

**Wetland Resources and the Livelihood of Local Communities:
A Situation Analysis of Kusaha Area in Koshi Tappu**

by

Tewish Pradhan
Reg. no. 5-2-37-602-2000

A thesis submitted in partial fulfillment of the requirements for the degree
of Master of Arts in Rural Development

**Central Department of Rural Development
Faculty of Humanities and Social Sciences
Tribhuvan University, Kirtipur
Kathmandu, Nepal**

December, 2006

Recommendation Letter

This is to certify that the project report title, **Prospects of developing ecotourism in Nepal: A case study of Bhedetar area** has been prepared by Tewish Pradhan under my supervision.

I therefore recommend for its evaluation and approval by the Examination Committee.

Prof. Dr. Pradeep Kumar Khadha
Research Supervisor

Approval Sheet

This thesis entitled "***Wetland Resources and the Livelihood of Local Communities: a Situation Analysis of Kusaha Area in Koshi Tappu***" by Tewish Pradhan has been accepted as partial fulfillment of the requirement for the degree of Masters of Arts in Rural Development.

Approved by:

Prof. Dr. Pradeep Kumar Khadka

Head of the Department

Date:

Dr. Ek Raj Ojha

Supervisor

Date:

Abstract

The present study was conducted in order to find out the available wetland resources and to have the economic status of the local ethnic communities whose livelihood sustains from the wetland products. It especially covered the wetland dependent people, living at the area of one hour walking distance from the wetland sites. The main objective of the study was to measure the dependency on the wetland products.

A set of questionnaire was made to get the desired information related to the livelihood situation and further information was obtained through the observation made of the local communities in the study area.

The research identified the local community people, i.e. Bantar, Sardar, Jhangad, Mallah were living in a miserable condition. These people are socially and culturally neglected people of the area. They are identified as untouchable in their surroundings. But the Yadav community was found to be superior socially culturally and economically.

The preliminary socioeconomic survey carried out in the study area showed high level of dependency on the wetlands for food, fodder, fuel and so forth. All the surveyed households were found to depend on the wetland products directly or indirectly. The Bantar had their traditional occupation of weaving mat which possesses a huge market in the urban areas. The product materials can be supplied to markets and the workers may get benefits from it. The traditional way of fishing in the Mallah community still exists, but they were feeling hard to maintain their livelihood through fishing. That is why a focus on the livelihood situation of these people, who are truly a stakeholder of wetland conservation, is most needed.

The household survey showed that an encouraging percent (81.69) of the respondents expressed favorable attitude towards the management of wetlands. The study had recoded 31 species of locally available fish and 22 plant species. In the reserve area *Micania micrantha* plants species had covered the wide area. Most of the respondents had land below 5 Kattha and their agricultural production cannot support more than 5 months. One of the main causes of not supporting the agricultural production was due to the grazing of wild animals in their agricultural land. The educational attainment in the surveyed households was below SLC level. The wild animals like *Bubalus arnee*, wild boar and sometimes wild elephant harass them by eating the agricultural product. Because of these wild animals they usually guard their agricultural field in the night time also.

Acknowledgements

I am deeply indebted to Dr. Ek Raj Ojha, for giving his valuable time and proper guidance in completing this study. I would like to thank the Department of National Park and Wildlife Conservation (DNPWC) for providing the material required for the study. My extreme grateful thanks goes to the Rana family of the Laukhi VDC who had helped a lot in the field study, especially Prajawal Rana and Umesh Shrestha. Without their kind cooperation this study would be fruitless. My sincere thanks goes to the conservation officer, Pashupati Adhakari for providing me the valuable information though not having the enough time for me.

The library staffs of DNPWC, IUCN, ICIMOD and the TUCL deserves my sincere thanks who had helped me by providing the necessary related documents.

I wish to express sincere thanks to friends and gratitude to my parents Govinda Bahadur Pradhan and Kamala Pradhan for their constant support and encouragement shown throughout the completion of this research work.

I can not remain without paying my thanks to Pusker Maharjan, Sudeep Karki and my sister Elen Pradhan for their kind help during my study period as well as computer secretarial service for completing the work of printing in time.

Finally, I am alone responsible for errors of judgment or of analysis, if exists any.

Tewish Pradhan
December, 2006
tewishp@hotmail.com

Table of Contents

	Page no.
Recommendation Letter	i
Approval Letter	ii
Abstract	iii
Acknowledgements	iv
Table of Contents	v
List of tables	x
List of Maps	xii
List of photographs	xii
Abbreviations and Acronyms	xiii
1. Introduction	1-7
1.1 Background	1
1.2 Statement of problem	4
1.3 Rationale of the study	5
1.4 Objectives of the study	7
1.5 Limitation of the study	7
2. Literature Review	8-24
2.1 What are wetlands?	8
2.2 Why are wetlands so important?	8
2.3 Importance of wetlands	9
2.4 Concept of wise use of wetlands	12
2.5 Threats to wetlands	12
2.6 Global scenario of wetlands	14
2.7 Wetlands in Nepal	15
2.8 Ramsar sites of Nepal	16
2.9 Wetland area legislation in Nepal	16
2.10 Nepal's terai wetlands & problems	17
2.11 Wetlands and sustainable livelihood in Nepal	20
2.12 Wetland-dependent people in Nepal	20
2.13 Community participation in conservation	21

2.14 Wetland resources of Nepal	22
3. Research Methodology	25-28
3.1 Selection of study area	25
3.2 Research design	25
3.3. Study population	26
3.4. Sampling technique	26
3.5. Nature and source of data	26
3.5.1. Primary source of data	26
3.5.1.1. Questionnaire method	26
3.5.1.2. Unstructured interview	27
3.5.1.3. Observation	27
3.5.1.4. Key information survey	27
3.5.1.5 A Case study	27
3.5.2. Secondary source of data	27
3.6. Data analysis and presentation	27
4. The Study Area	28-36
4.1 Overview of KTWR	28
4.2 Hydrological value	31
4.3 Status of flora and flora in Koshi tappu wetland	31
4.4 Buffer Zone concept for sustainable management and KTWR	32
4.5 Kusaha VDC	34
4.5.1 Social characteristics	34
4.5.2 Settlement	34
4.5.3 Economic characteristics	35
4.5.4 People	35
4.6 Climate	35
5. Socioeconomic Situation of the Study Area	37-71
5.1 Wetland dependent communities in the study area	37
5.1.1 Caste and ethnic composition of Sample HHs	37
5.1.1 Musahar community	37
5.1.1.1 Gender	39
5.1.1.2 Land composition	39

5.1.1.3 Household status	39
5.1.1.4 Occupation	40
5.1.1.5 Agricultural sufficiency	41
5.1.1.6 Educational status	41
5.1.1.7 Status of livestock rearing	42
5.1.1.8 Purpose of visiting the wetland site	42
5.1.2 Mallah community	43
5.1.2.1 Gender	43
5.1.2.2 Land holding status	43
5.1.2.3 Household status	44
5.1.2.4 Occupation	44
5.1.2.5 Agricultural sufficiency	45
5.1.2.5 Educational status of the family	46
5.1.2.6 Status of livestock rearing	46
5.1.2.7 Purpose of visiting the wetland site	47
5.1.3 Jhangad Community: Uranw	47
5.1.3.1 Gender	48
5.1.3.2 Land holding status	48
5.1.3.3 Household status	49
5.1.3.4 Occupation	49
5.1.3.5 Agricultural sufficiency	50
5.1.3.6 Educational status	50
5.1.3.7 Status of livestock rearing	51
5.1.3.8 Purpose of visiting the wetland site	51
5.1.4 Bantar/Sardar community	52
5.1.4.1 Gender	52
5.1.4.2 Land holding status	52
5.1.4.3 Household status	53
5.1.4.4 Occupation	54
5.1.4.5 Agricultural sufficiency	55
5.1.4.6 Educational status	55
5.1.4.7 Status of livestock rearing	56

5.1.4.8 Purpose of visiting the wetland site	56
5.1.5 Yadav community	57
5.1.5.1 Gender	57
5.1.5.2 Land holding status of Yadav community	57
5.1.5.3 Household status	58
5.1.5.4 Occupation	58
5.1.5.5 Agricultural sufficiency	59
5.1.5.6 Educational status of the family	59
5.1.5.7 Status of livestock rearing	60
5.1.5.8 Purpose of visiting the wetland site	60
6. Local Community and Wetland Resources Use Status	62-74
6.2 Annual income of the local communities	62
6.3 Members of family engages in earnings	62
6.4 Economic aspects of the wetland resources	62
6.5 Energy consumption pattern	63
6.6 Condition of sanitation	64
6.7 Local peoples' attitude towards the conservation of wetlands	64
6.8 Community involvement on the conservation of wetlands	67
6.9 Mode of utilization of wetland resources by the local communities	67
6.10 Plants found in the study area	70
6.11 Fish species reported in the study area and inside the reserve	72
6.12 Wetland management in Koshi Tappu Wildlife Reserve	73
7. Summary, Conclusion and Recommendations	75-80
7.1 Summary	75
7.2 Conclusion	76
7.3 Recommendations	78
7.3.1 Recommendation for planning and management	78
7.3.2 Recommendation for further research	79
References	81-85

Annexes	86-101
Annex 1: Kamala Simsar Users Group (KSUG)	86
Annex 2: Questionnaire for household survey	88
Annex 3: Checklist of plant species	93
Annex 4: Checklist of fish species	95
Annex 5: Photographs	97

List of Tables

	Page no.
Table 2.1: Use and functions of wetlands	12
Table 2.2: Cause and impact of wetland degradation	14
Table 2.3: Estimated Area of various wetland types in Nepal	15
Table 2.4: Ramsar sites of Nepal	16
Table 2.5: Distribution of wetlands in Nepal's Terai	18
Table 2.6: Wetland Sites in the Terai that Merit Legal Protection	19
Table 5.1: Ethnic composition of the study area	37
Table 5.2.1: Land status of the musahar community	39
Table 5.2.2: Household status of musahar community	40
Table 5.2.3: Occupational status of Musahar community	40
Table 5.2.4: Agricultural sufficiency of Musahar community	41
Table 5.2.5: Educational status of a Musahar family	41
Table 5.2.6: Status of livestock rearing in Musahar community	42
Table 5.2.7: Purpose of visiting the wetland site in Musahar community	42
Table 5.3.1: Land holding status of the Mallah community	44
Table 5.3.2: Household status of the Mallah community	44
Table 5.3.3: Occupational status of Mallah community	45
Table 5.3.4: Agricultural sufficiency of Mallah community	45
Table 5.3.5: Educational status of the Mallah family	46
Table 5.3.6: Status of livestock rearing Mallah community	46
Table 5.3.7: Purpose of visiting the wetland site in Mallah community	47
Table 5.4.1: Land holding status of the Jhangad community	48
Table 5.4.2: Household status of Jhangad community	49
Table 5.4.3: Occupational status of Jhangad community	50
Table 5.4.4: Agricultural sufficiency of Jhangad community	50
Table 5.4.5: Educational status of the Jhangad family	51
Table 5.4.6: Status of livestock rearing in Jhangad community	51
Table 5.4.7: Purpose of visiting the wetland site in Jhangad community	52
Table 5.5.1: Land holding status of Sardar community	53
Table 5.5.2: Household status of the Sardar community	53

Table 5.5.3: Occupational status of Sardar community	54
Table 5.5.4: Agricultural sufficiency of Sardar community	55
Table 5.5.5: Educational status of Sardar family	55
Table 5.5.6: Status of livestock rearing in Sardar community	56
Table 5.5.7: Purpose of visiting the wetland site in Sardar community	56
Table 5.6.1: Land holding status of Yadav community	57
Table 5.6.2: Household status of Yadav community	58
Table 5.6.3: Occupational status of Yadav community	59
Table 5.6.4: Agricultural sufficiency of Yadav community	59
Table 5.6.5: Educational status of the Yadav family	60
Table 5.6.6: Status of livestock rearing of Yadav community	60
Table 5.6.7: Purpose of visiting the wetland site in Yadav community	61
Table 6.1: Energy consumption patterns	64
Table 6.2: Peoples' attitude towards the conservation of wetlands	65
Table 6.3: Opinions on community involvement on conservation of Wetlands	67
Table 6.4: Plants recorded in the study area	70
Table 6.5: Reported fish species at the time of study	72

List of Maps

Map 1:	koshi Tappu wildlife Reserve and its Buffer Zone	29
Map 2:	Kusaha VDC	30

List of Photographs

Photo 1:	Cattail field in the private land near the KTWR	97
Photo 2:	Fiber retting process is going on, in the wetland area	97
Photo 3:	Mallah people making their nets before going for fishing	98
Photo 4:	Mallah people selling their fish in the local market	98
Photo 5:	Harvested cattail (Pater) collect in the Bantar's house	99
Photo 6:	A Bantar man working to make the mats from cattail Pater)	99
Photo 7:	A Bantar women weaving a mat	100
Photo 8:	Locally made mats being taken to the local market for sale	100
Photo 9:	Researcher in the process of filling the questionnaire	101
Photo 10:	Researcher interviewing the Jhangard people	101
Photo 11:	A women preparing the mosquito repellent from animal dung	102
Photo 12:	Animal dung set to dry in the sun	102

Abbreviations and Acronyms

BZ	:	Buffer Zone
CBS	:	Center Bureau of Statistics
DNPWC	:	Department of National Parks and Wildlife Conservation
GoN	:	Government of Nepal
Ha.	:	Hectare
HHs	:	Households
HQ	:	Headquarter
ICIMOD	:	International Centre for Integrated Mountain Development
IUCN	:	The Conservation Union
KTWR	:	Koshi Tappu Wildlife Reserve
m.	:	Meter
MOF	:	Ministry of Finance
NPWC	:	National Parks and wildlife conservation
PCP	:	Participatory Conservation Programme
Rs.	:	Rupees
spp.	:	Species
Sq. km.	:	Square kilometer