

Searching for an Alternate Approach for Community Level Natural Resource Management in Nepal

(A Case Study on Natural Resource Use Negotiation -A Knowledge Systems Perspective)

Bishnu Raj Upreti
MAKS 11

Provided to
ICIMOD
Library
23-04-1998
Bishnu Upreti

Supervisor: Prof. Dr. Niels Röling
Department of Communication and Innovation Studies

Thesis submitted to the Wageningen Agricultural University to partial
fulfilment of the requirements for M.Sc. in Management of Agricultural
Knowledge Systems
January 1998

R
333.716
UPS

9741

Devotion

*to Professor Dr. Anne W. Van den Ban and
Foundation Sharing Responsibilities of Students,
who financed my study*

Table of Contents

Devotion	iii
Table of contents	iv
List of tables	vii
List of figures	viii
List of boxes	viii
List of maps	viii
List of acronyms	ix
Acknowledgements	xi
Abstract	xii
CHAPTER 1: INTRODUCTION	1
1.1 GENERAL.....	1
1.2 THE CONTEXT: NRM CRISIS IN NEPAL	1
1.3 SHIFTING PERSPECTIVES: RETHINKING SUSTAINABILITY IN NRM IN NEPAL	4
1.3.1 Shifting perspectives	4
1.3.2 Rethinking sustainability in NRM	6
CHAPTER 2: PROBLEM STATEMENT AND RESEARCH OBJECTIVES	8
2.1 BACKGROUND OF THE PROBLEM.....	8
2.2 PROBLEM STATEMENT	11
2.3 RESEARCH QUESTIONS	11
2.3.1 General research question	11
2.3.2 Specific research questions	12
2.4 OBJECTIVES.....	12
2.4.1 General objective	12
2.4.2 Specific objectives	12
CHAPTER 3: THEORETICAL AND CONCEPTUAL FRAMEWORK	13
3.1 PERSPECTIVES USED.....	13
3.1.1 Soft systems thinking	13
3.1.2 Constructivist perspective	14
3.1.3 Knowledge systems perspective	15
3.1.4 Social learning approach	15
3. 2 CONCEPTS USED	18

3.2.1 NRM as an interface of hard and soft science	18
3.2.2 Negotiation as a part of social learning approach.....	19
3.2.3 Conflicts in NRM as a part of normal process.....	20
3.2.4 Adaptive management as an emerging concept to deal with uncertainties	21
3.2.5 Joint decision for concerted action	21
3.2.6 Platform as a forum for joint decision and concerted action	21
3.2.7 Mediation as a means for conflict resolution.....	22
3.2.8 Sustainability as an emergent property.....	22
3.2.9 Knowledge as a construct.....	23
3.2.10 Indigenous knowledge as an important element of SMNR	23
3.2.11 Coalition as a forum for tackling the complex problems.....	24
3.3 CONCEPTUALISATION	24
3.4 CONCEPTUAL MODEL AND ANALYTICAL FRAMEWORK	25
CHAPTER 4: RESEARCH METHODOLOGY	27
4.1 GENERAL.....	27
4.2 RESEARCH DESIGN	27
4.3 SELECTION OF STUDY AREA AND CASES	28
4.3.1 Selection of study site	28
4.3.2 Selection of cases for study.....	30
4.3.3 Selection of informants	31
4.4 RESEARCH METHODS	32
4.5 INFORMATION COLLECTION	33
4.6 GENERATION OF ISSUES FOR INQUIRY TO ANSWER THE RESEARCH QUESTIONS	34
4.7 FEEDBACK AND TRIANGULATION	36
4.8 METHOD OF DATA ANALYSIS	36
4.9 LIMITATIONS ENCOUNTERED	36
CHAPTER 5: FIRST CASE	37
COMMUNITY LEVEL NATURAL RESOURCE USE NEGOTIATION PRACTICE ON PUBLIC LAND AND FOREST.....	37
5.1 INTRODUCTION.....	37
5.2 CONFLICT RESOLUTION PROCESS: NARRATIVE DESCRIPTION.....	37
5.3 DISCUSSION ON THE CONFLICT RESOLUTION PROCESS	44
5.4 FACTORS AFFECTING THE CONFLICT RESOLUTION: LINKING WITH THEORETICAL CONCEPTS	47
5.4.1 Feeling of ownership.....	48
5.4.2 Initiatives of the users	48
5.4.3 Social support, network and linkages	48
5.4.4 Political allegiance	49
5.4.5 Local norms, values and beliefs.....	49
5.4.6 Feeling of group identity.....	50
5.4.7 Information and communication.....	50
5.4.8 Power, position and interests	50
5.5 CONCLUSION.....	51

CHAPTER 6: SECOND CASE	52
CONFLICT RESOLUTION PROCESS ON SPRING WATER SOURCE.....	52
6.1 INTRODUCTION.....	52
6.2 CONFLICT RESOLUTION PROCESS: NARRATIVE DESCRIPTION.....	52
6.3 DISCUSSION ON THE CONFLICT RESOLUTION PROCESS	55
6.3.1 The Madheshakarta-toli and the Purohit.....	56
6.3.2 Role of the ENAP and the DWSO technician.....	56
6.3.3 Cultural norms, values and beliefs.....	56
6.3.4 Size and complexity of the conflict	57
6.3.5 Inhibiting forces	57
6.3.6 Other observation	57
6.4 FACTORS AFFECTING THE CONFLICT RESOLUTION: LINKING WITH THEORETICAL CONCEPTS	58
6.4.1 Drinking water need of the villagers.....	58
6.4.2 Initiation of women.....	58
6.4.3 Issue of ownership.....	59
6.4.4 Communication	59
6.4.5 Facilitation	60
6.4.6 Role of indigenous institutions	60
6.4.7 Other observations	60
6.5 CONCLUSION.....	62
CHAPTER 7: THIRD CASE.....	63
WATER USE CONFLICTS AND RESOLUTION PROCESS ON FARMERS' MANAGED IRRIGATION SYSTEM.....	63
7.1 INTRODUCTION.....	63
7.2 BACKGROUND.....	63
7.3 CONFLICT RESOLUTION PROCESS: A NARRATIVE DESCRIPTION.....	64
7.4 DISCUSSION ON THE CONFLICT RESOLUTION PROCESS	69
7.4.1 Customary water right and distribution regulation	70
7.4.2 Allocation and distribution of water	70
7.4.3 Management, operation and maintenance of the system	71
7.4.4 Monitoring and supervision by responsible agencies	71
7.4.5 Large number of people with diverse objectives and interests.....	72
7.4.6 Transparency issue on the use of funds	73
7.4.7 Other observation	73
7.5 FACTORS AFFECTING CONFLICT RESOLUTION: LINKING WITH THEORETICAL CONCEPTS.....	74
7.5.1 Power and politics.....	74
7.5.2 Communication and feedback.....	76
7.5.3 Leadership quality	76
7.5.4 Role of development organisations.....	77
7.5.5 Role of customary norms of the village.....	78
7.5.6 Other opportunities and alternate options	79
7.5.7 Perceptions towards the problem	79
7.6 IMPLICATION OF CONFLICT	80
7.7 CONCLUSION.....	81

CHAPTER 8: COMPARISON OF THREE CASES: REFLECTION ON THEORY.....	83
8.1 INTRODUCTION.....	83
8.2 COMPARISON OF THREE CASES ON THEORETICAL CONCEPTS AND GENERAL CHARACTERISTICS OF THE CONFLICTS	84
8.3 APPLICABILITY OF THE SOCIAL LEARNING APPROACH IN COMMUNITY LEVEL NRM	86
8.3.1 Platform formation (forum) for collective decision making.....	87
8.3.2 Interactive goal setting including negotiation and conflict resolution.....	88
8.3.3 Vision building from multiple perspectives to guide concerted action	88
8.3.4 Developing leadership and ability to act.....	89
8.3.5 Mobilisation of resources for action	89
8.3.6 Construction of shared learning through interaction	90
8.3.7 Knowledge for adaptive management of bio-physical environment.....	90
8.3.8 Knowledge for the participatory management of social process.....	91
8.3.9 System feedback.....	92
8.3.10 Coalition.....	92
8.3.11 Facilitation	92
8.3.12 Concerted action.....	93
8.3.13 Actor oriented perspective	93
8.4 CONCLUSION	93
CHAPTER 9: FINAL CONCLUSION	95
9.1 INTRODUCTION.....	95
9.2 CONCLUSION	95
9.3 AREA NEEDS TO BE FURTHER RESEARCHED.....	99
APPENDICES	100
APPENDIX I: LIST OF PRESENT MEMBERS OF THE FOREST USERS COMMITTEE	100
APPENDIX II: LIST OF THE MADHASTHAKARTA-TOLI IN SPRING WATER SOURCE CASE	100
APPENDIX III: MAJOR SUPPORT OF VARIOUS DEVELOPMENT PROJECTS IN THE STUDY VDC	100
BIBLIOGRAPHY.....	101

List of Tables

Table 1: Areas of inquiry to answer the research questions.....	34
Table 2: General overview of the public land	39
Table 3: General overview of the spring water source.....	52
Table 4: General overview of the AFMIS.....	64
Table 5: Comparison of three cases.....	84

List of Figures

Figure 1: Causes of natural resource degradation in Nepal.....	9
Figure 2: Conceptual linkages of different variables	26
Figure 3: Schematic diagram for selection of site, cases and respondents.....	32
Figure 4: Conditions for sustainable natural resource management	99

List of Boxes

Box 1: Summary of chronological events in the public land.....	39
Box 2: Summary of chronological events in the AFMIS conflict	64
Box 3: Rules made and executed by the <i>Kulo Rekhdekha Samiti</i> before 1974.....	70

List of Maps

Map 1: Relative location of the research site.....	29
Map 2: Map showing the location of the public land.....	38
Map 3: Location of water source and hamlets of users.....	53
Map 4: Map showing the wards covered by the canal	65
Map 5: Alignment of the canal before and after formal intervention	65

List of Acronyms

ADB	Asian Development Bank
AFMIS	Andheri-Farmers Managed Irrigation System
AKIS	Agricultural Knowledge and Information Systems
AK	Adaptive Knowledge
AL	Adaptive Learning
AM	Adaptive Management
AMIS	Agency-Managed Irrigation System
ANSAB	Asia Network for Small-Scale Agricultural Bio-resources
CARE-N	Co-operation American Relief Everywhere-Nepal
CBS	Central Bureau of Statistics
CP	Constructivist Perspective
CPN-UML	Communist Party of Nepal-United Marxist-Leninist.
CPR	Common Property Resources
DAO	District Administration Office
DBA	Dolakha Bar Association
DC	District Court
DDC	District Development Committee
DDDP	Dhading District Development Project
DDG	Deputy Director General
DIO	District Irrigation Office
DOF	Department of Forestry
DPO	District Police Office
DSCO	District Soil Conservation Office
DWSO	District Water Supply Office
ENAP	Environment and Population Awareness Programme
EPC	Environment Protection Council
ESG	Economic System Goals
FMIS	Farmers Managed Irrigation System(s)
FREEDL	Legal Research and Development Forum
FUC	Forest Users Committee
FUG	Forest Users Group
GDP	Gross Domestic Product
GO	Governmental Organisation(s)
GTZ	German Development Co-operation
HAS	Human Activity Systems
HMG/N	His Majesty's Government of Nepal
HRD	Human Resource Development
IAAS	Institute of Agriculture and Animal Science
ICIMOD	International Centre for Integrated Mountain Development
IHDP	Integrated Hill Development Project
II	Indigenous Institutions
IK	Indigenous Knowledge
ILEIA	Information Centre for Low External Input Agriculture
IM	Indigenous Management
IMSSG	Irrigation Management Systems Study Group

IOF	Institute of Forestry
IRDP	Integrated Rural Development Project
IUCN	International Union for Conservation of Nature
JIMS	Jointly Managed Irrigation System
JTA	Junior Technical Assistant
KIS	Knowledge and Information Systems
KS	Knowledge Systems
KSP	Knowledge Systems Perspectives
LK	Local Knowledge
MAKS	Management of Agricultural Knowledge Systems
MHDP	Mechi Hill Development Programme
NCP	Nepali Congress Party
NEPAP	National Environment Policy and Action Plan
NGO	Non Governmental Organisation(s)
NMG	Nepal Mediation Group
NPC	National Planning Commission
NR	Natural Resources
NRM	Natural Resource Management
RDC	Rural Development Centre
RPP	Rastriya Prajatantra Party
SATA	Swiss Association for Technical Assistance
SL	Social Learning
SLA	Social Learning Approach
SMNR	Sustainable Management of Natural Resources
SNV/N	Netherlands Development Organisation/Nepal
SS	Soft Systems
SSD	Sarba Sampana Daudaha
SSG	Social Systems Goals
SSM	Soft Systems Methodology
SST	Soft Systems Thinking
TK	Technical Knowledge
TOT	Transfer of Technology
TU	Tribhuvan University
UMN	United Mission to Nepal
VDC	Village Development Committee
WAU	Wageningen Agricultural University

ACKNOWLEDGEMENTS

First of all I would like to express my sincere gratitude to the board members of the Foundation Sharing Responsibility for Students, who sponsored my study. I want to extend sincere thanks to my supervisor Professor Dr. Niels Røling, for his endurance and guidance beginning from the proposal writing to completion of this thesis, despite his extremely busy schedule. I am so impressed with his way of looking to problems. Without his vivacious support, this thesis would not have appeared in this form. I would like to express my sincere appreciation to Professor Dr. A.W. Van den Ban for his suggestions, practical support and visit arrangement to different parts of the Netherlands which make my stay in Wageningen more comfortable and enjoyable.

During the field study period, people of the study area extended their full support and co-operation. I wish to pay special tribute to them for such co-operation and help. Special mention must be made of ENAP and its staff members for their great support during the field study. In course of preparation of this thesis, I have also had the benefit of discussing the subject matter with involved staff from DPO, DC, DAO, DIO, DDC, DWSO, DFO, DSCO. I express my deep sense of gratitude to all of them. In collecting information, different people provided valuable information. I would like to thank all of them. I am thankful to the VDC Chairman and other members for their support during the field research. I feel deeply indebted to the Chairman of Dolakha Bar Association Mr. Saroj Upreti for his support during the visit of district headquarters and field work. I wish to thank the SNV-Nepal and its Director Mr. Tom Derksen for awarding me a "Leadership Award" to study MSc in WAU. Ms. Kanchan Lama (HRD Officer, SNV-Nepal) is thanked for her support to facilitate Leadership Award decision process. Thanks go to DDG of DOF and member of NMG Mr. K. B. Shrestha, Dr. Ganesh Shivakoti (IAAS/TU and Co-ordinator, IMSSG), Dr. Rajendra Pradhan (FREEDEL), Documentation Officer Ms. Neera Budhathoki (ICIMOD), Mr. Bhisma Subedi (IOF), Mr. Govinda Rimal (Care-Nepal), Mr. Buddhi Khaling, Sanjeev Shakya and Tara Pandey; my colleagues from WAU, Mr. Bed Mani Dahal (Kathmandu University) for their help and co-operation. I am very grateful to Mr. Ton Olofsen from MHDP for his help in preparing the admission process.

Special mention must be made of MAKS Programme Director Ms. Martha Bloemberg and Secretary Ms. Mieke Sibbing, for their excellent support during my study in WAU. Heartfelt gratitude to all MAKS 11 colleagues from whom I gained rich experience from around the world. I owe special thanks to Mr. Allen Kebba for his help to resolve computer related problems. I pay tributes to the staff of the Dean's Office for International Students for their support during my stay in the Netherlands.

Continued support of my wife Ms Yamuna not only to carry out this study but also in every sphere of life is highly appreciated. Patience of our daughter Asmita who was away from both of us (Yamuna and me) during the study period is highly appreciated. Dr Frank Vanclay (Charles Sturt University, Australia) deserves special thanks for his comments and suggestions on draft report. At last but not the least my sincere words of thanks to Mr. A. Spylenman and A. H. Druijff for their help in English language correction.

I share the merits of this research with all those who assisted the research process. However, the weaknesses of this thesis solely remain with me.

Abstract

This research examines the practical significance of social learning principles in natural resource management at the implementation level and proposes mobilisation of indigenous institutions and application of social learning as an alternative approach for sustainable management of community level natural resources in Nepal. The thesis argued that the natural resource management strategy in Nepal is predominantly based on learning to control instead of learning to adapt. Norms, values, beliefs, perceptions and knowledge of the stakeholders, as well as power, linkages and networks, legal provisions, religious feelings, cultural traditions and economic conditions etc. have enormous influence in community level resource management processes. This thesis presents an analysis of strategies and mechanisms of rural people to deal with community level natural resource management. An attempt is made to answer the question: *How does the natural resource use negotiation process proceed at community level common property resource management, and to what extent can the social learning approach explain this process in order to contribute to sustainable management of natural resources in Nepal?* The impact of government intervention in local natural resources has been analysed. An analysis of allegiance to political parties to rural conflict issues is presented. The role of development organisations was identified to provide a common forum by facilitation rather than of implementing natural resource management projects themselves. When government institutions intervene in management of local natural resources ignoring local dynamics, they ruin the local management structure and mechanisms. The analysis revealed that middle level farmers and poor people preferred informal means of conflict resolution rather than utilising formal institutions. Leadership quality was one of the contributing factors to resolve the conflicts. The study revealed that rural women, especially older married females, were far more co-operative and assertive in resolving the local level conflicts because of their ability to accommodate different perspectives. People lacking social support were likely to be victimised by others, creating conflict situations. Conversely, those with strong social networks had the possibility of gaining support from their peers even if they were in the wrong. The power-brokers in the community tended to bypass and ignore local patterns of conflict resolution. Local values and norms led to a pragmatic course of action in sustainable management of natural resources. The effectiveness of the rural resource use negotiation is mainly determined by the needs and strategies of the stakeholders and the scale and complexity of the issues. The thesis concludes that indigenous management structures and practices are often appropriate for the sustainable management of natural resources in rural Nepal.

CHAPTER 1: INTRODUCTION

1.1 General

This thesis explores the learning process and local dynamics involved in the resource use negotiation process and their impact on natural resource management (NRM). Resource use negotiation processes are mainly based on the knowledge and experience gained by the users of natural resources and participants in litigation processes in Nepal. For the last decade, NRM has been an important issue for donors, governmental organisations (GOs) and non governmental organisations (NGOs). There is theoretical debate on how to make efficient, productive, equitable use, manage natural resources (NR) sustainably and learn from past experience for a better future. However, progress in this direction is not at the level of satisfaction. Resources are depleting, conflicts are widening, co-ordination among GOs, NGOs and donors is still not so strong and local initiatives and efforts are not getting sufficient attention. Scarcity, competition and over-exploitation are basic characteristics of NRM in Nepal. The result is fast depletion of NR. This problem is not only a technical one. It is the combined result of technical, economic and social problems. Therefore, the purpose of this research is to explore how resource users are tackling these problems. How they learn to negotiate for sustainable use of available resources and what factors are enhancing and or inhibiting such a negotiation process. To explore this process, case studies were conducted in Dolakha district of the central Nepal where local people have been involved in a resource use negotiation process. Hence, this is an effort to look at the local level social dynamics in use and mis-use of resources and role of resource users to manage the conflicts and to look at the role of social learning to provide an alternative approach in dealing with uncertainties in NR issues.

This thesis is presented in nine chapters. The first chapter presents a general introduction to problems of NRM in Nepal, the gradual changing perspectives from the package programme to collective learning and contribution of such learning to the sustainable management of NR and rethinking on the sustainability of NRM. The second chapter deals with problem statement, research questions and the objective of the research. The third chapter briefly describes some important theories/perspectives and their contribution to the research problem. A conceptual model and analytical framework for research is also presented in this chapter. The fourth chapter describes the methodology used in this research. The fifth chapter deals the case on natural resource use negotiation practice on public land and forest. The sixth chapter describes conflict resolution process on spring water source case. The seventh chapter examines the conflict resolution process on farmers managed irrigation system. These three chapters are the heart of this thesis. These case studies explain on how resources use negotiation took place in practice and what factors played role in this process. Chapter eight briefly describes the comparison of three cases on theoretical concepts and states my own reflection on social learning theory. Finally chapter nine concludes the dynamics of resource use negotiation and its effect in the NRM and need for further research.

1.2 The context: NRM crisis in Nepal

My intention in this section is not to criticise the past Nepalese development efforts but to analyse the weaknesses for better understanding of the context. Nepal has started planned development activities to promote the economic development only since 1961. In the Nepalese history of development; productivity-oriented model for a long time focused on economic output. Success of

development was measured by economic indicators like economic output and employment. The programming process involved generally relies on the use of aggregate economic data to define needs, and on consensus of the current expert's opinion to determine the design of development projects best suited to responding to those needs (Upreti, 1997c). Hence, the development was considered simply as the movement towards economic progress and growth, measured in terms of sustained increase in per capita income (Korten and Alfonso, 1983). Growth strategy was advocated by the development planners as crucial for the development of the country. Development policies were designed to achieve rapid increases in economic value by channelling technologies and resources to those farmers who were easiest-in both the psychological and administrative sense- the larger, modern farmers with access to credit, capital intensive technologies and markets (Upreti, 1997c). Emphasis was given on the promotion of such crops which would produce the largest profit margins, on those for export or elite consumption (Korten and Alfonso, 1983). The emphasis on "Green Revolution Model" was the witness of such policy in Nepal. But later, this model of development appeared to entail increasing the gap between rich and poor, and an adverse effect on environment (Upreti, 1997c). Adoption of this model, despite its phenomenal expansiveness, was rooted in the politics that brought together ruling elite, conservative economists and development theorists (Alvares, 1990). Therefore, the well-being attempted to be maintained by economic growth is not the same as the overall level of well-being of Nepalese people.

Nepalese history of development is entangled with the rhetoric, like the increase economic productivity, greater employment opportunities, more equitable distribution of wealth, effective delivery mechanism for social services, increased political and administrative capacity, decentralisation and wider popular participation (Upreti, 1997c). This is easier said than done. Whole efforts on rural development in general and NRM in particular were based on learning to control rather than learning to adapt. Exhaustive use of NR was arguably compensated by the expectation of economic betterment (Upreti *et al.*, 1997b). In these days, to fit with the increasing global concern NR-related issues were raised by many organisations, both GO's and NGO's and implemented in different parts of the country. Planned NRM intervention by outsiders in Nepal is mainly observed in terms of supplying material resources or disseminating knowledge and information. But they are not yet fully successful to organise people on a common platform for collective decision and action. They are still not flexible enough to visualise the relationship between human activities and feedback. Because NRM and their exploitation being very crucial for the risk society (Beck, 1994), it has been used by people as their means of survival. On this ground, the NRM process should be the enlarging of human choices, and should be operationally focused on the long term maintenance of NR to maintain living conditions for future generations. Day to day survival of a human livelihood system often depends to a large extent on the utilisation of NR in the immediate surrounding of the people involved (Kessler, 1996). Hence, there is urgent need for sustainable NRM to provide goods and services to the ever growing population. Available NR is growing scarce due to population pressure, depletion of resources and inequity in access to these resources. Use and misuse of NR are being part of their life to Nepalese people (NPC/ADB, 1995).

It is a well-understood fact that, problems of NRM is very complex and greatly concerns the maintenance of an effective balance between development and environment through balanced and complementary utilisation of existing NR (Upreti, 1991). Given the situation of rapid degradation and consequently declining production levels, the symptoms of unsustainability of NR are observed in Nepal (*ibid*). Nepal is facing a number of serious problems on NRM as Hardin's (1968) 'tragedy of the commons'. Deforestation and soil degradation have seriously threatened the environment. This problem not only depressed the natural resources-based income but also contributed to soil erosion and fertility loss, damaged ecosystems, degraded watersheds and other adverse environmental effects (Upreti, 1990). Erosion and sedimentation

have emerged as serious problems in many watershed areas. Watersheds that comprise over two thirds of the country's land area have experienced degradation due to inappropriate farming practices and de-vegetation (EPC, 1993). In a country where more than half of the total population lives under the poverty line, a lack of economic and managerial alternatives means that people face a limited set of choices in determining their own survival. A rapidly growing population is exerting increasing pressure on a limited resource base, depleting and degrading NR. Past efforts have often failed to curb and reverse the high rate of NR depletion and environmental degradation (NPC, 1992). The effects of these problems are reflected in the reduced productive capacity of the NR base. Soil degradation is taking place as a direct result of agriculture and forestry production systems that are become increasingly marginalised.

The capacity of forest and rangeland to continue to regenerate and produce the needed products are adversely affected by declining soil fertility. This is threatening to the development of productive, profitable and sustainable agricultural systems (NPC/ADB, 1995). Likewise, in many areas a shortage of available cultivable land is leading farmers to encroach on marginal and forest land. Livestock trampling the land by free grazing cause soil compaction and erosion. Roads, irrigation, hydroelectric and other big infrastructure projects are also imposing significant environmental problems and threatening the NR. Efforts at NRM are still too bureaucratic. Multiple perspectives and social dynamics are under-emphasised and little attention is paid to local decisions. A narrow approach concentrated mainly on bio-physical aspects has been strategically emphasised with regard to conservation and management of NR (Upreti, 1997b). Therefore, balanced and co-ordinated development efforts on NR use in order to meet the basic needs of Nepalese people in a sustainable manner, and to manage, develop and conserve the NR, keeping in view the social, economic and cultural needs and potentialities of the present and future generation, is the greater challenge at present.

In broader sense, NRM deals with the whole biosphere: as air, water, land, minerals and vegetation that provides ecological services (personal communication with Röling). Most common NRM problems where rural people are directly involved in Nepal are forest, land, soil conservation, water, pasture, wild life and livestock management on farm level, catchment level and or broader ecosystem level. In all these management processes, norms, values, beliefs, perceptions and knowledge of the stakeholders, power, linkages and networks, legal provision, religious feelings, cultural traditions, etc. have enormous influence. NRM is shaped by these factors. Whole management systems and exploitation of NR are determined by their life-world situation. They have their own strategies on generating, utilising, exchanging knowledge and information to tackle their household problems and poverty-related issues. Local people have their own ways and mechanisms to internalise, validate and respond to external NRM intervention in their area. NRM is being a broad and complicated issue, it is not possible to handle at an individual level. One of the crux of whole NR related problems in my opinion is the inadequate involvement of stakeholders for joint decision and concerted action. To bring stakeholders to the collective decision and action, suitable approaches and strategies should be in place. To address these broader problems different organisations started NRM programmes with their own strategies, approaches and procedures. Such approaches and strategies generally ignored the learning process for collective decision and action. Knowledge and experiences possessed by local people in the management of NR were underemphasised. Therefore, whole efforts of such organisations are contributing very little to solve this problem. The situation is further worsened by the lack of co-operation and co-ordination among the development organisations responsible for NRM. This situation is well summarised by the following quotation:

“ A JTA¹ comes and tells us to grow new crops, new seeds, use fertilisers and insecticide and not to plant trees around the homestead that could have a shading effect on growing crops; a ranger comes and tells us to grow grasses on the terrace risers, gullies, plant trees on bonds of upland areas for fuel and fodder, decrease the cattle population and have less grazing on forest cover, and tells us to plant more trees on abandoned terraces and around the homestead, not to graze in the forest. The livestock staff come and tell us to improve animals, increase goat and buffalo population and plant grass and fodder trees on unproductive upland. The family planning people tell us to decrease the population. We do not know what to do, what to accept or reject, their sayings are often contradictory and we have not been able to decide what to do”.

- Expression of a rural farmer (Shah, 1980)

This type of contradictory sectoral technology transfer model of NRM approach is still prevalent in Nepal. Much of the current preoccupation with NR issues stems from a widely held conviction that NRM in rural areas, has for a variety of reasons, been inappropriate and only external interventions provide means and ways to appropriate it. This conviction is clearly justified by above quotation of a rural farmer. But farmers' ways and approaches of NRM and negotiation processes, communication mechanism has been ignored and they are blamed for over exploitation of NR. In decision on NRM one needs information on the available alternatives and on the consequences one can expect from each alternatives. To increase the alternatives (choices) information from research and local people (indigenous knowledge) needs to be combined (personal communication with Van den Ban). However, neither economic liberalisation and free market nor science-based advance linear technologies are yet able to combine these two issues and to improve so-called irrational exploitation of NR (Upreti, 1996). In these days social learning theories have been developed to address these problems. These theories argued that the better way to deal with complex NR related problems is to facilitate social learning whereby adaptive management at system level can be enhanced in a common platform. But still it is not yet clear that these theories are able to better explain real practices of NRM on implementation level.

1.3 Shifting perspectives: rethinking sustainability in NRM in Nepal

1.3.1 Shifting perspectives

It should be self evident that NRM must be central to sustainable development for the future. As widespread depletion of NR in Nepal is alarming, it is necessary to look for an alternative approach and to find ways to sustain these resources. The classical model that a blue print package programme can engineer sustainable management of natural resources, is gradually outdated (Upreti, 1997b). Breakthroughs in concept of multiple realities, action oriented approach, adaptive management, soft systems thinking, and shared learning in different parts of the world gave entirely new perspectives to NRM to work in local level. Movement towards the people centred approaches (i.e. participation, empowerment, capacity building, equity, etc.) in different countries is fundamental evident of shifting perspectives from narrow economic growth focus approaches to broader perspectives which encapsulate the shared learning for collective action.

¹ This is a very popular bureaucratic position in the development discourse in Nepal which stands for Junior Technical Assistant, a village based extension worker appointed by government to support farmers.

One way or another, Nepal is also to some extent influenced by new perspectives developed in different parts of the world. Therefore, it is a good start in Nepal for decentralisation, not only transferring power and authority to local bodies but also respecting and or promoting local practices and experiences. NRM agenda, rapidly driven by global concerns has also been shifting overtime in Nepal to look for environmental impact on development issues. Therefore, in recent days NRM in Nepal is expected to change much more than simply raise economic growth. Furthermore, social and ecological concerns which are currently accounted for in NRM by different Parliamentary Committees, Ministry of Population and Environment, National Planning Commission, Environment Protection Council, etc. Recent Documents of NPC and Environment Protection Council are witness of such perspectives and paradigms shift in Nepal. Therefore, at present NRM is in a crossroad in Nepal. Many organisations and donors, who are not still fully convinced with the new perspective, are also not able to completely ignore emerging paradigms in NRM.

Increasing attention to the problems related to the NRM and their impact on the environment is triggering the paradigm shift. The new paradigm of social learning is recognising the needs of collective efforts to sustain NR for future generations. This leads to complete change in concept of sustainable management of natural resources (SMNR). In the recent years, more attention is given to the social dimension and actors perspective for the achievement of SMNR by bringing “hard”, more traditional scientific elements together with social actors’ approaches using a soft system perspective which recognises the multiple realities and platform for collective decision and action for NRM (Röling, 1996b). This new perspective introduces new ways of approaching NRM and urges explicitly for a better understanding of social context (i.e. political, institutional, economic and cultural) in which NRM is embedded. In this ground NRM itself is a broader social process. Knowledge generation, creation of platforms, negotiation, multiple perspectives of different actors, and adaptive management are broad-based elements of the new approach of NRM. It is a good start in Nepal to strike a balance between the welfare of general public, the right of stakeholders and to ensure social justice and a balanced environment for sustainable future. These actors, in the context of new perspective are not mere participants, rather they are stakeholders with an interest in the outcomes of the learning process. Joint learning is fundamentally based on working together to solve the common problem.

Due to different social and environmental problems many approaches of the past were not able to provide the desired social impact, so finally thrust in people-centred new approaches in NRM, especially in agriculture and rural development in Nepal quickly came into discussion. Churiya Forest Project of GTZ, Nepal Resource Management Project of UMN, Mechi Hill Development Programme (MHDP), Karnali Local Development Project and Praja Community Development Project of SNV-Nepal are some emerging examples of this approach (Upreti, 1996). In present days in Nepal, ecosystem maintenance, bio-diversity, water recharge, clean air, sacredness and values handed down from the earlier generations are now considered important and forcing policy makers and planners to take them in to account (Rhoades, 1997). Nevertheless, component research in agriculture and forestry (soil, water, plants, animals, etc.) combining with NRM is more complex and complicated for farmers, researchers and policy makers. However, some effort on operationalisation is made nowadays in Nepal. Although, it is still limited due to the contradiction on need of short run food production and resources conservation as well as the requirement of donors on impact of their support that are virtually immediate and measurable (Rhoades, 1997). Despite the often quoted statement that planners and policy makers have longer planning horizon than farmers, government officials and donors have their own specific agenda that still runs counter to the long term goal of farmers on sustainable management of NR.

1.3.2 Rethinking sustainability in NRM

Since sustainability as a development concept burst on to the international scene in the late eighties' scholars, academicians, policy makers and development interventionists have struggled with precision for definition (Conway and Barbier, 1990). Sustainability has been discussed, scrutinised and emotionally debated from different perspectives. At the level of slogan and politics, sustainability is valuable just to remind government that short-run production may undermine long-run production unless they are careful how the environment is treated. Another group of scientists argue that the sustainability concept should encompass more than myopic economics and production and must also seen in terms of culture and quality of life. Ecologists, in turn, are concerned with ecosystemic functioning as their priority, often leaving people out altogether (Conway, 1994). Another strong and the latest concept of sustainability is defined by constructivist interventionists. In the constructivist epistemology, sustainability is an emergent property from the system (Röling, 1996). To make the use of NR sustainable, local knowledge and experiences need to be acknowledged and encouraged. Sustainability is emerging within the system as defined by stakeholders. Therefore, joint learning among the stakeholders is a very important strategy to achieve sustainability. Basnyat (1995:77) explained that:

“For sustainable natural resources management, a coupled system is required between a “hard” agroecosystem constructed according to bio-physical science and managed on the basis of instrumental reasoning and a “soft” platform constructed according to social insight and managed on the basis of strategic and communicative reasoning. This also means that sustainability should be viewed as an emergent property of such a coupled system.

To make the NR more sustainable, actors have to feel themselves capable to work together and adjust to the change. The external support needs to be directed to facilitation rather than to decision making. Facilitation is very important for joint learning which requires listening and questioning skills, analytical capacity, sensitivity to group process, capacity to handle the conflicts and promote synergy. Therefore, an institutional framework is required for better facilitation. Röling (1996b) argues that framework for facilitation will be necessarily different from those commonly found in a technology transfer model. Facilitation creates environment to form a platform that gives ground to bring stakeholders together for a common objective. At that time their autonomy, to some degree, may be sacrificed for the common objective of sustainable management of NR (Ibid). An important aspect of facilitation is to create environment for discussion of common problems and search alternate solutions jointly and implement it collectively. Conflict resolution and negotiations, management of power relation, realisation of interdependence among the stakeholders is fundamental issues for sustainability that is shaped by facilitation, platform process, institutional framework and policy context (Röling, 1996b). It will be an illusion to expect conflictless situations in common NR. 'Social dilemma' situation and 'tragedy of commons' are very strong concepts in NR.

Sustainability in NRM from the constructivist perspective grows from a different theoretical basis and set of assumptions. Therefore, definition and position of sustainability reflect differences in terms of interpretation and explanation as compared to hard system definitions (Maarleveld *et al.*, 1997). A solid understanding of underlying assumptions of the constructivist perspective of sustainability is absolutely crucial if we intend to establish a social learning approach for sustainable management of NR to resolve/minimise the social dilemma situation.

I also argue, in this thesis that we need to move beyond hard-core definition of sustainability and focus more on joint learning strategy that treats sustainability as a construct emerged from the stakeholders. Sustainability has to emphasis the human ability to resolve the problems by

agreement through dialogue and discourses. I believe that local stakeholders have the tremendous internal strength to solve their problems, rather than being a source of problems. They in fact possess extremely valuable indigenous knowledge and answers to problems. Local people have, through their experiences, normative values, customary regulations and trial and error in their practices, learned to cope with adverse situations and the unique environment of their locality. There is, for example, evidence from many places of Nepal, that farmers are actually increasing their forest area on their own (Fox, 1993; Virgo and Subba, 1994). Hence, farmers themselves are capable to define/construct a sustainability concept for the use of available NR.

CHAPTER 2: PROBLEM STATEMENT AND RESEARCH OBJECTIVES

2.1 Background of the problem

“The proper management of Nepal's land, forest and water resources is essential to guarantee and enhance continued productivity of the country's agriculture, on which vast majority of the population depends”

- HMG/N in Nepal Environmental Policy and Action Plan.

Natural resources in Nepal are in the cross-road of crisis. Proper management of NR of Nepal is essential not only to guarantee and enhance the continued productivity but also to ensure the sustainability. Agricultural productivity in Nepal is stagnant. One of the principal reasons for low agricultural productivity is poor management and utilisation of NR (EPC, 1993). Deforestation, soil fertility deterioration, sedimentation, devegetation, forest and public land encroachment and shifting cultivation are few of the many serious problems to mention. One of the major causes of all these problems is the population growth. High density of human population and livestock have significant impact in Nepalese NR. Therefore, this NR related problem is not only complex but also forcing Nepalese people to seek the maintenance of an effective balance between exploitation and conservation of these resources.

Rapid deterioration of the ecological balance of the hills and the Terai regions is the witnesses of this warning. Given this situation in context, there is an urgent need to promote analysis of human activities as emergent form of intentionality, human learning, economic system and agreement (Röling, 1997b) in NRM issues is most essential. Prompt action in social aspects of NR is essential to sustain the NR. Planned intervention in a linear transfer of technology (TOT) model is not often contributing to this human activity analysis. Only highlighting NR related problems in papers and seminars and having lip-service commitment for better management do not mean that this process is likely to happen spontaneously in Nepal. It requires suitable institutional framework, facilitation process, critical analysis of the causes of the problems, creation of awareness among the actors, realisation of the problems by stakeholders, grasping ecological opportunities, adapted learning, and joint action as well as fresh and broad perspectives. To enhance such process some sort of facilitation is needed. Facilitation is effective only when people realise that it is necessary to change their behaviour. This realisation depends on different reasons. Röling (1997b) identified these reasons as attitude, fear, power, agreement, learning, greed, relative deprivation, knowledge, new information, commitment, motivation, trusts, ethnic identity, culture and incentives. So far these reasons are not much analysed. There would be a better management of NR if these reasons are analysed and farmer's knowledge is recognised and mobilised.

Social learning, if I understood correctly, is an important and latest approach to deal with uncertain and unpredictable issues on NRM. However, this learning aspect is not getting sufficient attention in NRM in Nepal. One can argue that external intervention is extremely essential for development of a country. But it is not often likely to have positive impact on NR. His Majesty's Government of Nepal in National Environment Policy and Action Plan (NEPAP, 1993) identified that:

“Impact of urbanisation and industrialisation are beginning to create serious environmental problems in some areas of Nepal. Also many development projects, particularly large infrastructure projects can have adverse environment impacts” (EPC, 1993: xv).

NEPAP is trying to integrate environmental concerns into the development processes, but it is still unclear how the human activity systems will be analysed and how local knowledge will be recognised and mobilised for the sustainable management of NR in Nepal.

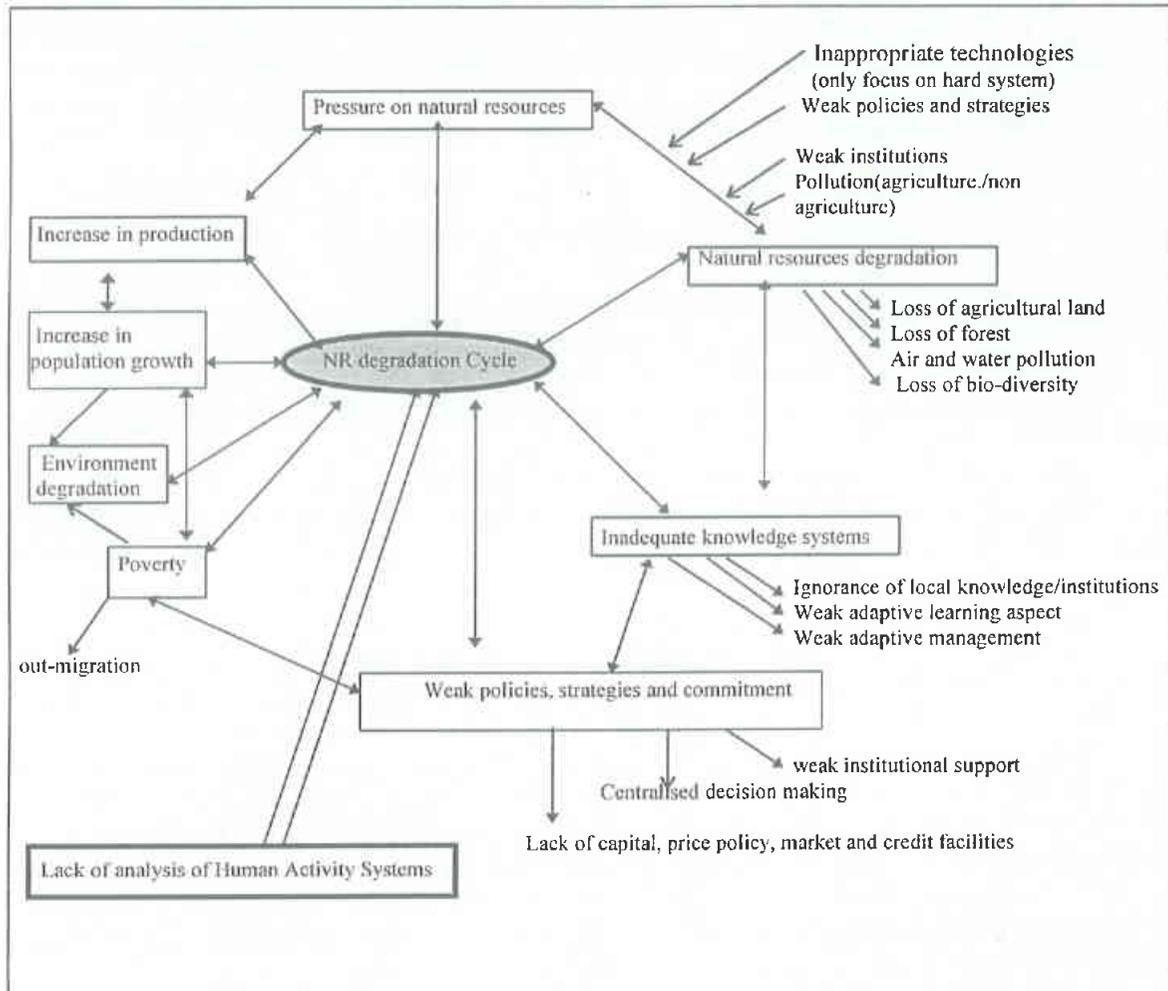


Figure 1 Causes of natural resource degradation in Nepal

As Figure one clearly depicts, NR in Nepal is heavily threatened due to different factors like use of inappropriate technologies (emphasis only on hard science), weak policies and strategies, lack of commitment from development organisations and weak institutions (in terms of co-ordination and integrated function), etc. Population growth in Nepal is increasing at the rate of 2.66 percent with the total of 21.2 million in 1996 (CBS, 1996: 36, projection) which virtually increasing food demand. This situation is exerting pressure on natural resource base. To meet the over increasing demand of food is greater challenge. This situation leads to degradation of NR (loss of agricultural land, forest and bio-diversity and air and water pollution). Inadequate knowledge system (KS) is one of the root causes of these problems. Indigenous knowledge (IK) is ignored and social aspects is not getting sufficient attention in current NRM strategy and action. Policies, strategies and commitment are weak in this sector. This situation is further triggered by poor financial and marketing strategies, credit facilities, weak institutional

framework, etc. This all leads to rural poverty that ultimately forces people to an inappropriate encroachment on NR. HMG/N therefore, is placing a lot of emphasis on how to increase food without exerting severe pressure on available natural resource base (NPC/ADB, 1995).

Although, currently quite some discussions and thinking on the social aspects of NRM is going on at policy level, focus is still on economic system goals (ESGs) and little attention is given to biological systems (BS). Social system goals (SSGs) are not being given their due weight in Nepal. The value system of human beings affects decision making process which includes consumptive, non-consumptive, productive, options and existence value. Poudel identified the main human factors contributing to weakening of NRM in Nepal are population growth, poverty, misconception, anthropocentrism, cultural transitions, economics, and policy implementation (Poudel, 1997). Sustainability in NR means maintaining BS, ESG and SSG as well as equity and institutional strengthening. This is mainly depends on the livelihood and value system of people and institutional policy of government.

There is a strong tendency towards reductionist analysis of NR related problems, which in turn precludes the socio-political dynamics, local knowledge (LK) and indigenous institutions (II). Reductionist specialists in Nepal ignore ability and knowledge of local people who possess a resilient capacity to survive, and it should be the role of academic scholars, researchers, policy makers, environment activists, and NRM specialists to make it possible for this local capacity to express itself for common future (Rhoades, 1997). Over the past decade researchers, planners and development specialists are focusing on environment and NR related problems but still they are not able to visualise the problem from the constructivist perspective. Building on the past experiences, but developing/promoting the idea of constructivist perspective, Basnyat and other professionals at SNV/N have shed light in recent years in Nepal (Basnyat, 1995; MHDP, 1995; Upreti, 1997a; Rhoades, 1997).

A great deal of confusion in SMNR comes not only from different perceptions and perspectives of planners but also from the fact that development practiseners intervene without references to local dynamics. Policy makers and development professionals are often unclear about what activities help local people to define their problems and how different spatial and socio-demographic levels are linked (Rhoades, 1997). Rural Nepalese people may be poor in capital but rich in other areas such as knowledge on NR, culture and resources management; and they also possess specialised technologies or social strategies for dealing with the NR (Rhoades, 1997). However, formal institutions and organisations are not giving sufficient attention to LK and II stating their limitation to deal on complex issues like population growth, new technologies and changing situations. Certainly they do not fully able to deal on such issues but undoubtedly gives sufficient ground to address these problems.

Broad and complex scenarios of the NRM problems presented above are interrelated and interconnected. However, one of the major cause of such problems is the selfish choice of people and their behaviour towards the NR. This obviously requires change in behaviour of people and focus on collective interests but that is against the interest of many individuals (personal communication with Van den Ban). These all above mentioned issues are very important and that needs to be looked upon by social research. Nevertheless, it is far from the scope of this short period research to inter upon these areas. Hence, I am deliberately leaving these issues and picking up only one important issue i.e., natural resource use negotiation from such multifaceted problems for my research.

2.2 Problem statement

Despite the fact that NRM is a priority policy of the government, despite the fact that NRM and exploitation issues are incorporated in acts, laws and regulations and despite the fact that many external organisations are investing huge amounts of money, time and efforts, the distinctly observed NRM problems as elaborated in section 1.2, is yet not fully addressed. Even frustrating is that a sound and broader approach is not still fully operational to deal with these complex problems. As explained in chapter one the linear model of planned intervention is not effective to promote the SMNR in Nepal. Past NRM approaches have generally failed to view the environment as a set of dynamic and interdependent human activity systems. To deal with such a dynamic and interdependent system, it is essential to analyse the reasons why people are changing their behaviour towards NR or are resistant to change. The possible reasons needing to be explored are attitude, fear, power, politics, agreement, knowledge, information, commitment, incentives, motivation, culture, religions, policies, institutional context, survival strategies of actors, bureaucracy, etc. In my opinion, it is almost impossible to ensure socio-economic sustainability of NR unless these issues are sincerely considered and people themselves are organised to start collective efforts.

Since time immemorial rural people have been autonomously involved in resources' use, negotiations, conflict resolution, adaptive learning and management processes even without any external planned intervention. They have their own mechanisms and procedures to deal with resource management and utilisation, communication, decision making, action, feedback system, organisation, networking, negotiation, conflict management, and adaptation. These practices are still very powerful in rural NRM scenario. However, this spontaneous management process and people's initiatives are not getting proper attention in Nepal. Very little efforts have been made to explore ongoing autonomous adaptive learning processes on resources use negotiation by some innovative organisations. In current days, social learning theories and concepts in NRM are gradually emerging. However, these theories and concepts still to be used as an approach at implementation level to explain the ongoing NRM processes and to look for the characteristics of social learning. Therefore, this research will make an attempt to look at what is happening in the NRM practice in the field in terms of resource use negotiation and to what extent social learning theories and concepts are able to explain the conflicts resolution in the of common property resources (CPR) and able to facilitate SMNR as an approach.

2.3 Research questions

2.3.1 General research question

How does the natural resource use negotiation process proceed at community level common property resource management practice and to what extent can the social learning approach explain this process in order to contribute to sustainable management of natural resources in Nepal ?

2.3.2 Specific research questions

- How are people dealing with conflicts related to natural resource use and how they are negotiating these conflicts in community level?
- How do people learn as group from the conflict resolution process to sustained use of natural resources in their situation?
- What factors are responsible for creation and or resolution of community level resource use conflicts?

2.4 Objectives

2.4.1 General objective

The general objective of this research is to understand the dynamics of community level natural resource management (resource use negotiation and conflict resolution) and to explore the practical significance of social learning approach in common property resource management to contribute to the current debate on the role of social learning as an alternate approach for sustainable management of natural resources in Nepal.

2.4.2 Specific objectives

- To explore resource use negotiation process in natural resource management at community level,
- To understand the factors affecting the resource use negotiation process in natural resource management,
- To see the applicability of the social learning approach at implementation level.

CHAPTER 3: THEORETICAL AND CONCEPTUAL FRAMEWORK

3.1 Perspectives used

Natural resource management is a very broad and complex issue. Therefore, to understand such complex issue, a broader and fresh perspective is needed. Perspectives shapes the way of understanding the complex phenomena. In this research some assumptions have been made to deal with the dynamics of NRM. First, local people are capable, sense maker and judgmental in managing NR. Second, conflicts, disagreement, and negotiation are part of the NRM process. Third, NRM is a broader socio-economic issue than merely a technical one, therefore a technical package alone can not be able to handle this issue in a sustainable way. To deal with this complex issue soft system thinking (SST), knowledge systems perspective (KSP) and constructivist perspective (CP) gives a broad conceptual framework. NRM requires new ways of thinking, action, feedback mechanism, adaptation to change, local initiatives and platform for negotiation (Röling and Jiggins, 1998). These aspects can be better understood by constructivist SST and KSP. I have made an attempt to briefly sketch these perspectives and how they are interlinked in the context of NRM as a basis of the research as follows:

3.1.1 Soft systems thinking

Soft system thinking is based on a *holistic* school of thought i.e. *holism (systems thinking)*. It was developed by Checkland (1981) in response to the failure of the hard systems approach. Hard systems thinking are based on the reductionist and positivist assumptions. In contrast to hard systems, soft systems are constructs with arbitrary boundaries. According to Bawden (1995), the holism refers to the belief that the world about us is structured as whole entities i.e. systems, with each system having properties different from the sum of its own parts as well as from other systems around it. All systems are part of other systems, just as they themselves are composed of subsystems. Bawden (1995) further identified the characteristics of the holism as:

- a. *systems are coherent whole entities and*
- b. *as coherent entities, they possess properties distinct from either their component subsystems or supra-system of which they themselves are part. These characteristics are called emergent properties i.e. they emerge at each level of system hierarchy.*

SST attempts to tackle complex problems from holistic view. It is founded on the idea of emergent properties. Emergent property is the outcome of the synergy between the actors and factors in a certain system. According to Conway (1994), there are five such system properties i.e. sustainability, equitability, productivity, stability and efficiency. Checkland (1981) says:

“systems are ideas in the head of the observer of the world which they may find useful in trying to understand it.”

SST gives a strong perspective to understand complex NR related problems. According to Röling (1997b) SST has a major benefit in the practical world of purposive change. Soft Systems (SS) are constructs, with arbitrary boundaries, emerge as a result of collective learning and action by people. CPR management can only be ensured by developing a knowledge network, social learning (SL), and platform mechanism for concerted action, to enable rural

people to mobilise and command greater access to these resources. This situation allows to conceive the SST on NRM applied by different actors as a social activity in which different social institutions may have different NRM objectives, management styles, conflicting interests. But the conflicting interests could be discussed in a common platform to negotiate and accommodate. In a wider sense, SST on NRM are construct from multiple perspectives in behaviour, interaction, confrontation and relation among the actors. Different actors may have their own interpretation of creation, utilisation and exchange of knowledge in NRM but joint action to tackle common problem is only possible on shared construction of the cause of such problems. These whole dynamics can be understood, shaped and manoeuvred by SL. Hence, systems analysis in SST is a type of inquiry and problem solving approach, not an object of study (Wilson and Morren, 1990). The major crux of the SS developed by Checkland, regarded as father of the Soft Systems School, is that the exploration of any complex situation will reveal a number of different perspectives on that situation which can be modelled as human activity systems (HAS), each of which reflects a specific worldview, which therefore need to be made explicit through the process of systemic inquiry. Hence the objective of SS analysis is the analysis of HAS (Checkland, 1981). The HAS differ fundamentally from natural and designed systems. In the SS approach, the focus is on problematic situations, and the process involves improved HAS. The methodology which Checkland developed to explore messy, complex situation is soft systems methodology (SSM), a learning system about a complex problematic human situation, and leads to taking purposeful action in the situation aimed at improvement, action that seems sensible to those concerned. SSM views emphasise the heuristic value of looking at a proposal for improvement as if they were a system of parts interacting with each other and describe them as such. In case of people we can not only limit on linear goal seeking. All people are confronted with multiple and conflicting goals. To tackle these conflicting goals, people should be agree to form a system and act accordingly on the negotiated and shared system goals. This brings people together for collective decision and joint action for optimal goal seeking (Röling, 1997b). Therefore, an urgent look at the field of NRM from a SS perspective is essential.

3.1.2 Constructivist perspective

Constructivist perspective (CP) adopts an epistemological position that assumes that reality is socially constructed. The individual's construction is socially and experientially based, and thus multiple construction exists. So, constructivism assumes multiple, apprehendable and conflicting social realities, that are the product of human intellect, but that may change as their constructors become more informed and sophisticated (Guba and Lincoln, 1994). Röling (1996a) explains the constructivist perspectives as:

“over time, groups of people, through discourse, develop an inter-subjective system of concepts, beliefs, theory and practices that they consider to be reality. Based on their intention and experience, people construct reality creatively with their language, labour and technology. The same people change their reality during the course of time in order to adjust to changing circumstances.”

Multiple actors are involved and common problems and multiple realities exist in the NR issue. Therefore, this perspective gives the way to look at things in the ground of multiple realities constructed by people through negotiations and agreement. CP provides a wider vision to understand the complex world of the human affairs.

3.1.3 Knowledge systems perspective

Knowledge systems perspective (KSP) is based on the constructivist thinking and SS approach. KSP is a diagnostic framework for analysis, design and management (Röling, 1992b). It gives the understanding on the knowledge process such as generation, transformation and use of knowledge. This perspective has been defined (Maarleveld *et al.*, 1997) in two ways as:

“(a) stable cognitive patterns, for example in ‘indigenous knowledge systems, and (b) as configuration of (institutional) actors, such as farmers, agricultural research institutes and extension agents, in theatres of innovation, who can potentially collaborate to enhance synergistic innovative performance”.

KSP provides a fresh look at collective learning and joint action processes. Because, KSP is being framed in the constructivist SS perspective, the boundaries of the systems are not given, rather it is tied with its objectives and function. Therefore, boundaries of a system are arbitrary and depend upon the perspective of the analyst (Engel, 1995). According to Röling (1992b) and Engel (1995), KSP are to provide stakeholders with a useful approach to reviewing their interactions in the light of some stated objectives, in order to design more effective forms of communication. According to Engel (1995), knowledge and information systems (KIS) perspective focuses attention on inquiry, not in a particular way of explaining what the researcher observed. KIS perspective deals with the communicative rationality and concerted action to handle complex problems that are quite relevant to the issue of SMNR. As we see the complexity in NRM, it has fuzzy boundaries or the boundary can not be rigidly fixed, it is to be constructed by actors. Therefore, local people have to be seen as active and able to manage their resources. Local people need to be linked to form an effective system that has emergent properties by synergistically working together. KIS is a perspective that reveals discontinuities of linear thinking and stresses the need for intervention through SL process.

3.1.4 Social learning approach

Social learning approach (SLA) is proposed by holistic, SS thinkers as an alternate approach to enhance the participatory processes to solve the complex NR related problems. According to Parson and Clark (1995), SL theory introduces three factors that determine behaviours. These are: observations and imitation of behaviour of others, symbolic representation of events and experience through language and other media, and self generated rewards and punishment. This theory encompasses a positive belief in a potential social transformation based on critical self reflection and on social movements to change the political and economic framework for the better (Woodhill and Röling, 1998). SL is action oriented approach and demands critical thinking. In broader senses, SLA is based on grounded theory. Grounded theory has been defined by Strauss and Corbin (1994) as a general methodology for developing a theory that is grounded in data systematically gathered and analysed. Formulating theoretical interpretation of data grounded in reality provides powerful means both for understanding the reality and action strategies. This theory argues that multiple perspectives must be systematically sought during the research (Hamilton, 1995). Therefore, to look at the multiple realities and to facilitate the non-coercive change in the SMNR, social learning approach gives sound ground.

Social processes like platform creation for collective decision and action on system level, interactive policy formulation and goal setting (including negotiation, conflict resolution, accommodation processes), shared learning about the system including: concept formulation, indicator identification, vision building from multiple perspectives, development of leadership, mobilisation of resources are dealt with under SLA. Therefore, SLA is ‘the ability inter-

subjectively and through interaction to construct shared knowledge, and to agree to act, actually to act, and to monitor effect of acting upon that knowledge, at a level of social aggregation commensurate with the system level perceived to require concerted action' (Röling, 1996a). SLA therefore, involves knowledge of the adaptive management (AM) of the bio-physical environment, and knowledge of the participatory management of the social process' (Parson and Clark, 1995). SL is more than accumulation of facts. It is a learning that makes a difference in the behaviour of learners in the course of action they choose.

Brazilian educator Paulo Freire (1972) has highlighted the following three vital elements in the learning process that gives a strong basis for SLA:

Praxis: the continuous sequence of experience and reflection involving critical thinking and dialogue. If we can work-out how and why specific action succeeds or otherwise we are better able to act deliberately next time.

Problematization: Focusing on those parts of learning which require attention and change, which prove difficult and frustrating. If these aspects of learning are ignored or rationalised away, the cognitive dissonance or learned helplessness is the inevitable result.

Conscientisation: the process through which learners through a deepening awareness of the social and cultural contexts in which learning takes place, are able to develop a capacity to understand and transform the reality.

SLA, therefore, aims at enriching the opportunities for people to find within themselves, their relationship, or their community the resources that will enable them by negotiation to resolve their problem of living in a more sustainable way. Social aspect of learning refers to the interpersonal context of change and includes the one-to-one, family, group or other collective relationship, whereas learning itself refers to the cognitive activities and processes that are the media for productive problem solving, change and growth (Goldstein, 1981). Change in the approach on NRM, in this context, is both process and product of new and creative reconceptualisation of one's role, relation and goal for common future. Goldstein (1981) outlined the scope of SLA as:

"Social learning is basically a common sense approach in so far as it is worked out within the clients style and frame of reference. It takes account of his world view, cultural and value orientation, the nature of his environment, and his action schemes that typically shape his course of living"

Learning, in the broader NRM context has three aspects. Firstly, acquisition of the knowledge tools that people require for the effective management of NR. Secondly, translation of this knowledge into practices. Thirdly and most important are to learn how to work together. The SLA enables us to explain past events and to redefine these past events to fit the present, and to shape the expectation of SMNR in future. SLA prepares ground for the sustainable future in two ways: firstly, it enables people to modify their accustomed behaviour to address the changing circumstances, and secondly, it helps them to develop new forms of adaptive behaviour to handle the NR. It focuses on personal, symbolic and social construction of reality and is directed towards the sustainable future. Therefore, the prime goal of SLA is to bring people together for collective decisions and actions on NRM for their common future.

Adaptive learning: an important dimension of social learning approach

Adaptive learning (AL) approach views learning as a SS i.e. systems that are not fixed. In the learning process one tries to separate the elements of a system in order to study each element in isolation, where something important is lost, even if an attempt is made later to reintegrate the parts. Therefore, the “wholeness” of a system e.g. NR environment as a whole should be studied. Without looking at the whole complexity of NR, the part can not be fully understood. AL does not limit itself only to scientific-academic knowledge. It exists among the people who have grasped what is going on around them and creatively taken action to adapt to constantly changing situations. It is a combination of “finding out” and “taking action”. The process involves feelings, attitudes and values that markedly affect the disposition of the learner. AL is a process of adjusting to the circumstance. AL in NRM is the means by which people come to perceive, interpret and act upon in their area. To deal effectively with NR related problems, every actor must learn about and act on situations in the real world. AL is the process by which people use to make sense of an ever changing world. AL helps to learn on ones’ own way through new experiences both by adapting oneself to change and by using new understanding to new changes in the situation people are experiencing. Environments shape people, and people in turn shape environment. Learning in this context is a dynamic process of adaptation and action. It being an adaptive process, AL involves much more than memorising facts and acquiring intellectual understanding i.e. the ability of people to act as well as to understand the attribute meanings. Rather it is an *adaptive management strategy* to deal with resources dilemmas. People learn by doing, and they do in relation to change and adapt to their environment. They change their environment by their acts and thereby produce knowledge for themselves. Therefore, the basis for learning is experience. Overtime, learning becomes a process through which experience is transformed into knowledge how to tackle the real world problems (Wilson and Morren, 1990).

In the learning dimension two perspectives can be described in terms of associated approaches to tackle a problematic situation. One perspective is that reality can break down into pieces and study each piece as the representation of a whole which is called *reductionism* and another perspective is that it can examine an issue only as part of an irreducible whole called *holism*. SLA is based on holism. Wilson and Morren (1990) elaborate two contrasting approaches as:

“Assuming a reductionist stance affects how we approach concrete experience, reflective observation, abstract conceptualisation and active experimentation. How much of a situation we choose to explore, what we separate out to observe, the concept we choose to develop, and the kind and extent of experimentation we engage in will all refer to separate parts of the issue. The assumption that underlies the preference for reductionist logic are that if each small issue can be explained, or each small component problem solved, then the original situation will be understandable in its complexity and will be susceptible to overall improvement.

The holistic methodological preference is the opposite of reductionist approach. The assumption here is that any complex situation has certain aspects or properties that are immediately lost when it is broken into its component parts. The holistic stance assumes that no matter how much the individual parts are studied, the emergent properties possessed by the whole can not be understood, nor can the original complex situation be improved, unless it is studied in its entirety”.

SLA emphasises the management of change from problematic past to desirable future in a particular context by a facilitation process (Maarleveld *et al.*, 1997). Following theoretical

concepts (developed by Röling, 1996, 1997 and Parson & Clark, 1995) will be use to understand the local dynamics:

1. Platform formation (forum) for collective decision making,
2. Interactive goal setting including negotiation and conflict resolution,
3. Vision building from multiple perspectives to guide concerted action,
4. Developing leadership and ability to act,
5. Mobilisation of resources for action,
6. Construction of shared learning through interaction,
7. Knowledge for adaptive management of bio-physical environment,
8. Knowledge for the participatory management of social process,
9. Manage system feedback,
10. Coalition,
11. Facilitation
12. Concerted action

3.2 Concepts used

Many of the concepts mentioned in this section are closely related and supplemented to explain each other. These concepts forms conceptual basis of my study. They are briefly explained below as:

3.2.1 NRM as an interface of hard and soft science

So far thinking about NRM is more related to hard science than the soft science and is mainly be looked upon from the reductionist perspective. To divide a resource into small components and deal each component independently is common NRM practice. But it is no longer a viable approach for SMNR. More users necessarily create more and varied uses for natural resources. Many of these users may have conflicting interests to some degree. It then becomes much more difficult to manage any resources in an equitable way. A decision that affects one aspect of the resource, that is important to one group, frequently affects several other aspects of the resources. Hence, many interest groups become involved in a decision that affects how NR are managed (Schmoldt and Rauscher, 1996). Then problems become more visible. So the role of soft science is distinct to deal on such situation. NR include any physical and biological assets that occur in nature and may posses some measures of value tangible or perceived. In this study, NR also include the resources that are created by people like planted forest, dams in the rivers, irrigation systems, etc.

Many NRM policies and strategies, which appear reasonable, failed because of a lack of understanding of multiple perspectives of local resource users working at community level, who may generate substantial impact on NR. A good analysis of the local situation and local actors is fundamental for operational sustainability. Similarly, another important aspect is the coherence in policy framework, commitment and devolution of power to enable local initiatives. SMNR is a continuous process of making productive trade-offs between economic, social and biophysical objectives. The trade-off process is intensely political, economic and cultural. What is sustainable for a community and culture can not be dictated from outside, nor can the process be undertaken by expatriate personnel. From the study in Wageningen, I reinforce my believe that any improvement in the management of CPR will require that much attention should be paid to the process of becoming a learner to act collectively. The underlying concept of NRM is nowadays influenced by pragmatic recognition towards a more holistic view. As the number of

actors with an interest in the NRM increases, the uncertainty or ambiguity over management objectives will grow. These challenges, in turn, provide a basis for new ways of thinking whereby all involved actors can learn together how to best manage NR in a sustainable manner. In the concept of HAS, people and NR form a coupled system in the sense that they are strongly linked and mutually interdependent. This interface enhances the interdependency among HAS and NR systems.

3.2.2 Negotiation as a part of social learning approach

Negotiation is a process that deals with a conflict situation and functions on mutual dependency of the negotiating parties. Negotiation includes any instance in which two or more people are communicating with each other for the purpose of influencing other's decision. Negotiation takes place between two parties (may be individuals, groups or organisations) to resolve the incompatible goals. Hence, negotiation deals with diverse interests in conflicts. Negotiation can lead to a win-win situation, win-lose situation and lose-lose situation for the different parties involved. Negotiation is very important in social dilemma situation. Social dilemmas are conflicts between individual and collective interests in which it is rational for individuals to make selfish choices. Negotiation brings conflict situations into light. Resource users have different and often conflicting interests and objectives. Therefore, disputes, tension and conflicts are parts of negotiation and agreement processes. Negotiation can be categorised into two distinct forms i.e. distributive and integrative. Characteristics of distributive negotiation are to focus more on resource distribution (win-loss). The attitude of negotiating parties is firm with attention to ones' own interests and a far reaching consequence may be a loss-loss situation. In contrast, characteristics of integrative negotiation are to create resources (win-win situation) where negotiating parties are open for alternatives and give attention to the interests of others too through participatory problem solving. It leads to a collective decision and commitments by the negotiating parties to achieve an optimal collective solution. This type of negotiation is more important in the context of NRM though hard to achieve. Efforts of negotiators gears toward this mode. SMNR involves negotiated agreements to take less from the commons or give more to the public. Practically, negotiation is a voluntary process in which conflicting parties meet face to face to reach a mutually acceptable resolution of the issues. Generally, negotiations focus on:

- Best alternative to negotiated agreement (BATNA),
- Interest: issue, position and criteria,
- Process: create a condition for effective problem solving.

Following terms which are very important in the negotiation process have been defined by CRD Associates, Colorado (1986) as:

Accommodation: Accommodation is a negotiation strategy in which one party chooses to sacrifice some of his or her interests and allows the other party to make desirable gains. Accommodation is often used to preserve relationship or to create the conditions for future exchange that will compensate the accomodator for his or her concession.

Arbitration: The intervention in to a dispute of an independent, private and impartial third party who is given the authority by the parties to make a decision on how the conflicts will be settled.

Bargaining: The process of making substantive, procedural or psychological trade-offs to reach an acceptable settlement. Bargaining occurs in the context of broader negotiation.

Interactive Decision: A negotiation is outcome or process that attempts to satisfy as many interests or needs as possible for all negotiators.

Conciliation: A substantive, procedural or psychological offer, made by one party to another, which decreases the benefits requested by the offers and rewards the other party.

Deadlock: Inability of parties to a negotiation to move forward to a settlement.

Positional Bargaining: A negotiation process in which a series of positions are presented as the solution to the issue in question. Positions are generally presented so that the first position is the larger demand and subsequent positions request less of an opponent.

Self-executing agreement: An agreement that is carried out in its entirety at the time it is accepted or is formulated in such a way that the extent of the parties adherence to its terms will be self evident.

According to Pruitt and Carnevale (1993), where there are incompatible goals, a stake of social conflict exists. Negotiations are often the best way of dealing with social conflicts as they are the main route to a win-win situation. They explained that existing power and relationships play an important role in the negotiation process. Actor specific characteristics like position, function, personality, etc. highly determine power relations in negotiation. The actual use of the power depends on the context. Pruitt distinguished five broad strategies useful in negotiation. They are concession making (reducing goals/demands), contending (try to persuade the other party to concede or trying to resist similar efforts by the other party), problem solving (trying to develop other alternatives), inaction (doing as little as possible by putting off meetings and talking around the issues) and withdrawal (dropping out of the negotiation).

3.2.3 Conflicts in NRM as a part of normal process

Conflicts and disputes are very common in NRM, hence they are normal part of the process. Dispute is a form of conflict in which the parties are unable or unwilling to resolve their problems or disagreement in the context of their private relationship, and have moved the problem in to the public domain. Disputes often involve the presence of third party, either observers, procedural facilitators or independent decision makers. Conflicts and dispute have been a characteristic feature of NR politics. Selfish choice of individuals in NR-use bring conflicts among themselves. Those who benefit from access to or use of resources seldom realise the effect of their activities to others. When other people notice the cost of their activities then it results in conflict. According to Lee (1993):

“conflicts can either enhance or prevent learning. Learning and conflict stand in a contingent relationship”.

As has been explained earlier, conflicts are a common characteristic of resource dilemmas that involve a selfish extraction of CPR. Generally each party behaves non-co-operatively: to exploit the common resources or fail to renew these obviously leads to a conflict situation. It is clear that if all stakeholders behave non-co-operatively, the resources will deplete, conflicts will increase and all will suffer more than if they had all behaved co-operatively.

3.2.4 Adaptive management as an emerging concept to deal with uncertainties

Adaptive management (AM) is another important concept in NRM process. Lee (1993) wrote a sophisticated book entitled "Compass and Gyroscope" where he brought the discipline of ecology, political and social science and education together to deal with an uncertain future via adaptive management. It is an inductive approach, relying on comparative study that blends ecological theories with observation and with the design of planned intervention in nature and with an understanding of human response process (Gunderson *et al.*, 1995). AM deals with the unpredictable interaction between people and ecosystems as they evolve together. Main expectation of AM is the unexpected i.e. systems are unpredictable. A natural system evolves with management and change. Surprises are inevitable so policy should always be adaptive. Therefore, AM uses different tools to share and communicate understanding of resource uses, to expose major uncertainties, seek potential alternatives, formulate suitable policies and use their consequence to adapt further in future. To make the use of NR sustainable, there is a need to institutionalise feedback mechanisms and rewards 'learning by doing'. In AM, the feed-back is a fundamental component for improving the management process. AM describes that individuals, households and beneficiaries of available resources have to adapt their activities, modify their rules in response to scarcity of natural resources in order to sustain the system. AM arise from dynamic interaction and mutual interdependence between human agencies and ecosystem. The main essence of AM is not to control, but to learn, monitor the process and efforts and adapt accordingly. Therefore, human management needs to be more responsible, flexible and adaptive to NR.

SMNR shifts emphasis from maximisation of short term production output, which may be economically attractive but which can not be sustained, to the promotion of AM. Looking for a single individual choice to address uncertainties of complex NR system is not a feasible way. It requires shared thinking and concerted action that will be provided by AM.

3.2.5 Joint decision for concerted action

Users of the NR have to come to the consensus or compromises on problems, analysis, solutions and they have to agree on certain choices. Commitments are needed from resource users to implement the agreed action plan. This concept advocates that complex NR related problems will only be solved through concerted efforts. Hence collective decision is both a means (as a strategy) and an end (as a process). The communicative rationality concept of Habermas (1987) is very important to bring actors to collective decision. Individuals, in collective decision domain, sincerely consider the views of others with the aim of achieving agreement for concerted action to solve the practical problems. Collective decision making in NRM is a constructivist model in which agreement can be achieve only by discussing multiple perspectives and construction of common meaning out of it. To come to the collective decision, a multiple frame of reference, interaction and communication is needed to give meaning on common problems, solutions and actions. Local stakeholders themselves should be involved into innovative process and mobilise their energy and creativity to solve their own felt problems (Röling, 1996a).

3.2.6 Platform as a forum for joint decision and concerted action

Conflicts between selfish choices of individuals and common interests ask actors to come together and discuss the problems. This ultimately leads to create nested and interlocked common forums i.e. platforms. Network of social actors promotes the concept of platform. A

social dilemma situation is the determinant of platforms (Röling, 1996a). Principal aim of a platform is to focus on negotiation between conflicting interests, accommodation of multiple realities and perspectives and collective decision and action for common interests. A platform is the interface between human activities and natural resources in a given context as explained in land use model of Röling (1996a). Human platforms are important component of SMNR. (Röling (1996a) reports his first results of the research programme that 'SMNR as a coupled system with: 1) a soft platform of stakeholders using a NR at various levels of aggregation, who have experienced that they are interdependent, in that the consequences of their collective use of NR affect each individual negatively. In brief, social processes govern outcomes, 2) the hard natural resources or ecosystems (natural laws define potentials), 3) the interface between hard and soft components, 4) the context and 5) the network of facilitators, and science and resources linkages supporting the platform ecosystem combination'. According to him platform formulation concern not only the interface between platform and NR process, but also the stakeholders themselves. Platform formation requires active conflict resolution, management of power and encouragement of interdependence. Hence, the functioning of a platform is governed by power structure, local content and context, and the culture of the society. A platform can be formal or informal. It is also directly related with networking. Networking in this context is a set of social, economic, technical, cultural and political relationships in which people directly or indirectly engages in order to be able to reach personal objectives or the satisfaction of certain social (common) needs.

3.2.7 Mediation as a means for conflict resolution

Mediation is the intervention into a dispute situation or negotiation process of an acceptable, impartial and neutral third party who has no decision making authority, but who will assist contending parties to negotiate on acceptable settlement of issues in dispute voluntarily. Since the past few decades' it hold important place in the dispute resolution. Mediation in these days is becoming not only a problem solving approach but offers opportunities for moral growth and transformation. According to Bush and Folger (1994), mediation has potential to change the people themselves who are in the very midst of conflict, giving them both a greater sense of their own efficacy and greater openness to others. Mediation has transformative potential and brings resolution of conflicts. It makes agreement possible, which the disputants find satisfactory and improve their relationships. Mediation focuses on reframing the process of changing how a person or party to a conflict conceptualises his, her or another's attitude, behaviour, issues, interests and how a situation is defined. Mediation can change from one cultural context to another. The role of mediation is very important in the context of NRM to facilitate negotiation in resource use conflicts.

3.2.8 Sustainability as an emergent property

In the SST, sustainability is the emergent property of the system in which all actors and factors work synergically together in order to reach negotiated goals. Collective decisions and actions in common problems may lead to the sustainability. Röling (1992a) views sustainability as a complex, constructed, negotiated and contextual concept. The concept of sustainability has to deal with intentional actors operating within a system and trying to reach their goals by various senses making activities. In doing so they give meaning to practical issues of how they see sustainability (Oerlemans and Steins, 1994). More has been elaborated in the section 1.3 under the heading 'shifting perspectives: rethinking sustainability in NRM'.

3.2.9 Knowledge as a construct

According to Brouwers (1993), knowledge is regarded as the interaction between the subject and the way reality is perceived or constructed. Knowledge is closely linked with action. Maturana and Varela (1992) state that:

"Knowledge is effective action in the domain of existence".

People's experiences are both expressed by their action as well as adaptation, shared learning and similar processes. Knowledge is exchanged in the form of information. Knowledge is the vision of an explanation for the world in which we live, and knowledge is relative because vision differs among people. Development of a network to exchange information among the actors is one aspect of knowledge (Van den Ban and Hawkins, 1996). The system of beliefs, cognition, models, theories, concepts, paradigms, ideas accumulated, perceived and constructed by persons can be said as knowledge. Knowledge can be shared and accumulate in a social group. Knowledge has been grouped by different people as indigenous knowledge, scientific knowledge, elite knowledge, official knowledge, etc. Construction of realities is the construction of knowledge. In order to ensure a more socially and ecologically sound approach to NRM, it is necessary to understand, respect and utilise the local knowledge systems (indigenous knowledge), which is strongly emphasised in this thesis.

3.2.10 Indigenous knowledge as an important element of SMNR

Indigenous knowledge (IK) is one of the important aspects of SLA on which all local level learning processes exist in a particular cultural scenes. There are many different cultural scenes about which people have a great deal of knowledge. Hence, **culture is a source of indigenous knowledge**. According to Spradely and McCurdy (1981):

'Culture is acquired knowledge that people share and use to interpret experiences and generate behaviour'

Natural resource use culture is based on the understanding local people have, share and owned different resources. Their IK encompasses many things like specific characteristics, qualities, availability of resources, their management, use, their ways of processing or transforming them for sale/use. Although IK is important in NRM some critiques are noticed. They are:

1. As IK is not deliberately planned and organised, it becomes weak when confronted with stress, rapid socio-economic changes and intervention like population growth, deteriorating climatic conditions (e.g., acid rain, water quality deterioration), market and technological pressure, etc. (personal communication with Röling and Van den Ban)
2. More theoretical danger is that the exaggerated claim for IK could be give rise to a rational for minimising or withdrawing external assistance.
3. Social situation and economic stratification affect the type and extent of IK (e.g., rich people likely to innovate more in aggregate which obviously means they will most benefited out of it).
4. IK seem particularly limited concerning biotechnology and genetic engineering aspects which is being increasingly popular in the field of agriculture (personal communication with Van den Ban and Röling).
5. In the rush to capture, preserve and use of IK marginal people will be exploited.

3.2.11 Coalition as a forum for tackling the complex problems

In order to achieve certain common objectives different actors form a coalition. Generally coalitions are thematic, having common ground, informal membership and they are time specific (Biggs and Smith, 1995). Coalition is only possible when there are compatible interests and common ground of actors in a particular context and content. Coalitions may include those who even interpret processes differently but who nevertheless share important common grounds for NR related problems. Coalitions are generally more flexible, case specific and less predictable. Coalition members have similar expectations and strategies for the future that derive from visible NR-related problems. This brings them to negotiation and agreement. Actors themselves continuously seek to create links between such people who have common problems, common objectives and preferably the same category of power structure. Relationship based on power emerges during the process of negotiation, when some parties form coalitions on the basis of compatible preferences.

3.3 Conceptualisation

In the section 3.1 and 3.2 an attempt has been made to look into different theories and concepts. In this section I will try to reflect them into my own conceptualisation. During my study at the Wageningen Agricultural University, I got the chance to familiarise myself with different interesting theories, perspectives, and approaches. I am influenced by some of them. On the basis of my cognitive realisation, here I have grouped these theories and concepts into two broad categories. One category strongly advocates *reductionist perspective* and believe only in *hard science* and ignores or minimises the role of soft science. Another category strongly believes in *soft science*. This soft science group can also further be categorised into two schools. One school focuses more on *knowledge for understanding*, that is represented by fundamental sociologists/anthropologists. This school advocates more on understanding of power, network, interface among the actors (arena of struggle) and heavily focuses on critical analysis and understanding (Long, 1989; Long, 1988; Ploeg 1989; and Long and Ploeg, 1989). Action for improvement is compensated by knowledge for understanding. Another school seeks more effective intervention and focusing on *knowledge for action* and *action for improvement* to tackle the broader societal problems (Röling, 1996, 1997). This school is represented by interventionists. These two schools developed their own perspectives, concepts and methodologies accordingly. Both schools are important for intellectuals, academicians and theorists. Therefore, theories and concepts like knowledge system, soft system, interface analysis, actor oriented approach, interactive policy making, persuasive communication, TOT, advisory extension, social learning approach, tragedy of commons, behaviourism, actor network theory, etc. are very useful to sharp theoretical knowledge. However, some of these theories and concepts sometime confused me. As a rural development facilitator working since 16 years in rural development and NRM sector, and entangled in practical issues, I need concrete knowledge, fresh perspective and pragmatic means to work in a rural community. Therefore, from all these theories and concepts, I am selecting the **social learning approach** (Parson and Clark, 1995; Röling, 1996; 1997; Maarleveld *et al.*, 1997; Goldstein 1981) abstracted from SST, behaviourism and KSP to work in the field of NRM in this research. The notion of HAS used by Checkland (1981) is my basic guiding motive to explore the dynamics involved in local level NRM. The components of *social learning* like coalition, platform, negotiation, agreement, interests conflicts, accommodation of multiple perspectives, collective decision, concerted action, etc. are very close to my professional experiences and field reality. Therefore, I am using SLA in my thesis in the conceptual model (see figure 2) as explained in section 3.4.

3.4 Conceptual model and analytical framework

Selfish choices of individuals on limited NR (e.g. public land) create social dilemma situations. Conflicting interests among the resource users often turn to public disputes. As a result available resources deplete and problems become visible to all users. Then, they start to find the ways to sustain these depleting resources. So depleting NR is to be managed as hard system and the resource users have to come together to search for a management option as soft system. These two have to have an interface to create a common forum i.e. a platform to manage NR in a coupled system. Then a coalition between different users is established and they start negotiation. They agree to work together and decide on a joint action plan and collective implementation. They learn from the past and come to corrective action that helps them to sustain available resources. AM is the outcome of such a situation. At the end the depleted resources are regained. This process has been facilitated by some actors either local leaders, village heads, local NGOs or by external organisations. Hence, the role of facilitation is crucial to bring resource users together to act collectively toward the common goals. Nevertheless, this is not so clear and straight. There are many complications and issues like local power relations, communication linkages, external factors, local norms and values, government rules and regulation, etc. associated in these dynamics.

However, at the end users/actors have to search for alternatives. They have to form a coalition and come to collective decisions and joint actions for common problems. This whole process can be grouped in to two phases i.e. problems and solutions (see figure 2). This process occurs either locally or from the facilitation of external organisations. In each phase there are some key actors involved. Feedback plays very important role in every stage to promote adaptive knowledge and adaptive management. As a result of whole process concerted action takes place. In the solution phase these actors play very important role to facilitate this negotiation process. Following figure illustrates these intricacies associated in SMNR.

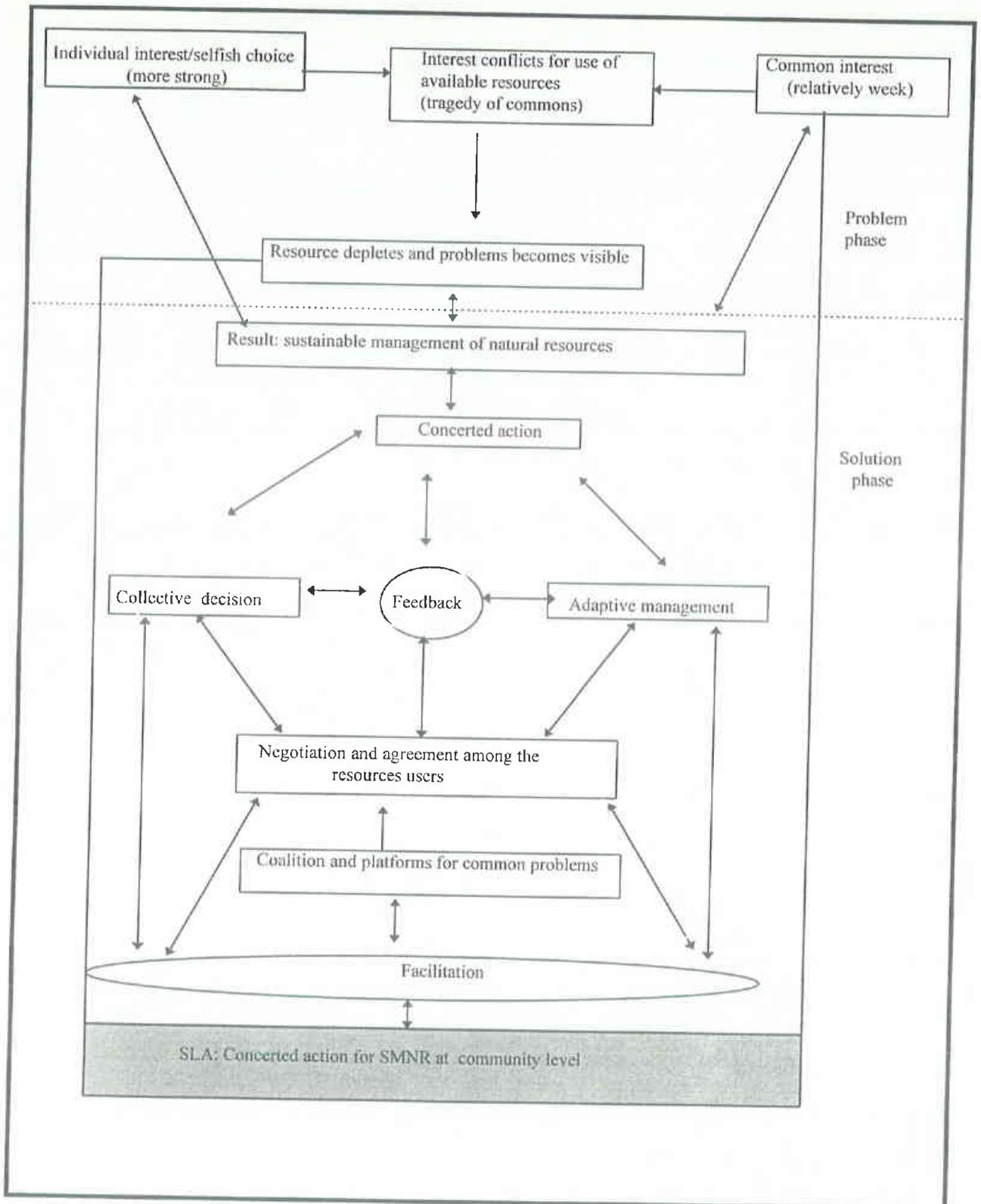


Fig 2: Conceptual linkages of different variables.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 General

In this chapter I briefly describe the process how I approached the research, what were my motives and choices concerning the research design, study site and methods to answer the research questions. Then I outline the activities that took place in the research site to collect information and how I analysed the information collected and reported it in this thesis. At the end the limitations encountered during the field work period have been mentioned. To investigate the role of conflicts and negotiations in NRM, a methodology is required which facilitates collective analysis of interrelations and interactions among stakeholders for their shared learning and concerted action. The study seeks to illuminate the social processes that characterise the approaches and the elements of NRM undertaken by local people. In order to explore the resource use negotiation process, methods and techniques of qualitative research were used first as a reconnaissance to get insight in the research problems, to review the problem itself and to collect the required information. Study on role of SL process in SMNR by local initiatives requires close attention to the practices of everyday social life of actors and their strategies, manoeuvres, discourses, and struggles concerning use of these resources. Only in this way it became possible to figure-out the intricacies of local level resources use negotiation. Therefore, these were the most basic guiding factors for methods and site selection. However, some other factors and actors like time limit, dependency on the availability of respondents, District Development Committee (DDC) election during the part of research time and season also played role.

4.2 Research design

The choice of the research inquiry approach is influenced by the theoretical perspectives and the way the research problem is formulated. To understand how people adapt and learn from the conflicts encountered in NRM practices, it is necessary to appreciate the intricacy of the system within which they are operating. Hence extended case studies of exploratory type were deliberately conducted as a learning exercise to collect information from local people about their NRM systems. This type of qualitative survey (in specific: qualitative extended case study) provides sound ways of inquiry to understand how do people negotiate for resource use in their situation and how they adapt to change and how they execute the collective decisions and actions. Different methods like semi-structured interview, informal observation, key informant interview, focus group discussion, transcripts and life history were used during the study period to collect the data.

I have worked out some general characteristics of SLA to which I have compared three cases. I followed two strategies to determine the number of cases for the research. Firstly, I encompass research of large numbers of conflicts in the study site in a more superficial level. Secondly, when I gained more insight on the problem from the general study, I deliberately choose only three small cases (as a unit of research) for very thorough investigation on why conflicts occur, how people come to negotiations, what factors are enhancing or inhibiting the negotiations, how local people learn and adapt to change. Individuals, users committees, management committees, indigenous institutions were central units of my research because they were the most important

actors and forums identified during the reconnaissance period. The units of observation² (Rap, 1997) of my study are decision making patterns, facilitation process, forums, management style, leadership, power relation, role of development organisations, etc.

Data were gathered from the actors involved in resource use negotiation processes in three cases. The conceptual framework (presented in section 3.4) is used as the base for the analysis of SLA in Community level NRM. User groups and individuals were the smallest units in the analysis on conflict resolution. Feedback from the local people was obtained to triangulate the information collected.

4.3 Selection of study area and cases

4.3.1 Selection of study site

The case studies were carried out in Dolakha district in the mid hill of central Nepal (see map 1). My choice for this district arose from the following reasons:

- The district is popular for the successful NRM by the local initiative with the support of Swiss funded projects like Integrated Hill Development Project (IHDP) and Lamosangu-Jiri Road Project in the early 1980s,
- An increasing number of activities of NGOs towards the facilitation process in NRM,
- Resource users are organised in different forums and committees,
- Networking and collective efforts are visible in the organised forms like user groups,
- Accessibility,
- My interest in the rural hilly area.

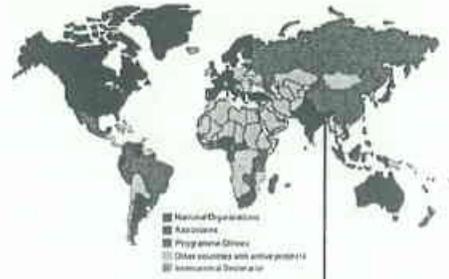
During my preparation for the field research in Wageningen, I got positive response from Environment and Population Awareness Programme (ENAP), a district based NGO in Dolakha working in the field of population and environment to host me to conduct research in one of their working sites in Dolakha. When I reached Nepal, in the first place a meeting was conducted with the Director of ENAP in Kathmandu. This meeting was very helpful to settle logistical issues and to get a general overview of the different potential research sites within Dolakha district. When I reached Charikot, headquarters of Dolakha district where ENAP office is situated, I had discussion with staff of ENAP, District Forest Office (DFO), District Irrigation Office (DIO), District Soil Conservation Office (DSCO), and DDC. Pawoti VDC was consistently recommended by them to conduct the research. The main reasons cited to recommend that particular VDC among the 54 VDCs in the district were:

- Increasing local initiatives towards NRM,
- Facilitation process initiated by ENAP in conflict resolution,
- Close to the district headquarters,
- Availability of many different scale of conflict cases,
- Support of external organisations in the past,
- Common practices of informal conflict resolution.

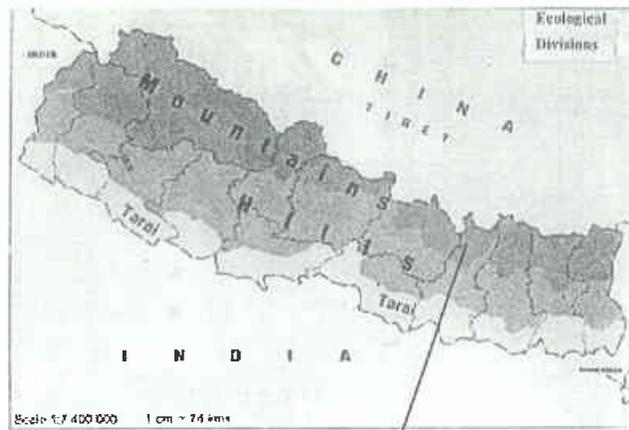
² Here units of analysis differ from the units of observation in the sense that the former is the unit which says something about the research while the later belongs to the selected number of units which were actually studied in the field about the unit of analysis.

World

↑
N



Nepal



Research site



Map 1: Relative location of the research site

These parameters were quite relevant to my study. Therefore, taking these parameters in to account I decided to conduct study in this VDC, at a four hour walking distance from the district headquarters.

The research village is situated in the southern part of the Dolakha district at an altitude range of 800 to 1800 metre above sea level and surrounded by the Tamakoshi river in the East, Sailungeshwor VDC in the West, Andheri Khola in the North and Ghyang Khola in the South (see Map 1). Total of 4500 inhabitants were scattered all across the VDC, in nine wards (VDC Profile, 1996). The communities of the VDC were characterised by the presence of many different castes and ethnic groups. Population lived in the VDC was composed of *Brahmin, Chhetri, Tamang, Damai, Kami, Sarki, Newar*, etc. grouped according to the Hindu caste system³. Ghyang Khola and Andheri Khola are important perennial small rivers as source of all irrigation canals for many villages. In addition to the people's initiation in different resource management activities, two giant irrigation projects (cost more than eight million rupees each, equivalent to approximately US \$ 143000) funded by Asian Development Bank, drinking water projects implemented by DWSO, afforestation, erosion control, trails expansion, landslide protection, school building expansion, primary health care, literacy programme, etc. were other major development activities undertaken by different GOs and NGOs (see appendix III).

When I reached the VDC, I also consulted chairman, executive members and secretary of the VDC as well as school teachers as key informants and discussed the research project. I obtained the general profile of the VDC and the NRM situation from the discussions with them. In addition to that information, from the discussions with different people during my orientation period in the field I decided to narrow down the research area to cover only four wards⁴ (ward five, six, seven and eight) of the VDC (see Map 1). Among them ward seven was the most focused upon research area where I have spent more than 50 percent of the time of my field work to collect the information.

4.3.2 Selection of cases for study

In the first week, I discussed with key people identified while discussing with ENAP, VDC and key informants, observed the local situation and familiarised with the local context as a reconnaissance. This period was very important to select the study wards considering the time factor, intensity of conflict cases and NRM activities undertaken within the wards. During my reconnaissance period I became familiar with the common conflicts and collected information on the conflicts commonly prevalent in the study wards.

On the basis of that information I have deliberately selected three specific resource use conflicts cases on:

- **Public land and forest,**
- **Drinking water source,**
- **Farmer's managed irrigation system (FMIS)** for thorough investigation.

When I was working on one case, people frequently referred to another case. This reference justified my decision to select three cases. So one after another I have conducted investigations

³ According to the Hindu caste system people are categorised as Brahmin, Chhetri, Baishya and Sudra. Brahmin is the highest caste to perform religious activities followed by Chhetri who are mainly responsible for fight and rule the country. Baishya (responsible for commerce and trade) and Sudra (untouchable) as Sarki, Damai, Kami, etc.

⁴ This is the smallest political unit. One VDC is divided in to nine wards. Generally one ward covers 30-100 households in a specified geographical area. One elected chairperson and four members from the ward represent the VDC council.

in these three small cases. This also gave me an opportunity to compare these three cases. The case study on public land and forest was conducted in ward six, seven and eight as this land was used by the people from these three wards. Where as the case study on conflict on spring source for drinking water was carried out in ward seven in two hamlets. Research site for the FIMS case study was ward five, six, seven and eight because it's command area covers part of these four wards. But, all cases on public land and forest, spring water source and irrigation were situated in the close proximity.

The study was focused on how people learn from the conflicts and negotiation in the use and management of NR and use this learning for future action. Emphasis was given to the investigation on informal means of negotiation/solutions of conflicts rather than to the formal ones handled by police, court or government administration. Severe conflict cases that had been fully handled by court and police were deliberately not selected for the study to increase the chance of exploring local initiatives, learning aspects and local decisions. Emphasis was placed on on-going conflicts in the village that had been handled by local people using their own strategies and approaches. Hence, mild situation on conflicts and process of informal negotiation was the main focus of the case studies. Although some time a formal solution in a particular issue in a particular time in the same case was found inevitable.

4.3.3 Selection of informants

Case studies were specific to conflict and negotiation in use of NR. Hence, to be able to explore these specific units of analysis respondents were selected purposefully: those who were involved in one or another way in the conflict and negotiation process. In addition; people from the organisations who were involved in this process were also consulted to gather information.

Nine people were selected for the case study on public land and forest. Mr. Netra Bahadur; Chairman of the Users Committee organised a small meeting of users (26 people attended). This meeting selected nine people intensely involved in the conflicts resolution process in the public land. The same people who were selected by the meeting, were also mentioned earlier by the key informants.

For the second case study on spring water source, I have approached Mrs. Laxmi Bimoli, who was recognised by the villagers as one of the key persons in this case. She referred to four other people. When I approached them they referred to another three people. In that way I have selected eight respondents for the in-depth study.

In the third case on farmers managed irrigation system 12 people, three from head side, five from tail side and three from the middle side of the canal, who were heavily involved, were selected with the help of key informants and users. In addition, two staff members from ENAP, one each from DIO, DWSO, DFO, and three representatives from the VDC and two from the DDC were selected for the interview. Informal discussions was also held with the staff of District Administration Office (DAO), District Court (DC) Dolakha Bar Association (DBA) and District Police Office (DPO) to get their impression.

Following is the schematic diagram on how I approached to select site, cases and respondents:

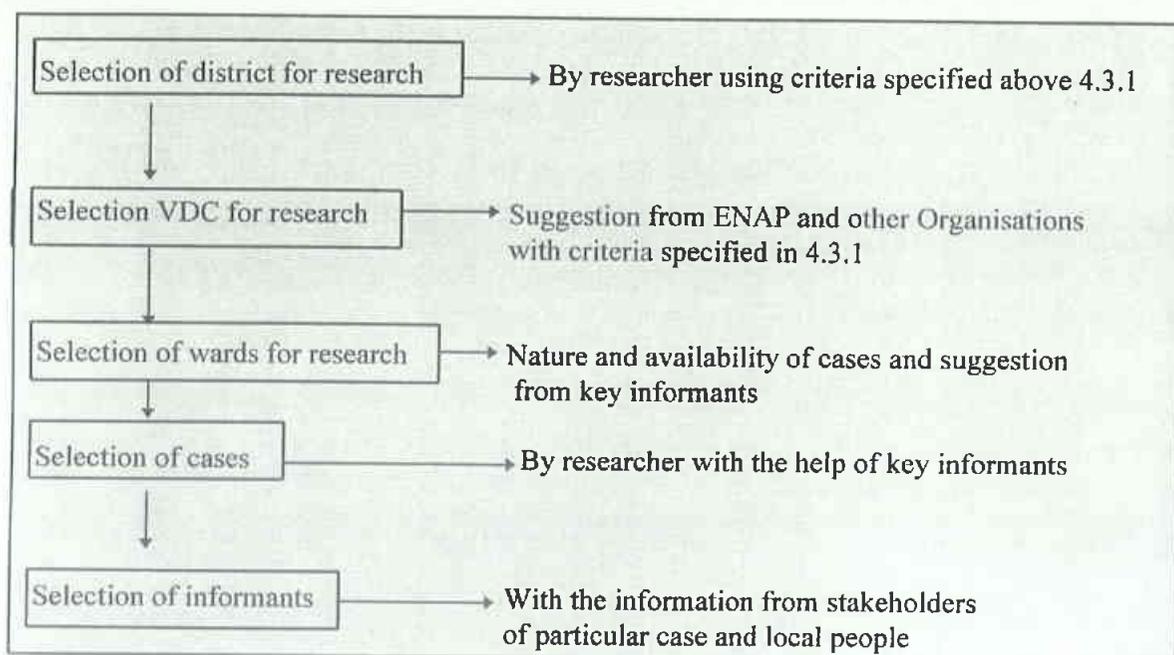


fig.3: Schematic diagram for selection of site, cases and respondents

4.4 Research methods

The variables of the study are invisible, so the researcher can not directly observe the researched variables and assign a particular value to them. To understand human behaviour, motivation and action towards NRM issue, it is important to look to their action, interaction and everyday practice. Meaning of such NRM issue is expressed in action and practices of stakeholders⁵ that is explained by the context and background condition. Hence qualitative methods were used to explore the human action towards use of NR that can not be captured by quantitative methods. As stated earlier, case study is preferred in examining contemporary events when relevant behaviour can not be manipulated. In contrary, survey strategy is more useful for WHAT, HOW MUCH and HOW MANY type of questions. This strategy is advantageous when the research objective is to describe the incidences or prevalence of phenomena (Yin, 1984). That's why I did not use survey strategy. According to Yin (1984) the unique strength of a case study is its ability to deal with the full variety of evidences: documents, artefacts, interviews, observations, etc. In summary, according to Yin case studies are most suitable when:

"A how or why question is being asked about a contemporary set of events, over which the investigator has little or no control".

The case study has its strength because it has no pre-packaged research design. Rather, different information collection techniques (like interview, observation, etc.), sampling and analysis techniques can be used throughout the research process. This method is also useful to understand local dynamics on accessibility, use and control of resources, knowledge and power, etc. Case studies allow for an investigation into an on-going phenomena with real life context,

⁵ Stakeholders in this study are mainly considered as the natural resource users of study area.

which the investigator has no control over behavioural events. Case studies also better explain the decision process, why and how decisions are taken and implemented. Hence, extended case study was the most preferred method used in research to explore the series of connected events in learning from conflicts and negotiation in local level NRM.

Selection of the case studies was not guided by the objective of representativeness. Rather, it was aimed to improve the understanding of the research problem. So this has an implication on the selection of methods and techniques. Three case studies were conducted to answer the research questions. Within the case study focus group discussion, life history, informal observation/discussion, informal/semi-structured & key informant interview, transacts, were main techniques used to understand how people learn to negotiate conflicts and adapt to changing circumstances in the context of NR. Checklists were used in the research process to explore the situation and shape the investigation. Secondary data were collected from different documents and reports.

4.5 Information collection

Information collection was started in Kathmandu on the 5th of July 1997, especially contacting people and literature collection and study. Field work in Dolakha was started from the 20th of July 1997 and completed on 28th of September 1997. At the beginning one week was spent in the district headquarters to discuss with the staff of ENAP, DIO, DWSO, DFO, DDC, DBA, DC and DAO and to study the documents and reports. These meetings gave me the diverse impression. The opinion of development organisations (DFO, DIO, DWSO, DSCO, DDC, ENAP) was different from the opinion of administrative organisations (DAO, DPO, DC, etc.) in the realisation of prevalence of conflicts related to NR in the district. Methods of information collection during the reconnaissance and investigation phase were observation, informal discussion, key informant interview, semi structured interview, group meeting and transacts. During the reconnaissance phase I got the general scenario of the conflicts in the study area and chance to triangulate the information obtained in Kathmandu and district headquarters. Reconnaissance phase was of one week. Observations were made on individuals, households, social infrastructures, physical infrastructures, land, farming system, people II. etc. Information obtained from the key informants, informal conversation and observation during the reconnaissance were recorded in the field note books in a format prescribed by Spradely (1979). Recording of most common conflicts of the study area was one of the important functions in this phase.

After the reconnaissance phase, the researcher started in-depth study of three cases by using observation, informal discussion, key informant interview, semi-structured interview, group meeting and transacts of the forest, spring water source and FMIS to develop holistic understanding of conflicts and learning from the conflicts to SMNR. Direct observation was made throughout the study period. Checklists were used during the semi-structured interviews. Openness was encouraged during the discussion. Sometimes structured questions were asked to frame the discussion in the context of study. Most discussions were 2-3 hours. Information management in this study was an interactive process. All information obtained from each discussion and interview were recorded in the field notes and in-depth record and interpretation was made immediately after completion of each most of the time. Regular feedback were collected from the researched population about the approach of the researcher.

The most appropriate time to discuss with informants was evening. As against the most commonly generalised problem 'to obtain the information from the villagers about their conflicts is extremely difficult', I did not suffer much from this problem because of two

reasons. Firstly, I was originated from the same area and at least they recognised me so I was not completely stranger outsider to them. Secondly, my strategy to talk first with the talkative and extrovert people followed by other informants separately. This strategy was quite helpful to grasp the sensitivity and maintain the productive relationship with the local people to generate a lot of information on conflicts. Nevertheless, I felt some difficulties to get the specific information on issues related to power and misuse of resources (money and materials) by the village leaders and powerful people.

4.6 Generation of issues for inquiry to answer the research questions

Some important concepts of SLA were extracted as unit of observation and workable questions were formulated from these concepts to gather information to answer the research questions.

Table 1: Area of inquiry to answer the research questions

S. n.	Research area	Units of observation	Inquiry focus on (to answer the research questions)
1	resource use negotiation process	<ul style="list-style-type: none"> • conflicts • purpose • feedback mechanism • meeting • action • reflection (result) • facilitation 	<ul style="list-style-type: none"> • why do conflicts occur? • what factors enhances/inhibit conflicts? • what are common conflicts ? • why a particular conflict is important ? • why are people participating in resources use negotiation ? • how do people visualise the resource use negotiation ? • who is responsible for this process ? • how is information generated and exchanged? • how has feedback been incorporated in negotiation ? • who are involved in feedback ? • why are meetings organised? • how often do meetings take place? • who participate in meetings? • what subjects are discussed in meetings? • what is being practised as a result of negotiation ? • who participate in action/implementation? • what action is accomplished? • how do they learn from the past action? • what are the achievements? • what are the concerted actions? • why are these achievements? • why did it needed ? • who realised it and who were involved in it ? • what has been done from it ? • how does it proceed ?
2	characteristics of natural resource use negotiation process and learning from this process	<ul style="list-style-type: none"> • organisation for common problems • mechanism of communication and feed back • platform for 	<ul style="list-style-type: none"> • are there any forums? groups? platforms? • who organise people ? • why are people organised? • who define problems? • what are the common problems visualised in this process ? • how do people inform each other (mechanism)? • how is the feedback loop established? • how has the generated feedback been incorporated? • who are involved in communication and feedback ? • what are the common forums for decision and action?

		<ul style="list-style-type: none"> • common goals and common action • coalition for negotiation • synergy (fit among the actors) • conflicting interests and agreement • multiple perspectives • process focus phenomena • collective decision • adaptive management (local management style) • intentional change • reflection 	<ul style="list-style-type: none"> • where do people take decisions? • how are these forums functioning? • why are platforms needed? • who are sharing and acting together? • why are resource users working together? • how do resource users work together? • why they are working together? • what is the mechanism to work together? • how they accommodate differences ? • how often do interests differ among the people ? • what are the common conflicts? • why do conflicts exist? • why are they important ? • how are these conflicts negotiated? • who mediates the negotiation? • how are differences in opinion observed? • why do opinions differ? • how these opinions are contributing to negotiation process ? • how is the resource use negotiation process in groups performed? • why is this particular process followed? • who takes decisions in natural resource use ? • what is the mode of decision making (how)? • how do actors respond to common problems? • why they come to collective decisions? • how have adaptive strategies been practised ? • how flexible is the management process ? • how often has feedback been incorporated to improve? • what are the common management practices? • are people willing to get involved in negotiation ? • are people co-operating for collective action? why? • are people co-operating with other agencies to manage NR? • what achievement has been made so far? • why success/failure? • who are responsible?
3.	Factors affecting the process	<ul style="list-style-type: none"> • political/clite influences • leadership quality • motivation of the people • power relation • role of development 	<ul style="list-style-type: none"> • is there elite, political influence? • how they are influencing the process ? • how have elite/political influences been tackled? • who takes the initiatives to tackle the problems? • how has leadership been developed ? • why leadership is realised ? • what makes leadership successful/failure ? • are local people sufficiently motivated to participate in collective decision and action? • why are they motivated? • do power relations in the village affect negotiations ? • is there room for manoeuvre? • is there a coping strategy to countervail the power force? • who were/are involved in negotiation ? • why they involved?

		<ul style="list-style-type: none"> • organisations • norms, values and culture • gender • knowledge and information 	<ul style="list-style-type: none"> • what they do? • how they did? • how norms, values and culture affects the negotiation ? • why they affect ? • what strategies people adapted to harmonise with them ? • what is the role of male and female in the process ? • why they are happening in a particular mode ? • are there women involved in the decision making process ? • how people generate, exchange and utilise knowledge ? • how they obtain information ? • how information are influencing the negotiation process ?
--	--	---	--

4.7 Feedback and triangulation

Three discussion meetings were organised with the help of ENAP with users/actors of all three cases separately at the end of the study. The information collected there was presented and explained to them to get the reaction on the information collected to verify which might be contrary to their saying. The public land related meeting was about five hours with 25 stakeholders, next day's spring water source meeting was three hours with ten male and eight female participants where as AFMIS meeting took four hours with 30 people. Many comments, remarks and quarries were made during these meetings. The participants of meeting found this way of information collection in general and the feedback meeting and triangulation in particular meaningful and interesting.

4.8 Method of data analysis

The data analysis was guided by description and interpretation of the collected information in a narrative way with illustrative quote. Analysis focused on searching out the meaning, causes and relationships of the negotiation process. There was a continuous interaction between the collection and analysis of information as an interaction process. The daily processing of information and interact next day to further explore the causes helped a lot in analysis. Analysis and interpretation of the information by stakeholders themselves was one important part of information analysis method. The local dynamics involved in the resource use negotiation process was linked with the theoretical concepts to look the applicability and use of the SLA.

4.9 Limitations encountered

The choice of the field study was guided by some factors partly because of theoretical and methodological requirements, and partly due to other practical considerations like suggestions of host organisation, availability of respondents, etc. One of the important limitation encountered was the DDC election. This election partly disturbed field work for few days. Because of main agricultural season respondents were busy in their farming and available only in late afternoon and evening or night. Politicians and village elite to some extent felt threatened from the research content specially on role of power and budget (mis)use issues. Some respondents show their hesitance to talk about the power issue and corruption at the early days. Some of the respondents explained the power and resource misuse related issues only in the condition of anonymity.

CHAPTER 5: FIRST CASE

COMMUNITY LEVEL NATURAL RESOURCE USE NEGOTIATION PRACTICE ON PUBLIC LAND AND FOREST

5.1 Introduction

This chapter attempts to briefly describe the findings of **Public land and forest** case study to answer partly the research questions posed in chapter two (other parts will be answered in chapters six and seven). This chapter elaborates the local dynamics involved in use of land and forest resources, conflicts on use of these resources, the process of negotiation, the ways people learn from such conflicts and factors affecting the negotiation process. In the study area exploitation and management of NR has been subject to considerable debate due to the government policies, donors' interests, political influences, people's initiation and socio-economic condition of the users. Empirical findings have been presented in different sub-headings on the conflict resolution process: narrative description, chronological events, discussion on the conflict resolution process and factors affecting the conflict resolution: linking with theoretical concepts.

Generally, common conflict cases reported in the study area were related to land and its inheritance, water use (for irrigation and drinking water), encroachment of forest and use of its products, crops damage by animals, thefts, power and position, sexual offences, fighting, racial discrimination, superstitions and political affiliation. It was also observed that, as compared to the local initiatives external projects implemented in the study area were weak to accomplish their objectives. Because of the planning and design of these projects did not satisfy local needs and objectives while they ignored local dynamics during the essential and sensitive stage of the projects. So conflict between local people and development projects was another characteristic in this area.

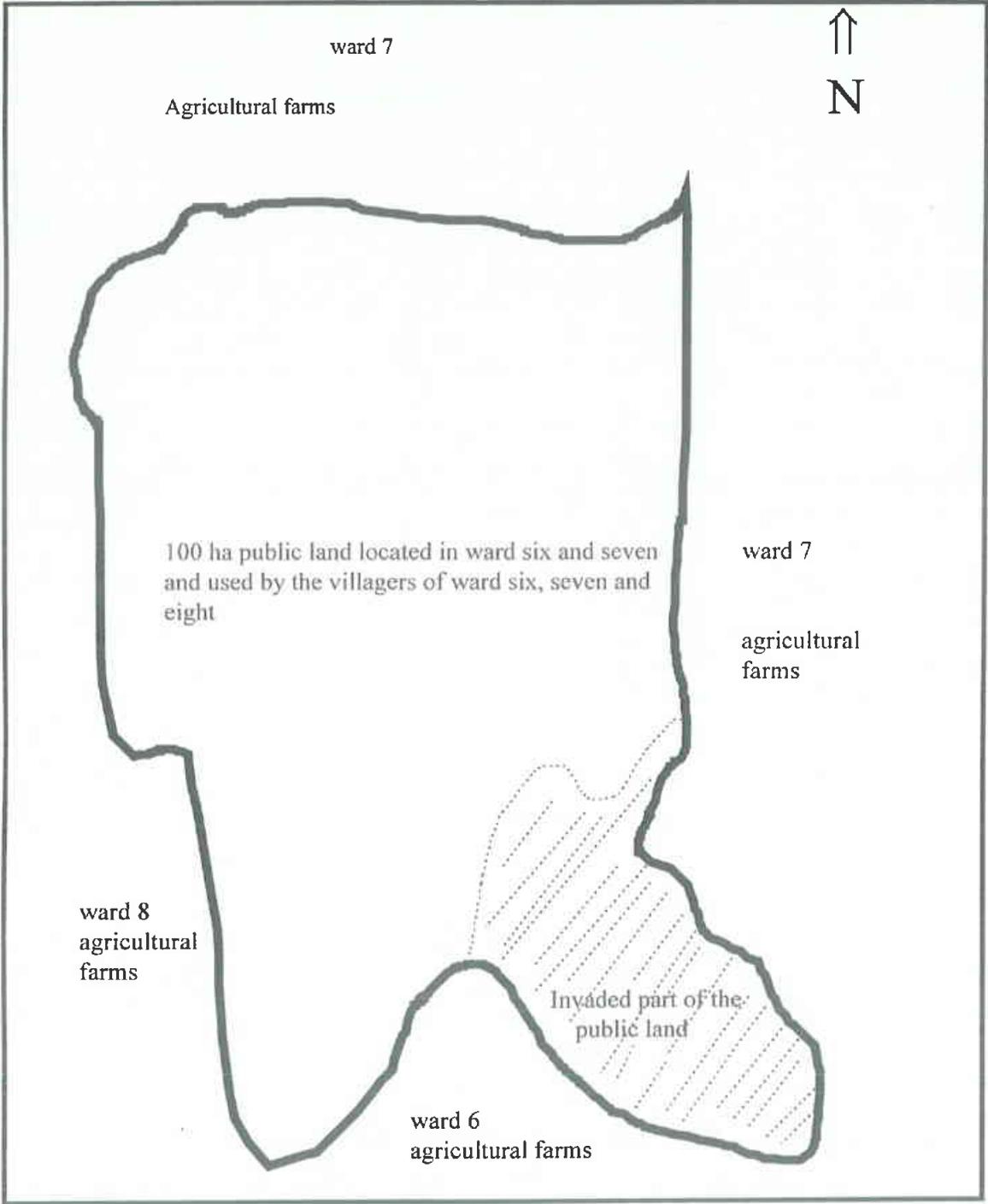
Indigenous management structures and practices in the study area were generally well defined and accepted. They were often appropriate platforms for many village level decisions on different issues. It was observed that CPR management practices like construction and maintenance of streets, conservation of religious and natural areas, building bridges, river training, maintenance of drinking water and irrigation, source conservation, land slide protection, afforestation, erosion control, management of pasture land, forest management, etc. were interestingly undertaken by the local people.

CPR like land, forest and water, have been vulnerable to exploitation because they have remained a capital through centuries to local people for their survival in the study area. Hence the case representing land and forest is presented in this chapter.

5.2 Conflict resolution process: narrative description

For the case study on the public land and forest; the area popularly called as **Matarko Pakho** (local nomenclature) was selected. It was approximately 100 ha land used by 40 households of ward six, seven and eight (see map 2) since time immemorial. These 40 households were

managing this land for grazing, collection of litter for animals, alignment for public irrigation canals and place for worshipping. They have possessed valuable knowledge about the management and utilisation of this land for common purpose.



Map 2 : Map showing the location of the public land and forest.

This was a very familiar and important case in this VDC because of its uniqueness (first of this kind) and strength (win-lose situation turned to win-win). A brief overview of the public land is presented as follows:

Table 2: General overview of the public land

S.n.	Particulars	Specifications
1	Area covered	100 ha
2	Total households benefited	40 households of ward six, seven, and eight
3	Land situated at	Ward six and seven
4	Cause of conflict	Encroachment of part of public land by politician
4	Land use pattern	Grazing, collection of litter and fire-woods, place for worshipping and canal alignment

Source: Primary information from the respondents.

Chronological events

Based on the discussion with villagers and the information obtained from the informal interviews with key informants I have sketched the following chronological events:

Box 1 Summary of the chronological events in the public land

1970	First time land encroached and conflict observed on issue of ownership
1971	Users organised to protest land invasion
1975	Resolution of the outstanding conflict
1976-1983	Searching alternatives for long term conservation of land
1984	Afforestation
1995	Forest handedover to the Users group
1996	Another level of conflict observed

Source: Primary information from the respondents.

1970: First time land encroachment and conflict observed on issue of ownership

Suddenly, the District Panchayat⁶ Member (a powerful politician) and *Mukhiya*⁷ (hereafter referred as only Mukhiya) from another village (ward four) encroached approximately 15 ha of this land in 1970, terraced it and cultivated rice by using his power and position. He claimed that this land was property of his forefather so he had right to cultivate. Some other elite of the village were also supporting this argument. But the users claimed that this land was fully public pasture owned by the community. Hundred years ago his forefather terraced it but immediately stopped to cultivate and turned into its original use. Therefore, conflict arose between the users and the Mukhiya on the ownership of the land.

1971 : Users organised to protect the land invasion

The users became very unhappy with this invasion and decided to protest it. In this process some conflicts arose among the users themselves. Five households were not ready to go against

⁶ Panchayat was an autocratic partyless political system that existed in Nepal before 1990 when all political parties were banned and democratic values were suppressed. In this system there was a provision of Village Panchayat (smallest political unit), District Panchayat (district level self government) and Rastrya Panchayat (central parliament). District Panchayat was represented by Chairman, Vice-Chairman and nine members from the nine regions within the district. District Panchayat was replaced by District Development Committee after restoration of democracy in 1990.

⁷ A local land tax collector appointed by the Land Revenue Office. Generally few powerful people who have access and relation to government office entertain the position of Mukhiya.

the Mukhiya because of potential risks. Fifteen other households were morally supporting the idea of protesting land but did not come in the front and the remaining twenty households strongly opposed the invasion. They discussed the possible strategies to tackle this challenging problem. After a series of confidential meetings and discussions they formed a *Sangharsha Samiti*⁸ under the guidance of an older and respected member of the community. Protesting invasion of this land for its original use was the prime objective of the *Sangharsha Samiti*. Another aim was to discourage the future invasion of the CPR of this area, in general, and this land in particular.

One of the users and active member of the *Sangharsha Samiti* explained that they were never thinking of such an invasion. When land was invaded there was a crisis among the users. This land was their means of survival and they had no other options than to protest this land. This situation is clearly reflected in his own words as:

“All of a sudden, he terraced our pasture and transplanted rice in mid June. He kept throne in our door by invading our pasture land, which was closely associated with our survival. We were totally depending on this land for grazing and litter collection without any options. It was not our intention to go against the Gaonko Malik⁹ though we did because we had no alternatives. Many people were very much afraid when we declared to protest this land because he was a powerful politician, Mukhiya and landlord from higher social strata. He felt insulted to go against him and threatened us. But from the intellectual ideas of my uncle Kaita Buda, we were strategically organised so he was not able to stop us. Then, he as a Mukhiya, refused to receive our land tax. If land tax has not paid timely the government may cease our land. So we went to government office to pay land tax. From our continued protest, after five years we succeeded to return this land. That was one of the great successes in my life”.

Using his *power, position and authority* the Mukhiya secured support of some nonusers in his favour. Hence, the community was distinctly divided in to three groups: one in favour of encroachment, a second passive but sympathetic to protesters and another group strongly against the encroachment. The *Pradhanpancha*¹⁰, being a political leader of the same character as of the Mukhiya supported the encroachment. He had also invaded 3 ha of this land. So they formed an alliance. Then powerful politicians and elite came to one block and protesters and anti-elite separated into another block. Members of the former block tried to influence by convincing users and threatening the members of the *Sangharsha samiti* to stop to go against them. But users were determined and ready to negotiate only on the condition of returning all the encroached land. Government power and force were also indirectly mobilised by the politicians to influence protesters. However, neither they dropped their claim nor compromised with their stand. They were constant on their claim to return all invaded land without any conditions. Nevertheless, as a survival strategy, they were maintaining a formal relation with these powerful people to minimise the revenge. However, this strategy was not always effective and once the leader of the *Sangharsha Samiti* was physically attacked. These powerful people were constantly creating different legal and practical problems to protesters. Possessing institutional basis of power (e.g., Member of District Panchayat and Chairman of the Village Panchayat) would give them legitimate authority to influence people. In this case an invader as *Mukhiya*, refused to receive the land tax from them. This refusal of land tax became a serious problem for the protesters because some of them were not able to buy or sell their land. So they

⁸ Local name of a forum formed specially to take action against land invasion. Its meaning in English is action committee.

⁹ A local term which indicates the respected position of local elite in village. Its literal meaning is the boss of the village

¹⁰ An elected head of the Village Panchayat, local government by all eligible voters of the village. (S)he has authority to settle different cases in the village on the behalf of the government. The nomenclature Panchayat was replaced by VDC and Pradhanpancha was replaced by Chairperson after restoration of democracy in April 1990.

went to district headquarters to pay their land tax to get tax clearance certificate but did not compromise. The problem faced by one protester during this period in his own words was:

“I had to purchase a rice field. To make money I decided to sell some part of my other land. So I went to pay land tax with Mukhiya to get clearance, regretfully he refused to receive my land tax. Rather he threatened me not to purchase this land from his relative. Even the Pradhan pancha was indirectly involved to create barriers. Then I went to district headquarters and paid land tax. At the beginning Malpot Addaka Karmachari (staff from the Revenue Collection Office) harassed me and asked to pay land tax to the Mukhiya, but later they received my land tax. I got the tax clearance certificate and purchased the intended land. Next year I approached him to pay tax again and he refused. So, since 23 years I am paying tax of my land in the Malpot Adda in district headquarters”.

By realising the complexity a confidential agreement between the Pradhanpanch and the Mukhiya was made. According to the agreement land invaded by the *Pradhanpancha* was silently handed over to the Mukhiya. Hence, the Pradhanpancha announced his separation from the land-use conflict and strategically started to explore the possibilities to resolve the conflict in their favour.

I also discussed this issue with the Mukhiya. He was open to explain the conflict about this land. His saying was different from what other users said. He explained that there was an increasing trend to cultivate the barren land at that time. The *Pradhanpancha* sold more than 200 ha public land and almost half of the trees that existed in the VDC. Likewise, the *Upapradhanpancha*¹¹ did the same in the upper part of the VDC. Many people fenced barren land surrounding to their farms. His saying is mentioned as:

“this land was the property of my fore-father. He left it uncultivated because once he badly dreamed as one white cow grazing in this land kicked in his face¹². So he left this land uncultivated. Out of that I had cultivated approximately 15 ha land which was in the shape of horn inserted to my field. This land was not suitable for grazing because of its three sides surrounded by the cultivated land. Many time animals grazing in this land severely damaged my crop. To cultivate this land was the only solution to protect crops from the grazing animals. Many users who used this land for grazing were suggesting me to cultivate in this inserted part. Only few people who wanted to cultivate this land created a problem. I was ready to compromise locally. Instead of compromising locally they complained to the Sarba-Sampana-Daudaha¹³ (SSD). Nevertheless, because of my compromising strategy a negotiation was made. I kept five ha land most affecting by crops from the animals and remaining ten ha I left uncultivated. Being a senior politician of the VDC it was not appropriate for me to go against my own villagers. So I decided to settle the case in more compromising way. If I had intended to cultivate this land all 100 ha I could have cultivated. But this was not my intention. My intention was only to protect crops from the animals. Village elite like Pradhanpanch, Upapradhanpancha, Ward Chairman and other many clever villagers had terraced and cultivated much public land at that time. In these days much public land was cultivated and timbers were harvested not only in our village but also in other parts of the district”.

I also talked to the *Pradhanpanch* in this issue. He was reluctant to talk about this case. He said:

¹¹ Vice head of the Panchayat elected by eligible voters. (S)he takes responsibility of Pradhan-Pancha during his/her absence.

¹² According to local legend if cow kicks in the face of people there would be some thing very bad. To be prevented from such unfortunate happening part of own land should be kept uncultivated to graze cows.

¹³ Most powerful administrator appointed by the central government to inspect districts and settle the local people's problems in the spot. He had authority to punish any citizens instantly. After few years this provision was replaced by the appointment of Zonal Commissioners.

“I have faced more than 100 cases of this type in my 45 years of political life. This was only a small case from 25 year ago. Now I can't remember it fully. What I remembered is that part of this Matararkopakho was cultivated by the Mukhiya and through negotiation was partly returned”.

1975 : Resolution of the outstanding conflict

There were many unhappy land tax payers under the tax administration of the Mukhiya. They were unhappy because they not only had to contribute physical labour every agricultural season but also to pay milk products, fruits, vegetables, potatoes, goats, etc. regularly to the Mukhiya. To take advantage of this situation the *Sangharsha Samiti* assigned an older and respected member of the community to discuss with these tax payers. From several confidential meetings and discussion ultimately he succeeded to bring them in favour of the *Sangharsha Samiti*. Observing this massive support to protesters, supporters of the Mukhiya became more passive. Therefore, the Mukhiya was willing to compromise by returning part of the land. As a face saving strategy he wanted to keep some part of invaded land under his ownership. The coalition became so strong that they did not accept this proposal.

After failure of series of efforts to locally negotiate with the Mukhiya; finally the *Sangharsha Samiti* came to a decision to go to the SSD. The *Sangharsha Samiti* got information from the district headquarters about the visiting programme of the SSD to Ramechhap district via the route of their village. So they went to his way and raised a collective voice in such a strong and effective way that the SSD immediately realised the problem and ordered to arrest the Mukhiya. He immediately decided six months of imprisonment and fine if he would not return this land. The then District Panchayat Chairman, who was brother of the Mukhiya knew the decision of the SSD. Then he approached with the SSD and negotiated on the condition of immediate returning the land from his brother. In this way the encroached public land was returned to the users. It was a win-lose situation at the beginning and negotiation was done almost by force.

At the same time another conflict was observed among the users in this land related to grazing and crops damaged by animals. Almost all users were reported to be involved in this conflict. Most commonly, children from the age of 8-14 were responsible for daily grazing their animals in this land. This pasture land was surrounded by agricultural farms. When children gathered in one place and started to play, animals damaged the crops of surrounding farms. Then the farm owners either caught the animals or misbehaved to the children so ultimately there was a conflict between the parents and the farm owners. To resolve this conflict all household heads gathered in the *Chautati*¹⁴ and discussed this issue. All users realised the problem. Although it was very difficult for them either to keep their animals stalled or to get adults from all households as a cow-herd every day, they unanimously made a turn of the *Gai Herne Palo*¹⁵ to get one adult daily in one's own *Gai Herne Palo* as a cow-herd and instruct/guide children and watch properly to prevent from the crop damage by animals. If in case crops damage by animals in the *Gai Herne palo* of a particular adult, he or she should be primarily responsible. This provision significantly reduced the conflicts related to crops damage by animals.

1976-1983: Searching alternatives for long term conservation of land

Respondents explained that leadership emerged from the problem itself. They believed that context and content of the problem was the first condition to emerge leadership. One of the

¹⁴ A place with social and cultural value where people gather to discuss problems and pertinent issues in the village.

¹⁵ Local term indicates the turn or routine among the adults to go one of them as a cow-herd to monitor activities of cowherd children to prevent crops damage by animals.

users was sufficiently strong to express his opinion convincingly and was able to impress the others. So the *Sangharsha Samiti* proposed him as a leader to deal on this case. One older and respected member of the community played role of dynamic facilitator and promoter to develop him as a leader. Other senior members of the user's group were watching, guiding and training him. As a defence strategy, they had to analyse situations, search alternate ways to tackle the problem and foresee the potential risks. To do that all users had to think, rethink, express opinions and share their ideas. This social process itself forced people to emerge as leaders. When the leader's views and opinions become similar to the views and opinions of the other members, the leader becomes stronger which was clearly observed in this case. One of the active members of the *Sangharsha Samiti* expressed that the role of the users was crucial to develop leadership. CPR encroachment trend was quickly growing at that time. So users came to decision of searching for a long term alternative to protect the land from possible future encroachment. They discussed several options and finally came to the decision of afforestation. They have contacted different organisations and many people to find the organisations willing to help their scheme. Ultimately they succeeded to secure help from one rural development project.

Respondents explained that not all users were ready to defend their common right on the public land. Some people were much afraid with potential risks to go against the local powerful leaders. Some people preferred to keep in the background and only some were strong enough to protest. At the end 20 households came to the agreement to protest their common right over the public land. An informal forum called the *Sangharsha Samiti* was established to discuss problems and to come to solutions. They had no formal office, no formal rules and procedures as other formal organisations do, but they were very much committed and gathered regularly in the houses of one of the users. From the series of meetings and discussions they agreed to appoint a leader, approached other people to form coalition and agreed to make a complaint to the SSD. According to respondents, in this whole process, they had strong discussions and even for some time completely different ideas and opinions. But at the end, they agreed to undertake joint action which now turned to be a success story. They are very happy with the way they did work to return the land and develop dense forest. Later some users were reluctant to grow forest in the whole area citing the potential problem of care and management after planting. To overcome this problem they decided to appoint one *Chaukidar*¹⁶ to take care of the newly afforested area. Finally they unanimously planted trees, managed the forest and are getting benefit from it.

1984-1995: Afforestation and joint management of the forest

In 1984, IHDP, a rural development project agreed to provide support for afforestation. This project provided seedlings, fencing materials and payment for a *Chaukidar* for six years and materials for watering. Later at the time of phasing out of the project, this forest was handed over to the DFO to take care for some more years. During that period the Forest Users Committee (FUC) (see appendix I) was formed from within the Forest Users Group (FUG) and took care with the support of the DFO. Plants grew up very well and a dense forest emerged. Later ENAP, a local NGO involved to support the users, organised different training, meetings, problem solving discussion and tours whereby people got opportunities to demonstrate their leadership quality, ability and capacity to handle the local level conflict and manage the forest .

1995: Forest handed over to the users group

In 1995 this forest was officially handed over to the FUG. After phasing out the support of the IHDP and the DFO, sole responsibility of management of this forest was under the FUG. They

¹⁶ Person appointed either by the users group or by the DFO to take care of the plantation area. (S)he gets monthly wage.

themselves developed rules and regulations for the management and utilisation of forest products. The FUC implemented the rules developed by the FUG. Many times different people tried to encroach this forest, but failed because of strong rules and its effective implementation by the FUC.

1996 : Another level of conflict observed

In the beginning of 1996, again some conflicts have been observed in the following issues:

1. Sharing of benefits: Even new users (other people from the same community who were not participating in the past to protest the land invasion) wanted to use the forest. But the users who conserved this land, planted forest and took care of it, were not happy to share equal benefits. Some new users were stealing trees and litters from the forest violating the rules. So a conflict arose between the old and the new users.
2. Recognition of users: Protesters users were not ready to recognise those people who were against their land protection campaign as regular users, though these people wanted to be part of users group.
3. Participation: Many people became passive during the period of conflict, afforestation, and management of forest and obviously contributed less. Those who contributed more were unhappy with their contribution and used to dictate other people when the forest was formally handed over to them.
4. Leadership: In Feb. 1997, a conflict arose for the position of leadership. Few members assumed that a position of Chairperson of FUC elevates their standing in the village and provides more decision authority. So other members also wanted the position which led to competition and resulted in mild level of conflict.

5.3 Discussion on the conflict resolution process

In this section an attempt is made to examine the causes of the conflict why that happened in that particular way. A diagnostic framework generated from the case itself has been used to look on it. It is observed that to cope with NRM-related problems different attempts have been made effectively by local people. It is learned from the case that the success of NRM projects can not solely be determined by the technologies, designs and resources of the projects; rather it is mainly determined by the needs, the strategies and the initiatives of stakeholders.

When I look on power relations in the study area I realised that the notion of power is more political and institutionalised under political processes in social life, which cover daily and strategic relations, resistance, support and opposition, stability and cohesion in social order (Driks *et.al.*, 1994). **Power has a complex and problematic relation in this case** as, the community was divided into different factions. The powerful political leaders were supporting the Mukhiya and tax payers were supporting the protesters. From the whole dynamics of power involved in this case concerted alliance and political allegiance seemed very important in the conflict management process. The protesters made an alliance with the villagers who were not happy with the *Koseli*¹⁷ and the *Mukheuli*¹⁸ to be paid to the Mukhiya. And political followers of the Mukhiya make another alliance. Many people were unhappy with the Mukhiya but not organised before the initiative of protesters. When the *Sangharsha Samiti* requested them to join hands they agreed because they found a suitable forum. On the other side, the supporters of the

¹⁷ Koseli is an unofficial arrangement where the taxpayers have to give present to the Mukhiya every season. Present items can be generally goat, milk products, fruits and vegetables

¹⁸ Mukheuli is an informal norm developed by the Mukhiya to contribute physical labour every season in his farm by all tax payers under his land tax administration.

Mukhiya were reluctant to openly support him because of more villagers were strongly supporting to the protesters. By realising the complexity the supporters of the Mukhiya were requesting him to negotiate with the protesters. This situation became even more favourable for the stand of the protesters. In this case a **dilemma situation was an important factor to create a platform**. As Pruitt and Carnevale (1993) put, conflict can be very constructive as it has potential for creative and effective solution of a problem. The *Sangharsha Samiti* approached different groups of people, linked with them and make **regular contact** and got **suggestions and feedback**. One of the suggestions was to complain with the SSD. The protesters **analysed the situation**, obtained information about past decisions of the SSD towards poor people during his earlier visits in district. Finally, they complained to the SSD and ultimately the land was returned. Here, **role of the leadership** was also an important factor to turn the case in to a success story. **Active participation** of all users in the whole process of negotiation and action helped a lot to develop and strengthen the leadership that ultimately helped to bring the result in their favour. **Facilitation** promotes situation favourable for shaping the course of action in the social process which in this case helped a lot to resolve the problem. Facilitation need not only to be from outside. Even **within the community a facilitator's role could be played by its members**. In this case an older and respected member of this community played a very crucial role to convince many people to the favour of the protesters which exerted pressure over the Mukhiya. He posed **many different ideas, potential risks, difficulties and opportunities** to the *Sangharsha Samiti* meeting and generated different opinions of all members. At the end they decided unanimously. Later to manage the forest, the role of the IHDP and the ENAP became crucial because of their involvement to promote the people's initiative. **Indigenous institutions** like *Chautari, Mukhiya, Pako Manchhe (Jimuwal)*¹⁹ *Sangharsha Samiti*, had an important role in the conflict resolution process. Because the insight and adaptive skills of local people are derived from many years of experiences and cultural traditions which have co-evolved with local problems and situations. I can argue from this case that knowledge of indigenous institutions is very important and consists of insights and dynamic techniques which are adapted over time through experimentation, manoeuvre and adjustment to environmental and socio-economic change. Another aspect of indigenous institutions is the dealing with power. Local knowledge and culture based capacities possessed by indigenous institutions are a means of power, and can therefore be a basis for empowerment- to enhance the strength of their own practices and insights and help people to selectively incorporate, adept and take advantage of external opportunities and ideas (Thrupp, 1989).

This case suggests that negotiation in CPR is a product of conversation in various arenas that are linked by communication networks and group efforts. The **forum** (*Sangharsha Samiti*) created by **coalition members** played an important role not only to return the public land but also to minimise the malpractice of *Koseli* and *Mukheuli*. This also forced a change in the traditional pattern of **patron-client relationship**. When users got their land back they sought a long term alternative solution to better utilise it. In this process they developed a **network** with different people, obtained information, discussed themselves and decided to plant trees. They formed the FUG and the FUC to manage this forest. This was an outcome of the resource dilemma (especially contribution dilemma) to renew the CPR (Pruitt and Carnevale, 1993: 23).

From this case I came to realise that a multiple frame of references, interactions and communication with community members help to promote leadership. My other realisation is that the **context** and the **content of the problem** is the important condition to develop the **leadership** which is further strengthened by the support of senior members of the community and or external development organisations. The **role of development organisations** (both GO and NGO) is important when they facilitate the process instead of implementing NRM activities themselves. Community Facilitators from the ENAP, who did rise awareness by organising

¹⁹ An older and respected member of the community who suggests and guides to the community members.

different training and discussion sessions, proved that the role of external organisations needs to be concentrated in facilitation. When the users feel that they have to protect their resources, discussion starts and they express their ideas and opinions and analyse pros and cons. These actors have to compromise on a problem, analyse the situation and define action procedures, and an agreement has to be arrived at on certain (most probably limited) choices as a plan of action.

From the agreement and action undertaken by these users I realised that **problems directly related and severely affecting survival of people force them to come to an agreement and concerted action**. This case in one level gave a different scenario than the perspective encapsulated in Hardin's "tragedy of commons"(1968) as rational to take commons by the individuals. Because instead to take part of the land by the users individually they united and protested land invasion for common interest by their **concerted action**.

I also tried to look at the case from the **gender perspective**. Gender role itself being a social construct, it has to be seen in the social and cultural context. The important issue on who have access to resources and more importantly, who controls them is governed by social and cultural context (Upreti, 1995). It is understood that only men were involved in the whole process of negotiation in the earlier phase. Women had very little chance to participate in the meetings, discussions and decision making processes. Some of the major reasons for low involvement of women expressed by the wife of the leader of the *Sangharsha Samiti*, were: as compared to now, women were not able to express their feeling, fear to go against *Thulomanche*²⁰, not allowed by their family members to go to the meetings and discussions and very busy in household chores. Some males even strongly suppressed the voice of their wives mentioning *Pothi Baseko Ramro Hundaina*²¹. Other user women said that, in this case they shared their opinion with their husbands in their own houses but did not participate in any meetings and discussions.

As time changed the role of women was also changed. When users decided to plant trees in this land, women were also involved in the decision process. They were the main actors with their children to collect litters, fire wood and grass, which they could easily obtain after afforestation. So they forced their male members to decide in favour of afforestation. Now women are gradually emerging as active members in FUG and involving in other local initiatives. The role of NGO seems very important to empower women in this VDC.

Earlier, **local norms** played an important role to limit women's access to decision making. With change in **context and time** gender role was changed. **Gender sensitisation** was an external concept and contradictory to their customary norms for the majority of users at the beginning but over time this concept was gradually incorporated in their own strategies and action process (e.g., involvement of women in FUC).

The users interpreted the achievement of the public land in their own interest based on their own world-views mediated by existing norms and beliefs (e.g., concept of heaven and hell, *pothi baseko ramro hundaina*, *thulomanche* etc.) and daily experiences (e.g., *Sangharsha Samiti*, *Mukhiya*, FUG, FUC, IHDP, NGO, etc.). Different levels of social aggregation explicitly or implicitly perceived the public land problem differently (e.g., users, villagers, VDC, DFO, etc.). This case gave manoeuvre to different actors. It was a learning process to understand the role of **network, coalition and facilitation**, need of **leadership**, and **constructed reality** in CPR that **people from different levels of social aggregation** can have

²⁰Local elite and village landlords who were respected in the village because of their wealth, power, exposure, relation with politicians, police and government bureaucrats and coming from higher social strata.

²¹A local legend which explains the superstitions that 'if hen produce same sound as cock this will be unfortunate' and this was commonly referred to women in rural Nepal not to speak as men.

very different views indeed about the same land. When users started the negotiation process and discussed about how to return this land, difference in opinion gave ground for the choice in solution. When this land was returned, users sought a long term solution to better utilise the land and prevent it from probable future encroachment because of its high value and better location.

From this village level resource use negotiation process, this land was not only changing into a dense forest and providing service for many more people but also encouraged people of neighbouring areas to plant forest in other public barren lands. From this success story of public land management, people learned to manage CPR in other areas. Some public forest of the VDC was protected, FUGs were formed, linkages and co-ordination were established with the range posts and DFO. Rules and regulations were formulated by users themselves and implemented effectively. This public land-cum-forest management was a pioneer conservation movement in this VDC and an example of SMNR from the local initiatives. Learning from this success, a 70 ha public grazing land in *Masanedanda*²² and 90 ha public land in *Rukhiniko pakho*²³ were also converted into dense forest within few years from almost the same process and generating income for schools situated in these villages. Here the **role of communication and feedback seem very crucial** to regenerate the forest resource in other public lands.

It seems from the case that unique feature of learning from the negotiation process makes it possible to develop understanding about the local dynamics in NRM. Conflict on this land at the beginning was serious and the local community was divided. The activists of this public land protesting campaign were many times insulted, humiliated and some time physically attacked. But gradually, during the period of 27 years, the unique social process brought many actors in a common forum to discuss the problems and to seek solutions. Local leaders and activists emerged from this unique process. Joint effort has been made to regenerate natural resource (especially forest). Some people got employment, many people trained on forest and land management, FUG and FUC have been formed and mobilised and people became empowered. At the beginning a win-lose situation was observed but at the end it was turned to win-win situation. In later days, women participated in FUG and got involved in decision making. Conflict resolution and management capacity of local people increased. They became familiar with processes, rules and regulations of community forest approach. Relations between two groups of people were improved.

Conflict on the *Matarko Pakho* has great implication at present in management of CPR in this area in different levels of social aggregation. It was reported that local elite were alert and cautious to invade public resources. The rapidly growing CPR encroachment trend of 1970s in this VDC was reduced in 1980s and early 1990s. Users were alert, cautious and searched alternate options to protect the CPR. Formal organisations (e.g., IHDP, ENAP) supported local people's initiatives.

5.4 Factors affecting the conflict resolution: linking with theoretical concepts

In this section I make an attempt to work-out the major factors responsible for this conflict resolution process and try to link them to the theories which were stated in chapter three in this volume. On the basis of the case study I recognised some concrete factors which have strong

²²Local name of the pasture land in ward six which is now converted in to dense pine forest. A primary school is situated in this land.

²³Local name of the public land in ward four where Satweshwor Secondary School is situated. This land is now converted in to forest and generating income for this school.

influences on the conflict resolution and learning process in the rural community. These factors and their role in the conflict resolution and learning process are given below:

5.4.1 Feeling of ownership

Notion of ownership is a pragmatic concept to determine context and scope of the negotiation process in NRM. Issue of ownership is one of the critical factors in the rural conflict resolution process. According to Hardin's (1968) **tragedy of commons**, individual's selfish choice is a great determinant for the depletion of CPR. It presupposes the individuals rationality to use the 'commons'. Here individuals who pulled resources could be seen as rational. However, if CPR is immediately affecting the survival of individuals the common interest could compensate selfish choice. In this case the pasture land was closely associated with the survival of 20 households so they demonstrated their **concerted action** to protect this land and manage the forest. It is realised that lesser the direct affect of CPR in the survival of the users the weaker the feeling of ownership and vice versa. So the concept of Hardin's "commons" in this case was weak because many users were strongly involved to safeguard the public land and forest. The role of **power** is manifested in this case in its capacity to influence people at different levels of social aggregation (users, elite, local government, etc.). From this case I realised that the idea of **knowledge for action and action for improvement** seems a very worth-mentioning concept, captured by SLA, to look at the CPR management issue. Concepts of HAS in explaining local resource use dynamics are important as this case was solely based on the human activities.

5.4.2 Initiatives of the users

The issue of how best to conserve NR used by many individuals in 'common' is advocated in different ways. Some suggest that the state should control NR to prevent their destruction and others suggest to privatise them. What I realised, neither state nor privatisation (market) is successful to sustain productive use of the NR system in rural Nepal. From this case it is realised that **initiatives of the users and indigenous institutions** were more effective in managing community level natural resources. In the study area **local initiatives and indigenous institutions played an important role not only to resolve the conflict but also learning from the process**. This case was related to a small community where members were very close to each other and there was a substantial cohesive social relation among them.

5.4.3 Social support, network and linkages

Networking is an exchange of knowledge, information and experiences between different people to build an **alliance** to develop and implement specific work. **Networks** are both formal and informal and durable relational patterns that emerge as a result of these exchanges (Engel, 1995). In the study area people **lacking social support** were affected by the people having strong social support. People being surrounded by many friends, relatives and bureaucrats quickly attempt to resolve the conflict in their favour, even being in the wrong position. So the Mukhiya and the protesters in the public land mobilised their own social networks to resolve the conflict in their favour. The concept of **coalition for concerted action** discussed in chapter three is useful to see the **relationship between conflicts and social support**. Social support and network mobilisation strategy are very common and effective in rural conflict resolution process. **Shared commitment** to address important natural resource use through continued debate is one achievement of **coalition and platform** which was distinct in the case of public land and forest.

Linkages between the users themselves and the users and other villagers turned out to be much more relevant to foster resolution of conflict. Means and ways of resolutions of many conflicts were developed locally, building **mutually agreed principles by interaction**. This process also helped to develop leadership and **social interactions** between many different stakeholders to deal with that particular public land related conflict. In this case the users had obtained valid information to make a free and informed choice and had a strong internal commitment. Therefore, this case is an example of the **double loop learning**. People learned to learn from the conflict resolution process. During the negotiation process **network, linkages and interactions** between different people was established. Long (1992) outlined the concept of humans as social actors that they may act individually and collectively. They are intentional and pursue their own goals through learning, experimenting, formulating and carrying out decisions. Some time the pursuit of their goals causes clashes with other seeking competing goals. When these clashes occur, progression is achieved through social discourses and interaction, i.e., participation. Therefore, the **actor oriented approach** of Norman Long (1992) was found useful to explain the interaction, network and linkages among the people to deal on CPR.

5.4.4 Political allegiance

Political allegiance is increasingly intruding into creation and or resolution of conflicts in villages. Earlier studies in conflicts show that long-suffered grievances may have accumulated and raised to the level of conflict simply because the individuals involved now belong to different political parties. Party politics serve to focus **power alliances** which are an endemic part of Nepal's rural life (Bhatiya, 1995). **Political allegiances** even override other more traditional bases of allegiances. In the study area political intervention in any conflict was a major social characteristic of the village. An environmental activist and social worker involved in NGO explained that political parties were intervening even in small conflicts for their political benefits. Nepali Congress Party (NCP), Nepal Communist Party-United Marxist-Leninist (CPN-UML) and Rastriya Prajatantra Party (RPP), all major political parties existed in the village and were heavily involved in influencing conflict issues. **Allegiance to political parties** in Nepal is an important condition to enhance and or inhibit conflict resolution processes. From the study I come to conclude that **political allegiance** is dominant and decisive factor in the conflict resolution process in rural Nepal. People learnt to enter into strong political camp when they fell into serious conflicts with others and their position is weak. When an outcome is anticipated against their favour they exercise political power to modify that outcome in their favour when they are members of a strong political party.

5.4.5 Local norms, values and beliefs

The religious connotations imbedded in the perception of people could help in the protection of CPR. Though use of the terms **local norms, values and beliefs** appears ubiquitous and enduring as a floating sociological jargon, it has **its practical significance in the conflict resolution and learning process** in NRM. Pasture land was a very much religious and cultural value laden concept in the study area. The strong **belief on heaven and hell** helped to prevent many pastures from individual's encroachment. Vertical social stratification created by the Hindu cast system exerted an enormous influence on the CPR (mis)use (e.g., not to go against *Gaonko Malik*). Those who were in the upper layer of social strata controlled part of CPR. Villagers emphasised the great significance of local norms, values and beliefs in the management and utilisation of natural resources. Idiosyncrasy of the head and other members of the local

government and elite earlier controlled resources in the village (e.g., sale of public land and timbers from the forest, etc. by the Prdhanpancha and Upaprradhanpancha).

5.4.6 Feeling of group identity

Choice of alliance is not solely influenced by situations but also by the **intention and pre-existing characteristics** of the individual. **Feeling of group identity** (i.e. elite, powerful, powerless, rich, poor, landlord, tenants, etc.) psychologically force people to form alliance within a particular group to deal on conflicts. The study reveals that the notion of **intentionality** encapsulated in the SLA is close to local alliance practices. What makes contending parties to seek alliance with other people of similar characteristics is their intention and interest. Those who intended to invade the public land were in one camp and those who were intending to conserve the public land made another alliance. Grouping of powerful people v/s protesters in the public land case was an example of group identity.

5.4.7 Information and communication

Use of communication and information serves as a basic starting point for conflict resolution in CPR. Central to **communication perspective** is the realisation that conflicts are socially constructed and communicatively managed within a given context (Bush and Folger, 1994). The attention to **social construction of meaning** is an important aspect of communication. Communication and effective use of information seem important in the learning and conflict resolution in CPR management and utilisation. The communication strategy used by protesters in this case was not only effective to establish a network and coalition but also equally effective to **mobilise the bureaucracy** in their favour. Creation of the *Sangharsha Samiti*, issues of the *Koseli and the Mukheuli*, and complaints to the *SSD* were examples of effective use and means of communication and information in this case.

5.4.8 Power, position and interests

The institutional basis of power possessed by an individual gives him/her legitimate authority to influence the attitude and behaviour of the people (Folger and John, 1994). Two characteristics of a person i.e. **positional character** which an individual controls by virtue of incumbency in a particular **social position** (as authority to take certain decision) and **personal character** as a result of idiosyncrasy (features of personality, personal biography e.g., linkage with influential elite, etc.) play an important role in conflict resolution (Musrdan and Laumann, 1977). In this case the invader had a positional character as a District Panchayat Member and *Mukhiya* and also belong to the village elite, an idiosyncratic character which played important role to encroach the public land. The position of the invader and the interest of the users were distinctly contrasted. **Interests** are seen as the specification at the level of concrete events of differences in value preference held by different class groups. Notion of **synergy** among the actors is closely related with notion of **interests**. As the study revealed, **people having common interests agreed to take concerted action** to protect the public land. To come to the negotiated agreement protesters accommodated their differences. The single factor binding them to work together was their prime need of the pasture. In contrary, the **position** of the invader as a *Mukhiya and member of the District Panchayat* influenced some villagers to support his activities as a rational.

5.5 Conclusion

From the above discussion it is clear that successful negotiation in resource use could be achieved effectively at community level if the conflict is directly and immediately affecting the survival of resource users. In such a condition it becomes their strategic initiative to seek a solution. Local norms, values and indigenous management structures could play a decisive role to negotiate resource use conflicts. Collective learning supported by social networks and two way communication in this case was able to form a coalition and undertake the concerted action.

CHAPTER 6: SECOND CASE

CONFLICT RESOLUTION PROCESS ON SPRING WATER SOURCE

6.1 Introduction

In the preceding chapter I examined the resource use negotiation practice in public land and forest. This chapter describes the conflict resolution process in spring water source to answer partly the research questions posed on chapter two. This chapter elaborates the negotiation process involved in spring source conflict. Findings have been presented in different sub-headings as introduction, conflict resolution process: narrative description, discussion on the conflict resolution process and factors affecting the conflict resolution: linking with theoretical concepts.

6.2 Conflict resolution process: narrative description

This case study was conducted in a spring water source locally called as *Golfe Bhoteko Dharo*²⁴ which was located in ward seven of Pawoti VDC, 1300 metre above mean sea level. The population composition of the study site was Bramin, Chhetri and Tamang, socio-economically and culturally a not much diverse group. The study area was relatively densely populated and had few spring sources for drinking water. Only four spring sources were providing drinking water for more than 70 households. Among these four sources *Golfe Bhoteko Dharo* was one of the big spring water sources located in the land of an individual. Even being a big source only seven households were permanently using this for drinking water, but other villagers also attempted to take part of this source. Hence the conflict on the use of spring source for drinking water was beyond the border of individual. To resolve this problem, the users emerged as organised group from the facilitation of NGO and initiation of women.

Table 3: General overview of the spring water source

S.n.	Particulars	Description
1	Location of source	In ward seven
2	Permanent users	Seven households
3.	New potential users	13 households
4.	Source owned by	Individual
5.	Type of conflict	Source related conflict
6.	External support	NGO, DWSO, District Panchayat
7.	Leadership style	Group
8.	Role of women	Significant in negotiation

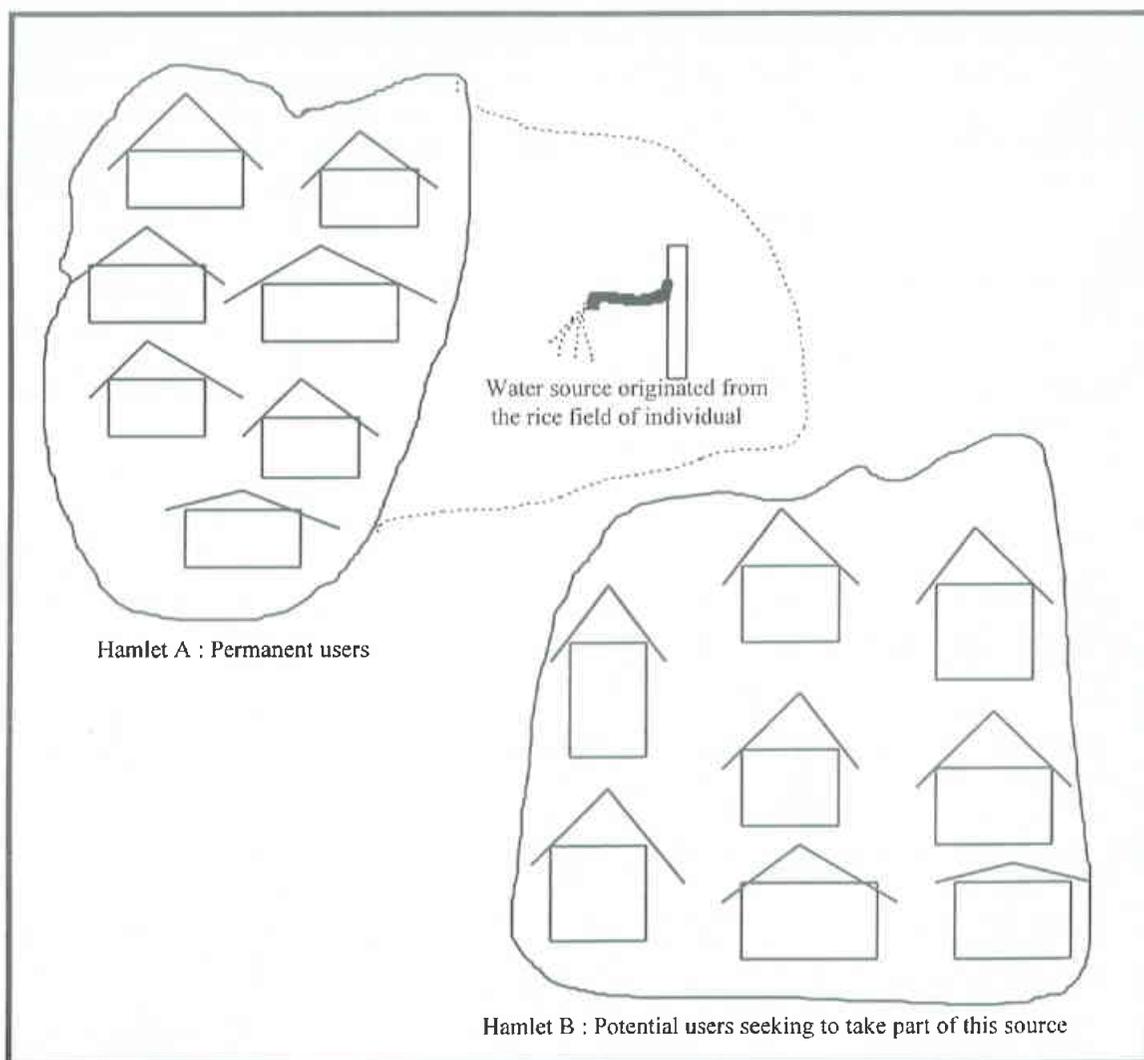
Source: Primary information from the respondents

In this case spring water ascertained the basis for future entitlements and governed the current benefit as well as obligations. This case provides an understanding of the dynamics of water rights, relations and insight to the drinking water use negotiation process. Since, this was a

²⁴ Name of the water source associated with the name and ethnicity of particular person. The word "Bhotc" was commonly used to indicate Tibeto-Burman people originated from Bhot (Tibet).

property-creating and altering process, involving benefits, losses, access, rights, obligations and changes in relations, a significant social process was involved to resolve drinking water source dispute.

This source was permanently used by seven households mainly for drinking water and partly for irrigation (see map 4). In the lower part of the village 13 households (hereafter referred as potential users) were suffered from the drinking water. So in 1989, first time they explored possibility to bring part of the water from this source and discussed their problem with source owner and permanent users. At the beginning permanent users and source owner agreed to provide part of the water. Accordingly, they decided the locations of tap stand, collected stones, approached to the District Panchayat Secretariat to obtain the pipe and fittings, fetched these materials, and dug out an alignment for laying the pipe. After that, the source owner suddenly refused to give water. The hidden reason behind this disagreement was rooted to the position of new users. The source owner perceived that they were relatively better-off and had tried to minimise his status in the past. Few people from another area who were wishing to get water from this source, stimulated him to refuse citing the problem of lack of water to irrigate the land surrounding this source. Hence the source owner became hostile and disagreed to provide part of this water source for the potential users. Afterwards, this conflict was indirectly enhanced by those people who were politically different from the potential users.



Map 3: Location of water source, and hamlets of users

At the same time, one of the potential users threatened the source owner, saying that if he would not give water, he should be ready to face physical attack and announced the determination that at any cost water will be taken from this source. In this regard the source owner explained his view that:

“I was thinking to provide part of water forgetting their past behaviour. When some of them tried to demonstrate their muscle to take my property, I could not resist it. Should I compromise the irrigation to my rice field as the cost of threatening? Their power and money, commonly being very decisive, can not influence me. I have right over this water source. There was plenty of room for compromise, if they were really interested to negotiate. They choose another way to take water. Already I positively talked to some of them to resolve this problem. They knew that I have no other source to irrigate my field. So that at-least I should get some solution to irrigate my field. I was looking to alternatives. But when I got the message of physical attack, I immediately refused to give part of the source”.

Political difference between the villagers was another factor responsible to accelerate the conflict. Respondents explained that earlier both the permanent users and the source owner were agreed to provide part of water but later they changed their decision by listening to the sayings of the people from other political camp. According to some villagers (other than the users and the potential users), this source was sufficient for both groups of people both for drinking water and irrigation in the field surrounding to the source. Lack of water was not the real cause of the conflict but the root cause was the jealousy over rising position and prestige²⁵ of the new users. Potential users were continuously attempting to resolve the problem in an acceptable way to both parties. So, the Ward Chairman was appointed by the potential users as a mediator to negotiate with the permanent users and the source owner. As a problem solving strategy, to technically verify the sufficiency of water source, the negotiator invited one ‘overseer’ from the DWSO to measure the capacity of the water source. This technician justified the capacity of the source as sufficient to provide drinking water for both groups. When the negotiator almost came to the compromising stage, previous opponent-in-ward election of post of the Ward Chairman indirectly created obstacle by convincing the source owner and assuring legal and formal support wherever needed. This incidence again prolonged the conflict.

Though the conflict was mainly limited to two groups of users within a village, other people from the ward were in favour of sharing the source for both groups. Hence the conflict became a common concern of all people of the village. Women of the potential users group were facing a severe drinking water problem. One of the active initiator women of the negotiation process said that fetching water was the absolute responsibility of women. Women from every household have on average to collect approximately 400-500 litre water daily for human and animal consumption. Generally, it takes around 20-25 minutes to collect water from the source. Hence, the drinking water problem was primarily related to women. Therefore, she herself initiated informal discussion. Afterward other potential user women also informally talked many times and convinced the wives of the source owner and the permanent users. They were able to put positive pressure on source owner and permanent users through their wives. To resolve the conflict, ENAP, an NGO facilitating different activities in other area of this VDC, was invited by the villagers, especially from the initiation of women to negotiate the conflict. ENAP organised awareness rising activities for the first year through training on water source conservation, sanitation, community participation, conflict resolution and formal and informal meetings and discussions. After that ENAP organised an observation tour in neighbouring VDC

²⁵ To have a water tap in house (or even in close vicinity) was considered as prestigious and people felt their position elevated.

where a similar type of conflict was resolved locally. Four participants found that informal means were very instrumental to resolve the conflict. Hence, after returning from the tour they intensively used relatives of the permanent users and religious leaders to convince the resisting party. The *Purohit*²⁶ was mobilised to convince them. At the end of all these efforts and with the help of ENAP villagers succeeded to form a *Madheshakarta-toli*²⁷ to mediate between these two groups (see appendix II). *Madheshakarta* was a very popular indigenous institution in rural Nepal which is constituted by villagers from within the community. Generally community members select the *Madheshakarta* from the group of older and respected people, priests, and intellectual persons. They involve in mediating conflicts, marriage, land tenancy, animal transaction, religious ceremonies, etc. When more than two members are appointed then it becomes the *Madheshakarta-toli*. Though it has no legal and formal recognition and authority it is still very powerful forum in rural community to resolve many conflicts. This *Madheshakarta-toli* proposed following suggestions to resolve the conflict on the use of the water resource:

- Either the owner should sell the source to the potential users in the condition that the source would be common property of both groups of users, or the owner should allow to take water in the conditions mentioned below:
 1. The potential users should construct a reservoir tank close to the source to collect water,
 2. Water should be collected in the tank at night time,
 3. If water shortage for rice transplanting is observed, water should not be collected in the reservoir tank at that time,
 4. New users should take responsibility of source conservation,
 5. The source owner and the permanent users should inform the potential users and the *Madheshakarta-toli* before breaking the water for rice transplanting,
 6. Both groups of people should apologise for the past blames and mishappenings,
 7. If some misunderstanding emerges, then both groups of users have to inform the *Madheshakarta-toli*.

This proposal was thoroughly discussed in successive mass meetings with the permanent users, the source owner, staff of the ENAP, other villagers and the potential users. At the end a proposal was accepted and an agreement was made to use the source by both group of users. Villagers unanimously gave authority to the *Madheshakarta toli* to take action against the violation of the agreed conditions. In the mean time, the *Madheshakarta-toli* was also identified another source as an alternate problem solving strategy.

6.3 Discussion on the conflict resolution process

In the section 6.2, I described the conflict resolution process undertaken by villagers. In this section, I am attempting to analyse the conflict resolution process to answer the question why that happened in that particular way. This case was an example of successful resource use negotiation at community level from the initiatives of local people themselves. Major causes identified are discussed as follows:

²⁶A culturally and religiously recognised person (only male) who performs religious activities and mediates among the villagers. He has generally strong influence on his clients (Jajmans).

²⁷An informally organised forum by the villagers to mediate the contending parties. The English translation is 'mediation-group'. Seven members (four male and three female) were nominated by villagers to negotiate water source conflict.

6.3.1 The Madheshakarta-toli and the Purohit

These were cultural and religious indigenous institutions inherited from past generations to deal on the social and religious issues in the community. The *Madheshakarta-toli* was a group of people selected by community members to deal or mediate on a particular conflict issue. It has a permanent character but members are selected on case to case basis considering the neutrality, convincing ability and willingness of the members. The *Purohit* is a culturally and socially recognised person from the Brahmin caste to perform mainly religious ceremonies and to act as a bridge between the villagers for information and communication. To mediate this case these two institutions played a crucial role. The *Madheshakarta-toli* was constituted of seven members (four males and three females) from the same community (see appendix 2). The *Madheshakarta-toli* from the beginning made several attempts to convince the source owner and permanent users, contacted DWSO and brought a technician to justify the capacity of water source, organised discussion meetings, invited all users and villagers to discuss the problem, develop and forwarded different problem solving proposals to discuss in the mass meetings, established norms and co-ordinated the implementation of project. The ENAP has strategically supported the *Madheshakarta-toli* to perform these activities. In this way a platform was created which played an important role in conflict resolution. The *Purohit* convinced permanent users by highlighting the religious importance of giving drinking water to others. Because of the nature of his work (to perform religious ceremonies every month) the *Purohit* had frequent house to house contacts and strong relations. So his *Jajamans* (clients) accepted his suggestions and did not prefer to go against his arguments. This made the work of the ENAP and the *Madheshakarta-toli* easier.

6.3.2 Role of the ENAP and the DWSO technician

The ENAP played important role to resolve the conflict by organising awareness raising training in water source conservation, sanitation, people's participation, leadership, kitchen gardening, etc. It organised an observation tour to the nearby VDC to see the successful negotiation on the same type of source dispute. The ENAP also organised series of discussion sessions to select the members of the *Madheshakarta-toli* and provided conflict resolution training. Strategic support of the ENAP to the *Madheshakarta-toli* to perform the mediation task appeared very important. The Overseer from the DWSO technically justified the capacity of the source to provide water for both groups of people. This justification made the stand of the source owner weaker. So the permanent users also became passive after the technical report of the drinking water technician. Then villagers further exerted pressure to the source owner to negotiate. So this type of facilitation process contributed significantly to resolve the conflict. This study revealed that given an appropriate **facilitation** by independent development organisations (e.g., NGO) and opportunity to **create a common forum**, stakeholders themselves are **able to learn** to resolve the conflict. In this case the **neutrality** of the facilitator and or mediator was very important.

6.3.3 Cultural norms, values and beliefs

Norms, values and beliefs like cultural variables played a crucial role in the conflict resolution process in this case. Local values, norms and beliefs led to a pragmatic course of action in water distribution and use. Some of them have also been endorsed in the national code (Muluki Ain) of Nepal (Khanal and KC, 1996). In the study area, not to provide drinking water was considered as a sin. As normative practice, it does not matter whoever owns the source, drinking water should be accessible to the general public. According to customary norm

drinking water should get priority over irrigation if the source is not sufficient for both purposes. A strong belief promoted by the *Purohit* that 'those who hinders to take drinking water should go to hell after death' had great implication in the use of the water source. In the customary practice, people from their own experience and inherited from their ancestors to learn coexistence. Villagers used a legend that " *Desko Deuta Bhandu Gaon ko Bhut Kamlagchha*" (Ghost of own village is more useful than god of far distance). This means that they make utmost efforts to **accommodate multiple perspectives** and were able to avert the water source conflict locally.

6.3.4 Size and complexity of the conflict

The conflict on the use of the spring water source was relatively small in terms of number of people involved and complexity of the problem. Members of the *Madhesthakarta-toli* and the ENAP's facilitator explained that it was easier to bring people in the meetings and discussion because there were few households involved in the conflict within the village. So whenever and wherever needed, they were gathered for training, meetings and discussions. The people involved in the conflict were also culturally and economically not much different which was another conducive factor for the conflict resolution. Most of the households involved in this case were *jajaman* (clients) of the one *Purohit*. So he made an utmost effort to keep his clients united by resolving the conflict by agreement. At the same time the *Madhesthakarta-toli* identified alternate source in-case it failed to negotiate concerning this source. In this situation the stand of the source owner and the permanent users could not prevent the potential users to bring water from another source identified by the *Madhesthakarta-toli*. In case the conflict between the people of the two hamlets remained unresolved the permanent users could be criticised by neighbouring villagers. So permanent users were not ready to be criticised from them.

6.3.5 Inhibiting forces

There were not only conducive forces acting to resolve the conflict but also inhibiting forces like political differences and conflicting interests between the users, jealousy among the villagers, etc. which were influencing the negotiation process. Some people were jealous with the facility going to be available to the potential users. So they tried to create an obstacle to take water from this source. Some people politically different from the potential users, insisted the source owner to prevent to share the source by citing a future irrigation problem. They argued that there would be severe confrontation later during the peak irrigation season if the source was shared. Furthermore, a political opponent of the Ward Chairman who was involved in the mediation process, deliberately created a problem to take revenge on him. However, in totality the inhibiting forces were weaker than the promoting forces; which made it possible to resolve the problem in a win-win situation.

6.3.6 Other observation

From the earlier studies it was found that often lack of understanding between users of water resource leads to a poor planning, uncoordinated implementation, prolonged litigation and disputes between users and community (Pradhan, 1994). This case was the result of such lack of understanding among the people of two hamlets at the beginning.

Gaining community consensus in use of same source of drinking water by two groups was difficult but no impossible task. According to the customary rule any drinking water source would have been common and accessible to all. But because the source was located in the land of a particular person the community was not opposing the claim of the source owner. So it became visible that CPR use contradicts with individual selfish choice and common welfare. One of the best ways is to utilise **customary and normative rules and informal means** to resolve the conflict. It is observed that mediators either individuals, or organisations were very helpful to resolve conflict. The role of the women was very crucial in this case to bring people on the negotiation table.

It is learnt that conflict on use of NR not only creates social tension but also many time leads to the misuse and abuse of these resources. If old users feel that their resources has been encroached and new users feel that they are not allowed to use common resources then conflicts arise. However, if there is **proper facilitation, two way communications and involvement of stakeholders in the decision process**, the conflicting issue can be solved easily which ultimately leads to SMNR. In this case proper use of the water resource was the outcome of a whole process from which other communities could learn. Because of good facilitation and regular discussions with stakeholders, these two groups not only came to compromise and agreed to share available water but also demonstrated their will and ability to resolve the conflict locally. Wasted water has been going to be properly utilised in an win-win situation. Women became sensitive to their role and involved in the decision making process. A good and harmonious relation between the people of the two hamlets is established.

6.4 Factors affecting the conflict resolution: linking with theoretical concepts

Various actors and factors played important roles in the creation of the conflict and the negotiation process regarding the use of a spring source for drinking water. Among them drinking water need of the villagers, initiation of women, issue of ownership, communication, facilitation and role of indigenous institutions were crucial ones. These factors are briefly presented as follows:

6.4.1 Drinking water need of the villagers

One of the major factors for both creating the conflict and its resolution was the felt need of drinking water by the potential users. They greatly suffered from the shortage of drinking water so they made utmost efforts to obtain it. They mobilised the *Purohit*, relatives, house wives and community leaders to convince the source owner and the permanent users and invited the ENAP to facilitate the negotiation process. If potential users would not have made such rigorous efforts the problem would not have been resolved. As explained in chapter three on the **pragmatic role of social learning to mediate the conflicting interests in use of natural resources**, local institutions were very effective to negotiate conflicting interests in water use of the two groups of people. They learnt themselves how to resolve the water source conflict via mediation. A saying that “**necessity is the mother of invention**” was clearly reflected in this case.

6.4.2 Initiation of women

Another pragmatic factor responsible to resolve the conflict was initiatives of women from the potential users group. In the different forums like *Mela-parma*²⁸, *Pani-pandhero*²⁹, *Ghansdaura janda*³⁰, *Hatbazaar*³¹, *Jatra*³² and *Bibaha-bratabandha*³³ these women discussed the drinking water problem with their counterparts from the permanent users and ultimately were able to convince them. As a result, wives of permanent users and the source owner put positive pressure to their partners to share the water. In addition to that some women participated in the training provided by NGO, and in the tour and they also discussed their problem with the ENAP's community facilitators and village leaders. Some women were even represented in the *Madhesthata-toli* and played an important role in mediation of the conflict. In this case unique efforts of women were very helpful to resolve the conflict. Women, especially older married females, were far more co-operative and assertive in resolving the local level conflicts because of their ability to accommodate different perspectives.

6.4.3 Issue of ownership

The issue of ownership was one of the important causes of the conflict. The source was located in the land of an individual. So he claimed that this source is under his ownership right. Therefore, should the spring source get priority for drinking water to the general public or should it serve the individual's irrigation purpose of the land where source is located was the basic issue. The source owner cited the problem to irrigate his land when the source is shared for drinking water. As a matter of fact, the notion of **water right** (ownership) in rural Nepal is normatively defined and strong compared to the regulatory definition of water right by the state (Khanal and K.C., 1996). Here the rational of individual's selfish choice is questioned by traditional norms and cultural practices. **Instrumental rationality** of source owner was changed by the negotiation to **communicative rationality** by utilising different indigenous institutions through the facilitation of an NGO.

6.4.4 Communication

Linkages and dialogue between users, their wives, friends the *purohit*, the *Madhesthakarta-toli* and staff from development organisations were good examples of the **communication networks** in this case which not only enhanced the resolution of conflict but also promoted **learning** in CPR management. **Two way communication** and **exchange of information** among the potential users, between the permanent and potential users, officials and relatives, friends and the Purohit proved decisive to resolve the conflict. Communication helped people of different level of social aggregation (users, villagers, Purohit, NGO, DWSO, etc.) to develop adaptive knowledge to resolve the conflict. In the spring water source case, the negotiation process was guided by the perception of two dimensions of conflict i.e. how important or unimportant it is to satisfy our needs and how important or unimportant it is to satisfy the other people's needs. This led to a collaborative (interactive) situation. Here negotiation involved two

²⁸ An exchange of labour in the village to perform main agricultural activities like transplanting of rice, harvesting of crops etc. which require large number of people. So people from all households participate in such activities rotationally and discuss various issues at that time.

²⁹ Every day many women in morning and evening gather at a water source to collect water. At that time they discuss different issues and share their feelings, experiences and difficulties.

³⁰ As a common practice in the village many people go together to the forest to collect firewood and grass where they share their ideas and opinions and discuss different issues.

³¹ An informal forum where people weekly or fortnightly gather to sell or buy different goods and to settle many practical issues. Hat-bazaar is the principal forum to discuss different problems and issues.

³² An informal forum where people occasionally gather to celebrate some religious festivities and discuss different issues.

³³ These are religious ceremonies which represent the marriage (Bibaha) and sacred thread (Bratabandha) given to the male to be eligible for marriage. For these occasions women have to work together in advance to prepare materials where they share their feeling and experiences with each other.

levels: a rational level of decision making (substantive) process and a psychological (emotional) process. The outcome of negotiation is likely to be a result of psychological elements as well as the rational element.

6.4.5 Facilitation

Facilitation, another important component of SLA, in this case brought conflicting parties together in a **common forum** i.e. the *Madhesthakarta-toli* to discuss the issue. The **role of an NGO** seems crucial to create awareness among the users and to create the *Madhesthakarta-toli* which ultimately resulted in the negotiation. One of the **important aspects of SL is the facilitation of mediation and negotiation on conflicts between individual and collective interests**. Negotiated agreement on use of the spring source for drinking water was the example of SL. Facilitation in this case **promoted participatory processes** of conflict resolution by involving all stakeholders in the problem discussions, norms setting and agreement in water use. Therefore, **facilitation promoted recognition of consensual agreement on water use** which led to the new way of management of CPR and social dilemma.

6.4.6 Role of indigenous institutions

Local institutions like *Madhesthakarta*, *Purohit*, *Mela-parma*, *Ghans-daura janda*, *Bibaha-bratabandh*, *Hatbazaar*, *Jatra*, developed and inherited from the culture and the religion provided important **platforms** to discuss the problem and shaped the course of action for negotiation. Belief like '*to provide drinking water is to pave the path to go to heaven and to create obstacles on drinking water use is to be prepared to go to hell and face serious trouble of drinking water after death*' was a crucial religio-psychological factor to bring people to the negotiation table. The *Purohit* interestingly presented this belief to the source owner and the permanent users to provide water. The *Madhestha-toli*, by using local norms and values persuaded the permanent users and source owner to provide part of the water to the potential users. Working together for common purpose put forward resource users to learn and appreciate **indigenous knowledge and skills** as well as begin to share aspirations of their efforts. This process established genuine efforts for a commonly agreed-upon agenda of SMNR in this area. The drinking water problem was successively discussed on the different forums like *Mela-parma*, *Bibaha-bratabandha*, *Ghans-daura jandha*, *Hat-bazaar*, *Jatra*, etc. by potential users which created a very favourable situation to resolve the conflict in their favour. It has become increasingly evident that **mobilisation of indigenous institutions, local efforts and joint actions is essential for sustainable use of natural resources**. Indigenous institutions were also important to deal with power in this case. As observed from the earlier discussion **power** played a role in resolution of the water use conflict. Power is visualised to gain the outcome one prefers in opposition to the other party's interest in gaining the outcome (s)he prefers (Colemann, 1977). Both instrumental uses (to gain immediate material benefit) and symbolic use (honour, prestige) of power plays an important role in the negotiation (King, 1987) which was clearly observed in this case.

6.4.7 Other observations

As many learning theorists highlighted that 'learning provides alternatives for problems', this case exemplified the statement. **People learn from the process** itself. It is learnt that **conflict was necessary to detect errors and force correction** (i.e. individual's control over spring water source and agreement to share it for common benefit). Nevertheless, unbounded conflict

destroys the long term co-operation which was not characterised in this case. **Concerted action process** promoted such long term co-operation among the people of two hamlets. Hence both **bounded conflict and adaptive management** strategy (an application of strategy that can produce useful knowledge from unavoidable errors) is **essential for SL** to occur (Lee, 1993). In the nature of conflict this spring source could be categorised as a bounded conflict. It is a pragmatic application of politics that protects the adaptive process by disciplining the disagreement of unavoidable errors. Together they can bring **learning towards sustainable resource management** (e.g., negotiation in water use). Here the notion of adaptive management is used to understand the causes of human intervention in a natural system and unanticipated outcome by collective efforts e.g., agreement on the conditions specified by the *Madhesthakarta-toli* to share the water source.

In Nepal rural people pursue their NRM activities in variety of social institutions or platforms based on kinship, neighbourhood and common interest, learnt socially from their experiences. Shared commitment to address important NR use problems through **concerted action** via different informal forums (platform) was the characteristic of community level NRM in Nepal. Although different actors have different perspectives, they tried to resolve conflicts in a negotiated way. Of course each of them looks to a conflict (e.g., spring water source) from different interests and perspectives yet their social interaction determined the ways to resolve conflicts in an agreed procedure.

The study shows that local people were not only active negotiators and mediators of conflict but also active managers and networkers. Local people interestingly seek relationships with different people to exchange knowledge, information and experiences and to built alliance to develop and implement new way of managing conflicts. Local people, although not always recognised as such in Nepal, are the principal **managers of the local natural resources** (Rhoades, 1997). Instead to go to the court to resolve the water use dispute, they successfully negotiated the conflict locally in acceptable way to the both groups.

In rural Nepal, women's position in general is still rudimentary in NRM decisions. However people are gradually becoming gender sensitive (e.g., in public land and forest and spring water source cases). Jiggins summarised the women's position in existing economic only perceptions of development as:

"It is the world governed by the public decision of men who choose to solve problems by force. It is a world in which women and children form the majority of the poor, the displaced and the hungry. Such a world is not sustainable".

She further mentioned that:

"... By not recognise gender as a fundamental ordering principle of human relations, conventional economics and policies take human society into inequitable and unsustainable economic activities" (Jiggins, 1994: 27-28).

However, **gender is not yet recognised as such fundamental ordering principle** in Nepal. Nevertheless, the situation is gradually changing with respect to gender inequalities.

From the discussion with district based organisations responsible to conflict resolution, it is realised that conflict resolution in terms of curative measures is their common approach instead of reducing conflicts by regular meetings, sharing experiences with local people and facilitation. They expect and even encourage to resolve conflicts legally because they want to prove the need/existence of conflict resolution mechanisms instituted in the district by the government.

When I discussed this with them I realised that the **reasoning of majority of them was instrumental and administrative**. It was very hard to find the communicative approach with most of them. The main causes of such orientation were working policies, strategies and procedures which were very rigid and centrally defined. There was little scope to follow the **communicative approach within the existing organisational culture and structure**. To address the CPR related conflicts in a pragmatic way these organisations need to be adjusted as learning organisations (Van den Ban, 1997).

6.5 Conclusion

This case was an example of successful resource use negotiation at community level. Different factors and actors played important roles to resolve the conflict in a win-win situation. Among them local institutions, facilitation role of NGO, social network and learning aspect seem crucial. Suitability of indigenous institutions to resolve resource use conflicts at community level was distinctly observed. Different local institutions provided effective forums to discuss the problems and to explore the alternatives. These institutions have their own peculiarities in dealing with the activities of community members. Learning aspect in this case was very strong. The social networks were effectively mobilised to bring conflicting parties to the negotiation table. The facilitation role of NGO proved to be crucial to bring conflicting interest of different people into an agreement. Women's role was crucial to create conducive environment to act upon by the ENAP and the *Madhesthakarta-toli*. From this case it is clear that rural people are capable and creative to resolve community level resource use conflicts (at-least at small scale) when proper support and facilitation is given.

CHAPTER 7: THIRD CASE

WATER USE CONFLICTS AND RESOLUTION PROCESS ON FARMERS' MANAGED IRRIGATION SYSTEM

7.1 Introduction

This chapter briefly describes the way of dealing with water use conflict and resolution process on a farmers' managed irrigation system to answer partly the research questions posed on chapter two. This chapter elaborates how the conflict arose after intervention of the VDC and the DDC through the politicians and the consequences of such intervention in the management of the irrigation system. Finding has been presented in different sub-headings as introduction, background, conflict resolution process: narrative description, discussion on the conflict resolution process and factors affecting the conflict resolution: linking with theoretical concepts.

7.2 Background

In Nepal, although vast water resources exist, irrigation water has become a subject of great contention especially in the peak agricultural season. Conflict and dispute over irrigation water often arose for control over water resource, storage and transportation of water, inter-sectoral distribution, budget use and management, etc. Many of such conflicts and disputes in rural Nepal have been mainly settled by customary laws, religious norms and informal means by the local people themselves. These have continued existence and practical relevance (Benda-Beckmann *et al.*, 1996). However, customary rules, religious norms and informal means have been ignored by many law makers, NGO activists, government institutions and researchers (*Ibid*). The local customs, traditions and informal process of mediation and negotiation of conflicts over water were more persistent in the study area.

Irrigation is not only an NR system but also social resource system. In the context of irrigation as a social resource system, there is overtly political contest and struggle for resource use. So there is a necessity for provision of special forums for negotiation over this kind of resource use. Many farmers managed irrigation systems (FMIS) in Nepal reveal indigenous knowledge and practices regarding various irrigation management activities such as water acquisition, allocation, distribution, resource mobilisation and conflict management (Pradhan, 1994). Many patterns of indigenous institutional arrangements to deal on the water related issues have been shaped by local people from interactions and negotiations. Such institutional arrangements, organisational processes and certain technologies are retained and remained as indigenous for the purpose of management of NR (K.C. and Pradhan, 1992). These processes and arrangements have either been passed on to farmers from generations ago or else have been innovated during the evolution of irrigation systems. In these days, so-called 'scientific-rational knowledge' is either replacing or minimising local technologies instead of complementing them. Several researches on farmers and agency-managed irrigation systems revealed that farmers are capable, in-fact at times more capable than that the **irrigation bureaucracy** itself, on managing their irrigation organisations (Pradhan, 1994). Hence, FMIS in Nepal are an appropriate and cost effective local institutional development strategy.

7.3 Conflict resolution process: a narrative description

The case I explored concerns the Andheri Farmers' Managed Irrigation System (hereafter referred as AFMIS) which exists since six decades. It is located in ward five, six, seven and eight of Pawoti VDC popularly known as *Andheriko Kulo*. This irrigation system was one where the state through the DDC and the VDC support (district development grant, food for work, VDC grant) expanded and rehabilitated an existing farmers' managed canal. This resulted in poor management and performance of the canal and a severe conflict between the villagers. Poor operation and maintenance, weak management, unreliable water supply, inequalities in water distribution, seasonal migration, misuse of maintenance funds were main issues in this irrigation system. After formal intervention in the canal expansion the new beneficiaries, the old users and the local politicians were locked into these issues.

Table 4 : General overview of the AFMIS

S.n.	Parameters	Characteristics	Remarks
1	Coverage	Part of ward five, six, seven and eight as location and command area of the canal	part of wards six, seven and eight was covered by extension
2	Type of intervention	Extension and rehabilitation	
3	Irrigated area Old New	150 hectare 200 hectare	original command area extended command area
4	Sector extended	Tail section of the canal	1.5 km
5	Beneficiaries: Old New	70 households 100 households	New beneficiaries were mainly powerful people
6.	Most affected parties	Poor and small farmers of tail section	
7.	Type of effect	<ul style="list-style-type: none"> • Unavailability of water • Misuse of money obtained from government • Misuse of labour contribution • Poor management • Unequal water distribution • Social stratification • Seasonal migration 	
8	Source	Andheri Khola	Perennial river
9.	Total length	4 km (2.5 original + 1.5 extension)	

Source: Primary information from the respondents

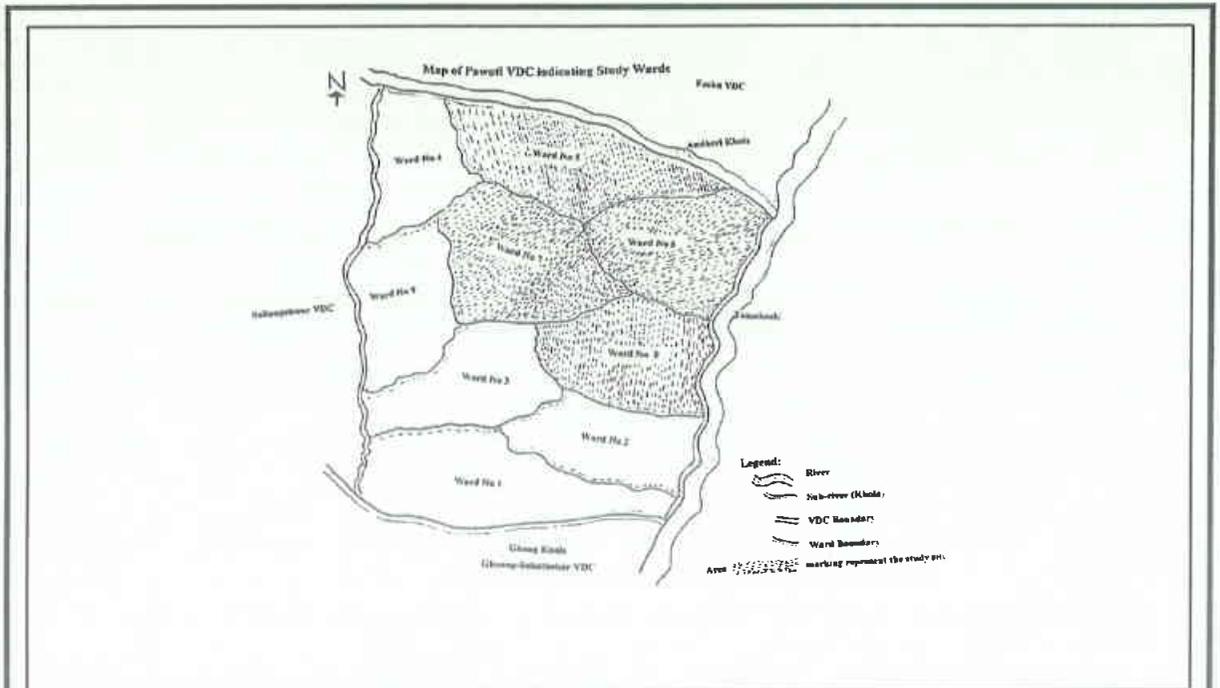
Chronological events in FMIS conflict

On the basis of discussions with the villagers I have sketched the following chronological events in this irrigation system.

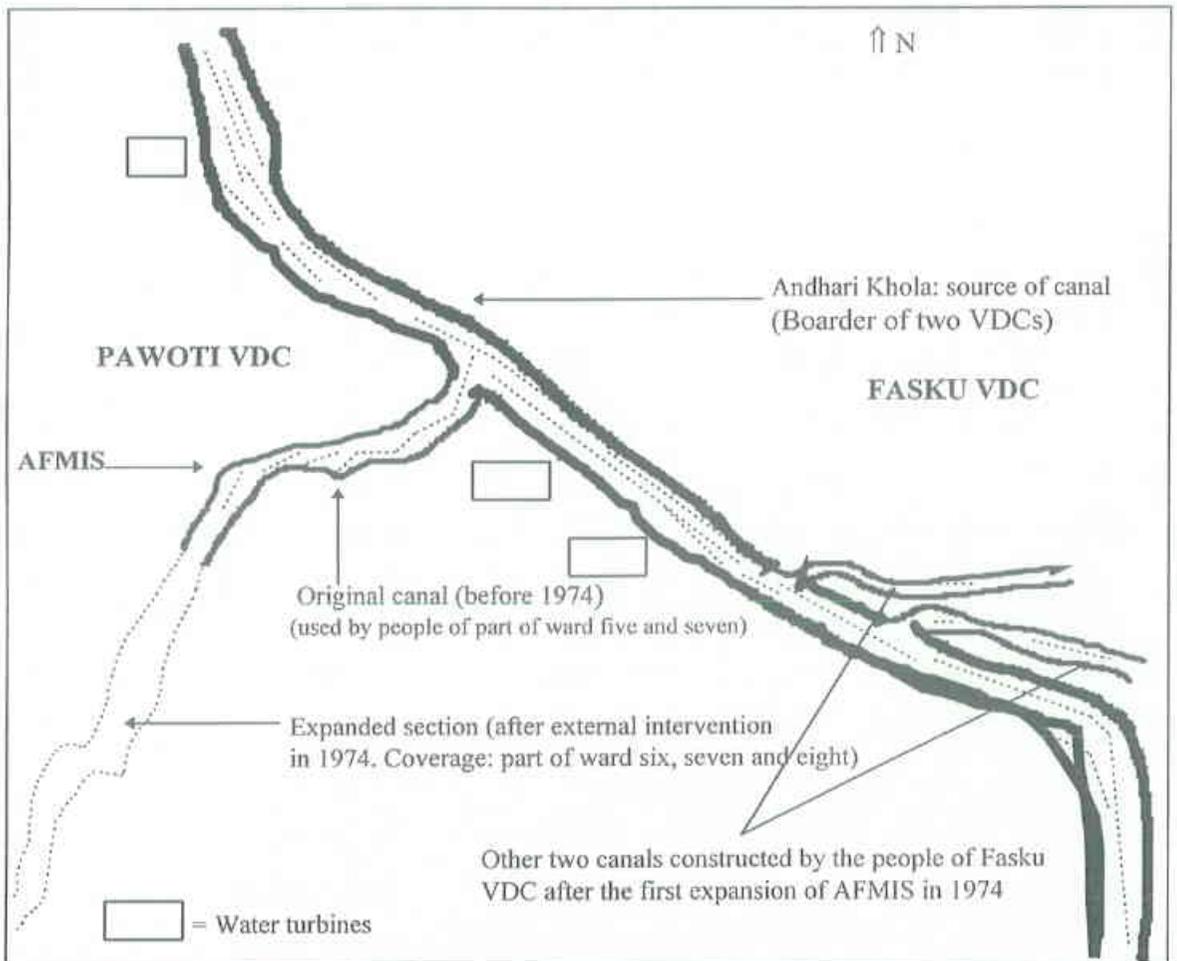
Box 2 Summary of chronological events in the AFMIS conflict

1937	Construction of the canal
1974	First intervention by the local government
1986	Second intervention by the local government
1995	Third intervention by the local government

Source: Primary information from the respondents



Map 4: Map showing the wards covered by the canal



Map 5: Alignment of the canal before and after formal intervention

1937 : Construction of the canal

This 2.5 km long canal was constructed 60 years ago (see map 4 and 5) by the initiation of late Mr. Dilli Nath (Sainla Mukhiya) to irrigate the *Tarikhet*, *Amale*, and *Chihane* (local names of the rice fields). This canal was running properly under the management of users themselves till 1974 with defined regulation for water distribution, maintenance and repair work.

1974: First intervention by the local government

This canal was extended first time in 1974 by the then *Pradhanpancha* and the District Panchayat Member from the district development grant of the government. Main cause of extension of this canal was availability of loose money to be used by them and to irrigate their land located in the extended site. The *Pradhanpancha* and the District Panchayat Member were most powerful in the village because of their position as elected political leaders and they came from a higher social strata. They asked villagers to contribute labour for extension of the canal. However, they did not pay wages even being money available for this purpose. The *Gopi Khalak* (another elite group from the head section) were against the extension of the canal. They refused to contribute labour to expand the canal and convinced other farmers of the head section in their stand. Therefore, this extension of the canal was the starting point of conflict. The majority of the users in the head section were the Tamang, a backward ethnic community. They were not happy to expand the canal. Farmers of the tail section were happy because of their hope to get water. They eagerly involved in the canal expansion even without getting payment of their labour. Farmers from the head section claimed that they have a seniority right to use water first and created barriers to other farmers. However, they were not able to protest powerful people from the tail section to take water. The *Pradhanpancha* and the District Panchayat Member controlled the management of the irrigation system by organising a formal *Kulo Prabandha Samiti*³⁴. They replaced the existing functional *Kulo Rekhdekh Samiti*³⁵ formed by users. The actual operation, maintenance and water allocation activities were assigned to the *Kuruwa*³⁶ appointed by the *Kulo Prabandha Samiti*.

Against the claim of farmers from the head section to irrigate their land first, farmers from the tail section wanted to get water simultaneously because it was difficult for them to wait until completion of rice transplanting in the head section. Rice has to be transplanted before mid July in both sides. Some time this situation even resulted into physical confrontation between these farmers. The *Pradhanpancha*, the District Panchayat Member and the *Kulo Prabandha Samiti* were not interested to solve this problem. So those farmers from the tail section who were powerful enough obtained water and others were not able to use water for rice transplanting.

The source of this canal was also the source for other canals like *Faskule Kulo*³⁷, *Sauteli Kulo*³⁸ and *Anderiko Ghatta* (water turbines), all located below the intake of this canal (see map 5). According to the local customary regulation, this canal being located in most upstream of other canals and turbines, has first priority (senior right) in acquiring water. As a result, downstream irrigation systems get less water and many times in winter season water turbines were stopped. This was another level of conflict that arose with people of other villages after extension of this

³⁴Formally formed forum to take the responsibility of general management of canal. Literal meaning is Irrigation Management Committee.

³⁵Kulo Rekhdekh samiti was an existing indigenous institution established by the users since its inception to maintain the canal and distribute water.

³⁶Care taker appointed by the Kulo Prabandha Samiti. It is also oftenly known as Heralu, Choukidar, Naika, etc.

³⁷Irrigation canal constructed from the same source below the intake of AFMIS by people of the Fasku VDC.

³⁸Irrigation canal constructed from the same source below the intake of the AFMIS by people from the Saute village of the Fasku VDC.

canal. This conflict resulted in the frequent water stealing and some times damage to the intake of the canal.

1986: Second intervention by the local government

The canal was running on the basis of power exercise (as powerful people were accessible to water) with some conflicts and disputes. Again, in 1986, *Upapradhanpancha* received forty-three thousand rupees (approximately equivalent to US \$ 725) from the development grant of the District Panchayat to repair this canal (see map 5). According to the users, this canal was functioning and did not need to be repaired. The real problem was not related to the repair of the canal. Rather the problem was more related to the distribution of water. He did not invest this fund properly in the canal which further enhanced the conflict. Users became angry from the misuse of the maintenance fund. People from the head section of the canal stopped to release water to farmers of the tail section and threatened the *Upapradhanpancha* (vice chairman) not to step-in in the intake of the canal. Water was almost stopped for general public except for the *Kulo Prabandha Samiti* members and powerful people. After some years, the alignment of the canal from the end of the middle section gradually reduced and not able to flow the full amount of water.

1995: Third intervention by the local government

Finally, again in 1995 local government provided one hundred thousand rupees (approximately equivalent to US \$ 1900) under the popular development programme: *Afno-Gaon-Afai-Banau*³⁹ to repair this canal. A member of the ruling political party got the contract from the VDC. The fund was misused and the canal was not repaired in a functional level. It was required to repair the tail section of the canal. Instead, he did some work in the intake. There was no major problem in the intake and therefore it was not really necessary to repair it. If he would have worked in the tail section he could not make large amount of profit. So he choose the head section where a negligible amount of money was sufficient. Some people from other political parties asked the contractor to prove the expenses made in the canal but he did not do so.

Government was not serious in this matter only because a political worker of ruling party was involved. The DIO skipped from the problem citing this project was out of their mandate. The DIO argued that the fund provided by the VDC should be monitored by their own technicians. This project is not under the administration of the DIO. The DIO can involve only when the DDC/VDC formally request them to supervise the project. Many farmers from the tail section of the canal who were expecting to irrigate their land, were not able to get water even after repair of the canal. So, they became frustrated and some of them changed their rice field to upland for dry crops. Further, many farmers from the tail section of the canal left the agriculture occupation and seasonally migrated⁴⁰ to Kathmandu and other areas to get the better wage of labour. One of the respondents from the tail section of the canal (former user of this canal) working in Kathmandu for wage labour explained that:

“...There will be no adult male available in the village to organise a funeral ceremony if someone dies. From almost all houses male members go to Kathmandu for seasonal labour for 8 months from Dec. to May and August-Sept. I was also in Kathmandu till last month but

³⁹This was very popular (political) development programme presented by CPN-UML government during their nine months ruling period first time in 1995. Afno-Gaon-Afai-Banau stands for Built-Own-Village-Ownself

⁴⁰Migration was already observed from mid eighties when Swiss government funded Lamosanghu-Jiri Road Project. This 110 km road was constructed mainly by using manual labour from the surrounding districts. Labourers got more than ten time more wage from this project which influenced people to go for wage labour. Khimti Hydro-Electric Project, Busti-Khimti Road Project, Arniko Road Maintenance Project, Kharidhunga Oriented Magnesite Project, etc. like big infrastructure projects of this area heavily pooled labour forced from the agriculture sector.

returned home when I became sick. Only women, children and old males are staying in home. I prefer to go to Kathmandu because I can easily earn daily 300-500 rupees as against the 30-40 rupees in the village. Work is also not available regularly in our village. We have more than 150 people in Mahabhut and Bagbazar⁴¹ from our village. If someone wants to meet adult males from our village (s)he does better go to Mahabhut and Bagbazar instead of going to the village”.

Regarding the people's frustration towards the responsible administrative authorities, political parties and local situation one of the respondents explained that:

“...This canal was functional. When political leaders several times received huge amounts of money to repair this canal and asked local people to contribute labour to expand it the villagers became reluctant. The local leaders felt that they were not respected by the people and the villagers felt that they were abused by the leaders. So a functional canal fell into controversy after this expansion. The village elite and elected leaders used their power and position to force us for volunteer contribution and misused the budget obtained for this purpose. This situation forced us to be prudent towards their activities. ...It was really tragic to work on this canal without payment while money was available for labour payment. Many times villagers raised their voice against the corruption, but nobody showed concern about it. District administrators and politicians were not ready to listen to us. We were fed up with this type of situation which was not improved even after the restoration of democracy, when we expected improvement. So far, all three major political parties have ruled the country but none of them was ready to listen voice to the of rural people. This was really a source of frustration. Many small farmers and tenants left agriculture and seasonally migrated to cities. Now I have problem to get the tenants to cultivate my rice fields. Many rice fields of people who have not sufficient labour force are uncultivated because of lack of labour available in the village”.

Another villager involved in the training and income generation activities supported by an NGO explained that:

“ENAP made an attempt to resolve the conflict of water distribution but the majority of the users were not interested and political leaders were unhappy to discuss this issue. We gathered three times to discuss the water distribution problems but only very few fellow villagers came”.

According to the respondents users were united and acted together before the VDC intervention. Leadership was unanimous and there was a good co-operation between users. The *Kulo Rekhdekh Samiti* was properly functioning and solving all water distribution related conflicts that arose at that time. After political intervention, harmonious relationship between the users, joint action on repair of the canal and motives of participation were severely disturbed. Those users who raised their voice against the irregularities and not followed instructions of politicians and the *Kulo Prabhandha Samiti* suffered. Some youths raised their strong voice against corruption activities but this was heavily politicised and virtually not beneficial to the users. Development funds received in 1974, 1986 and 1995 for expansion and repair the canal were misused and the functional canal ruined. After 1993 small farmers and tenants from the tail section were not able to get water to irrigate their field and left the agricultural occupation.

⁴¹Places where these people live when they go to Kathmandu for work.

7.4 Discussion on the conflict resolution process

In the previous section I briefly described the story of the conflict in the AFMIS. In this section an attempt is made to look on why the conflict became more severe and why people failed to negotiate on the water use. What were the strategies of the leaders and general users to cope with the problem. In this AFMIS, as a consequence of the formal intervention three categories of the users appeared. Firstly, a group of powerful elite with access to government offices, aware of rules and regulations, economically rich and from a high in the social hierarchy. Secondly, a group of middle level farmers who were close to the elite but passive in the irrigation conflict. Thirdly, a large group composed of mainly economically poor tenants and small farmers who had almost no access to government institutions, were not aware of rules and regulations and mainly depending on wage labour. Before the VDC intervention there was great participation in repair and maintenance under the supervision of the *Kulo Rekhdekh Samiti*. Even after VDC intervention, for some years users were reluctantly involved in maintenance of the canal according to the instructions of the *Kulo Prabandha Samiti* though they were very unhappy. Bureaucrats and irrigation technicians were aware about the misuse of money but not interested in this issue. There was a strong network between irrigation bureaucrats and politicians and they formed a vicious circle where the voice of the users was suppressed. After abolition of the *Panchayat*⁴² political system in 1990 the influence of these powerful people decreased for few years. Their orders and instructions were not respected by many people in the village. With emergence of new political parties villagers were affiliated to one of these parties. Using such a flexible situation users from the head section, who were not satisfied with the extension of the canal strongly refused to provide water to the users of the tail section. Gradually, these powerful elite merged into one of these political parties and soon became leader and again started to take revenge against their opponents.

Major issues of the conflicts were related to:

- conflict on allocation and distribution of water (head v/s middle v/s tail section farmers, between the users of AFMIS and other canals and water turbines),
- conflict on management and maintenance of the canal,
- conflict on (mis)use of money and other resources (in kind),
- conflict on position and power (elite v/s powerless).

For a long time (1974-1997) there was no effective negotiation and agreement among the users (between the farmers of the head and the tail section of the canal, between the political leaders and the users and between the users of this canal and other canals and water turbines originating from the same source) mainly due to the following reasons:

- Users of head section of the system believed that they have first (senior) right to use water,
- Users of the tail section have invested more efforts so wanted equal right to use water,
- Users of other canals and water turbines claimed that they should also get water equally,
- Political leaders and elite, took water whenever they needed,
- Not sufficient water in the source when water was stolen by users of down stream canals and water turbines,
- No regular operation and maintenance of the system which resulted in inefficient use of water,
- Voice of tenants and poor farmers was suppressed,
- No neutral third party was involved in negotiation at the of beginning of the conflict,

⁴²In this political system there was no formal existence of political parties. All democratic values were suppressed. By the popular movement in 1990 this political system was abolished and multiparty democracy was established.

- Large number of users with diverse objectives and interests,
- No supervision during the construction of the extended part of the canal by the DIO,
- No transparency on the use of funds obtained from the development grant programme,
- No proper communication and mutual understanding between the users and the *Kulo Prabandha Samiti*,
- Excessive political intervention and influence.

These causes are grouped in to the following sub-heading for the sake of analysis and discussed briefly to see the causes and consequences of AFMIS conflicts.

7.4.1 Customary water right and distribution regulation

It is customary practice that the farmers from the upstream have seniority right to use the water. Only after irrigating the field of the farmers located in the upper part of the canal other farmers could get water. That customary practice adapted since long time made farmers from the head section more rigid to share the water with other farmers. During the time of the canal expansion they were reluctant to share water citing the issue of their ownership on the source. The canal was extended without any agreement with them so they raised this seniority right issue every time when people went to take water. They also took care of the canal at the time of heavy floods in the river which could damage the intake. This gave them a further strong reasoning of their right to take more water.

Before political intervention, there a was standard provision on water use (see box 3). Water distribution rules were made by the *Kulo Rekhdekh Samiti*. Later these rules were not respected.

Box 3 Rules made and executed by the *Kulo Rekhdekh Samiti* before 1974

- Farmers of the head section are allowed to take water before Ashar 15th (June last week). Within this period they have to finish their rice transplanting and other farmers will get water from the Ashar 16th to Shrawan 15th (from the first to the last week of July)
- Before every rice transplanting season all users must go to repair the canal
- Chairman of the *Kulo Rekhdekh Samiti* should regularly monitor the distribution of water
- Every farmer should pay four *Pathi* rice (approximately 14 kg) per hectare of rice field irrigated by the canal to pay for the care taker appointed by the *Kulo Rekhdekh Samiti*
- If some conflict among the users is observed, they should report first to the *Kulo Rekhdekh Samiti*. If the *Kulo Rekhdekh Samiti* fails to resolve the conflict then they should go to the formal authority (e.g., courts)
- If any one violets the rules he should pay the fine decided by the *Kulo Rekhdekh Samiti* after the first time and after the second time (s)he will not be allowed to take water from the canal

These rules were effectively exercised by the farmers since long time before the formal intervention by the VDC. These customary norms were very powerful to properly manage the irrigation system. But after the formal intervention these rules were replaced. When these rules were replaced by the *Kulo Prabandha Samiti* the management system of the canal was also disturbed.

7.4.2 Allocation and distribution of water

One of the main causes of the conflict was reported to be the unreliable and unequal water supply to the middle and the tail section relative to the head section during the winter and the spring crop season. Further, powerful leaders could easily get the water even in the peak season

for their fields located in the tail section which enhanced the conflict. Farmers from the head section were using more water in frequency and amount and other farmers were not able to get water. They also made excess outlets from the main canal. They had easier access to the source because of its closeness as compared to the farmers of the tail section and so easily manipulate water according to their desire. Apparently the *Kulo Prabandha Samiti*, supposed to be responsible for water distribution, was unable to implement a proper water scheduling which did meet the concerns and interests of all farmers. Farmers of the head section were dissatisfied with the extension of the canal and claimed that the state intervention is responsible for cause of conflict and shortage of water. One of the important factors responsible was an unclear water allocation and distribution procedure. In the absence of a proper water distribution and monitoring mechanism provided the powerful people and farmers of the head section had greater access than the other farmers.

In addition to that, water stolen by users of other canals and water turbines caused lack of water in the source especially in the peak agricultural season. Earlier there was no severe problem of water stealing. After expansion of this canal and construction of other two canals by the farmers of another VDC further downstream this problem became serious. To get sufficient water into the tail section, over a distance of four km a big amount of water is needed which means that a small flow of water remains in the river, insufficient to run the water turbine and to supply water for the other two canals (see map 5). The owners of the water turbines were also from the head section. So when farmers from the tail section take water they steal it to run the water turbines. Similarly users of the other two canals downstream frequently did steal water from the farmers of the tail section of this AFMIS. Even sometimes they damaged the intake of the canal which requires quite some time to repair. During the period of the repair of the damaged intake they could take all the water.

7.4.3 Management, operation and maintenance of the system

Due to lack of regular operation and maintenance performance of the system was usually poor. Because of the passive role of the *Kulo Prabandha Samiti*, supposed to be responsible for the proper functioning of the canal, there was no regular maintenance and operation. Therefore, the canal was not able to provide a reliable water supply to all parts of its command area. The *Kulo Prabandha Samiti* was not able to develop and implement the water distribution schedule because of the controversy. Water distribution regulation developed by the former *Kulo Rekhdekh Samiti* was replaced by the *Kulo Prabandha Samiti* (see box 3). The *Kulo Prabandha Samiti* failed to maintain a transparent recording of the resource use and farmers labour contribution during the maintenance period which further created the conflict between the *Kulo Prabandha Samiti* and the users. The middle and the tail section of the canal were damaged in many places and not able to flow the full amount of water. In the later years, even alignment of some parts of the tail section of the canal almost disappeared due to sedimentation and vegetation.

7.4.4 Monitoring and supervision by responsible agencies

The DDC, the VDC and the DIO were formally responsible for monitoring and supervision of managerial and technical aspects the canal extension project. DIO, the technically responsible organisation to maintain the quality of irrigation projects was passive and skipped from the responsibility. The DIO cited that this project was not under its mandate. The DDC and the VDC responsible to monitor and evaluate the (mis)use of funds, were not looking to the problem seriously. Rather they were supporting the activities of political leaders involved in this

project. The VDC, a local government agency was not interested to monitor the project because there was a deliberate political equation and power sharing agreement among the political leaders in the VDC to prevent the investigation of misuse of money. The *Kulo Prabandha Samiti*, another locally responsible body to manage the canal was controlled by the political leaders involved in this project. So this *Kulo Prabandha Samiti* was only formalising (or legitimising) the whatsoever activities related to this canal performed by the political leaders. Therefore, there was no functional monitoring, evaluation and controlling mechanism in the irrigation system. All these factors led to the poor performance of the canal and conflict between the users.

7.4.5 Large number of people with diverse objectives and interests

As stated earlier, many people were involved in this case. Total numbers of beneficiaries of this canal were 170 households from ten villages of four wards. Similarly more than 200 households from the other two canals that originated downstream of the same source (see map 5) and users of the water turbine were directly involved in the conflict. In addition to that executive members of the VDC, the DDC and the DIO staff were also directly and or indirectly involved in this project. They all have their own interests, perceptions and objectives which make the problem complicated. Political leaders wanted to get political and financial benefit from the canal whereas general farmers wanted regular availability of water to irrigate their field timely. Intention of the farmers from the head section was to use water alone. The DDC and the VDC were looking for political advantage and strengthening the positions of the local politicians. In addition to that there was pressure of politicians from another VDC to the local leaders to share water with users of other canals. Local leaders wanted to maintain harmonious relations with them because of political grouping and power structure. That resulted into the passiveness of politicians to run the canal properly. In such complicated interests and objectives it was extremely difficult to resolve the conflict in acceptable way.

To compare the effect of number of the users involved in the conflict I also examined the irrigation-related conflicts in a small community which was out of the AFMIS command area. The villagers were suffering from the lack of irrigation during the rice transplanting time because there was only a small stream water available for irrigation. The recurring conflict was 'competition in use of stream water to transplant rice'. May to July, the most common rice transplanting months are very dry and water discharge in streams drastically reduced. Almost all farmers suffered from this problem. It was reported that many farmers tried to use the available water to transplant rice at the same time and this created the conflict among them which sometimes resulted in physical fight. Once this fight was very serious. So, to permanently resolve this troublesome conflict all water users gathered in a *Chautari*. They worked-out the total rice cultivation area to be transplanted from that particular source of water and defined the **turns** to all farmers. At the beginning, there were different opinions and disagreement among themselves but at the end they negotiated and agreed to accept the **turn** and legitimised it in a mass meeting. They also agreed to reject those people from their community who violate the rules set by the *Chautari* meeting. This type of **sanction** was very effective to resolve the conflict risen by stealing of water in the village. From this comparison it is realised that a conflict could resolved more easily and effectively when a smaller number of people is involved in the conflict.

7.4.6 Transparency issue on the use of funds

Villagers expressed that the funds obtained from district development grant were not properly utilised. No transparent system was maintained by the *Kulo Prabandha Samiti* to utilise the funds. The politicians received the funds on individual basis which made it easier to misused. Nobody knows how much of the fund was exactly utilised in what activities and even many users did not know how much money was received. No clear documents were available with the *Kulo Prabandha Samiti* about the expenditures made in different projects to expand this canal. Farmers from the tail section claimed that they have contributed more labour and the politician involved in the expansion of this canal assured them of payment for their labour contribution. But no record was available about how many people contributed for how long and who were paid for that and who were not. The VDC and the DDC as funding agencies, had no record of such expenditure. Even they were not interested in the transparency issue of this canal. Political networks and power relations within the VDC played great role in this happening. In brief, a vicious circle of irrigation bureaucrats, staff and executive members of the DDC and the VDC, political leaders involved in the canal and the *Kulo Prabandha Samiti* was responsible for deteriorate condition of the canal.

7.4.7 Other observation

It is found that FMIS in general were more functional in the study area as compared to the jointly managed irrigation system (JMIS) and agency-managed irrigation system (AMIS) because of rules that were made, monitored and reinforced by the farmers themselves in FMIS. Farmers did not feel ownership in AMIS because irrigation systems were completely build, financed, operated and maintained by government agency. It was of interest to note that local management functions and structures were almost ruined by external intervention in many FMIS like *Ghyangkholako-kulo*, *Andheriko-mathillo-kulo*, *Paiteeko-kulo*, etc. Conflict of interests within local population (powerful v/s powerless) as well as between community members (head v/s tail) and outsiders (users v/s users from other canals from the same source and staff from district offices) made the situation further complicated. When there is involvement of district officials and politicians in an irrigation system it is very difficult for users to involve themselves on management and maintenance of canals because of conflict of interests. If activities are undertaken by the users themselves voluntarily this provides strong cohesive force for harmonious relations among the users.

Here **learning** from the local resource use negotiation process is not focusing on scientific discovery but **encompasses shared understanding** among the users and **accommodation of multiple perspectives and conflicting interests**. A wrongly implemented natural resource management project (e.g., AFMIS) could seriously affect the faith in concerted action. The social impact of local level resource use negotiation through SLA will be a great contribution towards the SMNR in which **stakeholders are enabled in a participatory way to play their the roles where role of formal organisations will be only complementary** (e.g., first and second cases). This was not realised in the AFMIS because of lack of mutual understanding and lack of accommodation of conflicting interests.

From this case it appeared that the accommodation to the conflicting interest seemed problematic. As Bennett (1992: 4) stated:

“Environmental problems do not offer solutions, they present dilemmas: we are confronted with choice between alternatives, all of which carry their own disadvantages”

This case had its own technical and socio-political limitations and dilemmas. **Check and balance** was the important strategic issue in this case to deal with the conflict.

The analysis of the context related to a given resource use situation should start with the historical background and local cultural setting. The historical and chronological background should provide the role of the resource at stake through time and space, the identity of resource users shaped in relation to this resource. I explained the influence of political parties, power and positions in creation and or resolution of conflicts. **Implication of such influence is reflected as change in land use pattern and change in role of members of society** due to conflicts. The way different resource users had emerged over time and the role they had played in relation to negotiation led to a unique situation in the conflict resolution process. **The economic, technological and political influences on the indigenous management structure and knowledge of resource users and context** should be relevant for intentional intervention to address the sustainability in CPR. **The analysis of indigenous management structures should help to understand how they are functioning, what were their strategies, their legitimacy, the change in their power relation,** etc. in a rural resource negotiation process.

The analysis of a negotiation process should start from the sustainable resource use point of view. For that I have discussed the importance of the learning process within different external and internal **resource use negotiation and re-negotiation processes mediated by different life-worlds, cultural values and beliefs (e.g., role of sin, religion, norms, etc.) and power relations.** It is very important to analyse these power relations from structural, functional and political points of view. From the cases studies, **resource use dilemmas** should be a critical issue in the negotiation process which should not be limited to **economic rationality.** The political intervention is a critical issue in the negotiation process. The dilemma of the resource users could be exploited by the politicians in order to reach their specific objectives which virtually alters the resource use negotiation process. Therefore, the analysis should include the political context and power allegiances.

7.5 Factors affecting conflict resolution: linking with theoretical concepts

Earlier I have identified a set of issues that characterise the conflict and the negotiation in AFMIS. I have also attempted to examine how a functional canal became a source of conflict. Here I will briefly analyse the factors responsible for this situation and their relation with different theoretical concepts.

7.5.1 Power and politics

'Power' appears as some unobservable propensity for certain outcomes to occur, perhaps contrary to the interest of the plurality of the actors, usually due to the efforts of a few actors (Brutt, 1977). Power is related to human greed. Greed and corruption are human characteristics which affected functioning of the AFMIS. Self interest may be viewed as a basic, intrinsic human characteristic. Generally, human groups develop norms of **interpersonal behaviour**, in which greed (i.e., uncontrolled personal interest) is socialised in to self interest. People manipulate NR for the individual's personal benefit. The evidence of human greed by powerful individuals is clear where they siphoned-up large proportions of funds obtained from the VDC and the district development grant to repair the canal.

Therefore, **power and position** had significant implication in this AFMIS. The canal expansion strategy defined by powerful people did not match with the interests of local people which

virtually led to the conflict. The AFMIS conflicts were mainly related to power, politics, position and vested interests as well as role of formal organisations. Formal organisations responsible for conflict resolution were not able to give their positive image to the general public. The following statement reflects the impression of rural people towards the role of formal institutions. One of the respondents explained that:

*“Poor people like we are not interested to go to formal institutions because we are **not aware of the procedures, the rules and the regulations**. Even we could not invest the money required for a formal process. It is very lengthy process and takes a lot of money and time. Local elite and powerful people have better relations with these organisations, they are familiar with procedures, rules and regulations and more importantly they have money and time. Therefore, they always intervene in the household and or community level conflicts, manipulate these cases and use formal institutions in their favour. In our village mainly powerful people approach the court. General public like me are not able and as far as possible not willing to go to formal organisations. Furthermore powerful people generally use police force to bring a situation in their favour.*

At present the main actors of the misuse of money and power are protected and or supported by the people from higher positions and profile. The politicians earlier involved in misuse of money and power in this canal are at present protected either by the NCP District Committee Chairman, the VDC Chairman, the RPP district leaders or by the district leaders of CPN-UML.

Regarding the political interfere in the conflict, an environment activist from local NGO explained that:

“Political influence and interference in any development activities is a common feature in this VDC. Local political leaders always interfere even in minor conflicts and manipulate for their political benefits. Many times they forced us to direct our activities according to their interest but that was not possible for us to do so. So they blamed us for supporting poor People (communists⁴³). It is very hard to work in the village neutrally. The politicians and administrators mobilise their positional power to influence development organisations both GOs and NGOs to work in their favour”.

Users and social workers are not happy with the political interference and power politics in development activities initiated by local people. The following statement of the one of the social workers illustrates the situation.

“Politicisation of almost all development activities and power intervention are severe in our village” says one user of the AFMIS. He mentioned that *“interference of political workers in farmers’ initiatives is bitter, they tried to politically manipulate our work. The AFMIS is a terrible example of such political intervention. Many politicians received hundreds of thousands of money to repair the canal and misused it by using their power and position. We, users raised the voice, but because of political influence it was dismissed”.*

It was reported that **allegiance to political parties** was a main promoting factor for several conflicts and their resolutions since the emergence of political parties in the village. The majority of villagers were affiliated in one of the three major political parties existing in the study area : the CMP-UML, NCP and RPP. If by any circumstances, small conflicts arose local leaders of these parties intervened for their political benefit, to win the local election. Hence,

⁴³ A sweeping generalisation commonly prevailing in the political sector in Nepal that the poor people and the tenants belong to the communist category because of the manifesto of CPN-UML directed towards the empowerment of poor people and tenants.

they persuade one of the contending parties for not to compromise or at-least linger cases for negotiation. So, even many small issues rose to the level of conflict simply because the individuals involved now belongs to different political parties. Many of such conflict cases were resolved by local leaders before the local election on the condition that the contending parties have to vote in their favour. This practice seems more common when the contending parties fully depend on their political leaders. This way of party politics served to focus on **power alliances and political allegiance** which increasingly did override other traditional basis of allegiances (e.g., racial, religious and kin allegiances).

In this AFMIS some people were reluctant to provide information on power relations and its implications. Therefore, this situation clearly indicates that the role of power is inevitable in this case. It is revealed that if the conflicts are in between the powerful and the powerless people, the powerless do not even raise this issue. In this area it is realised that person with power takes the case for resolution to a level where they believe their power will make the most difference in their favour. In this case, failure to reach the optimal resolution originated from:

- the comfortability each group felt about the conflict,
- the way each group perceived or misperceived the others
- assumptions each group made about the others and the problem
- attitudes and expectations about the other group

7.5.2 Communication and feedback

Conflict scholars have long acknowledged the **central role of communication in the dispute management** (Folger and Johns, 1994). They argue that communication is a pragmatic perspective in terms of micro analysis of behaviours of the conflicting parties. Therefore, interactive communication helps to negotiate **conflicting interests and accommodates and adapts multiple perspectives**. The role of communication is to understand the **world-views, interests and objectives of the conflicting users** and to bring them to the negotiation table. In the AFMIS, after the VDC intervention a well-established communication mechanism was disturbed, the feedback system among the users became weak and gradually the communication system became dysfunctional. Specific **language for communication** (words, jargons, etc.) and discourses used by the powerful elite and GOs were very important to demarcate them from general public. These discourses were creating conflicts. For example, jargons used in water right regulations, criteria of the district development grant, etc. were not familiar to the general public. From such discourses politicians established their strong position. Similarly, **network, regular meeting, and situation analysis** within the circle of powerful political leaders helped them to obtain funds, to establish the vicious circle, and to dismiss the voice of the people against the resource misuse. On the other side **interpersonal communication among the users was too weak to establish a network** in comparison to the powerful people to resolve the conflict.

7.5.3 Leadership quality

Leadership is a **socially constructed qualitative concept** that addresses the **social relationship**. People who are willing and able to contribute as much as possible to resolve the conflicts in the favour of majority will evolve as a leader. **Styles and strengths of leadership** determine the quality and relation between the conflicting parties. In the study area **older, respected and truth-worthy persons mediated** effectively. They were called upon by one or more of the contending parties. Their return was honoured and their status was confirmed. Their

judgements were usually followed, but they had no recourse except to the moral persuasion of their fellow villagers. In contrary to other two cases, this type of leadership was weak in AFMIS because of the **conflict was spread over many villages**. Therefore, scope of the such leadership was limited due to the **scale and complexity of the conflict**.

From the earlier cases, it is understood that **leadership is one of the contributing factors to resolve the conflicts and learning** but this factor was weak and did virtually not contribute to resolve the conflict in the AFMIS. The role of leaders could have been more **democratic and promotive to facilitate** the conflict resolution in the AFMIS. Users also could have contributed to develop the leaders within themselves. But this did not happen. Before the VDC intervention there was strong leadership to manage this canal which gradually disappeared after formal intervention. **The autocratic decisions of political leaders were strong and guiding the irrigation management system**. It is realised that **leadership is the outcome/product of the situation and the organisation of users** for common purpose, **enhanced by facilitation** by neutral organisations. In the study area it is observed that political leaders and powerful elite generally seek legal and formal solutions on conflicts where as local villagers and poor people prefer informal solutions from within the village.

7.5.4 Role of development organisations

According to the SLA, to promote sustainable management of CPR a **supportive institutional framework and conducive policy context** is essential (Maarleveld *et al.*, 1997). Need of such institutional framework and policy context was distinctly realised to resolve the CPR related conflicts. The **role of different institutions (DDC, VDC, DIO, etc.) was too weak to promote the supportive institutional framework** to negotiate irrigation related conflicts. The study shows that image of general public towards these organisations who were supposed to support the users was suspicious and ambiguous. The main cause of such image was lack of mutual dialogue and lack of transparency of their functioning. It is realised that **when outsider organisations enter the village settings without considering normative and customary regulations this promotes conflicts** in the village. It was evident that formal intervention in FMIS increased conflict because of the fact that local rules and regulations were replaced. Development organisations gave raise to conflicts when villagers/users believed that their prior rights were overridden. Misappropriation of project assets which is intended to benefit the general public was another point of contention in the study area, e.g., misuse of development fund obtained from the VDC/DDC in the AFMIS. When the consequences of intervention are not carefully considered by development organisations conflict emerges in the intervening projects (Bhatiya, 1895) as observed in the AFMIS.

The role of administrative organisations who are suppose to resolve a conflict was also weak Although a state-instituted conflict resolution process by judicial methods is established in each district, general farmers and poor people do not prefer to go to legal process to resolve the problem because of following reasons:

- A judicial process takes long time,
- It is expensive and manipulated by powerful people,
- They are unfamiliar with administrative rules, regulations and procedures,
- Officials favour elite and create problems to general people.

An example cited by the villagers was the payment to be made to the *Kuruwa* appointed by the *Kulo Prabandha Samiti*. These *Kuruwa* were not paid their wage for a year, and they were not

willing to go to the District Administration or Court because they had no faith and hope on the decision of these organisations in their favour.

In the AFMIS, financial support from the DDC and the VDC disturbed the functional irrigation system as well as social relations among the users. The DDC and the VDC, who were supposed to monitor and control the project did not make any attempts to monitor and evaluate this project. Neither did they negotiate to resolve the conflict. The main causes of their passiveness were **political interests and favouritism**. These two were the prime factors responsible to deepen and prolong the conflict.

Facilitation is being a key concept in SLA, it was not always an easy task. A NGO made some efforts to facilitate the discussion among the users to negotiate the distribution of water for the farmers of both head and tail section by organising discussion meetings. But they had not much success because of **lack of interest of many users and broader scale of the conflict**. Many adults were out of the village and powerful people were not interested to discuss this issue. So efforts of NGO were limited to a few meetings and discussions. The Programme Officer of the ENAP explained that:

“To bring people of different perspectives and conflicting interests in a common understanding is extremely difficult and requires completely different skills than that of technical expertise. We did not succeed in negotiating this conflict because our strategies and expertise were insufficient to address this issue. However, we are still planning to continue our efforts to resolve this conflict”.

Handling **conflicting interests of individuals for common purpose needs a tactful and initiative role**. It is realised that a **carefully built interactive learning and action model** facilitated by ENAP was effective to resolve the conflict in the spring water source. It was however, **not much effective in AFMIS because of its scale: the conflict was spread over many villages and a large number of people of the two VDCs and because it was influenced by political interest and power**. Irrigation bureaucrats, another group responsible to ensure quality of the irrigation project, were not interested to involve in the quality control issues and skipped from the problem citing this project was out of their mandate.

7.5.5 Role of customary norms of the village

By and large, traditional patterns of conflict resolution prevailed in the study area. Those people who were more **positionally powerful** bypassed and or ignored the traditional pattern of conflict resolution. Tibeto-burman people (e.g., Tamang) highly valued smooth interpersonal relations as compared to higher Hindu caste groups. **High caste groups**, majority of the population in the study area seem to thrive on contention, deriving value from maximising personal advantage. That was one of the important basis for creating conflicts in this area. Caplan (1995) in his 107 cases study on conflicts in Nepal found that higher caste Hindus are more in conflict with one another, possibly loss of status from a negative outcome is more prominent than when lower caste members are in conflict. Believing that they may be able to use connections to their advantage, these higher caste groups are more likely than others to take the conflicts to a higher level.

Cultural legends play role in the accommodation of different interests in the rural area. Villagers used a legend that *“Des ko deuta bhanda gaon ko bhut kamlagchha”* (Ghost of own village is more useful than the god from the far distance). This means that they make utmost efforts to **accommodate multiple perspectives** and try to **avert the conflicts** locally. So the

majority of users did not prefer to go strategically against the activities of the politicians and the *Kulo Prabandha Samiti* which were responsible to ruin the functional canal. Rather, they kept silent in the corruption issue raised by some youths. It is observed that villagers succeeded to negotiate many conflicts in their village according to local cultural norms and beliefs when politicians were not politically involved. Customary regulations made locally to use water were still very effective in this village. They learnt from past experiences and success stories of their neighbours. But when external intervention occurs, **new rules, regulations and procedures which either replace, ignore or not give sufficient attention to the implication on local norms, values and rules, ultimately create conflicts**. As is evident, government regulations concerning irrigation water are subject to frequent change in Nepal (Sukla *et al.*, 1996). The users explained that rehabilitation of AFMIS was felt to be imposed upon local the community and their norms, customs, tradition, right and duties were not being fully taken in to account. Powerful people profited from the extension of the canal from the fact that it was extended by government which gives them a legitimisation. The notion of **ownership**, another important concept in the rural NRM scenario is very much associated with customary belief as **water is always considered as CPR accessible to all**. Hence, the claim of users of other two canals and water turbines were rooted in this norm.

7.5.6 Other opportunities and alternate options

The study reveals that the conflict situation allowed local people to **search for other alternatives and tests different options**. The opportunities could be either within their own village or other parts of the country. **Frustration** from the village level conflicts was another factor responsible to leave the current occupation and search for alternative options. Few of them started off farm activities within the village and majority of them seasonally migrated in other areas for employment. Main causes to search for the alternatives identified by the villagers were:

- Frustration with elite domination and political influence,
- High risk and low profit from farming,
- Better off-farm employment opportunities available in other area,
- Relatively close to the capital city where they could easily earn more money from wage labour,
- To avert the confrontation with powerful elite,
- Increased awareness among the women about their ability to take household responsibility which make male member free to go to earn money,
- Effect of modernisation of society.

All these factors promoted for searching alternative options like off-farm activities, seasonal migration, etc. in the study area. However, seasonal migration was not only the result of this conflict. There were many more factors responsible, nevertheless village level conflict certainly enhanced the seasonal migration.

7.5.7 Perceptions towards the problem

The notion of perception is more psychological and provides perspectives to see **alliances**. Feeling of belonging to a particular category in the community helps them to make an alliance. When their interests and objectives come close to the common problems a **concerted alliance** develops to work collectively for the common interest. The following statement quoted from Rhoades (1997) clearly illustrates the difference in perception:

“In a recent bio-diversity survey conducted by the Mountain Institute in Nepal, when local people were asked to say what is valuable about the Conservation Area near their villages, they were unable to respond, while they quickly provided a long list of negative aspects (restricted grazing, unfriendly guards and wild animals)”.

However, this conservation area project was advocated by the government officials and donors as a very successful programme to support the livelihood of the local people. Hence, the perceptions of farmers and officials were drastically different and therefore, the understanding of problems were also different.

The problem of the AFMIS perceived by poor tenants and small farmers was different from the view of powerful elite because they were easily using water in comparison to the powerless people. To irrigate their field timely was most important for the farmers. The position and interest perceived by different people in different levels were very powerful concepts in the AFMIS conflict and played a significant role in irrigation management process. The **formally recognised position** of the politicians perceived by villagers gave **legitimation** to their action even when in conflict with the interest of the farmers. In this case **position was deeply rooted in power and power was strongly associated with interests which created a vicious circle with the elite group ultimately overriding the interests of general farmers**. Hence the **institutional framework** for irrigation management became weak. General farmers perceived irrigation bureaucrats as very powerful and mobilised by the political leaders in their favour. Contrarily, irrigation bureaucrats and officials perceived rural people as unimportant as against the powerful politicians. It is a very common practice in Nepal that when political leaders (especially from the ruling party) feel that bureaucrats are not respecting their instructions and not supporting them they approach the higher authority who transfers them to a remote area or in less beneficial sector. If bureaucrats are from the families or relatives of senior politicians they could prevent such transfer. Otherwise, they have to bear a sort of punishment for not working in favour of politicians. Hence almost all civil servants work according to the instructions of the politicians from the ruling party irrespective of the rules and regulations. That type of psychological and administrative intervention in bureaucracy leads to weakening institutional functioning in the district. All these dynamics led to level the conflict unresolved.

7.6 Implication of conflict

One of the implications is that after observing the dysfunctioning of the canal and misuse of funds after formal intervention in this AFMIS, people from wards seven and six disagreed to expand their other local canals from the VDC grant. Instead, they proposed to handover fund to be provided by the VDC to the local *Upabhokta Samiti* (users committee) who decides on how and where to use the fund for the management of canals.

Another implication is that conflict in this AFMIS led to seasonal migration of the farmers. Many adult males left agriculture as a main occupation and went to other city centres for wage labours. Almost 70 percent poor farmers and tenants were out of their villages. Even some farmers migrated to the Terai and other part of the country. This seasonal migration also affected the position and role of women. This situation enhanced social changes in the village.

Similarly, as an implication of this conflict, before political intervention only males were overall decision makers in water distribution, operation and maintenance and participation in meetings. But later, when many male members of the households left the village, **women became household heads** and played important roles in decision making not only related to this

irrigation system but also in other household matters. All daily decisions like labour exchange, transplanting, harvesting, water distribution, etc. were made by the women, though major activities like purchase and sale of animals and lands were still under the responsibility of male members. **Because of change in cropping systems and change in occupation gender role was also changed** in this village. Likewise, a sharp distinction between the powerful elite and poor people was observed which ultimately affected many other activities and **changed the social relations**.

7.7 Conclusion

In this case different levels of social aggregation (users, VDC members, district officials, etc.) perceived the water use problem differently. But the problem could be solved if all key actors at different level of social aggregation came together to discuss the problem. This obviously means a strong **platform for collective decision is needed to discuss the problem which was lacking there**. Synergy should be enhanced through **co-ordination and integration** among these users. The VDC intervention in the AFMIS and the **interests** of users could be **negotiated in a soft system towards an effective platform** where **collective agency** could be exerted and **multiple and conflicting interests** should be discussed. The VDC leaders and the district bureaucrats should move from **instrumental reasoning** (sustaining FMIS by providing money to powerful people) to **communicative rationality** where the evolving conflict could be solved through communication and discussion. In this situation, the outcome could have influenced by **adaptive learning which would helped to explore different world-views of the different categories of users**. As against the focus of SLA, **no conducive institutional framework and political context was observed in this case** to help people to solve the problems. There were different institutions directly and or indirectly involved (e.g., DIO, DDC, VDC, NGO, etc.) to this conflict but their role was ill-defined. Therefore, the institutional frame, which was supposed to exert co-ordinated action was weak and diffused. Attentions were not paid to the possibilities of creating new opportunities. It seems that **state representatives (VDC, DDC) had opted for a coercive intervention**. In case of the AFMIS, the *Kulo Prabandha samiti* who had the formal authority to resolve the conflict after formal intervention was **not decentralised** and did not function well. The leaders of the local government (i.e. VDC chairman, district members etc.) controlled the AFMIS which should help for their political and personal benefits. Powerful people did not want really to solve the irrigation problem. Their strategy was to skip from the discussion about the conflict. The *Kulo Prabandha Samiti* should have been an **effective platform** for resolution of the conflict if the institutional framework and political context did provide effective support.

Finally, as against the other two cases **this case is a clear example of the failure in resource use negotiation**. **Main causes for such failure** identified from the study are summarised as:

1. Basic condition: Basic condition necessary for the resolution of conflict is to bring people of conflicting interests to a negotiation table to discuss the issues which was clearly lacking in this case.
2. Scale of the conflict: This conflict was spread over fifteen villages with diverse and conflicting interests of many people. This means that in this case the ecosystem was far broader than the decision making capacity of the communities. Hence communities were not able to resolve this conflict.
3. Involvement of politicians: Powerful politicians from different parties were directly involved in the conflict. This made the situation further complicated because of power exercise and check-and-balance strategies of the different political interests.

4. Alternatives: People searched for other alternatives rather than to entangle in the unresolved conflict in their village. Farmers from the tail section were using other sources of water before expansion of the canal. When the conflict became serious, they returned to their earlier ways of managing irrigation land use strategies. Even further many farmers went to the city centres for off-farm employment. Ongoing construction of big infrastructure projects in surrounding areas provided more opportunities for employment. So people were increasingly diverted to this off farm employment rather than to be limited in farming.
5. Local government: VDC, the local government who has to be legitimately the first hand responsible for all matters in the village was directly and or indirectly involved in the conflict because the chief and other members of the VDC were part of the conflict. So, its role which is supposed to be neutral was diffused and not able to resolve the conflict.
6. Weak institutional support: Different formal institutions supposed to serve the communities were passive. Many of them even lost the faith of villagers. So the institutional framework was weak and non-conducive to resolve the conflict.

CHAPTER 8: COMPARISON OF THREE CASES: REFLECTION ON THEORY

“Conflicts can either enhance or prevent learning. Learning and conflict stand in an contingent relationship”.

- K.N. Lee, 1993.

“Our survival mechanism is learning. If we do not learn, we are done for. A fixed body of knowledge is suspicious, it is dangerous to depend on it”.

- N. Röling, 1997a.

8.1 Introduction

In the fifth, the sixth and the seventh chapters I described community level conflict resolution processes in natural resource use, factors affecting the conflict resolution process and their relation with theoretical concepts. This chapter presents a brief comparison of three cases on the theoretical concepts and general characteristics of these conflict cases and my views with respect to the applicability of different components of the SL theory, based on the empirical investigation from the case studies, my own experiences, and contemporary events in NRM. My intention here is to contribute a better understanding of the role of learning in community level CPR management. The SLA in my understanding is relatively new in the field of NRM. I am still not able to clearly sketch out the real bottomline of the SL theory. However, I became familiar with some works on social learning as a theory as well as an approach on NRM which have been initiated by different constructivist interventionists in recent years. Latest publications, thinking and perspectives of Prof. Dr. N. Röling, Prof. Dr. K. N. Lee, Dr. E. A. Parson, Dr. W. C. Clark, K. Wilson, G. Morren and Dr. H. Goldstein are sole ground for my understanding of social learning theory and approach. A conceptual paper on “Social Learning for Collective Natural Resource Management: Facilitation, Institutions and Policies” (Maarleveld *et al.*, 1997) is one of the main available comprehensive conceptual documents on social learning on SMNR so far found in addition to other conceptual papers developed by above theorists. I have conceptualised SL approach from the perspectives given by these theorists. Hence my theoretical orientation is based on soft system thinking, constructivist perspective and knowledge systems perspective captured by SLA. Pragmatic vision of knowledge-for-action and action-for-improvement; an interventionist thinking raised additional enthusiasm with me to capture the SLA to look at community level NRM.

Before starting the field work in Nepal I was not confident about the feasibility of **conflict resolution** to examine the applicability of SLA in community level NRM. But after returning from the field work I became confident on the applicability of the SLA to understand and facilitate community level CPR management. When I reviewed conflict management documents, I realised that formal ways of resolution of NR related conflicts by litigation, role of courts/judges and other government institutions (e.g., police, district administrators, etc.) were sufficiently focused but very little efforts had been made in the informal and unofficial ways of conflict resolution by stakeholders themselves, which I realised as a very important aspect of SLA for the community level SMNR.

8.2 Comparison of three cases on theoretical concepts and general characteristics of the conflicts

This section attempts to compare three cases on selected theoretical concepts of SLA and general characteristics and resource use negotiation practices in these cases (see chapters five, six and seven for details). This comparison provides general overview on these three cases and illustrates the resource use negotiation practices at community level. This comparison will help to better understand the applicability of SLA in community level NRM explained in section 8.3. A summary of these cases is presented below in table 5.

Table 5: Comparison of three cases

Characteristics	Case 1: Public land and forest	Case 2: Spring water source	Case 3: AFMIS
Facilitation and leadership	<ul style="list-style-type: none"> no formal institutions involved earlier but later IHDP and ENAP involved litigation in one stage strong leadership emerged from the problem itself great role of members to develop leadership, strong collective decisions self organisation of users democratic leadership participatory style joint monitoring strong vision building 	<ul style="list-style-type: none"> NGO involved in facilitation process group leadership significant role of women important role of social workers and villagers positive impact of training and awareness programme important role of mediators greater role of facilitation in conflict resolution 	<ul style="list-style-type: none"> strong leadership before formal intervention insufficient facilitation by external organisations autocratic leadership and abuse of power and money after formal intervention weak vision building presently an NGO is facilitating to solve the problem but did not yet succeed.
Platform (forum)	<ul style="list-style-type: none"> a forum (Sangharsha Samiti) was created and effectively used by users important decisions were made collectively in this forum problems, potential solutions and risks were jointly analysed shared knowledge to act in future 	<ul style="list-style-type: none"> the Madhesthata-toli was formed as a forum regular meetings, discussions organised by NGO and the Madhesthata-toli NGO facilitating to develop a group leadership great role of platform to resolve the conflict 	<ul style="list-style-type: none"> Kulo Rekhdekh Samiti (working before formal intervention) was later changed into Kulo Prabandha Samiti which became dysfunctional weak forum to take any decision and action no meetings, discussions
Coalition and negotiation for concerted action	<ul style="list-style-type: none"> consultation and strong coalition with anti-elite people of the village users seek solution first informally and litigation only at final stage arbitration was important to resolve the conflict, networking with different people and institutions to find long term solutions supportive role of development organisations in later phase use of different sources for information 	<ul style="list-style-type: none"> more informal means used mediation by local people accommodation (one group sacrificed its interest and allowed another group to take water) conciliation by NGO as a third party to resolve conflict. improving communication, building perceptions and promoting trusts among two groups indigenous institutions played crucial role use of local knowledge 	<ul style="list-style-type: none"> no functional coalition among the stakeholders. no effective negotiation and arbitration. existing socio-managerial structures ruined very diverse interests, objectives and strategies of users inhibited coalition and negotiation strong network of elite with bureaucrats and senior politicians no intention of powerful people to negotiate with users
Scale and complexity	<ul style="list-style-type: none"> moderate in scale and complexity involvement of some people only from three villages easy to organise people 	<ul style="list-style-type: none"> small in scale and less complex involvement of few people only from one village very easy to organise meetings, discussions and 	<ul style="list-style-type: none"> large in scale and more complex involvement of many people from more than 15 villages of two VDCs, local government and

	for concerted action	concerted action	bureaucrats
Action Process	<ul style="list-style-type: none"> at the beginning arbitrated by SSD. collective decision and action to protect the land democratic approach within the group consensual decision and collective risk bearing institutionalisation of achievement (e.g., FUG) greater mutual understanding joint monitoring formulation and adaptation of rules, regulations win-lose to win-win situation 	<ul style="list-style-type: none"> strong will and rigorous efforts of users joint resource collection, project design and implementation important gender role in negotiation collective monitoring no preference to legal and formal solutions participatory process local resources (both human and materials) mobilised properly use of adaptive knowledge win-win situation 	<ul style="list-style-type: none"> very difficult to organise people for common purpose complicated situation after VDC intervention action guided by monetary benefits and hidden agenda people were not interested project design and implementation by the decision of few powerful leaders no monitoring and evaluation confidence crisis among the users and frustration action of powerful leaders was supported by political parties and bureaucrats functional canal ruined lose-lose situation
Local management style	<ul style="list-style-type: none"> users themselves constructed adaptive knowledge participatory decision and action process users shared and communicated about the appropriate use of resources. feedback from the users, and neighbours obtained regularly and adapted accordingly explored uncertainties themselves and sought alternative solution transparent process participatory management of social process was strong 	<ul style="list-style-type: none"> shared thinking developed to undertake collective decision and action people were revising, adapting knowledge and trying to reach their objectives by negotiated activity working together in participatory process focused on informal process treated social benefits as aim obtained support from formal institutions to verify the capacity of resource to be shared. learned from the other success stories 	<ul style="list-style-type: none"> more ad-hoc and autocratic management style controlled by few people no involvement of users in decision making mis-use of power, authority and resources learning for adaptation and improvement aspects ignored more formal and officialised treated economic and political benefits as aim at personal level weak adaptive management of bio-physical environment and social processes
Implication on resource management	<ul style="list-style-type: none"> prevention of CPR invasion regeneration of forest dessimination effect (other villagers transplanted trees in other public lands) realisation of joint efforts on CPR management change in ecosystem of this land generation of knowledge to manage CPR unanticipated forest 	<ul style="list-style-type: none"> efficient use of available water lesson for other users who want the best use of available water conflict accepted as part of the water use process change in water use pattern (both in irrigation and drinking water) exploration of other possible alternatives 	<ul style="list-style-type: none"> serious conflict leading to deterioration of the running irrigation system which ultimately led to waste of water resource destruction of canal intake change in land use pattern (from rice field to dry land) indigenous knowledge of NRM disturbed river ecology disturbed
Implication on learning	<ul style="list-style-type: none"> learning from success interactive evaluation of past proper use of information focus on problem solving community-wide learning from the success emphasis on adaptive 	<ul style="list-style-type: none"> learning from positive result promoted human learning and agreement emphasis on participatory approach focus more experimental and adaptive approach 	<ul style="list-style-type: none"> learning from failure/negative result need to focus on causes and consequences (why and how) focus on broad ecosystem-wide learning focus on tools, techniques,

	<ul style="list-style-type: none"> approach focus on how win-loss situation turned to win-win situation (HAS) double loop learning 	<ul style="list-style-type: none"> double loop learning emphasis on HAS and SS (constructivist paradigm) double loop learning 	<ul style="list-style-type: none"> methods and strategies on scale, complexity, handling power relation and bureaucracy in NR
Issues of ownership	<ul style="list-style-type: none"> very strong main cause of conflict and resolution 	<ul style="list-style-type: none"> very strong confusion about communal or and individual 	<ul style="list-style-type: none"> weak, users did not feel their responsibility to maintain canal after formal intervention
Norms, values and beliefs	<ul style="list-style-type: none"> important to protect the pasture land from earlier invasion positive effect 	<ul style="list-style-type: none"> strong and important to bring contending parties into negotiation positive and harmonious effect 	<ul style="list-style-type: none"> customary and normative regulations were replaced weak in conflict resolution seniority right enhanced conflict
Position and interest	<ul style="list-style-type: none"> great impact of formal position in both invasion and resolution common interest v/s individual interest strong 	<ul style="list-style-type: none"> minimal role of formal position common interest stronger than individual interest 	<ul style="list-style-type: none"> position and power heavily exercised patron-client relationship positional interest of individuals strong
Communication and information	<ul style="list-style-type: none"> more strategic and effective use of communication and information 	<ul style="list-style-type: none"> strategic, persuasive approach used by mediators and potential users 	<ul style="list-style-type: none"> effectively and instrumentally used by powerful elite (e.g., use of discourses unfamiliar to general farmers)
Social networks	<ul style="list-style-type: none"> anti-invader coalition for concerted action promoted by local initiatives 	<ul style="list-style-type: none"> informal network strong mobilisation of friends, relatives and priests was very effective 	<ul style="list-style-type: none"> promoted formal means by powerful people interest-based network not effective to resolve conflict
Indigenous institutions	<ul style="list-style-type: none"> strong in conflict resolution process effectively used at community level 	<ul style="list-style-type: none"> very strong and very effectively used to resolve the conflict use of all possible local institutions 	<ul style="list-style-type: none"> weak because of scale and complexity of the case (problem bigger than the scope of indigenous institutions)
Implication in society	<ul style="list-style-type: none"> win-win situation getting more benefits from public land and forest empowerment of local people conflict management ability of villagers developed better understanding and shared perceptions among the users 	<ul style="list-style-type: none"> win-win situation developed capacity of users and women need of development organisations (e.g., NGO) realised by community. NGO learnt to deal with conflict as a neutral third party 	<ul style="list-style-type: none"> win-lose situation lost people's faith on VDC/DDC and bureaucracy. change in occupation and enhancing seasonal migration crisis of confidence in village gender role changed
Overall Ranking	success case	success case	failure case

8.3 Applicability of the social learning approach in community level NRM

Basically, this was an exploratory study where different theoretical concepts of the SLA were used to investigate and to develop a broader understanding of a conflict resolution process in community level NRM. Following theoretical concepts (Maarleveld *et al.*, 1997; Röling, 1996,1997; Lee, 1993 and Parson & Clark, 1995) of SLA are briefly examined to sketch out their ability to explain the dynamics on community level NRM on the basis of summary of the three cases presented in the table 5:

1. Platform formation (forum) for collective decision making,

2. Interactive goal setting including negotiation and conflict resolution,
3. Vision building from multiple perspectives to guide concerted action,
4. Developing leadership and ability to act,
5. Mobilisation of resources for action,
6. Construction of shared learning through interaction,
7. Knowledge for adaptive management of bio-physical environment,
8. Knowledge for the participatory management of social process,
9. Manage system feedback,
10. Coalition,
11. Facilitation,
12. Concerted action.

A social learning approach in this study was taken to investigate the local dynamics involved in NRM: how local people handle conflicts from their shared knowledge, how they interpret their own experiences and how they adapt their social behaviour. In the series of discussions with the resource users at the study site, information was recorded as to their expressed meaning and functions in respect to the local level resource use negotiation, how they approached conflict resolution. The recorded information was analysed through the explicit interpretation of the meaning of the resource users about their resource use strategy. This way of approaching the problem makes it possible to look on the applicability of the SLA instead of directing research towards the proving of SL theories and concepts. Main concepts of SLA are briefly examined here.

8.3.1 Platform formation (forum) for collective decision making

Platforms are forums that create suitable mechanisms and processes for learning on decision making. Platform, an informal forum is a common characteristic of community level resource use negotiation. Notion of platform; an important building block of SLA is quite useful to explain the different forms created by rural communities to deal on conflict resolution. Indigenous institutions like *Chautari*, user committees, *Kulo Prabandha Samiti*, *Kulo Rekhdekh Samiti*, *Bibaha-bratabandha*, *Ghans-daura jandha*, *Madhesthakarta-toli*, *Jatra*, *Hat-bazaar*, *Mela-parma*, etc. are some of the examples of common forums existed to deal on community level conflicts in rural Nepal. The platform also has the link to a natural resources at a level at which degradation can be managed. The concept of functioning of a platform should not be limited to indigenous institutions however, it is close to the functioning of them (e.g., second case). Nevertheless, resource degradation level could be larger than the capability of indigenous institutions where they are not able to handle the problem. Or even indigenous institutions may not existed in that level and scale of resource degradation (e.g., third case). In such a circumstance creation of platform from deliberate facilitation from outsider organisations could be essential.

When rural people feel that there would be negative consequences of activities of some of their community members to local social relation and structure, they attempt to correct it locally by using these indigenous institutions. In this process they use the strategies to promote consensual resolution via meetings and discussions or exercising customary and normative regulations. Therefore, the concept of platform is useful and applicable to look the formation process, working procedures and functions of indigenous institutions both at local as well as higher level.

8.3.2 Interactive goal setting including negotiation and conflict resolution

Interactive goal setting for negotiation and conflict resolution is an important element of SLA. This is a very broad concept and focuses to address the social dilemma situation mainly in NRM. From the case study I realised that it relies on the importance of the issue, the level of interaction, monitoring and the degree of adaptive response to the changing circumstances in a community. The study reveals that role of interactive goal setting for negotiation and conflict resolution seems situation-specific and contextual. In the first and second case interactive goal setting in relation to conflict resolution was tacit whereas in the third case it was feeble. I realised that interactive goal setting can not be expected by merely using the SLA to look upon the resource use conflict resolution in community level. More importantly, it depends on the interdependence of actors, facilitation, context and importance of the problems. Interactive goal setting is important in resolution of community level conflicts when other factors like norms, values and beliefs of the community, facilitation skill of the leaders or facilitators, ability of villagers to create learning environment have been to be taken into consideration. Therefore, the applicability of this concept is determined by these factors.

8.3.3 Vision building from multiple perspectives to guide concerted action

It is self-evident that the basic starting point of the whole notion of SLA for collective NRM is the 'tragedy of commons'. It is very obvious and beneficial for every individual to take more from the available CPR at the cost of long term negative impact to the society. This situation gears towards conflicts.

I observed that people are taking any decision not only to resolve a particular conflict but also consider whole components of their life-world situation, the implication of a particular decision to their farming, social relations, economic aspects and cultural-religious concepts. So their total vision is the guiding factor for community members to take any decision and action.

Local people are unlikely to change their ways of dealing with NRM unless they are convinced that their subsistence and survival will not be jeopardised. In the first case, the majority of users developed their common understanding from multiple perspectives and even conflicting interests which led to resolve the conflict. They were more strategic in outlook and built a vision for a long-term solution for land use planning i.e., plantation. In the second case vision building was more practical to resolve the drinking water problem. Therefore, their action process was completely guided by this practical need. Multiple perspectives were considered during the time of agreement. In the third case vision building among the users was weak. Their action was not guided by any long term vision. It was messy and confusing among the actors of different levels of social aggregation. Multiple perspectives were not shared in the common forums and conflicting interests were not discussed to proceed for concerted action. Therefore, the vision building concept depends on the problem context and people's initiatives; however, could reflect in the community level resource use negotiation.

However, the **applicability of this concept depends on the ability of researchers/ observers** to link it with the dynamics and complexity of the conflict observed. For example, it was difficult for me to analyse the vision of actors involved in the AFMIS case because of its complexity and scale.

8.3.4 Developing leadership and ability to act

Social learning should also be able to address issues of social structure i.e. it should not be build to the influence of money and power (Woodhill and Røling, 1998). The SLA **pays particular attention to how a learning process can be facilitated**. Therefore, it demands dynamic leadership and critical thinking. SLA being an action oriented approach, and intending to help to improve the quality of decision rural people take on complex CPR. It demands **leadership capable enough to facilitate such processes. A dynamic and participatory leadership is essential to promote** the ability of local people to take collective decisions and concerted action. Nevertheless it will not be happen easily with instrumental application. From the study I realised that notion of leadership is very useful concept to look to the community level conflict resolution process. It is proved from the case study that leadership is utmost essential to resolve the conflicts. As discussed earlier, leadership was strong in the first case mainly because of the circumstances, medium scale, strategy and approach of the users in the earlier phase whereas in the later phase IHDP and ENAP assisted community to develop their ability to concerted action. They have created circumstances favourable to develop leadership. In the second case leadership was the outcome of series of training, discussions and exposure visits. The ability of users to collectively act was developed by the facilitation of NGO and mobilisation of the indigenous institutions. In contrary to these two cases, leadership was controversial and ambiguous in the third case. The role of development organisations was insufficient to facilitate the activities favourable for the leadership development and ability to act. One of the major causes of failure of negotiation was that no strong leadership emerged from the actors themselves. Hence from the study it is realised that the **concept of leadership is useful and applicable to explain the rural CPR negotiation process**.

8.3.5 Mobilisation of resources for action

In the study area resource mobilisation for common action was more situation specific and governed by the importance of the problem perceived by people as elaborated in the fifth, the sixth and the seventh chapters. It is observed that **mobilisation of available local resources for action is a common feature in a rural conflict resolution process. Those conflict cases were resolved successfully by mobilising both human and material resources at local level**. In the first case mobilisation of community level human resource (tax payers) was very useful to exert the pressure on the land invader. Ideas, opinions and experiences of the different people were incorporated in the decision process. In addition to that cultural and religious institutions, local knowledge and experiences were mobilised.

Similarly local resource mobilisation strategy in the second case was even more strong. Villagers effectively used both human and material resources. All possible indigenous institutions (e.g., *Purohit, Hat-bazaar, Chautari, Madhesthakarta, Jatra, Mela-parma, Ghans-daurajanda, Bibaha-bratabandha, Madhesthakarta*, etc.) assisted to resolve the conflict. An alternate source of water was explored, formal institutions and development organisations (e.g., District Panchayat Secretariat, IHDP, ENAP, DWSO, etc.) were properly mobilised to resolve the conflict.

However, the situation in relation to local resource mobilisation in the third case was different. Local resources were not properly mobilised for concerted action. Even the indigenous mode of local resource mobilisation mechanisms and strategies was disturbed. Of course, politicians involved in the canal repair and expansion projects where local human resource were coercively mobilised at the beginning of intervention. They mobilised the financial resource from development grant to expand the canal which in fact was the starting point of controversy. From

the community level conflict resolution point of view this type of resource mobilisation strategy did not contribute much to resource use negotiation.

I realised that among the different resources, local human resource mobilisation strategy is very important to resolve the conflict. **I see a great potential for application of this 'mobilisation of resources for action' concept of social learning in the community level NRM.**

8.3.6 Construction of shared learning through interaction

Social learning in NRM is not necessarily completely based on successful negotiations and agreement but also strongly rooted in the disagreements and failure of negotiations. This provides opportunities to analyse why and how that happened. People try to find all possible causes, linkages of the problems and learn from the weaknesses. The public land and forest case is the example of conflict negotiation (by conciliation-litigation) as a successful model where as in the drinking water source case negotiation was mainly by facilitation. Likewise the irrigation case is an example of failure of agreement (due to power and politics). Nevertheless, all three cases were a source of learning for users as well as facilitator organisations. In all three cases, realities were constructed by users themselves and they demarcated the boundaries also themselves. Learning from the experiences (cumulative learning) in NRM is strong in informal learning setting as visualised in the first and the second case. Group inquiry is very important and powerful to reveal the complexity of situation in NRM (for example, first case). This also provides **internal commitment, validation of the information obtained and alternative choices** which ultimately leads to negotiate the conflicts on NR (for example, the first and the second case). As observed in this case studies the inquiry process encompasses debate which enhances the perception of change and seeks possible actions which ultimately represent and accommodate different and conflicting views on specific problems (for example, first and second case). Implementation of agreed action leads to sustain defined changes (for example, second case). From this way, initiation by stakeholders, by shared learning about social processes and participatory solutions building in NRM strengthens the SLA as in the first and the second case. Interaction seems important to generate different but unexpected interesting ideas which virtually contribute to many choices in the negotiations.

From these three different cases it is realised that reality does not exist independently, rather it is constructed by the users themselves. In the first and the second case a fundamental basis is the set of mutually reinforcing and interlocking ideas that shaped a perspective which was very powerful for learning. The study reveals that from the regular discussion and interaction in the first and the second cases actors come to agree on concepts, objectives, acceptable behaviours, and defined meaning of events. Where as in the AFMIS case people disagreed on concepts and objectives. In all three cases users faced with a complex, dynamic and risky situations. Within this situations they constructed adaptive knowledge, behaviour and action. In this way they gradually developed their ability to learn and manage complex situations for their survival. In all three cases the role of scientific methods and specialists was minimal to resolve the conflict. Shared learning and common understanding were very important to negotiate or not to negotiate the conflicts.

8.3.7 Knowledge for adaptive management of bio-physical environment

Adaptive management (AM) theorists directed the importance of AM in design of environmental policies in a broader context which could not give precise analysis of the dynamics of community level resource use negotiation. If I understood correctly, AM is a

comparative perspective which combines ecological/natural systems, land use practices and social organisation/collective agency at higher/broader level. It is not directed enough to explain local dynamics of NRM and learning processes. Nevertheless, it treats systems experimentally and the possibility of surprising outcomes is recognised from the outset it is useful to relate these with community level resource management. The thinking of AM in terms of experiments in NRM has important sociological consequences i.e., surprising results are legitimate, rather than sign of failure in a normal process of HAS. Hence this unique perspective is useful to see the success or failure of NRM programmes at regional and national level rather than at the community level.

Rural people of Nepal harbour a wealth of IK and experiences with respect to NRM. Management of bio-physical environment is one of the important strategies of rural people because they deal with water, forest, soil, etc. everyday. They have their own strategies and procedures to deal with the bio-physical environment. Even local people's knowledge on management of the bio-physical environment is essential to gain new technical knowledge (TK). Therefore, TK should be supplementary to the IK for successful management of the bio-physical environment. Learning from the experiences and utilisation of such knowledge can answer several questions related to community level NRM. **Hence the analysis of AM should also focus on the coping strategies of local level resource users and learning from the unavoidable errors.**

8.3.8 Knowledge for the participatory management of social process

Rural people not only focus their adaptive knowledge (AK) on the bio-physical aspects but more importantly they direct their strategies towards the social and economic goals. The case studies reveal that AK was generated by rural people from the participatory ways of decision making and concerted action (except in the third case). Whole process of conflict resolution and learning from the negotiation process in community level NRM is based on the AK and scale. The study explores that community level NRM is heavily influenced by the social process like social structure, political system, democratisation of society, policy of government (centralisation v/s decentralisation), role of development organisations (e.g., ENAP, IHDP, DFO, DIO, DWSO, etc.), goals, objectives, collective agencies and AK of the actors themselves. Social learning as a mechanism to allow negotiations and accommodation among multiple, contradictory and conflicting interests to promote participatory management of bio-physical and social issues of NRM. Creation of such mechanisms is essential to adjust the changes needed for sustainable use of NR. This type of knowledge could be generated by participatory processes (as in the first and the second case).

It has become necessary for local people to evolve local support institutions, forums and adaptive strategies to support and enhance the knowledge for participatory management and learning to cope with changing circumstances in the NRM. These adaptive strategies may include accommodation of multiple perspectives, joint decisions, concerted actions, combination of environmental issues in the survival strategies, define, refine and maximise utilisation of IK and experiences. Hence, NR utilisation and management questions can only be answered by acknowledging the knowledge of participatory management of social processes in the community. Therefore, rural people should be the ultimate judge of the appropriateness of any NRM approaches in their locality. The place to resolve conflicts and disputes on NR should be actually in the community. This type of **grass-root approach** will stimulate negotiation on the local communities' own terms wherein they set their own priorities, and determine their own goals and means to get there, to resolve NRM related conflicts. This is a suitable solution to manage community level resources from the local initiatives. That could be effectively

generated from the participatory management of social processes. Therefore, this notion of **'knowledge for the participatory management of social processes'** for me is an important adaptive strategy to understand the local social dynamics and promotes SMNR.

8.3.9 System feedback

Conflicts and negotiation process of these three cases were a powerful accelerators of stakeholders' understanding of problems and of initiation of change. From these cases stakeholders themselves as well as other people from the surrounding villages learnt how different factors affect to manage the conflicts on scarce NR and their impact on NRM and the society. Involvement of users themselves in the conflict resolution process enhances the capacity of local people to resolve the disputes locally. The study reveals that this whole process enhanced self assessment of actors, their roles, status and ability to generate knowledge, value that knowledge and exchange feedback. Ultimately this enhanced their participation in meetings, discussions, decision making and analysis of situations. Though all three cases are not giving the same type of negotiated results, but to some extent, joint observations, analysis of conflict discourses and common understanding among the resource users was developed (except the third case) because of feedback and communication at different levels. However, from the case studies, I realised that **I am not able to sufficiently explore the role of systems feedback on collective impact of individual human activities in ecosystem.**

8.3.10 Coalition

Coalition for me is a strategic concept that advocates to bring people in a common forums to undertake particular activities which are not possible from the individual efforts. Therefore, coalition is to come actors together with a similar interests, usually to defend these interests against other actors. In this respect coalition is more political concept which can steer the design and implement the solution of common problems in the trade-off between the coalition members. From the study I realised that the **role of coalition is more contextual and content specific.** In the first and the second case the coalition and its role was strong and effective but in the third case it was not functional to resolve conflicts.

8.3.11 Facilitation

This is a very important concept of SLA which enhances the flexibility, adaptation, information gathering, utilisation and interactive learning to promote non-coercive change in the society. Facilitation provides a favourable environment to develop the capacity of the actors to solve the complex problems by learning and adapting. Facilitation focus more on long term capacity building of people to cope with the adverse situation through meaningful participation in decision making and action. It is observed that negotiation process was better enhanced by facilitation and initiation of users themselves and NGO (e.g., spring water source). Facilitation by the users in this study is interpreted as the conducive ways and mechanisms created by the local people to resolve the conflict. For example, organisation of different meetings and discussion sessions to workout different alternatives, possible impact of these alternatives by the local people themselves are considered as facilitation. I observed that facilitators and negotiators must clearly recognise the need to develop strategies and methodologies for encapsulating SLA that transcends constructivist conceptualisations. This approach fits well with farmers' own views and needs. From the case study **I conclude that facilitation is a very useful and practical management tool for the resolution of community level conflicts.**

8.3.12 Concerted action

Concerted action is a result oriented concept of SLA which emphasises the collective agency to tackle the broader societal problems which can not be solved by individuals. Concerted alliance is the basic essence of this concept. Concerted action therefore, requires collective agency at a level of social aggregation which correspond the level of problem. The notion of 'common' is quite relevant to discuss the concerted action. From the case studies it is clear that the concerted action was mainly based of the collective interests of resource users. Concerted action includes formation of forums for collective decision, goal setting, negotiation, monitoring, local resource mobilisation, etc. Therefore, this concerted action is the fundamental step in sustainable management of CPR, both at community and broader ecosystem level.

8.3.13 Actor oriented perspective

Though I had not much emphasised this perspective before going to the field work, now I realise that this is an important perspective to explore the social relation, interaction and linkages in the community. Therefore, I used this perspective to study the interdependence and interrelationship among the actors and their interfaces and linkages. This perspective served for better understanding of the dynamics involved in the interconnection and interlinkages between the community members.

8.4 Conclusion

From the case studies I concluded that SMNR is not much a matter of technology but of capacity, intentionality and willingness of the resource users. Therefore, it is more relevant to control or shape human activities rather than to control the natural systems. To shape and or adapt the behaviour of resource users SLA could be an effective alternative at community level if carefully designed and sincerely implemented. However, it is still to explore the applicability of the SLA in a broader ecosystem level and political context.

From the three comparable cases **scale** could be used as one of the strong characteristics to explain the resource use dynamics in community. It is clear that the wider is the scale of conflict the more complicated is the resolution process too because of numerous conflicting interests and behaviour patterns involved. Hence the **notion of scale** is a fundamental issue in the resource use negotiation/NRM. It explains the complexity associated in the resource use conflict. The first and the second cases were small in scale (in terms of people involved, geographical area coverage, socio-economic characteristics, cultural and political diversity and power structure, etc.) as compared to the third case. Therefore, the decision making capacity of the villagers was enough to deal on the natural system (in public land and spring water source) in relation to the actors interests. However, the scale of conflict in the third case was different as it spread over many villages with the people of different levels of social aggregation with extremely divers and conflicting interests. **In this case the ecosystem and the human activity systems were too complicated to be handled by communities.** If a coalition among the people of all villages could have been formed, it would have been possible to resolve the conflict. Therefore, a **clear relationship between the ecosystem and the decision making capacity of community to deal the scale of the conflict should be established.** The more wider the scale of ecosystem the **more complicated is the resolution of a conflict associated with such a complex ecosystem.** So that the notion of platform needs to be focus at the level of the

system in which conflicts and resource degradation problems of that level have to be solved. Hence, the essence of collective decision and concerted action at a higher level is justified to deal with such complicated conflict linked with a broad natural system.

Another important **criterion to explain the community level resource use negotiation practice is the notion of indigenous institutions and local management structures.** In the case studies the role of indigenous institutions and customary management practices was distinct. Indigenous institutions and local management structures mobilisation strategy could be very relevant and practical to resolve many CPR use conflicts locally. A facilitation role of external development organisations should be focused on the mobilisation of such indigenous capacities and concerted action through facilitation. Local power structure, another crucial factor should be considered by facilitator organisations to resolve conflicts noncoercively.

CHAPTER 9: FINAL CONCLUSION

9.1 Introduction

The preceding chapter attempted to compare three cases and assess the applicability of SL theory to explain the dynamics involved in the management and utilisation of NR. In this chapter I will conclude my research and propose area needs for further research. This thesis explored the mechanisms and processes of community level conflict resolution within the general frame of SLA and also discussed the factors affecting NRM. Extracting from the three case studies, the thesis attempts to show the dynamics in resolution of conflicts on NR use in rural hills of Nepal. It then links this understanding with theories. The thesis concludes with some methodological implications for NRM arising from the community level resource use negotiation and the need for further studies on SLA and its implication on SMNR in Nepal within the present context.

9.2 Conclusion

First of all I do not intend to make any generalisation from studying three cases in a limited time period. Since the purpose of my research was to understand the dynamics of community level NRM and the significance of the SLA in this process and to contribute to the current debate on the role of SL as an alternate approach for SMNR in Nepal.

I considered community level resource use negotiation process as a starting point of my research to analyse the local dynamics in NRM. The pragmatic aim was to build a conceptual framework to look at the reality in NR use. Hence, the accent is put in the interpretation of situations mediated by normative beliefs and values sanctioned by the culture of community. From the knowledge systems perspective I looked to the actors with their different interests, perceptions and interpretations related to CPR in different levels of social aggregation. The *Mukhiya*, the source owner, the DDC, the VDC, the DIO, the *Pradhanpancha* and the *Kulo Prabandha Samiti* had different perceptions and interpretations in dealing with conflicts on public land, drinking water source, and irrigation system than other general users. In the first and the second case conflicts were negotiated through innovation and knowledge processes. Emergence of networks and platforms was visible. The cases revealed that the users were capable and knowledgeable by creating their spaces to negotiate for land and water resource use (except irrigation). Related to NR use, the users were the theatre of different life-worlds, different interests, disparities in power relation, and political adherence, etc. In these cases the dilemmas of the users were expressed in terms of individual behaviour, economic reality, and social meaning based on cultural values.

Not surprisingly, SL is being developed by constructivist interventionists primarily as an approach to deal with uncertainties. It mainly focuses on dealing with social dilemmas, multiple perspectives, conflicting interests, joint decisions and concerted action, which encompasses coupled system, local knowledge, technologies and resources. Much has been written on the 'scientific-technical' aspects of NRM but HAS and learning aspects which could play a crucial role in SMNR have remained unexposed.

Indigenous knowledge (IK) is one of the focal points of this research. IK is interpreted as a specific knowledge of individual people and cultural groups who use it to create indigenous management (IM) systems to meet their local needs for conservation and utilisation of NR.

Here IM systems are considered as ways and approaches of handling CPR which could be managed by individual farmers, families, clans, user groups, resources management committees, whole communities, etc. IM was one of the unique strengths of community level NRM in the study area. IM is visualised as the behaviour and action which motivates, guides and directs towards management of CPR.

Customary laws, rules and indigenous institutions prevalent in the study area are involved in the use, control and management of NR. They have strong religious, cultural, historic, and social roots and are based on moral values and ethics. Hence, they have great implication in conservation and utilisation of NR at local level. Being of practical relevance and normative existence, it is quite appropriate to mobilise indigenous institutions and local management structures to manage community level CPR. The case studies show that laws and administrative court systems which are supposed to guarantee the general will and common interests of people are contributing only a very small part of motivation for SMNR. All case studies in this volume show that indigenous institutions like *Chautari*, *Sangharsha Samiti*, *Mukhiya*, *Madhesthakartatoli*, *Kulo Prabandha Samiti*, *Kulo Rekhdekh Samiti*, *Ghans-daura Janda*, *Bibaha-bratabandha*, *Mela-parma*, *Hat-bazaar*, *Jatra*, *Purohit*, etc. are existing in communities since long time and significantly contributing for the management and utilisation of CPR. From this study I could argue that mobilisation of local institutions and experiences could be one of the principal strategies in local level NRM. Although it depends on the scale and the complexity.

It is easy for outsiders to recommend a grand design of NRM system, but it may not be implementable (e.g., the irrigation system). The nature of learning and resource management style could be different from place to place and culture to culture. From the strategic point of view, it is increasingly clear that without use of local knowledge and indigenous institutions, learning from experiences, joint decision, concerted action, feedback and two-way communication, platforms and networks it is almost impossible to achieve SMNR. Designed change without participation of those people who are most affected by the change process is not likely to be viewed as sustainable as observed in the third case. However, still sufficient attention has not been paid by concerned authorities on how should they go about making local knowledge and indigenous institutions useful for SMNR. In rural Nepal NRM has to deal with organisation, decision making and action taking necessitated by multiple and competing use of natural resources. From the study it is revealed that different communities and even different people reacted very differently to the same problems and conflicts. This leads to the conclusion that conflicts on NR are not absolutely neutral, but culturally and socially defined and interpreted and need to be dealt with accordingly.

It is found that, what is valued by users and powerless people is not valued by powerful elite, politicians and bureaucrats. The great concerns of politicians and bureaucrats were not of particular concern to the local people. Use of power and positions in creation and or resolution of conflict was a common characteristic of all three cases. For this reason, power relations among stakeholders were crucial in the community level resource use negotiation process. Therefore, it is very important to look at the position and power structure in the community. Due to lack of conducive policy context and institutional framework, money, and power are increasingly playing a greater role in NR issues in rural Nepal. SMNR could be achieved if the SLA is recognised and due respect of stakeholders contributions is acknowledged. Limitations, aspirations, and capabilities of the resource users must be taken into account in this process. Local resource management is possible with the concerned society at large endorsing and abiding by their customary laws or rules regarding use, sharing, and further development and or conservation of NR. Application of the SLA may have far reaching consequences both for those organisations who want to be 'learning organisations' (Van den Ban, 1997) in NRM and resource users. Therefore, one effective strategy for organisations working in the field of NRM

is to adapt a SLA, which by its nature, promotes decentralisation, participation, accountability, and people's empowerment, as most essential components of SMNR and environmental development (Axinn and Axinn, 1996). Institutionalising the importance of SLA in NRM policies, programmes and strategies of GOs and NGOs is essential for SMNR.

An important facet of this study is that it shows how networks and coalitions form for common purpose and how joint decisions and concerted actions take place. Generally, to have right to access on NR obviously means to have economic benefit and power. NR rights are also strongly embedded in socio-economic and political relationships which directly affects NRM. The study reveals that socio-economic and political relationships that exist in local level are bound to influence the learning process and NRM practices. However, this depends on facilitation process, integration of feedback, use of participatory methods and innovative performance. Nevertheless, it will be unwise to expect solving all community level natural resource related problems by SLA alone. I am convinced that the 'human dimension' of NRM problems could be solved if the SL about the environment is coupled to a mechanism for negotiating agreement about concerted actions. In the domain of SL the affecting factors for SMNR are no longer 'scientific-technologies-only' but more importantly, socio-cultural dynamics, HAS, and needs, interests and strategies of stakeholders. From the study an argument can be generated regarding comparative advantages of a carefully designed SLA over other conventional approaches towards SMNR.

It is realised that local people are not only active negotiators and mediators but also active managers. They deliberately seek relationships with people from different levels of social aggregation to exchange knowledge, information and experiences and to built alliances to develop and implement new ways of managing resources. It is found that techniques and innovations of others were learned and adapted by the local people in their NRM process. In the study area farmers-to-farmers exchange of knowledge and experiences have proven to be a very useful learning strategy for the local level NRM. Because they can relate one another's knowledge and experiences since they share more or less the same circumstances. To see resource management activities undertaken by other people who are similar with them in many aspects becomes a stimulating factor to get organised and control one's own resources (e.g., second case).

Still the most dominant discussion in Nepal is creating an image that external planned development intervention is the only means to have positive effect on NRM. Rather my conclusion in this issue is precisely different, because many of such projects failed to address the local needs. However, it is not my intention to blame all external development projects who have contributed positively towards the SMNR. I am convinced that people learn more quickly and effectively from failure and the discontinuities of the projects. In that sense these projects are contributing to learning. One unique characteristic of such projects is to bring out only the success cases to praise donors and evaluators. Because of the obvious reasons that they want to hear about the success. On the other side, commonly happening failures of such development projects are either kept unnoticed or deliberately un-discussed. When formal institutions intervene in management of local NR ignoring local dynamics and learning aspects, not only do they create conflicts but they also ruin the local management systems (e.g., AFMIS case). Because, they create new institutions as well as new regulations for access, distribution, conservation, utilisation and management of NR. They often operate in isolation from each other as well as many of them ignore local norms, values, beliefs customs and indigenous management style. So my emphasis is to promote local knowledge and indigenous institutions and complement these by external scientific knowledge. External organisations could facilitate learning aspects and capacity building of resource users considering local dynamics. The role of external organisations could be crucial to facilitate the process when the level of complexity of

the problems of ecosystem is far broader than that of the decision making capacity of local community and indigenous institutions to undertake the concerted action. Hence external organisations should be learning organisations and promote capacity building of resource users through facilitation in broader problems.

One of the lessons I can draw from the case studies is that ignoring local dynamics, indigenous knowledge and experiences, local institutions and learning aspects will not contribute to the SMNR. Similarly, conflicts are interpreted by many professionals as only harmful and leading to disorder in social relations. But, in my view conflicts not only create harmful situations but also play a positive role in changing existing power structures and social relations towards the democratisation of society (e.g., first case). Nevertheless, the level of conflict should be limited to the bounded one. Certainly unbounded conflicts damage social relations and ecosystems.

From the findings of the study I would argue that, the scope of the conflicts on NR, problems on NRM and learning from these conflicts depends on interpretations of observers and stakeholders. Different categories of people (e.g., ethnicity, gender, social class, etc.) have different understandings and perceptions on conflicts on NR use because they actually perceive reality differently. Therefore, learning from conflicts and negotiations should be the objective of both stakeholders and outsiders. Indicators of SL are relevant only if related to whom they have meaning and social context within time and space (Rhoades, 1997). For example, elite and powerful people believed more in formal means of negotiation whereas poor and marginalised people preferred informal means and local level negotiations. Conflicts are an important aspect of NRM in rural communities. Opposite interests (or what we think are opposite interests) are at the core of most conflicts. Most common causes of conflict observed in the study area are:

- Conflicts over scarce resources,
- Ambiguity over responsibilities and authorities,
- Difference in perceptions, work styles, attitude, communication problems,
- Increasing interdependence as boundaries between individuals and groups became unclear,
- Development grant investment strategy of the government,
- Differentiation in seeing situations and have different goals,
- Feeling of equity v/s equality: continuing tension between equity (the belief that we should be rewarded relative to our relative contribution) and equality (belief that everyone should receive the similar outcome).

It is realised that reality constructed by local people generally does not depend on objectivity, reliability and validity but depends more on authenticity, credibility and truthworthiness (Guba and Lincoln, 1994). Therefore, SLA is useful to combine human factors and ecosystems, and to understand the dynamics involved in community level NRM. Concerted action is the essence of SLA. As explained in the three cases concerted action is mainly guided by the degree of the problem affecting the survival of actors. This is the pragmatic reason for rural people to involve in concerted action. It is observed that the more severe the effect of the problem is to the survival of people, the more initiatives in the concerted action (e.g., the first and the second case) are taken. The essence of the whole thesis is presented in the following figure. CPR could only be sustainable when due attention is given to the local institutions and groups, who are supported by external development institutions. It is essential that there should be a conducive policy context to implement SLA in combination with natural systems and HAS for SMNR to occur.

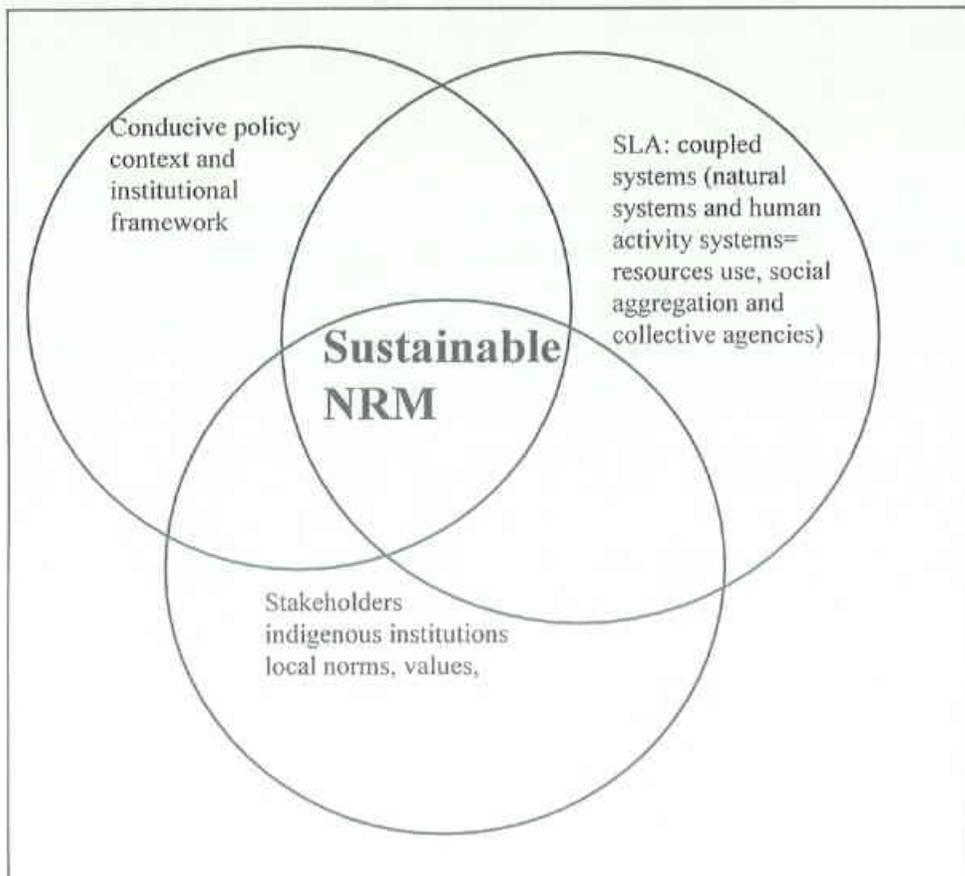


Fig. 4 Conditions for Sustainable Natural Resource Management

9.3 Area needs to be further researched

Within the limited time period, I tried to look into the resource use negotiation process and the role of SL in community level conflict resolution. From this study I deeply realised that further research in this area by using SL perspective is essential to understand NRM in the greater detail. A complete project in large scale needs to be executed to understand the NRM dynamics. This project could cover:

1. Functioning of indigenous institutions and local management structures and their impact on CPR management,
2. NRM problems encountered by different levels (e.g., small community, village and many villages),
3. Combining human activity systems and ecosystem imperatives to form the coupled systems to deal on NRM,
4. Role of facilitation to resolve CPR use conflicts (creating networks, coalitions, joint decision and concerted action),
5. Use of participatory management of the social process,
6. Effect of institutional frameworks (positive or negative),
7. Involvement of power and position (politics),
8. Role of customary rules, regulations, norms and beliefs on NRM.

The present study may serve as a baseline for this broader project.

Appendices

Appendix I: List of present members of the Forest Users Committee

Chairperson:	Mr. Netra Bahadur Upreti	ward 7
Vice- Chairperson:	Mr. Khadga Prasad Kafle	ward 7
Secretary:	Mr. Bhakta bahadur Nepal	ward 8
Treasurer:	Mr. Visaya Thakurri	ward 6
Members:	Mr. Gopal Upreti	ward 7
	Mr. Khadga Prasad Pathak	ward 7
	Mr. Bir Bahadur Upreti	ward 7
	Mrs. Padam Kumari Dhakal	ward 7

Appendix II: List of the Madhasthakarta-toli inspring water source case

1. Mr. Taranath Bimoli	Toli Leader
2. Mrs. Laxmi Bimoli	Member
3. Mrs. Fukmala Tamang	Member
4. Mr. Tanka Prasad Upreti	Member
5. Mr. Durga Prasad Upreti	Member
6. Mrs. Mithu Kafle	Member
7. Mr. Shanti Thakuri	Member

Appendix III: Major support of various development projects in the study VDC

- 1 Integrated Hill Development Project (Swiss funding)
2. Dolakha Ramechhap Community Forestry Project (Swiss funding)
3. Sailung Foundation (Japan funding)
4. Environment and Population Awareness Programme (IUCN funding)
5. Primary Education Project (UNICEF/HMG funding)
6. Central Irrigation Project (ADB/HMG funding)
7. Primary Health Project (UNICEF/HMG funding)
8. District Drinking Water Supply Project (HMG/World Bank funding)
9. District Soil Conservation Project (HMG funding)

BIBLIOGRAPHY

- Alvares, C. 1990. The Green Revolution: An Obituary. In: *Returning to the Good Earth. The Third World Networks*, Jakarta, Indonesia.
- Axinn, N. W. and G. H. Axinn. 1996. The Human Dynamics of Natural Resources System. In: *People and Sustainable Development: Understanding the Dynamics of Natural Resources System*. (Eds.), Shivakoti, G., G. Varughese, E. Ostrom, A. Sukla, and G. Thapa. IAAS/TU, Indiana University/Workshop, FAO Farmer-Centred Agricultural Resources Management Programme and Winrock Institute for Agricultural Development. Kathmandu, Nepal.
- Basnyat, B. B. 1995. *Nepal's Agriculture, Sustainability and Intervention: Looking for New Direction*. PhD Dissertation. Wageningen Agricultural University, The Netherlands.
- Bauden, R. 1995. On the Systems Dimension in FRS. In: *Journal for Farming Systems Research-Extension*. 5(2): 1-18.
- Beck, U. 1994. The Reinvention of Politics: Towards a Theory of Relative Modernisation. In: *Reflective modernisation: Politics Tradition and Aesthetics in Modern Social Ordered*. (Eds.), Beck U., A. Giddens and S. Las. Stanford University Press.
- Benda-Beckmann F., K. Benda-Beckmann, R. Pradhan, and H. L. Spiertz. 1996. Law, Water Rights, Conflict and Policy. In: *Water Rights, Conflicts and Policy*. (Eds.), Pradhan, R., F. Benda-Beckmann, K. Benda-Beckmann, H. L. Spiertz, S. K. Khadka, and H. Azharul, Proceeding of Workshop held in Kathmandu, Nepal. Jan. 22-24, 1996.
- Bennet, G. 1992. *Dilemmas: Coping with Environmental Problems*. Earthscan Publications, London.
- Bhatia, A. (Ed.), 1995. *Seminar on Conflicts Resolution in Natural Resources*. Nepal Mediation Group/ICIMOD. Participatory NRM Programme. Kathmandu, Nepal. April 24-25, 1995.
- Biggs, S. and G. Smith. 1995. *Contending Coalitions in Agricultural Research and Development: Challenges for Planning and Management*. School of Development Studies. University of East Anglia, England.
- Brouwers, J. 1993. *Rural People's Knowledge and its Response to Declining Soil Fertility. The Adja Case, Benin*. Wageningen Agricultural University, The Netherlands.
- Burt, R. S. 1977. Power in a Social Topology. In: *Power, Paradigms and Community Research*. (Eds.), Liebert, R. J. and A. W. Imershein. SAGE Publications, London.
- Bush, R. A. B. and J. P. Folger. 1994. *The Promise of Mediation: Responding to Conflict Through Empowerment and Recognition*. Jossey-Bass Publishers, San Francisco.
- CBS. 1996. *Statistical Pocket Book Nepal*. Central Bureau of Statistics. Kathmandu, Nepal.
- Checkland, P. 1981. *Systems Thinking Systems Practice*. Chichester: Wiley, London.
- Colemann, J. 1977. Notes on the Study of Power. In: *Power, Paradigms and Community Research*. (Eds.), Liebert, R. J and A. W. Imershein. SAGE Publications, London.

- Conway, G. R. 1994. Sustainability in Agricultural Development: Trade-offs Between Productivity, Stability and Equity. In: *Journal of Farming Systems Research and Extension*. 4(2): 1-15.
- Conway, G. R. and E. Barbier. 1990. *After green Revolution: Sustainable Agriculture for Development*. Earthscan Publication Ltd., London.
- CRD Associates. 1986. *Negotiation*. CRD, Colorado.
- Dirks N., G. Eley, and S. B. Ortner. 1994. Introduction. In: *Culture/Power/History: A Reader in Contemporary Social Theory*. Princeton University Press.
- Engel, P. G. H. 1995. Improving Network Performance. In: *ILEIA Newsletter July II (2)*.
- Engel, P. G. H. 1995. *Facilitating Innovation: An Action Oriented Approach and Participatory Methodology to Improve Innovative Social Practice in Agriculture*. PhD Dissertation. Wageningen Agricultural University, The Netherlands.
- EPC. 1993. *Nepal Environmental Policy and Action Plan: Integrating Environment and Development*. Environment Protection Council/HMG-N. Kathmandu, Nepal.
- Folger, J. P. and T. S. Jones. 1994. *New Direction in Mediation: Communication Research and Perspectives*. (Eds.), Folger, J. P. and T. S. Jones. SAGE Publications, London.
- Fox, J. 1993. Forest resources in Nepali Village in 1980s and 1990s: The Positive Influence of Population Growth. In: *Mountain Research and Development*. 13(1): 89-98.
- Freire, P. 1972. *Pedagogy of Oppressed*. Penguin Books, England.
- Goldstein, H. 1981. *Social Learning and Change*. Tavistock Publications, New York.
- Guba, E. G. and Y. S. Lincoln. 1994. *Fourth Generation Evaluation*. SAGE Publications, London.
- Gunderson, L. H., C. S. Holling and S. S. Light. 1995. Barriers Broken and Bridges Built: A Synthesis. In: *Barriers and Bridges to the Renewable of Ecosystems and Institutions*. (Eds.) Gunderson, L. H., C. S. Holling and S. S. Light. Columbia University Press, New York.
- Habermas, J. 1987. *The Theory of Communicative Action in Lifeworld and System. A Critique of Functionalist Reason*. Vol. 2. Boston Beacon Press.
- Hamilton, N. A. 1995. *Learning to Learn with Farmers: An Adult Learning Extension Project*. PhD Dissertation. Wageningen Agricultural University, The Netherlands.
- Hardin, G. 1968. The Tragedy of Commons: *Science*. 162: 1243-1248.
- Jiggins, J. 1994. *Changing the Boundaries: Women Centred Perspectives on Population and Environment*. Island Press, Washington DC.
- Kaplan, P. 1995. Nepal Community Mediation Study. In: *Seminar on Conflict Resolution in Natural Resources*. (Ed.), Bhatiya, A. ICIMOD, Kathmandu, Nepal.

K.C. D. and U. Pradhan. 1992. *Indigenous Knowledge and Organisation Process: Lessons from Local Nepali Irrigation Systems*. Paper presented at the Workshop in Indigenous Management of Agriculture and natural resources . June 8-9. Organised by Winrock International, Nepal.

Kessler, J. J. 1996. *An Introduction to Strategic Environmental Analysis*. AID Environment, Amsterdam, The Netherlands.

Khanal, B. and S. K.C. 1996. Analysis of Supreme Court Cases and Decision Related to Water Rights in Nepal. In: *Water Rights, Conflicts and Policy*. (Eds.), Pradhan, R., F. Benda-Beckmann, K. Benda-Beckmann, H. L. Spiertz, S. K. Khadka, and H. Azharul. Proceeding of Workshop held in Kathmandu, Nepal. Jan. 22-24, 1996.

King, A. 1987. *Power and Communication*. Waveland Press, USA.

Korten, D. C. and F. B. Affronso. (Eds.), (1983). *Bureaucracy and the Poor Closing the Gap*. Kumarian Press, USA.

Lamers, H. A. J. M. 1994. *Report Writing for Science Technology and Management*. Sixth edition. Wageningen Agricultural University, The Netherlands.

Lee, K. N. 1993. *Compass and Gyroscope: Integrating Science and Politics for the Environment*. Island Press, Washington.

Long, N. 1988. *Sociological Perspectives on Agricultural Development and State Intervention*. (Eds.), Halls, A. S. and J. Midclays.

Long, N. 1989. (Ed.), *Encounters at the Interface: A Perspective on Social Discontinuities in Rural Development*. Wageningen Studies in Sociology-27. Wageningen Agricultural University, The Netherlands.

Long, N. 1992. From paradigm Lost to Paradigm Regained? The Case for an Actor Oriented Sociology of Development. In: *Battlefield of Knowledge, the Interlocking of Theory and Practices of Social Research and Development*. (Eds.). Long, N. and A. Long, Routledge, London.

Long, N. and J. D. Van der Ploeg. 1989. Demythologising Planned Intervention. In: *Sociologia Ruralis*. 29 (314).

Maarleveld, M., N. Röling, Seagers and C. Van Woerkum. 1997. *Social Learning for Collective Natural Resource Management: Facilitation, Institutions and Policies*. Technical Proposal. Department of Communication and Innovation Studies, Wageningen Agricultural University, The Netherlands.

Marsden, P. U. and E. O. Laumann. 1977. Collective Action in a Community Elite: Exchange, Influence Resources and Issues Resolution. In: *Power, Paradigms and Community Research*. (Eds.), Liebert, R. J and A. W. Imershein. SAGE Publications, London.

Maturana, H. R. and F. J. Varela. 1992. *The Tree of Knowledge, the Biological Roots of Human Understanding*. Boston Sambala Publications.

MHDP. 1995. *Draft Environmental Policy of MHDP*. Project Support Office. Ilam, Nepal.

- Michael, B. 1991. Work in a Sustainable Society: An Economic Perspective. In: *Towards Ecological Sustainability*.(Ed.), Bierbaum, N. Flinders University, South Australia.
- NPC. 1992. *The Eighth Plan 1992-1997*. National Planning Commission, HMG/Nepal. Unofficial Translation, Kathmandu, Nepal.
- NPC/ADB. 1995. *Nepal Agriculture Perspective Plan: Main Document*. Agricultural Projects Service Centre, Kathmandu and John Melor Association, Inc. USA.
- Oerlemans, N. and N. Steins. 1994. *Community Considered. The Potential Role of Expert Farmers in a Village in the Hills of Nepal*. MSc Unpublished Thesis. Wageningen Agricultural University, The Netherlands.
- Parson, E. A. and W. C. Clark. 1995. Sustainable Development as Social Learning: Theoretical Perspectives and Practical Challenges for Design of a Research Programme. In: *Barriers and Bridges to the Renewal of Ecosystems and Institutions*.(Eds.), Gunderson, L. H., C. S. Holling and S. S. Light. Columbia Press, New York.
- Ploeg, J. D. Van der. 1989. *Labour Market and Agricultural Development*. Westview Press, Colorado.
- Poudel, B. R., 1997. Bio-diversity Conservation in Mid Hills: Precaution Essential. In: *The Rising Nepal*. 14 Sept. 1997. Kathmandu, Nepal.
- Pradhan, U. 1994. Farmers Water Rights and Their Relation to Data Collection and Management. In: *Farmers Fields to Data Field and Back: A Synthesis of Participatory Information Systems for Irrigation and Other Resources*. (Eds.). Sowerwine, J., G. Shivakoti, U. Pradhan, A. Shukla, and E. Ostrom, IMMI and IAAS. Proceedings of an International Workshop held on IAAS, Rampur, Nepal. March 21-26, 1993.
- Pruitt, D. J. and P. J. Carnevale. 1993. *Negotiations in Social Conflicts*. Buckingham: Open University Press.
- Rap, E. 1997. *Preparing Exploratory Research. A Guideline for the Design of a Research Proposal for MAKS Student*. Wageningen Agricultural University MSc Programme Management of Agricultural Knowledge Systems (MAKS), The Netherlands.
- Rhoades, E. R. 1997. *Pathways Towards a Sustainable Mountain Agriculture for the 21st Century: The Hindukush Himalayan Experience*. ICIMOD. Kathmandu, Nepal.
- Röling, N. 1992a. Facilitating Sustainable Agriculture: Change Policy model. In: *Making the Link: Agricultural Research and technology Transfer in Developing Countries*. (Ed.), Kaimowitz, D. Westview press. Boulder, Colorado.
- Röling, N. 1992b. The Emergence of Knowledge System Thinking: A Changing Perception of Relationship Among Innovation, Knowledge Process and Configuration. In: *Knowledge and Policy: The International Journal of Knowledge Transfer and Utilisation*. Spring, 5(1): 42-64.
- Röling, N. 1996a. Creating Human Platforms to Manage Natural Resources: First Results of Research Programme. In: *Agricultural R&D At the Cross Road. Managing Systems Research*

and Social Actor Approaches. (Ed.), Budelman, A. Royal Tropical Institute. The Hague, The Netherlands.

Röling, N. 1996b. Towards an Interactive Agricultural Science. In: *European Journal of Agricultural Education and Extension*. 2(4): 35-48.

Röling, N. 1997a The. Challenges to Agricultural Professionals. In: *International Higher Agricultural Education: Experiences Constraints Perspectives*. (Eds.), Van den Bor, A., W. J. M. Heijman, and M. E. F. Mensvoort. Wageningen Agricultural University, The Netherlands.

Röling, N. 1997b. *The Soft Side of Land: Socio-Economic Sustainability of Land Use Systems*. Paper presented at the Conference on Geo-Information for Sustainable Land Management. Enschede 17-21 Aug. 1997. International Institute for Aerospace Survey and Earth Science (ITC), The Netherlands.

Röling, N. and J. Jiggins. 1998. The Ecological knowledge System In: *Social Learning for Sustainable Agriculture*. (Eds.), Roling, N. and A. Wagemakers. Cambridge University Press.

Röling, N. and J. L. S. Jiggins. 1994. Policy Paradigm for Sustainable Farming. In: *European Journal for Agricultural Education and Extension*. 1(1).

Schmoltdt, D. L. and H. M. Rauscher. 1996. *Building Knowledge-Based Systems for Natural Resources Management*. Chapman & Hall, New York.

Shah, G. S. 1980. *Fewa Watershed: Animal Husbandry and Feed Resource Survey, Result*. Department of Soil Conservation and Watershed Management. Kathmandu, Nepal.

Spradely, J. and D. McCurdy. 1981. *Anthropology: The Cultural experiences*. Boston: Little and Brown Inc.

Spradely, J. 1979. *The Ethnographic Interview*. Holt Rinehart, Winston, New York.

Strauss, A. and J. Corbin. 1994. Grounded Theory Methodology: An Overview In: *Handbook of Qualitative Research*. (Eds.), Denzin, N. K. and Y. S. Lincoln. Thousand Oaks: SAGE Publications, London.

Sukla, A., N. Joshi, G. Shivakoti, R. Poudel, and N. Shrestha. 1996. Dynamics in Water Rights, and Arbitration on Water Right Conflicts: Case of FMISs from Eastern Chitawan. In: *Water Rights, Conflicts and Policy*. (Eds.), Pradhan R., F. Benda-Beckmann, K. Benda-Beckmann, H. L. Spiertz, S. K. Khadka, and H. Azharul. Proceeding of Workshop held in Kathmandu, Nepal. Jan. 22-24, 1996.

Thrupp, L. A. 1989. Legitimising Local Knowledge: Sensitised Packages for Empowerment for Third World People. In: *Indigenous Knowledge System*. (Eds.), Warren, Slikkerveer and Tititola.

Upreti, B. R. 1990. Agricultural Issues in Dolakha District: An Economic Perspective. In: *Ankha*. No 10, Jan.-June 1990. (Ed.), Shrestha S. K. Kalinchok Youth Club, Dolakha, Nepal. (Nepali version).

Upreti, B. R. 1991. Realities of Agricultural Development in Nepal. In: *Parisilan Masik*. Year 1, 9 (8). (Ed.), Khatri, B. K. Parisilan Barun Enterprise, New Baneshwor, Kathmandu, Nepal. (Nepali version).

Upreti, B. R. 1995. *Women's' Participation in Development Activities: A Case Study of Mechi Hill Development Programme in Ilam District*. M. A. Thesis submitted to the Department of Sociology/Anthropology, Tribhuvan University. Kathmandu, Nepal.

Upreti, B. R. 1996. *Non Governmental Organisation in Rural Transformation: A Case Study From Rural Nepal*. Paper submitted to Department of Sociology of Rural Development to full fill the examination requirement of Course C50-234 Sociology of Agricultural Development. Wageningen Agricultural University, The Netherlands.

Upreti, B. R. 1997a. *Peasant's Response to External Development Intervention: Knowledge Power and Cultural Dynamics: A Case Study of Integrated Rural Development Project in Nepal*. Paper submitted to Department of Sociology of Rural Development to full fill the examination requirement of Course C50-224 Policy Oriented Research in Developing Countries. Wageningen Agricultural University, The Netherlands.

Upreti, B. R., Y. Ghale, and B. Khaling 1997b. *People's Participation in Managing National Parks and Reserves in Nepal: What has been Done So Far? And What can be Done to Improve in Future?* Paper Submitted to Department of Terrestrial Ecology and Nature Conservation to fulfil the examination requirement of Course H300-231 Natural Resource Management. Wageningen Agricultural University, The Netherlands.

Upreti, B. R. 1997c. *Development Narratives: Rhetoric and Realities For Rural Poverty and Discrimination Alleviation*. Paper submitted to Department of Sociology of Rural Development to fulfil the examination requirement of Course C50-218 Social Science Knowledge and practices. Wageningen Agricultural University, The Netherlands.

Van den Ban, A. W. 1997. Successful Extension Agencies are Learning Organisations. In: *Management of Agricultural Extension in Global Perspectives*. (Eds.), Samanta, R. K and S. K. Arora. B. R. Publishing Corporation, Delhi.

Van den Ban, A. W. and S. H. Hawkins. 1996. *Agricultural Extension*. Blackwell Science, Oxford.

VDC. 1996. *Draft Profile of the Pawoti VDC*. Pawoti, Nepal. (Nepali version).

Virgo, K. J. and K. J. Subba. 1994. Land Use Change Between 1978 and 1990 in Dhankuta District, Koshi Hill, Eastern Nepal. In: *Mountain Research and Development* 14(2): 159-170.

Wilson, K. and G. E. B. Morren 1990. *Systems Approaches for Improvement in Agriculture and resource Management*. Macmillan Publishing Company, New York.

Woodhill, J. and N. Röling. 1998. The Second Wing of Eagle: The Human Dimension in Learning Our Way to More Sustainable Future. In: *Social Learning for Sustainable Agriculture*. (Eds.), Röling N. and A. Wagemakers. Cambridge University Press.

Yin, K. R. 1984. *Case Study Research: Design and Methods*. Beverly Hills: SAGE Publication, London.

