method of research procedures and thought which help understand natural phenomena as well as principles. … With an aim to instill in students the fundamental knowledge of science, process skills, scientific attitude, basic knowledge of information and technology, habit of exploring the ways to safeguard from natural calamities; and conserve and make proper use of natural environment, and make them aware of the interrelationship between life and environment, the following subject areas have been included in this subject: 1. Living Beings. 2. Environment. 3. Matter and Energy. 4. Earth and Space. 5. Information Technology. 6. Basic Local Technology" (*Primary Education Curriculum Grade 1-3*, 2008, p. 36).

The textbooks for science in grades 1-3 follow the above topics. I read the science books they used in Lalitpur school where teaching is in the English language. The topics were followed

for all classes, expanding the scope for each year. Further, environment is a part of the subject social studies. Whereas the subject science naturally focuses on science, social studies are introduced in the curriculum as follows:

"Human beings have to accept themselves as intellectual, spiritual and sensitive social beings to fulfil their needs and to live a life as able citizens. Along with this, they have to be informed with the social and material world environment…" (*Primary Education Curriculum Grade 1-3*, 2008, pp. 18-19).

Under the headline "our earth" children learn about the local environment from class 1, and under the headline "civic sense" children learn about use and protection of natural resources from class 3. 20% of the curriculum in social studies is dedicated to local curriculum, which means each school has a choice to focus more on local environmental issues. Each school decides upon the content in cooperation with the government resource person. The content should cover areas related to their community and region that affect the children´s daily life and impart real life experience (*Primary Education Curriculum Grade 1-3*, 2008, p. 23).

The local part of the curriculum is widely defined, with the twelve possible content areas mentioned: Cultural area, Historical area, Geographical area, Natural areas, Religious area, Economic area, Ethnic/Lingual area, Tourism area, Professional area, Health area, Environmental area, Educational area (*Primary Education Curriculum Grade 1-3*, 2008).

In interviews, teachers from all kindergartens and schools explained how they taught the different subjects through textbooks for the different subjects. Rote learning in the form of repeating and memorising facts seemed to be widespread, however all teachers emphasised the importance of practical experiences and expressed a wish for more of this kind of teaching. They gave examples such as fieldtrips to the forest, botanical garden, the zoo, and in Bhaktapur school and Lamjung school they had their own projects for older children.

The emphasis on scientific knowledge as a solution to the problems of today are supported by the above quotes from the curriculum – explicit in how the subject science is described as a means to conserve and make proper use of the natural environment. The observations at schools support the premises of the narrative by confirming that education for scientific knowledge about nature is also carried out in practice. Further the scientific narrative links

scientific knowledge about nature with modernisation, which is reflected in the following quote.

Teacher 4 Lamjung school, interview 2, 14/10.
The teacher talks about the difference in how children learn about the environment at home and at school. At home they may learn the traditional aspects that have been passed from generation to generation. But in school it is more modern and scientific, he says. For instance regarding deforestation and forest fires. The school teaches about such changes, what changes are taking place in the environment, what would be the impacts of such changes, what would be the effects of forest fire, and what would be the effect of deforestation. For instance the landslides, the drying of water resources. So these kinds of cause-effect relations, such scientific and modern knowledge about the environment are given to students.

The premises of the scientific narrative link scientific knowledge with development. I interviewed two curriculum specialists to get information from people more involved in the planning level. In an interview with curriculum specialist 1, we talked about how environmental knowledge is taught in schools. He explained that if education for sustainable development should be successful, it had to include environmental, social and economic aspects since these aspects are interdependent. Deforestation was among the most frequent issues the teachers spoke about, and curriculum specialist 1 told an anecdote about how deforestation was a big problem previously. Development depends on awareness about environmental issues, which is another point from the scientific narrative.

"For us, forest is a need for survival. Because the leaves that come from the forest will be put in the animals shed and become manure. Firewood, people cook their food, it comes from the forest. If they preserve the forest the water source will be there.
Even our generation today think that forest is a need for people to live a better life, … if we destroy the forest we destroy many things that are necessary for the people. These days, the forests are so dense that people cannot even walk in the forest. Deforestation happened large scale, all over. When the stem and branches was gone, people even came to uproot the trees. I saw this in my life. Before community forestry the forests were destroyed many places, the people attacked the forest. It was because of the wrong policy of the government, government challenged the people, how can they claim that the people should not touch the forest, within one decade the forest was gone. The government could guard at day, but people could go at

night. … After community forestry, people realised they were the owners of the forest; everybody was taking care of the forest.
That sensitivity, that context, if the children was bringing closer to that effort of preserving the forest, if these social norms can be a part of the learning of the children, we can learn the children to protect the environment in general. Every hill, every forest were barren, it was nothing, particularly in the hills. That is why they (the teachers) *overemphasise, because they have experienced" (Interview curriculum specialist 1, 6/11).*

Scientific knowledge taught at school is an action that has potential to influence the parents, and thus a larger part of society than only the children. Lack of awareness is described in the narrative as part of the problem, and in the following quote a teacher from Bhaktapur school talked about the school's role in making the parents aware.

"Our teaching and parents understanding is a little bit different. … One example: We teach the students to put plastic and other rubbish in the dustbin. But when they go at home, they might hear they can put the rubbish anywhere. Then the child get puzzled – what is going on? … we can aware the parents on this case, on this matter. We are doing our best … we are doing the different workshops, so that our teachings and the knowledge the parents give will be linked with each other" (Teacher 4, Bhaktapur school, 13/11).

The school teaches science to support modern development, and as described in the scientific narrative a part of this is to refute superstitious thoughts. Some of the teachers state it is an important feature of school to teach science and logical reasoning, as opposed to mere beliefs. One example of this is the following quote from the same teacher at Bhaktapur school.

"…parents should not link nature and science with any religious belief. … – if you are teaching something, then that should be directly linked with the science practices….. so if the children ask questions about where things come from, then we have to say the answer. So children should be explained the reason, and of course cause and effect. I think the children should have attitude of building up logically reasoning. And they should know that if we do any mistakes, the output will be really very hard, and if we do the right things, then the output will be really very good" (Teacher 4, Bhaktapur school, 13/11).

Some of the teachers describe a lack of awareness among people as a reason for environmental problems, and the school's duty is to create awareness. One way of being unaware is with regards of superstitious beliefs – which include, but are not limited to, knowledge about the environment. This occurs both in the textbook and in the interviews. The same 1st class teacher talks about the school's duty to promote scientific understandings of nature, which some of the parents are not so aware of.

"I think when they (some parents) *give any knowledge to the students, they do not reveal the facts. For example if there is any thundering or lightening, then they directly link with the religious beliefs. How happened thunder? Because the god is so sick, so (teacher laughs) the thunder came. How came the lightening? Because the god are so angry, that`s why it lightens, so they are taking our photos, like that. I think this is a kind of blind beliefs. Instead of that, if we reveal the facts of the nature, or science, then it will be better for students" (Teacher 4, Bhaktapur school, 13/11).*

Refuting superstitious beliefs was included in the curriculum. The Social Studies book for Class 3 has a lesson on Superstition under Unit 3, Our Social Problems and Solutions.

> "A **superstition** is a belief which is not based on **reason** or **science**. … A **witch doctor** is a person who is supposed to cure people using traditional magic. To believe that evil spirits or ghosts exist is superstition. Such beliefs are not based on human reason or on **scientific evidence**. Some people in our community are still superstitious. … They are ignorant about the **scientific** reasons for the happenings in their **surroundings**…. Many a time, the superstitious people blame **illiterate**, **extremely** poor and old women for causing some kind of harm to them. Sometimes, these women are **beaten**. They are forced to eat human **faeces**. They are **accused** of **practicing** witchcraft. … For any **undesirable** happening, we have to look for reasons other than magic and witchcraft" (Timothy & Niroula, 2012, pp. 43-45).

While the premises of the scientific narrative describe education as required action, the conclusion of the scientific narrative predicts possible outcomes in the future. They can be favourable if required action is taken, on the contrary – if required action is not taken the possible outcomes can be unfavourable or even dramatic as stated in the following quote.

Teacher: "If different measures are not taken to save nature, you may not see any trees here or in the villages in 10 years. The rivers will dry out, and this green world will be a desert" (Observation class 3D Lalitpur school 4/11).

Increased problems in the future can be avoided by teaching children a scientific approach to environmental knowledge. This will result in the children understanding how to take responsibility for nature and result in environmentally-friendly behaviour; they will manage to both conserve and utilise nature in the future. Preferably they will bring these ideas home and also teach their parents, thus having a ripple effect and influencing today´s society – before the children grow up themselves. The following paraphrase supports the conclusion of the scientific narrative as it describes how a teacher in Lamjung school perceives a possible positive outcome.

Teacher 4 Lamjung school, interview 1, 12/10.
The teacher says that today the environment is going through rapid changes that are mostly human driven. He wants the children to be aware of these changes and the effect of human actions, and thus be able to preserve nature and prevent environmental degradation in the future.

Some of the interviewees see that this shift towards logical reasoning and a scientific understanding of nature will result in an evaluation of existing practices. The good practices will have a scientific explanation, and there will also be an explanation to why other practices must stop.

Interview principal Lamjung school 12/10.
I ask if there are differences in the local beliefs and what the school teaches about nature. He says that some beliefs have a scientific reason, and the school should then tell the students about this. Other beliefs are not good, and they should also teach the students why.

He continues in the next interview to explore the possibilities of a future in the village, where the practises of agriculture that are not economically sustainable are changed to both environmentally and economically sustainable alternatives. The school has a project for exploring this possibility. This example supports the conclusion of the scientific narrative by

exemplifying how the school´s role for a better future will lead to a better outcome for the environment.

Principal Lamjung school, interview 2, 13/10.
He says it is proved that planting rice, wheat and traditional farming cannot uplift the economy and sustain food for a whole year. Then, this is a failed project. Why not change, he asks. He says this hilly area is very good for Amriso (Thysanolaena maxima)*, a type of broom grass, and tells us that* Amriso *would have multiple benefits. People could sell it for making brooms. The leftover stem could be cut down and fed to cattle and goats. The hard woody stem could be used as firewood. This would generate employment. 1bunch of broom would cost 40 rupees. Imagine we would supply brooms, and could bring income here. There would be no need for deforestation; they would not have to send the goats for grazing. It also prevents soil erosion and land degradation. The school has a pilot project on planting* Amriso.

Another example that supports the scientific narrative is given by the principal in Bhaktapur school, who explains how education contributes to better outcomes in the future. He sees opportunities for change through education, and sees research as a means for a better future when he talks about utilising the natural resources in the form of tourism and hydropower.

Principal Bhaktapur school, 13/11.

The principal says that if the children could do research at an early age and use their creative skills, they could help their parents utilise the resources where they live. If the place were suitable for tourism, they could help their parents in the tourist sector, if the place was rich in water resources, they could help develop these.

The collected data on the environment and scientific knowledge supports a narrative where human's relationship to nature is characterised by a scientific approach. Today´s situation is seen as problematic, where increased pressure on nature poses a threat to the future. A solution to the problems lies in the act of education, where children learn a scientific basis for environmental knowledge and refute superstitious beliefs. This can lead to environmentally sound practices- the children will learn to both conserve and utilise nature. Environmental knowledge is thus to know the science behind the phenomena, and investigate causes and effects for the best practices.

4.2.1. The scientific narrative compared to existing narratives and discourses.

Global narratives and discourses on the environment and environmental knowledge inform education systems all over the world. The scientific narrative presented in the last section emerged from a limited amount of interviews and observations; still I find similarities with existing narratives and discourses. The premises of the scientific narrative describe a problem in the current situation that resembles the Theory of Himalayan Environmental Degradation. Required actions to solve the presented problem resemble the discourse on global architecture of education explained by Breidlid (2013). The conclusion of the scientific narrative predicts a future outcome where some elements resemble the discourse on Ecological Modernisation. In this section I present these three narratives and discourses, and discuss their similarities with the scientific narrative

The premises of the scientific narrative resemble elements from the Theory of Himalayan Environmental Degradation (THED) with its Malthusian ideas. The THED was a crisis narrative based upon Eckholm's *Losing Ground* (1976), where population growth in many fragile areas would lead to food shortages and crises. In Nepal, an increasing population would demand agricultural intensification in the Middle Hills of the Himalaya. The farmers would clear new land, and have to grow crops on steeper slopes that were unfit for sustained farming. Villagers would have to go further away to gather fodder and firewood. It would lead to land degradation, deforestation, erosion, landslides and ecological crises (Forsyth, 2003). A series of interlocked vicious cycles were described, as people going farther and farther in search of firewood, burning cow dung instead of using it as fertilisers, and as the heavy monsoon rained over deforested slopes it would lead to increased erosion and floods. This narrative represents a particular understanding of the environment, one that comes from the West and serves those involved in Nepal´s development industry. The environment is seen as fragile and vulnerable to human misuse. THED claims to be scientific, and at the time it was presented it became an unquestioned discourse (Guneratne, 2010). Newer research found the assumptions of the crisis narrative inaccurate. One point was that it underemphasised natural processes as tectonic uplift, and monsoonal rainfall as causes for soil erosion in Himalaya. The model used for scientific calculations of soil erosion was developed in the USA under different conditions and such calculations cannot predict what an acceptable rate of soil loss in an area will be (Forsyth, 2003). In addition, even if there are places where

agriculture and forestry lead to environmental degradation, the Himalayas are so diverse that generalisations do not apply (Blaikie & Muldavin, 2004). However, according to Guneratne (2010) the Malthusian ideas that population growth leads to environmental degradation have become the common sense of Western perspectives on human-environment relations. This idea is especially common to describe how poor people relate to their environments. Even if scientifically refuted, narratives based upon THED are still influential in development and environmental policy process in Nepal (Pandey, 2013).

The current situation THED describes resembles elements from the premises of the scientific narrative. The scientific narrative describes the current situation as a problem due to a growing population that leads to an increased demand for resources, and increased pressure on nature. The way agriculture and forestry is practiced is not economically efficient and environmental friendly. In some interviews deforestation is linked to population growth and results in drying out of water sources and landslides (one example is in Interview teacher 4 Lamjung school, 12/10).

Although similar, the scientific narrative that emerged from interviews and observations is not so specific when describing a destructive cycle of events that leads to environmental degradation. Where the THED crisis narrative expresses how different factors are interlocked and leads to a downward spiral that is hard to change, the scientific narrative has a solution to the problem and rather predicts a positive future if right action is taken. The scientific narrative does not resemble a crisis narrative as such. However, the observation in class 3D Lalitpur school 4/11 resembled more of a crisis narrative, where a crisis in the near future would be the scenario if today´s practices continued. The majority of the interviewees and observations did not share this crisis narrative. The required actions or predicted outcome of THED do not resemble the scientific narrative as much as other discourses do; it shares most resemblance with the premises of the scientific narrative.

The premises of the scientific narrative also resemble the global architecture of education – discourse, as it sees modern science as the only reasonable foundation for environmental knowledge in education. In *Education, Indigenous Knowledges, and Development in the Global South – Contesting Knowledges for a Sustainable Future*, Breidlid (2013) discusses how the hegemony of Western epistemology has had an impact on education systems across the globe. Further, he explores how marginalised indigenous knowledge systems represent

alternatives both in terms of education and environmental sustainability. Breidlid calls the dominating discourse in the world´s education systems the "global architecture of education."

"The "global architecture of education" is defined as a common epistemological discourse, which dominates most educational systems in the South and the North…" (Breidlid, 2013, p. 2). This discourse is based upon so-called modernist, Western epistemology. Western epistemology refers to the hegemonic Eurocentric knowledge system that originated in 16th century Europe. Together with industrialisation and capitalism a specific kind of knowledge emerged- modern science. One feature of modern science is a mechanistic world-view that claims to be objective and universal. Such a claim is in itself colonising, as it leaves no room for questioning whether this epistemology should be the right foundation for education all over the world. It does present itself as the objective truth, based upon logical reasoning and scientific proof. A precondition for the claim of objective truth was the dualism of mind and matter. This dualism is known as the Cartesian divide, where material reality was in essence different from and immune to any kind of subjectivity. Nature consists of what is physical, concrete and measurable for the natural sciences (Hornborg, 2010). The modern Western epistemology has spread in the wake of colonialism and capitalism, and has contributed to a construction of the Other – an image of people with other ways of understanding the world, those who have not yet become modern.

"The production of the hegemonic epistemology necessitated the Other, which was characterized as uncivilized, irrational, superstitious" (Breidlid, 2013, p. 7). As a result, other knowledge systems and people in the South have been marginalised. At school students meet a knowledge system very different from the local knowledge, often taught in a colonial language. When the knowledge they bring with them from home is not discussed or valued, students end up alienated and have difficulties with learning. This seems to bypass global actors that work for the Millennium Development Goal education for all. International organisations and donors such as UNESCO, USAID and the World Bank centre their discussions on education around the global educational architecture, and thus contribute to making and keeping this discourse hegemonic. The launching of the United Nations Decade of Education for Sustainable Development 2005-2014 did not manage to go beyond the Western-based knowledge systems and educational discourses. The role of science as controlling and exploiting nature remains unquestioned, and technological interventions and economic growth are necessary foundations for sustainable development (Breidlid, 2013).

The global architecture of education clearly resembles the premises of the scientific narrative, where educating children in science as a basis for environmental knowledge is presented as the solution to the current environmental problems. This is not surprising, since the present education system in Nepal is formed after a Western model of education in the '50s. Also, aid from international donors has a substantial impact on education in Nepal (Parajuli, 2014a). It follows that ideas about good education are clearly influenced by this global discourse. The belief in scientific reasoning and logic as a universal truth is also present in the premises of the scientific narrative. Modern science defines objective, universal truths about nature, and is seen as the right way to solve environmental problems and leads to modernisation and development.

The premises of the scientific narrative state that education will lead to increased awareness about environmental issues, and refute superstitious beliefs. This resembles the global architecture of education discourse, where modern science is seen to reveal the truth about the environment in an objective way other knowledge is not able to. Through scientific knowledge people will thus gain a new awareness about cause and effect in their environment. The production of this hegemonic epistemology necessitated the Other, an image of people that did not yet have any awareness and would be in need of education (Breidlid, 2013). This resembles the scientific narrative, where to refute superstitious beliefs is a part of the required action to solve the current problems. People have to distance themselves from previous understandings of reality that are not based upon logical reasoning in order to achieve development. The main angle of approach in the scientific narrative is to present environmental knowledge in the same way as in the global architecture of education discourse. The difference lies in that the scientific narrative is connected to the local context of Nepal, and does not deal with global concerns. However, the two are related in such a way that scientific narrative fits into the hegemonic global architecture of education discourse. This is the discourse that most resembles the scientific narrative. Still, it focuses on required actions, and I want to bring in another discourse that resembles the conclusion of the scientific narrative.

The conclusion of the scientific narrative resembles the discourse on environmental modernisation. Environmental modernisation is a discourse on environmental politics that

developed during the 1980s and early 1990s, and is according to Bäckstrand and Lövbrand (2007) one of the main global environmental discourses.

> "In the most general terms ecological modernization can be defined as the discourse that recognizes the structural character of the environmental problematique but none the less assumes that existing political, economic, and social institutions can internalize the care for the environment" (Hajer, 1995, p. 25).

The current situation demands environmental problems to be taken seriously by a modernist, technocratic approach. Ecological modernisation introduces concepts that make environmental degradation issues calculable, so that costs and benefits of pollution can be calculated in monetary terms. Environmental protection is seen as a "positive-sum game", and environmental problems described in terms of inefficacy. Environmental modernisation does not address basic social contradictions or call for structural changes. It is more of a neo-liberal approach that has a belief in the progress and problem-solving capacity of modern technology (Hajer, 1995). The role of experts becomes central both to determine problems and solutions, and thus making decisions (Murphy, 2000). Also, the role for science in policy-making shifted from proving damaging effects on the environment to determining the level of pollution which nature can endure. More integrated ideas about nature were taken as a starting point, and the science of ecology became more important.

The perception of nature changed from being a free good to being a public good. Ecological modernisation recognises the need to conserve and manage the scarce natural resources, and values recycling, ecological prizing and eco-friendly technologies (Hajer, 1995). Industrialisation and capitalism can thus be made more environmentally-friendly and serve as a remedy towards environmental degradation. There are different directions within ecological modernisation, some moving beyond the Eurocentric perspective presented above. Bäckstrand and Lövbrand (2007) refer to "weak" and "strong" ecological modernisation, where the strong version emphasises "good governance". Here the "weak" version of ecological modernisation is outlined, since this version dominates the discourse in global policy rhetoric and practice (Bäckstrand & Lövbrand, 2007). Ecological modernisation has become attractive due to its optimism – it expresses hope and recognises the significance of environmental success stories (Buttel, 2000). However, critics claim ecological modernisation focuses on short-term solutions. Structural limits will make it impossible to realise economic and environmental

improvements as a result of technological innovation. Further, environmental modernisation separates social justice issues from environmental issues. Another claim is that the focus is on environmental problems of advanced industrial countries (Murphy & Gouldson, 2000).

Even if environmental modernisation is claimed to focus on industrialised countries, the discourse shares some similar elements with the scientific narrative. One central point in ecological modernisation is that environmental degradation is regarded as inefficient. This shares similarities with the scientific narrative, where today's agriculture and forestry are seen as neither economically or environmentally sustainable. Another similarity is that environmental modernisation regards nature as a public good, whereas the scientific narrative calls for a public responsibility for environmental problems. Many of the interviewees state that people have an individual responsibility for making their actions environmental friendly. Environmental modernisation also separates social justice issues from environmental issues. This is an implicit, but important point of the scientific narrative. Environmental problems are related to scientific knowledge and can be solved through such an approach; social justice aspects are not a part of the narrative even if this may be perceived by people (curriculum specialist 1, 6/11) and also described in research (such as (Springate-Baginski & Blaikie, 2007) as a part of the problem.

The closest similarity with ecological modernisation is found in the conclusion of the scientific narrative. The scientific narrative sees scientific knowledge about the environment as a way to solving environmental problems, and brings positive outcomes in the form of people´s ability to conserve and utilise nature. Ecological modernisation claims that the existing system can internalise care for the environment, and has an optimistic belief in science and technology to solve the environmental problems. The main similarity is the belief that science can make environmental problems a positive-sum game. However, in the scientific narrative technology is not explicitly emphasised, rather that scientific knowledge will lead to modernisation in terms of what this means for Nepal. Another difference is that monetary valuation of the environment is not a clear component of the scientific narrative. Also, the same difference is present in the previous comparison where the scientific narrative may reflect global environmental discourses, but is not a global discourse in itself since its focus is within Nepal.

I have presented three narratives and discourses that have similarities with the scientific narrative. Further discourses could be mentioned, as the development discourse (Escobar, 2012) and the global environment management discourse (Adger et al., 2001). The chosen comparisons serve to illustrate how the scientific narrative can be related to a larger context of discourse.

4.3. Productive power of the narratives - nature and the environment.

To analyse the productive power of narratives, a central point is how they frame the environment. The two narratives represent nature differently, and so provide the children with different understandings of what nature and environment are. In discourse analysis, one tends to not go beyond the representations – there is no objective truth beyond the discourse. However, a way to respect people's worlds as they themselves produce them is to look upon them as representing different ontologies. Nature in the two narratives is represented as what Descola would call animist ontology and naturalist ontology.

Animist ontologies have similar interiorities and different exteriorities. Animism is "the attribution by humans to nonhumans of an interiority identical to one´s own" (Descola, 2013, p. 129). All entities have their spiritual features in common, while the sort of physical body they have differs. This is supported by data that states gods or spirits resides in trees and stones, that some animals are seen as gods, and that the special people – Priest, Lama, Jhankri can communicate with these spirits. Jhankri can also make bad spirits who have entered people go back to the places in the environment where they belong, for example trees or stones. Data reveals different spiritual traditions within the same community, which all share animist elements. Campbell (2013) finds that a co-existence of contrasting ontological views characterise the Himalayas, where caste ideology tolerates difference through a system of hierarchy. In Hinduism the following ethos underlines the idea of identical interiorities: "*Dharma* requires that one consider the entire universe an extended family, with all living beings in this universe members of the same household" (Chapple & Tucker, 2000, p. 13). One feature of animist ontologies is no clear divide between nature and culture; humans are an inseparable part of nature. "Animism could be defined as an ontology which postulates the

social character of relations between humans and non-humans: the space between nature and society is itself social" (Viveiros de Castro, 1998, p. 473). Thus, environmental knowledge as the traditionalist narrative represents it, includes actively participating in this social space.

In contrast, a naturalist ontology has different interiorities and similar exteriorities. Humans have a soul, non-humans as stones, trees and cows do not have a soul. It is only humans that have the ability of logical reasoning - the interiorities differ. The exteriorities are similar - both humans and other than human nature are made out of the same matter - constructed of the same chemical elements. Central to a naturalist ontology is the Cartesian divide that separates mind and matter. Nature is thus not a realm of the spirits as in animist ontologies, but a chain of interdependent ecological processes. Naturalism supposes an ontological duality between nature, the domain of necessity, and culture – the domain of spontaneity. Humans relate to nature through utilising nature for their own needs (Descola, 2013). In naturalism the relations between society and nature are natural. The distinction between nature and culture is a part of nature, and human culture is one among other natural phenomena. Humans are organisms among other organisms, in interaction with other bodies, all ruled by natural laws such as physics and biology. This provides a more distant, mechanistic view upon nature. "Nature" functions as the universal dimension of the naturalism mode, and social relations exist only internally in the human society (Viveiros de Castro, 1998). The scientific narrative and the resembling narratives and discourses are all founded upon western science. This ontology sees different worldviews as different versions of one reality and it is possible to detect the objective truth about them. Sound solutions to environmental problems are found through scientific investigation and logical reasoning.

The two ways nature is represented- as animist ontology and as naturalist ontology, give two distinctively different understandings and result in people relating to nature in different ways. Whether nature has agency also differs in the two narratives. Nature in the scientific narrative is passive, a victim that suffers from environmental degradation due to human actions. In the traditionalist narrative nature can in such a way not be a victim to human actions, because nature is inseparable from divine forces that are superior to humans. In the traditionalist narrative nature has agency.

4.3.1. Productive power of the narratives – actors.

Another aspect of the productive power of narratives is how they frame actors. Narratives describe a simple storyline that easily sticks in the mind. The traditionalist narrative has a storyline where the premises describe a fated situation with worship as the required action. This leads to a conclusion, a status quo where the gods are satisfied – there is enough rain, good crop yield and absence of calamities. The scientific narrative has a more linear storyline. The premises describe environmental degradation with a shift towards science-based practices as the required action. This leads to a conclusion where environmental problems are overcome; nature is both utilised and protected in a way that leads to modernisation and development. The two narratives are quite broad in their definition of actors, as people in general. Further, actors are framed in a simplistic way.

In the traditionalist narrative, the main driver of change in nature is divine forces external to humans. These forces are many times inseparable from natural elements. This shares similarities with another study from Nepal by Campbell (2013), where nature is also an active participant. What happens in the environment, whether proper rainfall, good crop outcome, natural calamities or angry spirits making people sick, are due to divine forces. Since the gods secure good crop outcome and guard people from calamities, they are the heroes people turn towards. Statements from interviews provide examples. Mother in family 5 told me that Mahadev (an avatar of Shiva) comes with the lightening (16/10). Grandmother in family 7 explained that the gods are the ones that grant them wishes (25/9).

Other heroes are the Brahmin priests, who have a special position as mediators between people and the gods. For instance, people told me that during drought the villagers called upon a Brahmin to perform a ritual for rain. The Lama and the Jhankri can also mediate between people and the divine forces, but not in such an important situation. They handle different situations and do not share a superior position in the Hindu caste system (Bista, 1991). Local people may be heroes, victims or villains due to the circumstances. Environmental knowledge in the traditionalist narrative consists of interacting with an animated nature for a wanted outcome. Since circumstances are fated, the people's actions are framed as being more about maintaining contact with the gods. If they satisfy the gods, they may have good fortune and be heroes. For example, grandfather in family 9 told me that they had enough to eat due to the will of the gods (7/10). If they are subdued to the gods' wrath, they may have bad crops and become victims; in addition, they can break taboos and thus also

be villains causing the gods wrath. One example of this is chopping trees. Father in family 8 commented that if people take the home from the gods by chopping a tree, they cause harm and a bad spirit may possess the people (11/10).

This framing of actors grants people agency in relating to divine forces, people can affect the outcomes by worship. Brahmins are placed on top of the hierarchy with their rituals as the ones that most likely will grant success (Bista, 1991). However, in the traditionalist narrative people do not have political agency that challenges the existing hierarchy or natural order of things. There is no quest for technological improvements to enhance crop yield, and uneven distribution among people when it comes to property or political power is not questioned. Neither does this narrative recognise practical trial and error as a way to achieve environmental knowledge and alter outcomes.

In contrast, the scientific narrative tells a story where humans and their actions cause change in the environment. People are portrayed as villains, who with their population growth, ignorance and environmentally unfriendly practices cause natural degradation.
Many interviewees from the cities (for instance kindergarten principals in group interviews) talked about how people are unaware. They throw garbage anywhere, and the Baghmati river has got heavily contaminated (31/10). In the village in Lamjung teacher 6 tells that slash and burn agriculture causes land degradation (15/10). The same people are also portrayed as victims. When their environments gets degraded and polluted, they face a difficult situation. They are uneducated and thus not able to change the course on their own – the solution lies in new knowledge, modernisation and development. Several teachers state that it is the school's role to inform people and make them change their practices. One example is teacher 4 in Bhaktapur school, who informed the school to make parents take responsibility for their litter (13/11).

The heroes in this narrative are the ones that are able to make a change, so that the practices become sound (scientific) and further degradation avoided. It is implicit in this narrative that people with scientific knowledge have a high status. Scientists are experts who transmit this sound environmental knowledge. Further, teachers preach the words of the scientists and contribute to change. Children represent a hope for the future – they will become educated and have a rational, scientific approach towards environmental knowledge. Also, they can already make a change in practices by teaching their parents what they learn at school. The

narrative implicitly empowers schools and the state that arranges education as pro-active actors for change. The principal in Lamjung gave one example where the school has a pilot project on growing *Amriso* that can give economic and environmental sustainability (13/10).

This narrative empowers experts, scientists, and educated people, and disempowers local people and farmers. The kind of knowledge local people have about their environment is marginalised – the scientific narrative requires that local people change their actions and reject some existing practices.

Both narratives marginalise the practical knowledge local people have from interacting with their environments, but they do so in different ways. In the traditionalist narrative life is fated; who you are, what happens to you, and what happens to the environment is down to the God's will. In contrast, in the scientific narrative humans have agency to control who they are and what effect they have on their environment. However, since education is a key factor, the scientific narrative does not really change the social hierarchy. Even if education today is accessible to people regardless of which caste they belong to, the upper casts traditionally have been the ones that were most educated, and they are still overrepresented in high positions in society (Pherali & Garratt, 2014). Manual work has low status, as preschool teacher trainer explains – people who work in nature can be looked down upon because they work with their hands (11/11). Education in Nepal does not recognise local knowledge about the environment (Parajuli, 2014a); one example is the practical knowledge of farmers which is not recognised in the scientific narrative.

Similarly, a marginalisation of local knowledge by framing local people as victims and villains is found in several other narratives/discourses. Such simplifications are frequently used as explanations, even if they are based upon faulty assumptions. The already mentioned Theory of Himalayan Environmental Degradation (THED) provides an example from Nepal. In THED, local people are portrayed as victims and villains that contribute to soil degradation. However, "local knowledge on terracing, mulching, ground covering through intercropping and crop rotation and channelling the runoff are scientifically appropriate technologies of checking soil loss" (Pandey, 2013, p. 186).

In "Except Africa", Roe (1999) describes similar ways of marginalising local knowledge in an African context, and how this framing of people as victims and villains provides a blueprint of

solutions to complex situations. A case study from Namibia by Hongslo and Benjaminsen (2002) describes how a network of actors produce and reproduce a particular discourse that marginalises communal farmers. They are seen as villains, and their practices lead to land degradation. This framing of African farmers can be traced back to colonial ideas about African land management. Empirical research refutes these claims; African dry lands are non-equilibrium environments with natural changes of dry and wet periods that affect vegetation. The mentioned studies critically examine the productive power of narratives, how actors are empowered or disempowered and how policies are influenced. However, they do not focus on how such narratives affect children.

How the narratives frame actors contributes to the children's identity construction - their understanding of who they are and of their fundamental defining characteristics as a human being. All children are dependent on recognition in terms of identity formation, and identity is formed in dialogue with others (Breidlid, 2013). The age group 3-9 years categorises their formative years, and how children´s relation to nature is formed depends on how it is presented by significant others such as parents and teachers. Many children will experience that the scientific narrative - with its devaluation of non-scientific environmental knowledge, creates a gap between what kindergarten and school teaches and what they experience at home. When they experience different ontologies, and those (educators) who have power to name and socially construct reality don´t see their background, it results in alienation. This alienation does something with the children's self-esteem and image of themselves, and it is also detrimental to the learning process (Parajuli, 2014b). Breidlid (2013) refers to this alienating effect of schooling as colonisation of minds. In the scientific narrative, many parents would be defined as villains and victims, and the children would be the ones that can bring a necessary change. According to Bhandari and Abe (2003), it is a serious concern that education in Nepal alienates rural children and makes them judge their background as backwards. This undermines the idea of education as a way to rural transformation and development. When the children`s own background and culture are marginalised, the alienation can take the form of distancing one from the reality around, it is like separating the mind from the body (Breidlid, 2013).

> "Since identities are constructed on the basis of multiple historical, contextual, and cultural influences, a modernist educational discourse that *per definition* narrowly defines which knowledges should be celebrated and counted undermines attempts to establish identities that

> are grounded in, but not restricted to, indigenous knowledges, experiences and cultures" (Breidlid, 2013, p. 135).

Breidlid (2013) contrasts identity construction based upon animist ontologies, *homo mythlogicus,* with identity construction based upon a naturalist ontology - *homo economicus.* Where *homo economicus* understands its fundamental defining characteristics as a human being related to nature in terms of managing and utilising resources for benefits of people in an economic rationality, this perception of what it is to be human makes little sense to *homo mythlogicus.* For them the natural environment is god, and an instrumental rationality towards nature has neither conceptual validity nor coherent meaning. Thus, the narratives support different rationalities and also imply a difference in identity construction.

Children´s identity constructions are affected by how the narratives frame actors. I have analysed how actors are framed as heroes, victims and villains in the two narratives. When the narratives are compared, both marginalise local people's practical knowledge.

4.4. Power in the narratives

These narratives have a productive power, as shown in that they frame the environment in certain ways, and actors in certain ways. This productive power is inseparable from knowledge. "The exercise of power perpetually creates knowledge and, conversely, knowledge constantly induces effects of power" (Foucault, 1980, p. 52). When these narratives are produced and reproduced, they become common ways of speaking about the environment. They become established as "truths". Further, the narratives make "preconditions for actions" – they enable some actions to be thought of as possible, while marginalising alternatives, or making them not thought of as possible (Neumann, 2008).

Who then, are the actors that produce and reproduce the narratives? I have suggested that some actors have more social and productive power than others. Some elements of the traditionalist narrative can be linked to ideas promoted by a ruling class supported by Hindu priests. They may have come gradually from the rule of the Shah Kings in 1768, and these ideas were further spread throughout the whole country through the process of nationalisation and sanscritisation under Panchayat rule from 1960-1990 (Pherali & Garratt, 2014). The

scientific narrative originates from the emergence of western science in the enlightenment era, which was introduced to Nepali children through an education system inspired by western education in the ‘50s. However, through the data collected in my fieldwork it is harder to trace actors who impose these narratives upon people.

It does not appear as one entity, like “the state”, consciously exercising power through imposing these narratives upon the education system, parents and children. Rather, what Foucault refers to as power being dispersed offers insight to who procures and reproduces these narratives. On a micro-level, when children interact with others in their family or at school, knowledge and power are produced and reproduced when statements are in accordance with the narratives.

> “Power is employed and exercised through a net-like organisation. And not only do individuals circulate between its threads; they are always in the position of simultaneously undergoing and exercising this power. They are not only its inert or consenting target; they are always also the elements of its articulation. In other words, individuals are the vehicles of power, not its points of application” (Foucault, 1980, p. 98).

The traditionalist narrative is reproduced through people’s everyday statements, supported by non-linguistic practices that are in accordance with the narrative. From the interviews it seemed like people did not necessarily teach the young children the traditionalist narrative by telling stories. Several interviewees said the children will learn from being with them, that they will imitate their parents (for example see interview 2 family 8, father, 6/10). When people repeat the rituals they confirm that this is the right thing to do. By confirming the belief that environmental knowledge and taking care of the environment are done by relating to supernatural forces, farmers’ practical experiences and knowledge are less valued than the priest’s rituals. The idea of a hierarchical society imposed by a natural order is reproduced. One example of this discourse is found in school textbooks during Panchayat time. The well-known metaphor of Nepali people as a garden of many different flowers that live together in harmony despite differences is taught to the children. This ignores the huge inequality between the different people. Rather, it supports the idea that there is a natural, harmonious order behind the differences people experience. This metaphor also has a historical connotation to upper-caste Hindus migrating eastwards in the mid-nineteenth century, as they

were seen as transforming wilderness into cultivation. Thus, under the surface of unity-in-diversity, remnants of imperial caste and racial hierarchies remained (Bennike, 2015).

The omnipresence of divine forces has visual reference points, or material manifestations of the traditionalist narrative. A vast amount of temples are made in the cities, temples are placed outside most schools, there are small temples in the villages, and threads are tied around sacred trees and idol pictures with incense and offerings put in front of them. The houses typically have an altar in the kitchen, or if possible a separate *puja* room for worship. When people see these visual images, it supports a discourse of divine presence. A teacher´s trainer showed me how showing respect to temples is internalised in people's practice. Passing by temples as we walked along a road in Lalitpur, I saw many people do a respectful greeting towards the deities as they passed by (5/7). Such an act, even unspoken, contributes to the traditionalist narrative by confirming the presence of the deity at that specific place.

The traditionalist narrative is supported by hierarchical and fatalistic ideas that permeate society, and obscures other options that are not in accordance with this discourse. According to Bista (1991), personal achievements through effort and skills simply do not seem rational. Actors that gain from this perception are people that belong to the upper part of the social hierarchy. Even if the traditionalist narrative serves powerful actors, interviewees do not recognise these actors as producing the traditionalist narrative. Rather, it is the cultural embeddedness of the narrative that leads people to produce and reproduce it on a micro level every day.

I have discussed actors that produce and reproduce the traditionalist narrative, and the main impression is how power is dispersed. When I analyse the scientific narrative in the same way, there are clearer actors that produce and reproduce the narrative. Still, the production and reproduction of the narrative on a micro level also empowers the scientific narrative. There are many reasons for the scientific narrative to be powerful. Seen as a part of the global architecture of education discourse, this approach (modern science) to environmental knowledge is hegemonic in international education. The scientific narrative originates from "elsewhere", as Western education was introduced to Nepal in the '50s, as stated by this preschool teachers' trainer.

"…education came from Britain. So the practical day to day life has nothing to do with education, education has nothing to do with practical and day to day life" (Preschool teachers trainer, 11/11).

This quote illustrates that people do not associate education with their daily lives, and thus local environmental knowledge is marginalised. The global architecture of education promotes a uniform education system based upon rational, objective western science. This is seen as what brought development to the west, and thus as the right means for development in developing countries (Breidlid, 2013; Carm, 2014; Parajuli, 2014a). When the idea of modern science as good education about the environment is taken for "truth", it is not questioned. Even though this approach may not be suitable for local realities in Nepal, this discourse is hegemonic. Actors from both national and international education thus impose the scientific narrative.

However, the scientific narrative is also strengthened by other discourses about environment and development that emphasise the role of science. In many international environmental discourses, a Western science approach is seen as a solution. Using the example of ecological modernisation again, this discourse has an optimistic belief in that science and technology will solve the current environmental problems. Questions of social justice are not emphasised, an approach that can be convenient for certain actors.

THED serves as an example from Nepal on how scientific explanations are convenient for some actors, and serves a purpose to provide a simple explanation to more complex environmental issues. Even if THED is scientifically refuted, it is still influential in development and environmental policy processes in Nepal (Pandey, 2013). The THED debate

> "… cannot be contained as an ecological issue at all, as the whole controversy is fraught with political economy and cultural conflict, in addition to scientific uncertainty. In other words, the usually invisible social production of "truth" has become unveiled" (Guthman, 1997, p. 66).

Guthman (1997) states that the construction of THED serves as an example of how knowledge is produced and reproduced in multiple ways, and that these are hardly objective.

The collected data find traces of influence from THED in textbooks at school. Population growth as an explanation to land degradation is found in the textbook in science for grade 3 at Lalitpur school (Bantawa et al., 2012), and I found that this was also taught by the teacher when I observed the class (4/11). This finding has similarities with a Norwegian study, which found that Norwegian teacher trainee students generally held neo-Malthusian views of population growth leading to environmental degradation. One reason was that critical research to a limited extent reaches out to the general public, and that simplified explanations easily get media attention. However, there were also examples of how textbooks were not updated on environmental issues (Andersen & Benjaminsen, 2002). This illustrates how certain narratives about the environment are hard to change, even if their main explanation is said to be scientific and that it is already scientifically refuted. "Malthusian ideas have become the common sense of Western perspectives on human-environment relations, especially when they are applied to the relations that poor people have with the environments in which they live" (Guneratne, 2010, p. 9). Escobar (2012) analyses how western perspectives have become dominant in bringing development to the Third World. He further describes that facts about environmental degradation have become subordinate to broader political debates on development. The facts in themselves become less central for outcomes than the actors in power to claim what the facts are (Escobar, 2012). As a result, this enables a hierarchy of outside experts to claim interests in areas with environmental problems (Roe, 1995).

I have described that a broader range of actors produce and reproduce statements that are in accordance with the scientific narrative. This implies that the actors who support the scientific narrative do not only come from national and international education systems, but that they are entangled with other actors on national and international levels with interests in environment and development discourses. However, even if the scientific narrative may be produced and reproduced by powerful actors on a national and international level, the collected data also indicates that power is dispersed. As in the traditionalist narrative, the narrative is repeated on a micro level in day-to-day interactions with people such as teachers, students and parents. This results in a resistance to changing the idea of what good education about environmental knowledge is. Education has aimed at rural development and improving the conditions of people in the countryside (Parajuli, 2014b). Still, as shown when actors in the scientific narrative are analysed, local people are framed as victims and villains and thus disempowered. Even though the state - through the Ministry of Education, envisions

education for rural transformation and development, it has not been able to change how the scientific narrative defines who has valuable environmental knowledge.

Practical implementation of the local curriculum in social sciences serves as an illustration on how local environmental knowledge is marginalised. The curriculum opens up for teaching local environmental knowledge and practices. The Primary Education Curriculum sets aside a certain amount of time (20% of social studies) to a local curriculum. "For the local curriculum a school, in coordination with the resource person has to cover up and deliver such content areas relating to the neighbour, community and region/area that affect their daily life and impart real life experience" (*Primary Education Curriculum Grade 1-3*, 2008, p. 23). A broad range of possible content areas is mentioned: cultural, historical, geographical, natural, religious, economic, ethnic/lingual, tourism, professional, health, educational, and environmental. Suggestions for the environmental area are: plantation, natural disaster, conservation etc. Agriculture is mentioned as a suggestion under economic area. Even though there are many options for including local knowledge about the environment or other areas, the government resource person that I interviewed told me that in all 49 schools in Lalitpur, he supervises the schools which taught English instead of local content. He states that this is common in Nepali schools – the local curriculum is not as he knows, adapted to teach local environmental knowledge (15/11). This is in accordance with a report by Parajuli et al. (2012). This report states that English is chosen rather than other local content because people believe the latter will not give children valuable knowledge for the future. The report concludes that the local curriculum is difficult to implement due to little interest from parents and students.

This example shows that local knowledge is marginalised to such an extent that people see other learning as more valuable even when they are encouraged to include local environmental knowledge in schools. This illustrates the productive power of the scientific narrative – environmental knowledge is represented in a certain way. Even if a powerful actor on the educational arena in Nepal like the Ministry of Education encourages local knowledge about the environment in the curriculum, it is not regarded as valuable for the children.

> "… power isn´t localised in the State apparatus … nothing in society will be changed if the mechanisms of power that function outside, below and alongside the State apparatuses, on a much more minute and everyday level, are not also changed" (Foucault, 1980, p. 60).

4.5. The narratives as preconditions for actions.

As part of larger discourses, the two narratives influence people´s actions towards nature. The narratives contribute to people´s understanding of what truth is about man´s relationship to nature. From Foucault`s viewpoint, there is no objective reality beyond discourse. By defining truth, discourses enable some actions while others are marginalised. Discourses are thus preconditions for actions (Neumann, 2008). In this section I will discuss what kind of actions these narratives contribute to lay the preconditions for.

The desired outcome of the traditionalist narrative is to keep the natural order of things, and obtain goodwill from the gods. This situation is a kind of status quo, and good management of natural resources is thus not a political question. Attention is directed towards divine forces, and political issues like questioning property rights and distribution of financial support are not actions supported by the traditionalist narrative. The narrative supports the hierarchical structure of society. Large amounts of the population are farmers who are regarded as inferior to the higher casts. The narrative encourages actions as keeping up rituals and puja, which reinforces the priest's privileged position in society. The traditionalist narrative makes social uprising irrational by explaining social hierarchy as the natural order – changes in society as an approach to solving environmental problems makes no sense since everything is fated.

Aiming at a status quo, the traditionalist narrative does not make preconditions for development and modernisation. Environmental conditions will not be altered for the better through education and technology; scientific knowledge is excluded as an explanation factor. One example of this occurs in the interview with teacher 4 from Lamjung. He fails to convince villagers not to cut down a tree they claim attracts lightening (14/10). This quality – to attract lightening – is an interior quality of the tree. For the villagers this is an ontological position that differs from the teacher´s explanation –the tree is just a piece of wood which does not differ from other trees. The idea of this tree being without an interior quality deviates from people´s truth, and so they do not listen to the teacher and cut the tree down. The scientific reasoning behind the teacher´s solicitation does not make sense for them. As Breidlid (2013) points out when he discusses the different rationalities behind people´s relation to nature – the instrumental rationality in modernity simply does not make sense for indigenous peoples. It has neither conceptual validity nor a coherent meaning. *Homo*

mythologicus does not find the western modernisation project rational. Escobar (1999) suggests an anti-essentialist approach to political ecology, and discusses three different regimes of articulation of the historical and the biological. It is discursive articulations that lead to each regime's identity. In organic nature, nature and society are not separated ontologically. Living, non-living and often supernatural beings do thus not constitute distinct and separate domains (Escobar, 1999). An animist ontology marginalises the idea of human rule over nature. Nature is animated, with humans as an inseparable part of the whole. There are no conditions for humans as superior or other-than-human nature regarded as purely matter to be exploited. How nature is represented in the narrative enables certain practices and marginalises others. An animist ontology does marginalise personal efforts for economic gain but enables communication and a reciprocal relationship to forces in nature. That natural elements have interiorities opens up for human interaction with nature. Since humans are not separate from the rest of the environment, the traditionalist narrative lays foundation for a different closeness to nature than the scientific narrative. According to the Nepali Federation of Indigenous Nations (NEFIN), this understanding of nature has led to sustainable practices among indigenous peoples of Nepal (Sherpa et al., 2010).

Another element of the traditionalist narrative that hinders modernisation is fatalism. Bista (1991) claims that even if people are educated in agricultural practices, their knowledge only benefits the development of rural Nepal to a small degree. Many educated people see their education as a sign of good fate, and show little personal responsibility to improve agriculture in the country. Personal efforts are not what change the course of events, and are not what cause improvements to the environment. The idea of social hierarchy in society as a divine order of things makes social mobility very hard, and influences people´s access to natural resources (Nightingale, 2011). Seeing status quo as the desired outcome of the traditionalist narrative and hierarchical structure in society as a part of this, the traditionalist narrative may contribute as preconditions for people´s participation and lack of participation in natural resource use. The following example of a political ecology study on participatory forest management emphasises the role of social power in access to forest resources.

Forest, People and Power (Springate-Baginski & Blaikie, 2007) examines the gaps between the rhetoric of participatory forest management and the field reality in Nepal. "Participation" comes in many different forms, and can serve the interests of a wide range of actors in forest management. The analysis focuses on asymmetries of power and unequal relations between

different actors in their interaction with the forest. Such issues of power and politics are central in understanding people´s access to, and control over forest resources. The politics of knowledge production, such as contested data on forests, is necessary to understand because analysis of social and political issues such as forestry cannot be neutral. They will always be intrinsically political. Different actors produce a variety of narratives on participatory forest management, and Springate-Baginski and Blaikie (2007) point out two dominant narratives. One is the centralised "state forestry" narrative; the other is a more radical "popular/civil society" narrative. Both narratives use participation in order to achieve diverse and even opposing interests. Findings from the field reality reveal that the forest conditions have generally improved, whereas there have been limited livelihood impacts of participatory forest management. There is no simple relationship between livelihood improvements and participation. The medium and rich households have benefited, whereas poorer households have been affected negatively. Structural inequalities on the local level have prevented politically and socially marginalised groups from claiming their resource interests and rights (Springate-Baginski & Blaikie, 2007). This example illustrates that power relations in society influence policy for forest governance.

The scientific narrative lays preconditions for a different set of actions. In contrast to the traditionalist narrative, the scientific narrative has modernisation and development as a part of the desired outcome. The scientific narrative represents nature both as a vulnerable resource, and also as a valuable commodity. This representation of nature makes preconditions for a different range of actions such as: modern education for rural development, a positivist position towards environmental knowledge through natural sciences, commercial utilisation of nature and conservation practices. It opens up for enacting nature in ways Escobar (1999) defines as the regime of capitalist nature. The environment is a resource that with good management can be utilised, and that with poor management will be degraded.

Just as scientific knowledge does not seem rational from the traditionalist narrative viewpoint, an approach towards nature based on animist ontologies does not seem rational from the viewpoint of the scientific narrative. The scientific narrative recognises only knowledge about nature that can be explained in terms of western science, and marginalises other ways of relating to nature. Breidlid (2013) has found that even if the positivist approach towards science is often questioned and has proven hard to reveal objective truths about nature, a positivist approach is still often seen as an ideal way to gain environmental knowledge. It is

an objective truth about the environment out there to be detected, and expert knowledge can find the answers to challenges (Breidlid, 2013). Local people are marginalised as unmodern and their knowledge is also marginalised. It represents a different set of experiences, interests and priorities which are not recognised (Parajuli, 2014b).

The scientific narrative lays preconditions for a social divide when it distinguishes between those who are educated and those who are not, and those who are developed and undeveloped. Pigg (1992) describes how textbooks at school contribute to the creation of a periphery and a centre, where development is always linked to the urban and educated people. This perception is strongly integrated in people's perceptions, and still presented in contemporary textbooks (Bennike, 2015). An example from the interview with a preschool teacher's trainer supports this idea of a rural periphery and a developed urban centre. He told me that even if he wanted to work on the farm after he finished compulsory education, his parents urged him to go to the city and find another job.

"Working with your hands is not appreciated, and people would like to run away from it as much as possible. Going in the nature … is not appreciated in the culture" (Preschool teacher's trainer, 11/11).

Along with creating a divide between rural and urban areas, there has been an emphasis on external, western knowledge in environmental issues in Nepal. Local people have been persuaded that they know nothing and are incapable of contributing to development (Parajuli, 2014a). The scientific narrative states that science provides answers to environmental problems. However, production of "scientific evidence" in concrete situations of environmental degradation is largely a simplification, because this evidence is often produced to fit into ready-made categories and then re-presented as the way things are. This obscures power relations that are reproduced by these representations of reality (Escobar, 2012). Further, it becomes difficult to include local knowledge that does not fit these categories. It follows that the scientific narrative makes preconditions for external intervention, as has been the case with national parks in Nepal.

Campbell (2013) points out that a problem with national parks like Langtang and Sagarmatha is the local people´s perception that the environment is not as damaged as outside areas. It is therefore questioned why there are stronger regulations inside than outside the protected

areas. The introduction of environmental protection has been problematic in more than one way. Objections to nature protection in Nepal question the distinctions this form of governance imposes between humans and non-humans. Further, nature protection makes a distinction between how the environment is valued as either commercial or protected. To regard the environment as a "resource" makes it difficult to integrate local people's ontological worlds in the governance, and opens up for state interventions (Lecomte-Tilouine, 2011). Modern conservation practices recognise the environment as a scientifically knowable entity out there, separate from the subject. It differs from the local animistic ontologies that place the subject in constant dialogue and interaction with the environment on many levels.

Campbell (2004) points out that the kind of environmental knowledge valued relates to factors like social status and power in society. Literate knowledge and science is higher valued than oral knowledge and practical experiences, this works against the elite respecting the local knowledge of farmers and pastoralists. Also, the idea that scientific knowledge of environmental degradation justifies regulations for local people increases this gap between the elite and local people. This example on conservation illustrates how ideas in accordance with the scientific narrative make preconditions for an environmental governance policy that marginalises local people.

The two narratives from my fieldwork emerged from families, schools and kindergartens. However, elements from these narratives may contribute as preconditions for environmental policymaking. Elements from the traditionalist narrative may contribute to social exclusion and restricted access to natural resources. More clearly, elements from the scientific narrative open up for a marginalisation of local people in favor of external experts, and opens up for external interventions in environmental issues.

4.6. Changing the narratives.

In the previous sections I have presented data from my fieldwork in the form of two narratives that influence how environmental knowledge is transmitted to children between 3 and 9 years old. I have analysed how these narratives are related to other narratives and discourses, and further the productive power of these narratives – how they produce a certain representation

of nature and of actors. Further, I have analysed actors that produce and reproduce the narratives, and described how power is dispersed. As part of larger discourses, the narratives make preconditions for actions. One point is that local people´s knowledge about the environment is marginalised, and that both these narratives do not put political questions on the agenda. To change narratives by proving them to be wrong is often hard. One reason may be the range of power interests behind them that keeps them in place. Another point is that narratives form assumptions for decision-making in complex and uncertain situations, and thus serve a function. Rather than refuting narratives, counter narratives that tell a different story are more likely to change perceptions of established truths (Roe, 1999).

One example is how the traditionalist narrative gradually changes as children go to school and gain other kinds of knowledge about the environment that previously was not accessible – as presented in the scientific narrative. New ideas about the environment influence people´s perceptions, for example in the form of replacing previous understandings or merging with these.

When I talked to both the younger parents and some of the teachers during my fieldwork, they based their knowledge about the environment a bit on the traditionalist narrative and the scientific narrative. This merge was absent in the interviews with the grandparents. It seemed like the younger interviewees regarded a scientific approach as modern and associated it with a wanted development, at the same time they seemed to critically evaluate the traditionalist narrative and find some of it – what they have experienced themselves – to be true, or at least they say that one cannot be sure and thus they would not refute the traditional approaches.

The traditionalist narrative is directly challenged by the scientific narrative, which claims to provide objective knowledge about the environment. A top-down modernisation approach to development, as the scientific narrative can be said to support, has not recognised local knowledge about the environment but rather seen it as a hindrance for development. From such an approach the development provided by the scientific narrative is seen as a unilinear, evolutionary process (Sillitoe, 1998). However, within the education system some of the interviewees also valued local people´s knowledge about the environment. This is strongly expressed in the interview with a middle-aged government resource person, who thinks the curriculum put little emphasis on environmental knowledge. Also, he worries about how people´s knowledge about the environment is forgotten.

Government resource person, 15/11.
He tells me that in his childhood people were illiterate, but they were educated. They learned how to manage the environment, and they knew many things. When we make people literate, they forget about the nature. Education and literacy are different things, he says. Now people are literate, but uneducated.

Further, the government resource person states that the curriculum was prepared 22 years ago, and is not based upon Nepali nature. The curriculum must be improved, which is challenging for Nepal to do. He claims that the curriculum development centre should do table work or visit other countries such as Norway and Finland for inspiration, but they are not good at studying Nepal – he says they forget to study our own culture, country, our own needs (15/11). This interview with Government resource person provides an example of how the scientific narrative is challenged, and local people´s knowledge about the environment valued instead of neglected. At the schools, I found traces of change in the scientific narrative in two different ways. In the first example, the school values local knowledge about the environment and puts them in a scientific context as shown in the following quote.

Principal Lamjung school, interview 1, 12/10.
Some beliefs have a scientific reason, and the school should then tell the students about this, says the principal. Other beliefs are not good, and the school should also teach the students why. He gives two examples of how traditions have some scientific reasons. One example is when people make moi *– a milk product. The first* ghee *(fat) is put in the coal of the fire. When the* ghee *is kept in the coal, it gives a soothing smell that chases away insects and helps keep the surroundings nice. Further, cow dung is traditionally used to clean the floor after we eat. Cow dung works as an insecticide and against germs. When one generation does not handle the knowledge on to the next generation, people find such practices not relevant, and they vanish.*

The quote implies that the school should uplift good practices so they do not vanish. Another teacher gives examples of how he included local people`s knowledge about the environment in his class, and links this to conserving nature.

Teacher 6 Lamjung school, 15/10.
The teacher says that teachers cannot be social mobilisers, but can bring change. He shares an experience he had earlier as a science teacher. Every year the students made a collection of medical herbs, with both their purpose, scientific and local names. This activity created a pool of knowledge, as the students got help from their parents who knew different things about plants. He considers this activity helpful in conserving nature.

These two quotes provide examples of changes on a micro-level, where teachers use their own reflections and experiences, together with parent's environmental knowledge. Such a change frames local people differently, it uplifts people`s lived experiences and challenges the image of them as victims and villains. As discussed previously, a recognition of the parents and local community`s environmental knowledge at school has positive implications for children`s identity formation.

The second example of how the scientific narrative is challenged is how an actor from a social movement influenced the curriculum. The Nepal Federation of Indigenous Nationalities (NEFIN) provided textbooks for the local curriculum in social studies in Lamjung school for classes 4 and 5 (Sherpa, Shrestha, & Botey, 2012, 2013). These books cover the topics climate change, REDD and indigenous peoples. While the content takes a scientific approach towards the topics and follows the storyline of the scientific narrative in describing the current environmental problems, it emphasises the role of indigenous peoples as agents for change. The books describe indigenous peoples of Nepal, and their dependency on the forest. The indigenous peoples have their own ways of preserving the forest, and one example from the Sherpa community is given (Sherpa et al., 2012). Further, the textbook for class 5 elaborates on indigenous peoples' rights on natural resources. NEFIN´s contribution to the local curriculum provides a different approach to indigenous people´s knowledge that the scientific narrative neglects. Actors are framed differently, and indigenous peoples are framed as heroes who can bring forth a sustainable future. This also challenges the scientific narrative in a political way, and teaches children that indigenous peoples should both have, and claim their rights. This second example of how the scientific narrative is challenged differs from the first example by contributing to the curriculum, and thus being a change in the system level at the schools that use the books. However, even if the examples produce local people as different actors compared to the scientific narratives and thus may serve as counter narratives, both examples frame local people's knowledge on the premises of the scientific narrative.

There is a distinction between environmental knowledge as a cognitive map or as lived experiences. Ingold (2004) describes the first as traditional knowledge in a modernist conception, where knowledge is seen as passed down from generation to generation with cognitive concepts that inform actions. However, traditional knowledge in a local conception differs by not being passed down at all, by not being items that are stored inside the memory of people's heads. Traditional knowledge in the local conception is constantly generated and regenerated when people engage with the environment in their daily life. It resembles more a skill, an embodied way of sensing and responding to the environment that subsists in practical activities themselves. Traditional knowledge should be understood as a type of process, and not as a passed on substance. It has emerged through a person's history and involvement in the environment. From this perspective, it is easier to understand many local people´s inability to speak of their environmental knowledge in more than vague terms (Ingold, 2004). This was also my experience during fieldwork in the village in Lamjung.

The term environmental knowledge did not make much sense to people – after having operationalised the term environment, the term knowledge did not resonate well with the older people. Some of them told me that they did not know anything about the environment; they were illiterate (for example grandmother family 3, 22/9). This may be due to devaluing their own competence (as a result of factors discussed under productive power of narratives, actors) when they spoke to me and Tamla (outsiders and "developed"). But taking Ingold´s perspective, the people I spoke to did not have a distant, abstract relation to their knowledge, so they may not have needed to explain it to people as I asked them to do. This difficulty with explaining traditional knowledge has been a reason for outsiders disregarding the value of traditional knowledge. According to Ingold (2004), this vagueness represents strength – the knowledge is not fixed; rather, rules of thumb allow people to respond to an environment that is never completely the same. This has similarities with a study of the indigenous Tamang people of Nepal. Campbell (2013) found that people had knowledge of how to live in, and with the environment that was embedded in practices – not socially constructed, but acted. This dimension of environmental knowledge is harder to include in the education system on the premises of the scientific narrative.

Ingold (2004) links these two ways of seeing knowledge to how people are understood. Traditional knowledge in a modernist conception sees people as biological and cultural, for

traditional knowledge in local conception a person is conceived as a locus of growth and development within a field of relationship. This serves to illustrate how it can be a challenge to integrate environmental knowledge on the basis of animist ontologies within a framework structured upon a naturalist ontology. Parajuli (2014a) claims that one of the reasons why education in Nepal is not capable of leading to development and rural transformation is because local knowledge is neglected in favour of universal ideas. He sees a need for a paradigm shift where education is put in an everyday life context and based upon local knowledge, worldviews, practices and needs (Parajuli, 2014a). Modern education is not the only way of knowing; in Nepal people have a vast amount of knowledge based on trial and error through generations of lived experiences with their environments. There are multiple forms of knowledge that need to be recognised to bring forth quality in education in Nepal, and to make an end to the marginalising of the knowledge local people have about their environments (Parajuli, 2014b).

It is important to go beyond the dichotomy of indigenous vs. scientific knowledge, and work towards greater autonomy for indigenous' peoples (Agrawal, 1995). A large amount of knowledge about the environment is stored in local people's knowledge, and there is a growing recognition of a link between indigenous knowledge, biodiversity and sustainable development. "There is a need here for communication between the various knowledge systems, not by opposing everything Western knowledge systems and education represents, but by creating a dialogue between different concepts and practices of knowledge" (Breidlid, 2013, p. 35). After the peace agreement in 2006, education has played a critical role in Nepal in producing social and political change. The tension between "national unity" and ethnic diversity has become more visible, as social movements of marginalised groups claim recognition of their identity. "… educational reconstruction must deal with the notion of identity as a part of a measured process to correct the legacy of ethnic, linguistic and caste-based marginalisation in Nepal" (Pherali & Garratt, 2014, p. 42). As the NEFIN textbooks exemplify, this may lead to counter narratives to the scientific narrative and result in local people´s knowledge about the environment being valued in the formal education system. It will affect not only children´s identity formation, but may create an important change in the narratives about people and the environment. This may also change power relations and lay preconditions for a different set of actions where marginalised people are included in environmental policies on more equal premises.

5. Conclusion

I will conclude the research question: How do environmental narratives from home and (pre-) school shape children's environmental knowledge at an early age in Nepal, and to what extent does the education system integrate local environmental knowledge in the teaching? The findings and analysis of this thesis reveal that environmental narratives shape children's environmental knowledge at an early age by telling a story of a simple relationship between humans and nature. How nature and actors are framed teaches the children about the nature of nature, and also about what environmental knowledge is, and who has this knowledge. This is productive power – it contributes to shaping children's identity formation, and also power relations in society. The narratives are produced and reproduced in productive practices, on a micro-level in everyday life, and they are supported by larger discourses. They make preconditions for certain actions, which again support the narratives. However, the narratives are in flux and are challenged and changing. The education system's teaching about the environment is based upon western science. Local people´s environmental knowledge may be a part of the local curriculum in social studies, but according to the interviewees it does not seem to play a central role. This may be due to practical knowledge being less valued than theoretical knowledge, and local environmental knowledge may not be so easily translated into the terminology of the schools.

Two narratives emerged from the collected data, a traditionalist narrative and a scientific narrative. The traditionalist narrative has the following premises: humans are dependent upon an environment that is inseparable from divine forces that cause fortune and misfortune; and there is a natural order to everything, which includes a social hierarchy in society – where some have stronger power to mediate between humans and gods. Environmental knowledge means to maintain consistent communication with the gods, such as worshiping and rituals. The conclusion of the traditionalist narrative associates satisfied gods with a desired outcome – such as good crops, rain and absence of calamities. On the other hand, if the gods are not satisfied, they may cause calamities, crop failure and illness. The traditionalist narrative resembles the discourse on fatalism, where the circumstances in people's lives are fated by divine forces. Humans' main means of altering outcomes are to pray to these divine forces. The scientific narrative has the following premises – Nepal is an undeveloped country, where population growth leads to increased pressure on nature. Agriculture and forestry is not

economically efficient or environmentally friendly, in urban areas people are not aware – which means their behaviour is not environmentally friendly. Environmental knowledge is understood in terms of western science, and the schools should teach the children scientific knowledge. The scientific narrative concludes that through scientific knowledge environmental problems can be solved, and when children learn about this at school they will take more responsibility for the environment in the future.
The scientific narrative resembles three discourses. The Theory of Himalayan Environmental Degradation THED is a crisis narrative that describes a situation where population growth in the Himalayas leads to a downward spiral of environmental degradation. Ecological modernisation sees environmental degradation as inefficient, and science and technology as solutions that solve this problem. The scientific narrative can be understood as a part of the Global Architecture of Education discourse, where western science has a hegemonic position in global education and is seen as the way to development. These findings show that two main narratives emerge from the collected data, and these fit into a larger picture of already established discourses and narratives.

The narratives have productive power, and contribute to shape children's perception of nature and actors. Nature is framed differently in the two narratives; a central point is that they represent different ontologies. Nature in the traditionalist narrative is based upon animist ontologies, while nature in the scientific narrative is based upon a naturalist ontology.
In the traditionalist narrative people´s relation to nature is based on communication, nature has both interior qualities and agency. In the scientific narrative people´s relation to nature is based upon a divide between mind and matter. Nature does not have interior qualities as humans do. This results in an instrumental rationality and opens up for utilisation of the environment. Nature is framed both as a valuable commodity, and as a victim that needs protection from environmental degradation caused by humans.

The two narratives frame actors differently. The traditionalist narrative empowers those who have high status in the social hierarchy based upon religious standards. Outcomes can be altered through sacrifices, and those most likely to have success in their communication with the divine are Brahmin priests. These are the heroes in the narrative. Further, the Buddhist Lama and Jhankri (Shaman) also have special positions. Local people that have a lower status in the social hierarchy are either victims of the god´s wrath, villains that disobey, or heroes as they do good sacrifices. The scientific narrative frames people with scientific knowledge as

heroes, and thus empowers experts, scientists, and educated people. These people have the means to make a change. Local people and farmers are framed as villains that contribute to environmental degradation, and at the same time they are also victims of their own unsustainable practices. The scientific narrative disempowers local people and farmers, and the knowledge local people have about their environment is marginalised.

The productive power implies that narratives shape the children´s knowledge about "the nature of nature" – what nature is. The two narratives represent different ontologies, and thus children´s environmental knowledge is shaped in accordance with different rationalities. The productive powers also relate to power relations in society by describing who has knowledge about nature and differentiating between people. The traditionalist narrative supports the traditional hierarchy in society, while the scientific narrative empowers people that have scientific knowledge. Farmers and local people are disempowered, neither of the two narratives value local people´s environmental knowledge. How the narratives frame nature and actors contributes to the children's identity construction - their understanding of who they are and of their fundamental defining characteristics as a human being. When their parents and local community´s knowledge is not recognised in formal education, it creates a gap between school and home. This has negative effects on children´s learning, self esteem, and distances them from their reality. Thus, this marginalisation of local people´s environmental knowledge undermines education for rural transformation.

In relation to power beyond the narratives, the collected data also indicates that power is dispersed rather than imposed by certain actors. Both narratives are produced and reproduced on a micro level when children interact with others in their family, local community or at school. However, some actors have more social and productive power than others. Actors that gain from the traditionalist narrative belong to the upper part of the social hierarchy. The interviewees do not recognise these actors as producing the narrative. Rather, it is the cultural embeddedness of the narrative that leads people to produce and reproduce statements that are in accordance with the traditionalist narrative. The actors who support the scientific narrative come from national and international education systems, and they are entangled with other actors on national and international levels with interests in environment and development discourses. The scientific narrative is supported by other discourses, especially the global architecture of education. As part of larger discourses, the narratives make preconditions for actions by enabling some actions and marginalising others.

In the traditionalist narrative the desired outcome is keeping the status quo. The required actions are ritual practices to keep gods satisfied. The traditionalist narrative explains social hierarchy as fated, thus changes in society as an approach to solving environmental problems is marginalised. Scientific knowledge is also excluded as an explanation factor on environmental issues. The traditionalist narrative does not make preconditions for development and modernisation. The scientific narrative makes preconditions for a different range of actions such as: modern education for rural development, a positivist position towards environmental knowledge through natural sciences, commercial utilisation of nature and conservation practices. Local people´s knowledge is marginalised in favour of external experts, and this opens up for external interventions in environmental issues. The scientific narrative distinguishes between educated and uneducated people, and between those who are developed and undeveloped, and thus lays preconditions for a social divide. Local people´s environmental knowledge about the environment is marginalised in both narratives, and neither of them put political questions on the agenda.

Discourse is always in flux, and the collected data provides examples on how the narratives are challenged and changed. One example is that teachers bridge local knowledge with science. They may include local practices in their teachings and give a scientific explanation for why they are beneficial. Another example is that the curriculum opens up to include local knowledge in the teaching as part of the subject social science. Even if interviewees told that few schools did, I found that Nepal Federation of Indigenous Nationalities (NEFIN) had seized this opportunity and made schoolbooks that included indigenous peoples environmental knowledge. The findings indicate change on different levels – both on micro level and macro level. One challenge to including local environmental knowledge in formal education is that people do not associate education with their daily lives, and do not request inclusion. An inclusion of practical knowledge in formal education requires a change in what people value as good education for their children. Another challenge to including local knowledge is that it is based upon another worldview, and further neither the traditionalist narrative nor the scientific values what local people know. However, times are changing and since the peace agreement in 2006 social movements of marginalised groups have claimed recognition of their identity. Education has played a critical role in producing social and political change. This may lead to counter narratives to both existing narratives, and also result in local people´s knowledge about the environment being valued in the formal education system.

These findings are relevant for the field of political ecology because it explains how a social factor affects environmental issues. Specifically they show that the way environmental knowledge is formed in early years strongly influence how people relate to nature, as it lays the foundation for people´s understanding of what nature is and people´s relation to nature. Existing research within political ecology has investigated how narratives affect environmental issues by influencing public opinion and policymaking, but the importance of environmental education during children´s formative years has been ignored. These narratives also have implications for power relations in societies by defining who have knowledge: those that have knowledge are included in decision making while those who do not are marginalised.

When people become aware of how influential environmental narratives are the may recognise a need to challenge and change these narratives. This is an important step in order to find alternatives to blueprint solutions. As narratives change and enables recognition of other knowledges of the environment. This change may influence power relations and lay preconditions for a different set of actions where marginalised people are included in environmental policies on more equal premises.

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List of appendixes

Appendix 1 – Overview of the sample for interviews.

Families	Children: age and gender	Interview nr. and interviewee
Family 1	6 year old girl	Interview nr. 1 - grandfather
		Interview nr. 2 - grandfather
		Interview nr. 3 - grandmother and grandfather
Family 2	3 year old girl	Interview nr. 1 - mother
	9 year old girl	Interview nr. 2 - grandmother
		Interview nr. 3 - mother
Family 3	4 year old girl	Interview nr. 1 - grandmother
		Interview nr. 2 - grandmother
Family 4	3 year old boy	Interview nr. 1 - grandmother 1.
	9 year old boy	Interview nr. 2 - grandmother 2.
		Interview nr. 3 - grandmother 1.
Family 5	7 year old girl	Interview nr. 1 - grandfather
		Interview nr. 2 - grandfather
		Interview nr. 3 - father
Family 6	3 year old boy	Interview nr. 1 - grandmother
		Interview nr. 2 - mother
		Interview nr. 3 - mother
Family 7	4 year old boy	Interview nr. 1 - grandmother
		Interview nr. 2 - mother
Family 8	5 year old boy	Interview nr. 1 - father
	9 year old girl	Interview nr. 2 - father
		Interview nr. 3 - father
		Interview nr. 4 - mother and father
		Interview nr. 5 - grandfather
Family 9	6 year old girl	Interview nr. 1 - grandfather, mother
	8 year old girl	Interview nr. 2 - grandmother
		Interview nr. 3 – grandfather, mother

School in Lamjung			**School in Lalitpur**
Teacher 1	woman	1 interview	Group interview class 1 teachers, 2 women
Teacher 2	man	1 interview	Group interview class 2 teachers, 2 women
Teacher 3	woman	2 interviews	Group interview class 3 teachers, 3 women
Teacher 4	man	3 interviews	Group interview class 4 teachers, 2 women
Teacher 5	man	1 interview	Teacher class 5 woman 1 interview
Teacher 6	man	2 interviews	Vice principal woman 1 interview
Principal	man	3 interviews	

Kindergarten/School in Bhaktapur			**Kindergarten in Kathmandu**
Teacher 1	woman	1 interview	Teacher 1 woman 1 interview
Teacher 2	woman	1 interview	Teacher 2 woman 1 interview
Teacher 3	woman	1 interview	Teacher 3 man 1 interview
Teacher 4	woman	1 interview	Principal woman 1 interview
Principal	man	1 interview	

Other interviews	
Vice principal kindergarten/school Bhaktapur – group interview Principal kindergarten Kathmandu Principal kindergarten Godavari	
Curriculum specialist 1	1 interview
Curriculum specialist 2	1 interview
Teacher´s trainer	1 interview
Preschool teacher´s trainer	2 interviews
Government resource person	1 interview

Appendix 2 – Overview of the sample for observations.

Place	**Kind of observation**
School in Lamjung	Observations of science and social studies classes from pre-primary – class 3 over a period of 3 weeks.
School in Lalitpur	Observations of science and social studies classes from pre-primary – class 5 over a period of 1 week.
Kindergarten/school in Bhaktapur	Observations in age groups 4-5 years, observation of science class in class 2. Observed full-day field trip for kindergarten and class 2. All observations over a period of 1 week.
Kindergarten in Kathmandu	Observation in age groups 3-5 years over a period of 1 week.

Appendix 3 – Interview guide.

First: explain the purpose and ethical concerns of the research, and get informed consent.

Present the sub research questions and check that the interviewees have understood the topic.
1. Which environmental narratives are told to the children, and how do these narratives explain the relationship between society and nature (storyline, actors, and metaphors)?
2. How is "a healthy environment"/the preferred state of surrounding nature described, and what human attitudes and practices support a "healthy environment"?
3. How do the narratives from formal and informal education differ in ontological understandings of society-nature relations?
4. What are the benefits and challenges from integrating parents' local environmental knowledge in the visited kindergartens and schools?

Encourage the interviewees to speak freely, adjust probing questions to make the conversation flow.

Interview guide for families

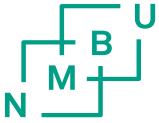
Purpose	**Suggested probing questions**
Stage 1. Establish the context of the interviewees' experience - background and current situation. Speak freely about their own relation to nature, and how the children are involved. Explore sub research question 2 - How is "a healthy environment"/the preferred state of surrounding nature described, and what human attitudes and practices support a "healthy	- how was your relation to nature as a child? - how did parents/school teach you about the environment? - how is your relation to nature today? - tell me about your daily life and the child´s relation to nature. - what is "a healthy environment"/the preferred state of surrounding nature? - what attitudes and practices support such a "healthy environment"?

environment"?	
Stage 2. Get more into detail about the interviewees' experiences. Explore how they pass on environmental knowledge to the children. Explore sub research question 1 – Which environmental narratives are told to the children, and how do these narratives explain the relationship between society and nature (storyline, actors, and metaphors)?	- what practical chores do the children do at the farm? - what should the children know about the environment? - how do the family speak with the children about the environment? - what kind of stories about the environment do they tell the children?
Stage 3 – Encourage the participants to reflect more in depth. Explore sub research questions: 3. How do the narratives from formal and informal education differ in ontological understandings of society-nature relations? 4. What are the benefits and challenges from integrating parents' local environmental knowledge in the visited kindergartens and schools?	- how do the teachings from school and home differ? - do they represent different beliefs / worldviews? - how is parents' knowledge included in the school's teachings? - are there challenges to integrate parents' environmental knowledge in schools? - are there benefits from integrating parents' environmental knowledge in schools?

Interview guide for educators

Purpose	Suggested probing questions
Stage 1. Establish the context of the interviewees' experience - background and current situation. Speak freely about how the curriculum and school teach children about the environment. Explore sub research question 2 - How is "a healthy environment"/the preferred state of surrounding nature described, and what human attitudes and practices support a "healthy environment"?	- how was your relation to nature as a child? - how did parents/school teach you about the environment? - how is your relation to nature today? - tell me about how environmental knowledge is included in the curriculum. - what should children learn about nature at school? - what is "a healthy environment"/the preferred state of surrounding nature? - what attitudes and practices support such a "healthy environment"?
Stage 2 Get more into detail about the interviewees' experiences. Explore how they pass on environmental knowledge to the children. Explore sub research question 1 – Which environmental narratives are told to the children, and how do these narratives explain the relationship between society and nature (storyline, actors, and metaphors)?	- how do you teach about the environment in your class? - how do you speak with the children about the environment? - what kind of stories about the environment do you tell the children?

Stage 3 – Encourage the participants to reflect more in depth. Explore sub research questions: 3. How do the narratives from formal and informal education differ in ontological understandings of society-nature relations? 4. What are the benefits and challenges from integrating parents' local environmental knowledge in the visited kindergartens and schools?	- how do the teachings from school and home differ? - do they represent different beliefs / worldviews? - how is parents' knowledge included in the school's teachings? - are there challenges to integrate parents' environmental knowledge in schools? - are there benefits from integrating parents' environmental knowledge in schools?



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