

Lincoln University Digital Thesis

Copyright Statement

The digital copy of this thesis is protected by the Copyright Act 1994 (New Zealand).

This thesis may be consulted by you, provided you comply with the provisions of the Act and the following conditions of use:

- you will use the copy only for the purposes of research or private study
- you will recognise the author's right to be identified as the author of the thesis and due acknowledgement will be made to the author where appropriate
- you will obtain the author's permission before publishing any material from the thesis.

Tiger in landscapes, tiger in mindscapes: A constructionist analysis of tiger conservation through corridor management in the Terai Arc Landscape, Nepal

A thesis
submitted in partial fulfilment
of the requirements for the Degree of
Master of Resource Studies

at
Lincoln University
by
Ujjwal Meghi

Lincoln University

2014

Abstract of a thesis submitted in partial fulfilment of the requirements for the Degree of Master of Resource Studies.

Tiger in landscapes, tiger in mindscapes: A constructionist analysis of tiger conservation through corridor management in the Terai Arc Landscape, Nepal

by

Ujjwal Meghi

Asian forests are losing their top predator, the tiger (*Panthera tigris*), at a rate that threatens its survival in the wild and poses a serious threat to local ecosystem balance. On the other hand, conservation efforts for the tiger are heavily influenced by conflicts with humans living adjacent to their last remaining habitats. Amidst this tension the countries, which make up tigers' natural habitat range, together with conservation organizations are continuously making efforts to save this endangered species. A recent commitment has been to attempt to double tiger numbers by 2022. To this end, an emerging landscape-based approach to conservation has been identified as the most effective approach to save tigers and other important wildlife species on a large scale in these countries. This approach aims to connect habitat patches such as protected areas through restoring and maintaining biological corridors to facilitate dispersal and movement of wildlife for their genetically viable, long term survival. However, the biological corridors outside protected areas within human dominated landscapes such as Terai Arc Landscapes (TAL), Nepal, a highly prioritized tiger conservation landscape, fall within community-managed forest areas having widespread access by local village people for forest products. Tigers already pose significant threats to livestock and human lives around protected areas and hence have the potential to create even greater risk in such corridors.

In this context, using "moderate constructionism" and Social Construction of Nature theoretical perspectives under constructionist epistemology, this research aims to understand how social constructions of tiger are changing with the intervention of the TAL Nepal program in Khata community-managed forest corridor, how such local changes in constructions are influenced by contemporary national and global constructions, and what implications such changes have to

sustainable tiger conservation management. While using the constructionist approach, this research also attempts to ascertain its increasingly claimed practical significance to wildlife management. Semi-structured interviews and discourse analysis methods were employed for data collection.

It was found that negative or agnostic constructions of tiger in Khata corridor prior to implementation of the TAL program has transformed to mostly positive constructions post TAL. This transformation is local people's negotiation between their own experience based meaning of tigers and the overarching global and national tide of saving endangered tigers. Currently prevailing positive constructions, however, are fragile as they are influenced by many factors, most importantly, conflict with tigers and other wildlife, sustained external assistance, development aspirations and actualisation, and realization of tangible benefits of tigers and equitable sharing of those benefits among local people. This implies that continued community support for tiger conservation in Khata is determined by those influencing factors.

Recommendations from this research include the need for concerned agencies to appropriately address those factors. Application of the constructionist approach was found to be useful to aid better wildlife management through understanding meanings of wildlife and underlying social processes. This approach has great potential to assist species focused large scale landscape approach to conservation through mapping temporal and spatial diversity of meanings of wildlife and their implication to wildlife management.

Keywords: Landscape approach to conservation, tiger conservation, social construction theory, Khata corridor, Nepal

Acknowledgements

This thesis would not have been possible without the huge support from two great swimmers at Lincoln University. Roy Montgomery swims deep into the ocean of abstractions and brings great thoughts, wit, humility, and melodies for his guitar strings. His thought provoking comments and suggestions have been incredibly helpful in completing the thesis in this form. Ken Hughey swims in the ocean of “real” water and brings great intellectual acumen, pragmatic insights, and the glowing energy he always radiates. His practical comments and suggestions including in my English writing has been immensely valuable in this thesis. I would like to thank Roy and Ken for being such great supervisors and also for supporting me throughout my study period at the University.

I thank Mingma Norbu Sherpa Memorial Scholarship for providing the opportunity and financial support to study at Lincoln University. I acknowledge the support of Lisa Choegyal from the Scholarship and Jane Edwards at Lincoln University for making sure my study time in New Zealand was pleasant and productive.

I am indebted to Ghanshyam Gurung, Conservation Program Director at WWF Nepal for all the encouragement and guidance. I thank all other WWF Nepal staff who provided me with useful information and helped arranging my field visit, especially Sabita Malla, Shivaraj Bhatta, Diwakar Chapagain and Rabi Sharma.

I am grateful to Megh Bahadur Pandey, Director General of the Department of National Parks and Wildlife Conservation, Nepal for providing guidance and helping me during my field visit. Other staff at the Department deserve huge appreciation for their help in gathering information.

I thank all research participants in Khata corridor for patiently answering my questions. I thank Jog Bahadur Chaudhary and Ram Bahadur Thapa for walking with me and arranging meetings with the participants. I thank Dalla homestay for the comfortable stay and all other local people for their welcome and support. I thank Thangche for taking me to Shiva Community Forest where we had a serendipitous encounter with a tiger; one of my most thrilling experiences ever.

I thank my family, friends and all other people not mentioned above who helped in making this thesis possible.

Table of Contents

Abstract	1
Acknowledgements	3
Table of Contents	4
List of Figures	8
Chapter 1 Introduction	9
1.1 Conservation status of tiger	9
1.2 Landscape ecology and the landscape level conservation approach.....	10
1.3 Tiger and landscape level conservation approach	11
1.4 The problem	11
1.5 Social construction of wildlife	13
1.6 Aims and Objectives	14
1.7 Structure of the thesis	14
Chapter 2 Social Construction Theory.....	16
2.1 Evolution of the theory.....	16
2.1.1 The emergence of postmodernism	16
2.1.2 The emergence of post positivism	17
2.1.3 Development in sociology and psychology.....	19
2.2 Social construction theory.....	20
2.2.1 Relativism vs. Realism debate and SCT	23
2.2.2 Application of SCT	26
2.3 Social construction of Nature	27
2.4 The Research Framework.....	30
2.4.1 Construction of What?	30
2.4.2 What degree of construction?	31

2.4.3	Analysis lens	35
2.5	Chapter summary	36
Chapter 3 The Biology and Conservation Status of the Tiger		37
3.1	Tiger Biology	37
3.1.1	Taxonomy and Morphology	37
3.1.2	Ecology and behaviour	38
3.1.3	Habitat and Population	39
3.2	Conservation Status of the tiger.....	39
3.2.1	Major threats.....	40
3.2.2	Human-Tiger Conflict	40
3.2.3	Why save tigers?	41
3.2.4	Global Tiger Conservation Efforts	42
3.2.5	Nepal's Tiger Conservation Efforts.....	43
3.3	Landscape Conservation Approach	45
3.3.1	The concept	45
3.3.2	The Terai Arc Landscape (TAL)	46
3.3.3	The TAL Nepal.....	47
3.3.4	Khata corridor	48
3.3.5	Summary	50
Chapter 4 Methodology.....		52
4.1	The research model	52
4.2	Epistemology and Theoretical perspective	53
4.3	Qualitative Research.....	53
4.4	Methodology	54
4.4.1	Discourse analysis	54
4.4.2	Case study	55
4.5	Methods.....	56
4.5.1	Interview	56
4.5.2	Discourse analysis	58
4.6	Transcription and Analysis.....	59

4.7	Summary.....	59
Chapter 5 Results.....		60
5.1	Global Construction of Tiger.....	60
5.1.1	The tiger as a “dire statistic”	60
5.1.2	The tiger as a “holistic ecosystem indicator”	61
5.1.3	The tiger as an “object of fascination”	62
5.1.4	The tiger as a “commodity”	62
5.1.5	The tiger as a “tourism product”	63
5.1.6	The tiger as a “universal cultural icon”	63
5.1.7	The tiger as a “research commodity”	65
5.2	National level construction of tiger	65
5.2.1	The tiger as a “prioritized protected animal”	66
5.2.2	The tiger as an “item on tourism menu”	66
5.2.3	The tiger as an “indicator of a healthy Terai ecosystem”	67
5.2.4	The tiger as an “indicator of international obligation and duty”	67
5.2.5	The tiger as a “known human-killer”	68
5.2.6	The tiger as an “embodiment of aesthetic purity”	68
5.2.7	The tiger as a “research attraction”	68
5.2.8	The tiger as a “money hungry beast”	69
5.3	Construction of Tiger in Khata corridor	69
5.3.1	Constructions of Tiger prior to TAL Intervention	69
5.3.2	Constructions of the Tiger after the TAL Intervention	76
5.4	Summary.....	82
Chapter 6 Discussion.....		84
6.1	Understanding the constructions.....	84
6.1.1	The global construction of tiger	86
6.1.2	The national constructions of tiger	88
6.1.3	The local constructions of tiger	89
6.2	So, what “really” is tiger conservation?	92
6.3	Application of SCT to better wildlife management	98
6.4	Application of SCT to the landscape level conservation approach	102

6.5	Summary.....	103
Chapter 7 Conclusion.....		105
7.1	Summary of the key findings.....	105
7.2	Reflecting back to the theory and the framework.....	106
7.3	Recommendations.....	107
7.3.1	Policy recommendations.....	107
7.3.2	Management recommendations.....	108
7.3.3	Further research.....	109
References.....		110
Annexes.....		118

List of Figures

Figure 1 Position of "moderate constructionism" in the spectrum of realism/relativism and strong/weak constructionism.....	33
Figure 2 Continuum of ontological and epistemological worldviews based on Easton, 2002; Lincoln & Guba, 2000 (as cited in Järvensivu & Törnroos, 2010)	34
Figure 3 Framework for the study of the tiger in TAL adapted from Bergartt (2004)	36
Figure 4 Map of the Terai Arc Landscape (From Wikramanayake et al., 2010, p. 165)	48
Figure 5 Khata corridor Nepal (From WWF Nepal, 2013, obtained through a personal request).....	49
Figure 6 Research model (adapted from Crotty, 1998)	52
Figure 7 Social constructions of the tiger at global, national and local levels	85
Figure 8 Trends of changing construction of tigers in Khata.....	100

Chapter 1 Introduction

This thesis builds on two relatively new approaches in wildlife management; the large scale landscape level approach to conservation and the social construction of wildlife (Nature). The former is a management approach and the latter is an analytical approach. The case of tiger (*Panthera Tigris*) conservation under the large scale landscape approach has been looked at through the social constructionist analysis lens. This chapter outlines the conservation status of tiger and briefly introduces both of the above approaches in order to provide context for the study, point out the research problem and significance, and set out objectives of the study. Then, it outlines the structure of the thesis.

1.1 Conservation status of tiger

The tiger (*Panthera Tigris*), the top predator in the forests of the Asian sub-continent, is an endangered species¹ facing extinction. The global tiger population has been estimated to have plummeted by 95% since the turn of the 20th century to reach as few as 3200 individuals with three of the eight subspecies already extinct. The remaining tigers survive in a mere 7% of their historic habitat range spread across 13 tiger range countries: Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Lao PDR, Malaysia, Myanmar, Nepal, Russian Federation, Thailand, and Vietnam (Global Tiger Initiative Secretariat, 2011). These tigers are constantly threatened by “(1) reduced, degraded and fragmented habitat, (2) diminished prey population, (3) killing for illegal trade in tiger parts, and (4) persecution by humans in response to real or perceived livestock predation and attacks on people” (Nyhus & Tilson, 2004, p. 68).

The conflict between humans and tigers poses a “unique dilemma” to wildlife managers that, restoring the tiger population renders numerous intrinsic values and ecological benefits but on the other hand they kill livestock and humans (Gurung, Smith, McDougal, Karki, & Barlow, 2008). For example, 700 humans lost their lives and 150 tigers were killed as a result of human-tiger conflict in Sundarban India, between 1881 and 1916 (Gupta, 1964). Similarly, 147 people and 870 livestock were reported killed by tigers from 1978 to 1997 in Sumatra, Indonesia (Nyhus & Tilaon, 2004). During 2000 to 2004, human-tiger conflict took the lives of 16 tigers and 247 livestock and 7 humans in Kerinci Seblat National Park, Indonesia (Nugraha & Sugadjito, 2009). Likewise, in and

¹ Listed in IUCN Red List of Threatened species as ‘endangered’, <http://www.iucnredlist.org>

around Chitwan National Park of Nepal, 88 people have been killed by 36 tigers from 1979 to 2006 with an increasing average annual killing rising from an annual 1.2 persons before 1998 to an annual 7.2 persons after 1998 (Gurung et al., 2008).

On the other hand, the tigers being at the top of the ecological pyramid means their presence, in a viable number, represents a “stamp of quality certifying the integrity, sustainability, and health of larger ecosystems” (Global Tiger Initiative Secretariat, 2011, p. 1). In addition, the tigers not only have a high cultural significance in Asia and in the world but also have been highly attractive to tourists, creating economic opportunities for local people. Similarly, conservation of this mega-fauna entails conserving biodiversity rich, undisturbed forest habitats which in turn renders numerous services such as carbon storage and sequestration, watershed protection, natural hazard regulation, food security and agricultural services and medicinal services (Global Tiger Initiative Secretariat, 2011).

While there is already a significant human-tiger conflict as depicted earlier, various conservation organisations and the governments of the tiger range countries are focusing on doubling the number of tigers by 2022 (the next year of the tiger in the Chinese calendar) as committed by the 13 tiger range countries and tiger conservation partners in Global Tiger Recovery program in 2010 (Global Tiger Initiative Secretariat, 2011). This indicates that the already rampant human-tiger conflicts will be accentuated with the increased number of tigers in the future.

The dilemma of reducing rampant conflict with humans and the dire need of saving tigers from extinction for above mentioned ecological, economic and cultural benefits provides the backdrop of the research problem for this study.

1.2 Landscape ecology and the landscape level conservation approach

The concept of landscape ecology, having its focus on composition, structure, function and change within the major components of a landscape; matrix, patches, and corridors (Barnes, 2000), has been a major thrust in conservation and management of ecosystems and wildlife in recent decades. Conservation based on landscape ecology has been recognized to be the most effective approach due to its focus on spatial heterogeneity, broader spatial extents and the role of humans in creating and affecting landscape patterns and process (Franklin, 1993). This has

emerged as a result of shortcomings of the conventional approaches which mostly focus on more homogenous, discrete community units organized in hierarchical structures. Traditional single species focused conservation approaches have been less successful due to too many species to deal with requiring a lot of time, financial resources, social patience and scientific knowledge (Bhujju & Tuladhar, 2011; Franklin, 1993). The ever growing significance of the landscape conservation approach is also attributed to failure of the conventional reserve system or protected area approach to represent critical ecosystems and their insufficiency in maintaining long term viable wildlife populations as they involve keeping wildlife within the political boundaries often set out in unused or less productive or recreational focused lands. Such protected habitats restrict dispersal of the wildlife within their natural habitat range. The landscape conservation approach requires intersecting biological and human landscapes to create conservation landscapes, as large scale landscapes often encompass human settlements and human influence on ecosystems (Didier et al., 2009).

1.3 Tiger and landscape level conservation approach

The remaining habitats for the tigers are mostly the small patches of unconnected protected areas with isolated tiger populations which are not suitable for dispersal and genetically viable reproduction. Hence, long term survivability and expansion of the tiger population requires site-level protection together with landscape-scale intervention securing habitat corridors for maintaining population viability and resilience (Kanagaraj, Wiegand, Kramer-Schadt, Anwar, & Goyal, 2011; Ranganathan, Chan, Karanth, & Smith, 2008; Wikramanayake et al., 1998; Wikramanayake et al., 2011). Wikramanayake et al. (2011) have identified twenty “priority landscapes” crucial for the conservation of the tigers, particularly in the context of doubling the number of tigers by 2022. The Terai Arc Landscape (TAL); one of the priority landscapes, in the Himalayan foothills encompassing parts of Nepal and India has the highest recorded densities of tiger in the world with a substantial number of tiger prey species and hence is a vital landscape for reversing its dwindling global population (Wikramanayake et al., 2010).

1.4 The problem

In the Nepal portion of the TAL, there has been a remarkable increase in the tiger population to 198 in 2013 which is 60% more than the previous survey conducted in 2009 (WWF Nepal, 2013b). On the other hand, the TAL Nepal is also a home to 6.7 million people, mostly poor and

relying on subsistence agriculture (Ministry of Forests and Soil Conservation Nepal, 2004).

Hence, there is a major human-tiger conflict resulting in a significant loss to local means of livelihood (livestock), human casualties and retaliation killing of the tigers (Gurung et al., 2008).

The government of Nepal with national and international conservation organizations is implementing TAL Nepal program aiming to restore and manage four degraded forest corridors and three bottlenecks to create connection between protected areas within TAL Nepal. Linking conservation to livelihood improvement, this program particularly aims to conserve tiger, elephant, rhino and other species of special concern through maintaining corridors for their enhanced dispersal and genetic flow to achieve long term genetically viable populations.

However, the biological corridors outside protected areas within the TAL Nepal fall under the community managed forests with widespread human access because of their forest dependent livelihoods. Hence, critical challenge with releasing the bottlenecks and managing the corridors for wildlife dispersal through the landscape conservation approach in such human dominated landscape is to deal with the conflicts that occur with the increased movement of wildlife in the forests outside the protected areas.

Despite this challenge, the TAL Nepal program has been reported to be successful in creating a large community support for managing the wildlife corridors and increasing the number of wildlife in the corridor. For example, local people have been actively involving in conservation of forest and wildlife in Khata corridor which is one of the critical corridors under restoration by TAL Nepal program connecting Bardiya National Park in Nepal and Katarniyaghat Wildlife Sanctuary in India (WWF Nepal, 2011).

The preceding analysis reveals the following questions for further examination:

- How are tigers, which kill humans and livestock, viewed by local people in the context of increasing the tiger population in the community managed forest?
- How were the tigers viewed in the past by the local people?
- How are the views on tigers changing over time and what influences such changes?
- Will the current involvement or support of the local people for tiger conservation be sustained in the context of increasing conflicts?
- How can such local support be sustained in the future?

1.5 Social construction of wildlife

To examine the above questions, a sociological analysis is deemed necessary. According to Goedeke (2005), wildlife in an objective condition is not a social problem, meaning that having no tigers, elephants or having hundreds of them cannot be a social problem unless it is problematic to the society or defined in that way. However, the records of conflicts (section 1.1) show hundreds of people have been killed by the tiger attacks and the livestock killing by tigers have been a significant threat to the livelihood of people living nearby tiger habitats. Hence, the interaction between tigers and humans is problematic and a significant social problem. This provides a justification for using social theory to look at the interaction between humans and tigers.

Many works on human and wildlife interaction, such as Scarce (1999), Bergartt (2004), Scarce (2005), Herda-Rapp and Goedeke (2005), Carle (2007), (Harker & Bates, 2007), and (Qing-ming & Hong-gang, 2012) imply that the social constructionist approach can serve as a useful counterpart to natural sciences to better understand and help manage wildlife, particularly those which generate conflict; human-human conflict over wildlife or human-wildlife conflict.

The social construction of wildlife falls within the broader frame of social construction of Nature which is based on the constructionist idea that Nature is “far less universal” (Proctor, 1998, p. 352) than commonly assumed and is an emerging approach to study human Nature interaction. The social construction of Nature builds on a notion that what we call Nature is socially created through meanings and perceptions or the “Nature” is subjective to society. The “Nature” we know is provisional or operational which is created by people through day-to-day interaction or interaction with social institutions at large (Herda-Rapp & Marotz, 2005; Rolston, 1997). Since the above mentioned research questions are related to a social cultural meaning of tiger, social constructionist analysis has been adopted for the study.

The social constructionist analysis of wildlife however is an emerging approach with relatively limited previous works and hence is still less than a well-established research “paradigm”. Hence, the application of the approach in this study also provides an opportunity to assess the efficacy of the approach and contribute to the growth of the approach as a research paradigm with practical management significance.

1.6 Aims and Objectives

The major aim of the study is to examine social constructions of tiger, a species which often has high conflict with humans, in the context of conservation efforts made through critical corridor management under the landscape approach to conservation in the Terai Arc Landscape of Nepal.

This aim will be achieved through the following specific objectives:

- Understand the general constructions of tiger in the world and in Nepal
- Understand the past and present construction of tiger in Khata corridor
- Understand the implication of changing social constructions of tiger for tiger conservation management
- Better inform managers about the interaction of local society and tigers to help manage conflicts and provide input for future tiger conservation management
- Provide a further ground test of the social construction theory in a specific location and set of conditions and evaluate relevance of the theory to wildlife management
- Discuss the integration of social construction theory and approaches in large scale landscape level conservation management
- Provide local communities with a record of their own social constructions of tigers in a useful format to those communities

1.7 Structure of the thesis

The rest of the thesis consists of six chapters.

Chapter two identifies the epistemology of the theoretical approach adopted in this thesis. It explores the origin and development of social construction theory in general and explains social construction of Nature, and debates and issues around the theory. It then selects an appropriate theoretical framework for this study.

Chapter three explores the study context. It first focuses on the status of tigers in the world and in Nepal and describes tiger conservation efforts made globally and nationally. Then, it describes the landscape level conservation approach including its concept and application in tiger conservation.

Chapter four contains explanation of the research model, methodology and methods adopted for this study.

Chapter five presents the social constructions of tiger generated from the study in a descriptive and simplified form. The results are organized at global, national and local levels.

Chapter six focuses on understanding the constructions in the context of tiger conservation and discusses their implication for tiger conservation in the study area. Then, it focuses on exploring the implication of social construction theory on the landscape approach to conservation in general.

Finally, chapter seven summarizes major findings of the study and reflects on the overall study approach adopted for the thesis. Then, it provides recommendations to the concerned stakeholders.

Chapter 2 Social Construction Theory

The theoretical approach for this study, i.e., the social constructionist approach, has its affiliation to “constructionism” worldview which is a prominent epistemological position in many fields of study. This chapter provides a description of the origin and development of social construction theory and the social construction of Nature and develops a theoretical framework for this study.

2.1 Evolution of the theory

What we now call Social Construction Theory (SCT) has emerged through many movements in human society and development of knowledge systems, taken aboard a range of theoretical and philosophical advances and withstood many criticisms. Although SCT as a research “paradigm” is still questionable to many, it exists in current academia as one of the increasingly used theories. The following section attempts to broadly track the origin and development of the SCT.

2.1.1 The emergence of postmodernism

While there are varied lenses to look at “modernism” and its end, the rubble of the collapsing modernism during the 1930s to 1960s can be said to have provided a fertile land for SCT to grow. It would not be relevant here to detail the debates and issues about modernism such as its association with Enlightenment, even the question of its existence or the inclusive/exclusive modernism (Sandler, 1980), and the “deconstruction” rather than the “collapse” of modernism (Ferraris & Sergre, 1988). What is more relevant here is the critique of modernism that gave rise to a new cultural and intellectual movement from the 1960s, broadly termed as postmodernism.

Modern understanding of the world was criticized as being “androgynous, racist, elitist, materialist, colonialist, and individual biases” (Hermans, 2002, p. 4). As opposed to the modern individualist, separatist conception of knowledge; the postmodern era invited a non fundamentalist, pluralistic view of the world engaging philosophers in merging and moulding theoretical fields (Carle, 2007). Carle (2007) observes that the pluralistic merging of disciplinary fields of knowledge with the rise of the postmodern movement resulted in multiple theoretical inquiries such as sociology and the incorporation of sociology in generating better understandings of the world.

Gergen (2011) points out that the combination of inquiries in reality within Western Europe and the United States during the late 1960s – “sometimes identified as postmodernism” - has forged the foundation for social construction theory. Social construction theory emerges as a result of the challenges that critiques such as Marxist scholarship, along with anti-psychiatry, feminist, racial, gay and lesbian, and anti-colonialist movements pose to various taken for granted realities. Gergen (2011) also notes that the development of semiotic theory by (Derrida, 1976), the critiques of foundational science by (Kuhn, 1962) and the development of social account and history of science after (Feyerabend, 1978) and (Latour & Woolgar, 1986) have contributed to the emergence of social construction theory.

While the postmodern movement influenced and inspired many revolutionary works in politics, arts, literatures, music, and architecture; so it did in restructuring the ontological and epistemological enquiries. The fundamental contribution of the beginning of postmodernism towards emergence of constructionism can be summarized as the development of plurality and multiplicity, that is, the recognition of subjectivity, diverse societies, diverse cultures, multiple meanings, interpretations, and various ways of acquiring, understanding and communicating knowledge.

2.1.2 The emergence of post positivism

Post positivism is the research paradigm which denies the positivistic assumption that “true” knowledge can be created only using scientific, empirical methodology (McGregor & Murnane, 2010). Post positivism searches for “warranted assertability” rather than universal or absolute “truth” advocating that it is impossible for humans to truly perceive the real world with their “imperfect sensory and intellectual capabilities” (Letourneau & Allen, 1999, p. 624). Post positivism thus stresses on critical realism that the “claim about reality must be subjected to the widest possible critical examination (e.g. by scholars) to facilitate apprehension of reality as closely as possible” (Guba & Lincoln, 1994, as cited in Letourneau & Allen, 1999, p. 624).

The emergence of post positivism is largely attributed to the philosophy of science put forth by (Kuhn, 1962) and (Popper, 1968).

“Kuhn was one of the first to point out that science is a social activity, not just in the sense that it takes place within a wider social context, but

also in the sense that scientists themselves form a distinct community or sub-society which in effect defines what is and what is not to count as 'science' (Williams, 1982, p. 34).

Williams (1982), reflecting on Kuhn's (1962) work; *The Structure of Scientific Revolutions*, states that the scientific communities adopt the taken for granted scientific model or "paradigm" which dictates what is interesting for research, what issue is considered to be a "problem" and what is considered to be scientific "fact" at a particular time.

Carle (2007) observes that Kuhn's *The Structure of Scientific Revolutions* revealed the subjectivism in science highlighting that only a "right" type of question can lead to a truth claim about the world but the "wrong" and the "right" are manipulated by the scientists themselves.

Critical rationalism and the notion of falsification put forth by Popper (1959; 1968) radically changes the way positivist "normal science" has been considered.

"Popper argued that science does not come by its hypotheses, laws, and theories through uncontaminated, pre-theoretical observations. Science always sees reality (whatever that is) through some lenses, made up of hypotheses and theories. Apprehension of reality is post-theoretical. For Popper, Newton's laws are not laws of nature that Newton discovered, they are laws of Newton, laws that he made up" (Bennet, 2009, p. 371).

Bennet (2009, p. 371), borrowing on Popper further states that the "scientific theories live by not dying. So, science must be critical, open-ended, situated, incomplete, risk taking and contingent".

Although French social theorist Michel Foucault is found to deny his contribution to the emergence of post-positivism, his post-structuralist theory is considered to play a vital role in shaping post positivism. According to Manjikian (2013, p. 566), Michel Foucault argued that the world has "no permanent, concrete, unchanging structures", and thus no "pure Knowledge" to be discovered. Foucault highlighted that there is no value free "truths";

knowledge is influenced by the worldview of the knowledge maker, the culture and environment in which he operates.

These works on the philosophy of science together with the contemporary discussions and criticisms about ontology and epistemology revolutionized, restructured and reoriented the existing knowledge system resulting in a new paradigm of postmodernism. Establishing the “truths” produced from the “normal science” as contingent, the development of postmodernism consistently carried the notion of “no truth is created in isolation” and boosted the interpretivism and the use of social sciences in the creation of knowledge. This has been a major leap towards the emergence of SCT.

2.1.3 Development in sociology and psychology

Further, development in sociology (symbolic interactionism), and psychology (behaviourism, social psychology) have significantly contributed to the development of SCT (Carle, 2007).

Symbolic interactionism

In contrast to the psychological and sociological descriptions of human behaviour as a product of psychological factors (such as stimuli, attitudes, motives) and social factors (such as social position, status demands, social roles, cultural prescription), Blumer (1969) coined the term Symbolic Interactionism (SI) to place the “meanings” that things have for humans as central to their behaviour. SI understands the process of constructing the “meaning” by defining the world as composed of “objects” and the objects as the product of symbolic interactions. Objects can be anything that one can indicate, point to, or refer to such as “physical objects” (eg. a pen, a table, a tree), “social objects” (eg. a conservationist, a minister, a friend), and “abstract object” (eg. endangerment, justice, values). The nature of these objects in SI is that they have a certain meaning to whom it is an object and the meaning determines his/her action toward the objects, for example, how he sees it, what he says about it or what he does to/with it.

Carle (2007) and McFarlane (2011) point out that symbolic interactionism and SCT share a common interest in the meaning making process, both in individual and group. They maintain that SI and SCT have similar characteristics such that both refer to “daily life” or “contextual snapshot”; both hold that meanings/knowledge produce certain activities/actions; and both reflect the belief that the meaning or the understanding is modified through interpretive process.

Sociology of knowledge

According to (Pickering, 1997), the sociology of knowledge emerges with the aim to “explore, display and theorise the social conditioning of science” and consists of the sociology of scientific knowledge (SSK) and its relatively new extension; sociology of technology. Formulation of the sociology of knowledge theory is credited to the work of Karl Mannheim, prominently Mannheim (1956; 1936) and (Mannheim & Kecskemeti, 1952), who maintains that all forms of knowledge and beliefs have social roots and their position and structure is determined by particular points of view.

To summarise, the evolution and development of social construction theory can be said to have flourished since the beginning of the postmodern era. The scholarly affinity of many disciplines particularly sociology and psychology has led to the emergence of a broader movement of social constructionism.

2.2 Social construction theory

Many works on social construction theory refer to *The Social Construction of Reality: A Treatise in the Sociology of Knowledge* by (Berger & Luckmann, 1967) while introducing the theory, for example; see (Scarce, 2000), (Tumbull, 2002), (Burr, 2003), (Gergen, 2011), (McFarlane, 2011), and (Andrews, 2013).

According to (McFarlane, 2011), a basic premise of (Berger & Luckmann, 1967) is that “the reality does not exist on its own, it is constructed in a social context. Reality is what is experienced as real in everyday life, in the sense of the “taken-for-granted” and “commonsense world of everyday life” (p. 13).

Borrowing on (Berger & Luckmann, 1967), (Scarce, 2000, p. 10) explains four fundamental points to consider while understanding the social constructionism.

- a. Distance from “idealism”: This primarily means not accepting naively the idealist belief that “ideas, or thoughts, are the fundamental reality”. The existence of substances such as, brick, tree, river or tiger is real; not the creation of the mind. But in a social sense we can only have ideas or understanding of the substances through shared meanings and these meanings are socially constructed through social processes.

- b. Relativity of “knowledge”: The social facts or knowledge are created in a society through social processes and these facts or knowledge can be valid within the particular society in which they are created and at a particular time. This means that facts or knowledge are contextualized and there is no such thing as eternal truth.
- c. The micro-macro social divide: There are, often unnoticed, two distinctive social divides in which the process of creating knowledge, reality, and meaning takes place, i.e., micro and macro social divides. Micro-social interaction is an “everyday” interaction with friends, families, co-workers and strangers and this occurs against the “backdrop” of macro level social facts or institutions such as education, government, and the economy. This micro-macro social divide has close interrelation as the “facts” created through micro-social interaction can lead to development of macro social “facts” or institution.
- d. Avoiding reification: Some social facts are reified and constructivism helps to avoid reification. Reification is a “dehumanized world” that is forgetting certain social “facts” are not “constructed” and treating them as real things, for example, manifestation of devil will, results of cosmic laws, and sometimes the government.

Knowledge and reality are specific to a context that has three dimensions; social, temporal and spatial. These three dimensions combine to form a “symbolic universe” which is the matrix of all socially objectivised and subjectively real meanings; the entire historic society and the entire biography of the individual as seen as taking place within this universe” (Berger & Luckmann, 1967, p. 96).

The above explanation provides the basic ideas about social constructionism, if not a clear definition. Bergartt (2004) indicates that agreement on an exact definition and a single theoretical approach for SCT is far from settled. Hence, it is appropriate rather to rely on what characterizes SCT. According to (Bergartt, 2004) and further highlighted by (Carle, 2007), there are three basic characteristics shared by the social constructionism approach.

First, language and discourse play key roles in social processes that are responsible for shaping the world and the people in it. Hence, language and discourse attracts primary attention from the social construction approach. Social constructionism emphasizes that the language is “social in its origin, uses and implication” (Semin & Gergen, 1990, p. 14) and meanings are generated through the exchange of language within a group. The world or the reality is constructed

through a dialectic two-way process between nature and human beings which is understood through the use of language and discourse within the society.

Andrews (2013) further stresses that through the medium of language people mediate the objective reality of society, render it meaningful and in this way it is internalized by individuals. It is important to note here that from the social constructionist perspective, as (Semin & Gergen, 1990) explain, the languages used by scientists are not privileged over the language of lay people. Lay language and scientific language has equal significance and utility in their respective cultures serving to “carry out certain patterns of social interchange” (p15).

The second characteristic of social construction approaches is the relativity of knowledge or the contextual snapshot. Social construction approaches recognize that all social processes leading to the creation of reality are specific to a certain time and culture. This questions the realist’s notion of absolute and eternal “truth” and supports the view that the meanings, knowledge and reality are subject to change over time and space.

Finally, the third common characteristic shared by the social construction approaches is the belief that “knowledge and activity are intertwined. We actively seek to explore aspects of our world, in particular ways for particular purposes, and in so doing create knowledge which we then take as the ‘truth’ about the world” (Cromby & Nightingale, 1999, p. 5). People’s action or even just the expression is determined by what they know at the given context. Society or culture thus follow certain patterns of social action while excluding others and these patterns of action can be transformed with the emergence of alternative “knowledge” or views about the world (McIlveen & Schultheiss, 2012).

These characteristics provide SCT a shape. Given the wide application across diverse disciplines and resulting chances for the core ideas of the theory to be dissipated or twisted, (Hacking, 1999) advocates that it is more important to ask what is the point of SCT than seeking a universal definition.

“Social construction work is critical of the status quo. Social constructionists about X tend to hold that

X need not have existed, or need not be at all as it is. X, or X as it is at present, is not determined by the nature of things; it is not inevitable

Very often they go further, and urge that:

1. *X is quite bad as it is.*
2. *We would be much better off if X were done away with, or at least radically transformed.” (Hacking, 1999, p. 6)*

Put simply, Hacking's (1999) idea is that the constructionist applying SCT is trying to raise consciousness about the existence of X (say for example gender or race). By pointing out whether X's existence or its character is "inevitable" or it is a "taken for granted" concept shaped by "social events, forces, history, all of which could be different" (p.7), the SCT may lead to criticizing or sometimes destroying X. According to him, X could be: objects (such as people, condition, action), ideas (such as classification of people), and elevator words (words used in discussing facts, truth, reality, and knowledge or propositions corresponding to them).

Consistent with this idea, McIlveen & Schultheiss (2012) stress that the social construction approach holds the, otherwise less possible, potential to challenge the taken-for-granted ways of understanding the world and ourselves through alternative understanding and perspectives.

Any discussion about SCT cannot go past the longstanding relativism vs realism debate in philosophy as it captures the criticisms and strengths thereby providing a position for SCT as to where it stands amidst the debate. The following section attempts briefly to capture the debate.

2.2.1 Relativism vs. Realism debate and SCT

Relativism is "the belief that everything is a social construct. Everything in our experience, not just our experience but even physical objects themselves, is a social product" (Bergartt, 2004, p. 14). The existence of an external world outside of our perception is inaccessible to us in principle and practice and hence makes no sense (Cromby & Nightingale, 1999, p. 6). Relativism holds that "there are no objective truth criteria or standards. For any set of facts, there are multiple truths, every one of which is a construction, rather than representation, of a piece of the world. Moreover, none is superior to the other" (Bunge, 1996, as cited in McFarlane, 2011, p. 15).

In contrast, Realism is "the view that the world exists independently of our representation of it" (Searle, 1995, as cited in McFarlane, 2011, p. 15). Realism holds that there is a physical reality

governed by constant laws regardless of how humans conceptualize it, talk about it or believe it and the truth about the reality can be acquired using appropriate research methods, especially scientific methods.

Cold and heated, the “science war” is on between these two worlds of realities. The relativists are called intellectual quacks abusing the science by parodying the postmodern “fashionable nonsense” (Sokal & Bricmont, 1998, as cited in Alland, 1998; Rapley, 2004) and their viewpoints; ontological gerrymandering (Miller & Holstein, 1993, as cited in Bergartt, 2004). Relativism is accused of denying the possibility of any stable reality and being obscurantist (Alland, 1998) relying on flawed methodologies, for example the language and discourses. “Though material things can be written or talked about but they cannot be reduced to pure discourses and experience beyond the discourse cannot be accounted for” (Bergartt, 2004, p. 15). On the other hand, realists with the belief that “science are accused of being a civil religion with political authority that has given rise to centuries of racism, sexism, and the scientific domination of nature” (Alland, 1998, p. 1026). However, the pure realist’s stance is flawed in that it is unable to work with uncertainty or value judgements and the interpretation of scientific studies, standards of proof and choice of subject matter under realist practice are all influenced by social forces (Bergartt, 2004).

The relativist views subsumed in constructionism, particularly universal constructionism are postured with the benefits of allowing the understanding of how experiences of the world are shaped by people’s perception (Cromby & Nightingale, 1999), and providing theoretical grounds for challenging findings of science and the ability to question things that are seen as fixed or self-evident (Demeritt, 2001). In contrast, realism’s benefits are lauded for its ability to provide understanding of the laws of nature; the constants, and providing the predictable results (Bergartt, 2004) leading to numerous scientific and technological advancements.

While the debate continues, there have been efforts to reconcile; finding a middle ground between the relativism and realism. For example, Hilary Putnam in his work “*Reason, Truth and History*” puts forth a concept called “internal relativism” which suggests believing in relative truth but retaining the idea of nonrelative truth as the ideal outcome of rational inquiry, that is, “fact is what is rational to accept” (Harman, 1982, p. 568). Margolis (1986) in “*Pragmatism Without Foundation: Reconciling Realism and Relativism*” supports “robust” relativism rather than “radical” relativism and argues that “relativistic, historized transcendental arguments are

the most promising way of legitimating realism” (Hare, 1991, p. 580). Some other middle ground approaches as reviewed by (Bergart, 2004) are “constrained constructionism” (Hayles, 1995), “a critical realist approach to social construction” (Willing, 1999), “science and technology studies – STS” (Irwin, 2001), “co-construction” (Irwin, 2001), *Sociology of scientific knowledge* (Irwin, 2001), and “describing the debate as an argument between real vs hyperreal in order to exclude pure relativism” (Irwin, 2001).

SCT, having its foundation in “relativism”, often attracts criticism from those who favour “realism”. In other words, SCT is not an innocent victim in the battleground when “realism” attacks “relativism”. For example, Hancock (1999, p. 242) claims that “social construct theory collapses irretrievably into both moral and epistemological relativism”. One way to take SCT into a safer place from the battleground is by taking off its radical relativistic “hat” that as (Hacking, 1999) indicates is “universal constructionism”. Most criticisms are targeted towards the view that “everything is a social construct” or universal constructionism. But as noted earlier, (Berger & Luckmann, 1967) have distanced social constructionism from “idealism” or the stronger version of relativism. This distance is further maintained by many social construction works with the assertion that social constructionism need not imply relativism (Proctor, 1998). This distance thus provides a space for SCT to escape the battle. On a similar note, by asserting that there is a “real” world and our knowledge of the “real” world is shaped by shared meaning of it in a society or culture, social constructionism has not totally denied the realist view. (Crotty, 1998) goes on to state that social constructionism has a dualist nature; “at once realist and relativist” allowing it to “focus the spotlight of relativism on a problematic area while keeping the background real and, by implication, fixed”.

This begs a question; is not social constructionism already a middle ground approach then? It can be argued so, but the middle ground is muddy. Although no constructionist is found to openly embrace it (Hacking, 1999), the “universal constructionism” or “strong constructionism” by its existence, signifies that there are other forms of social constructionism with lesser strengths as pointed out by Carle (2007); moderate constructionism and weak constructionism. Further, Hacking (1999) points out that SCT has been used, in many cases, just as a trendy intellectual item without enough investigation into “what” it does, “what” objects it can be applied to and “who” benefits from the application of the theory. In addition, there are as noted earlier, methodological inconsistencies or methodological limitations in the theory.

However, the continued dialogue on and application of SCT is helping to shape or improve the theory and, most importantly, is helping to reap its benefits in many disciplines and society at large. For Gergen (2001), SCT is a meta-theory, a social theory and a societal practice. First, as a meta-theory, SCT does not demand specific theory, method or practice; rather it “asks a new set of questions – often evaluative, political and pragmatic – regarding the choices one makes in these domains”. Second, as a social theory it can be used in generating knowledge in diverse domains such as the justice system, the business world, religion, therapy and generally in the cultural process; “the character of ‘the rational’, the genesis of memory, the circulation of meaning, the nature of social power, and more”. Third, as a practice, SCT provides many scholars and practitioners a new set of assumptions or ideas resulting in new forms of practice. This is manifested in the ever growing amount of research into discourse practices, rhetorical efficacy, popular culture, and the subtleties of ideology, colonialist influences and media representations. (Gergen, 2001) further states that the dialogue on SCT has rendered revolution in qualitative research resulting in the development of methodologies such as narrative methods, collaborative methods, auto-ethnography and performance methods.

2.2.2 Application of SCT

SCT has been applied across a range of disciplines. (Cromby & Nightingale, 1999) mention earlier works on application of theory during the 1980s and 1990s, to mention a few; social construction of quarks (Pickering, 1984), emotions (Harre, 1986), brotherhood (Clawson, 1989), women refugees (Moussa, 1992), authorship (Woodmansee & Jaszi, 1994), danger (McCormick, 1995), and nature (Edder, 1996). (Carle, 2007) cites some later applications of SCT in range of disciplines such as environmental sociology (Spaargaren & Mol, 2000), genderism and racism (Castree & Braun, 2001), forest natures (Marsden & P. Milbourne, 2003), globalization (Friedmann, 2005), medicine (Crompton, 2005) societal normality (Olin-Lauritzen & Hyden, 2007), and wildlife (Berngartt, 2004; Dizard, 1999; Herda-Rapp & Goedeke, 2005; Scarce, 1999, 2000; Schreiber, 2004; Tovey, 2003).

Besides these, more recently, there is growing attention by scholars in applying SCT in diverse other contexts such as self-esteem (Hewitt, 2009), moral universals (Alexander, 2009), deviance (Goode & Ben-Yehuda, 2010), illness (Conrad & Barker, 2010), entrepreneurship (Aldrich & Martinez, 2010), leadership (Fairhurst & Grant, 2010), state identity (Kowert, 2010), energy (Illich, 2010), internet (Flanagin, Flanagin, & Flanagin, 2010), grocery store (El-Amir & Burt,

2010), animal farming (Boogaard, Bock, Oosting, & Krogh, 2010), service exchange and value co-creation (Edvardsson, Tronvoll, & Gruber, 2011), risk (Russell & Babrow, 2011), interpersonal violence (Perrin & Miller-Perrin, 2011), professional mentorship (Steele, 2012), black female (Marshall, 2013), and climate change (Pettenger, 2013).

The application of SCT has not been limited to the academic world. It has a great influence on practice outside the academic world such as in organizational development, family therapy, social work, counselling, education and mediation (Gergen, 2001). Furthermore, in general, the application of constructionism has “challenged the domination of hard science (including psychology), and liberated us from the oppressive and apolitical notion of self, society and power, which have all been redefined. Constructionism has given a voice to previously silenced minorities. It has heralded a new set of tools in the struggle for emancipation and political choice” (Speer, 2000, p. 519).

2.3 Social construction of Nature

“Nature with ‘N’ embodies the cultural meanings and connotations created by people within a society or social group to make sense of the natural and relate to the natural things” (Herda-Rapp & Goedeke, 2005, p. 4)

Social construction of Nature is a constructionist meta-theoretical lens used to look at Nature. Its thread is connected to the same relativist/realist debate on “reality”; whether Nature is “real” or “constructed”. Realists believe that Nature is real, absolute, “directly perceptible entity available unambiguously to all regardless of experience, cultural context, or motivations” (Kidner, 2000, p. 339) and science can provide relatively complete and true pictures of Nature. By contrast, relativists argue that Nature is fleeting, uncertain, and socially created (Cole, 1992) and science can only produce Nature and does not discover it (Scarce, 1999).

Social construction of Nature emerges as a middle ground approach to the reality of Nature. As a middle ground approach, social construction of Nature does not subscribe to both radical or extreme relativism and realism. The chasm between them is simply “too large to be productive, as it fuels little more than misinterpretation and intellectual hostility among scholars of Nature” (Proctor, 1998, p. 353). The belief that “there is no Nature apart from human discourses and

practices” privileges human activities and traits (Peterson, 1999, p. 339) and undermines the realist “truth” claims about Nature. However, the “truth” claims, for example; whether or not a species is close to extinction, whether or not discharge from a factory causes deleterious impacts downstream, and whether anthropogenic carbon emission has a role in climate change, certainly provide “necessary” conditions for a justified environmental action if not a “sufficient” condition (Proctor, 1998).

The fundamental notion of social construction of Nature is that what we call Nature is socially created through meanings and perceptions. Nature is subjective to society. Nature is a blank screen that reflects everything that society projects onto it (Pinker, 2002; Scarce, 2000). The Nature we know is provisional or operational which is created by people through daily interactions or interaction with social institutions at large (Herda-Rapp & Marotz, 2005; Rolston, 1997). These interactions result in defining the people themselves and their meaning of Nature. As Greider and Garkovich (1994) illustrate; when a real estate developer looks across open land, he may visualize comfortable suburban homes whereas a farmer may envision endless rows of waving wheat when he looks at the same land. This means the same physical thing carries varied symbolic meanings to people depending upon the values which defines the people themselves or the interaction that the physical thing has with the people. And these meanings and definitions are socio-cultural phenomena creating the “reality”. In other words, we understand our personal interactions with places, plants and non-human animals in light of cultural values and beliefs, and in relation to the shared experiences we have within that context (Herda-Rapp & Goedeke, 2005).

Social construction of Nature takes place both “cognitively and physically/behaviourally” (Scarce, 1999). Cognitively, people in a culture assign certain meanings of the world around them through symbols; written or spoken words. This symbolic representation is a socio-cultural phenomenon rather than a physical/direct statement of natural reality. Physically, culture gives meaning to Nature through artefacts (such as dams to control floods) and behaviourally, the meaning of Nature is translated by people through certain social activities (such as for recreation; hunting, fishing, and domesticating animals) (Scarce, 1999).

These constructions are revealed through languages and images; metaphors, repeated concepts, symbols, artistic representation, omissions, and where a narrative begins and ends and they may appear both consciously and subconsciously (Carle, 2007). These

representations are varied according to different groups of people influenced by their own culture or subculture resulting in a multiplicity of constructions which in turn are often a source of social conflict over environmental and natural resources (Herda-Rapp & Goedeke, 2005). Understanding constructions thus can help in managing conflicts and in better management of the environment and natural resources.

As far as wildlife is concerned, apart from their physical existence, like other objects, they exist as symbols to which people attach meaning (Murno, 1997). These symbolic representations of wildlife play key roles in determining the fate of wildlife (Stibble, 2001).

Recently, wildlife has attracted the social constructionist research approach. Rik Scarce's work on the social construction of salmon by salmon biologists in the Pacific Northwest (Scarce, 2000) has been profound on the application of the approach to wildlife. He examined micro and macro level social influences on the salmon biologists' construction of Pacific salmon. His findings suggest that social forces (politics and economics) have a pervasive influence on prioritizing research, distributing research funding, and on biologist's individual decisions regarding research topics. This work not only illuminates on how non-scientific social forces in society have great influence on the science of salmon but also highlights the use of discourse and interviews as methodological approaches to the social construction of wildlife.

Another work on human wildlife interaction, *"Mad about Wildlife: Looking at social conflict over wildlife"* (Herda-Rapp & Goedeke, 2005) collects case studies on the symbolic meanings of non-human animals such as otters, doves, and wolves, utilizing the social constructionist approach. It focuses on understanding the intricate relationship humans and wildlife developed through human interpretation, relationships, classification and control of wild animals. In doing so, it also expands application of the social construction approach to wildlife, both theoretically and methodologically.

Similarly, later works on social construction of wildlife such as on salmon farming in British Columbia (Schreiber, 2004), Himalayan Tahr in New Zealand (Bergartt, 2004), salmon in New Zealand (Carle, 2007), black bear in New Jersey (Harker & Bates, 2007), and elephant in the wild elephant valley in China (Qing-ming & Hong-gang, 2012) continued expanding application of the social construction approach on wildlife, not just as academic practice but also having practical

management implications. However, there is little literature on the social construction of tigers *per se*. Without explicitly explaining social construction theory, Jalais (2008) looks at differences in views on tigers held in the global urbanized world and views on tigers held by local people in Sundarbans, Bangladesh. He argues that the westernized global “cosmopolitan tigers” prominent in posters and other forms of media, toys, etc., do not allow for the alternative views of tigers such as those held by local people in Sundarban and hence is detrimental to the expressions and then reflection in management of such local views of tigers.

2.4 The Research Framework

“Constructivism or constructionism as it is sometimes called can be thought of as a paradigm, a way of seeing, in that one does not apply constructivism directly to social phenomena as one might apply a theory to data. Constructivism is a general guide to understanding the social world, not a step-by-step formula that claims to predict exactly what will happen” (Scarce, 2000, p. 10).

This research will apply the social construction approach to look at constructions of the tiger in a specific biological corridor within the Terai Arc Landscape of Nepal. To understand the local constructions in a broader perspective, the research will also look at general constructions of tigers in Nepal and at the global level. The debates and issues surrounding constructionism as discussed earlier require any researcher to be careful about designing and clearly communicating the appropriate frame for the research, most importantly, what is being constructed and what degree of construction.

2.4.1 Construction of What?

Needless to say, construction of the tiger here in no way means designing the body of the tiger and painting yellow and black stripes on it as in a construction of a building or bridge. Neither does it mean the meaning of an individual tiger in a society. As Hacking (1999) stresses, what is being constructed is the “idea” of the object in consideration and the classification. For example, in the case of social construction of X (say, women refugees), “X does not refer to an individual woman refugee. The X refers first of all to the woman refugee as a kind of person, the classification itself, and the matrix within which the classification works” (Hacking, 1999, p. 11).

Therefore, construction of the tiger means the “idea” of the tiger, the classification of the tiger (wild beast, beautiful, nuisance, endangered, etc.) and the matrix within which the classification works (local community, older/younger or educated/uneducated people within the community, conservationist, tourists, etc.). Then the individual tiger becomes a social construct by being so classified. However, the matrix such as educated/uneducated, conservationists is not social constructions but the social product. Similarly, as Bergartt (2004) states, the physical characteristics of a species (Himalayan tahr) is not a social construct as they remain constant regardless of how people view it. Hence in the tiger’s case too, the physical characteristics, its behaviour, and appearance is not a social construct but the classification of tiger based on the characteristics, behaviour and appearance is a social construct. The objective tiger however fits within the matrix through the interplay of knowledge and activities.

2.4.2 What degree of construction?

The relativist/realist claims about truth are intriguing. As discussed earlier, neither of the claims in its naïve form is productive, requiring us to take a middle ground approach. First, let’s see how the tiger is positioned in each of the claims.

Naïve Relativism (Tiger is not real: It’s all in our mind)

Naïve relativism or strong constructionism may view tiger as only a negotiated subject rather than an object. The tiger exists because we “know” it is there. That is why it is part of our “reality”. Even the scientific “knowledge” about the tiger is our agreement because science itself is a social convention we have agreed to or scientific claim is just another construction of the tiger in a culture (scientific community). The tiger is not an absolute reality or the tiger as absolute reality does not make sense, or is “meaningless” as every individual or group has a different set of local, specific meanings of or realities about the tiger. It is all relative and it is impossible to escape the biases and fixed historical-cultural positions. The tiger exists only in texts and interpretations and tigers beyond such texts and interpretations do not make sense to our reality.

Naïve realism (Tiger is real: Ecological entity in the landscapes)

Naïve realism may view the tiger as an objective reality rather than as a subjective one. The tiger really exists and is playing its part in the ecosystem in the landscapes regardless of human consciousness or any meanings attached to it by human beings. As an objective truth, the tiger has its own intrinsic meaning. Human beings recognized it and put the name “tiger” to it or

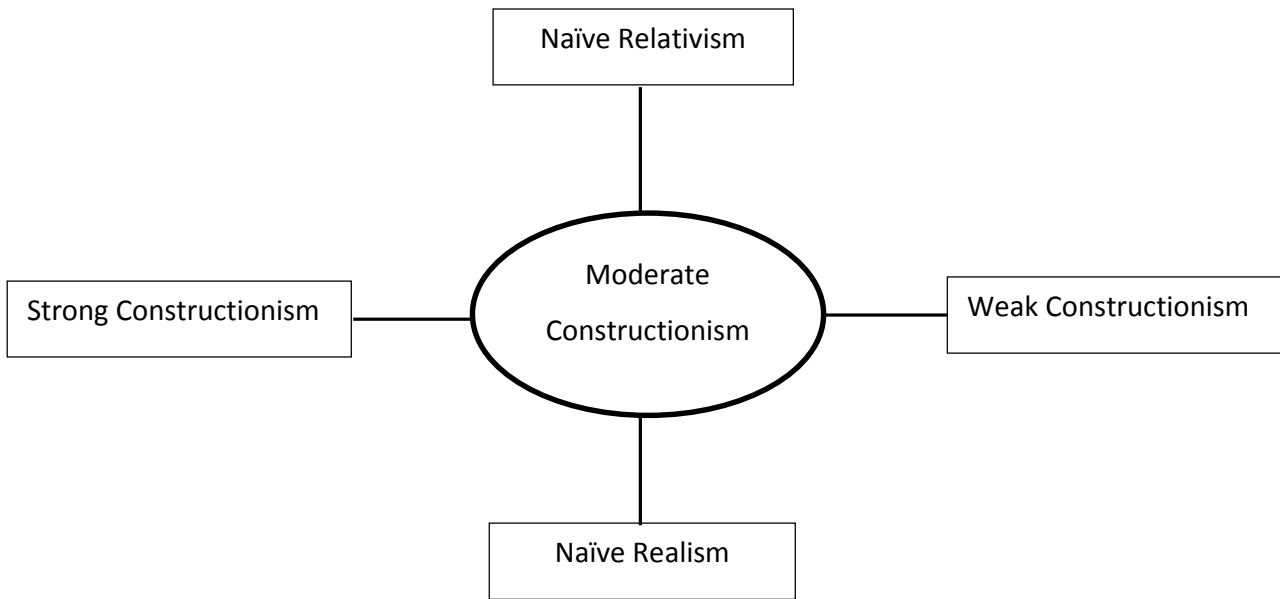
attached meaning to it. The recognition and giving a meaning to a tiger is human beings' discovery of objective truth. Thus naïve realism believes, through objective, empirical observations, we can acquire predictable truth or know everything about the tiger.

The middle ground (The reality of Tiger: It's in the landscapes and in the mindscapes)

The middle ground view on the reality of tiger would be; there is a real tiger in the landscapes but our knowledge about the tiger is mediated by our thoughts and culture.

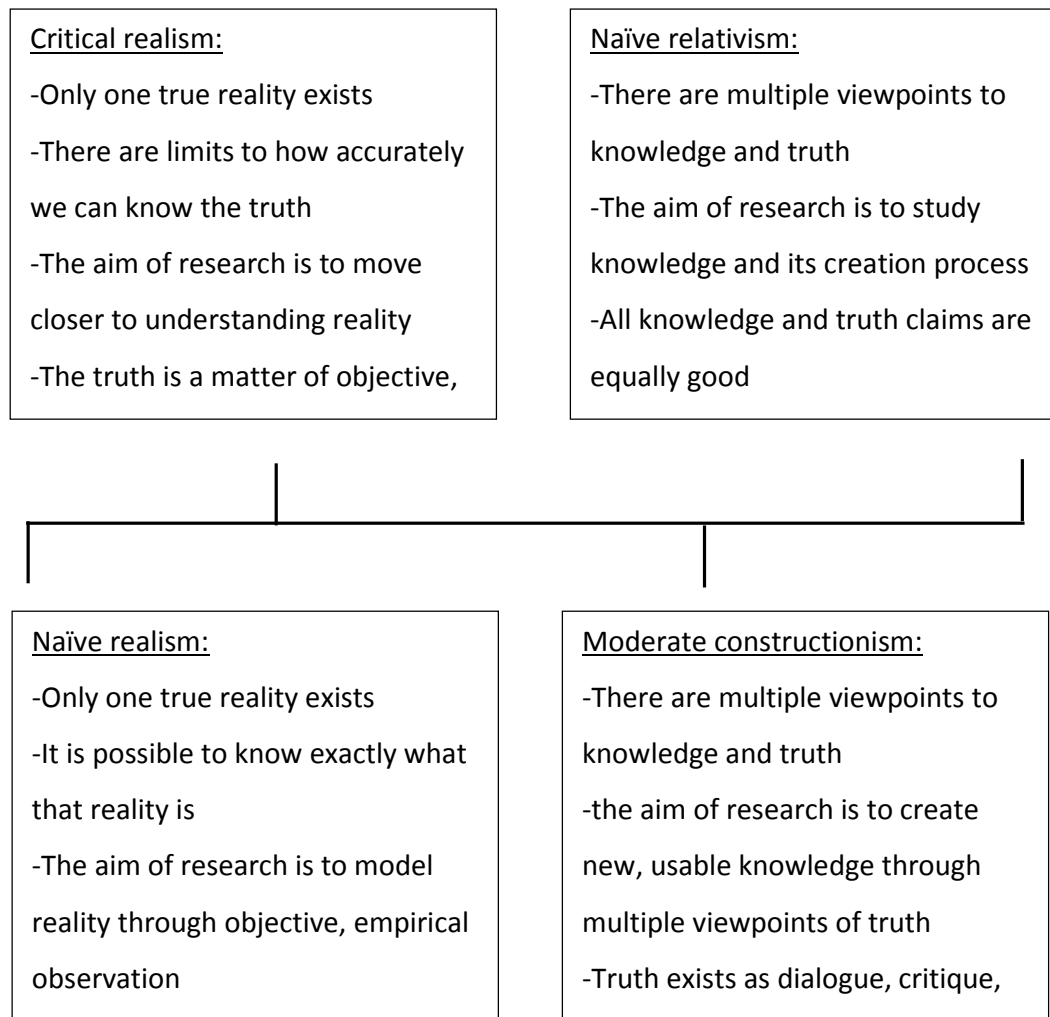
This research adopts the middle ground approach to look at the construction of the tiger as highlighted by Herda-Rapp & Goedeke (2005) and by Scarce (1999). Primarily, there are two middle ground approaches often discussed and adopted in the literature; the "critical realism" (Järvensivu & Törnroos, 2010; Proctor, 1998; Willing, 1999) and "moderate constructionism" (Berngartt, 2004; Carle, 2007; Järvensivu & Törnroos, 2010). The term "moderate constructionism" however, has a level of confusion about its use. Firstly, "moderate constructionism" is redundant while social constructionism as advocated by Berger and Luckmann (1967), Cromby and Nightingale (1999), and by Hacking (1999) is already a "moderate" version of constructionism (denying the universal constructionism and accepting that there is real objects). Secondly, the term "moderate" has two meanings in terms of how the two extremes are defined. For example, "moderate constructionism" to Carle (2007) is along the spectrum of relativism, i.e., between strong constructionism and weak constructionism whereas to Järvensivu & Törnroos (2010), it is in between naïve relativism and naïve realism. The middle ground discussed by Scarce (1999) and Herda-Rapp & Goedeke (2005) is also between the radical realist and relativist views. Thus, it can be concluded that the "moderate constructionism" lies between both naïve relativism and naïve realism as well as between strong and weak constructionism as shown in Figure 1.

Figure 1 Position of "moderate constructionism" in the spectrum of realism/relativism and strong/weak constructionism



Based on an earlier examination of Järvensivu & Törnroos (2010), I will briefly discuss “moderate constructionism” against another commonly discussed middle ground approach, “critical realism”, to illustrate why “moderate constructionism” is the preferred approach for this research. Based on Lincoln & Guba (2000) and Easton (2002), Järvensivu & Törnroos (2010) provide a continuum of ontological and epistemological worldviews which illustrates the position and characteristics of both critical realism and moderate constructionism (Figure2).

Figure 2 Continuum of ontological and epistemological worldviews based on Easton, 2002;
Lincoln & Guba, 2000 (as cited in Järvensivu & Törnroos, 2010)



Critical realism is closer to naïve realism and believes that only one true reality exists. It accepts that there are limitations on the science we use to understand the reality and there are specific local, contingent truth claims. However the scientific research aims at getting closer to the reality and the “truth” is a matter of objective empirical observation and consensus within the scientific communities. On the other hand, moderate constructionism leans towards naïve realism and holds that there are multiple viewpoints to knowledge and truths. The aim of the research is to create new usable knowledge through multiple viewpoints of truths or the local truths bounded by subjectivity. “Truth”, in moderate constructionism, is the product of continuous dialogues, critique and consensus in different communities, usable knowledge, as well as empirical evidence.

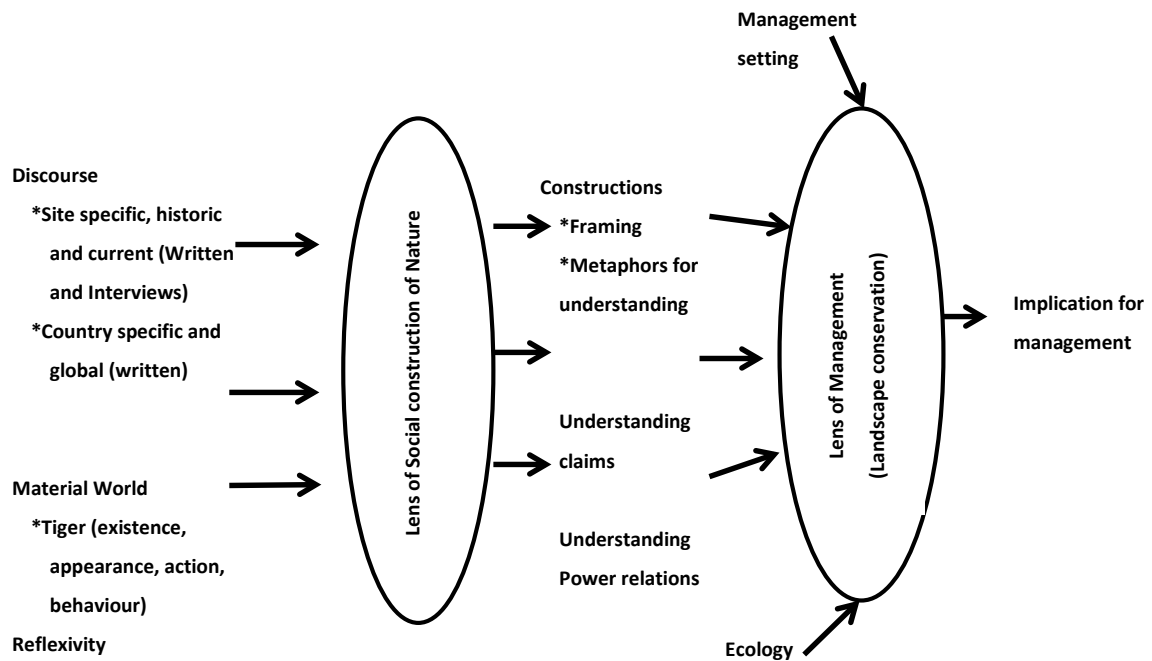
Since this research primarily aims to understand the social construction of the tiger i.e. the multiple viewpoints of the truth about the tiger, “moderate constructionism” is chosen as the theoretical framework.

2.4.3 Analysis lens

Constructionism provides the position from where we can question any truth claims or a lens to scrutinize reality. This research uses this lens. There are already multiple “truths”; some working better than the others, some struggling with others, and some on the verge of change in each society. In the area that this research is conducted, it is assumed that there are multiple realities about the tiger including those associated with management, local communities, groups within the community, and science interacting with each other trying to create new realities.

Bergartt (2004) in her study of the social construction of Himalayan tahr developed a framework consisting of the lens of social construction of Nature and lens of management. She used the framework for the country specific case; New Zealand. Since this study focuses on the social construction of wildlife within a particular management context, I am adopting her framework to see how it works on a site specific case (a corridor) and for a specific management approach (landscape conservation approach) (Figure3). The lens of management is described in Chapter three in detail. By choosing a specific location and a specific management approach for a single species, I believe the implications of the social construction approach can be more closely observed.

Figure 3 Framework for the study of the tiger in TAL adapted from Bergartt (2004)



2.5 Chapter summary

Social construction theory evolved through many cultural and academic movements and its application has been found to be effective in better understanding the truth claims and often times challenging and proposing alternative truths across multiple disciplines. The application of the social construction approach in Nature and wildlife has been argued to be a productive counterpart of natural sciences for better management and justified actions. There are theoretical and methodological inconsistencies and limitations in the social construction approach. However, the social construction approach to Nature and wildlife is developing through growing application and development in theoretical and methodological fields. This research adopts a moderate constructionist approach and adapts an analytic framework consisting of a social construction lens and management lens as developed by Bergartt (2004).

Chapter 3 The Biology and Conservation Status of the Tiger

This chapter; “the biology and conservation status of tiger”, aims to provide the context of the current research. There is ample literature available on tiger ecology, behaviour, populations, genetics, and human-tiger interactions. This chapter only gives a brief description of the tiger biology and focuses more on the conservation status of the tiger, particularly in Nepal. This will help answer why this research is important in the present context. Then this chapter focuses on the “landscape approach to conservation” which is a management approach being implemented in the study area. This will set the context for discussing the implication of social constructions against the management approach.

3.1 Tiger Biology

This section briefly introduces the tiger in terms of its taxonomy, morphology, ecology, behaviour and its habitat and population.

3.1.1 Taxonomy and Morphology

Taxonomically, the tiger is defined as:

Kingdom: Animalia

Phylum: Chordata (vertebrates)

Class: Mammalia

Order: Carnivora

Family: Felidae

Sub family: Machirodontinae

Genus: *Panthera*

Species: *Panthera tigris*

(Green, 2006)

Subspecies:

Bengal tiger (*Panthera tigris tigris*)

Caspian tiger (*Panthera tigris virgate*)

Amur tiger (*Panther tigris altaicia*)

Javan tiger (*Panthera tigris sondaica*)

South Chinese tiger (*Panthera tigris amoyensis*)

Balinese tiger (*Panthera tigris balica*)

Sumatran tiger (*Panthera tigris sumaltrae*)

Indochinese tiger (*Panthera tigris corbetti*)

(Kitchener & Yamaguchi, 2010)

Tigers are the largest living wild cats with a body mass (measured in South Asian tigers) of 175-260 kg for males and 100-160 kg for females, length ranging from 270-310 cm for males and 240-265 cm for females, and height 85-110 cm. The light skeletal structure, powerful muscles, flexible spine, and canine teeth make tigers quick, agile and powerful predators in the wild allowing them to undertake speedy short rushes, leaps, grappling, and a strong bite which enables them to single-handedly capture and kill prey even five times bigger than their own weight. The tigers' coat has black and dark gold stripes which break the outline of the body helping them to easily camouflage in semi-open habitat. Tigers are not great runners but they rely on explosive acceleration. The eye of the tigers possesses excellent night vision. The soft toe pads enable tigers a fluid and silent walking style (Karanth, 2003; Sunquist, 2010).

3.1.2 Ecology and behaviour

Tigers hold a top position in the food pyramid. They mostly feed on wild boar and deer and sometimes other larger or smaller animals such as wild or domestic cattle, chital, and barasingha. They are more active at night (Sunquist, 2010). They are found in low densities as they are solitary animals. An individual tiger establishes its territory by signals such as urine and scats, visual marks by scraping or rolling on the ground or clawing trees, and vocal signals (Karanth, 2003). The tigresses establish and maintain small exclusive territories (10-20 km²) to hunt and raise cubs whereas male tigers have large territories (30-70 km²) overlapping with smaller female territories (Sunquist, 2010).

A tigress reaches mating age at three and invites a male tiger with scent-marking and roaring. The gestation period is fifteen weeks and a tigress can give birth to up to seven cubs (Green, 2006). However, the cub mortality rate is very high. Juvenile males separate from their mother at 18 months and juvenile females in 20-28 months (Karanth, 2003). A tiger is known to live up to 26 years (WWF, 2013).

3.1.3 Habitat and Population

Tigers are believed to have been widely distributed over China and Southeast Asia about 2 million years ago. They expanded north into Russia, Japan, the Bering land-bridge, and south and west into the Indian subcontinent and the Caspian regions one million years ago. By about 10,000 years ago (beginning of the Holocene), they were found to have spread down to Java and Bali but not to Sri Lanka (Kitchener & Yamaguchi, 2010). This vastly different and diverse habitat of tiger suggests that they are very flexible and adaptable. They can tolerate temperatures of -35 degrees Celsius in the Russian Far East, and thrive in hot, dry thorn forest to mangrove swamps and to tropical forest (Sunquist, 2010).

Over the past 100 years Southwest and Central Asia, two Indonesian islands and large areas of Southeast and Eastern Asia have lost the tiger (Chundawat et al., 2011). The historic habitat range of tigers has been reduced by 93 per cent with a 40 per cent reduction from 1996 to 2006 (WWF, 2010). The remaining habitat spreads across 13 tiger range countries: Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Lao PDR, Malaysia, Myanmar, Nepal, Russian Federation, Thailand, and Vietnam (Global Tiger Initiative Secretariat, 2011).

As reported by Seidensticker, Gratwicke, & Shrestha (2010), the population of tigers in the wild was estimated to be 100,000 in Asia at the beginning of the last century. By 1998 the number had plummeted to 5000-7000. In 2008, Seidensticker et al (2010) estimated the global population of wild tigers to be 3,800 to 5,200 with an approximate mid-point of 4,500 adult tigers. The 2010 estimate shows that there are 3,200 to 3,500 wild tigers (GTI, 2011). This shows a global loss of more than 95% of wild tigers during the last century. Not only has the number decreased dramatically, three of the eight subspecies; Caspian tiger (1970s), Javan tiger (1980s) and Bali tiger (1940s) have become extinct. There are 15,000 to 20,000 captive tigers around the globe (Luo et al., 2008).

3.2 Conservation Status of the tiger

This section describes the threats that wild tigers are exposed to, the importance of tiger conservation and conservation efforts being made at the global level and in Nepal.

3.2.1 Major threats

The dramatic drop in tiger numbers over the past century has many cultural, economic and political reasons. For example, according to historians the British and privileged Maharajas in India slaughtered over 80,000 tigers in 50 years from 1875 to 1925 (Wright, 2010). In China, the South China tiger was declared a pest and ordered to be killed by rulers which resulted in the killing of 3000 tigers (P. Jackson, 2010). Tiger hunting was the prerogative of Kings in Nepal. Three large hunts in the 1930s killed 238 tigers only in the Chitwan area (Smith et al., 2010). The worldwide moratorium on tiger hunting was called for in 1969 by the IUCN general assembly (P. Jackson, 2010) but there are other continued threats to the tigers.

The high population growth and demand for more agricultural land and other human activities such as the timber trade, and rapid development, especially road networks have resulted in massive reduction, degradation and fragmentation of tiger habitat across the tiger range countries forcing tigers into small, scattered islands of remaining habitat. This habitat loss has coupled with diminished prey populations. As tigers need large territories and enough prey to survive, the destruction of habitat has been one of the major threats to the tiger's long term survival (WWF, 2010).

Almost every part of a tiger's body such as skin, bones, eyes, teeth and even the meat is in high demand for various uses. The poaching and illegal trade of tiger parts has been a multimillion dollar business in Asia and other parts of the world which results in the killing of hundreds of tigers each year posing a great threat to the survival of tigers in the wild. Similarly, persecution by humans in response to tiger attacks and retaliation killing of tigers for real or perceived livestock predation have been continuously contributing to the reduced tiger population (Global Tiger Initiative Secretariat, 2011; Nyhus & Tilson, 2004; WWF, 2010).

In addition, the impact of global climate change is considered to be a significant threat to tiger, for example, a projected sea level rise by 2070 could wipe out nearly the entire Sundarbans in Bangladesh and India which is one of the core tiger habitats in the world (WWF, 2013).

3.2.2 Human-Tiger Conflict

The ever expanding human activities throughout the world coupled with restoration of wildlife populations has resulted in increased contact and hence greater conflict of varied severity

between humans and wildlife making the human-wildlife conflict one of the most critical issues in conservation (Thirgood & Redpath, 2008). The human-wildlife conflict has not only become a critical threat to the survival of many globally endangered species but also a significant threat to human welfare, and health and safety having substantial economic and social costs (Distefano, 2005).

The Human-Tiger Conflict (HTC) poses a “unique dilemma” to wildlife managers because restoring the tiger population renders numerous intrinsic values and ecological and economic benefits but on the other hand they kill livestock and humans (Gurung et al., 2008). For example, according to Bright (2000), more than a million people have lost their lives during the past four hundred years due to tiger attacks in southern Asia (as cited in Mishra, 2010). In Sundarban, India, 700 humans were killed by tigers and 150 tigers were killed as a result of the HTC between 1881 and 1916 (Gupta, 1964). Hendrichs (1975) reported that around 100 people were killed by tigers annually in Sundarban in West Bengal (as cited in Jalais, 2008) which is far more than the official record of 30 people killed by tigers annually. Similarly, 147 people were killed by tigers and 870 livestock were reportedly killed by tigers from 1978 to 1997 in Sumatra, Indonesia (Nyhus & Tilaon, 2004). The loss of livestock due to tigers in Terengganu, Malaysia was equivalent to US\$400,000 in the last decade (WWF, 2010). During 2000 to 2004, HTC took the lives of 16 tigers and 247 livestock and 7 humans in Kerinci Seblat National Park, Indonesia (Nugraha & Sugadjito, 2009). Likewise, in and around Chitwan National Park of Nepal 88 people have been killed by 36 tigers between 1979 and 2006 with an increasing average annual death rate from an annual 1.2 persons before 1998 to an annual 7.2 persons after 1998 (Gurung et al., 2008). The HTC has been an important determinant of the level of local people’s support for the conservation of tigers (Carter, Riley, Shortridge, Shrestha, & Liu, 2013).

3.2.3 Why save tigers?

Being at the top of the ecological pyramid, tigers by their presence, in a viable number, represents a “stamp of quality certifying the integrity, sustainability, and health of larger ecosystems” (Global Tiger Initiative Secretariat, 2011, p. 1). In addition, tigers not only have a high cultural significance in Asia but also have been highly attractive to tourists creating economic opportunities for local people. Protecting tigers requires protecting their habitat and the whole ecosystem. This involves protecting “not only the wide variety of animals representing its prey, but also the skilful management of their environment” (Mountfort, 1974, p. 49).

Conservation of this “umbrella species” entails conserving the biodiversity rich, undisturbed forest habitats which in turn renders numerous services such as carbon storage and sequestration, watershed protection, natural hazard regulation, food security and agricultural services and medicinal services (Global Tiger Initiative Secretariat, 2011; WWF, 2010).

3.2.4 Global Tiger Conservation Efforts

Labelling the extinction risk

Given the dramatic decline of the tiger population and very high risk of extinction from the wild, the tiger is enlisted in the International Union for Conservation of Nature (IUCN) red list of threatened species as an “Endangered Species”. Similarly, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) has listed the tiger in Appendix 1 which bans all international commercial trade of the tiger and its parts. The tiger thus became a priority species for many national and international level conservation organizations.

International commitments

The organized effort to save the tiger began in the IUCN General Assembly in 1969 in Delhi, India, with a resolution that led to launching of the Project Tiger in 1973. The Project Tiger established nine tiger reserves in India (Schaller, 2010). The first world meeting on tigers “Tigers of the World” was organized in 1986 following the revelation of the catastrophic drop of tiger numbers and the danger of tigers being totally wiped out from the wild. This meeting gathered many scientists and concerned agencies from around the world and attracted global attention to the tiger’s plight with the publication of the first *Tigers of the World: The Biology, Biopolitics, Management and Conservation of an Endangered Species* and forged a foundation for a collective action with a draft of Global Tiger Conservation Plan (P. Jackson, 2010).

Another major step towards tiger conservation was the establishment of Save the Tiger Fund (STF) in 1995 with involvement of big business such as ExxonMobil and management of National Fish and Wildlife Foundation USA. STF supported many projects across tiger range countries. Following that, the Zoological Society of London led the 21st Century Tiger project supporting the tiger range countries for the conservation of the tiger (P. Jackson, 2010). The tiger conservation issue was highlighted and conservation efforts were made through many other projects, scientific studies, and publications and with the active engagement of the government of the tiger range countries through a range of policies and actions.

More recently, owing to the continued threats to tigers and their dwindling number, the Global Tiger Initiative (GTI) was launched by the World Bank, the Global Environment Facility, the Smithsonian Institution, and other partners in 2008 to collaborate with tiger range countries. GTI facilitated tiger range countries to come together and share experiences and technologies, accelerate actions, devise strategies and make commitments for further actions through a series of meetings such as the Kathmandu Global Tiger Workshop 2009, and First Asian Ministerial Conference on Tiger Conservation 2010. Under the initiative, various national consultations were organized to develop National Tiger Recovery Priorities leading to the Global Tiger Recovery Program (GTRP) which was adopted through the International Tiger Forum in 2010. The GTRP is a portfolio of policy, institutional, and expenditure activities where tiger range countries collectively commit to doubling the number of tigers by 2022 (Global Tiger Initiative Secretariat, 2011).

3.2.5 Nepal's Tiger Conservation Efforts

Nepal's lowland Terai area; habitat of the tiger, was covered with dense forest, with few settlements of indigenous Tharu people, supporting a large number of tigers until the 1950s when the Nepal government alongside the US Agency for International Development (USAID) launched a massive malaria eradication program. The eradication of malaria resulted in a large influx of people from the mid hills for settlement in the Terai that led to a large-scale conversion of forest into agricultural lands and other developments. By the 1980s, the tiger had lost 200,000 ha of its habitat and had 6.9 fold more new human neighbours putting pressure on the remaining habitats. Until the 1970s, Nepal's tiger population had already been facing massive hunting by the Kings. The global recognition of the plight of the tiger and increasing conservation efforts, especially the launch of Project Tiger in neighbouring India in 1973, influenced Nepal to embark on prioritized tiger conservation efforts (Department of National Parks and Wildlife Conservation, 2007; Smith et al., 2010; Wikramanayake et al., 2010).

Although there were some efforts to save tiger habitats in lowland Nepal by past rulers of Nepal, particularly by the Ranas since 1846 (Department of National Parks and Wildlife Conservation, 2007), the promulgation of the National Parks and Wildlife Conservation (NPWC) Act in 1973, started a new era in Nepal's conservation efforts. Under the Act, Nepal established Royal Chitwan National Park (932 km²), in one of the core tiger habitats, as the first national park in the country (Smith et al., 2010). The tiger was listed in Schedule 1 of the NPWC Act as one of the

“protected species” which banned all hunting of the tiger and made it a prioritized animal for conservation ("National Parks and Wildlife Conservation Act," 1973).

Focusing on the tiger's core habitat, Nepal added four more protected areas in its lowland; Shuklaphanta Wildlife Reserve in 1976 (305 km²), Parsa Wildlife Reserve in 1984 (499 km²), Bardiya National Park in 1988 (968 km²), and recently Banke National Park in 2010 (550 km²) (Central Bureau of Statistics Nepal, 2012; Karki, Jnawali, Gurung, Pandey, & Upadhyay, 2011; Smith et al., 2010). For focused action on tiger conservation, Nepal produced the “Tiger Conservation Action Plan for Nepal 1999” and then the “Revised Tiger Conservation Action Plan for Nepal 2008” which primarily aims to "preserve, recognize, restore, and increase the effective land base that supports tiger in Nepal, in order to maintain a viable population” (DNPWC, 2007).

The core tiger population is basically found in three protected areas in lowland Terai (plain) areas; Chitwan National Park, Bardiya National Park and Shuklaphanta Wildlife Reserve. Though there are no historical records of the tiger population in Nepal due to lack of a monitoring, the monitoring results available from 2000 show a noticeable increase in tiger numbers from 123 adults in 2000 to 167 adults in 2012. A nationwide survey in 2013 shows that tiger numbers have increased to 198 (WWF Nepal, 2013b).

The government of Nepal has committed to increasing the number of tigers to 250 by 2022 through the National Tiger Recovery Program (NTRP). To put tiger conservation as a national priority and facilitate coordination among concerned stakeholders for enhanced conservation actions, the Government of Nepal has formed a National Tiger Conservation Committee in 2010 chaired by the Prime Minister. To curb poaching and illegal trade, Nepal has established a Wildlife Crime Bureau and has been working with the South Asia Wildlife Enforcement Network. Also Nepal has been focusing on trans-boundary cooperation with India and China for the conservation of tigers (Karki et al., 2011).

Recognizing the fact that the long term genetically viable population of the tiger is not achievable through protected habitat patches alone, Nepal and India have initiated a large scale landscape level conservation approach to connect protected habitats. The following section describes the concept of the landscape conservation approach and the Terai Arc Landscape (TAL) program being implemented in Nepal and India.

3.3 Landscape Conservation Approach

This section describes the concept of the landscape level conservation approach and focuses on one such approach; the Terai Arc Landscape (TAL) program and Khata corridor under the program which is the case study for this research. The corridor restoration program in Khata corridor under the TAL program represents the lens of management for this research as set out in Chapter two (analysis lens).

3.3.1 The concept

Landscape, in general, is understood as the portion of a land or territory comprehensible as a single view to the eye including all the objects so seen, especially in its pictorial aspects (Ingegnoli, 2002). It is a heterogeneous land area composed of a cluster of interacting ecosystems or the mosaic of habitat patches across which organisms go through their life cycles (move, settle, reproduce, and die to return to soil). The concept of landscape is very ancient and emerged during the time when humans started choosing a suitable living site by collecting information about the entire ecological mosaic and landscape elements for successfully planning their fields, orchards, settlements, and to defend natural and human disturbances (Ingegnoli, 2002). The ecological concept of landscape evolved in the late nineteenth century with the agricultural reform movements in central European countries where the idea of windbreaks, crop rotations to maintain soil fertility, and soil erosion control practices began (Hilty, Jr., & Merenlender, 2006). The term landscape ecology was coined by a German bio-geographer Carl Troll in 1939 when referring to a combined discipline of ecology and the landscape science; the science of forest vegetation, biological aerial photo interpretation, and geography (Ingegnoli, 2002). Since the advancement in remote sensing technologies, landscape ecology emerged as a sophisticated applied science capturing a broader scale of patterns and processes of the interacting ecosystems within the heterogeneous land area including the human influence to the land (Bhujju & Tuladhar, 2011). Landscape ecology focuses on the composition, structure, function and changes within its major components; a matrix, patches, and corridors (Barnes, 2000).

The landscape ecology based conservation approach has been a major highlight in conservation and management of ecosystems and wildlife in recent decades. This was due to its focus on spatial heterogeneity, broader spatial extents, and the role of humans in creating and affecting landscape patterns and process. This has emerged as a result of shortcomings of general ecology

due to its focus on the more homogenous, discrete community units organized in hierarchical structures and the limited success of the traditional single species focused conservation approaches having to deal with too many species and requiring a lot of time, financial resources, social patience and scientific knowledge (Bhujju & Tuladhar, 2011; Franklin, 1993). The ever growing significance of the landscape conservation approach is also attributed to the failure of the reserve systems or the protected areas approach to represent critical ecosystems and their insufficiency in maintaining long term viable wildlife populations as they involve keeping the wildlife within political boundaries often set out in unused or less productive or recreational focused lands. Such protected habitats restrict dispersal of wildlife within the natural habitat range.

Franklin (1993) emphasizes that the large scale ecosystem based landscape conservation approach is the only way to conserve not only noticeable large species but also numerous largely ignored smaller organisms which play a great role in carrying out critical ecosystem functions. The landscape conservation approach basically involves managing a matrix (large extensive landscape type playing dominant role in landscape functioning), patches (units of heterogeneous land or habitat within a matrix), and corridors (areas linking patches and serving as conduits for organisms) (Barnes, 2000). As the large landscapes encompass human settlements and human influence on ecosystems, the landscape conservation approach requires the intersection of biological and human landscapes to create conservation landscapes (Didier et al., 2009).

Conservation landscapes as units for management have been a recent focus of conservation programs, for example in South Asia; Terai Arc Landscape, Brahmaputra-Salween Landscape, ChERPunjee-Chittagong Landscape, Sacred Himalayan Landscape, Kanchenjunga Landscape, Chitwan Annapurna Landscape, and Karakorum Pamir Landscape. Similarly, Wikramanayake et al (2011) identify 20 tiger conservation landscapes as focused management units across the tiger range countries including the TAL.

3.3.2 The Terai Arc Landscape (TAL)

Approximately 49,500 square kilometres of vast conservation landscape stretching from Bagmati River (Nepal) in the east to Yamuna River (India) in the west along the outer foothills of the Himalaya is known as TAL (MoFSC, 2004). TAL is part of the Terai-Duar tall grassland-savanna eco-region which is one of the most biologically diverse habitats on earth including 86 species of

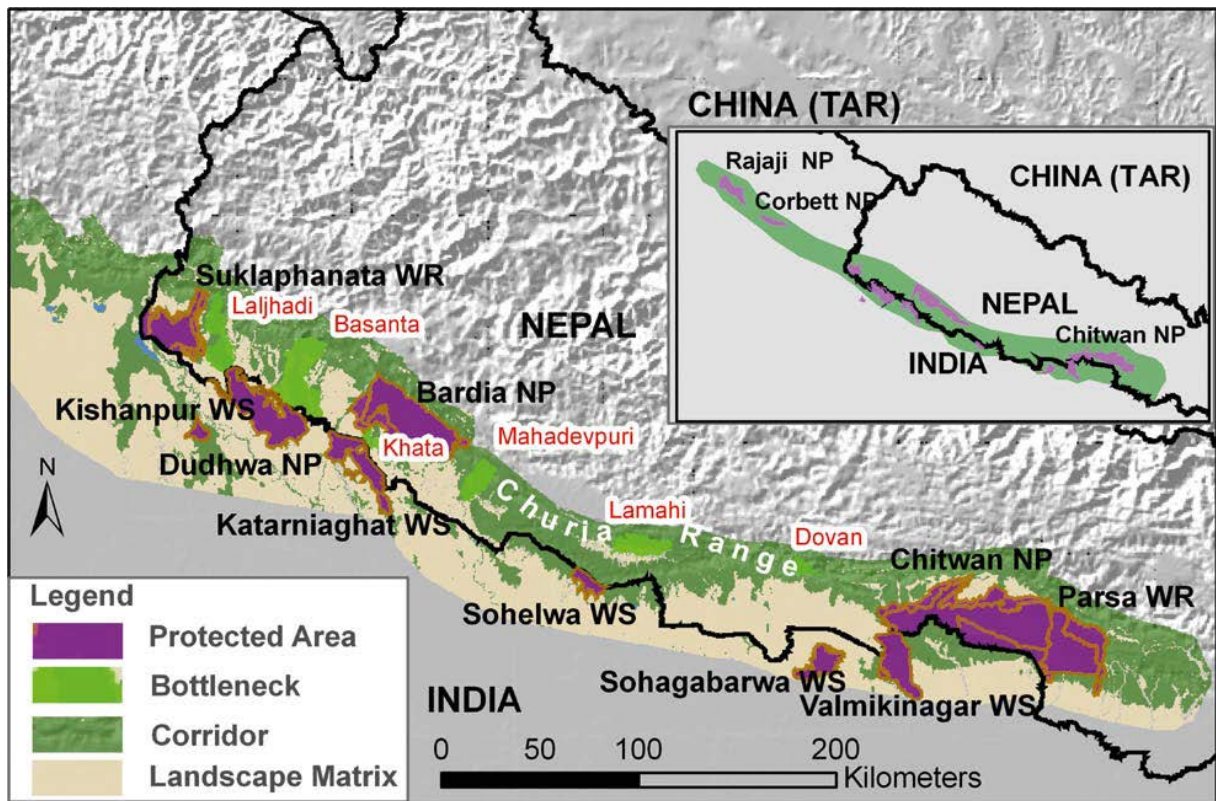
mammals, 550 species of birds, 47 species of herpeto-fauna, 126 species of fish and over 2100 species of flowering plants (WWF Nepal, 2002). The presence of many megaspecies such as tiger, greater one-horned rhinoceros (*Rhinoceros unicornis*), Asian elephant (*Elephas maximus*), wild water buffalo (*Bubalus arnee*), and gaur (*Bos gaunus*) as well as many other diverse animal and plant species contribute to the TAL being a global conservation priority area. Since TAL comprises 11 trans-boundary protected areas between Nepal and India and contains the highest recorded density of tigers in the world with a substantial tiger prey base, it has been deemed as a vital landscape for the global survival of the tigers (Wikramanayake et al., 2010).

3.3.3 The TAL Nepal

The Nepal portion of TAL (Figure 4) extends from Bagmati River in the East to Mahakali River in the west, separated by the Churia range in the north and the Indian border in the south, covering an area of about 23,199 km². TAL Nepal comprises five protected areas supporting some of Asia's largest mammals such as tiger, Asian elephant, greater one horned rhinoceros, gaur and swamp deer. The alluvial plains of TAL Nepal produces a major part of country's agricultural products and is the most populated area in Nepal with 6.7 million people who are mostly poor and rely on subsistence agriculture (Ministry of Forests and Soil Conservation Nepal, 2004).

The TAL Nepal program, a joint landscape conservation program run by the Department of National Parks and Wildlife Conservation, Department of Forest and WWF Nepal, was initiated in 2001. It aims to restore and manage four degraded forest corridors and three bottlenecks to create the connection between protected areas for the dispersal and genetically viable reproduction of wildlife. This program aims to integrate improvement of livelihoods of people and conservation of wildlife and other natural resources.

Figure 4 Map of the Terai Arc Landscape (From Wikramanayake et al., 2010, p. 165)



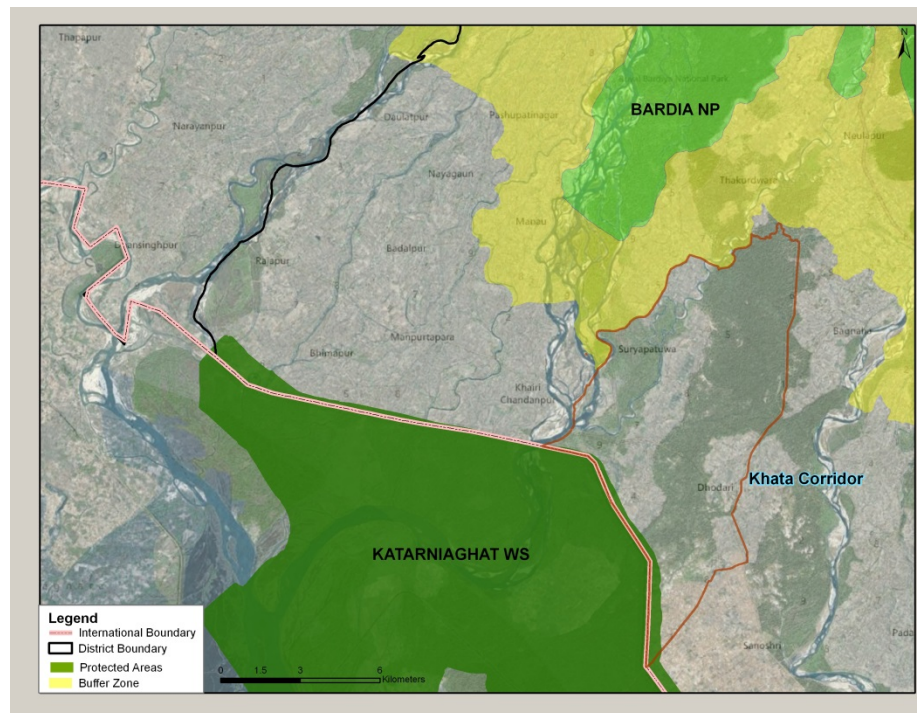
As elsewhere, human conflict with tigers has been a major issue in the TAL Nepal area causing the loss of livestock, loss of human life as well as retaliation killing of tigers (DNPWC, 2007). The incidents of human and tiger conflict have been reported to be mostly concentrated in the buffer zone areas around the national parks such as in Chitwan national park (Gurung et al., 2008).

3.3.4 Khata corridor

The Khata forest corridor is approximately 9 km long covering over an area of 8055 ha and connecting Nepal's Bardiya National Park and India's Katarniyaghat Wildlife Sanctuary (Figure 5). The Khata was once a part of the dense Terai forest popularly known as "Charkoshe Jhadi". The corridor is an important conduit for the cross border movement of species such as the tiger, elephant and rhino. The forest in Khata was reduced to a small thread of degraded forest before the inception of TAL program a decade ago, primarily due to the unstable political conditions, fragile law, population migration pressure, infrastructure development, consumption and use behaviour, cross border trafficking of timber and other wildlife parts (WWF Nepal, 2011). With the restoration program, the Khata corridor has shown an increased movement of wildlife, for

example, 7 tigers were found to be using the corridor in 2012. Other resident and corridor using endangered species in Khata include Asiatic elephant, Chinese pangolin, Gangetic dolphin, and hog deer (WWF Nepal, 2013a). Khata corridor has now been recognized as an important biological corridor having significant wildlife populations outside of the protected area system in Nepal.

Figure 5 Khata corridor Nepal (From WWF Nepal, 2013, obtained through a personal request)



The corridor is inhabited by nearly 20,000 people dominated by indigenous Tharu people (WWF Nepal, 2013a). In TAL area 65 per cent of people live in poverty and depend on subsistence farming. The human development indicator for TAL falls below the national average. Average annual income of people in TAL is only US\$100. Average landholding is less than one hectare and 71 per cent of the population in seven TAL districts do not grow sufficient food to last throughout the year. The Tharu indigenous people are amongst the poorest people in the TAL (Ministry of Forests and Soil Conservation Nepal, 2004).

The corridor forest is managed by local people through the community forestry program. In total, 48 community forests are within the corridor forest. These community forests operate under an umbrella of the Khata Community Forest Coordination Committee (CFCC). The corridor restoration program involves reforestation, reducing the resource dependency on forests through alternative resources such as improved cooking stoves or biogas and managing

domestic animals, generating alternative income sources and agricultural practices such as fisheries and vegetable farming. The wildlife conservation efforts include managing grasslands, constructing waterholes, creating awareness, and conducting anti-poaching operations through the active engagement of local community (Khata Community Forest Coordination Committee, 2008).

As discussed before, the human-wildlife conflict particularly the conflict with tiger is very significant in TAL. A study by WWF Nepal found that human-wildlife conflict is higher in Khata corridor area with significant crop damage and livestock depredation compared to adjacent areas (WWF Nepal, 2013a). Although there is no formal published record of human and tiger conflict in the Khata corridor, the corridor is at high risk of such conflict as there is increasing movement of tigers through the corridor and the adjacent areas are highly populated by people whose livelihood is dependent on the corridor forest. This is a unique case in Nepal as elsewhere the wildlife is mostly conserved within protected area systems where people's entry is regulated or restricted. The human and wildlife conflict mitigation programs in Khata include constructing watch towers, trenches, fences, and creating buffer of Camomile cultivation (valuable herb not preferred by animals), and managing the livestock.

3.3.5 Summary

The tiger is a top predator in Asian forests. Due to the unabated habitat loss, rampant poaching and illegal trade, and conflict with humans, the tiger population has dropped to an alarmingly low level putting them at risk of extinction in the wild. Recognizing the risk of extinction and the ecological disaster it may render, all the tiger range countries in collaboration with global and local conservation organizations are working to reverse the population trend of tigers through many policy interventions and on-the-ground actions. The traditional approach to conserving tigers within small isolated protected areas is seen as insufficient for their long term survival in the wild. In this regard, a new large scale landscape approach to bridge the isolated protected habitats through releasing bottlenecks and managing corridors for dispersal of isolated population and the genetic transfer has been deemed as the most effective approach. The TAL project along the Southern Nepal and Northern India has been under implementation focusing on connecting the protected areas through corridor management. The major constraint of this approach is that these landscapes are heavily populated by humans and their livelihood is dependent on forests. The human-tiger conflict has been a challenge in these landscapes. There is a higher chance of human-tiger conflicts in the corridor forests as these forests are managed

and utilized by local communities. In the next chapter, I will present the methodology adopted for this research.

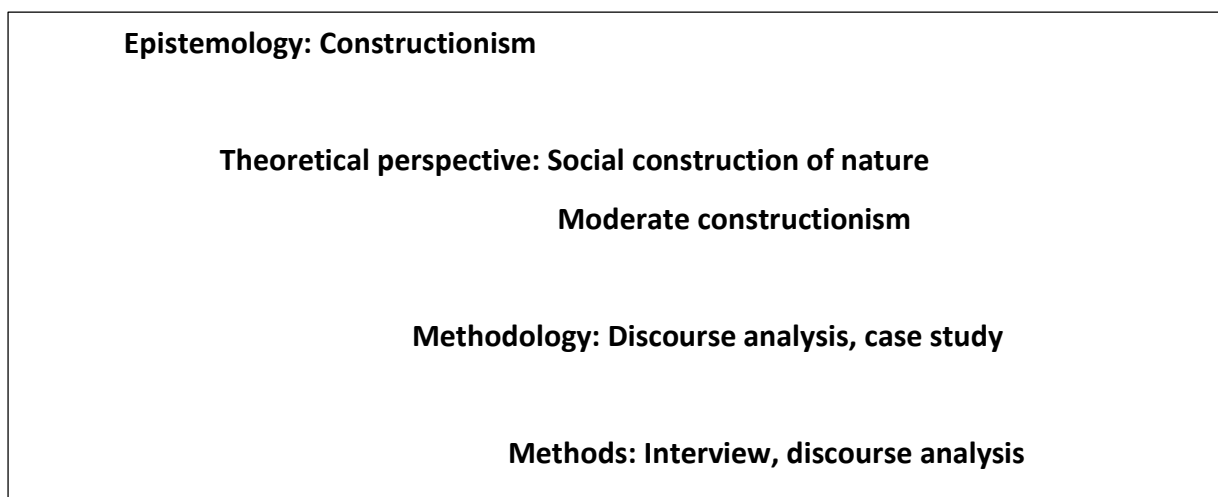
Chapter 4 Methodology

This chapter describes the methodological approach adopted for this research. It adopts a research model incorporating the epistemological and theoretical perspectives discussed in chapter two. Then, it describes in detail the methodology and methods adopted.

4.1 The research model

Crotty (1998) points out a common shortcoming of researchers in clearly outlining the research process and hence failing to maintain the stability and direction of research. He stresses to the need to delineate four essential elements of research, i.e., epistemology, theoretical perspectives, methodology and methods. He argues that clearly outlining these elements provides justification of the choice of methodology and methods, assumptions about the reality, and the researcher's understanding of what knowledge is and what kind of knowledge he/she believes will be attained by the research. This will provide readers of the research a clear idea of what kind of knowledge is being laid out to them by the researcher. Hence, based on Crotty's (1998) research model, the following theoretical and methodological approaches will be adopted in this research (Figure 6).

Figure 6 Research model (adapted from Crotty, 1998)



4.2 Epistemology and Theoretical perspective

Constructionism, as discussed in chapter two, is the epistemological position that this research is built on. Constructionism is the antifoundationalist worldview with the belief that knowledge creation is a social process in which meanings are constructed through constant engagement of human beings with the world they are interpreting. As opposed to the foundationalist or objectivist worldview that the “truth” can be discovered through empirical observations, constructionism holds that the “truth” cannot be discovered but rather it can be produced. This research, having its focus on multiple meanings in a complex social, temporal and spatial context and the difficulty in achieving replicable observations with clear dependent and independent variables, provides the basis for adhering to the constructionism epistemology.

As a theoretical perspective, this research follows “moderate constructionism” under the broader frame of the “social construction of Nature”. Moderate constructionism (discussed in chapter 2) is a postpositivist theoretical perspective which maintains that there is objective “reality” but that our knowledge of what is “reality” is mediated by our thoughts and culture. Moderate constructionism as a “paradigm” is at a fledgling state. However, growing application and concurrent development in the methodologies, methods and its strength to draw out “interesting” and compelling questions with implications on better management, policy ramifications and actions, particularly regarding wildlife and Nature have been establishing “moderate constructionism” as a fruitful research tradition, for example see (Dizard, 1999), (Scarce, 1999), (Tovey, 2003), (Bergartt, 2004), (Schreiber, 2004), (Herda-Rapp & Goedeke, 2005), and (Carle, 2007).

4.3 Qualitative Research

By the nature of the questions this research aims to answer, the nature of information needed and the context of the research, this research takes a qualitative approach. However, a qualitative approach is not a paradigmatic obligation under “moderate constructionism”. Qualitative research is a humanistic, interpretive approach which focuses on “understanding human beings’ richly textured experiences and reflections about those experiences” as opposed to the quantitative approach which focuses on “categorized, forced-choice responses with little room for open-ended replies to questions” (R. L. Jackson, Drummond, & Camara, 2007, p. 23). Often known as “thick-descriptive”, qualitative research, according to (Tolich & Davidson, 1999),

elicits in-depth understanding of “people’s own interpretation of the world” (as cited in McFarlane, 2011, p. 12). Denzin & Lincoln (2005) argue that there is no observation lens unbiased by language, gender, social class, race and ethnicity and hence no objective observation is possible. Qualitative research seeks to better understand the world of experiences through a range of interconnected interpretive methods.

The major limitation of qualitative research, as McFarlane (2011) summarizes, is that certainty and replication is not possible given the varied interpretations and understandings. Therefore, Babbie (2010) emphasizes the strong interplay among data collection, analysis and theory in qualitative research for understanding the underlying meanings and patterns of relationship that corresponds to social reality.

Qualitative research focusing on wildlife, as argued by Herda-Rapp & Goedeke (2005), is helpful in explaining why people have certain value orientations, which public sentiments are flexible and ephemeral and which are deeply enmeshed in focal culture or subculture. In addition, qualitative research sheds light on nuances of social beliefs and ideologies that leads to particular activism and provides critical examination of multiple views on wildlife issues thereby providing managers the opportunity to timely consider and reconcile.

4.4 Methodology

Given the obscure, often interchangeable, use of the terms methodologies and methods, McGregor & Murnane (2010, p. 420) distinguish methodologies as “general principles or axioms of the generation of new knowledge”, in contrast to methods which means “techniques and procedures followed to conduct research.... determined by methodology”. The methodology adopted in this research is discourse analysis based on a case study.

4.4.1 Discourse analysis

“...discourses are...multi-layered, verbal and nonverbal, they are rule-bound, the rules being manifest or latent, they determine actions and also manifest them, they are embedded in forms of life (cultures), of which they are simultaneously co-constituent” (Curt, 1996, p. 112).

Discourse analysis, according to Dijk (1985), involves study of various phenomena of language use, texts, conversational interactions, or communicative events. The discourse analysis approach emerges with the notion that “social reality is not to be analysed in general and objective terms but rather in terms of the interpretations of the social environment by the members themselves” as the social reality “is a subjectively reconstructed reality” (Dijk, 1985, p. 3). As constructionism holds that discourses represent the social reality, discourse analysis has been a primary tool for understanding the social reality within the constructionism worldview.

McFarlane (2011) reviews and concludes that the process of discourse analysis basically begins with a method of coding repeating phenomena and then creating more abstract categories from connected groups of codes, describing and recording the categories (or themes) properties and the interrelationship of these categories through systematic writing. The analysis encompasses both inductive and deductive processes. The “immersion in and familiarity with” the data results in inductive emergence of patterns and concepts whereas prior knowledge and expectations has deductive influence in coding and categorization. Discourse analysis can simultaneously be a methodology and a method.

4.4.2 Case study

A case study is “an empirical enquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly defined” (Yin, 1994, p. 13). A case study gives focused attention to a single instance of some social phenomenon (Babbie, 2010). The principal objective of case study research is deep understanding of the actors, interactions, sentiments, and behaviours occurring for a specific process through time (Woodside, 2010). Case studies are preferred over other strategies when the research seeks to answer “how” or “why” questions, when the events have limited control of the investigator, and when the research focuses on a “contemporary phenomenon within some real-life context” (Yin, 1994, p. 1). For this research, a community around a tiger conservation landscape corridor in Terai Arc Landscape of Nepal was chosen as a case.

4.5 Methods

Methods are “concrete techniques or procedures we plan to use” (Crotty, 1998, p. 6). The methods used in this research are “interviews” and “discourse analyses”. What follows next is the description of the methods used.

4.5.1 Interview

A semi-structured individual in-depth interview (DiCicco-Bloom & Crabtree, 2006) method was used to understand the local constructions of tiger in the research area. The individual in-depth interview allowed deeper understanding of each participant’s perceptions of events and experiences. The semi-structured interview guided the conversation for acquiring the needed information and at the same time allowed inclusion of information that emerged during the conversation.

Preparing a questionnaire guide

Two questionnaire guides were prepared (Annex 1). These guides, as Babbie (2010, p. 318) describes, were the “general plan of inquiry, including the topic to be covered but not a set of questions that must be asked with particular words and in a particular order”. One guide was for the relatively older people to elicit their understanding and experience prior to the landscape conservation approach being initiated, in particular before 2001. It also included their views on contemporary tiger related issues, and their understanding of the transition. Another guide was more focused on relatively younger people or new comers to the place and their understanding and experience about the tiger. These questionnaire guides were designed to allow participants to tell the stories of their experience with the tiger, views on tiger conservation and the account of events related to tiger conservation in a less influenced way to capture the construction of the tiger. The grouping of participants into older and younger/new comers allowed the researcher to focus attention to the historic and present day understandings and finally connect them to draw the changing construction of tigers over time.

In addition, approval for the research methods employed was obtained from the Lincoln University Human Ethics Committee. An “information sheet” (Annex 2) consisting of information about the research and assurance of participants’ anonymity and a “consent form” (Annex 3) were prepared as required by the Human Ethics Committee which was later translated into the local language.

Finding participants

The primary focus was on acquiring understanding of historic and present times largely split by the intervention of the landscape conservation program in 2001. Therefore, older participants means people who had been living in the area permanently or had more than roughly 25-30 years' experience of the area. A similar approach of 'Oldtimers' was adopted by Scarce (2005) for both theoretical and practical benefits. Theoretically, 'Oldtimers' had the living experience of the historic events such as losing power in the community, and they had played historical roles in by being dominant decision makers. Practically, 'Oldtimers' were more accessible compared to younger or new comers. However, for this research the younger and new comer participants were equally important. Younger participants were the ones who were going to school or universities or roughly between the age of 15 to 30. New comers were the ones who had moved into the area over the last ten years or so.

As the research was focused on meaning of tigers based on the community's lived experiences, the assumption was that there were no "better known" participants as far as they fall into the groups of older and younger/new migrants as described above. The researcher went into one of the villages in the community and stayed with a family. With the help of the host family members and community forest members, two persons (one younger, 27 years, and another older, 45 years old) were chosen to assist the researcher in going to the villages, finding the participants and translating interviews from local Tharu language to Nepali especially interviewing some 'Oldtimers'. The younger and older person were strategically chosen to utilize their aged circles and networks. Each of the two walked with the researcher on alternate days. The snowballing technique was used to find the participants within each village. A total of 28 participants were formally interviewed including two older and two younger/new migrants from each of the seven villages within the corridor area. Together with the oral description about the research, the participants were handed the information sheet. Consent forms were signed by whoever agreed to participate in the research.

Interviewing

All interviews were conducted at the place where the participants were found or wherever they wanted it to be such as house, shop, field, road, forest. The interviews were more of a "conversation" (Scarce, 2005) rather than a straight question and answer session. Polanyi (1985) states that in conversation, speakers tell stories to make a point; to convey a message with their moral evaluation or implied judgement about the world. Therefore, the interviews conducted

were pursued to let participants tell their stories. As suggested by Babbie (2010), the researcher was however active in conversation with some general and specific questions subtly directing the flow of conversation. All the interviews were recorded.

4.5.2 Discourse analysis

This method was particularly adopted for the first objective of the research, that is “to understand the general construction of tiger in the world and Nepal”. As Gee (1999) notes that discourses are without a clear boundary; it is important to note that gaining a detailed understanding of the constructions of tiger at the global level and in Nepal through discourse analysis at this scale of research is challenging. However, the objective was set to provide a broader perspective to the local constructions of the tiger. Thus, the volume of documents and their contents are restricted and the depth of analysis is limited. Focus is given to the outstanding meanings of the tiger or the general construction of the tiger.

For the construction of the tiger at the national level, recent news items about tigers in local daily newspapers acquired from online archives, and tiger conservation posters/brochures acquired from major organizations involved in tiger conservation in Nepal; specifically the World Wildlife Fund (WWF) Nepal, National Trust for Nature Conservation (NTNC) and Department of National Parks and Wildlife Conservation (DNPWC) were studied. Furthermore, description of tigers in these organization’s websites, tiger related items in social media, and major policy documents and action plans particularly the Tiger Conservation Action Plan for Nepal, were studied.

For the contemporary general construction of tigers globally, the documents reviewed were limited to tiger related articles, tiger conservation promotional materials (posters/brochures/articles) available online from major global tiger conservation organizations and campaigns such as World Wildlife Fund, Global Tiger Initiative (GTI), Global Tiger Fund (GTF), Save Tigers Now, International Tiger Coalition (ITC), 21stCentury Tigers, Project Tiger, Panthera Foundation and various global tiger policy documents particularly the outcomes of ministerial meeting of TRCs, Kathmandu Global Tiger Workshop Proceedings, Global Tiger Recovery Program. These organizations and campaigns mostly dominate the construction of the tiger at the global level.

4.6 Transcription and Analysis

The recorded interviews were in Nepali language with a few responses in the local Tharu language needing translation into Nepali. The interviews were translated into English while transcribing. The transcribed texts were the direct translation of spoken Nepali sentences by the participants. Special care was taken to keep the meaning intact while translating. The transcribed texts were entered into the qualitative analysis software NVivo. Separate files were created for Oldtimers and Younger/New migrants groups. Participants' expression of the events and experiences were carefully studied for their meaning of the tiger and the emerging "themes" were coded with the relevant descriptions.

For the discourses, all the materials for national and global level constructions were put into a separate folder on the NVivo software. The national level materials collected during the field visit were scanned and combined with the online materials in NVivo. While reading through the materials the emergent themes were coded.

All the distinctive themes, with their description at all levels, were carefully studied and all connected themes were framed and given a frame metaphor best suited to represent their descriptions and presented as results. Then the constructions were analysed according to the objectives of the research.

4.7 Summary

This research builds on the constructionism epistemology and follows the "social construction of Nature" and "moderate constructionism" theoretical perspectives. It employs the qualitative approach and uses "discourse analysis" and "case study" methodologies. As methods, it uses "semi-structured individual in-depth interview" for the local construction of tigers in the case study area, and "discourse analysis" for the general construction of tiger in the world and in Nepal. For the data analysis, the research uses the qualitative analysis software NVivo.

Chapter 5 Results

This chapter presents the social constructions of tiger at global, national and local levels as signalled in the objectives and the methodology of the thesis. The global and national level constructions are the results of the analysis of contemporary discourses and the local constructions are generated from the participant interviews. The constructions presented here are not in any particular order of significance. The emergent distinctive themes from the collected information are framed and a frame metaphor for each theme is chosen to best represent the theme. The results presented here represent the “Lens of social construction of Nature” in the analysis framework chosen for this study as described in Chapter two.

5.1 Global Construction of Tiger

The analysis of tiger discourses shows that historically tigers were not part of the conservation or protection discourses until around the 1960s when reports of massively dwindling populations were brought to light indicating their perilous status in the wild. Prior to that, the overarching construction of tigers particularly within the Indian subcontinent was as a highly exciting “sport” or “game animal”, the prerogative of the rulers or high class people. This construction was legitimized as an act of eliminating the “enemy of the people”. With the growing concerns over the fate of wild tigers, growing involvement of scientists and conservationists and the moratorium on tiger hunting in 1969, the construction of tiger as “game animal” was overturned and the tiger became a significant part of the conservation and protection discourses. The following section presents the contemporary general constructions which are described under frame metaphors.

5.1.1 The tiger as a “dire statistic”

Most of the information about tigers in the current tiger discourses, particularly in almost all the tiger conservation organizations’ websites or other information materials, empathetically portray tiger as a “dire statistic” with some often common data. The most common data include; “A hundred years ago there were 100,000 tigers in the wild. Today there are as few as 3,200”, “tigers now live in only 7 per cent of their historic habitat” and “three out of eight subspecies of tigers have already become extinct”. These widely highlighted statistics communicate a level of crisis that the tigers in the wild are facing and the sense of urgency in saving them.

The IUCN Red List of Threatened Species serves as the authorized conservation status of global biological species which has listed tiger as an “endangered species”. Any species listed in the Red list as an “endangered species” means that it is at a high risk of extinction from the wild. The above statistics conveying the dramatic decline in tiger’s population and habitat are used to present the tiger’s status as “endangered” in more appealing ways in order to seek urgent attention and action required to continue tiger’s survival in the wild.

This analysis shows that current discourses pervasively portray the meaning of the tiger as a “dire statistic” communicating that wild tigers are precariously surviving in the wild and we are running out of time and space to save them from extinction. This construction simultaneously urges immediate national and international attention or action for conservation of the tiger.

5.1.2 The tiger as a “holistic ecosystem indicator”

The tiger, widely referred to as an “umbrella species”, “flagship species”, “keystone species” or “mega fauna”, has been constructed to represent the status of the whole ecosystem that it inhabits. This construction comes from the recognition that the tiger requires a large habitat (as a solitary animal) and prey population to thrive and it has a key role to play in the ecosystem as a top predator. Ensuring tiger’s existence entails maintaining large intact forest habitat supporting a large number of the tiger’s prey species. The large intact forest in turn supports enumerable other wild animals and plant diversity and also plays a vital role in regulating the hydrological system, and sequestering carbon. In addition, the well maintained ecosystem provides numerous essential services to people including clean water, air, forest products as well as economic opportunities. Hence, the tiger’s sustained existence has been viewed as an indicator of sustained biodiversity, a healthy ecosystem and survival of human beings which represents the “holistic ecosystem”.

Saving the tiger is a test. If we pass, we get to keep the planet (Theme for Kathmandu Global Tiger Workshop 2009; quote by Marjorie Stoneman Douglas).

When you save the tigers, you save the forests and so much more (Theme for WWF World Tiger Day 2013).

The presence of viable populations of wild tigers is a 'stamp of quality' certifying the integrity, sustainability, and health of larger ecosystems (Global Tiger Recovery Program: 2010-2022).

These statements, and others that carry similar meanings of the tiger widely found in the current discourses, construct the tiger as a “holistic ecosystem indicator”. This construction highlights the importance of saving the tigers and, with the current plight of wild tigers, communicates the scale of human ignorance and damage to Nature.

5.1.3 The tiger as an “object of fascination”

This construction is associated with the physical appearance of the tiger and is represented by the use of adjectives such as “iconic”, “majestic”, “charismatic”, “magnificent”, “fascinating”, “gorgeous”, “cute”, “splendid”, “mystical” and “beautiful” in tiger discourses. Use of these adjectives with the tiger is ubiquitous in almost all the popular or academic tiger discourses as well as the tiger information materials, and promotional materials of Protected Areas containing tigers.

The tiger as an “object of fascination” is also represented by the overwhelming number of people visiting zoos and protected areas to see the tigers. Besides, the tiger being a “poster species” has remained a very attractive species for photography and the use of its pictures has been widespread in wildlife related online and printed media which leads support to the construction of the tiger as an outstanding and fascinating wild animal. In addition, there is a continued exhibition of the tiger for public entertainment and photo shoots, keeping private zoos and keeping tiger as pet, which, according to Big Cat Rescue (a US based organization), was more common in the past in the USA and other countries. These practices are also manifest in the tiger’s construction as an “object of fascination”.

5.1.4 The tiger as a “commodity”

Even though the killing of tigers has been made illegal across the world, as tiger discourses reveal, there is continued poaching and highly profitable illegal trade in tiger parts for direct use as products. According to (WWF, n.d.-b) and (KCMC, n.d.) tiger parts are believed to have possessed tiger’s strength and mythical power and are considered highly effective medicine to

treat chronic ailments, cure diseases and replenish the body's essential energy especially in traditional Chinese cultures. Almost all body parts and their derivatives such as claws, teeth, nose leather, bone, eyeballs, tail, bile, whiskers, brain, penis, and dung are used in traditional Chinese medicines which have high demand in Asian countries including China, Hong Kong, Taiwan, South Korea, and Vietnam. Besides the medicinal values, tiger parts are also used in making ornamental jewellery believed to have special protective power from bad energy or malicious curses, and are considered a sign of good luck and a status symbol. In addition, tiger meat has special value and the tiger's skin is used for décor and garments. Tiger's skin for decoration and drinking wine having tiger's bone soaked in it has been a status symbol in many cultures.

5.1.5 The tiger as a “tourism product”

The charismatic megafauna living in Tiger Conservation Landscapes (TCLs) are highly attractive to tourists, creating opportunities for local people in the ecotourism industry; ecotourism is the fastest growing and most profitable segment of the tourism industry (Global Tiger Initiative Secretariat, 2011, p. 2).

Tiger as “tourism product” is linked to the construction of the tiger as an “object of fascination” as described before. The tiger as an “object of fascination” means that people seek to see the tiger in the wild and the very experience provides them with the sense of pleasure and awe. The “fascination” is deemed to be a good source of economic benefit to local people by cashing in on the aesthetic value of the tiger through tourism. The construction of the tiger as a “tourism product” and the economic benefits that it renders has also been used to inspire local people around protected areas to engage them in conservation of the tiger.

5.1.6 The tiger as a “universal cultural icon”

Discourses on tigers associate the tiger as being an integral part of the human culture in the tiger range landscapes and elsewhere. Centuries of human interaction with tigers has influenced human imagination and cultures and this has been manifested in many arts, rites, metaphors, folklores and belief systems. Referring to Asian literature, Mishra (2010, p. 84) claims that “no other animal on Earth creates as much awe or matches the tiger in capturing the human imagination”. For example the Hinduism prevalent in Indian sub-continent; home to the Bengal

tiger, depicts Lord Shiva (the greatest God) wearing a tiger skin and sitting on tiger skin. This means that the tiger is a symbol of the greatest power and lust and Lord Shiva is beyond the power of the tiger and a conqueror of lust. Likewise, in some Tibetan Buddhism practices, tiger skin is considered to represent transmutation of fear and anger to wisdom and insight and is a favoured mat for meditation. Similarly, as a symbol of honour, dignity and righteousness five Asian countries namely Bangladesh, India, Malaysia, North Korea and South Korea are found to honour the tiger as their “National Animal”.

The tigers’ dominating existence in human culture is not limited to the tiger range countries or Asia. There is an extensive representation of the tiger in popular western culture. This representation ranges from many literary works such as the famous poem “Tyger” by William Blake, to the characterization of the tiger in many books and big screen and small screen movies such as the Jungle Book, Madagascar 3, The Ice Age, and The Life of Pi, by some of the world’s largest production houses including Paramount and 20th Century Fox. The nature of the tiger in these works might be portrayed differently and they might communicate or generate different constructions such as gentle and discerning or fierce and commanding. These representations have helped the tiger reach the consciousness of a large global audience.

In addition, the tiger’s appearance, strength and behaviour have been widely represented as the symbol of beauty, grace, great power, fierceness, prowess, discipline and focus. One common use of tiger as a “symbol” has been on the branding of numerous diverse products and services globally from airlines, beer, food, security services, musical bands to balm and batteries. The tiger has been one of the most preferred animals in representing sports teams all around the world, e.g., Hamilton Tiger-Cats, Dalhousie Tigers in Canada; Castleford Tigers, Leicester Tigers in the UK; Frisk Tigers in Norway and Auburn Tigers, Clemson Tigers, and Detroit Tigers in the USA. It is not known if tigers outdistance all other common animals such as bears or lions in representing sports teams.

Discourses on the tiger further depicts its ferocity, invincibility, and aggression has been found to be extensively used to represent revolutionary groups such as the Tamil Tigers, military equipment such as the German Tiger Tank; the most feared weapon in the second World War, and military units such as the Tiger Force of the US Army for special operations in the Vietnam War, The Tigers; a British royal Leicestershire regiment, and Arkan’s Tigers; a paramilitary organisation of the Yugoslav Wars.

These overwhelming symbolic representations of tigers in human culture both within the Asian region as well as the other parts of the world which are far away from the tiger's native habitat suggest the "universal" nature of the tiger as a cultural icon.

5.1.7 The tiger as a "research commodity"

Many tigers have been darted, radio collared, camera trapped, their scats collected, pugmarks followed, and DNA extracted. For roughly the last four decades, scientists have been continuously observing tigers to understand what they are, where and how many, how they behave, what they eat, how they interact among themselves and with other animals including humans, among a range of studies. As a result, numerous publications including two landmark editions of *'Tigers of the World'* have been published manifesting that the tiger has been used as a "research commodity" to generate knowledge about the tiger and finding ways in which they can be better managed.

In terms of research, the truth is that we know how tigers behave in 'good' tiger habitat. We have done the comparatively easy part- we have picked the 'low-hanging fruit' of tiger research. What is left is logistically formidable and requires enormous effort and financing to get measurable results (Sunquist, 2010, p. 30).

This quote from a tiger researcher Mel Sunquest in the *'Tigers of the World'*, 2nd edition, suggests that despite substantial research on the tiger in the past, there is still more to learn about tigers which means that the tiger still remains remarkably a "research commodity".

5.2 National level construction of tiger

Eight constructions of the tiger were generated from the discourse analysis at the national level. Descriptions of the contemporary constructions follow next. Like the global level, earlier constructions of the tiger in Nepal were also as a "game animal" and the "enemy of the people" by the Rana rulers and the Kings.

5.2.1 The tiger as a “prioritized protected animal”

The global “endangered” status of the tiger is found to be reflected in the “protected” status of the tiger in Nepal. The National Parks and Wildlife Management Act 1973 has listed tiger in Annex 1 as a protected species. The Act prohibits hunting of tigers and makes any possession or trade in tiger trophies unlawful and punishable. This protected status, communicated in various policy documents and other tiger discourses in Nepal, generates the construction of the tiger as a “protected animal”. Widespread news about seizure cases of tiger trophies and punishment of culprits help to enhance and maintain this construction in public.

The tiger is not just another “protected animal” in Nepal. It is the most prioritized wild species for conservation. The top priority given to the tiger is manifested not only by the separate conservation action plan for the tiger but also by many political commitments, institutional structures, strategies and actions. For example, unlike for any other protected animal, Nepal has formed a high level National Tiger Conservation Coordination Committee (NTCCC) chaired by the Prime Minister and members, including six ministers, from concerned ministries. Similarly, the Nepal Government’s TAL strategy explicitly focuses on conservation of tigers and other mega fauna which has guided the most significant and large scale conservation management program in the country; the TAL Nepal program. The tiger as priority is also manifested by the celebration of Tiger Day on 29th July each year. The tiger’s recognition as Nepal’s most outstanding biological entity is also reflected in the Government of Nepal’s recent establishment of Banke National Park. One of the major aims of establishing the Park is stated to be the expansion of tiger habitat in the TAL.

5.2.2 The tiger as an “item on tourism menu”

The Terai region, bestowed with diverse flora and fauna of global significance, has been a relatively recent addition to the conventional mountain focused tourism in Nepal. The tiger in the Terai forest has been recognized as a remarkable tourist attraction.

The Everest, the highest mountain in the world ...has been synonymous to Nepal for long. Another natural gift possessing potentiality to compete with the world’s highest peak in introducing the Himalayan country is the tiger that hunts around the world’s tallest grassland (Pradhan, 1998, p. 84).

Tourism promotion and service organizations in Nepal, such as the Nepal Tourism Board (NTB), promote jungle safari on elephant rides or jeep rides in the Terai forest, mostly in protected areas, as the most prioritized tourism activity with the possibility of seeing the tiger in its natural habitat as a major attraction. Other promoted tourism packages such as “Mountains and Tigers”, and “Temple and Tigers” suggest that the tiger has been constructed as an important item on the tourism menu of Nepal.

5.2.3 The tiger as an “indicator of a healthy Terai ecosystem”

The global construction of the tiger as a “holistic ecosystem indicator” is found to be contextually translated into the tiger as an “indicator of a healthy Terai ecosystem” in Nepal. This construction is reflected in the Tiger Conservation Action Plan for Nepal, Tiger awareness materials, TAL strategy and several TAL reports and publications. As in the global construction as the “holistic ecosystem indicator”, the conservation of tigers in Nepal means keeping a large intact Terai forest with an adequate prey base. This simultaneously supports other wildlife including rhinos and elephants and diverse plant species which on the whole provides essential life support systems and economic opportunities to local people.

5.2.4 The tiger as an “indicator of international obligation and duty”

As a party to the Convention on Biological Diversity (CBD), Nepal is voluntarily bound to conserve its significant biodiversity with focused attention to rare and endangered species. Similarly Nepal, being a party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), has an obligation to control international trade in endangered flora and fauna. Hence, since the tiger is an iconic but “endangered species”, means Nepal is obliged to conserve the tiger in its territory by participating in the global movement of saving important biological diversity.

A remarkable impetus for the conservation of tiger in Nepal is given by the membership in global tiger conservation movements and the responsibility and commitments in such membership. For example, Nepal being a member of Save the Tiger Fund (STF) is required to develop a Tiger Conservation Action Plan which was developed in 1998 and revised in 2008. Likewise, Nepal, as an active member of Global Tiger Initiative (GTI), was required to develop a National Tiger Recovery Plan aligning with the global goal of doubling the number of tigers by 2022. Thus, Nepal made a commitment through the NTRP to increase its number of tigers to 250 by 2022.

This active engagement with international organizations and global movements and the commitments made there means saving the tiger in Nepal has meant fulfilling an “international obligation and duty”.

5.2.5 The tiger as a “known human-killer”

Several tiger related materials, including the National Tiger Conservation Action Plan for Nepal, empathetically recognize the killing of humans by the tigers or human and tiger conflict on the whole as one of the greatest challenges in conserving the tiger in the human dominated TAL area. The action plan notes (Gurung et al., 2008) that 88 people have been killed by tigers over the last quarter of the 20th century in and around Chitwan National Park and 17 tigers have been killed or removed from the wild because of their man eating behaviour. There are widespread reports and gruesome accounts of man eater tigers such as in Mishra (2010). Tigress ‘Champawat’ has the record total of 436 humans killed in the early 1900s killing 200 people in Nepal and then in neighbouring India killing an additional 236 people. In 1972, the Baitadi man-eater killed more than 100 people (mostly children) within a period of ten months (Mishra, 2010). These reports show that tiger attacks on humans are not only their defensive response in sudden encounters but they actually turn to being man-eaters and prey on human beings.

Continued reports and news of tigers killing humans and livestock while in the forest and occasionally inside the settlements, have contributed to maintaining the long standing construction of the tiger as a notorious livestock and human-killer in Nepal.

5.2.6 The tiger as an “embodiment of aesthetic purity”

As in the global tiger discourses, the description of the tiger in Nepal is accompanied with the adjectives “magnificent”, “majestic”, “astonishing”, “beautiful” to represent the tiger’s beauty and grace. Use of these adjectives is conspicuous in most tiger information materials, school text books and more noticeably on Nepal’s tourism promotional materials.

5.2.7 The tiger as a “research attraction”

Globally, the history of rigorous scientific study of the tiger began in Chitwan National Park in 1973 with the first Tiger Ecology Project which radio collared 24 wild tigers to study their ecology and behaviour. Since then, the DNPWC records show numerous studies, including frequent population monitoring, have been carried out in all the Terai protected areas from national and

international research institutions. One recent research project is the Tiger Genome Project which aims to develop non-invasive genetic technology to better understand the tiger and contribute to its conservation. The tiger's dwindling number, the "endangered" and "prioritized" status, its elusive character and the major influencing role in the ecosystem, and the conflicting nature of interactions with humans have placed the tiger as a "research attraction" for many disciplines including ecology and sociology.

5.2.8 The tiger as a "money hungry beast"

Although, a substantial amount of money and resources have been invested by the Nepal government and other national and international non-governmental organizations in tiger conservation, the investments are deemed to be insufficient. This indicates that more tigers in Nepal means more money, human resources, strengthened institutions, expertise, and technologies sustainably operating on the ground to prevent the species from being poached, expanding its habitat, conducting studies, educating people, mitigating conflicts, providing compensation and alternative resources/opportunities for local people, among other activities. The four year Tiger Conservation Action Plan (2009) sought about USD 1.3 million per year to supplement the government's investment. Similarly, NTRP requested USD 42 million additional external support to the government's investment to meet the goal of doubling tiger numbers by 2022 in Nepal. With tiger conservation demanding huge financial and human resources the tiger is portrayed as a "money hungry beast".

5.3 Construction of Tiger in Khata corridor

Constructions of the tiger in the Khata corridor are the result of the interviews conducted during the field work. The constructions are divided into prior and post the TAL intervention in 2001. A brief account of general context before and after TAL the intervention is provided while presenting the constructions.

5.3.1 Constructions of Tiger prior to TAL Intervention

These constructions are generated from the interviews with 'Oldtimers' as described in Chapter four. The primary aim of the interview with Oldtimers was to elicit the construction of tiger in the study area before the TAL program was initiated in 2001. Before presenting the constructions, a brief account of the overall condition of the forest and wildlife in the area is deemed important to provide a backdrop from where the constructions are coming from. As

revealed from the interviews, the condition of forest and wildlife in the corridor before 2001 can be broadly categorized into three different time frames; 1960s and before, during the 1970s and 1980s, and during the 1990s.

Prior to and during the 1960s, the corridor forest was dense with many wildlife including tigers and was connected to the vast Terai forest of Nepal commonly known as 'Charkoshe Jhadi'. There were only a few Tharu inhabiting the area (one of the indigenous people living around the area reportedly since the late 1950s). The eradication of malaria during the 1960s from Nepal Terai resulted in more Tharus and a few other people particularly from lower and mid hills of the country migrating to the area. A dramatic destruction of forest occurred around the time of the Nepal Referendum in 1980 which was conducted to choose between the existing partyless governing system and a multiparty system. Local leaders in the region brought more than a thousand households of "landless people" to settle in the forested land in the Khata area for their political benefits.

I don't know if they were all landless people. It should be around fifteen hundred households. It seemed like a nightmare. They suddenly flooded in into this forest. Local people also joined them in a hope to get more land. They constructed a wide road and endless array of houses on both sides inside the forest. People were everywhere...chicken, goats. They started planting maize everywhere. They damaged many trees, cleared the forest bed. Only big trees were left standing. (Interview 2013)

The Department of Forest (DoF) was responsible for looking after the forest. Many efforts of DoF to stop the encroachment and move the landless people away went in vain. Finally, DoF forcefully moved them away with the help of the Nepalese Army and elephants. The landless people stayed there for a season (5 or 6 months).

Although the landless people were moved out, the degradation of forest continued until around 1990 due to, as reported by the participants, the ineffectiveness of DoF and some corrupted DoF officials and increasing demand for high value timber of Terai forest. This left the Khata forest almost bare and devoid of wildlife.

The forest was massively misused and became almost clear. Government tried to conserve it with the forest guards (Bhalubhutte). But the forest guards were corrupted and not effective. They would give you a tree for even a chicken. We saw massive amount of timber going away from here. We used to wonder how much tree they [outsiders] would need. We didn't know the value of trees but the outsiders did. They took the benefit. The forest was almost bare. (Interview 2013)

Local people were suffering from a lack of forest products from the nearby forest area. Government had launched the community forestry program in the mid 1970s and many of the forests, particularly in the hilly region of Nepal, had been handed over to communities for their management. The government's community forestry policy and the communities' need for restoring the local forest influenced the local people to go for community managed forest.

We saw forest moving away. But we needed it more than any time before as the population was increasing. We had to travel a long distance up to Bardiya National park just for thatch. We used to collect thatch for days but small families wouldn't be able to bring it home. Whoever had more families or money or any means of transportation could bring it. We were having really hard time. Then we realized that we can conserve forest and grow thatch and other forest products just nearby. Then we started to organize ourselves and started plantation. (Interview 2013)

The community started creating user groups, replanting and registering the community forests. By the early 1990s most forests were under community management. During the 1990s the Khata forests started re-growing. However, the high demand for timber was still driving illegal logging and some of the community forest leaders were also involved in it.

Hence, the construction of the tiger prior to the TAL intervention is basically the recollection of experiences and stories from the 1960s and before when there were dense forests and many wildlife including tigers. Sharing of the same stories or events by many participants suggests that any experience with a tiger would be a special issue in social day to day conversations. As people

use the local term 'Bagh' or 'Baghuwa' for both tiger and leopard, probing was needed to confirm what they were actually referring to while doing the interviews. Often a leopard was referred to as little tiger or small tiger. The framed constructions of tiger before the TAL intervention are presented next.

The tiger as an “apparition of fear”

The construction of the tiger as invoking “fear” was represented by the use of words such as dangerous, fearful, frightening, scary, menacing, killers, man eaters, blood thirsty, and mad tiger, during participant interviews. Almost all participants reported that they developed the impression of the tiger as a dreadful animal when they first acquired the tiger in their consciousness. It was very common in the area to use the metaphor “tiger” to mean “fear”. They recalled their parents or seniors using sentences such as “don’t go to the forest, tiger will kill you” or “stop crying, tiger is around, it will hear and come to take you” when they were kids. This shows that the tiger was a metaphor or another name for “fear”. Tiger as “fear” was further deepened by their parents or neighbours talking about their cattle getting killed or wounded by the tiger, the fearful account of tiger encounter stories, and the stories of men getting wounded or killed by the tiger.

My dad, grand dad and neighbours used to take cattle to the forest every day for grazing. They used to talk about things such as where they met tiger, where it was roaring, whose cattle were hunted, how cruelly tiger had killed their cattle. They always used to warn us to be careful about the tiger. So, there always used to be a fear of the tiger inside me whenever I used to go to the forest. (Interview 2013)

Tiger as “fear” is deeply engrained in the social consciousness with these stories and the use of metaphors even without first-hand experience with the tiger. The experience of encountering a tiger was always filled with massive fear. Almost all the post encounter experiences shared by participants included expressions such as “relieved” or “was lucky to escape the death” or “was close to death” or “I could have been tiger’s meal”. Tiger as fear is further supported by participants’ responses that they used to carry a fear of tigers whenever they were inside the forest, more intensely when they were alone. The construction of the tiger as “fear” is thus

overwhelming and associated largely with events of tigers hurting or killing human beings or the knowledge that it can kill human beings.

The fear of the tiger is intensified by known and perceived mightiness of the tiger's power conveyed by discourses such as "terribly powerful", "King of the forest", "unbeatable" and religious beliefs that the tiger is the vehicle of the Goddess Durga who possesses unlimited power to protect human beings from devil power.

There was a common story shared by participants about some cattle herders from the village who went to graze their cattle in the forest. The cattle herders noticed one of their buffalos was wounded by a tiger. They gathered and chased the tiger away. But the buffalo was already dead. The cattle herders were curious and hid themselves by climbing trees. Later on the tiger returned and they saw the whole buffalo being dragged by the tiger. One of the witnesses expressed:

Tiger is terribly powerful. They can drag even a big buffalo nearly as easily as a cat does to a mouse. We believe a tiger have power of twelve oxen combined together. (Interview 2013)

All of the participants were Hindus and they expressed that they regard the tiger as a means of transportation for Goddess Durga. According to Hindu mythology, the Goddess Durga rode on a tiger while killing the notoriously powerful devil Mahisashur. The participants said that they worship Goddess Durga with the tiger as a symbol of mighty, unbeatable power protecting human beings from devil power. Some participants also stated that the God of the Gods in Hindu religion, Lord Shiva, wears tiger's skin which they think is because the tiger is the strongest power and Shiva has control over such power. Similarly, another cultural practice common in the past and still in practice within indigenous Tharu people in the area is that they worship the tiger each year jointly, and at other times individually by putting an idol of a tiger at their common worship place and at home. According to the participants, the worship was for revering the power of the tiger and praying that the tiger would use its power to protect the people instead of harming them.

Most participants had encountered a tiger at least once. On all occasions the tiger just moved away without doing any harm to them. Thus, they all believed that if the tiger does not feel any threat, it will not harm people. But, there were instances when the tiger had attacked people who did nothing to the tiger. In one instance, a man encountered a tiger and he climbed a tree to save himself. The tiger just angrily waited for him under the tree. He made a lot of noise and many people from the village turned up and scared the tiger but it did not move. They had to call nearby Bardiya National Park for help. The National Park people came with elephants and tried to scare the tiger off but it did not move. Finally the man was rescued on to the back of the elephant straight from the tree. The tiger was still there. And, there were other cases when the tiger entered into the village and killed baby cows in the cattle shed which people thought was not normal behaviour. The participants shared the view that the tiger is harmless to people but extremely dangerous when it is “mad” and when it gets mad is unpredictable. The harmless behaviour of the tiger towards people does not reduce the fear because of its unpredictable attacks on humans and livestock.

Thus, through the widespread metaphorical representations and an actual experience of the tiger’s dread the tiger was viewed as an “apparition of fear”.

Tiger as “distant enemy”

The tiger was deemed as a major impediment to the local people’s everyday livelihood practices in the past, generating the construction of tiger as an “enemy” of the people. Unlike the more mental and psychological construction “fear”, the construction “enemy” was represented by the actual loss of livestock, human lives, and the stress that tigers posed to the local people. The forest was the major source of their livelihood. Keeping a large number of livestock (cows, buffalos, pigs, goats) for meat, milk, fertilizers, and ploughing agriculture fields was common practice and a key means of livelihood for the local people. Every day, a large herd of livestock would be taken to the forest for grazing. These domesticated livestock would provide easy prey for the tigers resulting in a frequent loss of people’s major source of livelihood.

Apart from obtaining permission from the DoF for cutting big trees, use of the forest was not restricted prior to the inception of community forestry. Besides livestock grazing, other forest use included collecting fodder, firewood, wild vegetables, timber and thatch for building construction, and hunting. Hence, going to the forest for local people was an everyday

obligation. The participants recalled that three persons were killed and some others injured by the tiger while they were in the forest in their locality.

But to their knowledge, tigers never entered the village and troubled them apart from on one or two occasions. The major reason expressed by participants was because the tiger used to get enough food inside the forest or the tiger preferred staying inside the forest and to avoid human beings or that the tiger was scared of human beings.

Hence, the tiger in the forest causing significant hindrance to people's major livelihood activities by killing livestock, injuring or killing humans or creating fear just by its existence, the tiger as a "distant enemy" was one of the major constructions within the community.

The tiger as a "mystic conveyance"

In the indigenous Tharu community, there used to be 'Guruwas' (masters) who were believed to have special power. The Guruwas used to play the primary role in Tharu culture and rituals. They were the chief priests performing all rites within the culture. They were the medics healing all diseases including snake bites. People had strong faith in them. Guruwas used to play with, and control devil powers. They were responsible for protecting the community from any harm including from wild beasts. All participants believed in their special power. The participants believed that the Guruwas had control over wildlife including elephants and tigers. It was believed that powerful Guruwas would ride on tigers or horses while travelling during the night but common people would not be able to see them riding. The Guruwa who used to ride on the tiger would be considered more powerful and skilful than the one who used to ride on a horse. Even though the participants never saw their Guruwas riding on the tigers, they shared the experience of finding the same Guruwa in different places travelled in an impossibly short time which the Guruwa claimed and people believed that he travelled on a tiger. The strong faith of the community in Guruwas and the belief that they ride on the tiger had led to the mythical construction of the tiger firmly prevalent within the community in the past.

The tiger as a "prerogative game animal"

Even though there was an apparent enmity with tigers, according to the participants, they never engaged in killing tigers. They were reluctant to talk about tiger hunting by local people. They did however admit the involvement of some local people in killing tigers for trade which they

attributed to the lucrative money, lack of awareness and lack of known regulatory provisions. The frequent tiger hunts by the royal family were big events in the past that every participant recalled. The villages in Khata in the remote western Terai usually was a silent place with almost no movement of people from outside apart from some government officials visiting occasionally. “Women and children used to hide themselves inside their home when outsiders were seen”, participants expressed. The concept of King at that time was highly revered, supreme and believed as an avatar of God. It was the tiger that would bring the King into the area.

It used to be like a huge festival. Armies would come first to locate the tiger and put the baby buffalo as bait. When the tiger would come, the armies would set a massive V shape of fence with white cloth to enclose the tiger and direct it to the shooter....When everything would be set, King and Queen used to come on elephants. King himself or sometimes even Queen would shoot the tiger down. (Interview 2013)

Asked about the reason why the King would hunt the tiger, the participants responded that it could be because the King of the human world would like to demonstrate his dominating power over the King of the forest. The responses also indicated that the King had the responsibility to kill the wild beast to protect his people. The participants also reported that some high level officials and powerful people also used to come to the area for hunting. The extravagant tiger hunting by the royals and other prerogative people in the usually silent village had led the local people to perceive the tiger as the “prerogative game animal”.

5.3.2 Constructions of the Tiger after the TAL Intervention

These constructions are generated from the interviews with the younger people and new migrants to the area as described in Chapter four. These constructions also incorporate the views of the Oldtimers in the present situation. The setting has significantly changed from the past. The gradually growing community forest of Khata was recognized as an important corridor for the movement of wildlife between Bardiya National Park and Katarniya Wildlife Sanctuary in bordering India. TAL program was launched in 2001 to improve the corridor. The community forests of Khata corridor is under the umbrella of the Khata Community Forest Coordination Committee (CFCC). Most of the forest areas bordered with settlement are wire fenced and

buffered with *Mentha* (a high value mint species not preferred by wildlife) cultivation. There are watch towers along the forest borders to keep an eye on the movement of wildlife and warn people. The forest has become dense. Fetching forest products is controlled. There are many resident and travelling wildlife including tigers, rhinos and elephants. Open grasslands and waterholes for wildlife have been constructed inside the forest for wildlife. People are enthusiastic about conserving the forest and wildlife. Local youths are actively patrolling to control poaching through Community Based Anti-poaching Units (CBAPU). One community forest user group is running more than twenty homestay programs. Many outsiders are visiting the area to see the conservation work and enjoy the wildlife and indigenous Tharu culture. The following section presents the framing of constructions generated from the interviews.

The tiger as a “delightful companion”

It feels good to see the tigers in our forest. It's a matter of pride for us, for our country that we have these tigers here. They are rare and not found in other parts of the world. We can proudly say that we have tigers in our forest, the forest that we are conserving. (Interview 2013)

This view and other similar views expressed by the participants represent a very positive construction of the tiger suggesting that people are delighted to have tigers in the local forest. Currently, most of the young as well as the Oldtimer participants seem to be aware of the fact that the tiger is a rare species and is threatened with extinction globally. Although few could tell the rough size of the global tiger population and that in Nepal and population trends, almost all had the idea that tiger number is decreasing greatly in the world and the tigers living around the area are part of the last remaining ones. A few people implied that the tiger is found “nowhere else but in their area or roughly in Nepal and India”. This awareness of rareness has led to a sympathetic and gratifying attitude toward the tigers living in the local forest.

Participants used the terms “national pride”, “our pride”, “our treasure”, and “precious” to define the tiger, advising that they treasure the tiger and feel a sense of ownership toward the tigers living in the community managed forest. This further indicates that the existence of the tiger in Khata has given a special identity to the place and the local people. People viewed the tiger as “jewellery of the forest” indicating the aesthetic and ecological importance of the tiger’s existence in the forest. They expressed the view that the forest without tigers and other wildlife would not be a complete forest and would not look as beautiful. They indicated that the wildlife gives life to the forest and the tiger being the apex predator maintains the health of the forest.

People representing this positive construction, mostly the younger participants who have been active in anti-poaching and other conservation activities, view the tiger as another life on earth needing food and habitat to survive. They think that the tiger has an equal right to survive in its habitat as much as people do. A Tiger attack to the livestock for this group of people is just a normal activity of the tiger to feed itself to survive.

Tigers don't know if a cow belongs to people. They are just eating their food. It's us to keep our livestock safe. Even if they come to village and take the livestock, it's not their fault. They have to feed themselves, if they don't find food inside it's obvious that they keep on searching for food wherever possible. We also go to foreign countries to earn money and feed ourselves. We should maintain enough prey for them in the forest. (Interview 2013)

A few Oldtimers also supported this view, albeit differently. They view that God has created everything and given soul to every living being. They stated “all souls shall flourish, if you do not like a tiger you cannot kill it as you cannot kill a person that you do not like”.

Another common realization among people with this positive construction is their responsibility to save the tigers for future generation. They consider that tigers have coexisted with humans throughout history and they should be taken onboard in the journey to the future as a companion to keep maintaining the balance of Nature forever. This positive construction has inspired local people to support strong anti-poaching activities by portraying tiger killers or poachers as the enemy of the tigers and ultimately of Nature and humanity.

The tiger as a “means of development”

The most prevalent construction of the tiger by young and new migrants and equally supported by Oldtimers in the present day was that the tiger is a means for a wider development of the community. This construction is reiterated in terms of benefits of having the tigers in the forest. Participants' instantaneous response to any benefit of tigers was the economic benefit from tourism.

Already, many national and international tourists are visiting this place to see tigers, rhinos and other wildlife. Tourists spend money which we, our country, community will get. If we increase the number of the tiger, hopefully more tourists will be here in the future. People will get employment and also local products will get more value. The community will get benefit on the whole. (Interview 2013)

While talking about tigers and tourism, all participants referred to one of the community forests named Shiva Community Forest (CF) which is a leading community forest in conservation, community development and tourism in Khata. Shiva CF has established about 20 households as homestays in Dalla village for tourists visiting the area. According to a Shiva CF member, hundreds of local and international visitors have stayed in the homestays. The success of the homestays in Dalla has set an example for other community forests that they can run programs to cash in on the benefits of conservation. Participants believed the movement of saving forests and wildlife through community forestry has brought significant changes in sanitation, education, women empowerment, community organization and cooperation. They view the community as being better than in the past, suggesting that the conservation of the tiger and other wildlife have given a drive for the broader development of the community.

Participants linked construction of the tiger as a “means of development” to the expected reward for their tiger conservation work. They hoped that the government or any other development agencies would provide them with development infrastructures and economic opportunities such as better schools, medical facilities, roads, water, and electricity as a “reward” for their excellent work in conserving the tiger and other wildlife. This hope comes as a trade off to the compromises they have been making for the conservation of forest and wildlife, such as putting up with the conflict, and living with restricted forest use.

The tiger as a “means of development” was also reflected by some alternative views that the communities have been living with their fear of, and discomfort from, the tiger and in return they should be provided with alternative livelihood options and facilities as a “right” rather than a “reward”.

It was also found that part of the primary motivation for youths to be involved in saving the tiger was various vocational training opportunities that some of these youths received from the TAL program such as automobile repair, beautician, and garment sewing and the expected training and job opportunities. This shows that the conservation of the tiger has been inextricably linked to the social and economic aspirations of the community.

The tiger as an “impending disaster”

This construction is represented by communities’ conflicting experience with the tiger and the fear that meeting the goal of increasing the number of tigers would seriously intensify the conflicts. Participants, even the ones who represented a very positive construction of tigers, were concerned that the corridor forest, closely surrounded by settlement, is too small and hence too risky to have more tigers or even just to have the increased movement of the tigers through the corridor. They worried that the tigers will start coming into the village and pose a serious threat to human safety, especially to women, children and old people inside the village. Owing to the tigers in the forest being already a risk to people going to the forest for forest products and using streets or roads across the forest to go to other villages or markets, participants expressed the view that the increased number of tigers will magnify the risk.

Tigers need large habitat and preys and they can't live together. If the population increases it's highly likely that they start coming to villages and kill our livestock and attack people. Saving the tigers here is like planting a time bomb in our head, it may explode anytime. (Interview 2013)

This fear is intensified by the reported increasing sighting of tigers, not only inside the forest but around the forest edges near the settlements. Many of the tiger sightings reported by the participants were during their regular travel other than going to the forest for forest products, for example:

It was during the day time. I was riding a bike on my way to Orali Bazar [local market] and the tiger was sitting just near the road. (Interview 2013)

One evening I was on the way back home from Thakurdwara [Bardiya National Park Office] and I saw something at the edge of the road which I confused for a blanket at first. But when I approached I found it was a big tiger sleeping. (Interview 2013)

Tiger is just around this temple [pointing to the nearby temple]. The priest of the temple said it's around there for a couple of days. (Interview 2013)

Participants expressed big concern about the damage that the leopard (commonly called small tiger), elephant, and sometimes the rhino have been causing to the local people. They indicated that the tiger has not been as damaging compared to leopards and elephants so far. However, the nature of conflict with the tigers was viewed differently. The damage from elephants is occasional but massive as they can destroy crops on a large scale. People would know that the elephants have been around and causing damage and they try to chase them away. Leopards have been causing a lot of trouble as they come to villages and take goats and pigs, even from sheds. All participants reported that they have lost at least one and up to 15 goats or pigs within the last 3 to 4 months. In contrast, the tiger is secretive and people do not know when it attacks but when it attacks it's usually their big livestock such as cows, buffalos and sometimes even humans. Hence, participants expressed more fear of the tiger even though they have been continuously troubled by other wild animals. Most of the participants referred to a dreadful incident of a tiger attack a few of years ago on a former president of a community forest who lost one of his eyes when he was in the forest with many other members of the CF.

These experiences and knowledge of conflicts with tigers and recognition of the small size of the forest surrounded by settlements on the one hand, and the continuous efforts to save and increase the number of the tigers on the other, leads to the construction of tiger as an "impending disaster" or a potential extreme danger to people.

The tiger as an "imposed liability"

Amidst the overwhelmingly positive construction of the tiger and the enthusiastic community participation in tiger conservation activities, there was a noticeable group of people who simply viewed their affirmation and participation as an act of just "going with the flow". These people,

mostly the women and the Oldtimers, do not see any apparent benefit of having tigers in the forest. They just view the existence of the tiger in the forest as a major obstruction to their day to day obligatory routine of going to the forest. They reported that they cannot go to the forest alone as they used to do before and even if they go in a group there is still the fear of tigers. Cattle grazers expressed that they have been losing their cattle and they have been more stressed with the fear of losing their cattle due to tiger attacks while grazing. These participants indicated that they only needed the forest and they would be better off without the tiger, elephant or rhino.

These participants are sceptical about the benefits of the tigers to the local people. Even if there are any benefits, these participants think that they would go to a certain group of people or the government. They viewed that the tiger is forced on them and even their involvement in tiger conservation is imposed upon by the government or the conservation organizations. The indication of the imposed participation is given by opinions such as “I don’t know the benefit of tigers; I support its conservation because everyone else is doing it”, “we are saving the tiger because killing it is illegal and punishable,” “we are saving tiger because these conservation people say we should save it”. Even a president of a community forest ironically said, “we are keeping the tigers in the forest to guard the forest against the people.”

5.4 Summary

The study revealed seven constructions of tiger at the global level and eight constructions of tiger at the national level. Similarly, in the study area, four constructions prior to the TAL intervention and four constructions after the TAL intervention were revealed. Table 1 summarizes the constructions of tiger for all three levels.

Table 1 Summary of the constructions of tigers at the global, national and local levels

Level	Construction of the Tiger	
Global	Tiger as <ul style="list-style-type: none"> • Dire statistic • Holistic ecosystem indicator • Object of fascination • Commodity • Tourism product • Universal cultural icon • Research commodity 	
National	Tiger as <ul style="list-style-type: none"> • Prioritized protected animal • Item on tourism menu • Indicator of a healthy Terai ecosystem • Indicator of international obligation and duty • Known human killer • Embodiment of aesthetic purity • Research attraction • Money hungry beast 	
Local	Before TAL program	After TAL program
	Tiger as <ul style="list-style-type: none"> • Apparition of fear • Distant enemy • Mythical conveyance • Prerogative game animal 	Tiger as <ul style="list-style-type: none"> • Delightful companion • Means of development • Impending disaster • Imposed liability

In the following chapter, the results are discussed within the theoretical framework of the research.

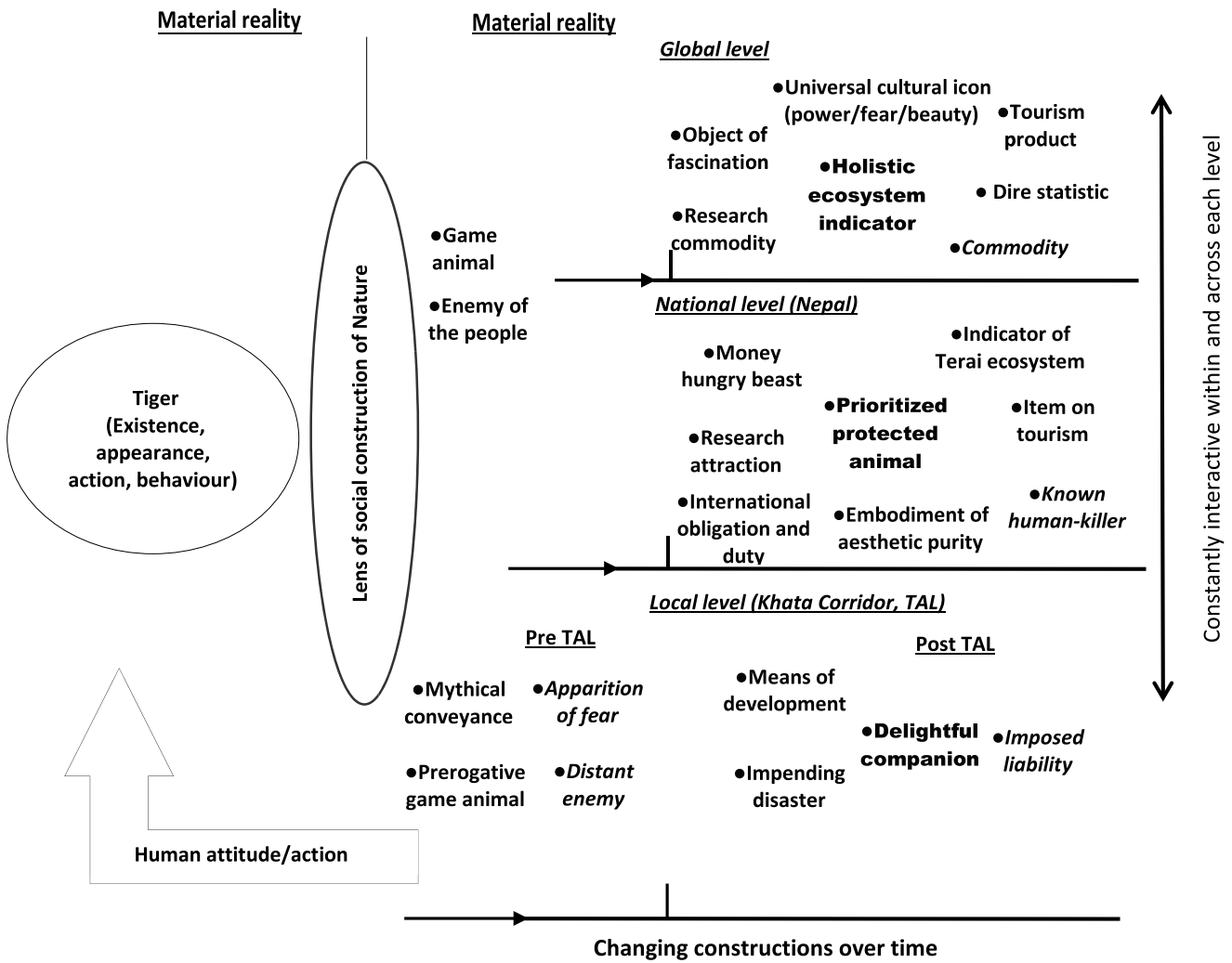
Chapter 6 Discussion

Twenty three constructions of tigers were identified during the analysis of the empirical data: seven at the global level, eight at the national level, and four pre TAL intervention and four post TAL intervention at the local level. This chapter analyses these constructions through the “moderate constructionist” approach and the lens of “Social Construction of Nature” in order to meet the objectives of the research. First, I will focus on putting these constructions back into the theoretical context and then understanding those constructions with focused attention to the case of the study; tiger conservation in Khata corridor. Then, I will explore the prospects of using constructionist analysis for tiger conservation management in Khata in particular, and on large scale landscape approaches to conservation in general.

6.1 Understanding the constructions

The constructions presented in the results are the dominating collective “ideas” or the “meanings” that represent the “knowledge” about the “material reality”; the tiger, reflected in discourses at the global, national and local levels. Before moving ahead with a detailed understanding of these constructions, I will present the results schematically (Figure 7) in order to show how they are linked to the theoretical context, how they are changing over time, and how they are linked within and with each level so as to facilitate further analysis.

Figure 7 Social constructions of the tiger at global, national and local levels



Consistent with the analytical framework of the moderate form of the social construction of Nature as discussed in Chapter 2, Figure 7 illustrates the material world; the tiger (existence, appearance, action, and behaviour), and the multiple contextual constructions observed through the lens of social construction. The number of constructions of the same material reality, the tiger, at each level confirm the constructionist notion of “multiplicity” and “contextual nature” of reality. Based on the argument of Gergen (2001) these constructions representing the contextual “realities” are equally valid in their own contexts.

While this research lacks in-depth inquiry into the historical constructions of the tiger at global and national levels since it focuses on the construction at local level, Figure 7 indicates that the

changing constructions or emergence of new constructions over time at the local level have been consistent with the constructionist concept of the fleeting nature of reality. For example, the past construction “prerogative game animal” has disappeared and a new construction “delightful companion” has emerged at the local level. Further, the figure highlights the constant interaction of constructions within and across the levels which represents the “meaning making process” in constructionism. It shows that the meanings of tiger in Khata are influenced by the local people’s own previous constructions (horizontally represented in the figure) and the meanings scattered in the broader national and global arenas (vertically represented in the figure). Most importantly, these constructions, collected in the context of tigers in Khata, help explain the attitude and action of people towards tigers that ultimately decide their fate in Khata corridor forest. For example, the tiger’s construction as a “commodity” at the global level drives the killing of tigers in Khata for their trade.

Figure 7 also shows the most dominating constructions (highlighted construction in the Figure) at each level that determine current tiger conservation actions, i.e., “holistic ecosystem indicator” at the global level, “prioritized protected animal” at the national level and “delightful companion” at the local level. Similarly, constructions in *italics* in the Figure, i.e., “commodity” at the global level, “known human-killer” at the national level and “imposed liability” at the local level are the most detrimental current constructions to tiger conservation. The following section will focus on understanding the constructions at each level and their implications for tiger conservation in Khata.

6.1.1 The global construction of tiger

The constructions of the tiger at the global level have different implications for conservation of tigers. The construction a “holistic ecosystem indicator” widely communicated with the construction “dire statistic” is the most significant construction in current tiger conservation discourses driving tiger conservation efforts.

The “universal cultural icon” construction reflects the overwhelming global popularity of the tiger. The widespread symbolic representation of tigers in numerous publications, posters, use of pictures, branding goods or groups, cultural practices, toys, fashions, characterisation in TV or movies represents the largely “urbanized” and “glamorous” concept of the tiger or as termed by Jalais (2008) the “cosmopolitan” tiger. This construction prevails quite remotely from the actual

status of the tiger in its habitat. Nevertheless, the pervasive cognition of tiger through the construction “universal cultural icon” within the large global population, both in the Eastern and Western world, has a significant implication for tiger conservation. Small (2011) argues that a select number of well-known and admired species in the world quickly attract attention from the public, politicians, scientists, the media and conservation organizations and receive huge public and private financial support, publicity, research, conservation and protective legislation. Hence, being one of the most popular animal icons in human culture, the tiger is highly privileged in terms of grabbing global attention about perilous status in the wild. This privilege, coupled with the construction “dire statistic” and the “holistic ecosystem indicator”, has resulted in remarkable publicity, researches, and financial and moral support for tiger conservation on a global scale, ultimately creating a global “save the tiger” crusade engaging the tiger range countries as well as other tiger conservation partners and the public.

The implication of the construction “tourism product”, driven by the construction “object of fascination”, has been a widely debated topic. There are many counter arguments to the highly emphasized economic incentives for local people through tiger tourism. The large number of screaming tourists on the backs of elephants or jeeps in the forest and the development of tourism infrastructure are argued to have detrimental impacts on the ecology and behaviour of the tiger (Weston, 2009). Further, there are concerns over whether the tourism benefits actually go to the local community living around the tiger habitats (Curtin, 2011). However, as argued by Buckley (2012), low impact and well regulated tourism can be a great support for tiger conservation in the current context where many endangered species are increasingly dependent on tourism dollars for their survival.

The “commodity” construction of the tiger, in particular, has deleterious consequences on its survival in the wild. The continued demand for tiger body parts for medicinal and decorative purposes has constantly been one of the greatest threats to the wild tigers. Despite the availability of scientifically valid alternatives to tiger parts for medicinal uses (WWF, n.d.-a), the construction of tiger as a highly useful medicinal product, particularly in traditional Chinese medicine, persists and has been the biggest driver for the tiger’s rampant poaching in Asia.

6.1.2 The national constructions of tiger

The constructions of the tiger in Nepal are shaped by the influence of the global constructions, the local experience based constructions and the country's capacity and willingness to shape its own constructions. The construction "prioritized protected animal" holds the most power in current tiger conservation discourses in Nepal.

The tiger is less "glamorous" in Nepal compared to the global constructions but still the "fascination" and "beauty" of the tiger are found to be noticeably reflected in portraying the tiger as a "tourism item" that can provide economic benefits to the country and the local people around tiger habitats.

The constructions; a "prioritized protected animal" and an "indicator of the Terai ecosystem", mostly incorporated in the Government of Nepal's tiger conservation plans, policies, regulations and actions resonate with the global constructions of the tiger as a "holistic ecosystem indicator" and a "dire statistic". This depicts a strong link between global and national constructions and at the same time suggests that the national versions of the tiger as a "holistic ecosystem indicator" and a "dire statistic" can take more action-oriented shape reflecting on the on-the-ground situation, and experiences. The construction "international obligation and duty" stresses the recognition that the tiger in Nepal is a global entity and saving them in Nepal's territory means contributing to saving an endangered species from being extinct from the world. These dominating constructions of the tiger play an instrumental role in guiding, inspiring, and obligating tiger conservation actions in Nepal.

While the above discussed constructions are fed by scientific studies on the status of the tiger and the tiger's appreciative and normative cognition, the construction "known human-killer" reflects the actual experience of people living around tiger habitats. This construction weakens the overwhelming "cosmopolitan", and "glamorous" idea of the tiger and exposes the tiger conservation dilemma of saving the people and their means of livelihood versus saving the ecologically and culturally important tigers.

The eight dominating constructions of the tiger in Nepal; a developing, highly populated and politically fragile country, from the outset suggest that tigers are basically a "blood thirsty, money hungry wild beast". There is always a country's own responsibility to safeguard its natural

heritage and maintaining ecological integrity. However, the construction of the tiger as an “indicator of international obligation and duty” seems to have an overarching influence on the conservation of the tiger in Nepal. There is ongoing apparent excitement, and a constant desire to showcase the success of tiger conservation at the global level or to show that the country is on track to meeting the global goal of doubling the number of tigers. This could be helpful in attracting much needed global goodwill and, most importantly, money. Undeniably, there has been a continuous effort to minimize the damage of human-tiger conflict but the damage to people’s lives and property are not publicized well enough compared to the highly emphasized tiger population monitoring results. This attempt of portraying only the “good and well flourishing” tigers could be dangerous to the sustainability of the tiger conservation program in Nepal. I will return to this point in my recommendations.

6.1.3 The local constructions of tiger

The social constructions of the tiger in the distant past in Khata were generated by micro-social interaction, as explained by Scarce (2000), which is mostly the experience-based, day-to-day interaction with people around, relatively closed to the community and taken-for-granted. The dominating constructions of an “apparition of fear” and a “distant enemy” reflects that the tigers were no more than a taken-for-granted obstruction to human beings propensity to range freely in pursuit of their day to day living. Other than some subjective importance of tigers constituted in the construction “mythical conveyance”, there were no objectively and subjectively realized positive value of tigers for the local people. The local people however knew that tigers had high value, most often when dead, to some outside people as they witnessed Kings, high officials and poachers killing and taking tigers away. There was no apparent “knowledge” that tigers were an important ecological entity that should be conserved.

There is now a different set of constructions of the tiger in Khata. The conservation focused positive construction dominates the constructions. This implies that tigers have more value alive than dead to the people of Khata. The tiger roaming in the forest has been linked to the identity of the people and the place and also to the wider development of the community. People feel “ownership” of the local tigers and hence the liability to protect the species from poaching and to conserve the habitat. However, the local people are found to be intrigued by the overwhelmingly constructed “good” tigers and the growing fear of the increasing number and movement of tigers in the Khata corridor and the risks it poses to the livestock as well as

people's lives. In the following section I will discuss what influenced the changed constructions of tigers and what implications these changes have on the tiger conservation management in Khata corridor.

Tiger conservation: the irresistible global tide

Far away at the global level, the understanding and the claim that the tiger is a crucial ecological entity and is in a dire need of reversing its diminishing population trend, has generated a global tide for saving the wild tiger. This tide, bolstered by their universal cultural recognition as a fascinating animal, has resulted in not only dismantling a widely held construction as a “game animal” but also by making all tiger range countries join hands in support of the tide. The government of Nepal has responded to the tide by adopting the global claims, making commitments and taking actions on saving tigers according to its capacities and willingness through creating regulatory and non-regulatory instruments and mechanisms and implementing them, for example through the Tiger Action Plans and TAL strategy. The global tide arrived at Khata in many forms. For example, one participant expressed:

At first, they [the TAL program people] came with a goat. They distributed goats to poor families to support their income. People were attracted to hear them in a hope for getting more support. Then they started teaching about the tiger and other wildlife and saving them.

(Interview, 2013)

Another conspicuous form of the global tide of saving tigers that the local people witnessed was the government's regulatory instruments which concentrated on constant surveillance of poachers and punishment to those who had been involved in poaching activities.

The global tide that arrived in many forms at the villages resulted in undoing the local people's long held traditional views towards the tiger and creating new ways of viewing them.

Western science; the formidable knowledge

Knowledge about the plight of wild tigers and their conservation management are fed by scientific findings. This knowledge, well backed up by huge global support and effectively claimed by conservation organizations and governments, is formidable to the local knowledge about the tiger traditionally held by local people in Khata. This western science based

knowledge acting on local knowledge can be described as the macro-social interaction; an approach proposed by Berger & Luckmann (1967) to understand the social processes of reality, knowledge and meaning development as discussed by Scarce (2000). A few educated by western standards, younger member of the local community who are open to new knowledge and change and who tend to define themselves as the “well aware lot” in society, embraced the exotic knowledge coming to their village through “educated” people working in the governmental or non-governmental conservation organizations. For the lay people, the confidence in their knowledge has been wavering in the changing context because they have been experiencing their knowledge being challenged by the new ways of thinking stemming from the formal westernized education. For example, older people do not believe that the “Gurawas” have all the mythical power anymore or they believe such mythical power does not function in the new changed situation. Many older participants hesitated to claim that they know anything about the tiger because they thought the “knowledge” or the “truth” about the tigers is what educated people say or what is written in books or what is shown on television. They hardly have a choice but to believe in the new knowledge advocated by the “educated” and “better known” governmental and non-governmental officials, community leaders as well as their own “better educated” or “better informed” younger generations.

Community participation; the key to tiger conservation

The above discussed micro-macro social interaction, intensified after TAL intervention, leading to the new set of constructions of the tiger in Khata, has occurred against the backdrop of Nepal’s successfully practiced and globally recognized community based resource management practice, particularly the highlighted success of the community forestry and some other conservation programs such as Annapurna Conservation Area and Kanchenjunga Conservation Area. The participatory conservation approach recognizes local communities as key partners in wildlife management (Khadka & Nepal, 2010). This recognition has become a bottom line for any conservation programs to succeed including the TAL program. As shown in the results, community forestry had already started in the Khata area with the objective of saving the forest rather than wildlife. Since the landscape approach to conservation was recognized as an effective approach for the long term conservation of tigers, the Khata corridor was identified as a critical and focal corridor. Thus, the TAL program made a priority to encourage people to be involved in saving tigers and other wildlife through enhanced conservation of community forests. With the government adopting the goal of doubling tiger numbers, the corridor got more attention. This resulted in the changed meaning of tigers among the local people of Khata.

Negotiating the “reality” of tiger

The current constructions of tigers in Khata are basically the negotiation, through micro-macro social interaction, between the exotic “knowledge” introduced by the claim makers and the locally prevailed “knowledge” about tigers. The exotic knowledge or the alternative knowledge is represented by the global and national constructions and the locally prevailing knowledge is represented by the past constructions before TAL intervention which were developed through people’s own experience with tigers in their pursuit of living in the local world, and shaped by the knowledge inherited from the past generation. As suggested by current local constructions, there seems to be a collective agreement, which is a “knowledge” to a constructionist viewpoint, that the tiger is overall a “good” animal with aesthetic, ecological, and economic values as opposed to the past constructions which constituted more enmity with tigers or which largely viewed tigers as taken-for-granted. Even the current constructions “impending disaster” and “imposed liability” do not completely deny that tigers possess aesthetic, ecological and economic values. They do however indicate a strong doubt about whether the community, having forest dependent livelihood practices, can afford tigers in the narrow forest corridor surrounded by people.

Based on the above discussion, the following section sheds light on issues that surround tiger conservation in Khata corridor.

6.2 So, what “really” is tiger conservation?

From a constructionist viewpoint that “the knowledge and activities are intertwined” (Cromby & Nightingale, 1999, p. 5), it can be confidently suggested that tiger conservation is about creating and establishing positive constructions which lead to positive actions and ultimately conserve the tiger. This means expanding the existing positive constructions and abolishing the negative constructions at all levels through the process of meaning making, i.e., a social interaction through the use of languages in any form. The transformation of constructions with the emergence of alternative knowledge in society or culture resulting in a certain pattern of social action as discussed by McIlveen & Schultheiss (2012) is already evident in Khata as discussed earlier. But the fleeting nature of “knowledge” or “meanings”, in its own right, begs questions such as whether they can be sustained or what it takes to maintain the “knowledge” or “meanings” in the long run. The social construction of Nature is a dynamic two-way process as pointed out by Carle (2007) in which society constructs Nature and Nature influences the social

construction. This indicates that the meanings of Nature are not determined by mere social interaction, unlike in many other social constructs such as gender, race or justice, but are equally determined by how Nature, by its inherent dynamism, presents itself to the people. This suggests that the tiger's behaviour towards people, in the current "transformation" as a largely favourable setting of social meanings and patterns of action for the tiger conservation in Khata, has an equal role in influencing those meanings and patterns of actions. Hence, for effective and sustainable tiger conservation actions, issues surrounding the maintenance of constructions of tigers including the tiger's behaviour to people, local aspirations for economic development, the tangible benefit of having tigers in the nearby forests need closer scrutiny. The following issues are identified as having an influencing role in maintaining constructions of tigers and then tiger conservation in Khata corridor.

The fragile meaning of tiger

Currently, the overall construction of the tiger in Khata is more positive because the tigers are overall "good" with aesthetic, ecological, and economic values as discussed earlier in this section. However, the community is still undergoing a process of defining tigers in a changed setting with significant doubts and contradictions stemming from their rooted, and taken-for-granted structure of beliefs. As suggested by the constructions presented in the results, there is still a substantial mass of local people who consider that they would be better off without the "imposed" tigers as represented by the construction; "imposed liability". There are others who are fearfully counting the day of the disaster that the devil tigers will cause as represented by the construction; "impending disaster". Even the "good" and "positive" tigers have meanings attached with many expectations such as economic benefits from tourism, employment, infrastructure, education, and health. That means current positive meanings of tiger may reverse if such expectations are not met in the future. Hence, these positive constructions are not firmly established or embedded in local culture.

Tax (1990, as cited in Garkovich, 1994, p. 7) states that the externally introduced changes overlaying on firmly established, shared convictions - "structures of beliefs" - functions as a "superficial manifestation of the structure of beliefs and these manifestations are quite changeable". The positive constructions of tiger in Khata which are overlaid on the local structure of beliefs (represented by the past constructions) are thus a "superficial manifestation", at least at the current stage. Indication of a firmly established "structure of beliefs", as (Tax, 1990) argues, is that such beliefs produce a system of values which becomes

comprehensive, taken-for-granted and implicitly obvious to the extent that people tend to fail to distinguish their identity from such a structure of beliefs. These structures of beliefs provide a familiar context or “interpretive framework” (Blummer, 1990) or become a “reified phenomena” (Berger & Luckmann, 1967) in which people begin constructing meaning of other things from within the context of such more durable beliefs. This suggests that for the positive constructions of tiger to be firmly embedded, there should be no doubts and contradictions about the positivity and those positivity should provide the context for interpreting other things. The significant doubt and contradiction over the positive constructions indicates that those constructions are fragile and susceptible to change.

The puzzled identity of people: farmers doing conservation or conservationists doing farming?

Greider & Garkovich (1994) stress that the physical environment is transformed to concepts that reflect people’s definition of themselves and these concepts are reconstructed in response to people’s changing definition of themselves. With reference to the “introduced” reconstruction of the concept or the meaning of the tiger, people in Khata currently do not have a settled identity as evident from the interviews. In the changed context where there are many wildlife, the forest has restricted use, and there is rampant damage by some wildlife (the leopards) such that most of the participants in this research were found to be puzzled as to whether they were farmers doing conservation or were they conservationists doing farming. The common expression was “we support conservation but pigs, goats, cows and rice in the field are everything for us. We plan our financial matters based on these produce. When leopards or elephants or tigers eat them, everything is gone”. I had a deeper conversation with the local people who were close to defining themselves as “tiger conservationists” or their position and role in the community gives them such identity, for example, the youths leading Anti-poaching Units or the presidents of Community Forest User Groups. At first they repeatedly used the words such as “we conservationists” or “our tiger” or “our forest” but during prolonged conversation, they revealed themselves as common members of the community making their livelihood in the local world. A CFUG president expressed:

People come to me with lots of complaints about the wildlife damage. They say your tiger did this, your elephant did that. They even say “I will compensate my lost goat from your goat shed or damaged rice from your rice storage”. I try to convince them but words are not enough.

When I talk to CFCC, they say we don't have enough money to compensate them. Even I have had so much damage from wildlife. These things really frustrate me. Just the other day, a leopard chased my son for a baby goat that he was carrying. Sometimes I think why we are doing all these. (Interview 2013)

Although there were a few youths and old participants who stood firmly on the ground as portraying themselves as conservationists, the above view was shared by almost all other local tiger conservation leaders in Khata. This puzzled identity, is an indicator of poorly established positive constructions, and questions whether the community can firmly embody the positive constructions.

The impact of other economic development: habitat loss

While the meaning of tiger is closely attached with wider community development, the development itself can be damaging to wildlife including tigers in Khata. Roca, Morgan, and Marthur (2009) point out that the growing development of infrastructure, particularly transportation, mining and hydropower, has been a major contributor to the degradation of tiger habitat across tiger range landscapes. The development of roads, in particular, can disturb movement of tiger, provide easier access to poachers and illegal traders as well as having downstream hydrological impacts with cumulative ecological effects. In Khata, a major highway named "Postal Highway" running parallel to the Nepal-India border, is under construction which cuts across the Khata corridor. Similarly, the current dirt road joining Dalla and Oralibazar which cuts through a critical tiger route within the corridor is under improvement with construction of a bridge. These constructions and the likely increase in the number and movement of vehicles will have a significant impact on the dispersal of tigers and other wildlife including tiger prey species. This will also increase the chances of wildlife road casualties. Further, expansion of settlements and markets with the construction of the road will equally have an adverse impact on wildlife in the corridor (Wikramanayake & Malla, 2012; WWF Nepal, 2013a)

Benefit sharing

The elite capture of the benefits of the community forest has been a significant concern with the large scale expansion of community forestry in Nepal and such unequitable distribution of benefits is argued to be deleterious to the realisation of any meaningful participation of pro-

poor, marginalized people in forest management (Blomley, Maharjan, & Meshack, n.d.; Koirala, 2007; Malla, Neupane, & Branney, 2003; Neupane, 2003). There is an emerging concern over benefit sharing of wildlife in Khata. Tangible benefits of having tigers or other wildlife in the community forest to local people in Khata are quite obscure apart from the obvious benefits to tourism operators and particular CFs. All tourists visiting the Khata corridor either go to hotels located around Bardiya National Park or the Dalla Homestays run by the Shiva CF. Given the corridor is connected by all the current 48 CFs and each CF has an equal role in making up the whole corridor and supporting wildlife, people belonging to CFs other than Shiva CF indicated that Shiva CF is taking all the tourism benefits. The interviewees questioned, “why only Shiva CF?” or “why only some households in Shiva CF?” This growing concern over the inequitable benefit sharing of tourism can have a negative impact on people’s continued participation in the conservation of tigers and other wildlife in the corridor.

The growing dependency on external agencies

Most recent developments including the awareness, and infrastructure such as fencing, watch towers, alternative cropping (Mentha), and alternative energy (biogas) have been possible with direct involvement of external agencies in terms of financial, technical and educational support. Regarding the ways of dealing with the growing damage from wildlife such as from leopards and elephants, the interviewees shared the view that “they hope they [the external agencies] will come up with some solutions” or “they should compensate us”. This indicates that there is a growing dependency of local people on external agencies and hence the continued involvement of the community is dependent on continuation of support from those agencies. Further, as indicated by the national construction of the tiger as “money hungry wild beast”, the national level technical and financial support to the local community will be influenced by support from global governmental and non-governmental agencies. Such global support again is influenced by many political and economic complexities.

The cost of human-animal conflict; compensation issues, jurisdictional complexities, and other dangerous animals

It is clear from the results that there is a significant conflict between humans and wildlife in Khata manifested in terms of livestock and crop depredation, stress from fear, and human injuries and casualties. There are many preventive measures such as fencing, alternative crops or watch towers. However, participants in this research reported that they have not received any compensation (one of the important conflict mitigation measures) from the government for

their loss. Even if there is government provision for compensation (Ministry of Forests and Soil Conservation, 2013), they reported that the process is too exhausting and the compensation is negligible compared to the loss. In an informal conversation, a TAL officer confirmed that there is a large number of compensation applications in the CFCC office, especially for leopard damage. She said that the fund allocated by TAL for compensation is too small and not enough to distribute among such a large number of applicants.

The community forests in Khata corridor adjoin the buffer zone area of Bardiya National Park. The community forests and the buffer zone areas fall under the jurisdiction of separate government departments, namely Department of Forests (DoF) and Department of National Parks and Wildlife Conservation (DNPWC), having separate policies for wildlife damage relief. This divides the people in Khata in terms of access to, and the amount of compensation. Interviewees stated that they are not getting compensation while the next door neighbours, belonging to the buffer zone, are getting compensation easily for the same scale of damages.

There is much literature showing that human conflict with wildlife generates negative attitudes towards wildlife and hence less support for their conservation, often leading to retaliation killing of wildlife (Dickman, 2010; Goodrich, 2010; Gurung et al., 2008; Manfredo & Dayer, 2004). Despite the noticeable wildlife damage, people in Khata have not yet reacted negatively to the wildlife. This tolerance is attributed to the prevailing positive constructions because positive construction of wildlife makes people more tolerant to wildlife damage. For example, some Hindu people in India are more tolerant towards damage caused by monkeys because of their construction of the monkey as a holy animal (Imam, Yahya, & Malik, 2002). But, the key question is how far this tolerance can go with increasing damage to local people?

In Khata, where leopards are currently doing significant damage to people's livestock and people are not getting compensation or preventive measures such as protective livestock pens, it is likely that the positive attitude towards wildlife may change to negative. There is a high chance that the negative attitude towards leopards might erode the whole positive constructions of tigers and all other wildlife. As reported by participants, the conflict with tigers was infrequent in the past in Khata. Goodrich (2010) suggests that the human-tiger conflict was reduced in most areas around the tiger range landscapes over the past century because there was less opportunity for conflict due to the declining number of tigers, reduced habitat and fewer people living around tiger habitats. However, according to recent monitoring there is a sharp increase

in tiger numbers, from 18 in 2009 to 50 in 2013 (WWF Nepal, 2013b), in Bardiya National Park and the management is increasingly putting efforts on meeting the goal of doubling the overall tiger numbers in Nepal. Even with the most effective preventive or mitigation approaches, some level of human-tiger conflict is inevitable whenever and wherever they co-exist. As captured by the construction “impending disaster” there is a high chance of intensified conflict with tigers which is, as participants reported, more serious involving bigger and more valuable livestock as well as human lives and hence is more unacceptable. This more serious nature of conflict with tigers means that the positive construction of tigers is more fragile.

In summary, the durability of the current positive construction of the tiger in Khata is highly dependent on how well the current conflict, particularly with leopards, is dealt with, including in a timely way and how the increasing number of tigers will accentuate the extent of the conflict.

To conclude, as shown in Figure 7, the current most powerful constructions, “holistic ecosystem indicator” at the global level and “prioritized protected animal” at the national level have hugely influenced the local constructions to be mostly “positive” about tiger conservation. However, durability of those local positive constructions is influenced by many other factors including how local people want to identify themselves, other economic development, benefits of tigers and equitable sharing of those benefits, dependency on external agencies, and the cost of human-animal conflict particularly the current conflict with leopards and predicted conflict with tigers and other wildlife in the context of their increasing numbers. In the following section, I will discuss how these insights can be helpful for the management. Meanwhile, I will explore the application of social constructionist approach to wildlife management through corridor management.

6.3 Application of SCT to better wildlife management

The above discussion focused on understanding the constructions of tiger at global, national and local levels and analysing tiger conservation in Khata corridor through the lens of Social Construction of Nature. The analysis identified six critical issues in regard to sustained tiger conservation efforts in Khata corridor. As set out in the objectives of the research, this section will focus on exploring the practical implication of SCT in wildlife management. Most previous research on the social construction of wildlife focused on analysing the conflicting meanings of

wildlife, and suggesting the ways of conflict resolution in a general management context, for example (Dizard, 1999), (Berngartt, 2004), (Schreiber, 2004), (Herda-Rapp & Goedeke, 2005), (Harker & Bates, 2007), (Carle, 2007), and (Qing-ming & Hong-gang, 2012).

This research, with its primary focus on a particular management approach (the landscape level conservation approach), a particular case (Khata corridor), and a particular native species (the tiger), argues that there are other implications of constructionist analysis beside conflict resolution. In order to progress this argument, I will focus on two key questions:

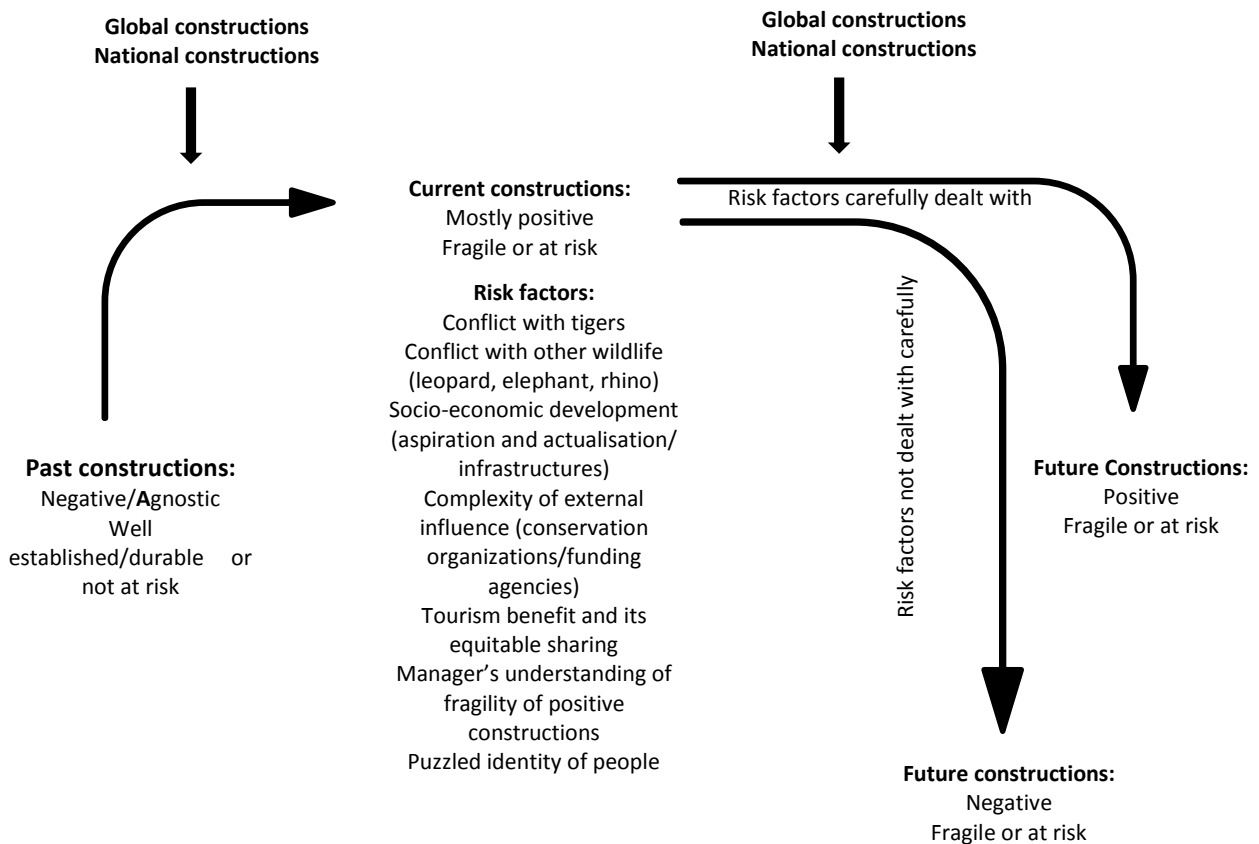
- (i) What insights from the above constructionist analysis might assist management?
- (ii) Which of these insights are not available through other research approaches?

One of the key inputs to management from the above analysis (section 6.2) is the understanding that tiger conservation in human dominated landscape is a social process as much as it is an ecological process. In other words, key step in connecting tiger's habitat patches (protected areas) through community-managed forest corridor involves deconstructing existing negative meanings of tigers and reconstructing "good" and "positive" meanings and maintaining those positive meanings. This understanding directs management's attention to sociological assessment for better management.

Another insight from the above analysis is that the prevailing mostly positive construction of tiger in Khata (highlights of progress reports and media) is not well established and hence the durability is questionable. Durability of the current seemingly positive constructions in Khata, which is highly influenced by the overwhelming popularity and recognition of the tiger as a key ecological entity in the global world, is dependent on many factors such as how people in the community want to identify themselves, the sustainability of external assistance, human conflict with tigers and other wildlife, and the benefits of tiger conservation and equitable sharing of those benefits. This analysis emphasized focusing on sustaining the positive constructions and identified the factors that need to be carefully dealt with for the sustained positive constructions. For example, the leopard is not a priority species in terms of conservation and hence gets less attention from the conservation organizations. But, the above analysis indicated that continued damage from leopards might also damage the positive construction of the tiger. This implies that management also needs to pay attention to leopard issues to achieve a sustained positive meaning or continued support for tiger conservation in Khata.

Based on the above discussion, Figure 8 depicts the trends of changing constructions, their durability, factors influencing the durability, and predicted trends of constructions. As suggested earlier, if the factors influencing the durability of prevailing positive constructions are carefully dealt with, it is likely that the positive constructions can remain unchanged with continued support for tiger conservation. However, some of those factors such as availability of external support, tourism benefits, and development aspirations are complex and filled with many uncertainties. Moreover, with an increasing number of tigers and other wildlife, there is a high chance of increasing human conflicts with tigers and other wildlife even with the best conflict mitigation measures put in place because the corridor is narrow and surrounded by forest dependent humans. This suggests that even if the positive constructions can be maintained in the future, they will still be fragile or at risk of change. This implies that management needs to continue dealing with those influencing factors as long as tiger conservation through Khata corridor management remains their priority.

Figure 8 Trends of changing construction of tigers in Khata



On the other hand, if those factors are not prioritized and dealt with in a timely way, there is a chance that the positive constructions may eventually turn into negative as indicated earlier. This is another key insight from this study that managers should consider because it is wise to deal with those influencing factors to sustain prevailing positive constructions now rather than invest huge resources and time to change the constructions once they have turned negative.

In addition, collection of past constructions and present constructions provides managers with an evaluative framework to see how constructions of tigers are changing in society or where the society is moving in terms of “knowledge” about the tigers, and to determine where management wants to go in the future. Similar research in the future will help determine where they have reached, what worked and what did not, and what should be done.

Some constructions may even return to past constructions, i.e., negative and agnostic (“who cares attitude”), if they were not attended by global and national constructions. However, this would seem unlikely as tiger conservation issues are dominantly influenced by science fed global and national positive constructions that are less likely to change.

Lastly, as mentioned before, the constructionist analysis helps managers to resolve conflicts by pointing out conflicting constructions and their nature, identifying people behind those constructions and the factors that contribute to those constructions, and analysing why such conflicting constructions occur.

Now, to answer the second question, that is, which of these insights are not available through other research approaches? Herda-Rapp & Goedeke (2005) stress that the dominating method of studying human-animal interaction, based on quantitative assessment of how people perceive wild animals or what their attitude are towards wild animals, provides an incomplete picture. The individual or group valuing, rating, and ranking does provide managers with information about how people might react to particular species but such quantitative assessment misses the important point as to why such orientations exist. Further, they do not provide a complete picture of which public orientations or values are more flexible and which are more stringent and what causes those orientations or values to be so. The constructionist analysis in this research has been able to capture and answer those questions. Many conventional research practices, even the qualitative assessments, try to deal with specific problems within the management frame with the aim of helping management. The constructionist analysis, unlike

other social qualitative research, provides a broader lens (out of the management frame) which can critically examine management issues, their aspirations, orientations, and the direction they are taking. For example, through this approach, this research could see the tiger's meaning as a "dire statistic" or a "holistic ecosystem indicator" as a construction by a culture rather than seeing them as the ultimate truth that current management seems to believe in. The constructionist approach can map out multiple constructions where the underlying assumption by managers and others alike is likely that there are only one or two or a few at most. This type of mapping is in itself a useful constructionist tool for managers.

The insights and conclusion from the above discussion show that the constructionist approach, or the social construction of Nature, can be a very effective and helpful approach to aid more effective and sustainable wildlife management.

6.4 Application of SCT to the landscape level conservation approach

As discussed in Chapter three, the large scale landscape level conservation approach is increasingly being highlighted as the most effective approach in conserving not only iconic wildlife but also the millions of other species within the landscape (Burke, 2000; Franklin, 1993). The long term survival of some species, such as tigers, has been argued to be entirely dependent on large scale landscape approaches (Wikramanayake et al., 1998; Wikramanayake et al., 2011). The primary objective of this ecology-based approach is to connect habitat patches through the management of corridors and bottlenecks for the movement and dispersal of wildlife. As pointed out earlier in Chapter three, most of the critical corridors are inhabited by humans in human dominated landscapes such as TAL. Conventional wildlife conservation approaches mostly focus on protected areas where wildlife and human interaction and hence conflicts occur mostly in buffer zone areas. The increasing focus on the landscape approach through corridor management offers a new space for interaction and chances of conflict with wildlife in areas other than buffer zones where numerous studies have already been conducted. This opens up a new area of sociological inquiries to help mitigate conflicts or better manage corridors to allow movement of wildlife. This provides an opportunity for the constructionist approach, which is claimed to have potential in such sociological inquiries, while conventional research approaches have been deemed insufficient as discussed earlier.

I have shown in section 6.3 that the constructionist approach can significantly aid effective and sustained management of a single species focused wildlife corridor in a human dominated landscape. This provides the basis for the management application of constructionist approaches to large scale landscape approach to conservation in general. Such a conservation landscape is considered as a single management unit having a specific ecological trait. Given its large size, the conservation landscape often encompasses many biological corridors and bottlenecks as well as diverse human cultures with diverse meanings of wildlife. For example, people may view tigers in Basanta corridor or Khata corridor in TAL Nepal or in Koshi River corridor in TAL India differently shaped by their own historical and cultural contexts. Hence, one approach of successful transformation of meanings of tigers might not work in another culture within the same management unit. This indicates that managers should map out those varied meanings of tigers and the underlying social processes among the corridors within the landscape to successfully deal with those meanings to achieve the tiger conservation goal on a large scale with sustained and meaningful local participation and support. Hence, in general, it can be argued that the constructionist research approach can be a very useful tool to help management in conservation of large wild animals, such as tigers, when applying the large scale landscape approach. Further research by mapping out constructions within a landscape can provide more evidence based arguments.

Another potential area for application of the constructionist approach in landscape approach to conservation could be through looking at how meaning of the whole landscape transforms while defining a large landmass as a conservation landscape. Constructionists hold that the very landscape and its components exist as, often varied, symbolic representations in the community (Greider & Garkovich, 1994). According to Penning-Rowsell (1986), the creation of landscape is assertion of power over the local perception and cognition of landscape. That means a new definition of landscape in the context of wildlife conservation itself is an act of asserting the power of modern ecological understanding over local perception and cognition of landscape.

6.5 Summary

This chapter analysed the social constructions of tiger presented in Chapter 5 through the “moderate constructionist” approach and the lens of Social Construction of Nature against the backdrop of the landscape approach to conservation. Through the analysis, six issues relevant to better and sustained tiger conservation management in Khata were identified and discussed as

to how these issues can be incorporated into the current management regime. This analysis provided a firm basis to argue that application of the constructionist approach, particularly moderate constructionism within the social construction of Nature, can be an important tool to aid improved and sustained tiger conservation management and to overall wildlife management through the large scale landscape approach generally.

Chapter 7 Conclusion

This chapter summarizes the major findings of the thesis, their implications, and provides recommendations to the concerned stakeholders and for further research. In addition, this chapter will revisit the theory and analysis framework to reflect on the major learnings from the study.

7.1 Summary of the key findings

The findings of this research imply that continued community support for tiger conservation in Khata corridor is questionable, particularly in the context of increasing human-wildlife conflict. This may require management either to compromise with their conservation goals or to appropriately deal with the conflicts and other issues that are associated with sustaining the prevailing positive constructions of tiger in Khata.

Following are the key findings of this thesis:

- There has been a huge transformation in meaning of tigers in Khata corridor from the period prior to and post Terai Arc Landscape (TAL) program. The more “negative” or “agnostic” constructions of tiger have changed to “mostly positive” since the implementation of the TAL.
- The transformation in constructions is an outcome of a complex social process involving the negotiation of meaning between an overarching global tide of saving tigers which has reached to local people in various forms and local people’s own experience-based meaning of tigers
- The current widely prevalent positive constructions in Khata are fragile because these constructions are attached with many uncertainties such as conflict with the tigers, sustained external assistance, development aspirations and actualisation, and realization of tangible benefits of tigers and equitable sharing of those benefits among local people
- The constructionist approach can be helpful in promoting improved and sustained management of wildlife through understanding of social meaning making processes, durability of meanings, and factors associated with the durability of meanings. This also helps in evaluating how meaning of wildlife is changing against the management interventions and determining future management direction. In addition, the approach

helps in conflict resolution by providing the understating of roots of conflicting meanings over wildlife.

- Application of the constructionist approach holds significant potential in implementing the large scale landscape approach to conservation by helping in mapping out the varied meanings of wildlife species and the underlying social processes in different cultures within a single management unit of the landscape. This can assist managers in achieving sustained local participation in conservation.

7.2 Reflecting back to the theory and the framework

I found the moderate constructionist approach under social construction of Nature very useful to understand the relationships between humans and wildlife. It was interesting to know how meanings of one wildlife species, the tiger, are diversely scattered in different cultures at different levels and how interactions among those meanings ultimately determine its fate in their habitats. The understanding that tiger conservation management is trying to overlay one reality of tigers over its other realities was fascinating. However, viewing the ecological facts about tigers or the results of the scientific survey as mere social constructions among several other constructions helps little. The focus of the moderate constructionists should be on understanding the social processes of transformation of constructions so that more accurate and scientifically sound constructions can be carefully and sustainably transplanted over unscientific and detrimental constructions.

As input to the theory, this research, with further evidence, maintained the claim from previous works that constructionist research can be a useful complement to natural science based wildlife management. In addition, this research pointed out that the emerging large scale landscape approach to conservation is a potential area for constructionist approach to further its practical application through spatially mapping diverse meanings of wildlife within a management unit. Moreover, this research added a fresh analysis of an endangered species to the limited body of constructionist literature on wildlife.

I found the framework developed by Bergartt (2004) very effective in identifying constructions through the social construction lens and exploring management implications through analysing the constructions against the management lens. Though I adopted the two lens approaches, I presented the findings of the construction lens differently (see Figure 7). Presenting social

constructions as in Figure 7 is very effective in putting them into a theoretical context. It can explicitly show multiple meanings of the same physical reality, how constructions are connected, at what level and how they are changing over time. Another benefit of this way of presentation is that people can identify which construction at what level they tend to hold, what the other constructions are, what are helpful for them and what are not. The successful use of Bergartt's (2004) two lenses approach and the new effective ways of presenting constructions contribute to the development of social construction of Nature as a research paradigm.

This research focused more on the "ideas" about tigers than on who are behind those ideas, which were sufficient for the theoretical discussion and to imply practical implications. However, it is realized that more information, such as what kind of people with what background, what education level, from which community forest, how many of them or what percentage are behind each construction would be more useful to help managers deal with such constructions. This is one limitation of the research. However, categorizing participants into younger and older groups was very effective in generating present and past constructions and to see the changing constructions and the underlying processes.

7.3 Recommendations

The following recommendations are made based on the findings of this study.

7.3.1 Policy recommendations

There have been commendable efforts in building preventive infrastructure, such as fences and watch towers, for mitigating human-wildlife conflicts but Khata still lacks an efficient wildlife damage relief mechanism. Since, community managed forest corridors have been playing a special role in conservation of mega fauna of Nepal unlike other community forests, such corridors need special policy attention in terms of dealing with human-wildlife conflicts. The current Wildlife Damage Relief Guideline 2013 of the Ministry of Forests and Soil Conservation, by setting up the same provisions for all community forests, overlooks the special role of community managed forest corridors. Hence it is necessary for the Ministry to coordinate with TAL program to formulate a special provision for compensation mechanism for the critical corridors. Community Forests Coordination Committees (CFCCs) can be used for the efficient release of wildlife damage compensation and relief for the damage within such corridor areas.

There is a need for a special guideline for the development of infrastructure in critical corridors to ensure that they are wildlife friendly, such as road underpasses or flyovers for the movement of wild animals. This requires many government agencies to coordinate particularly the Department of National Parks and Wildlife Conservation (DNPWC), and Department of Forests (DoF) under the Ministry of Forests and Soil Conservation and the other concerned departments and ministries such as the Ministry of Physical Infrastructure and Transport, and Ministry of Physical Planning and Works.

There has been a continuous effort to minimize damage from human-tiger conflict but the damage to people's lives and property have been overshadowed by the highly emphasized tiger population monitoring results. This tendency of portraying only "good and well flourishing" tigers could be dangerous to the sustainability of the tiger conservation program in Nepal. This requires tiger conservation agencies in Nepal, particularly DNPWC and TAL program, to keep up to date records of human-tiger conflict incidents and publicize it to reflect the real situation so that more attention and support can be given to mitigating such conflicts.

7.3.2 Management recommendations

As indicated in Chapter six, the TAL program should focus on expanding and sustaining the positive constructions of tiger by understanding the influencing factors for such constructions and dealing with those factors.

There is an urgent need to address the widespread damage caused by leopards otherwise it may generate a negative attitude towards all wildlife conservation in the area. Although there has been significant human-wildlife conflict prevention infrastructure constructed, the TAL program should ensure that they are functioning well and update such infrastructure as the nature of conflicts are changing. For example, leopards were a relatively minor problem before but they have become the biggest problem which is not prevented by existing infrastructure.

Concurrently, the TAL program should intensify their effort in managing livestock to reduce the risk of damage from wildlife, such as by providing protective animal pens, providing alternatives to livestock keeping and initiating livestock insurance programs.

The TAL program should focus on human safety by providing education and training to local people on how to avoid contact with dangerous wildlife, not to allow children and old people to

walk unsafely through dangerous routes, and by setting up rescue teams with trained human resources and equipment to help in case of emergency.

As the meaning of tiger was found to be highly associated with expected benefits from tourism, TAL program and CFCC should communicate only the expected measurable and achievable benefits of tiger tourism rather than rhetoric. CFCC should focus on identifying other tourism activities in other areas of the corridor so that other community forests also realize the benefit of tourism which currently concentrates mostly in one community forest.

7.3.3 Further research

Long term research is needed to explore the relation between the number of tigers or other wildlife and the nature and scale of the conflicts in Khata corridor so that future trends with the increasing number of tigers and other wildlife can be predicted and preventive measures can be implemented.

Research looking at the social construction of tigers in Khata (similar to this) should be conducted frequently (probably every 5 years) to evaluate changes in meanings and factors associated with such changes. This will help determine more effective management interventions and also provide lessons for other similar corridor management programs.

To further explore the applicability of social construction theory on the landscape approach to conservation, research similar to this should be conducted in other corridors of the same conservation landscape, for example in Koshi River corridor in India under TAL, to compare the meanings of the tigers and the underlying social processes. This will show varied constructions of the tiger and social meaning making processes in different socio-cultural and political settings under the same wildlife management unit. As discussed earlier, such mapping of social constructions would assist managers to achieve sustained local support for tiger conservation. Researchers can apply this approach to research on other wildlife species whose long term protection requires large habitat such as the endangered snow leopards in the high mountains. Such research would further justify the application of the theory to wildlife management and to the large scale landscape approach to conservation.

References

- Aldrich, H. E., & Martinez, M. A. (2010). Entrepreneurship as social construction: A multilevel evolutionary approach. In *Handbook of Entrepreneurship Research* (pp. 387-427): Springer.
- Alexander, J. (2009). The social construction of moral universals. *Remembering the Holocaust: A debate*, 3-104.
- Alland, A. (1998). Don't cut the pie yet! *American Anthropologist*, 100(4), 1026-1029.
doi:10.1525/aa.1998.100.4.1026
- Andrews, T. (2013). What is social constructionism? *Grounded theory review*, 12(1).
- Babbie, E. (2010). *The practice of social research* (12 ed.): Wadsworth, Cengage Learning.
- Barnes, T. G. (2000). Landscape Ecology and Ecosystems Management *University of Kentucky. College of Agriculture*
- Bennet, D. (2009). Critical rationalism (After Popper). In *International encyclopedia of human geography* (pp. 369-378): Elsevier Inc.
- Berger, P. L., & Luckmann, T. (1967). *The social construction of reality: A treatise in the sociology of knowledge*: Anchor Books.
- Bergartt, R. M. (2004). *Determining and integrating social frames of reference into the management of Himalayan tahr in New Zealand*. Lincoln University.
- Bhujju, D. R., & Tuladhar, A. R. (2011). *Landscape conservation approach in Nepal*
- Blomley, T., Maharjan, M. R., & Meshack, C. (n.d.). *Exploring the rationale for benefit sharing in community forestry: Experience from Tanzania and Nepal* Retrieved from http://www.forestrynepal.org/images/02-%20Presented%20Papers%20and%20Powerpoints/Theme%203/Paper/05-%20Blomley%20et%20al_Tanzania%20Nepal.pdf
- Blumer, H. (1969). Symbolic interactionism: Perspective and method. In. Englewood Cliffs, New Jersey: Prentice-Hall Inc.
- Blummer, H. (Ed.). (1990). *Industrialization as an agent of social change: A critical analysis*. New York: Aldine de Gruyter.
- Boogaard, B., Bock, B., Oosting, S., & Krogh, E. (2010). Visiting a farm: An exploratory study of the social construction of animal farming in Norway and the Netherlands based on sensory perception. *International Journal of Sociology of Agriculture and Food*, 17(1), 24-50.
- Bright, M. (2000). *Man-Eaters*. New York: St. Martins.
- Buckley, R. (2012). Endangered animals caught in the tourist trap. *New Scientist* Retrieved from <http://www.newscientist.com/article/mg21628860.200-endangered-animals-caught-in-the-tourist-trap.html#.Ut-Qz9KBpFk>
- Burke, V. J. (2000). Landscape ecology and species conservation *Landscape ecology* 15, 1-3.
- Burr, V. (2003). *Social constructionism (2nd Ed)*. London: Routledge.
- Carle, C. J. (2007). *Salmon "framing" in New Zealand: How differing "frames of references" of chinook/quinnat salmon (Oncorhynchus tshawytscha) influence current management approaches*. Lincoln University.
- Carter, N. H., Riley, S. J., Shortridge, A., Shrestha, B. K., & Liu, J. (2013). Spatial assessment of attitudes toward tigers in Nepal. *A journal of the human environment*, 42(5).
doi:10.1007/s13280-013-0421-7
- Castree, N., & Braun, B. (2001). *Social nature: Theory, practice, and politics*. Malden, MA: Blackwell.
- Central Bureau of Statistics Nepal, & Central Bureau of Statistics Nepal. (2012). *Protected areas of Nepal's national parks, wildlife reserves, hunting reserves, conservation area and bufferzones* Kathmandu.
- Chundawat, R. S., Habib, B., Karanth, U., Kawanishi, K., Khan, J. A., Lynam, T., . . . Wang, S. (2011). *Panthera tigris*. In *IUCN 2013. IUCN red list of threatened species. Version 2013.1*. Retrieved from www.iucnredlist.org. Retrieved 24/09/2013
- Clawson, M. A. (1989). *Constructing brotherhood: Class, gender, and practices*. Baltimore: John Hopkins University Press.

- Cole, S. (1992). *Making science: Between nature and society*. Cambridge, M. A. : Harvard University Press.
- Conrad, P., & Barker, K. K. (2010). The Social Construction of Illness Key Insights and Policy Implications. *Journal of Health and Social Behavior*, 51(1 suppl), S67-S79.
- Cromby, J., & Nightingale, D. J. (1999). What's wrong with social constructionism? In D. J. Nightingale & J. Cromby (Eds.), *Social construction psychology. A critical analysis of theory and practice*. Buckingham: Open University Press.
- Crompton, H. P. (2005). *The social construction of orphan drugs: Innovation through knowledge networks*. Manchester: Manchester Metropolitan University.
- Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. St Leonards, NSW: Allen and Unwin.
- Curt, B. C. (1996). Discourse analysis. *The year's work in critical and cultural theory. Oxford Journals*, 6(1), 111-123.
- Curtin, S., & Academia.edu. (2011). *Tiger, tiger burning bright: Is tourism a blessing or a blight?* .
- Demeritt, D. (Ed.). (2001). *Being constructive about nature*. Malden: MA: Blackwell Publishers.
- Denzin, N. K., & Lincoln, Y. S. (2005). The discipline and practice of qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *The sage handbook of qualitative research* (3 ed.). Thousand Oaks, California: Sage
- Department of National Parks and Wildlife Conservation. (2007). *Tiger conservation action plan for Nepal (2008-2012)*. Kathmandu Government of Nepal, Ministry of Forest and Soil Conservation, Department of National Parks and Wildlife Conservation.
- Derrida, J. (1976). *Of grammatology (trans. By G. Spivak)*. Baltimore, MD: Johns Hopkins University Press.
- DiCicco-Bloom, B., & Crabtree, B. F. (2006). Making sense of qualitative research: The qualitative research interview. *Medical education*, 40, 314-321.
- Dickman, A. J. (2010). Complexities of conflict: The importance of considering social factors for effectively resolving human-wildlife conflict. *Animal Conservation*, 13, 458-466. doi:10.1111/j.1469-1795.2010.00368.x
- Didier, K. A., Glennon, M. J., Novaro, A., Sanderson, E. W., Strindberg, S., Walker, S., & Martino, S. D. (2009). The landscape species approach: Spatially-explicit conservation planning applied in the Adirondacks, USA, and San Guillermo-Laguna Brava, Argentina, Landscapes. *Fauna and Flora International, Oryx*, 43(4), 476-487.
- Dijk, T. A. V. (1985). *Handbook of discourse analysis*. London: Academic Press.
- Distefano, E. (2005). Human-Wildlife Conflict worldwide: collection of case studies, analysis of management strategies and good practices. *Food and Agricultural Organization of the United Nations (FAO), Sustainable Agriculture and Rural Development Initiative (SARDI), Rome, Italy*. Available from: *FAO Corporate Document repository* <http://www.fao.org/documents>.
- Dizard, J. E. (1999). *Going wild: hunting, animal rights, and the contested meaning of nature*. Amherst: University of Massachusetts Press.
- DNPWC. (2007). *Tiger Conservation Action Plan for Nepal*. Kathmandu: Department of National Parks and Wildlife Conservation, Ministry of Forests and Soil Conservation, Government of Nepal.
- Easton, G. (2002). Marketing: a critical realist approach. *Journal of business research*, 55, 103-109.
- Edder, K. (1996). *The social construction of nature: A sociology of ecological enlightenment*. London: SAGE.
- Edvardsson, B., Tronvoll, B., & Gruber, T. (2011). Expanding understanding of service exchange and value co-creation: A social construction approach. *Journal of the Academy of Marketing Science*, 39(2), 327-339.
- El-Amir, A., & Burt, S. (2010). Towards modeling the retailer as a brand: A social construction of the grocery store from the customer standpoint. *Journal of Brand Management*, 17(6), 429-445.
- Fairhurst, G. T., & Grant, D. (2010). The social construction of leadership: A sailing guide. *Management Communication Quarterly*, 24(2), 171-210.
- Ferraris, M., & Serge, A. T. (1988). Postmodernism and the deconstruction of modernism. *Design issues*, 4(1/2).

- Feyerabend, P. (1978). *Against method*. New York: Humanities.
- Flanagin, A. J., Flanagin, C., & Flanagin, J. (2010). Technical code and the social construction of the internet. *new media & society*, 12(2), 179-196.
- Franklin, J. F. (1993). Preserving biodiversity: Species, ecosystems, or landscapes? *Ecological Applications*, 3(2), 202-205.
- Friedmann, J. (2005). *The world is flat: A brief history of the twenty-first century*. New York: Farrar Straus and Giroux.
- Garkovich, T. G. L. (1994). Landscapes: The social construction of nature and the environment. *Rural sociology*, 59(1), 1-24.
- Gee, J. P. (1999). *An introduction to discourse analysis: Theory and method*. London and New York: Routledge.
- Gergen, K. J. (2001). *Social construction in context*. London, GBR: SAGE.
- Gergen, K. J. (2011). The self as social construction. *Psychol stud*, 56(1), 108-116. doi:DOI 10.1007/s12646-011-0066-1
- Global Tiger Initiative Secretariat. (2011). *The Global Tiger Recovery Program (GTRP)*. Washington: The world bank.
- Goedeke, T. L. (Ed.). (2005). *Devils, angels or animals: The social construction of otters in conflict over management* (Vol. 2). Leiden, Boston: Brill.
- Goode, E., & Ben-Yehuda, N. (2010). *Moral panics: The social construction of deviance*: Wiley. com.
- Goodrich, J. M. (2010). Human-tiger conflict: A review and call for comprehensive plans. *Integrative Zoology*, 5, 300-312. doi:10.1111/j.1749-4877.2010.00218.x
- Green, S. (2006). *Tiger*. London: Reaktion Books.
- Greider, T., & Garkovich, L. (1994). Landscapes: The social construction of nature and the environment *Rural sociology*, 59(1), 1-24.
- Gupta, A. C. (1964). *West Bengal Forest, Centenary Commemoration Volume*: Cited in Managing the Human Tiger Interface, Mukherjee, S. http://www.globaltigerinitiative.org/download/New_Delhi/110328-India_Sundarban_Human_Tiger_Conflict.pdf. Retrieved. 9.15.2012.
- Gurung, B., Smith, J. L. D., McDougal, C., Karki, J. B., & Barlow, A. (2008). Factors associated with human-killing tigers in Chitwan National Park, Nepal. *Biological Conservation*, 141, 3069-3078.
- Hacking, I. (1999). *The social construction of what?* Cambridge, London: Harvard University Press.
- Hancock, C. L. (1999). *Social construction theory: Relativism's latest fashion*. Retrieved from <http://maritain.nd.edu/ama/Sweetman/>
- Hare, P. H. (1991). Pragmatism without foundations: Reconciling realism and relativism by Joseph Margolis (review). *Nous*, 25(4), 578-580.
- Harker, D., & Bates, D. C. (2007). The black bear hunt in New Jersey: A constructionist analysis of an intractable conflict *Society and animal*, 17, 329-352.
- Harman, G. (1982). Metaphysical realism and moral relativism: Reflection on Hilary Putnam's reason, truth and history. *Journal of philosophy*, 79(10), 568-575.
- Harre, R. (1986). *The social construction of emotions*. Oxford: Blackwell.
- Hayles, N. K. (Ed.). (1995). *Searching for common ground*. Washington DC: Island Press.
- Herda-Rapp, A., & Goedeke, T. L. (Eds.). (2005). *Mad about wildlife: Looking at social conflict over wildlife* (Vol. 2). Leiden, Boston: Brill.
- Herda-Rapp, A., & Marotz, K. G. (Eds.). (2005). *Contested meanings: The social construction of the mourning dove in wisconsin* (Vol. 2). Leiden. Boston: Brill.
- Hermans, C. A. M. (2002). *Social constructionism and theology* (Vol. 7). Leiden; Boston: Brill.
- Hewitt, J. P. (2009). The Social Construction of Self-Esteem. *Oxford handbook of positive psychology*, 217.
- Hilty, J. A., Jr., W. Z. L., & Merenlender, A. M. (2006). *Corridor ecology: The science and practice of linking landscapes for biodiversity conservation* Washington, Covelo, London: Island Press.
- Illich, I. (2010). The Social Construction of Energy. *New Geographies 2: Landscapes of Energy*, 11-19.

- Imam, E., Yahya, H., & Malik, I. (2002). A successful mass translocation of commensal rhesus monkeys *Macaca mulatta* in Vrindaban, India. *Oryx*, 36(1), 87-93.
- Ingegnoli, V. (2002). *Landscape Ecology: A widening Foundation* Springer.
- Irwin, A. (2001). *Sociology and the environment*. Cambridge: Polity Press.
- Jackson, P. (2010). Fifty years in the tiger world: An introduction. In R. Tilson & P. J. Nyhus (Eds.), *Tigers of the world: The science, politics, and conservation of panthera tigris* (2 ed.). Amsterdam: Elsevier.
- Jackson, R. L., Drummond, D. K., & Camara, S. (2007). What is qualitative research? *Qualitative research reports in communication*, 8(1), 21-28.
- Jalais, A. (2008). *Unmasking the cosmopolitan tiger*:
<http://www.berghahnbooks.com/journals/nc/index.php>
- Järvensivu, T., & Törnroos, J.-Å. (2010). Case study research with moderate constructionism: Conceptualisation and practical illustration. *Industrial marketing management*, 39, 100-108.
- Kanagaraj, R., Wiegand, T., Kramer-Schadt, S., Anwar, M., & Goyal, S. P. (2011). Assessing habitat suitability for tiger in the fragmented Terai Arc Landscape of India and Nepal *Ecography*, 34, 970-981.
- Karant, K. U. (2003). Tiger ecology and conservation in the Indian subcontinent. *Journal of the Bombay Natural History Society*, 100(2 & 3), 169-189.
- Karki, J. B., Jnawali, S. R., Gurung, G. S., Pandey, M. B., & Upadhyay, G. P. (2011). Tiger conservation initiative in Nepal. *The initiation*, 4, 59-68.
- KCMC. (n.d.). *Traditional chinese medicine and tigers*. Retrieved 15/11/2013, 2013, from
http://www.tigersincrisis.com/traditional_medicine.htm
- Khadka, D., & Nepal, S. K. (2010). Local responses to participatory conservation in Annapurna Conservation Area, Nepal *Environmental Management* 45(2), 351-362.
- Khata Community Forest Coordination Committee. (2008). *Samrakshan abhiyan ma Khata samanwaya samitiko prayas [Efforts of khata community forest coordination committee in conservation movements]*. Khata, Bardiya.
- Kidner, D. W. (2000). Fabricating nature: a critique of the social construction of nature. *Environmental Ethics*, 22, 339-357.
- Kitchener, A. C., & Yamaguchi, N. (2010). What is a tiger? biogeography, morphology, and taxonomy. In R. Tilson & P. J. Nyhus (Eds.), *Tigers of the world: the science, politics, and conservation of panthera tigris*: Elsevier.
- Koirala, P. N. (2007). *Benefit sharing in community forests in Nepal: A case study in Makawanpur district of Nepal* Wangenigen University
- Kowert, P. A. (2010). Foreign policy and the social construction of state identity. *The International Studies Encyclopedia*. Hobokon, NJ: Wiley-Blackwell, <http://www.isacompendium.com/public/>, accessed, 2.
- Kuhn, T. S. (1962). *The structure of scientific revolutions*. Chicago: University of Chicago Press.
- Latour, B., & Woolgar, S. (1986). *Laboratory life: The construction of scientific facts*. Princeton: Princeton University Press.
- Letourneau, N., & Allen, M. (1999). Post-positivistic critical multiplism: A befinning dialogue. *Journal of advanced nursing*, 30(3), 623-630.
- Lincoln, Y. S., & Guba, E. G. (2000). Paradigmatic controversies, contradictions, and emerging confluences. In D. N.K. & Y. S. Lincoln (Eds.), *Handbook of qualitative research*. London: Sage.
- Luo, S.-J., Johnson, W. E., Martenson, J., Antunes, A., Paolo Martelli, Uphurkina, O., . . . O'Brien, S. J. (2008). Subspecies genetic assignments of worldwide captive tigers increase conservation value of captive populations. *Current biology*, 18, 592-596.
- Malla, Y. B., Neupane, H. R., & Branney, P. J. (2003). Why aren't poor people benefiting more from community forestry? *Journal Forest and Livelihood*, 3(1), 78-92.
- Manfredo, M. J., & Dayer, A. A. (2004). Concepts for exploring th social aspects of human-wildlife conflict in a global context *Human dimension of wildlife*, 9, 317-328.
- Manjikian, M. (2013). Positivism, post-positivism and intelligence analysis. *International journal of intelligence and counter intelligence*, 26, 563-582. doi:10.1080/08850607.2013.758002

- Mannheim, K., & Kecskemeti, P. (1952). *Essay on the sociology of knowledge*. London: Routledge & Kegan Paul.
- Margolis, J. (1986). *Pragmatism without foundations: Reconciling realism and relativism*. Oxford and New York: Basil Blackwell.
- Marsden, T., & P. Milbourne, e. a. (2003). Communities in nature: the Construction and understanding of forest natures. *Sociologia Ruralis*, 43(3), 238-+.
- Marshall, A. (2013). Sensuous Sapphires: A Study of the Social Construction of Black Female. *Researching Women's Lives From A Feminist Perspective*, 106.
- McCormick, C. (1995). *Constructing danger: The mis/representation of crime in the news*. Halifax, N. S. : Fernwood.
- McFarlane, J. (2011). *Cutting up the high country: The social construcion of tenure reveiw and ecological sustainability*. Lincoln University
- McGregor, S. L. T., & Murnane, J. A. (2010). Paradigm, methodology and method: Intellectual integrity in consumer sholarship. *International journal of consumer studies*, 34, 419-427.
- McIlveen, P., & Schultheiss, D. E. (Eds.). (2012). *Social constructionism in vocational psychology and career development* (Vol. 4). Rotterdam: Sense Publisher.
- Miller, G., & Holstein, J. A. (Eds.). (1993). *Reconsidering social constructionism*. New York: Aldine De Gruyter.
- Ministry of Forests and Soil Conservation. (2013). *Banyajantubata hune kshatiko rahat sahayog nirdeshika, 2069 [Guideline for wildlife damage relief, 2013]*. Kathmandu: Government of Nepal, Ministry of forests and soil conservation
- Ministry of Forests and Soil Conservation Nepal. (2004). *Terai Arc Landscape Nepal strategic plan*. Kathmandu: His Majesty's Government of Nepal
- Mishra, H. (2010). *Bones of the tiger: Protecting the man-eaters of Nepal*. Guilford: Globe Pequote.
- Mountfort, G. (1974). International efforts to save the tiger from extinction. *Biological Conservation*, 6(1), 48-53.
- Moussa, H. (1992). *The social construction of women refugees: A journey of discontinuities and continuities*. University of Toronto.
- Murno, L. (1997). Framing cruelty: The construction of duck shooting as a social problem. *Society and animal*, 5(2), 137-154.
- National Parks and Wildlife Conservation Act 1973.
- Neupane, H. R. (2003). Contested impact of community forestry on equity: Some evidences from Nepal *Journal Forest and Livelihood*, 2(2), 55-61.
- Nugraha, R. T., & Sugadjito, J. (2009). Assessment and managemet options of human tiger conflicts in Kerinci Sebat National Park, Sumatra, Indonesia. *Mammal Study* 34(3), 141-154.
- Nyhus, P. J., & Tilaon, R. (2004). Charaterising human-tiger conflict in Sumatra, Indonesia: implications for conservation. *Oryx*. Vol.38, 68-74.
- Nyhus, P. J., & Tilson, R. (2004). Characterizing human-tiger conflict in Sumatra, Indonesia: Implications for conservation. *Oryx*, 38(1), 68-74. doi:10.1017/S0030605304000110
- Olin-Lauritzen, S., & Hyden, L. C. (2007). *Medical technologies and the life world: The social construction of normality*. Abingdon, Oxon, UK, New York: Routledge.
- Penning-Rowsell, E. C. (Ed.). (1986). *Themes, speculation and an agenda for landscape research* London Allen and Unwin
- Perrin, R. D., & Miller-Perrin, C. L. (2011). Interpersonal violence as social construction: The potentially undermining role of claims making and advocacy statistics. *Journal of interpersonal violence*, 26(15), 3033-3049.
- Peterson, A. (1999). Environmental ethics and the social construction of nature. *Environmental ethics*, 21(4), 339-357.
- Pettenger, M. E. (2013). *The Social Construction of Climate Change: Power Knowledge Norms Discourses*: Ashgate Publishing.
- Pickering, A. (1984). *Constructing quarks: a sociological history of particle physics*. Edinburgh: Edinburgh University Press.

- Pickering, A. (1997). Sociology of knowledge and the sociology of scientific knowledge. *Social epistemology*, 11(2), 187-192.
- Pinker, S. (2002). *The blank slate: The modern denial of human nature*. New York: Viking.
- Polanyi, L. (1985). Conversational storytelling. In T. A. V. Dijk (Ed.), *Handbook of discourse analysis* (Vol. 3). London, Orlando: Academic press.
- Popper, K. (1968). *Conjectures and refutations: The growth of scientific knowledge*. New York: Harper & Row.
- Pradhan, S. B. (1998). *Nepal tiger* Kathmandu Explore Nepal
- Proctor, J. D. (1998). The social construction of nature: Relativist accusations, pragmatist and critical realist responses. *Annals of the Association of American Geographers*, 88(3), 352-376.
- Qing-ming, C., & Hong-gang, X. (2012). The myth of wild elephants: A social constructive analysis of elephant-human conflicts in wild elephants valley. *Tourism Tribune*, 27(5), 49-56.
- Ranganathan, J., Chan, K. M. A., Karanth, K. U., & Smith, J. L. D. (2008). Where can tigers persist in the future? A landscape-scale, density-based population model for the India subcontinent. *Biological Conservation*, 141, 67-77.
- Roca, J. Q. R., Morgan, A. J., & Marthur, A. (2009). *Smart green infrastructure in tiger range countries: A multi-level approach*: Global Tiger Initiative (GTI-SGI Working Group)
- Rolston, H. (Ed.). (1997). *Nature for real: is nature a social construct?* Edingurgh: University of Edingurgh press.
- Russell, L. D., & Babrow, A. S. (2011). Risk in the making: Narrative, problematic integration, and the social construction of risk. *Communication Theory*, 21(3), 239-260.
- Sandler, I. (1980). Modernism, revisionism, pluralism, and post-modernism. *Art journal*, 40(1/2), 345-347.
- Scarce, R. (1999). Who- or what- is in control here? Understanding the social context of Salmon biology. *Society and natural resources*, 12, 763-776.
- Scarce, R. (2000). *Fishy business: salmon, biology, and the social constructions of nature*. Philadelphia: Temple University Press.
- Scarce, R. (2005). *More than mere wolves at the door: Reconstructing community amidst wildlife controversy*. Leiden. Boston.: Brill.
- Schaller, G. B. (2010). Foreword. In R. Tilson & P. J. Nyhus (Eds.), *Tigers of the world: the science, politics, and conservaiton of panthera tigris* (2 ed.). Amsterdam: Elsevier.
- Schreiber, D. (2004). *The social construction of salmon farming in British Columbia: power, knowledge, and production*. Ottawa: National Libray of Canada.
- Seidensticker, J., Gratwicke, B., & Shrestha, M. (2010). How many wild tigers are there? an estimate for 2008. In R. Tilson & P. J. Nyhus (Eds.), *Tigers of the world: the science, politics, and conservation of panthera tigris* (2 ed.). Amsterdam: Elsevier.
- Semin, G. R., & Gergen, K. J. (1990). *Everyday understanding: social and scientific implications*. London, Newbury Park. New Delhi: SAGE publication.
- Small, E. (2011). The new Noah's Ark: Beautiful and useful species only. Part 1. Biodiversity conservation issues and priorities. *Biodiversity*, 12(4), 232-247.
doi:10.1080/14888386.2011.642663
- Smith, J. L. D., McDougal, C., Gurung, B., Shrestha, N., Shrestha, M., Allendorf, T., . . . Dhakal, N. (2010). Securing the future for Nepal's tigers: lessons from the past and present. In R. Tilson & P. J. Nyhus (Eds.), *Tigers of the world: the science, politics, and conservation of panthera tigris* (2 ed.). Amsterdam: Elsevier.
- Sokal, A., & Bricmont, J. (1998). *Fashionabe nonsense: Postmodern intellectuals' abuse of science*. New York: Picador.
- Spaargaren, G., & Mol, A. P. J. (2000). *Environment and global modernity*. Lodon: Thousand Oaks, Calif, Sage.
- Speer, S. A. (2000). Lets get real? feminism, constructionism and the realism/relativism debate. *Feminism and psychology*, 10(4), 519-530.
- Steele, R. G. (2012). The social construction of professional mentorship. *Journal of pediatric psychology*, 38(2), 126-131.

- Stibble, A. (2001). Language, power and the social construction of animals. *Society and animal*, 9(2), 145-161.
- Sunquist, M. (2010). What is tiger? Ecology and behaviour. In R. Tilson & P. J. Nyhus (Eds.), *Tigers of the world: The science, politics and conservation of panthera tigris* (2 ed.). Amsterdam: Elsevier.
- Tax, S. (1990). Can world views mix? *Human Organization* 49, 280-286.
- Thirgood, S., & Redpath, S. (2008). Hen harriers and red grouse: Science, politics and human-wildlife conflict. *Journal of Applied Ecology*, 45(5), 1550-1554.
- Tolich, M., & Davidson, C. (1999). *Starting fieldwork: An introduction to qualitative research in New Zealand*. Auckland: Oxford University Press.
- Tovey, H. (2003). Theorising nature and society in sociology: The invisibility of animals. *Sociologia Ruralis*, 43(3), 196-+.
- Tumbull, S. (2002). Social construction research and theory building: SAGE
- Weston, C. (2009). *Banning tourism won't save India's tigers*. Weymouth: Animals on the Edge.
- Wikramanayake, E., Dinerstein, E., Robinson, J. G., Karanth, U., Rabinowitz, A., Olson, D., . . . Bolze, D. (1998). An ecology based method for defining priorities for large mammal conservation: The tiger as case study *Biological Conservation*, 12(4), 865-878.
- Wikramanayake, E., Dinerstein, E., Seidensticker, J., Lumpkin, S., Pandav, B., Shrestha, M., . . . Than, U. (2011). A landscape-based conservation strategy to double the wild tiger population *Conservation Letters*, 4 219-227. doi:10.1111/j.1755-263X.2010.00162.x
- Wikramanayake, E., & Malla, S. (2012). *Trip report of terai arc landscape* WWF Nepal Unpublished
- Wikramanayake, E., Manandhar, A., Bajimaya, S., Nepal, S., Thapa, G., & Thapa, K. (2010). The Terai Arc Landscape: A tiger conservation success story in a human-dominated landscape. *Tigers of the world, Second edition* 163-173.
- Williams, R. (1982). Thomas Kuhn and scientific revolutions. In *Science, non science and pseudo-science*. Burwood, Victoria: Deakin University Press.
- Willing, D. (1999). Beyond appearance: A critical realist approach to social constructionist work. In D. J. Nightingale & J. Cromby (Eds.), *Social constructionist psychology: A critical analysis of theory and practice*. Buckingham Open University Press.
- Woodmansee, M., & Jaszi, P. (Eds.). (1994). *The construction of authorship: Textual appropriation in law and literature*. Durham, N.C.: Duke University Press.
- Woodside, A., &. (2010). *Case study research: Theory, methods and practice* Bradford, GBR: Emerald Group Publishing Ltd.
- Wright, B. (2010). Will the tiger survive in India. In R. Tilson & P. J. Nyhus (Eds.), *Tigers of the world: the science, politics, and conservation of panthera tigris* (2 ed.). Amsterdam: Elsevier.
- WWF, & W. International. (2010). *Special factsheet: Tiger* Gland: WWF International.
- WWF. (2013). Species: Tiger. Retrieved 6/10/2013, from World Wildlife Fund <http://worldwildlife.org/species/tiger>
- WWF. (n.d.-a). The facts and fallacies of tiger farming. Retrieved 8/12/2013 http://awsassets.panda.org/downloads/tiger_facts_fallacies_final.pdf
- WWF. (n.d.-b). *Use of sumatran tiger parts*. Retrieved 15/11/2013, 2013, from http://wwf.panda.org/what_we_do/endangered_species/tigers/about_tigers/sumatran_tiger/threats/poaching/tiger_part_use/
- WWF Nepal. (2002). *Terai Arc Landscape (TAL)-Nepal; annual technical report*: WWF Nepal Program.
- WWF Nepal. (2011). *Putting the issues together: A case study analysis on conservation-livelihoods linkages in Khata corridor, Bardiya, Nepal*. Kathmandu.
- WWF Nepal. (2013a). *Biological and socio-economic study in corridors of Terai Arc Landscape, Nepal: Khata corridor*. Center for policy analysis and development. Unpublished.
- WWF Nepal. (2013b). Nepal records remarkable growth in tiger numbers. Retrieved 02/09/2013 http://www.wwfnepal.org/media_room/news/?209484/Nepal-records-remarkable-growth-in-tiger-numbers
- Yin, R. K. (1994). *Case study research design* (2 ed. Vol. 5). London, New Delhi: Sage.

Annexes

Annex 1. Questionnaire guide

For Oldtimers

- Participant code:
- Age:
- Sex:
- Education:
- Occupation:
- How long have you been staying in this place?
- Have you been participating in any community forest management activities? How?

Please answer referring back to 10 years or before

- How was the forest before 10 years?
- What did you normally use the forest for? How important was the forest for your livelihood? How often did you (or the villagers) have to go to the forests?
- Were there many wildlife?
- How is the condition of forest and wildlife changing? Why?
- Did you ever hear of or see a tiger in this forest back then?
- What did you hear about the tiger? When? From whom?
- If you have seen a tiger, where did you see it? How was the experience?

Tiger ecology and behaviour

- Did you know how tiger looked, what they eat, how they behave, where they live etc?
- How do you know this information?

Interaction with society

- Would tigers come into your village?
- If yes, why did you think they would come? If no, why did you think they would not come?
- What would you do if you see tigers straying in your village area?
- Did you know that the tigers would be hunted?
- Why do you think they would hunt the tiger for?

Socio-cultural Meaning

- Do you know any mythical stories, proverbs about the tiger? When did you learn about it and from where? What do these stories mean?
- Were there any cultural/ritual practices related with tigers? How did you perform? What did these rituals suggest? Do you still do them?
- Did you know there is any meaning of tiger in your religion?

Personal meaning

- Would you use the word 'tiger' as metaphor? What would that mean?
- Did you think tiger as beautiful animal? Or fearful? Or just don't care about it? Why?
- Did you have any benefits of tiger in the past? What were they?
- Did tigers have any negative effects in the past? What were they?
- How do you feel having tigers in the nearby forest?
- Why do we save tigers? What could be the benefits of increasing the tiger number? (Economic, social, cultural, ecological, other)
- What could be the negative effects of increasing tiger numbers? Conflicts? What kind of?
- Which one do you think is more, positive or negative effects?
- Are you involved (directly/indirectly) in any tiger conservation activities? What activities are you doing for conserving tigers? What is your motivation for doing that?

For young and new migrants

- Participant code:
- Age:
- Sex:
- Education:
- Occupation:
- How long have you been staying in this place?
- How do you use the forest for? How important is forest for your livelihood?
- Have you been participating in any community forest management activities? How?
- Are there many wildlife in the community forest?
- Have you ever heard of or seen tiger in this forest?
- If yes, what have you heard about it? Where did you see it? How was the experience?

Tiger ecology and behaviour

- Do you know how tigers look, what they eat, how they behave, where they live, etc?
- How do you know this information?

Interaction with society

- Do tigers come into your village?
- If yes, why do you think they come? If no, why do you think they don't come?
- What would you do if you see tigers straying in your village area?
- Do you know that the tigers are hunted/ poached?
- Why do you think they hunt/poach the tiger for?
- Do you frequently go to forest? Why?
- Does presence of tiger in the forest affect you for going to the forest?

Socio-cultural Meaning

- Do you know any mythical stories, proverbs about the tiger? When did you learn about it and from where? What do they mean?

- Is there any cultural/ritual practices related with tigers? How do you do it? What does it suggest?
- Do you know there is any meaning of tiger in your religion?

Personal meaning

- Do you use the word 'tiger' as metaphor? What does that mean?
- Do you think tiger as beautiful animal? Or fearful? Or just don't care about it? Why?
- How do you feel having tigers in the nearby forest?
- What could be the benefits of increasing tiger number? (Economic, social, cultural, ecological, other)
- What could be the negative effects of increasing tiger numbers?
- Which one do you think is more, positive or negative effects?
- What activities are you doing for conserving tigers? What is your motivation for doing that?

Annex 2 Research information sheet

Lincoln University

Faculty : Faculty of Environment, Society and Design

Research Information Sheet

My name is Ujjwal Meghi and I am interested in human and nature relations. I have worked with some governmental and non-governmental organizations in tiger conservation related programs. Currently I am doing Master of Resource Studies at Lincoln University, New Zealand.

You are invited to participate as a subject in a project entitled **“Tiger in Landscapes, Tiger in Mindscales: A constructionist analysis of tiger conservation through corridor management in the Terai Arc Landscape, Nepal”**.

The major aim of the study is to examine social constructions of tiger, which often has high conflict with humans, in the context of conservation efforts made through critical corridor management under the landscape approach to conservation in the Terai Arc Landscape of Nepal.

Your participation in this project will involve participating in the interview which will take approximately 30 minutes to 1 hour. If you are comfortable, the interview will be recorded. If not, only hand written notes will be taken. The participation is voluntary. It is not compulsory that you need to answer all questions.

You can withdraw your information up until the time of analysing the results and the analysis of results is expected to begin by August 2013.

You will be able to access the final result of the research in the form of ‘thesis’ and a ‘summary of the result translated in Nepali language’ which will be made available in local libraries and Community Forest User Groups on completion of this research.

There is no follow-up participation in this project. In the performance of the tasks and application of the procedures, there are no physical and mental risks.

The results of the project may be published, but you may be assured of your anonymity in this investigation: the identity of any participant will not be made public, or made known to any person other than the researcher, his or her supervisors, without the participant's consent. To ensure anonymity the following steps will be taken: The questionnaire will not include any individually identifiable information such as names. The consent form will be separately locked and handled in accordance to the arrangement made by Lincoln University.

Contact Details:

Email: Ujjwal.Meghi@lincolnuni.ac.nz/ujjwalmeghi@gmail.com

Phone: +64221732456 (NZ), +9779841393759 (NP)

University: Lincoln University, Lincoln, Canterbury, New Zealand

He/She will be pleased to discuss any concerns you have about participation in the project.

Supervisor: Roy Montgomery, Head of Environmental Management

E-mail: Roy.Montgomery@lincoln.ac.nz

Associate supervisor: Prof. Ken Hughey, Director of Postgraduate Studies Email:

Ken.Hughey@lincolnuni.ac.nz

The project has been reviewed and approved by the Lincoln University Human Ethics Committee.

Annex 3 Consent Form

***Name of Project:* Tiger in landscapes, tiger in mindscapes: A Constructionist analysis of tiger conservation through corridor management in the Terai Arc Landscape, Nepal**

I have read and understood the description of the above-named project. On this basis I agree to participate as a subject in the project, and I consent to publication of the results of the project with the understanding that anonymity will be preserved. I understand that I can withdraw from the project before the analysis of data begins or no later than 5 pm, 10th August, 2013.

I give the consent to record this interview

Agree

Disagree

Name:

Signed: _____

Date: _____