

# **IMPLICATION OF TRADITIONAL ECOLOGICAL KNOWLEDGE ON FOREST RESOURCE MANAGEMENT**

(An Anthropological study of lower Manang within Annapurna Conservation Area)

## **A Dissertation**

Submitted to the Tribhuvan University Department of Sociology/Anthropology

Prithvi Narayan Campus in Partial Fulfillment of the Requirement for the Degree of

## **Master of Arts in Anthropology**

**By**

**Dhruba Laudari**

**Roll No: 02/062**

**Tribhuvan University**

Faculty of Humanities and Social Sciences

Department of Sociology/Anthropology

Prithvi Narayan Campus

Pokhara, Nepal

**29<sup>th</sup> March, 2010**

TRIBHUVAN UNIVERSITY  
PRITHVI NARAYAN CAMPUS  
(Department of Sociology/Anthropology)

Bhimkali Patan, Pokhara, Nepal

**LETTER OF RECOMMENDATION**

This is to certify that **Mr. Dhruba Laudari** has prepared this dissertation entitled **“Implication of Traditional Ecological Knowledge on Forest Resource Management (An Anthropological study of lower Manang within Annapurna Conservation Area)”** under my guidance and supervision. I, therefore, recommend this dissertation to the evaluation committee for the final approval and acceptance.

Bishwo Kallyan Parajuli, PhD

Reader

Department of Sociology/Anthropology

Prithivi Narayan Campus, Pokhara Nepal

29<sup>th</sup> March, 2010

TRIBHUVAN UNIVERSITY  
PRITHVI NARAYAN CAMPUS  
(Department of Sociology/Anthropology)

Bhimkali Patan, Pokhara, Nepal

**LETTER OF RECOMMENDATION BY LANGUAGE EDITOR**

This is to certify that I have gone through the draft of dissertation entitled **“Implication of Traditional Ecological Knowledge on Forest Resource Management (An Anthropological study of lower Manang within Annapurna Conservation Area)”** by **Mr. Dhruva Laudari** as a language editor and made necessary correction and improvements there in. I have been impressed by his intelligible presentation of the facts through the medium of plain and correct English.

Mr. Bishwo Raj Adhikari

Reader

Department of English

Prithvi Narayan Campus

Pokhara, Nepal

29<sup>th</sup> March, 2010

TRIBHUVAN UNIVERSITY  
PRITHVI NARAYAN CAMPUS  
(Department of Sociology/Anthropology)

Bhimkali Patan, Pokhara, Nepal

**LETTER OF ACCEPTANCE**

This dissertation entitled “**Implication of Traditional Ecological Knowledge on Forest Resource Management (An Anthropological study of lower Manang within Annapurna Conservation Area)**” submitted to the Department of Sociology/Anthropology; Prithvi Narayan Campus by **Mr. Dhruva Laudari** has been approved by the undersigned members of the dissertation evaluation committee.

**Members of Dissertation Evaluation Committee**

Mrs. Shanti Bhusal

Department Head

Dr. Bishwo Kallyan Parajuli

Supervisor

Prof. Dr. Kedar Basnet

External Examiner

29<sup>th</sup> March, 2010

## ACKNOWLEDGEMENT

This research in fact stands as a foundation in my journey towards horizon of ecological anthropology. The guideline from my supervisor Dr. Bishwo Kallyan Parajuli appeared out the blue to keep on working on right path until completing this dissertation. I would like to express my sincere thanks to three professional anthropologists from U.S.A, Dr. Robert Edward Rhoades (University of Georgia), Dr. Robert K. Hitchcock (Michigan State University) and Dr. J. Stephen Lansing (University of Arizona), who provided me list of literature in ecological anthropology and motivated to work in this field.

Three name, Mr. Chandra Prakash Sedai (B.Sc, forestry, 4<sup>th</sup> year student at Institute of Forestry, Pokhara) for assisting field survey, Mr. Rajendra Adhikari (Sociologist) for analyzing data by using computer software program (SPSS) and Er. Manoj Pantha (M.E, 1<sup>st</sup> year student at Institute of Engineering, Lalitpur) for producing GIS map is note worthy for this research. People who helped are my father and mother, for every movement financial support, my spouse Sangita Pantha, for compulsory logistic and domestic support and my daughter Marisha, for exchanging infantile words, which in every movement inspired me to immerse in the marine of ecological anthropology.

Equally, I am indebted to my external supervisor Prof. Dr. Kedar Basnet and to Mr. Bishwo Raj Adhikari, language editor for their valuable contribution. I am grateful to the department head and to all the faculties at the Department of Sociology/Anthropology, Prithvi Narayan Campus, Pokhara on creating me a desirable environment for conducting this study.

Dhruba Laudari  
29<sup>th</sup> March, 2010

## TABLE OF CONTENTS

Letter of Recommendation	i
Letter of Acceptance	ii
Letter of Recommendation by Language Editor	iii
Acknowledgement	iv
Table of Contents	v-viii
Glossary	ix
Abbreviation	x
List of Tables	xi
List of Figures	xii

### CHAPTER- I

<b>INTRODUCTION</b>	<b>1-16</b>
1.1 Background of the study	1-2
1.2 Statement of the problem	3-4
1.3 Objectives of the study	5
1.4 Definition of the terms	5
1.4.1 Technical terms	5-6
1.4.2 Terms ecological anthropology	7-9
1.5 Significance of the study	10
1.6 Limitation of the study	10
1.7 Theoretical framework	11-13
1.8 Conceptual framework	14-16

## **CHAPTER- II**

<b>REVIEW OF LITERATURE</b>	<b>17-33</b>
2.1 Theoretical overview	17
2.1.1 Traditional ecological knowledge	17-22
2.1.2 Indigenous knowledge	23
2.1.3 Human ecology	24
2.1.4 Sustainable forest knowledge	25
2.1.5 Importance of traditional ecological knowledge	26
2.2.6 Nature of traditional and scientific ecological knowledge	26-27
2.2 Review of previous studies	28
2.2.1 Status of forest biodiversity in Nepal	28
2.2.2 Study of traditional ecological knowledge in Nepal	29-30
2.2.3 Expression of 'TEK' in religious literature	31
2.2.4 Study of 'TEK' in international arena	32-33

## **CHAPTER- III**

<b>RESEARCH METHODS</b>	<b>34-37</b>
3.1 Research design	34
3.2 Rationale of selection of the study area	34
3.3 Nature and source of data	35
3.4 Sampling	35
3.5 Data collection tools and techniques	36-37
3.6 Data analysis and presentation	37

## **CHAPTER- IV**

<b>STUDY AREA AND PEOPLE</b>	<b>38-41</b>
4.1 Geographical setting	38
4.1.1 Status of forest resources	38-39
4.2 People and settlement pattern	40
4.3 Economic setting	40
4.4 Traditional governance	41
4.5 Religion	41
4.6 Festivals	41

## **CHAPTER- V**

<b>RELIGION CULTURE AND PROTECTION: AN ASSESSMENT</b>	<b>42-54</b>
5.1 Folk system of plant nomenclature	42
5.1.1 Ecological knowledge at plant species level	42-43
5.1.2 Ecological knowledge at plant population level	43
5.2 Sacred forest, tree worship and conservation	44-45
5.3 Paradigm shift concept in forest management	46
5.4 Taboo as a social-cultural mechanism of forest management	47-49
5.5 Religion, ecology and wildlife conservation	50-51
5.6 Graphic view of forest and eco-cultural landscape	52-53
5.7 Chapter summary	54



## **CHAPTER- VI**

### **DATA ANALYSIS AND PRESENTATION 55-76**

6.1	Socio-cultural scrutiny of respondent	55-58
6.2	Contextual analysis	59
6.2.1	Traditional forest management practices	59
6.2.2	Resource harvesting and distribution procedure	59-60
6.2.3	Seasonal harvesting calendar as an operational plan	61
6.2.4	Pasture or rangeland management	62
6.2.5	Wild foods as a source of nutrition	63
6.2.6	Belief systems as a tool of silvicultural operation	64-67
6.3	Perception on nature and structure of 'TEK'	68-71
6.4.	Exchange of traditional ecological knowledge	72
6.4.1	Communication and exchange of knowledge	72-74
6.4.2	Factors affecting transmission of 'TEK'	75
6.5	Chapter summary	76

## **CHAPTER- VII**

### **SUMMARY FINDINGS AND CONCLUSION 77-84**

7.1	Summary	77-79
7.2	Key findings	80-82
7.3	Anthropological recommendation	82
7.4	Conclusion	83-84

### **BIBLIOGRAPHY 85-90**

### **APPENDICES I -XX**

## List of Tables

<b>Table No.</b>	<b>Title</b>	<b>Page</b>
2.1	Attribute of professional and traditional forest management	27
4.1	Major plant species of lower Manang	39
5.1	Major religious plant species of lower Manang	45
5.2	Implication of taboos in forest management	47
5.3	Diverse form of resource taboos adapted in lower Manang	48
5.4	Religious value of major plant species in lower Manang	49
5.5	Perception on sacredness of wild animals	50
6.1	Gender of respondents based on caste/ethnicity	55
6.2	Occupation of respondents based on caste/ethnicity	56
6.3	Religion of respondent based on caste/ethnicity	57
6.4	Literacy of respondent based on caste/ethnicity	58
6.5	Comments on utility of seasonal harvesting calendar	60
6.6	Remarks on traditional pasture management systems	62
6.7	List of plant species used as wild food	63
6.8	Diverse form of belief systems in practice	64
6.9	Remarks on 'TEK' based on religion of respondent	69
6.10	Remarks on ambiguity nature of 'TEK'	70
6.11	Perception on traditional forest management system	71
6.12	Remarks on transmission mechanism of 'TEK'	73
6.13	Comment on attrition of 'TEK' system	75

## List of Figures

<b>No:</b>	<b>Title</b>	<b>Page</b>
1.1	Theoretical framework analyzing social system and ecosystem	11
1.2	Framework for analysis: knowledge-practice-belief complex model	13
1.3	Conceptual framework for 'TEK' implication	14
1.4	Conceptualization of 'TEK' with an indigenous knowledge web	16
2.1	Levels of traditional ecological knowledge	19
5.1	Succession of forest landscape in lower Manang	52
5.2	Eco-cultural landscape of lower Manang	53
6.1	Traditional resource harvesting calendar	61
6.2	Perception on religious forest management practices	66
6.3	Perception on role of religion in forest management	67
6.4	Opinion on necessity of 'TEK' transmission	74

## Glossary

<b>Coppice</b>	=	Shoots arising from the stump base of tree that have been cut or burnt back.
<b>Forest resource</b>	=	For this study it generally refers to major natural resources like, forest, pasture, non-timber forest products and large wildlife species.
<b>Gyasumdo</b>	=	Refers to place below Chame to Tal and comprises four V.D.C i.e. Chame, Tachi-Bagarchap, Thoche and Dharapani. (Interchange - lower Manang)
<b>Himalaya</b>	=	In case of Nepal, generally signify to northern located mountainous areas with high elevation, upper-temperate climatic condition and remoteness
<b>Implication</b>	=	An indirect indication; implicit/hidden significance.
<b>Khepre</b>	=	A Buddhist priest for reciting religious texts in rituals.
<b>Lower Manang</b>	=	For this study 'lower Manang' refers to area below Pisang of Manang district and comprises mainly of five V.D.C's i.e. Pisang, Chame, Tachi-Bagarchap, Thoche and Dharipani. (Interchange - Gyasumdo)
<b>Marisha</b>	=	Daughter of Soma, was married to King Parichatta. She is also known as daughter of trees or of forests.
<b>Predator animal</b>	=	Animal that hunt or kill other animal for food.
<b>Prey animal</b>	=	Animal that is hunted by other animal for food.
<b>Shaman</b>	=	Witch-doctor or priest calming to communicate with god or spiritual beings.
<b>Soma</b>	=	Mother of tree also known as goddess of tree/forest.
<b>Ton Devi</b>	=	Local deity connecting to control over water cycle, drought, floods and other natural calamities.

## ABBREVIATIONS

<b>ACA</b>	Annapurna Conservation Area
<b>CAMC</b>	Conservation Area Management Committee
<b>CBD</b>	Convention on Biological Diversity
<b>CFUG</b>	Community Forestry User Group
<b>EEA</b>	Ecological/Environmental Anthropology
<b>FGD</b>	Focus Group Discussion
<b>GIS</b>	Geographical Information System
<b>IKS</b>	Indigenous Knowledge Systems
<b>IEK</b>	Indigenous Ecological Knowledge
<b>IPR</b>	Intellectual Property Right
<b>ITK</b>	Indigenous Traditional Knowledge
<b>KIS</b>	Key Informant Survey
<b>LEK</b>	Local Ecological Knowledge
<b>masl</b>	meters above the sea level
<b>MoFSC</b>	Ministry of Forest and Soil Conservation
<b>NRM</b>	Natural Resource Management
<b>NTFP</b>	Non-Timber Forest Products
<b>PRA</b>	Participatory Rural Appraisal
<b>TFK</b>	Traditional Forest Knowledge
<b>TEK</b>	Traditional Ecological Knowledge
<b>TRIP's</b>	Trade Related Aspects of Intellectual Property Rights
<b>VDC</b>	Village Development Committee
<b>WCED</b>	World Commission on Environment and Development
<b>WIPO</b>	World Intellectual Property Organization