



Institut
Français
de Pondichéry

UMIFRE 21 CNRS-MAE

Collection Sciences Sociales 14

READING HIMALAYAN LANDSCAPES OVER TIME

ENVIRONMENTAL PERCEPTION, KNOWLEDGE AND
PRACTICE IN NEPAL AND LADAKH

Edited by

Joëlle Smadja

Translated from French by

Bernadette Sellers



Joëlle SMADJA, PhD, is a geographer, head of the CNRS (French National Research Centre) research unit "Milieux, sociétés et cultures en Himalaya" ("Environments, Societies and Cultures in the Himalayas"), where, since 1995, she has been coordinating interdisciplinary research programmes on the relationships between man and his environment.

Her investigations focused on Nepal where, after a thesis on geomorphology, she showed particular "interest in the population's perception and representation of environments as well as in land use and resource management over time. Part of her research covers the importance of the "tree" as a resource in the Himalayan populations' subsistence economy, and especially the setting up of a "bocage" in several Nepalese districts.

She is also studying the repercussions of environment protection policies on agriculture and rural societies, and in particular the ensuing territorial restructurings. Her current work focuses on North-East India (Arunachal Pradesh and Assam), with the aim of contributing to the geographical study of the Himalayan Range as a whole.

Institut Français de Pondichéry

P.B. 33,

11, St. Louis Street,

Pondicherry - 605001, INDIA

Ph: +91-413-2334168 - Fax: +91-413-2339534

E-mail: library@ifpindia.org

Web: www.ifpindia.org

*READING HIMALAYAN LANDSCAPES
OVER TIME*

**Environmental Perception, Knowledge and
Practice in Nepal and Ladakh**

The French Institute of Pondicherry (IFP) was created following the Treaty of Cession of the French territories in India and is part of the network of research institutes of the French Ministry of Foreign Affairs. It fulfils its mission of research, expertise and training in human and social sciences and ecology in South and South-East Asia. It focuses more particularly on the domains of Indian cultural knowledge and heritage (Sanskrit language and literature, history of religions, Tamil studies,...), contemporary social dynamics (in the areas of health, economics and environment) and the natural ecosystems of South India (sustainable management of biodiversity).

French Institute of Pondicherry, 11, St. Louis Street, P.B. 33, Pondicherry 605001-India, Tel: (413) 2334168, Email: ifpdir@ifpindia.org
Website: <http://www.ifpindia.org>



The laboratory "Milieux, sociétés et cultures en Himalaya (*Milieux, societies and cultures in the Himalayas*)" is a CNRS (*National Centre for Scientific Research*) research unit (UPR 299) that includes approximately thirty researchers and postgraduate students. A pluridisciplinary team of scholars (ethnologists, geographers, agronomists, historians and philologists) are working to contribute to knowledge on societies in the Himalayan and Tibetan regions and on their relationship with the natural environment. They particularly focus on religions and politics, processes for the distribution of ideas and techniques, dialectics between power centres and their margins, identity movements, migratory processes, management and conservation of natural resources, "development" patterns and policies. The main areas for fieldwork are in Nepal, India (Ladakh, Himachal Pradesh, Uttarakhand, Assam and Arunachal Pradesh) and China (Tibet Autonomous region, Yunnan, Sichuan). With 15,000 references, the Centre d'Etudes Himalayennes, which is part of UPR 299, is the largest Himalayan documentation centre in Europe.

UPR 299, Milieux, sociétés et cultures en Himalaya, Centre André-Georges Haudricourt, CNRS. 7 rue Guy Môquet. BP8. 94801 Villejuif cedex. France.
Tel: 33 (0)1 49 58 37 36. Email: himalaya@vjf.cnrs.fr
Website: <http://www.vjf.cnrs.fr/himalaya/>

Collection Sciences Sociales n° 14

***READING HIMALAYAN LANDSCAPES
OVER TIME***

**Environmental Perception, Knowledge and
Practice in Nepal and Ladakh**

*Edited by Joëlle Smadja
Translated from French by Bernadette Sellers*

INSTITUT FRANÇAIS DE PONDICHÉRY
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE

© French Institute of Pondicherry, 2009 (ISBN: 978-81-8470-170-8)

Typeset by Mrs. T. V. Kamalambal, IFP

Cover Illustration:

View of Kangchenjunga from the western slope of the Tamur Valley,
Eastern Nepal. Fernand Meyer, 1974

Cover design: N. Ravichandran, IFP

Printed at Brihat Consultants, Pondicherry

**This book is dedicated to the memory of two great geographers
who were our colleagues and friends:
A French one, Prof. Olivier Dollfus, who passed away in 2005
A Nepalese one, Dr. Harka Gurung, who passed away in 2006**

Contents

| | |
|--|------|
| List of Authors | v |
| Acknowledgements | vii |
| Conventions | ix |
| List of acronyms | xi |
| Foreword..... | xiii |
| Introduction | |
| <i>Joëlle Smadja</i> | 1 |
| Preliminary Chapter | |
| Snippets of Knowledge Stolen from an Impenetrable Country | |
| <i>Joëlle Smadja</i> | 29 |
| PART ONE: UNSTABLE AND OFTEN DENSELY POPULATED ENVIRONMENTS | |
| Chapter I. Geographic Units and Landscapes in Nepal. Local Terminologies | |
| <i>Joëlle Smadja</i> | 43 |
| Chapter II. Ladakhi Landscape Units | |
| <i>Pascale Dollfus, Valérie Labbal</i> | 85 |
| Chapter III. Some Elements Structuring the Himalayan Mountains | |
| <i>Olivier Dollfus, Monique Fort</i> | 107 |
| Chapter IV. Population Densities and Resources in the Study of Nepalese Landscapes | |
| <i>Philippe Ramirez</i> | 139 |

PART TWO: PERCEPTIONS AND REPRESENTATIONS OF LANDSCAPES

| | |
|---|-----|
| Chapter V. The Nepalese Landscape: Exegesis and Appropriation of the Country <i>Marie Lecomte-Tilouine</i> | 161 |
| Chapter VI. A Reading of the Salme Tamangs' Territory and Landscape <i>Joëlle Smadja</i> | 199 |
| Chapter VII. A Foray into Ladakhi Place Names <i>Pascale Dollfus, Valérie Labbal</i> | 241 |
| Chapter VIII. Christian and Hindu Share of the Territory in the Magar Village of Pathardi <i>Lucile Viroulaud</i> | 263 |
| PART THREE: HISTORICAL DATA ON LAND USE AND RESOURCE MANAGEMENT | |
| Chapter IX. Agriculture in the Himalayas: a Historical Sketch <i>Pascale Dollfus, Marie Lecomte-Tilouine, Olivia Aubriot</i> | 279 |
| Chapter X. The Nepalese State and the Transformation of Landscapes according to Administrative Documents Dating from the XVIIIth and XIXth Centuries <i>Philippe Ramirez</i> | 325 |
| Chapter XI. The Khimti Wilderness: Regulations and Conflicts. A legal and Historical Approach <i>Bruno Muller</i> | 351 |
| Chapter XII. Discourse and Law: Resource Management and Environmental Policies since 1950 <i>Blandine Ripert, Isabelle Sacareau, Thierry Boisseaux, Stéphanie Tawa Lama</i> | 379 |

PART FOUR: LOCAL PRACTICES, BETWEEN CHOICE AND CONSTRAINT

| | |
|--|-----|
| Chapter XIII. Environmental Protection Impoverishment of Men: Botan Village on the Periphery of Rara National Park <i>Satya Shrestha</i> | 421 |
| Chapter XIV. Resource Management and Changes in Landscapes within the Annapurna Conservation Area Project: The Example of Modi Khola <i>Isabelle Sacareau</i> | 435 |
| Chapter XV. Parcelling of Land, Privatisation along with Collective Management of Space and Resources on the Salme Mountainside <i>Blandine Ripert</i> | 467 |
| Chapter XVI. The Balamis, Nepalese Woodcutters Deprived of Forest <i>Gérard Toffin</i> | 493 |
| Chapter XVII. A Bocage Landscape, Masyam and the Hamlet of Kolang <i>Tristan Bruslé, Monique Fort, Joëlle Smadja</i> | 509 |
| Conclusion <i>Joëlle Smadja</i> | 553 |
| ANNEXES | |
| Tables 10-13 | 563 |
| Glossary of the Main Nepalese Terms Mentioned in the Texts..... | 607 |
| Index | 615 |
| Bibliographic References..... | 629 |

List of Authors

*Status at the time of the French Edition
(2003)*

| | |
|------------------------|---|
| Olivia Aubriot | Researcher at the CNRS (UPR 299), agro-anthropologist |
| Thierry Boisseaux | Ministry of Foreign Affairs, forester |
| Sophie Bourdet | PhD student, University of Nanterre, Paris 10, geographer |
| Tristan Bruslé | PhD student, University of Poitiers, MIGRINTER, geographer |
| Olivier Dollfus (†) | Emeritus professor, University of Paris 7, geographer |
| Pascale Dollfus | Researcher at the CNRS (UPR 299), social anthropologist |
| Monique Fort | Professor, University of Paris 7, geographer |
| Pramod Khakurel | Nepalese PhD student, University of Nanterre, Paris 10, social anthropologist |
| Valérie Labbal | PhD, agro-anthropologist |
| Marie Lecomte-Tilouine | Researcher at the CNRS (UPR 299), social anthropologist |
| Bruno Muller | PhD, geographer |
| Maheś Raj Pant | Nepalese researcher, historian, Sanskritist |
| Philippe Ramirez | Researcher at the CNRS (UPR 299), social anthropologist |
| Blandine Ripert | Researcher at the CNRS (<i>Centre d'étude de l'Inde</i>), geographer |
| Isabelle Sacareau | Lecturer, University of La Rochelle, geographer |
| Satya Shrestha | Nepalese PhD student, University of Nanterre, Paris 10, social anthropologist |

| | |
|------------------------|---|
| Nicolas Sihlé | PhD, social anthropologist |
| Joëlle Smadja | Senior researcher at the CNRS (UPR 299), geographer |
| Stéphanie Tawa Lama | Researcher at the CNRS (<i>Centre d'étude de l'Inde</i>), political scientist |
| Gérard Toffin | Senior researcher at the CNRS (UPR 299), social anthropologist |
| Lucile Viroulaud | PhD student, University of Nanterre, Paris 10, social anthropologist |

Acknowledgements

We wish to warmly and wholeheartedly thank all members of the "Environnements, Sociétés, Développement à long terme" (Environments, Societies, Sustainable Development) and "Histoire des interactions sociétés/nature" (History of Interactions between Society and Nature) committees of the CNRS's Life and Society Environment Programme without whose trust and support this book, and the research which it is based on, could not have been possible.

We also wish to thank Richard Willett who proofread the English version of this text.

Conventions

Transcription and spelling

For all languages used in this book we have chosen not to add diacritics to proper nouns. Common nouns have been written in italics. For words in Nepali we have adopted Turner's transcription and added diacritics in certain texts. For Tamang words we have adopted a transcription based on their pronunciation. Ladakhi and Tibetan terms that are written as they are pronounced have been transcribed according to the Wylie system.

Nepalese dates

The Nepalese calendar is based on the moon and sun. Correspondences and translations are as follows:

| | |
|----------------|------------------------------|
| <i>baisākh</i> | mid-April to mid-May |
| <i>jeṭh</i> | mid-May to mid-June |
| <i>asār</i> | mid-June to mid-July |
| <i>sāun</i> | mid-July to mid-August |
| <i>bhadau</i> | mid-August to mid-September |
| <i>asauj</i> | mid-September to mid-October |
| <i>kārtik</i> | mid-October to mid-November |
| <i>mañsīr</i> | mid-November to mid-December |
| <i>pus</i> | mid-December to mid-January |
| <i>māgh</i> | mid-January to mid-February |
| <i>phāgun</i> | mid-February to mid-March |
| <i>cait</i> | mid-March to mid-April |

The official Nepal and North Indian era, Vikram Sambat or Vikrama-saṃvat (VS), started in 57 BC.

The Saka era started in 78 AD. This was used in Nepal and India.

The Nepal era, Sambat or Nepālasaṃvat (NS) started in 879 AD. This was used in the Kathmandu Valley.

Nepalese measuring units

1 *muri* = 20 *pāthi* = 91 litres

1 *pāthi* = 8 *mana* = 4.55 litres

1 *mana* = 10 *muthi* = 0.569 litres

1 *ropani* = 16 *āna* = 509 m²

1 *āna* = 31.79 m²

In 2000, the Nepalese rupee (NPR) was worth about 0.015 euro (0.1 French francs).

List of acronyms

| | |
|------------------|--|
| ACAP | Annapurna Conservation Area Project |
| CAMC | Conservation Area Management Committee |
| CDC | Conservation and Development Committee |
| CIDA | Canadian International Development Agency |
| CPN (UML) | Communist Party of Nepal (United Marxist-Leninist) |
| DDC | District Development Committee |
| DFO | District Forest Office |
| EPC | Environmental Protection Council |
| FAO | Food and Agriculture Organization |
| <i>ga.bi.sa.</i> | <i>gāū bikas samiti</i> (Village Development Committee) |
| HMG | His Majesty's Government |
| INF | International Nepal Fellowship |
| KMTNC | King Mahendra Trust for Nature Conservation |
| LRMP | Land Resource Mapping Project |
| MBS | Milan Tol Bikas Sumitee |
| NC | Nepali Congress |
| NEPAP | Nepal Environmental Policy and Action Plan |
| NESP | New Education System Plan |
| ODA | Britain's Overseas Development Agency (The Department for International Development) |
| WHO | World Health Organisation |
| NGO | Non-governmental organisation |
| RPP | Rashtriya Prajatantra Party |
| SAARC | South Asia Association for Regional Cooperation |

| | |
|--------|---|
| SDC | Swiss Development Cooperation |
| SP | Sadbhavana Party |
| TMI | The Mountain Institute |
| IUNC | International Union for Nature Conservation |
| UNDP | United Nations Development Programme |
| UNEP | United Nations Environment Programme |
| UNESCO | United Nations Educational Scientific Cultural Organisation |
| USAID | United States Agency for International Development |
| VDC | Village Development Committee = <i>ga.bi.sa.</i> |
| WWF | World Wildlife Fund |

Foreword

Based on data collected up to the year 2000, this book was first published in French at the beginning of 2003. This English version is a translation of the original French edition: *Histoire et devenir des paysages en Himalaya. Représentations des milieux et gestion des ressources au Népal et au Ladakh. Sous la direction de J. Smadja. CNRS Editions.*

Any changes that have occurred since then as well as any publications that appeared after our first writings have not been taken into account. However, and in spite of its rather late translation into English, this book provides basic data and guidelines for studying both the relationship of Himalayan societies with their milieux and Himalayan landscapes that should help to understand current changes. The picture given of the Himalayan landscapes, of the representations of milieux and of resource management over the centuries up to the beginning of the XXIst century still has no equivalent today.

Introduction

Joëlle Smadja

Marco Polo describes a bridge, stone by stone.

"But which is the stone that supports the bridge?" Kublai Khan asks.

"The bridge is not supported by one stone or another," Marco answers, "but by the line of the arch that they form."

Kublai Khan remains silent, reflecting. Then he adds:

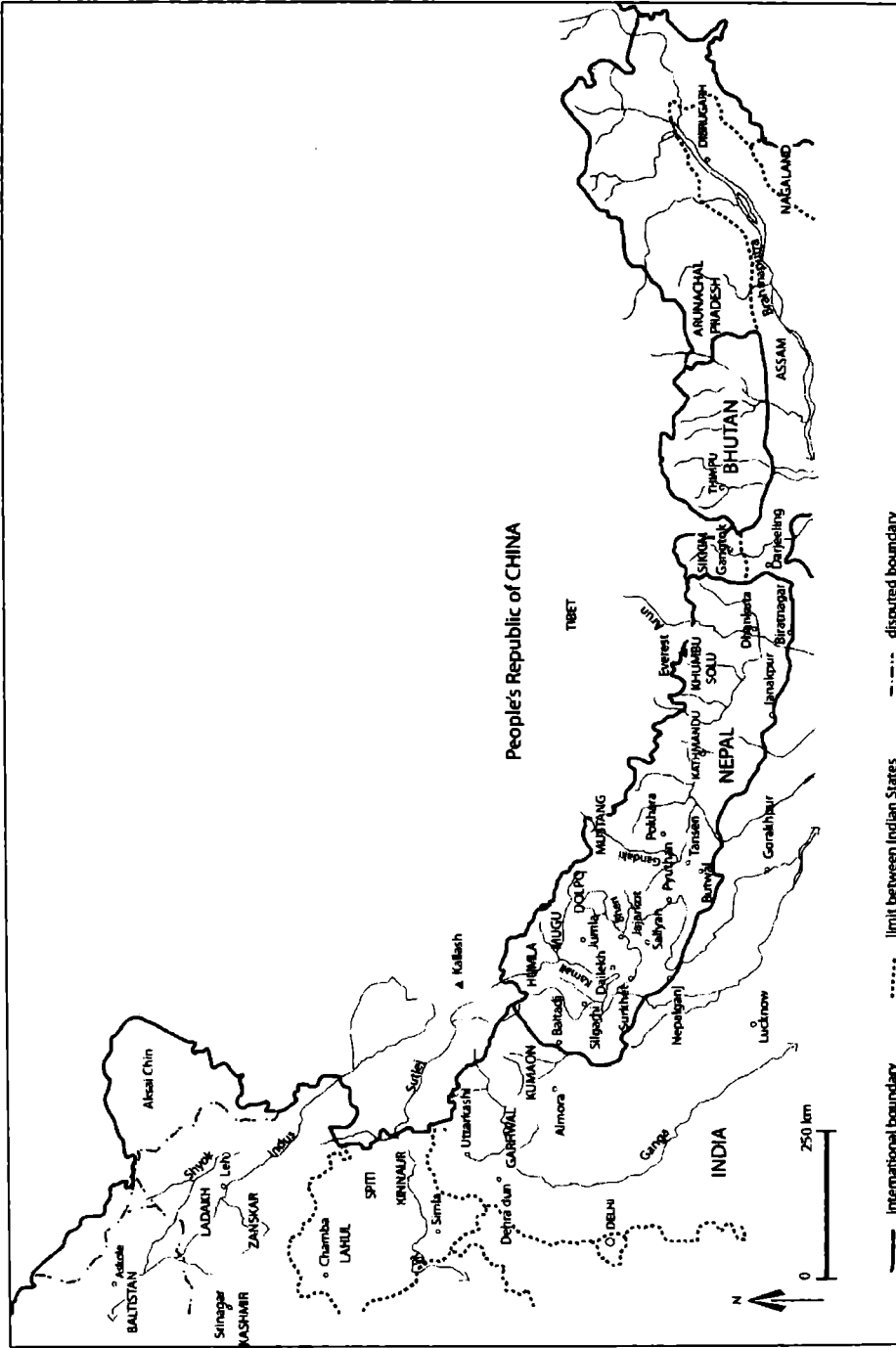
"Why do you speak to me of the stones? It is only the arch that matters to me."

Polo answers:

"Without stones there is no arch."

Italo Calvino, "Invisibles Cities", 1974

Summits to be climbed, mountain slopes admirably shaped into cultivated terraces, eroded slopes, the realm of the gods... Each of us has his/her own notion of the Himalayan Mountains. A place to live for some, a space for leisure activities, for study or work for others, they are perceived in different ways, and are at the root of speeches and actions that influence environment management as well as landscape making. The latter, restructured over centuries according to natural phenomena, societies and their civilisations, have for several decades now undergone rapid changes, the interpretation of which comes up against a lack of space, historical and cultural references. By studying the relationship Nepalese and Ladakhi Himalayan societies (Figure 1) have with their natural environment and the way in which, over time, they have used land and managed resources, the authors of this book intend to provide a better understanding of the landscapes, their diversity and their transformations.



Map by O. Aubriot (2000)

Figure 1:
Nepal and Ladakh in the Himalayas

They also wish to fuel debates on environmental issues at stake in this region of the world.¹

Lack of knowledge, uncertainty, complexity. Preliminary report

In the Himalayas, exploiting natural resources underlies an economy that, for 80 per cent of the population, relies on agriculture and livestock farming. The animals that, among other things, enable fields to be ploughed and manured, are fed farming residues, grass from pastures and leaves from trees which also provide firewood and building timber. The land to be cultivated – at the end of the XXth century it covers 20 per cent of the country in Nepal – fodder and wood are at the centre of production systems. An increasing need for these resources, correlative to demographic growth over the last half century, gives rise to considerable concern. Environmental preoccupations relative to deforestation and soil erosion therefore take on a particular intensity, so much so that rivers taking their source in these mountains drain the most populated regions in the world: when devastating flooding occurs in lowlands, especially in the Gangetic plain, accusing glances turn uphill. Indeed, the mountain people's relationship to their environment, their lifestyle, land development, resource management, technical and social systems may weigh in the balance of the vast Himalayan/Gangetic plain system. Yet, these are still very little known and their repercussions even less so, hardly helping to establish any cause-effect relationship. However, Himalayan peasants' behaviour has been criticised over the last three decades using pictures accompanied by univocal commentaries, the dramatic

¹ This book presents the results of collective work carried out at the CNRS research unit (UPR 299) "Milieux, sociétés et cultures en Himalaya" (Milieux, Societies and Cultures in the Himalayas) and financed from 1995 to 1999 by the committee "Environnement, Société, Développement à long terme" (Environment, Society, Sustainable Development) in the framework of the CNRS's "Programme environnement". The committee wanted researchers from this team who were already working on man-environment relationships, "by developing the interdisciplinary character of their approach, to contribute to a better understanding of the relationships between the evolution of local human societies and that of their natural environments, and to define problematical issues and general methodologies in order to deal with them." Researchers from UPR 299 likely to take part in this thought process carried out investigations in Nepal and Ladakh. That is why the work presented in this book covers these two areas. They ensure the follow-up of pluridisciplinary research which was carried out in Nepal by members of the laboratory on the Salme slopes from 1979 to 1985, and in the Gulmi and Argha Khanci districts from 1985 to 1993, research which has produced numerous articles, papers and theses as well as two collective works: DOBREMEZ (ed.), 1986 and RAMIREZ (ed.), 2000.

impact of which is proportional to the fascination expressed towards the landscapes in this region of the world.

Himalayan Environmental Degradation, a debatable theory

In the 1970s, sensational pictures were indeed widely broadcast revealing the industrial exploitation of forests and clear cuttings on the Indian and Chinese Himalayan slopes. They showed how trekking routes cross treeless sectors offering a sight of desolation in Nepal, displaying frequent mass wasting and landslides. To back this up, the captions to the photographs provide explanations: demographic growth, human pressure on the environments, deforestation, erosion accentuated by monsoon rains, the irresponsibility of mountain farmers, and the degradation of the Himalayan environment. The die was cast and, for years, these accounts and their interpretations sustained worst scenarios for the future of the environments and their populations.² They also upheld basic hypotheses for research carried out at the time in this region of the world. However, most of the first extensive studies confronting these presuppositions with the reality of the field questioned this catastrophist theory, the whole fabric of which came up against an essential question, set out in particular by the Nepalese geographer, Harka Gurung, in 1984: what were the great hypothetical natural balances prior to the deterioration of environments? The results of many researchers were closely akin to this question.³ They consider that few scientific facts have been firmly established regarding this region of the world and that the few rare detailed studies often contradict catastrophist versions or are not sufficient to prove advanced hypotheses. The only proven facts are the uncertainty which hangs over Himalayan data and its complexity.⁴ Some of these studies, which deal essentially with Nepal, were grouped together and summarised in 1989 by Ives and Messerli in the book *Himalayan Dilemma*. Here the authors highlight the weakness and invalidity of the alarmist scenario previously mentioned; a scenario that they have christened the "Theory of Himalayan Environmental Degradation" (Frame 1). We will not review all the failings of this theory here,⁵ but only certain points that have led to writing this book.

² ECKHOLM, 1975, 1976; STERLING, 1976; MYERS, 1986; RAMADE, 1989; BISHOP, 1990.

³ CARSON, 1985; DOBREMEZ (ed.), 1986; SMADJA, 1986, 1992; HAMILTON, 1987; FORT, 1988; GILMOUR, 1988; CARTER, 1992; HÖFER, 1993; FOX, 1993; VIRGO and SUBBA, 1994.

⁴ See THOMPSON, WARBUTON and HATLEY, 1986.

⁵ Those readers interested should refer to IVES and MESSERLI's book, 1989.

Frame 1

Theory of Himalayan Environmental Degradation*Joëlle Smadja*

As analysed by Ives and Messerli (1989), this theory can be divided into eight points:

1. Progress in the health sector and in medicine as well as the eradication of malaria after 1950 has brought about unprecedented demographic growth. From this starting point, it is thought that:

2. This uncontrolled increase in the population has resulted in a growing demand for tree resources (firewood, timber, fodder) as well as farm land.

3. Massive deforestation has followed leading to the loss of half of forest reserves in Nepal from 1950 to 1980 and to the prediction that in the year 2000 no accessible forest cover would remain.

4. Deforestation on steeper and more marginal mountain slopes has led to a catastrophic increase in soil erosion, loss of productive land through accelerated landslide incidence and to the disruption of the normal hydrological cycle.

5. This situation, in turn, has led to increased run-off during the monsoon, massive flash flooding and alluvial deposits in the plains. There has been a drop in groundwater and a drying up of springs in the dry season.

6. These processes have repercussions in the Ganges and Brahmaputra plain as well as in the Bay of Bengal, provoking devastating floods.

7. The loss of farm land leads to a further increase in deforestation to create new areas for farming. The nearest firewood is further away, so collecting it requires more work. There is thus a drop in productivity and an increase in the use of dried dung, as fuel, to replace firewood.

8. As a consequence, farm land is deprived of natural fertiliser, which leads to a drop in yields and to less cohesion of the soil.

In spite of this scenario being questioned since the mid-1980s and although certain studies today explicitly show that "Himalayan populations are not responsible for flooding in Bangladesh",⁶ it persists, as a report by the ODA still uses the same terms.⁷ For certain authors, this is partly because it justifies international aid, substantial budgets for development programmes and sometimes the very existence of these major programmes.⁸ Now, as everyone knows, the way in which a problem is exposed infers the type of response it receives and the type of action. The Nepalese government, supported by international organisations, has thus confirmed this crisis scenario and has implemented a conservationist nature protection policy, materialised by forest protection and the creation of national parks. In doing so, it has above all intended to restore or preserve landscapes that make up, in themselves, a resource on which one of the country's main sources of revenue relies, i.e. tourism. In 2001, protected areas, some of them under the army's control, covered nearly 17 per cent of Nepalese territory. This attitude calls to mind that of the French government at the end of the XIXth century, when State foresters employed catastrophist speeches on the degradation of environments in order to justify their authoritarian afforestation and conservation actions.⁹ At the time, these foresters clashed with partners in local development actions. The situation is really very similar today in Nepal and, as in a great many other regions of the world, the definition of an environmental crisis situation raises a certain number of questions:¹⁰ which referents are used to diagnose a crisis? What is normality compared to a crisis state? How do we define resources and who are those who qualify them and are in a position to do so? Hence, on what scale may reality be perceived? Who are those who declare a state of crisis and eventually find it to their own advantage to do so? As for landscape

⁶ HÖFER, 1999, the English edition dates from 1997.

⁷ ODA: "British Overseas Development Agency", today "The Department for International Development". "The southern Himalayan region of Nepal is facing severe environmental degradation. The growing population's requirement for more food leads to the clearing of forest to provide more land for crop production. Soil becomes exposed and is easily washed away by heavy monsoon rainfall. Land productivity quickly declines, leading to a demand for more land on which to produce crops. In addition there may be an increased risk of floods, reduction of low season water flows, increased erosion and changes in water quality." (ODA, 1997, p. 69, *in* THOMPSON, 1998, p. 119).

⁸ FORSYTH, 1998.

⁹ KALAORA, 1998.

¹⁰ See for example on this subject the work of Marie-Christine CORMIER-SALEM, 1999, in West Africa, as well as Corinne BECK and Yves LUGINBÜHL, 2001, p. 74-78.

preservation, it also gives rise to numerous questions that Yves Michelin in particular summarises as follows: "When one claims to protect landscapes, one must specify against whom and against what. Against the passage of time? For the sake of which values? [...] Does one want to preserve today's landscape? Restore yesterday's or the day before yesterday's? Invent another new one for tomorrow? To please whom: a specific social category, visitors who demand the right to contemplate 'beautiful landscapes' or to please the inhabitants [...]"¹¹ These landscapes make up the inhabitants' surroundings and are also produced by them. In a text on "Normative conceptions of landscape", the authors, in the same vein, add: "There is a contradiction [...] in wanting present society to make a landscape –which was well balanced with a past social organisation– last other than as a museum exhibit limited in space."¹² These questions and thoughts are closely akin to current problems of "sustainable development" and local development that are at the heart of environmental preoccupations and refer back to several aspects of methodology that we will come back to later, having examined the Himalayan situation in more detail.

Biased reasoning based on mystifications

The Himalayan regions, and more particularly Nepal, which was closed to foreigners up until 1951, remained unexplored for a long time.¹³ At the beginning of the 1950s, the only knowledge of Nepalese environments came from the Kathmandu Valley. As for the rest, tour notes from rare clandestine explorers, descriptions and measurements taken from India and limited information from scholars and British Army personnel who were privileged to ride along some main roads, were the only accounts available. Few of them were published, any rare historical data had not been exploited and field research outside the Valley was only in its initial stages. Thus experts, researchers, tourists and journalists who went to Nepal in the first decades following its opening only possessed limited elements with which to interpret the observed phenomena. This should have prompted cautiousness on their part. But at a period where spectacular information and

¹¹ MICHELIN, 2001.

¹² LEPART *et al.*, 2000. (Translated from French)

¹³ See here Preliminary Chapter: "Snippets of Knowledge Stolen from an Impenetrable Country" (J. Smadja).

catastrophism started to gain ground, it was nothing of the sort.¹⁴ With no knowledge of the history of this country's milieu, they turned them into milieu with no history. The referential was the 1950s that became "ground zero", the starting point for all processes. Observations, very few and far between, were generalised and only Western evaluation criteria were used, whether it involved data on milieu, the economy or demography. Consequently, and for want of admitting to the ignorance we faced at the time, any information was completely biased.¹⁵ Even more so because, upon its opening, the country underwent many changes, such as the eradication of malaria and the clearing of the Tarai plain for cropping, considerable demographic growth, and severe deforestation along trekking routes, masking all earlier processes. Thus, the constitutional instability of the Himalayan range, secular catastrophic episodes, both geological and meteorological, stages in land use and especially the main phases in deforestation over previous centuries, etc. were overshadowed.

Several misunderstandings have to be pointed out, but first a preliminary remark needs to be made. Granted that environmental science is a recent "field for research in the making",¹⁶ it calls for challenging the commonplace, placing data in their context and discussing them, admitting to doubts and making these part of the reasoning process –as for all sciences and to avoid exposure to dogmatism. Environmental policies will only be improved if they are well documented. Therefore the following clarifications do not aim at minimising real problems or at idealising a situation, which is not the point, but at counterbalancing judgements and at putting into perspective all too hasty remarks.

¹⁴ "More than ever it is the media that [...] makes and unmakes, selects and rebuilds what we get to know of the environment. It is they who, in an almost discretionary way, have this power to sort the banal from the spectacular; to mask the potentially serious risks or to display and amplify the most anodyne accidents; to make the non-event tip over into the catastrophe: in a word, to qualify uncertainty" (THEYS and KALAORA, 1992, p. 46). Translated from French.

¹⁵ "On maps of the world dating from the Renaissance, empty spaces were only peopled by mermaids and monsters, thus bearing witness to fantasies and terrors facing strangers. Nevertheless, on the first maps, the very emptiness of spaces was useful. It was a systematic and explicit convention in order to situate and demarcate ignorance. Cartographers understood that worse than being ignorant of facts was being ignorant of ignorance. Disguising ignorance by vague suggestive details would be to mislead the user; the illusion of knowledge might lead him confidently straight to disaster" (RAVETZ, 1992, p. 87). Translated from French.

¹⁶ See JOLLIVET and PAVÉ, 1993.

– It appears that the diversity of milieux has not been sufficiently taken into account. This has been wiped out on an Asian scale where the highest rates of deforestation are recorded in Pakistan, the Philippines, Vietnam, Malaysia and Thailand, whereas in Bhutan and Nepal they are lower.¹⁷ Furthermore, in the latter it is more appropriate to talk of forests being converted for cultivation than of industrial deforestation with often disastrous consequences.¹⁸ The diversity of milieux has also been neglected on a scale of the country itself. Generalisations have been made based on some observations limited in space, whereas each new site studied reveals its originality. Deforestation of low and middle mountains, for example, is nothing like the massive and recent one in the Tarai plain or that of the Kathmandu Valley that has been intensely exploited for centuries now. Neither the Tarai nor the Valley can therefore reflect the situation of the whole country. Similarly, the sectors for trekking, pictures of which have nurtured a good number of speculations, only make up a minute part of Nepalese territory and are hardly representative of the general situation. Besides, what do we know of the importance of the wood cut for tourists compared to the wood taken along trade routes used by thousands of porters, salesmen and travellers over centuries, or wood used for melting ore needed for the armies, for building palaces and temples and so on?

– The fact that unstable milieux can be well balanced has been totally disregarded. Indeed, numerous landslides, mass wasting and gullying, which are among the main constraints in land use in the Himalayas, are no longer noticeable after several years or even several months, as photographs taken at different dates have shown.¹⁹ Part of the erosion phenomena, with multiple and complex initial causes, has a reversibility inherent to the subtropical monsoon climate, often underestimated or little known by foreign observers who have Western mountains as reference. As for soil degradation, E. Sander Van der Leeuw reminds us: "[it] is 'normal' and inevitable. It has occurred (and still occurs) everywhere human beings interact with their natural environment. But there has been a transformation in the perception of degradation. A vocabulary has been invented and

¹⁷ According to data collected by the FAO between 1980 and 1990: see HAMILTON, GILMOUR and CASSELLS, 1997.

¹⁸ It is also the case in other countries; see F. VERDEAUX, 1998, on this subject with regards the Ivory Coast.

¹⁹ IVES, 1987.

'negotiated' in order to talk, no longer of degradation or transformation, but of destruction. As a result, this process has become more perceptible. Hence, destruction has ended up being the focal point. It is therefore important today to remove the destructive 'stigma' which is associated with degradation, as much for the public as in political and scientific fields."²⁰ Furthermore, and without of course underestimating the damage caused by the erosion process, it has been demonstrated that, in certain cases, Nepalese peasants may use the instability of the terrain, even provoke it themselves in order to rejuvenate the soil and increase its fertility.²¹ The environment is therefore no longer simply considered a fragile entity threatened by cropping.²²

– From a temporal point of view, if an environment is considered degraded, it can only be so compared to an earlier state believed to be better. The myth therefore prevails of a glorified past against which Jean-Marie Legay (2000) warns us: "the past environment is said to be better than the present environment and is used as a reference when evaluating it. As if the myth of the original earthly paradise still holds true a little more discretely in recent history."²³ (p. 30) Hence we must come back to the essential question: what is this earlier state in Nepal? What would be this undegraded, ideal, stable Nepal? A few historical accounts brought back by explorers in the last century help to put the remarks into perspective and to shift the debate. One of the most interesting texts on the subject is that of Hoffmeister (1848) revealing observations made in 1845. His descriptions offer us excellent pictures of the state of the mountainsides at the time. They are all the more of use to our research since they concern circuits close to the Kathmandu Valley, some of which have been used as an example by supporters of the "Theory of Himalayan Environmental Degradation".

Regarding the route that leads from Hetaura (north of Tarai) to Kathmandu, he writes:

We followed, for some time, the ridge of this pass, proceeding in a north-westerly direction, and thus enjoyed an opportunity of observing the marked difference between the north sides and the south and east sides. The last two are bare and treeless, while the former is clothed with noble forests. [P. 217.]

²⁰ VAN DER LEEUW, 1998, p. 57. Translated from French.

²¹ See KIENHOLZ *et al.*, 1984, as well as IVES and MESSERLI, 1989.

²² See FORSYTH, 1998, p. 109 and 112.

²³ Translated from French.

As a note, he adds that the botanist J.F. Royle²⁴ refers to these particular characteristics of the Himalayas as one of the difficulties in defining the altitudinal vegetation belts precisely. He quotes Royle:

A further difficulty is also produced by the great difference in the vegetation of the northern and southern faces of the very same range or mountain, so that frequently a straight line running along the summit of the ridge may be seen dividing the luxuriant, arboreus and shrubby vegetation of the northern face from the brown, barren, or grassy covering of the southern slope. This difference may be ascribed in part to the greater depth of the soil on the northern face; but chiefly, I conceive, to the less direct influence of the solar rays on this than on the southern side. [*Ibid.*]

In 1880, Oldfield made exactly the same remarks. The naked aspect of certain Nepalese slopes, which quite classically comes from an adret/ubac opposition, does not therefore necessarily result in the recent untimely deforestation associated with demographic growth, as certain clichés regarding deep-rooted legends may imply.

Hoffmeister also argues that while the Tarai is occupied by a dense forest, Kathmandu's perimeter is treeless and cultivated on an intensive scale.²⁵

He then depicts Chitpoor and the surrounding area of the Kaulia pass (in the mountains north-west of Kathmandu):

Here agriculture has, on every side, taken complete possession of the land to the extermination of all wood; even to a great height, on the Kaulia pass, we found capital soil, everywhere laid out in terraces: the whole western side of the chain of hills of Darumtalla is richly supplied with water, springs and bubbling brooks abounding in every part, though the absence of trees might lead one at first sight to suppose the contrary [...]. [P. 236.] The terracing is here carried out even upon chasms and deep ravines; in many places, the terraces are three times as high as they are broad [...]. [P. 239]

He finally points out, very informatively, that the only fuel used in the villages he passed through is dried dung:

Considerable quantities of copper and iron are found here, and I observed slags lying in many places. It is a curious fact that cow-dung is here used as fuel for smelting the ore, although there is no lack of wood for that purpose. [P. 218]

²⁴ ROYLE, 1839.

²⁵ See chapter IX, "Agriculture in the Himalayas: a Historical Sketch" (P. Dollfus, M. Lecomte-Tilouine, O. Aubriot).

[In Baloo Tadi he describes:] a potter's oven standing in the open air, in which water-jars, formed of a beautiful micaceous clay, were undergoing the process of baking, over a fire fed with the favourite fuel of Nepal: cow-dung [...].²⁶ [P. 204.]

These remarks, made in 1845, force us to reconsider the interpretation of data set out in the "Theory of Himalayan Environmental Degradation" (see Frame 1).

In fact, several studies on deforestation in Sichuan and Yunnan,²⁷ in Nepal in general²⁸ and particularly in Khumbu²⁹ –which rely on texts, on the comparison of photographs as well as, in the Byers case, on pollen analyses and carbon 14 dating– show that felling trees which has been decried since 1970 makes up part of long secular cycles of deforestation and afforestation.

– It also turns out that the use and management of milieux can only be studied over a minimum cycle of one year, in the course of which nature time and man's activities coincide and give meaning to observations. Furthermore, time and space in the Himalayas can only be appreciated within the scope of the local societies' perceptions and representations. For example, for the Nepalese, the year is characterised by the opposition between a "descending" season and a "rising" season³⁰ that is portrayed in social, religious and farming activities. The "descending" season that covers the four months of the monsoon, corresponds to an ill-fated, sombre, period of catastrophes and misfortunes during which demons get the better of the divinities protecting the territory. It is characterised by intense farming activity as well as by illness among men and cattle. In the natural environment, it is marked by considerable erosion. Specific rites are carried out to ward off ill fortune. Afterwards, the order of things is re-established in space and in minds during the "rising" season. This is associated with a propitious period and augurs well. Demons are expelled from the territory that men, with the help of protecting divinities, appropriate once more. Work begins on restoring land: rebuilding terraces, irrigation canals and paths,

²⁶ Dry dung is still used today by potters as it allows slow combustion which is more appropriate than wood for curing clay. Therefore there is not always a correlation between its use and the availability of wood.

²⁷ MESSERLI and IVES, 1984; IVES, 1985.

²⁸ MAHAT *et al.*, 1986-1987.

²⁹ BYERS, 1986, 1987.

³⁰ See SAGANT, 1976. He adopts this image for the Limbu in Eastern Nepal, but it is largely applicable to other populations in Nepal, whether Indo-Nepalese or Tibeto-Burman.

repairing bridges. This cyclic maintenance is necessary for the proper working of society: "Each cycle represents evolution from order to disorder and as far as chaos, before regeneration that will mark the beginning of a new cycle."³¹ Observing only the damage caused by the monsoon would only be to perceive one side of the workings of the Nepalese systems. No account would be taken of the constant human activity of restoring these naturally unstable environments.³²

– The referent is also misleading if it is not local. This is the case when the poverty index is based on the gross national product that excludes any subsistence economy which prevails in the Himalayan Mountains, or when, by evoking strong demographic pressure on unstable milieux, one forgets that their maintenance depends on considerable manpower and that large families also make up a risk-limiting strategy.³³ The question may be raised as to whether we are not in the presence here of a reference model crisis rather than an environmental crisis. And we may concur –without necessarily underestimating real problems that appear to be more political, economic and social than environmental, in as much as they have been defined up to now– with what Joël Bonnemaison wrote on the "Tanna people": "Abundance on one side, shortage on the other side, the contrast is great between the riches of the Tanna man in his traditional environment and his poverty, were we to situate him in the context of the external economy and of its market property."³⁴

In a word, there is no lack of presuppositions and preconceived ideas regarding the Himalayan regions. We will not cover all these themes here, but they will underlie several texts.

Need for a spatial, temporal and cultural context

While acknowledging this, our aim in this book has therefore been to demonstrate the great complexity in the Himalayan reality, the diversity of situations, to place our observations back in their context, to provide knowledge for understanding what we see in order to be able to interpret the on-going changes, and to formulate in a different manner certain

³¹ GABORIEAU, 1982. Translated from French.

³² See SMADJA, 2000.

³³ FRICKE, 1994; THOMPSON, 1998, etc.

³⁴ BONNEMAISON, 1997, p. 59.

environmental issues. No important problems regarding air and water pollution in towns nor risks linked to large-scale constructions such as dams will be raised here. We will only address rural mountain populations' relationships to their milieu (we have excluded, de facto, the Indo-Gangetic Tarai plain) that our studies have been dealing with for numerous years and which are called into question in the "Theory of Himalayan Environmental Degradation". Knowledge here is based on exchanges between researchers in different disciplines, on the analysis of archives and on significant fieldwork.

Apprehending issues related to man's environment and societies in the Himalayas has led us to use the landscape as a means of analysis, and consequently to put together a multidisciplinary team to interpret it.³⁵

Landscape as an approach to environmental issues

The landscape has been a driving force in environmental policies in the Himalayas, but it has been used only for what it shows and considered out of any context. Therefore it seemed appropriate for us to study the landscape, yet in a different way. We suppose that it is misleading, and does not simply reflect society's practices, but that its analysis provides large amounts of information on society and its relationships with milieux.³⁶ It acquires its full value in an integrated study comparing the many ways a country is seen, when possible on different time scales, in order to acknowledge its diversity as well as its fixity or change.

Thus, landscape, a polysemous term if ever there was one, is considered here as the product, the result, at a given time, of the use of space and resource management by a population. It depends on natural features, on representations that society has of it, on its cultural and social values, its

³⁵ See JOLLIVET ed., 1992; LEGAY, 1999.

³⁶ "[The landscape is] the result of a multiplicity of acts [...]. In its representations as in its material elements, landscape is firstly the product of practice, of daily action, of a practice exerted on the physical world, between the simple touching up and integral artefact [...]. Landscape, like a series of clues, says a great deal about the society which produces it. Not without bias: parts are hidden; misleading polysemant clues refer to different indices; the "message is scrambled", partly because of remanence, many traces are dead, come from past movements. Through all these angles, landscape is not a reflection [...]. It is what it is: what is sufficient to [...] consider it as the work of men and of natural forces. And it is revealing, to those who know how to look at it" (BRUNET *et al.*, 1992, p. 338-339). Translated from French.

political, economic and technical history, and on its needs. It is "a memory, a palimpsest, but also a scene where practices take place in real time".³⁷ In this meaning, it is used as the visual expression of a territory or at least part of a territory, and as the "place for interpreting the process of building up and organising knowledge of the territory".³⁸ Through the landscape, we attempt to access some knowledge of the territory and, consequently, to assess environmental issues better.

Varied knowledge to deal with landscape

If landscape has been a means of analysing and gaining knowledge, it has also favoured interdisciplinary work. Indeed, the intimate link that exists in this region of the world between populations (their lifestyle, their practices, their religious rituals) and nature has implied a close association between teams working on milieux and those dealing with societies.

Interdisciplinarity has been used at several levels. It has sometimes simply been communication or sometimes sharing. It has been effective when fields have been studied in common and, in all cases, during meetings between researchers from different disciplines working on the same subject. This has helped us to understand each other's approaches. Interdisciplinarity is expressed in this book through texts drafted collectively or, for those written individually, by taking into account collective discussions. According to their discipline, their training and their experience, researchers have dealt differently with Himalayan landscapes, but each in their own way casts new light on environmental issues. For example, the expression *hāvā pānī*, used by the Nepalese to designate their day-to-day environment and which means "the wind and rain", takes on all its meaning upon reading contributions made by Marie Lecomte-Tilouine (Chapter V) and by Olivier Dollfus and Monique Fort (Chapter III). The bringing together of students and statutory researchers, of French and Nepalese contributors, of the many people involved from various disciplines with the rare opportunity of participating in a common project, provides a certain heterogeneity in assessing processes and in their writing. We hope that this "reverse side" of interdisciplinarity will not interfere with the reading of this book, but on the contrary will bear witness to the wealth of the different expressions necessary in this type of undertaking.

³⁷ DEFFONTAINES, 1998. Translated from French.

³⁸ BLANC-PAMARD and QUINTY-BOURGEOIS, 1999, p. 13. Translated from French.

A large number of competences have therefore been called upon in this work. However, as the objectives of the forester are not those of the agronomist, geomorphologist or anthropologist, it has been agreed that in the different approaches, neither man nor the data from his milieu should be overshadowed, and no determinism be imposed *a priori*. To understand the landscapes and their changes, only certain contributions from these disciplines were necessary. This means that whole sections of research do not figure in this book. Man has remained at the centre of our preoccupations, and the objects studied have not only been ecological, geomorphologic, natural, "things in themselves", but resources, assets, constraints, risks... "always implying a double reference to the 'in itself' of nature and the 'for itself of humanity'".³⁹ Pastures, forests, trees, water are therefore considered from an environmental point of view, i.e. as "socially invested natural objects".⁴⁰ A sentence from Jack Westoby sums up the tone of this work: "Forestry is not about trees, it is about people. And it is about trees only in so far as trees can serve the needs of the people."⁴¹

This approach does not come without consequences, as it is therefore the very definition of resource and the way we look at the research subject which is at hand. One example at the heart of our work is, in this respect, very enlightening. Indeed, while some observers, experts or scientists attribute virtues only to the forest, considering it the sole energy resource to supply wood and fodder, and consequently regarding reforestation as the unique remedy for all evils, many villagers themselves mark out trees to fulfil these functions. And, as a matter of fact, in sectors cultivated near farms, the planting or conservation of trees –their production replacing what came from forests in the past– is one of the main changes to occur in agrarian systems. It has led to one of the major changes in the Himalayan landscapes, and more particularly Nepalese landscapes, in the course of the last decades. The initiative for this came from villagers, even if, for several years now, incentives have been led to this effect by the government. This fact refers us to the complementarity between indigenous knowledge and

³⁹ See BERQUE, 1990. Translated from French.

⁴⁰ See Bernard PICON, lecture for the CNRS workshop "Environment, Life and Societies" programme: "What nature do we want? What nature will we have?" 12th -14th November 2001, Lille (France). Translated from French.

⁴¹ Jack Westoby is a forester, he is quoted by Messerschmidt (1990, p. 6) in a text entitled "What is a Tree?".

scientific knowledge,⁴² and to the necessity of research to be not only interdisciplinary but to also fully take into account local knowledge (Figure 2). It also refers us to the choice of the scale of work, between a global scale covering the experts' scope often detached from populations' needs, and a local scale which helps to provide knowledge while incorporating that of village communities. Furthermore, shifting from forest to tree does not amount to a simple change in scale: the focal distance is not the same and the results obtained are different. These few elements for consideration touch upon problems of micro-history⁴³ and local development. And it appears that "sustainable development", the main purpose in programmes related to Man's and societies' environment,⁴⁴ closely depends on local development that integrates societies' projects and needs.⁴⁵ Therefore in the course of this work we have varied the observation scales when possible, from the Himalayan range to the country, to the region and to local examples, though the local scale has always been our priority.⁴⁶ In this framework, the toponym or place name –providing physical, historical, socio-economic, religious data and access to local populations' knowledge on their territory and their landscape– constitutes a basic unit that we have used to study the various fields of research presented in this book.

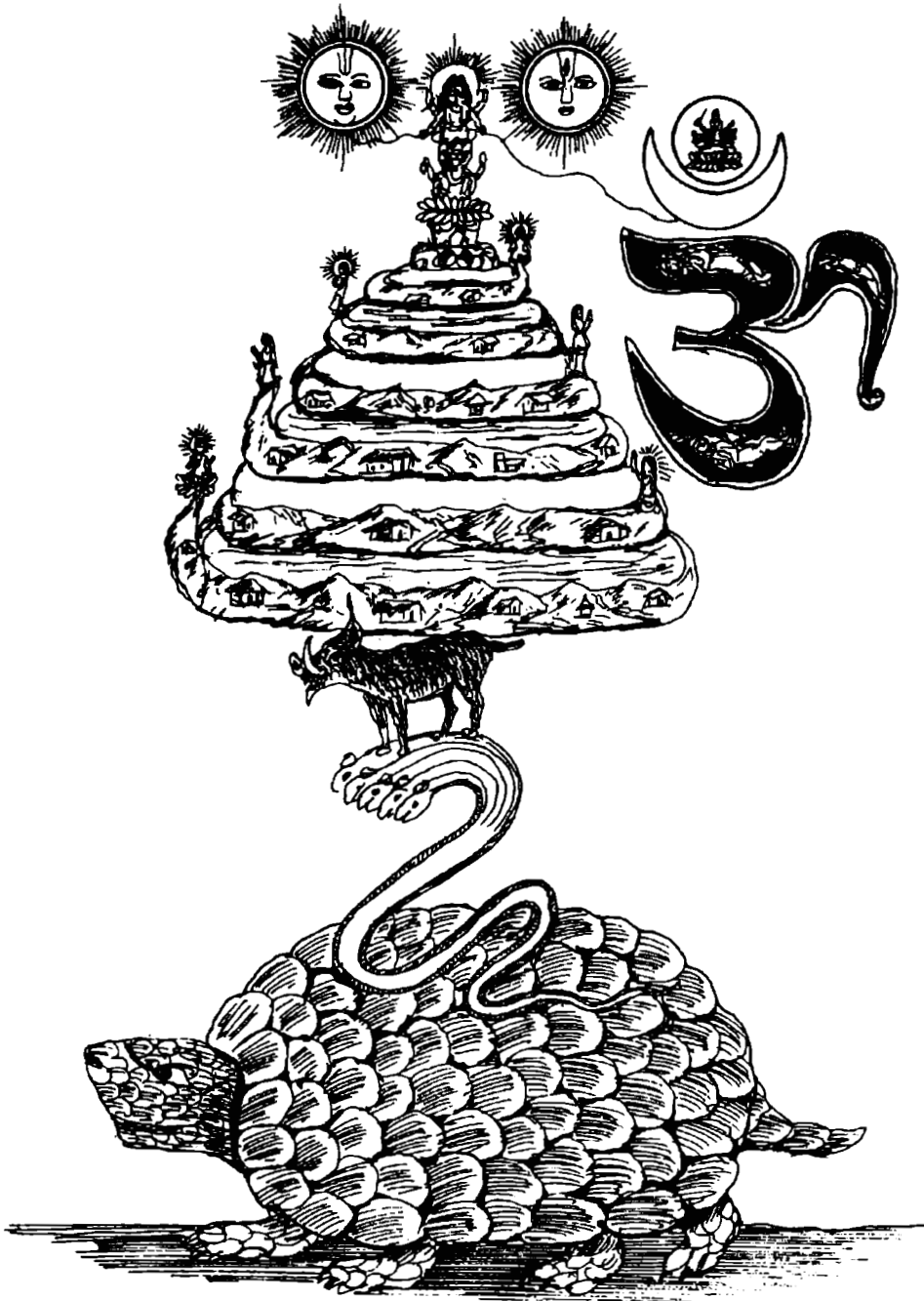
⁴² See STENGERS, 2000, p. 58 on this subject.

⁴³ "The micro-historian approach [...] in principle supposes that the choice of a particular scale of observation produces effects of knowledge and that it may be put to the service of knowledge strategies. Adjusting the lens focus not only increases (or reduces) the size of the object in the viewer, but changes its shape and texture. Or, using another reference system, playing with representation scales in cartography does not come down to representing a constant reality any bigger or smaller, but to transforming the content of the representation (i.e. the choice of what is representable) " (REVEL, 1996, p. 19). Translated from French. Also on this subject, see the other texts from the book *Jeux d'échelles* edited by the same author and reflections on the matter by GARCIA, 2000.

⁴⁴ At the Rio conference in 1992, Chapter 13 of the "Agenda 21", intended as an action plan for the XXIst century, was entitled "Managing fragile ecosystems: sustainable development in mountains".

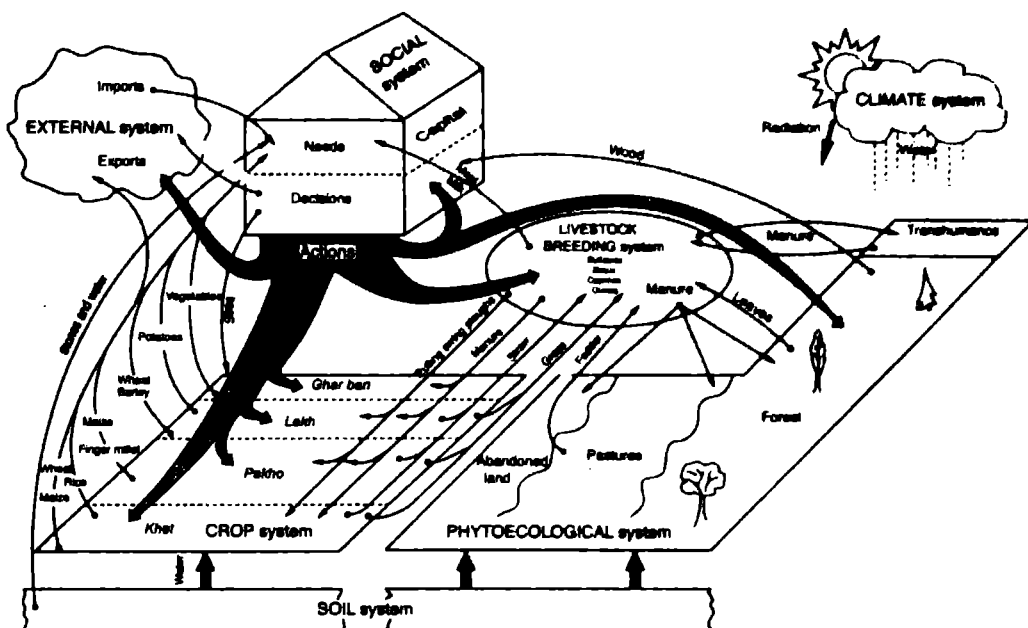
⁴⁵ See DEFFONTAINES and PRO'HOMME, 2001.

⁴⁶ See also P. CLAVAL, 1999, on the relevance of local studies and of the monograph.



a. One of the ways the Nepalese represent the world, in PANDAY R.K., 1995.

The tortoise carries the eel which carries the wild boar (it symbolises Varaha, one of Vishnu's Avatar) which itself carries the world, i.e. man and his environment. When the tortoise or the eel shift slightly, they provoke small tremors, when they move more violently or the wild boar tips the world from one of its horns to the other large earthquakes occur (SLUSSER, 1982; LECOMTE-TILOUINE, 1993). This representation shows that Himalayan societies are conscious of evolving in a precariously balanced environment, an aspect which is not always, and far from being taken into account in the modelisations of their way of life.



b. Diagram of the agrarian system in Salme, in HOUDARD, 1993. © INRA-SAD.
Text translated from the French.

For a better understanding of the relationship between societies and their environment, the two interpretations of the same world must be confronted and taken into consideration.

Figure 2 a and b

The different representations of the same world

J. Smadja

A variety of sites, fieldwork, archive analysis

Today still, systematic reviews of Himalayan environments are rare and only cover certain disciplines, with just scattered monographs available. We know so little about these milieux that we are barely capable of defining them. Therefore, we have first of all started with a thorough review of knowledge, a stage that seemed essential to us in furthering work on this region of the world, and we have tried to set the basis for the acquisition of new knowledge. With this end in mind, the very large amount of fieldwork carried out in Nepal (Figure 3) and in Ladakh proved to be of great help. With the exception of the village of Masyam which was chosen specifically for this project –and the study of which is presented at the end of this book, as it illustrates our approach particularly well–, other fieldwork corresponds to what researchers involved in the programme were already working on. The texts concerning Ladakh, which are very few since only two researchers have carried out investigations there, provide a counterpoint representative

of the north side of the mountain range. If the milieux are different here from those chosen for Nepal, in low and middle mountains, there is no lack of similarities and therefore this allows for comparisons.

Our pursuit was also to look for snippets of history to give meaning to present-day observations, to avoid taking as innovative simple adjustments or adaptations, as well as to assess long and short times of nature and those of Man. However, contrary to the history of the dynasties which is well documented, historical accounts related to milieux are rare, embedded in archives of extremely varied nature and quality and often to be found when reading between the lines. The sources used in this book were either unpublished or had hardly been used for the information they concealed on milieux. Information contributed by foreign explorers and scientists over previous centuries was collected in the course of long investigations, mainly in the London libraries. Most of the other documents were gathered in the field or in Nepalese archives grouped together in Kathmandu. This especially involves regulations established over the centuries –either by administrative authorities, or by landowners– that provide indications on the state and management of land and resources. It also involves some religious texts that mention rituals in which certain cereals are used. Of a very intermittent nature, historical data are difficult to exploit and always have to be scrutinized. The historical work on earthquakes carried out by Maheś Raj Pant,⁴⁷ illustrates the difficulty in using Nepalese materials without getting lost in the different transcriptions, or in the maze of the numerous calendars and their conversions. However, historical data cross-checking enables notable leaps forward in acquiring knowledge on changes in Himalayan environments. Furthermore, by taking into account what has preceded, one will understand to what extent observations carried out even at an interval of several years take on all their importance. Therefore we have given priority to diachronic studies when possible.

Given the task we have set for ourselves and the competences available, it has not been possible to cover some important fields of research. The study of land tenure issues, for example, with respect to the use of lands and resource management remain to be undertaken in their entirety. It is supposed that it might shed light on many points for analysing landscapes. It is one of the themes to be developed in the years to come.

⁴⁷ See Frame 7 in Chapter III.

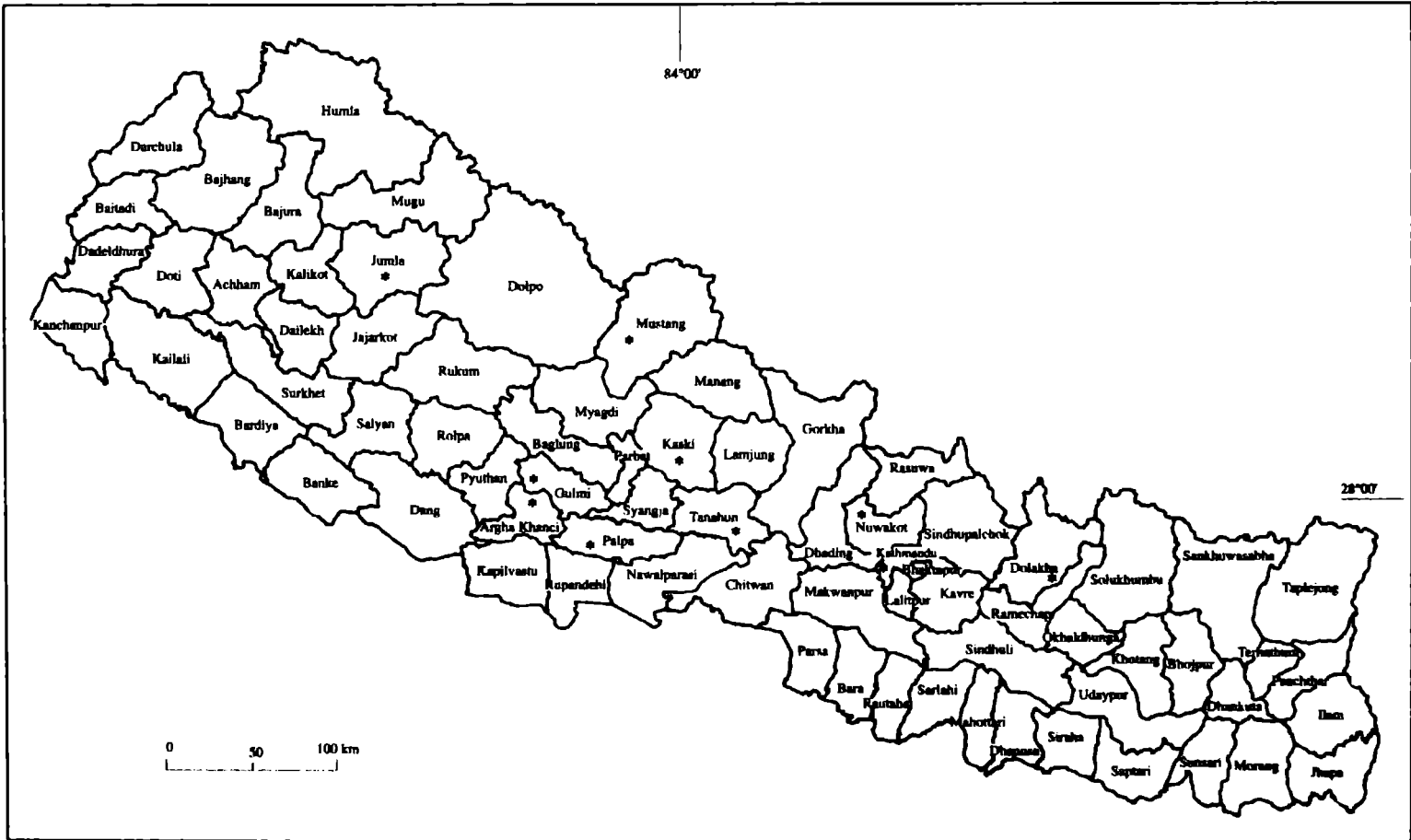


Figure 3
Districts in Nepal and fields of research (*)

Structure of the book

A preliminary historical detour to demonstrate that Nepal remained an "unknown kingdom" until the 1950s (Joëlle Smadja) helps to assess the extent of research yet to be done and how it must be approached with caution.

Unstable and often densely populated milieux

The aim of the first part is to describe, name and define landscapes, examine some natural elements likely to structure them and some demographic parameters capable of shedding light on their diversity or their evolution, in a word, to proceed with "setting up pictures".

Two texts, one on Nepal (Joëlle Smadja) and the other on Ladakh (Pascale Dollfus and Valérie Labbal), present a typology of geographic units and landscapes, from a regional scale to that of a parcel of land. The name of these units, collected by all participants in the programme, are indexed, defined and discussed. In Nepal, a great terminological diversity translates the variety of environments and populations. But the multiplicity of terms and definitions for the same units, whether it be from Nepalese or foreign scientific texts, or whether it involves local expressions, also reveals great inaccuracy in the vocabulary used and a very approximate state of knowledge. In comparison with Nepal, Ladakh's great climatic, biogeographic, and also ethnic homogeneity may explain the few landscape units recorded and their stability in the whole of the region. Several terms, borrowed from Tibetan, are common to Ladakhi and to certain Tibeto-Burman populations in Nepal such as the Tamangs.

Olivier Dollfus and Monique Fort then highlight the physical data, structuring elements, the "invariants" of the environments that provide the framework in which human activities take place. This involves assets and constraints, as well as risks that influence practices. Himalayan societies are confronted, in the use of their environments, with instability due to the uprising mountain range, with a subtropical climate of a very contrasted continental character, with an altitudinal bioclimatic belt that plays a role in land use, with contrasts between mountainsides that are largely responsible for the availability of water as well as for the distribution of settlement and cultures. However important they may be, these parameters only partially contribute to understanding landscapes. We do not consider them determinant *in fine*, since a diversity of landscapes is observed in similar

bioclimatic conditions. One of the preoccupations that emerges in all subsequent texts was to examine how populations have integrated and appropriated these particularities in order to use land and manage resources.

From the examination of population densities on the Himalayan arc scale carried out by Philippe Ramirez, it appears that they are low everywhere above 3,000 metres, but on the contrary, situations vary greatly below this altitude and even below 1,000 metres. In entirely rural regions of Central Nepal that have been the subject of many of our observations, population density is particularly high and even more so when calculated per cultivated square kilometre: it is one of the highest in the world. Emigration has also been important here for centuries. This may explain a shortage in labour available for farm work and eventually a lesser shaping of slopes into terraces. One surprising point highlighted by this study is the relationship, in Western Nepal, between the high-status Indo-Nepalese and animal husbandry, since one more frequently associates these populations with rice farming, which they supposedly introduced into the rest of the country at the same time as irrigated terrace farming. Lastly, nowadays demography is on the rise more in the Tarai plain than in middle mountains and, in a few years time, the Nepalese population will mainly be a lowland population. It will therefore be necessary to reconsider issues of demographic pressure on environments.

Perceptions and representations of environments

Once these framework elements have been set up, using several examples, we examine in the second part how environmental data is combined with "the will" of populations to create territories and to produce landscapes. For the populations that built the landscape, each element in it, from the ridge to the river and its confluence, to the footpath, carries a meaning (that is lost at first glance) as well as special, heavily significant values in the way of implementing and using nature and its resources.

In the first text in this second part, Marie Lecomte-Tilouine demonstrates how the Nepalese landscape makes up a real exegesis of the country, and how its knowledge crystallises the identity of communities and allows the deep-rooted power of the group over the territory. The religious perception of the country lends shape to the peasant world. The divinities shape it, destroy it and manifest themselves here. As for men, they do not go in for any visual art activity, nor do they express any aesthetic appreciation regarding the landscape which surrounds them. However, they select certain

natural sites, separating them from the rest of the world and decipher divine signs that appear to them in nature.

Since one way of appropriating spaces is by naming them, their toponymy is examined in two other texts in order to understand what populations recognise and select as well as the way space and milieu, having become territories, are perceived and therefore experienced.

The reading of the territory and landscape of the Tamangs from Salme that relies on a figurative cartography of toponyms (Joëlle Smadja) reveals a space with numerous risks that both matches and differs from the one that can be identified by simply taking into account physical data on the slope. In addition to the contrast between the forest environment –rarely named and feared– and the farm environment carefully arranged where place names figure in large numbers, it appears that populations have recorded physical phenomena that have occurred on their mountainside. They fear and revere easily angered ophidian divinities believed to dwell in unstable sectors and to provoke landslides if trees are felled or rocks moved in their place of abode. The study of toponyms also provides information on resources selected by villagers on the most sought-after plant species as well as on those now extinct. Furthermore, the origin and identity of different groups of population are recorded in the territory. Founding sites help retrace the history of the occupation of the slope. Place names and "geosymbols" testify to the forever continual moves of this population that has settled today.

In two oases in Ladakh studied by Pascale Dollfus and Valérie Labbal, the semantic analysis of toponyms related to pastured and cultivated spaces underlines the importance the Ladakhis attribute to what is visible, to what the eye perceives, as opposed to the non-visible that stems from history and local beliefs. It also reveals a utilitarian, pragmatic reading of the territory: mountains playing the role of "sun markers", caves perceived as "shelters", valleys named according to the resources they offer. Contrary to oronyms that are as numerous as varied, hydronyms are few and far between. Curiously enough, religion, which nevertheless impregnates the slightest day-to-day actions, hardly appears in toponymy, with the notable exception of the names of monasteries, hermitages and Buddhist structures. This situation is diametrically opposed to what prevails in high places supposedly revealed by Tantric masters and sanctified by the coming of great meditators where the divine truly fits in with toponymy as with the landscape.

Finally, in a text focusing on "sharing territory between Christians and Hindus", Lucile Viroulaud explains how in a Magar village, a group who had recently converted to Christianity, set itself up using representations that the Magars have of their environment. She also explains how its presence led to a spatial division of the territory between the two religious communities. Here we consider the territory as the "geographic foundation of identity" as characterised by Joël Bonnemaïson (1997).

Historical data on land use and resource management

In order to understand changes observed today, the third part tackles the large stages in the evolution of landscapes according to population movements, events, law and discourse. Emphasis is put on the part the different actors play in decision-making regarding land use and natural resource management.

For centuries now, a large part of Himalayan landscapes have been shaped by farmers. Archives examined up to the present day have barely provided a precise history of farming practices, but they give information on the introduction of different cultivated species and varieties that have in turn and in their own way contributed to the changing landscapes. Hence the point of the text, "Agriculture in the Himalayas: a Historical Sketch" written by Pascale Dollfus, Marie Lecomte-Tilouine and Olivia Aubriot, which is a long-term contribution compiling data on Ladakh, Nepal and an overview of the Himalayas. In order to deal with the historical period, priority has been given to two fields: the Indus valley in Ladakh and the Kathmandu Valley in Nepal. Using sometimes unpublished documents, the authors present different stages in the history of agriculture –especially the introduction of maize and of the potato– and weigh up the consequences of their adoption. Parallel to this, they go back over the abandon of certain crops such as dry rice and the decline of cereals such as buckwheat and millet. Special attention is paid to myths surrounding the introduction of new cultures or techniques.

According to Nepalese administrative documents dating from the XVIIIth and XIXth centuries analysed by Philippe Ramirez, it appears that soil erosion especially in paddy fields, the felling of certain trees, as well as gathering wood from forests were already a preoccupation and were the subject of policies that we would today describe as environmental: many tree species were recognised as a form of wealth and were protected. Moreover, several texts testify that at the time leaders dreaming of a "densely populated

and irrigated Nepal" encouraged populations to increase cultivated surfaces. Any abandoned uncultivated land was subject to hefty fines, and even confiscated. The author thus highlights the role of the Nepalese State in the transformation of landscapes.

Using "title deeds" dating back to the XVIIIth century and recorded among village communities in eastern Nepal, Bruno Muller, in his contribution "The Khimti Wilderness ...", analyses the rules and conflicts regarding pasture and forest management. He shows that prior to 1950, regulations, often requested by the populations themselves, fixed the man-to-forest and man-to-pasture relationship and imposed limits on the freedom of their use. It appears that the actual local and community measures relative to pasture and forest management that could be interpreted as an innovation, in fact only corresponded to restoring powers to the populations after forty years or so of State authoritarianism.

Finally, Blandine Ripert, Isabelle Sacareau, Thierry Boisseaux and Stéphanie Tawa Lama recount the different stages in resource management and environmental policies since 1950: the opening of Nepal to a new international context, the arrival of tourists on the territory, the first steps towards protecting nature with the creation of parks and nature reserves as well as the increase in the number of NGOs involved in environmental management and protection. The authors show particular interest in different conceptions of the environment, in the different discourses –those of the rural (foresters in particular) or urban elite, of new political parties, of scientists, or those of defenders of "sustainable development" at international level– as well as in the way these discourses are relayed through schools, radio, NGOs, conferences, the press and so on. It emerges that cloaked in great legitimacy, environmental protection allows new powers to express themselves: ancient religious powers are challenged while the young seize local power; the government may benefit from international funding, intensify its control and move whole populations with the creation of national parks, etc.

Current local practices, between choice and constraint

By taking into account framework elements, perceptions and environment representations along with historical factors in producing landscapes, this last part demonstrates how current local practices find themselves confronted with different patterns. Changes occur everywhere. Although some are endured, others are initiated by villagers, and they do not all live up

to the same expectations. There is a clash between "former" and "modern" discourses and also those of the governing and governed bodies. New causes of conflict appear. In villages, groups take in hand environmental issues which then crystallise or reveal conflicts.

Two texts deal with resource management on the periphery of and within national parks. The one by Satya Shrestha focuses on conflicting resource management in the area surrounding Rara national park in Northwest Nepal, a park very rarely visited by tourists. She explains how the creation of the park and the exclusion of populations from the protected area have in fact contributed to deforestation and an important overexploitation of land on its perimeter that has therefore deteriorated, to a decline in herd numbers and, finally, to an impoverished population. The text by Isabelle Sacareau deals with Modi Khola, the prime trekking region in Nepal. She shows that ACAP, the Annapurna Conservation Area Project, a Nepalese NGO created in 1986 generously financed by international nature protection organisations, has demonstrated, for the first time in Nepal, a real willingness to run a "sustainable development" experiment based on participatory management of natural resources and on environmental protection by local societies. It turns out that ACAP's regulations, by imposing a certain number of constraints on the population, paradoxically lead them to transform the landscapes, whereas the new regulating scope within which this action lies is based on more conservatory discourses. The aesthetic aspect of landscapes figures clearly in ACAP's environmental preoccupations, but ambiguity lies in the fact that where wood cutting is forbidden, cement, breeze-blocks and corrugated iron are cropping up. This raises the question of which landscape has to be protected.

The following contributions do not deal with national parks but show the effects of recent changes in resource management.

Blandine Ripert depicts how, following a series of farming transformations, the organisation of the Salme slope in the Nepalese middle mountains, has changed, resulting in a division and privatisation of space, while new committees have been set up to ensure collective management of the forests. For several years now the elders' empiric knowledge has been challenged, so that it is the young fresh out of school who legislate in matters of environment and resource management. Thanks to their reading and writing skills, they have achieved a new power that they impose on everyone. One of their dreams, of which they hardly weigh the consequences, is to include their territory within a park's perimeter.

In presenting the case of the Balamis –woodcutters in the Kathmandu Valley today deprived of forests– Gérard Toffin raises the problem of a group of specialised population for whom the progressive abandon of the cutting and selling of wood, an activity that has not really been replaced, has aggravated an already difficult previous situation. This group, strongly structured around the forest, whether it be in its economic activities or in its religious beliefs, today finds itself destabilised and is struggling to find a means of readjusting.

Finally, to conclude this book, research carried out in the village of Masyam, set out by Tristan Bruslé, Monique Fort and Joëlle Smadja, confirms a large number of issues addressed in the previous texts. Comparisons between photographs dating from the beginning of the XXth century and those taken in 1997, as well as fieldwork, show that changes occurring over the last seventy years have not caused environmental degradation, despite a large demographic increase. The planting or conservation of trees in fields –forming a real bocage– to supplant forest resources is indeed the major element in resource management and in landscape transformation over the last decades. Certain changes have been the impetus in innovations that, in turn, have had an effect on environments. This is the case, for example, with the recent construction of a road. In enabling the collection and sale of milk, it has led to an increase in dairy farming and consequently to a rise in the number of fodder trees on the edge of fields that contributes to a better stability of slopes, etc. However, the poorest populations have no part in this movement. They find themselves more and more marginalized and their marginalization is then aggravated by the measures taken in terms of environmental protection.

PRELIMINARY CHAPTER

Snippets of Knowledge Stolen from an Impenetrable Country

Joëlle Smadja

An "unknown kingdom": the expression has echoed over centuries like a leitmotiv in writings about Nepal. Indeed, on its opening to the outside world in 1951, like a large part of the Himalayan regions, the country was still unexplored: all or nearly all of it remained to be discovered, and in many areas today we still have a very sketchy knowledge of it.

If mention of Nepal goes back a long time in Indian documents, it only appears of late in writings from other countries or on maps. From the Vth to the VIIth century, the kingdom of Nepal that was reduced to the Kathmandu Valley,¹ as well as the series of neighbouring territories, was feared by Chinese travellers. They considered them a kind of Himalayan cul-de-sac accessible only from the Indian lowlands and they preferred to circumnavigate them rather than have to cross them.² Faxian, at the turn of the Vth century, having crossed the Himalayas from the west on his way from China to India, brought back reports of a terrifying vision and thus returned to China by the sea so as not to have to yet again undergo such an ordeal. Xuanzang, in 629, made a great detour via the Gobi desert, Tashkent, Balkh and the Khaibar pass, rather than face the perils of a direct route to India. It was only in the VIIth century that real exchanges were set up between the Kathmandu Valley and China, while Nepal had to wait until the XVIIth century to figure on Western maps. It seems to have been totally unknown to Europeans prior to 1625.³ The first Westerners to have been there were Jesuit missionaries, fathers d'Orville and Grueber.

¹ Nepal was only united at the end of the Gorkha conquest, in 1769. Up to then, the State had been made up of a multitude of small kingdoms, among which only the Kathmandu Valley was called Nepal.

² See LANDON, 1928.

³ See BOULNOIS, 1973.

Table 1
Historical References

| | Nepal | | India |
|-----------------------|-----------------------------------|---------------|---|
| 1600 | | | Formation of Hindu religion and thought |
| 600 | Foundation of Buddhism | | |
| 500 | | | |
| 400 | | | Foundation of Jainism |
| 300 | | | 483: death of Buddha |
| 317: Maurya dynasty | | | |
| 200 | Ashoka visited the Nepalese Tarai | | Emperor Ashoka (†226) |
| 100 | | | Invasion of Greeks and barbarians |
| 0 | | | |
| 100 | Licchavi dynasty | | |
| 200 | | | |
| 300 | | | |
| 400 | | | |
| 500 | | | Manadeva 1 st (465-505) |
| 600 | | | Amshuvarman (596-621) |
| 700 | | | Narendra Deva (641-680) |
| ±750: end of Licchavi | | | |
| 800 | | | Pratihara empire in Northern India |
| 900 | | | Pala dynasty in Bengal |
| | The Kathmandu Valley | West | |
| 1000 | Thakuri dynasties | | Beginning of Muslim invasions in North-West India |
| 1100 | | Malla dynasty | Sena dynasty in Bengal (1150) |
| 1200 | First 2 Malla dynasties | | 1186-1204: end of the Muslim conquest of Northern India |
| | | | Delhi Sultanate |

| | Nepal | | India |
|------|---|---|---|
| | The Kathmandu Valley | West | |
| 1300 | The Great Torment | | |
| 1400 | 1382: 3 rd Malla dynasty founded by Jayasthiti | Confederation of the "Twenty-two" and the "Twenty-four" | |
| 1500 | 1482: division of the Valley into 3 kingdoms 1560-1574: Mahendra Malla | Gorkha was founded | 1519: start of the Mughal Empire |
| 1600 | 1641-1674: Pratap Malla | | |
| 1700 | | 1742: Prithvi Narayan ascended to the Gorkha throne | 1764: the British consolidated their power in Northern India |
| | 1768-1769: conquest of the Kathmandu Valley by Prithvi Narayan | | |
| 1800 | Death of Prithvi Narayan (1774) War with Tibet and China 1790-1814: extension to the west 1814-1816: war with the British 1846: the Rana prime ministers took power 1846-1877: Jang Bahadur Rana 1854-1856: war with Tibet | | 1846: the Ladakh kingdom was annexed by Kashmir 1858: Cipayes uprising |
| 1900 | 1901-1929: Chandra Shamsheer Rana 1951: end of the Rana regime; attempts at a parliamentary monarchy 1959-1960: B.P. Koirala's ministry 1962: the Panchayats' system was established 1991: institution of a parliamentary democracy | | 1949: won independence from India, Pakistan was created 1962: Sino-Indian conflict 1965: Indo-Pakistani war 1971: separation of Bangladesh from Pakistan |

In 1662, they took a route linking Hetaura in the Gangetic Tarai plain to Kathmandu, then Kuti, at the Nepal-Tibet border, and Lhasa, but the accounts of their stay in Nepal are succinct.

In the XVIIIth century, for strategic and commercial reasons, Westerners (especially the British who were consolidating their power in Northern India in 1764), but also the Chinese, took a new interest in the Himalayan regions, and in particular in the kingdoms of Nepal and Tibet. More accurate maps of this region of the world were then drawn. Missionaries crossed Nepal, amongst whom there was Father Ippolito Desideri who stayed in the valley in 1721 and Fathers Georgi, Marc and Cassion in the middle of the century, during their journey from Calcutta to Lhasa. They gave some indications of the crops found in the Kathmandu Valley.⁴ In 1733, the "ordinary geographer of the King of France", Jean-Baptiste Bourguignon d'Anville, used the work of lamas dispatched into the Himalayan and Tibetan regions by the Emperor Kang-Li between 1705 and 1717⁵ and established a "*Carte générale du Tibet ou Bhout-tan [...]*".⁶ However, the space for Nepal remained blank. In 1768, following an incursion into Nepalese territory by the British Army, James Rennell drew up a map on which only a small part of the country was represented south-east of Kathmandu. Then a first sketch of the circuit leading from India to the Kathmandu Valley and of the Valley itself was made by the Lieutenant Gerard, an army officer and topographer, who accompanied Captain Kirkpatrick from February to April 1793; distances were evaluated with a watch. On this occasion, Colonel Crawford, also a member of the mission, reported back information on land use in the Kathmandu Valley. Yet, as Mason (1956) reminds us, you only have to look at James Rennell's "Map of Hindustan" published for the first time in 1782 and at the subsequent "Map of the regions situated between Delhi and Candahar", ten years later, to see to what extent Nepal and the Himalayas on the whole were little known at the end of the XVIIIth century. Nothing was yet known of the sources and courses of the main Himalayan rivers or of the position and height of the mountains. Even Rennell, who gleaned his knowledge from Indian

⁴ See Chapter IX, "Agriculture in the Himalayas: a Historical Sketch" (P. Dollfus, M. Lecomte-Tilouine, O. Aubriot).

⁵ See MASON, 1956.

⁶ The whole title here translated from the French is: "General map of Tibet or Bout-tan and Kashgar and Hami countries, drawn up from maps and memories of Jesuits of China and matched with the constant situation of several neighbouring countries. By Sr d'Anville, ordinary geographer of the King", April 1733 (see BOULNOIS, 1973).

informants, thought that the Ganges crossed the Himalayas by an underground passage.

In the XIXth century, the knowledge and cartography of Nepal progressed, but to a limited extent since the country was at the time closed to foreigners. Only the presence of one British resident in Kathmandu was accepted from 1801 onwards and especially from 1816 onwards following the signing of the Sugauli peace treaty between Nepal and British India. This resident, however, was not authorised to explore the country. Observations remained restricted to the Kathmandu Valley and its surroundings or were reported back to residents by informers. In addition, only a single route of access to Kathmandu, the most arduous one, was open. All the other easier ones were forbidden.⁷

As early as 1802, Crawford who, this time, accompanied Captain Knox, the first resident holding a post in Kathmandu, drew up several maps. They still covered the Kathmandu Valley but, more detailed than the previous ones, they supplied some information on the extent of forest cover and farming. The Anglo-Nepalese conflict from 1814-1816 highlighted difficulties in waging war in unknown lands, and so during the campaigns, initial explorations were led by John Anthony Hodgson and James Herbert. They subsequently published, as did Crawford, new maps indispensable for any military operations. In this first half of the XIXth century, the botanist Francis Buchanan Hamilton,⁸ as well as Blaker, a mineralogist and chemist, contributed other precious data regarding the Valley.⁹ From 1830 to 1840, Hodgson and Campbell were to follow. In 1848, Hoffmeister described in detail his journey from the Indian border to Kathmandu and from Kathmandu to Nuwakot,¹⁰ and in 1850 Hooker supplied information on

⁷ In 1848, on his way from Hetaura to Kathmandu, HOFFMEISTER wrote: "This escort [...] accompanied by four large elephants [...] guided us through the intricacies of those confused ranges of hills, and of the rocky paths of those border forests, to all which the kingdom of Nepaul is indebted for its unapproachableness. On this narrow path, we met numbers of heavy-laden bearers, carrying spices, fruit and salt, or large sacks of cotton. This is the only access permitted to the Kingdom of Nepaul from the south-west; a more easy and convenient one does indeed exist, but the government has made it forbidden ground." (p. 214).

⁸ Hamilton stayed in the Valley in 1802-1803, then two years at the Indo-Nepalese border and in 1819, in a book giving a presentation of Nepal, he published a map of the country more detailed than previous ones with help from many local informants as well as from Crawford.

⁹ See note 5.

¹⁰ See the "Introduction" (J. Smadja).

Eastern Nepal. Then in the second half of the century, Oliphant in 1852, Wright in 1877, Oldfield (1880), Elles in 1884, as well as other residents or travellers left their accounts of Nepal. They were all succinct and restricted for the most part to the Valley. Nearly all the rest of the country was yet to be discovered, and the triangulation inaugurated in India by William Lambton in 1800 helped the British in this task. In 1818, Lambton created the Great Trigonometrical Survey that he led until 1823. Between 1823 and 1843, his successor Georges Everest had all the Himalayan range triangulated from the British Indian territory. He was followed in these operations by Waugh, Montgomerie, Walker, Thuillier, etc.¹¹ In 1856, the Survey of India published the first map of Nepal to a scale of one to one million.¹² Data on Nepal was obtained thanks to trigonometrical stations set up on the country's perimeter: in Northern India, in Sikkim and in Kumaon. In 1891, Tanner explained:

The difficulties of this class of survey are pretty equally divided between those inherent to the operation and to unfavourable atmospheric conditions. Cloud, mist, dust-haze, and smoke-haze obscure the distant ranges for, perhaps, nine days out of ten throughout the year, and the observer has to exercise the utmost patience when waiting for the few clear periods during which he can distinguish those remote features which it is his duty to lay down by accurate observation with his instruments. [P. 414.]

In 1863, 52 mountains more than 6,500 metres high had been observed using theodolites¹³ At this period, the main preoccupations were recognising and naming the highest summits. Within the prestigious Royal Geographical Society they were the subject of discussions and virulent debates¹⁴ between Tanner, Walker, Freshfields, Waugh, Tennant, Schlagintweit, Hodgson, etc.¹⁵

Furthermore, owing to the difficulties facing explorers in the Himalayas, notably due to the many trans-border conflicts, and having judged that the studies conducted at a distance had reached their limits,

¹¹ See TANNER, 1891; MARKHAM, 1893; MASON, 1956.

¹² "A comment written on the map underlines the fact that not all the mountainous region has ever been topographically recorded, that the work relies on contradictory and inaccurate information, that a large part of the north-eastern border is no doubt very wrongly represented, etc." (BOULNOIS, 1973). Translated from French.

¹³ See MASON, 1956.

¹⁴ See Chapter 1, "Geographic Units and Landscapes in Nepal. Local Terminologies" (J. Smadja).

¹⁵ See WALKER, 1886 a and b.

Thomas Montgomerie sent spy pundits to these regions from 1865 onwards, thus opening a very Romanesque page in the history of the Survey of India. This page was only to be turned in 1882 (Frame 2). The exact geographic position of all the places where the pundits went was still not known in 1868: Kathmandu, Lhasa, Shigatze...

Frame 2

Pandits Trained by Montgomerie¹

Joëlle Smadja

In 1864 [...] our transfrontier maps were still almost blank. Gilggit, Chilas and Chitral in the north-west were unexplored, Tarkand, although we'd been there, was displaced by about a hundred miles, Central Tibet was barely known, as was the course of the Tsangpo [...]. Chinese Turkestan was experiencing unrest, Tibet was closed and vigilant, the border States in the extreme north and in the north-east were open predators, Nepal was cordoned off by treaty, Bhutan suspicious and Sikkim sulking. And beyond the Hindu Kush Russia was in motion, and the Great Game in Asia was "on". It is the period of Kipling's masterpiece *Kim*, in which every character is true to life.²

It was then that Walker, and above all Montgomerie, undertook to train Indian pandits in order to pursue their explorations. Two of them, Nain Singh and his cousin Mani Singh, received two years' training on how to record itineraries. They were taught to calculate and record distances, to use the sextant and dividers, to recognise and observe the stars, to gauge rough heights by boiling water.

The journeys were extremely risky due not only to the checks carried out on the road, but also to the bandits and highwaymen. Therefore these journeys were made mainly in large convoys. Pandits very often accompanied traders. Though Indian, they had to disguise themselves and hide all their equipment, sextant, dividers, navigational compass... and to hide themselves or to pretend to be doing something else while taking their recordings. In the course of the Ladakh study, Capitan Montgomerie had noted that the Tibetans permanently used a rosary and a prayer mill. So he advised the pandits to take these two objects along with them, primarily because behaving like a Buddhist monk is the best way of passing unsuspected in Tibet, but also and more importantly these ritual instruments, once adapted for this purpose, are very useful for carrying out readings on the way. The pandits had to take readings using the dividers without being seen and had to be left alone to count their steps without being interrupted by others asking questions. Thus, they often walked some distance away from the group aided by the latter and whenever anyone came snooping, they rotated their prayer mill. So supposedly absorbed in their religious meditation were they that they were rarely interrupted. The prayer mill used by the pandits was an ordinary hand mill, but instead of there being a paper with the prayer *Om mani padme hum*

written on it inside, the cylinder contained a piece of paper for recording the positions, the number of steps, etc. The top of the cylinder was left loose enough to allow the paper to be taken out as easily as possible. As for the rosary that normally included 108 beads, this one was made up of 100 beads with one bigger black bead for every ten other beads, these others being red to look like coral. The rosary was slipped into their left sleeve; for every hundred steps a bead was moved along and consequently a big bead corresponded to a thousand steps. Many other subtleties were devised for measuring the latitude and altitude.

So it was that Nain Singh crossed Nepal and Tibet disguised as a lama during his first journey in 1865. Having joined a caravan going to Lhasa he reached this town in January 1866 forever counting and recording his steps and surreptitiously observing the latitude with his sextant. He made the return journey to Manasarowar with the same caravan and crossed the Kumaon. The details that he brought back from this journey allowed Montgomerie to establish a so-called Southern Trade map. Nain Singh himself trained other pandits, such as AK, his cousin, who also nearly always travelled disguised as a Tibetan lama. His travels covered the period 1872 to 1882. His last journey lasted four years. After reaching Lhasa, he went straight across the Chang Tang and arrived at the far north-west of Kansu. Although he had been robbed and beaten by bandits on the way, he came back with his servant and with a complete account of his trek.

All these journeys have remained secret and the names of the men are only known to the Survey of India. Most of them are made up of their initials taking the last letter then the first letter of their name as for example MH for Hari Ram. He was the first to reconnoitre the Everest circuit in 1871, Rinzin Namgyal that of Kangchenjuga, while Kintchup was the first to trace the course of the Tsangpo from Tibet to forty miles within the Indian plain and thus prove its link with the Brahmaputra.

1. This frame was written using texts by MONTGOMERIE, 1868; WOOD, 1915 [1887] and MASON, 1923.

2. MASON, 1956, p. 173.

At the end of these journeys, knowledge had progressed to some extent. But Nepal could still be qualified as an "unknown kingdom", which did not fail to drive to despair the British based on the other side of the border. In 1885, in one of the reports submitted to his peers, Walker regretted:

Thus at the present day there are large areas in Nepal of which less is known than of the many regions in the heart of Africa which have been visited by the agents of the Royal Geographical Society; what is known has been mostly acquired by native explorers sent into the country first by Colonel

Montgomerie and afterwards by Captain Harman, but it is not nearly as much as ought to be known as a region so close to the British frontier [...]. [P. 82.]

Although in 1892 the compilation of various sets of data collected over a century of efforts led to a new map of Nepal being produced to a scale of one to one million, Markham (1893) still wrote:

Further to the east, along the Himalayan chain, the Kingdom of Nepal covers a tract of country about 500 miles long and 100 miles broad, lying between the crests of the mountains and the British frontier. This is still almost a blank upon our maps. Europeans, except a few officers at the capital, are debarred by treaty from entering Nepal, so that the country is very imperfectly known. The passes from Nepal into Tibet have a special interest for us, because the only great army that has invaded India since the commencement of British rule in Bengal marched through one of them –the Kirong pass– and so descended from the valley of the Tsangpo into Nepal. It has never, I believe, been visited by any European. [P. 491]

He pointed out that many parts of Tibet still remained unknown.

Frame 3

Rigours of the Plain Outweigh Those of the Mountains

Joëlle Smadja

In historical descriptions of the dreaded Himalayas, there figures the chaotic and dangerous aspect of the relief, but also, high on the list, the unhealthy nature of the malaria-infested Tarai plain.

In 1767-1768, the British Army in its attempt to help the King of Kathmandu fight against Prithvi Narayan's Gorkha conquest was pushed back by the Gorkha soldiers. They were also decimated by malaria. This was one of the ills that marked Father Giuseppe de Rovato on his journey through Nepal in 1769, as well as all the other travellers that subsequently visited Nepal: "Within the distance of four days' journey from Nepal the road is good in the plains of Hindustan, but in the mountains it is bad, narrow, and dangerous. At the foot of the hills, the country is called "Teriani"; and there the air is very unwholesome from the middle of March to the middle of November; and people in their passage catch a disorder called in the language of that country Aul, which is a putrid fever, and of which the generality of people, who are attacked with it, die in a few days."¹

In 1848, Hoffmeister said of Bechiaco: "[The place] is deserted during the summer, as is indeed the whole surrounding district, on account of its "malaria" which engenders a malignant and fatal kind of fever. Whence does this noxious miasma arise? The soil is dry and stony; far and wide not a marsh is to be seen in this part of the country. May not the rapid and copious evaporation of the many springs

impregnated with oxide of iron, that flow in these deep ravines, be the possible agent in producing these baneful exhalations?" (p. 210). He added as a note: "The Mal Aria region –called Tarai or Tarayani– is a tract of country from twenty to thirty miles in width, between the hills which form the southern boundary of Assam, Bootan, Nepaul [...] and the flats of Hindostan. It is covered with luxuriant vegetation; the exhalations from the numerous springs which have their rise among the neighbouring mountains are confined by the dense forests; the ground during spring is covered with fallen leaves, which are rotted by the first rains of the hot season, and to these, among other causes, has been attributed an atmosphere so unhealthy that no European can encounter it for any length of time with impunity. Its effects were fatal to a large body of British troops in 1772. The natives call it "Ayul", and suppose that it proceeds from the breath of large serpents, which they believe to inhabit the forests of the Himalayas."

In 1925, Bruce and Northey described the Nuwakot Valley as follows: "some 2,000 feet below the Valley of Nepal, [it] is intensely malarious from March to November. [...] The lowlands, owing to the malarious climate, are but thinly peopled, the permanent dwellers therein being races of Nepalese that are not otherwise encountered, bearing such names as Dari, Kumba, and Kuswar. The higher grounds, such as the ridge on which the town stands, being above the malaria zone, are peopled by Nepalese of the ordinary castes, such as Newars, Khas, Magars and Gurungs, Bhotias." [P. 294.]

In 1928, still of Nuwakot, Landon wrote: "the dreaded awal reigns as virulently, though not for so long a period, as in the Tarai. Picturesquely enough, the Nepalese believe that at the close of the great festival of Bhairab the Destroyer in the middle of April, who is therein worshipped in the form of a tiger, the local goddess releases the man-destroying plague upon all who dare to trespass upon the tiger's favourite haunt of the Tarai. The difference of altitude between Nayakot itself and the warm damp valley below it is shown also in the different races that inhabit the two districts. Newars from the Valley are in a majority in Nayakot, while only the immune or semi-immune tribes of the Tarai and the Bhabar –or intermediate zone– can live in the malarious atmosphere of the Trisul Gandak and the Tadi." [Vol. 2, p. 27-28.]

Up until 1950, the insalubrity of the Tarai plain was sustained and used by the Nepalese as a rampart, just as effective if not more so than the Upper Range, against foreign invasions. Imprisonment in this dreaded place also constituted the ultimate punishment for condemned prisoners who perished within several days.²

1. SHORE, 1790, p. 307.

2. See *Regmi Research Collection*, 1864 VS; translated by Mahes Raj Pant.

Thus, at the beginning of the XXth century Nepal was still an unknown country, closed to foreigners. White in 1920 underlined that

travellers were always forced to take the worst routes to get to Kathmandu: "Where 'bad roads' is a national doctrine", he said with irony.¹⁶ In 1928, Northey and Morris wrote that "the whole of this very wonderful mountain country may be described as unknown" (p. 284). However, enrolled in the Gorkha regiments, they were in close contact with the Nepalese Government. Thanks to this, they obtained authorisation to tour Central and Eastern Nepal. They brought back the first visual accounts of these regions.¹⁷ In 1928, Perceval Landon also wrote the following:

The little Valley of Kathmandu, some twelve miles by twelve, and the arduous track that leads up to it from the plains of India are indeed known to some six score Englishmen and to as many other Europeans as one may count on the fingers of two hands. The rest of Nepal – a great State five hundred miles in length and a hundred miles broad – is to this day as completely closed to Western observation and research as when Emperor Asoka in 250 B.C. set up the five great stupas of Patan. [P. VI.]

In 1924, the Prime Minister of Nepal, Chandra Shamsher Jang Bahadur Rana, asked the British Government to draw up a complete map of the kingdom; this was to be finished in 1928. The country, however, remained closed to foreigners until the institution of a parliamentary monarchy in 1951. The first maps from the Survey of India (scale of 1/63 360) that cover the whole of Nepal were only established between 1957 and 1967. They were not, for all that, greatly reliable documents. In 1963, Morris said of them:

¹⁶ P. 247. "Often heard of, it (the Kingdom of Nepal) is one of the native Asian States of which least is known [...]. With the exception of the British Resident and a few European officials who live in the Residency grounds at Kathmandu, the capital, no one is allowed to visit the country without a special permit issued by the Durbar. When the pass or permit has been obtained, visitors are obliged to travel by one particular route and are not allowed to go beyond the Valley of Kathmandu, a tract of country about 15 miles wide by 20 miles long surrounded by high mountains [...]. The road into Nepal for its entire length is purposely kept in a bad state of repair by the Durbar and runs over quite unnecessarily difficult country, the idea being that the worse the road the more difficult it would be for attacking troops to enter the country. On one occasion, when coming up from the plains, I returned to Kathmandu by a fairly good road, turning off near Chitlong and entering the valley close to Patan. The Gurkha "escort", which always accompanies Europeans on any journey in Nepal, had temporarily left me, and, seeing the road, I rode in quite easily before the escort discovered I had left Chitlong [...]. So I found that there was this much good road, at any rate, and I believe there is a good road all the way to the plains of India down the valley of the Baghmutti, but no Europeans are allowed to travel on it." (p. 245).

¹⁷ BRUCE and NORTHEY, 1925; NORTHEY, 1937; NORTHEY and MORRIS, 1974 [1928]. See Chapter XVII, "A Bocage Landscape. Masyam and the Hamlet of Kolang" (T. Bruslé, M. Fort, J. Smadja).

I had a copy of the latest map, but for our purpose it was useless: only the few small towns had been placed with any accuracy and most of the topographical detail was entirely fanciful. Some of the rivers marked on the map did not exist, while others ran in an opposite direction. The few names of villages that were given were often misspelt and nearly always in the wrong place. To add to the general confusion many rivers in Nepal are known by several different names, so that we seldom quite knew where we were. The map gave an excellent picture of the tangled nature of the country, but of this we were already well aware. [P. 74.]

Despite spectacular progress made in the field of cartography in the course of the last decade, since maps to a scale of 1/50,000 and even 1/25,000 are now available, not all the regions are covered, and in the field it still happens that, like Morris in 1963, we have difficulty in knowing where we are and in accurately locating the phenomena observed.

*
* * *

The sole purpose of this Preliminary Chapter is to emphasise how little the country was known at its opening to the outside world. Prior to 1950, save for the Kathmandu Valley, environmental observations were rare and consequently there was no accumulation of information in this field. Such is the substratum on which the state of the environment was diagnosed in the 1970s, a substratum whose inconsistency demonstrated the extent and difficulty of the task yet to be accomplished, as well as the modesty with which it is fitting to undertake it. The few available accounts from past centuries have been thoroughly collected by certain authors of this book and will be disclosed in subsequent chapters. It will therefore no doubt be easier to understand the reason why we had to proceed with a complete review of knowledge, and the point in using photographs of landscapes taken in the centre of the country by Northey and Morris at the turn of the century, thanks to which, upon finding them we decided to conduct a study.¹⁸ This overview also underlines the role played by the British in the discovery of this region of the world and, notably, in the cartography and definition of large units of landscape, as we are to see in what now follows.

¹⁸ See Chapter XVII, "A Bocage Landscape. Masyam and the Hamlet of Kolang" (T. Bruslé, M. Fort, J. Smadja).

PART ONE

***UNSTABLE AND OFTEN DENSELY
POPULATED ENVIRONMENTS***

CHAPTER I

Geographic Units and Landscapes in Nepal Local Terminologies¹

Joëlle Smadja

The classification and definition of geographic units and landscapes in Nepal vary greatly, whether they come from local populations or from Nepalese and foreign scientific texts. With there being no fixed rule, each person adopts his/her own terminology without always defining it, and it is sometimes difficult to know the exact meaning of the words used. Nepalese dictionaries are of no help in this matter. They are recent, the language has not yet been standardised or codified, and all the definitions with regards to the geographic vocabulary have not been specified. As for Nepalese administrative texts (censuses, plans...), they often adopt an Anglo-Saxon terminology and add to the imprecision of the Nepalese vocabulary that of a rough translation of badly defined terms. In the end, translations into other languages, such as French, which borrow terms from everywhere sometimes turn out to be rather surprising. Without claiming to be able to remedy the problem, in this chapter we aim to provide some elements which should lead to more rigorous attempts at classification.

Geographic units and landscapes on a country scale

In his book *Mountains of Asia* (1999), the Nepalese geographer Harka Gurung, like so many before him,² asks the question: "What is a mountain?" And one may add what is a mountain in the Himalayas, the term being used so often without really knowing with regard to which criterion. The Nepalese administration, for example,³ reserves the word "mountain" for

¹ I would like to thank Ram Panday and Pramod Khakurel with whom discussions on the theme have always proved particularly fruitful.

² On this subject see, among others, DEBARBIEUX, 1999, and the work of the International Seminar on mountain research: "Mountain regions: a research subject?", Autrans-Grenoble, 4-7 June 2000.

³ See Statistical Year Book of Nepal, 1991.

spaces that are at an altitude ranging between 8,848 and 4,877 m⁴ and that of "hill" for regions at altitudes of between 4,877 and 610 m!... The fact that the British were the first to map out Nepal and to apply Anglo-Saxon terminology to the country's large geographic units has somewhat clouded the issue. It is true that any terminology is relative and is the product of the perception of those using it. But as soon as an attempt is made to establish a classification of geographic units and landscapes, there must be a consistent list.

In Nepali, the word *himāl*, which means "abode of snow" is attributed to the whole of the snow-capped range, ranging from 8,000 m to about 4,800 m in altitude. It is an area of high mountains, hardly exploited or not at all, that has approximately the same features as the high Alpine, Andean or other mountains. There is therefore no problem translating *himāl* by "high mountains". As a matter of fact, most authors agree on this point, with the exception of those who have called this sector "the High Himalayas" or "the Upper Himalayas",⁵ a redundant, improper expression as Gurung and Khanal⁶ have already pointed out.

On the other hand, the terminology relative to the different units located below the upper range is very general, even confused. The inhabitants of the Kathmandu Valley use the Sanskrit word *parbat* when designating all the mountains and the inhabited reliefs located outside the Valley. The populations occupying these lands are, by extension, called *parbatya* and their language *parbate*, terms that have a pejorative connotation of "wild" as opposed to "civilised" society in the Valley. But the term most commonly used in the country, both administratively and geographically speaking, is *pahār*. Derived from Sanskrit, it means "stone, rock", and words like *pahāro*, "rocky face", come from this. It is used in a very vague and global manner to denote all the land situated between the upper range and Mahabharat, even as far as the piedmont. Moreover, it becomes ambiguous when it is translated by "hills" in English and even more so when it is rendered by "*collines*" in French, an expression which has, however, been widely used for decades in all French literature on Nepal.

⁴ These altitudes are referred to as such in the *Statistical Year Book of Nepal* since they are a conversion of measures initially expressed in "feet" on topographic maps.

⁵ Especially the FAO, Food and Agriculture Organization; the HMG, His Majesty Government; the UNDP, United Nations Development Programme and the LRMP, Land Ressource Mapping Project (GURUNG and KHANAL, 1987; METZ, 1989; IVES and MESSERLI, 1989).

⁶ Cited in IVES and MESSERLI, 1989, p. 22.

In English, as in French, the strict definition of the words "hill" and "*colline*" is the same: "A usually rounded natural elevation of land lower than a mountain";⁷ "*petite élévation de terrain de forme arrondie*";⁸ "*Relief isolé de faible hauteur dont les versants ne comportent généralement pas d'escarpements*".⁹ Finally we find in the *Dictionnaire franco-anglais des sciences de l'environnement*:¹⁰ "Hill = *colline*: relief isolé, plus ou moins circulaire et de faible altitude relative".¹¹ For English speakers, the term "hill" indistinctly refers either to a "small rounded elevation of land" or a mountain –terminological accuracy in this field appearing to be of little importance– and it can generally speaking possibly designate, no matter how improperly, reliefs and even inhabited reliefs.¹² Yet nothing justifies the use of this word "hill" (let alone "*colline*" in French) for any sloping area situated at the foot of the upper Himalayan range. Indeed, the vast series of inhabited reliefs grouped together under the term *pahār* or hill presents various geographical units that are far from merely corresponding to hills or "*collines*", which we consider important to differentiate.

These thoughts on the term "hill" echo the debate in 1886 which, when naming Mont Everest, opposed Freshfield, on the one hand and Waugh and Walker on the other:

Mr Freshfield "joins issue directly" on the designation Mont Everest, which he rightly calls "a curious hybrid". I defend the hybrid. The French word "*mont*" means a single elevated mass, great or little, as distinguished from "*montagne*", which means a congeries of such masses, if we may accept the authority of *Littre's Dictionnaire de la Langue Française*, in which "*montagne*" = *suite de monts qui tiennent l'un à l'autre*; the English "mount" is not equally distinctive, being not infrequently employed as an abbreviation of "mountain", and a mountain may be many-headed. Waugh's object was to show that he was naming the great pinnacle itself, and not the masses of which it is the culminating point. He employed the prefix which he thought most suitable for his purpose; and, with all due deference to literary purists, I submit that a hybrid which conveys a distinct and definite meaning is preferable to a purism which does not.¹³

⁷ Webster's Ninth New Collegiate Dictionary, 1991.

⁸ Petit Robert, 1985. Translated as: "small rounded elevation of land".

⁹ GEORGES, *Dictionnaire de géographie*, 1974. Translated as: "low isolated relief whose slopes do not generally have any escarpments".

¹⁰ PARENT, 1990.

¹¹ Translated as: relatively low, more or less round isolated relief.

¹² In this case it should only be used when *pahār* also includes the Mahabharat and the Curiya, which the Nepalese administration does (see *supra*).

¹³ WALKER, 1886, p. 262-263.

There may be some regret that this discussion did not occur with regards the word "hill" which, since being introduced by the British, has been more or less happily passed on from one person to the next.

The imprecision of both the names *pahār* and "hill" and, due to this, the difficulty in using them, has been evoked by various researchers. Certain have tried to find substitutes for this "fuzzy" terminology (Table 2). Hagen (1960), and many authors since then, call the sector situated between the upper range and the Mahabharat the "Nepal Midlands", (translated into French by "Moyen Pays népalais"). This very general expression is hardly explicit and does not take into account the diversity of the units it conceals. Metz (1989), who makes an attempt at a rigorous classification of Nepalese units retains the following: the Tarai, the Siwalik, the Mahabharat, the *pahār* or hills and the high mountains. He writes:

Both the FAO (Nelson, 1980) and LRMP (1983) divide the hill section into upper and lower sections; both call their lower sections "middle mountain", but the FAO calls its higher section "transition", while the LRMP calls its upper division "high mountain". The topographic boundary between these sections is difficult to identify, so I do not distinguish them and am calling all areas south of the main peaks the "hills" [P. 155.]

Ives and Messerli who retain the same divisions as the FAO and the LRMP, calling the upper part "transition belt" and the lower part "middle mountains", explain: "The 'Middle Mountains', the term we have kept actually relates to the conventionally recognized hill region."¹⁴

If the terminology used by the latter authors does not seem appropriate to us –the expression "transition belt" being for the least meaningless and those of "middle mountain" and "high mountain" not being, in our opinion, attributed to the adequate units– yet their subdivision is totally justified. We are grateful to them for having removed the term "hill" and we challenge Metz's choice of keeping only one global unit. Besides, the Nepalese divide this vast unit and distinguish the *lekhali* (highland people), a population of the upper part, from the *paharī*, those from the mountains in the lower part. This is confirmed by Harka Gurung (1999), who established a distinction between: *himāl* which he translates into English by "range", and defines as a range of permanently snow-capped mountains unused by man; *lekh*, translated by "ridge", which corresponds to a ridge receiving snowy

¹⁴ IVES and MESSERLI, 1989, p. 22.

precipitations in winter and that is extensively exploited; *pahār*, which he translates by "hill" but to which he gives a more restrictive definition, that of a snow-free intensively exploited sector. Whilst this division is the most pertinent and takes good account of two different well-defined zones between the high mountains and the Mahabharat, it seems to us that the terminology might be simplified, leading to less confusion. It is certainly possible to give a more accurate geographical content to these subdivisions, which would therefore bring us to another translation into English and, consequently, into other languages. Indeed, the term *lekh* is far from precise and very relative. It refers to the upper belt of a mountainside,¹⁵ the ridge crest, the highlands, but depending on the persons using it and on their position in space, this "high" may find itself at very variable altitudes. In certain sectors, villagers report that it has the particularity of receiving precipitations of snow in winter,¹⁶ as the top of their mountainside is at a high altitude (greater than 2,000 m). But in most of the lowlands, summits reaching 1,500 m in altitude and hardly receiving precipitations of snow are also called *lekh*. The term then simply denotes the upper part of the mountainside. It is, for example, the case for the Kolang summits in the Palpa district, where the term *lekh* is used in the toponymy: Lekh, Telgha Lekh¹⁷ etc. Thus tops of mountainsides are often called *lekh* in sectors called *pahār*—as defined by H. Gurung—, but they receive no snow in winter. As for his translation of *pahār* by "hill" we have already expressed our thoughts on it here.

These attempts at nomenclature pose two problems which in the end make up a whole. Some encompass in one single unit all the reliefs from the foot of the upper range to the Mahabharat, and even the piedmont. Those who make distinctions in this vast whole are not setting the correct limits of recognised subunits and their name is different or even contradictory from one author to another. None of these typologies and associated terminologies

¹⁵ TURNER, 1931.

¹⁶ According to research carried out by Pramod KHAKUREL (1997): "For villagers of Likhu Khola, the word *lekh* commonly denotes the upper part of the mountainside; a place where it is cold, where it snows in winter, where it rains most often, where it is often foggy, where torrents take their source, where most of the forest is, where maize cultivation lasts six months and where rice cannot be cultivated. The Bahun-Chetris who occupy the lower part of the territory often say that the *lekh* is where the Bhotas (the Tamangs) live. The Tamangs themselves do not always consider that they live in the *lekh*." We may, among other things, set these remarks against the fact that, on the Salme mountainside (see Chapters VI and XV), the *lekh* belt has been converted into irrigated paddy fields since 1986.

¹⁷ See Chapter XVII, "A Bocage Landscape [...]" (T. Bruslé, M. Fort, J. Smadja).

is totally satisfactory. In addition, they are not situated at the same level of language. Some refer to morphological units, others to simple locations; others again, more rare, take the patterns of land use into account. Neither orography, nor physical environmental conditions, nor their use, nor landscapes actually allow such confusion.

As far as we are concerned, contrary to what Metz put forwards, we consider that, between the high mountains (*himāl*) and the Mahabharat, two different geographical units offering particular landscapes must be identified. We can describe them briefly as follows:¹⁸



(M. Fort, March 1982)

Photograph 1

A middle mountain slope (1,000-4,000). Salme in the Nuwakot district

The first unit [Photograph 1, Figure 4] is situated at the foot of the upper range. It is characterised by long slopes (of about ten kilometres) ranging from 4,800-4,000 to 1,000 metres in altitude, oriented north-south with an east-westerly exposure and differing very clearly from those located

¹⁸ Let us emphasise that this very over-simplified description corresponds to an "average" situation in Central Nepal. It may undergo marked variations from the east to the west of the country, but also depending on the latitude and the morphology of the mountainsides studied.

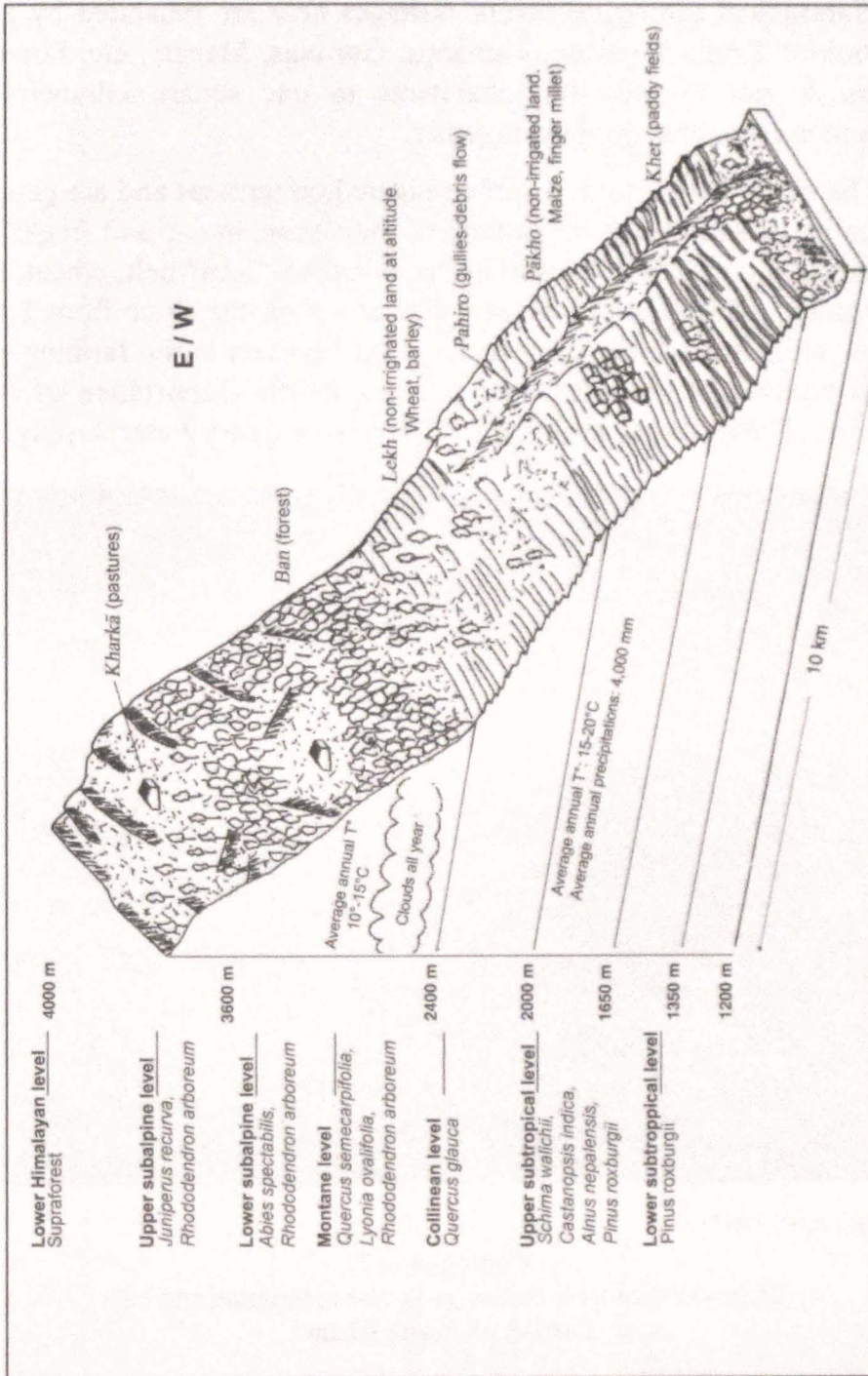


Figure 4
 Middle mountain landscape
J. Smadia

more to the south. They include the lower Himalayan (or Alpine) to the lower Subtropical ecological levels. Villages here are inhabited by a large proportion of Tibeto-Burmese: Tamangs, Gurungs, Magars, etc. Population densities do not exceed 100 inhabitants to one square kilometre. The settlement is somewhat grouped together.

The crops grown are most often planted on terraces and are generally: paddy in irrigated fields at the bottom of the slopes, maize and finger millet at the intermediary belt and lastly at the so-called "*lekh*" belt, wheat, barley and potatoes.¹⁹ There is still dense forest cover on the slope from 2,400 to 3,600 m. Trees are subsequently few and far between in the farming sector. A large number of pastures bear witness to the importance of animal husbandry. These slopes are characterised by a good water supply, since



(J. Smadja, April 1985)

Photograph 2

Opposition of mountainsides in low mountains and hills
District of Argha Khanci

¹⁹ This is a very over-simplified presentation. For some years now, *lekh* sectors have been transformed into paddy fields (see Chapter XV, "Parcelling of Land, Privatisation [...]", by B. Ripert).

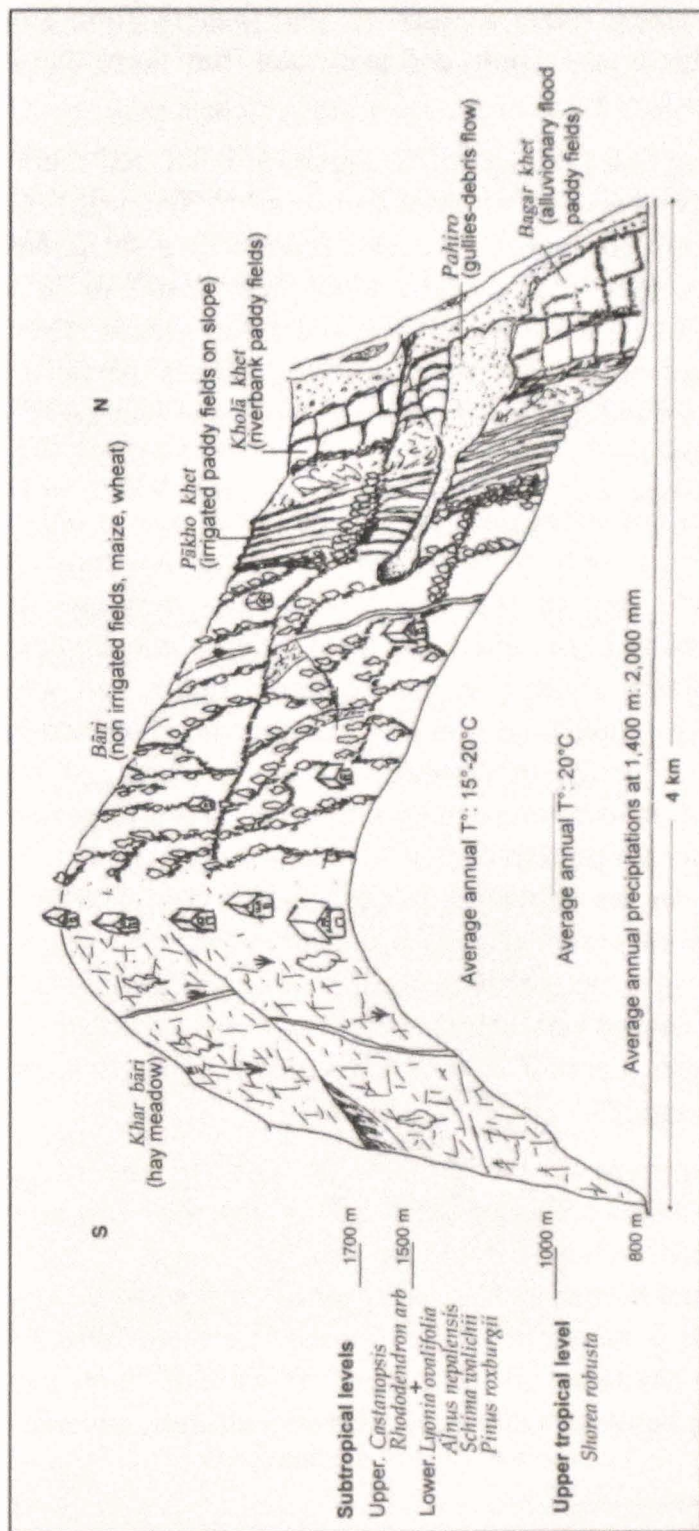


Figure 5
Low mountain and hill landscape
J. Smadja

besides the monsoon rains in summer, they benefit from storm rains in spring, orographic precipitations and meltwater from snow that has fallen on the summits.²⁰

The second unit [Photograph 2, Figure 5] is located south of this one. It covers the ecological levels from Collinean to Tropical. The reliefs are sometimes (but not always) of a rounded shape with good demarcation. At a lesser elevation, they barely reach more than 2,400 m in altitude and culminate most often at between 1,500 and 2,000 metres. They are mainly aligned east-west and offer very opposing slopes between those with southern exposure and those with northern exposure. This unit clearly differs from the previous one.

The slopes are not as long and the cultivated area is only divided into two units. Generally only northerly exposed slopes are cultivated; those to the south that are very steep are reserved for hay meadows. Irrigated rice cultivation on valley floors and at the foot of slopes is more developed here. Non-irrigated fields allotted to maize, finger millet and wheat may be sloping fields. The population is multi-ethnic, made up of Indo-Nepalese and Tibeto-Burmese. Population densities are much higher, of approximately 200 to 300 inhabitants to one square kilometre. When ridges do not exceed 1,700 m, they are the preferred sites for linear settlement, but the houses are often scattered on the cultivated slopes near springs. Forests are fewer,²¹ though there are many private trees in the cultivated sector, sometimes going as far as forming a net of dense hedges and bocages. This unit has the particularity of having very contrasted seasons and a marked water shortage outside the monsoon period, as it benefits neither from storm rains nor from melted snow waters.²²

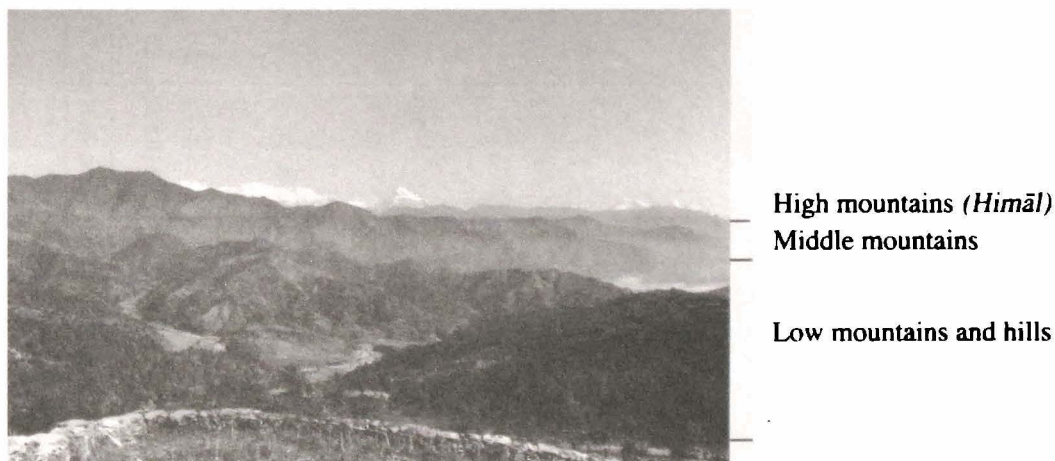
Many points are common to these units, the production systems being agro-arbour (or sylvo-) pastoral in both cases. But the relief, the climate, the altitudinal vegetation belt, population groups, agrarian practices, as well as patterns of animal husbandry, manuring and natural resource exploitation are not the same. It is therefore fitting to dissociate them. Which terminology then should be attributed to these units? If we call "high mountains" the milieux ranging between 8,000 and 4,800 m in altitude, covered in snow and

²⁰ See SMADJA, 2000.

²¹ This is not the case everywhere, especially in the west of the country.

²² See SMADJA, 2000.

hardly or not at all inhabited or even exploited by man, it is necessary to decline this expression. The first unit that we have just described, at the foot of the high mountains, characterises what we will call "middle mountains". With their slopes reaching or even exceeding 4,000 m in vertical range, they cannot be mistaken for hills. Nor can we reduce them to snow-capped ridges, *lekh* according to Harka Gurung's meaning, since these middle mountains encompass a series of ecological levels from the Subtropical, never receiving snow, to the Alpine one. Besides, they also include a belt called *lekh* which only corresponds to the upper part of the cultivated slope. The term *lekh* cannot therefore, from a geographical point of view, characterise the whole of this unit. The second unit described, where reliefs do not generally exceed 2,000 m, will be called "low mountains and hills". We consider that within this unit only some well-demarcated round-shaped reliefs can be qualified as hills, the others being "simply" low mountains (Photograph 3). This is the unit that might correspond to *pahār* as defined by Gurung, providing that the term is not translated by the restrictive one of "hill" or of "*colline*" in French. Thus whether the term *pahār* is used to denote a single unit –from the foot of the upper range to the Mahabharat and even to the Tarai– or is reserved for reliefs with no snowfall in winter, in no case does it correspond to a series of hills and cannot therefore be translated as such.



Photograph taken from the Mahabharat facing north (J. Smadja, April 1985).

Photograph 3
Geographical units in Nepal

Table 2
Geographical Units in Nepal. Comparison of Classifications
J. Smadja

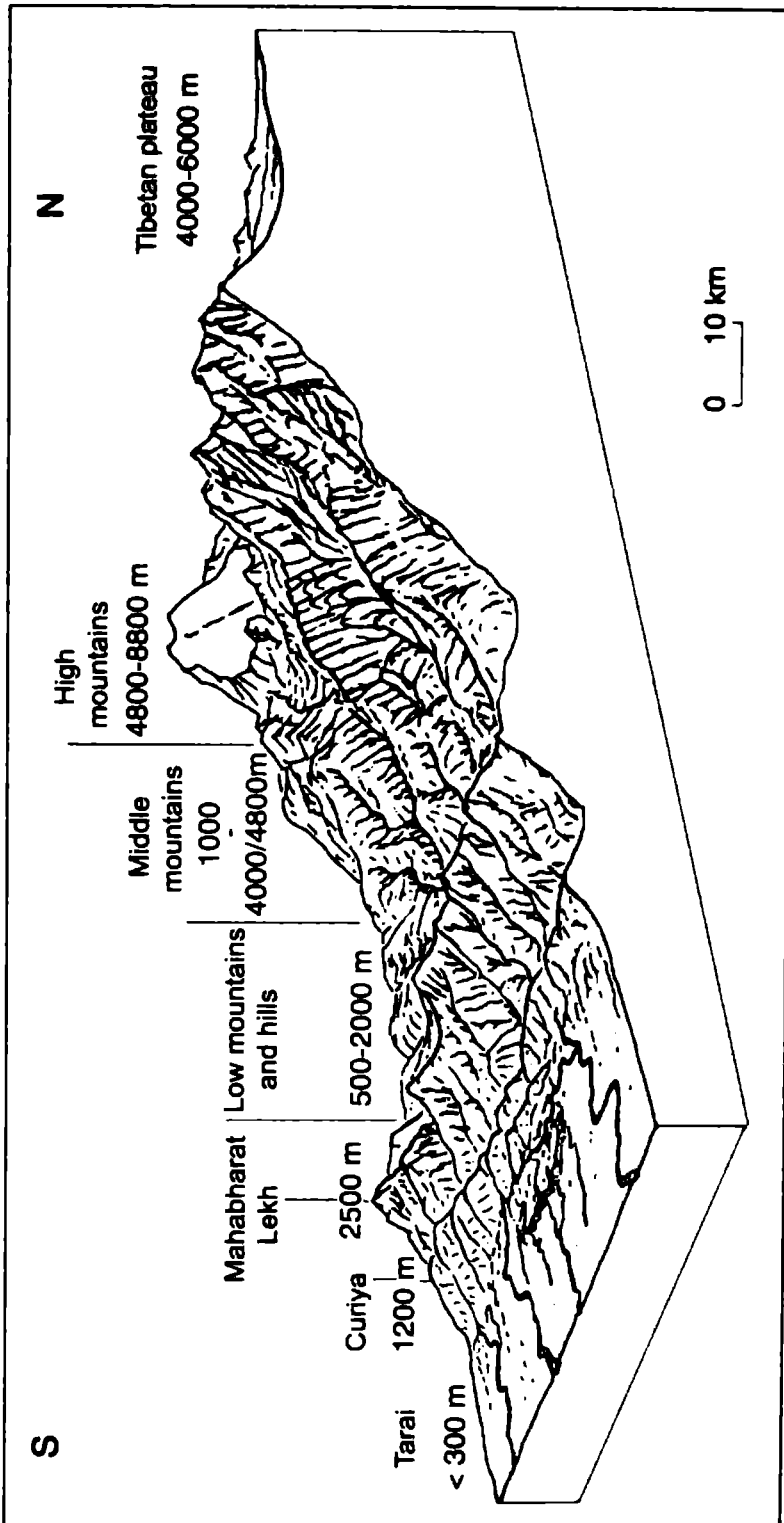
| Nepal: Physical divisions - a comparison between several sets of terminology from different sources (after Gurung and Khanal, 1987) | | | | |
|---|----------------------------|--|-------------------------------|------------------------------|
| Geographic regions (native term) | Hagan physical features | Gurung physical features | FAO/HMG/UNDP ecological zones | LRMP physiographic divisions |
| Mountain (Himal) | Tibetan Marginal Mountains | Border Range | | |
| | Inner Himalaya | Trans-Himalayan Valleys (bhot) | High Himalaya | High Himalaya |
| | Himalaya | Himalaya (himal) | | |
| Hill (Pahar) | Midlands | Temperate (lekh) | Transition Zone | High Mountain |
| | | Sub-tropical (pahar) | | |
| | | | Middle Mountain | Middle Mountain |
| Plain (Tarai or Madhes) | Mahabharat Lekh | Mahabharat Lekh | | |
| | Siwalik Zone | Inner Tarai (<i>dun</i>) Chure Range | Siwalik | Siwalik |
| | Tarai | Tarai | Tarai | Tarai |
| Source | Hagan (1960) | Gurung (1971) | Nelson (1980) | HMG (1986) (Kenting Surveys) |
| LRMP Land Resources Mapping Project (Canada/HMG) (from Gurung and Khanal, 1987) | | | | |

| Metz's classification (1989) |
|------------------------------|
| |
| High Mountain |
| |
| Pahar or Hills |
| |
| Mahabharat |
| Siwalik |
| Tarai |

| Ives and Messerli's classification (1989) |
|---|
| |
| Greater Himalaya |
| |
| Transition belt |
| Middle mountains |
| |
| Mahabharat lekh |
| Siwalik |
| Terai |

| Classification proposed by J. Smadja |
|---|
| |
| High mountains (and high inner valleys) |
| |
| Middle mountains |
| |
| Low mountains and hills |
| |
| Mahabharat (low, middle mountains and hills) |
| |
| Curiya (low mountains and hills) and <i>dun</i> (inner plain) |
| |
| Tarai (plain) |

(Source : table published in Ives and Messerli, 1989, p. 23.)



Source: Adapted from figure in RAMSAY, 1986

Figure 6
North-South profile of the Nepalese Himalayas
J. Smadja

More to the south, the Mahabharat, the Curiya,²³ the *dun* (inner plains) and the Tarai plain (called *madesh* in Nepali) hardly pose any problems of identification –although, surprisingly enough, the Mahabharat is neither mentioned by FAO/HMG/UNDP nor by LRMP. The Mahabharat and Curiya ranges, oriented east-west, have certain similarities, in their working and their landscapes, to the unit of low mountains and hills, except in certain highlands where, exceeding 2,500 m in altitude, the Mahabharat presents features of middle mountains. However, it is important to differentiate them from other units because of their truly individual shape, their geographical and geological particularities, and their more recent settlement than in the rest of the country. As for the term "Siwalik", which is often used to designate the Curiya, it has been given to the geological formation they are made of, in reference to the Indian place where they have been identified. It is more appropriate in Nepal, when referring to the geographical unit, to use the term "Curiya". The term "Siwalik" should be used only to designate this geological formation throughout the range.

Therefore, to sum up, let us identify on a Nepalese scale from north to south: high mountains (*himāl*) and their high inner valleys (such as those of Mustang, Dolpo...), middle mountains, low mountains and hills, the low, middle mountains and hills of the Mahabharat, the low mountains and hills of the Curiya, the inner plains (*dun*) and the Tarai plain (Figure 6, Table 2).

In the framework of this book, we focus more specifically on the middle mountains as well as the low mountains and hills, including those of the north face of the Mahabharat.

Landscape components on the scale of slopes in middle and low mountains

We have listed, from texts and recordings made by the programme's researchers in the field, terminologies related to landscape units on a slope scale. Here we will only present Nepali terminology generally known to all, bearing in mind that many local terms are used in the country –they will only be mentioned in the associated table (Table 3) when known. In the same way, only terms relative to the cultivated sector will be commented on, as they do not all conceal the same realities, depending on who uses them. As

²³ The word "Curiya" is written different ways in literature: Churia, Chure. The one we propose here is the literal transcription of the Nepalese based on TURNER (1931).

for the others, commonly accepted, only a definition and either a drawing or a photograph are given.

Frame 4

Territorial Units

Joëlle Smadja

In the middle mountains, the limits of the territories exploited by villagers are generally marked out by the crest ridge at altitude and by the river downstream (Figure 4). In the low mountains and hills, territorial organisation is similar or often covers either side of a crest ridge, with the southerly-exposed mountainside not generally being cultivated whilst the one with a northerly exposure is. The rivers either side of the crest ridge therefore form the borders of the village territory (Figure 5).

It is thus very clear that in Nepal, if the watershed is a pertinent unit for study in the field of hydrology, geomorphology or ecology, it is rare for a village community to exploit a watershed. The pertinent unit for studying a village territory and its exploitation is the mountainside or the interfluvium "crest ridge-mountainsides". To our knowledge, villages do not have any land either side of rivers due, at least up until recently, to the difficulty in crossing them, particularly during the monsoon period. Even if the village administrative limits may be those of watersheds, as in Masyam (see Chapter XVII), there is no common property or land distribution either side of the river between the different hamlets making up the village. Thus, very often, borders in Nepal are not crest ridges, but rivers. Besides, the borders of the ancient kingdoms of Nepal were often rivers as well.

Generally speaking, in middle and low mountain environments, the valley floors and the bottom of slopes are reserved for irrigated paddy fields. Then, up to about 2,400 m, slopes are allotted to non-irrigated fields of maize, finger millet, wheat, barley, potatoes, vegetables or, when they have a southerly exposure, to hay meadows. The settlement is more often than not set up in the non-irrigated sector although, since the eradication of malaria in the 1950s, valley floors are starting to be occupied. Above the cultivated space, rocky escarpments, pastures and forests prevail. Landslides, mass wasting and gullies, which are an integral part of Nepalese landscapes, frequently cut a gash into the mountainsides.

In many middle mountain localities the population divides the cultivated sector into three units that bear varying names. Some use the terms *besī*, *gāū* and *lekh*. The *besī*, also called *aul*, at the same time qualifies warm, low and malarious environments; it is where there are paddy fields. The *gāū*, that means "village", corresponds to the belt of non-irrigated land

where maize and finger millet are grown and where the village and hamlets are located. The *lekh*, in the upper part, is allotted to wheat and barley crops. On some slopes such as at Salme,²⁴ in the middle mountains of Central Nepal, these belts are called *khet*, *pākho*, *lekh*. In the district of Sallyan, they are associated with the possibility of growing certain fruit trees and are named as follows: *belaute bāri*, "goyava belt", where there are paddy fields,²⁵ *suntala bāri*, "mandarine belt", where maize and finger millet are grown and *syau bāri*, "apple belt", where wheat and barley are grown. In low mountains and hills the cultivated sector is only divided into two units: *khet* and *bāri*.

Whatever the case may be, throughout Nepal the expression *khet-bāri*, "paddy fields / non-irrigated fields", is generally used to designate all the land on a farm.

Irrigated paddy fields or khet

Valley floors and the bottom of slopes, of up to about 1,600-1,700 m in altitude, are most often occupied by irrigated paddy fields called *khet*. This word comes from *kaith*, which in ancient Nepali meant "a field, a plantation", and designated a unit of measure of 5 *beewas*, i.e. 8,721.5 litres.²⁶ It was gradually used to designate good land, the most fertile and well irrigated, to end up only corresponding to paddy fields, the most valued land in Nepal and that was the only land for a long time on which populations had to pay taxes. In addition, most ancient legislation regarding farming focuses on the protection and the cultivation of paddy fields and on the maintenance of their canals. This being so, all crops, whatever they may be, are called *kheti* which is derived from *khet*.

All types of *khet* offer perfect, plane surfaces to allow irrigation by flooding the plot of land. A bund, *āli* or *ālo*, always runs alongside them, marking them out in the landscape.

Terminology relating to paddy fields offers a detailed record and provides information on the capacity and quality of the land. Some nouns

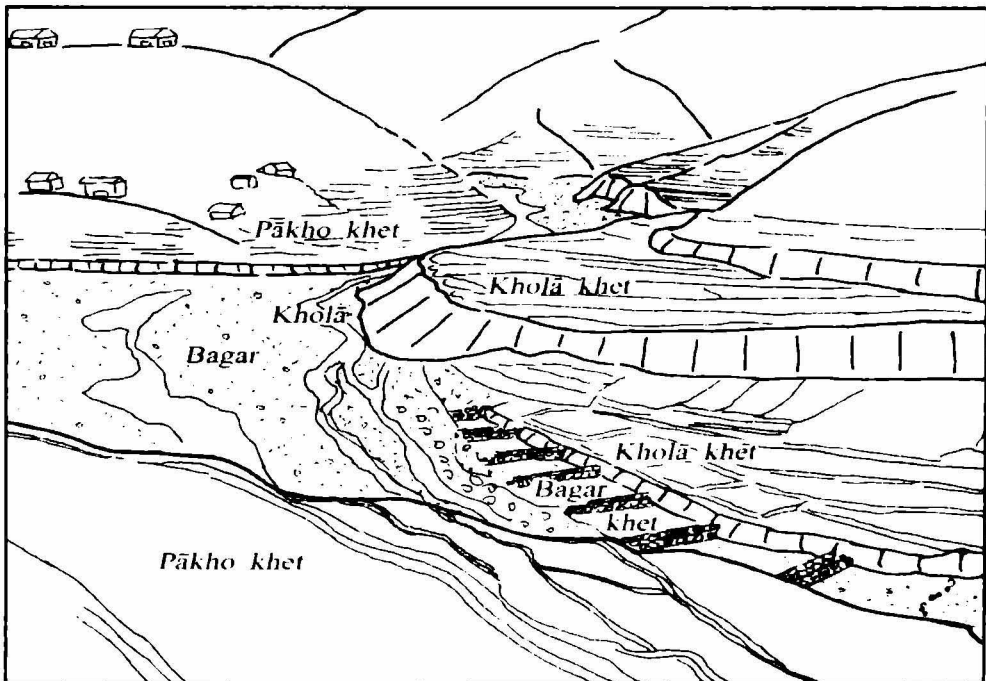
²⁴ See Chapters VI ("A Reading of the Salme Tamangs' Territory and Landscape", by J. Smadja) and XV ("Parcelling of Land, Privatisation [...]", by B. Ripert).

²⁵ *bāri* is therefore used as a generic term for "field", but it usually means "non-irrigated field" and cannot include paddy fields (see *infra*).

²⁶ KIRKPATRICK, 1811.



(J. Smadja, April 1995)



Photograph 4 and Figure 7
Different types of paddy fields along the Jimruk Khola. Pyuthan district
J. Smadja

help characterise different types of *khet*, they give indications as to the morphology of the place and/or its water supply.²⁷

Due to their warm climate, to their levelness, to how easily they are irrigated and to the fertile sediments deposited here, alluvial valley floors are conducive to rice farming. Different situations are recorded and have given rise to specific terminologies.

Floods, *bādhī*, frequent during the monsoon period, leave fertile land in the main riverbed. This land is very quickly arranged into paddy fields once the waters have withdrawn. Low diversion and protection walls are built, demarcating plots of land on which soil in development gradually allows for rice cultivation. This land –with very coarse alluvial soils washed periodically away by floods, known as *bagar*– is called *bagar khet*, "alluvionary flood paddy fields". Their name translates their ephemeral character, but, if they are cultivated three years in a row, they become the property of the person who has been farming them (Figure 5, 7, 8, Photo 4, 5).

When the riverbed is more or less stabilised and cultivated perennially, the paddy fields that are set up here are called *kholā khet*, "riverbank paddy fields", if they cover a limited surface. They are very widespread in the sector of Nepalese low mountains and hills. They can also occupy the lower part of debris cones.

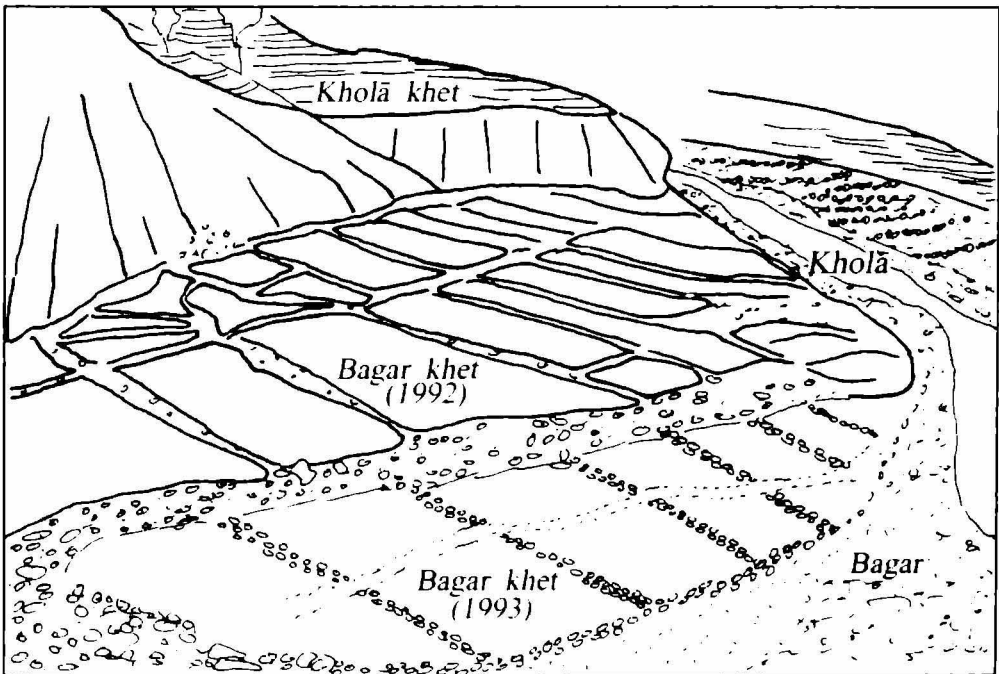
If they cover vast valleys or alluvial basins, *phāṭ*, paddy fields are called *phāṭ khet*. These *phāṭ khet*, made up of very rich soil, often provide the possibility of growing three crops a year, at least two of which are rice. They can be found, for example, in the lush alluvial valley on the left bank of Bari Gad in the Gulmi district (Photograph 6), or also in the vast *phāṭ* of Tinau Khola (Palpa district). Contrary to what one might think, water from main rivers, which is difficult to control and extremely turbid during the monsoon, is rarely used for irrigation. Irrigation water often comes from affluent streams. Their debit, whether permanent or temporary, therefore conditions farming possibilities.

High alluvial terraces, offering vast plane surfaces, are called *tār* and are frequently occupied by paddy fields which are therefore known as

²⁷ This typology does not correspond to the one drawn up for Asia by Y. ABÉ (1995) which singles out, amongst others, "irrigated paddy fields from irrigated terraced paddy fields", the latter being characterised by their hydraulic system of streaming water catchment and control. Whereas, in Nepal, it is difficult to systemically distinguish between these two types (note provided by O. Aubriot).



(J. Smadja, October 1993)



Photograph 5 and Figure 8

Alluvionary flood paddy fields in the bed of the Trisuli Kholā (Nuwakot district)

J. Smadja

Photograph 6

Irrigated paddy fields
in a vast alluvial valley:
phāṭ khet



Bari Gad valley, Gulmi district (Photograph J. Smadja, April 1985).

**Photograph 7**

Irrigated paddy fields
on high alluvial
terraces:
tār Khet

Village of Aslewa, Gulmi district (Photograph O. Aubriot, August 1992).

Photograph 8

Non-irrigated fields:
bāri (at the top)
and irrigated paddy
fields on slopes:
pākho khet
(terraces at the
bottom)



Kolang slope, Palpa district (Photograph J. Smadja, December 1997).

ṭār khet. They cannot be irrigated by river water, but only by torrent water. Like the *phāṭ*, this usually involves lush lands overlooking main rivers that have forcefully dug out their bed, such as Bari Gad whose great *Aslewa ṭār* is an example of this (Photograph 7). There is also Bheri in the west of the country, whose alluvial terraces are made up of enormous rolled pebbles used for building houses.

Paddy fields shaped into terraces on the slopes at the bottom of mountainsides are often called *pākho khet*,²⁸ "paddy fields on slopes".

In the sectors where non-irrigated fields are sloping, paddy fields form very distinct and easily identifiable landscape units, since they are layered into perfectly level terraces (Photograph 8). However, in sectors where non-irrigated fields are also terraced, the only means of distinguishing them when they are not cultivated is the bund running alongside them downstream for irrigation water retention (Photograph 9).



Each year at the beginning of the monsoon, the low walls and the bunds are rebuilt (Photograph J. Smadja, June 1982).

Photograph 9

Work in the paddy fields on *pākho khet* in Salme, Nuwakot district

²⁸ The term *pākho khet* can also sometimes be used for dry rice fields: *gayāḍḍā dan*, non-irrigated. But, generally speaking, *khet* are always supposed to be irrigated.

Frame 5

Irrigation of Paddy Fields: a Technical and Social Trace in the Landscape*Olivia Aubriot*

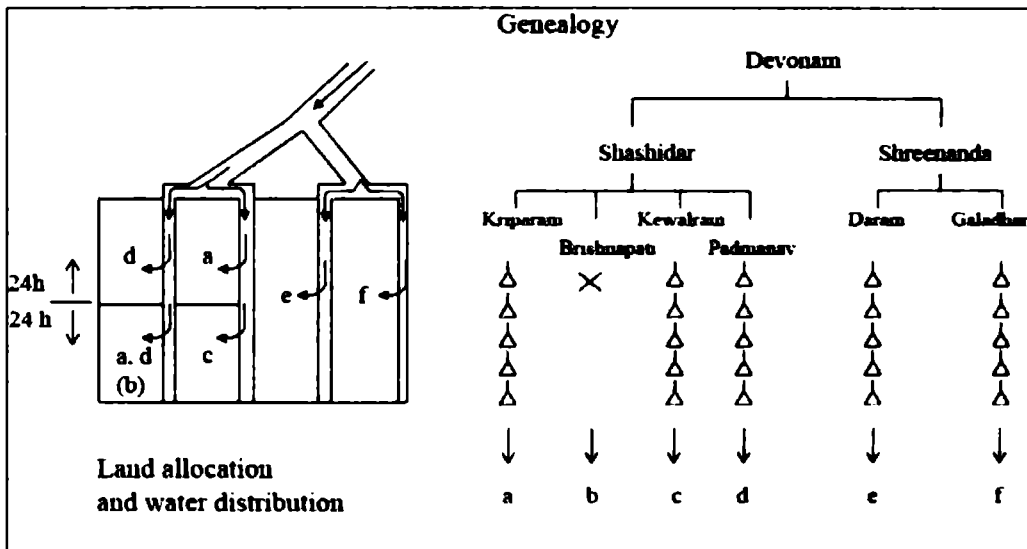
In Nepal, traditional irrigation networks of low and middle mountains are all technically but simply fitted out, using the gravitational movement of water: basic dams made up of branches and stones divert water from torrents; canals dug out of earth transport this water (sometimes that of a spring or some runoff) and supply paddy fields. For all this, irrigation methods are no less diversified, with the situation varying from a simple deviation of water managed on a casual basis to a meticulously-designed structure associated with a precisely-controlled management system.¹ The architecture of the networks can therefore give an idea of how water is accurately distributed: a simple separation of canals leads to a rough distribution, whereas a proportioning weir divides the flow into calculated shares; an important network of canals can provide a direct supply to each plot, contrary to short canals or a reduced number of canals, which forces the water to drain from one paddy field to the other.

Because of their rigid and visible hydraulic infrastructure, as well as the arrangement of plots into plane surfaces demarcated by small dykes, irrigation networks clearly impress upon the landscape. This physical layout also transcribes a social organisation. First of all, irrigation networks mark out (generally within the limits of the village) the territory appropriated by those using the water. One canal may supply water to the land of one hamlet, or several canals may do so, each of them built by a clan or by a lineage. Then, the very arrangement of distribution canals may accentuate social distinctions, which are already visible in land ownership. Thus, in a network built at the end of the XVIIIth century in Aslewacaur, in Gulmi district, today hydraulic developments still reflect the kinship organisation (Figure 9): each branch in the lineage disposes of an irrigation canal which supplies its land, with the division of the canals corresponding to the divisions of the kinship branches. A canal therefore appears to be the material representation of a descent group, with proportioning weir (tree trunks, with notches cut out of them, placed across the canal) symbolising intersections from which the descent groups separate. The segmental structure of the kinship groups is materialised here by the water distribution structure.

Not all irrigation systems² reproduce the social organisation of a water-using community as perfectly as this. An informal organisation, where everyone diverts water as they please, relies on mutual understanding and on tacit agreements. A precisely-controlled water management system has to be understood through a given (technical, economic, geographical and social) logic. Thus, the layout of the canals may represent a social symbolic system (for instance, such and such a canal is associated with such and such a lineage) which

limits any changes in the structure and reinforces the apparent "structural inertia" of the irrigation system. Whatever the case, water management is the result of "social building, which is historically produced but never totally rigid, as it engenders contingencies and therefore brings changes according to any eventualities³"; it must therefore be considered and analysed as an interface between the environment, technology and society.

1. Such as, for example, individual water rights, irrigation timetable and the obligation to maintain the canal in proportion to one's water rights. See AUBRIOT, 1997.
2. An irrigation system is made up of an irrigation network which represents the hydraulic infrastructure, of water users and of the rules for water management.
3. SABATIER and RUF, 1992, p. 5-8.



Each irrigation canal supplies land to one lineage branch, according to a spatial organisation which translates the segmental organisation of the kinship group.

The supply canal is divided into two branches (or secondary canal), as the lineage is divided in two main branches, that of Shashidar and of Shreenanda. Then, each secondary canal is divided into two parallel tertiary canals always supplied with water and that irrigate a "band" of land, which is the paddy fields belonging to a descent group. Thus, two tertiary canals supply water to the members of the Shashidar branch: one for the descendants of Padmanav (d) and Brishnapati (b), the other for that of Kriparam (a) and Kewalram (c). Along these two last tertiary canals, water is distributed to each descent group on a 24-hour rotation system. Brishnapati having no descendants, his land was bought up by the members of the (a) and (b) branches: this land property organisation is still visible five generations later.

Figure 9
 Social record of water management in Aslewacaur landscape (Gulmi)
O. Aubriot

Paddy fields are irrigated by diversion using feeder canals, *kulo* or *nahar*, that are most often open-air. Water availability in the milieu therefore directly conditions the development of land into paddy fields, as shown by the four following units, and the nomenclature used provides information about it.

The *thāri khet* are small paddy fields on slopes that are next to torrents and that benefit from their water for irrigation.

The *gairi khet* are paddy fields set up in basins on depressed surfaces. They have easy access to a spring or water supply.

sim khet are paddy fields located in humid sectors, on hydromorphic surfaces.

dhāp khet are *khet* set up on marshes, so that they are naturally supplied water on a permanent basis.

Non-irrigated fields, bāri

Kirkpatrick (1811), then Turner (1931) define *bāri* as non-irrigated fruit or vegetable gardens as opposed to paddy fields; in the Jumla region,²⁹ they still correspond to this definition. Today however, nearly everywhere else in Nepal, this involves a generic term denoting all fields –thus replacing the old word *kaith*– but which is most often reserved for non-irrigated farming; it is defined as such in the Dictionary of the Nepal Royal Academy. Situated above paddy fields, this non-irrigated land bears crops of maize, finger millet, wheat, barley and buckwheat, as well as a large variety of vegetables, oleaginous plants and tubers.

In several localities, the term *bāri* has been supplanted by that of *pākho*, which has various meanings. The word *pākho* literally means "slope, mountainside", it may be the gradient of the roof of a house, and *pākhe* designates a tough, rough person. It is with this meaning that it is used in certain sectors to designate a plot of swidden cultivation with a sloping topographical surface,³⁰ uncultivated pasturelands,³¹ uncultivated and barren slopes,³² or very steep land with a gradient of more than 30°, eroded and

²⁹ See Chapter XIII, "Environmental Protection. Impoverishment of Men [...]" (S. Shrestha).

³⁰ *Dictionary of the Royal Academy of Nepal*, 1983.

³¹ GURUNG, 1989.

³² JOHNSON *et al.*, 1982.

uncultivated or uncultivable.³³ Thus, in many cases the term *pākho* refers to uncultivated land considered to be uncultivable, as it is on too steep a slope.³⁴ This interpretation of *pākho* land is very restrictive and may be misleading when it is given as a general and absolute definition of the word, insofar as, in many sectors, this land is cultivated. The term *pākho* may indeed also be used to designate all land below the *lekh* and devoted to non-irrigated farming. It is the case in the middle mountains of Salme, for instance, where the term *bāri* is rarely used and where *pākho* designates maize and finger millet fields. Similarly, several authors³⁵ list them as non-irrigated fields, as dry fields. In this case, *pākho* and *bāri* are synonymous. Besides, in administrative documents from the beginning of the XXth century, *pākho* are listed as non-irrigated cultivated land.³⁶

Lekh, we have seen, is the upper belt of a mountainside.³⁷ It is not always cultivated. When it is, it is extensively so and the crops, generally wheat, barley and potatoes can be found as high as 2,400 m in altitude. In this case, the set of fields in this belt bears the name *lekh* or *lekh bāri*.

Contrary to paddy fields whose morphology is always the same, non-irrigated fields may be of varying shape, terraced or sloping, revealing different agrarian practices. Their implementation does not call for the same work; the way the land is manured and farmed is not the same. Thus the dynamics of the mountainsides are different in both cases. A specific terminology is attributed to each type of field.

The term *swānra* is generally used for a terraced non-irrigated and cultivated slope. Terraced fields may also be called *samma bāri*, "flat field", *gara bāri* "terraced field" (Photograph 10). In the Palpa district, for this kind of field one talks of *gara sudar* "benefits from terraces". Fields offering sufficiently large plane terraces to be worked by the swing plough, *pātābāri*, are generally opposed to fields on very steep slopes divided into small terraces on which oxen and the swing plough cannot get by and that are called *pākhera bāri*.

³³ ZURICH, 1999.

³⁴ It is perhaps therefore used for that of *pākhā* which means "abandoned land".

³⁵ GURUNG, 1980; MESSERSCHMIDT, 1976; REGMI, 1965 and 1971; SHRESTHA, 1993, in Jumla.

³⁶ See *Regmi Research Collection*, unpublished microfilm conserved in the Archaeology Department in Kathmandu, roll no. 2412/2, p. 160-162, doc no. 10 (p. 17), doc. 11, p. 163 (p. 18) and microfilm no. 2422/2, doc. 26, p. 611-613 (p. 30), 1930; texts translated by Mahes Raj Pant.

³⁷ TURNER, 1931.

bāri terraces are not always levelled and may provide a gentle slope lined with drainage rills, *bhal khand*, that allow water to run off. Fields on a gentle slope, between terraced fields and sloping fields, are called *damsāilo bāri*.

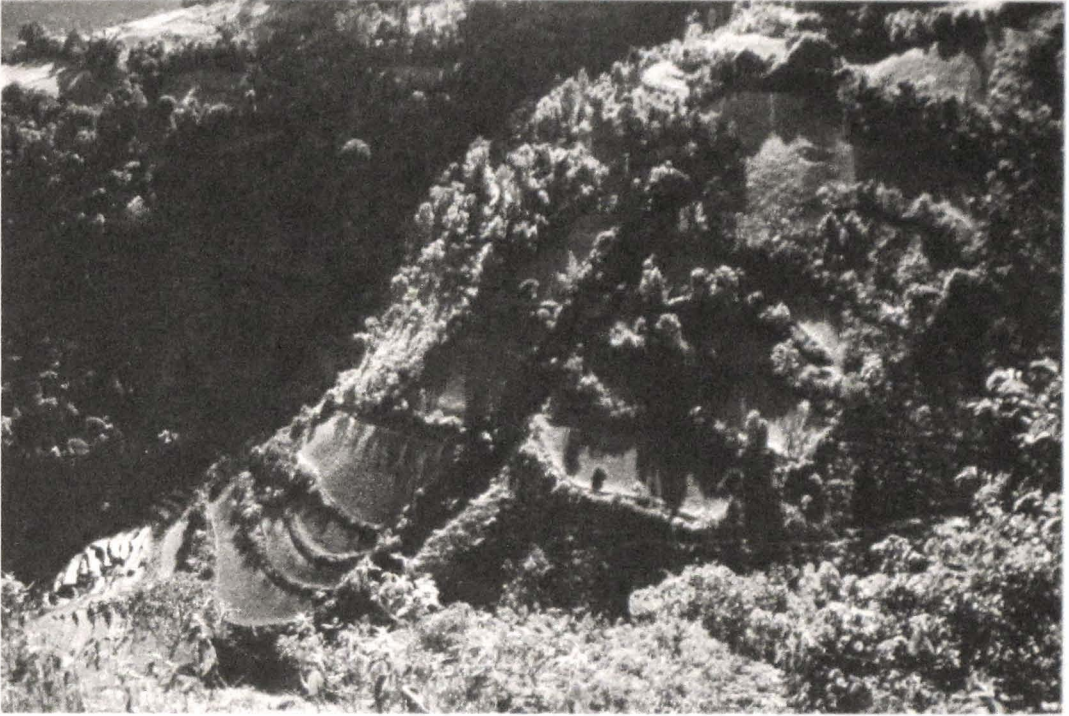


(J. Smadja, April 1995)

Photograph 10

Terraced fields. Salme, Nuwakot district

In certain sectors of Western Nepal, where non-irrigated fields are all sloping, as in the Palpa region, the term *bāri* refers, with no further precision, to sloping fields. In other sectors where there are only terraces, the authors have translated *bāri* by "terraced non-irrigated field". As can be seen, this last definition is also too restrictive as it cannot apply to *bāri* throughout the country. Contrary to terraced fields, sloping fields are not cut out of the slope. The talus which bound them, called *dhik*, is formed naturally by the accumulation of earth against an obstacle, generally a plant. It corresponds to what in France one calls a "*rideau*" (curtain) (Photograph 11). The hedge or fence that bounds the field is called *bār*. Fields cultivated on a slope are called *pākho(e)bāri*, *-pākho* in this case is used in its meaning of slope-, *bhirālo pākho*, or else *bhirālo bāri*, *bhirālo* meaning "sloping".

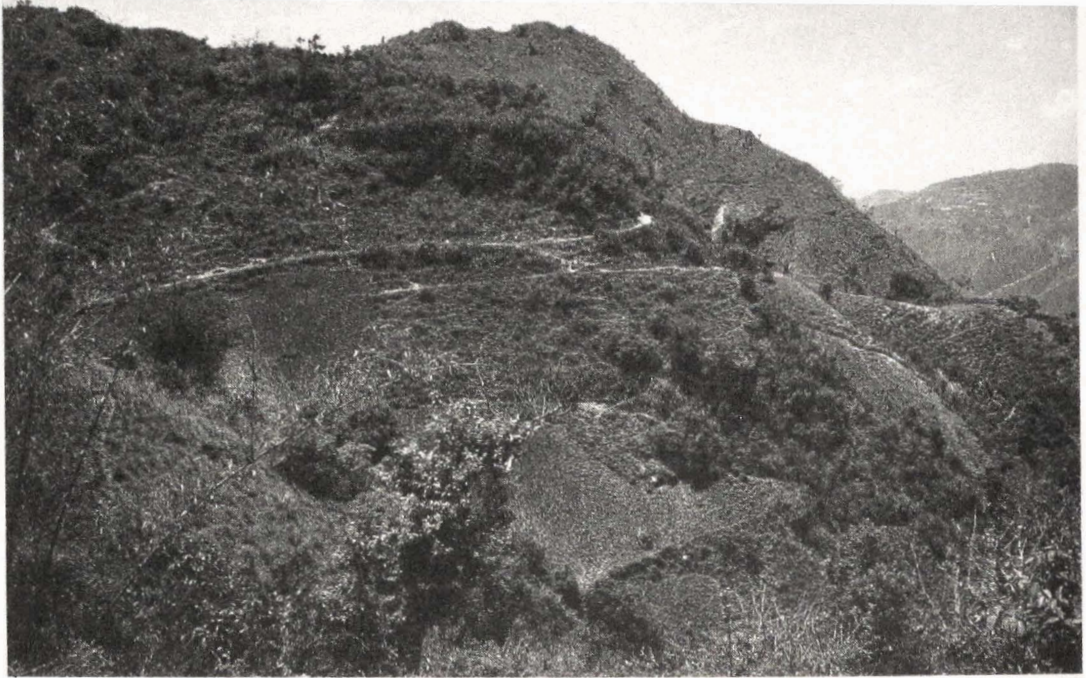


(M. Fort, December 1997)

Photograph 11

Fields on a slope. Village of Masyam, Palpa district

In Western Nepal, certain sloping fields permanently cultivated over decades are still called *khoriyā*. This appears to be a residual term since generally the word *khoriyā* corresponds to isolated fields directly situated at the edge of the forest, or at the very centre of the forest having recently gained on the latter (Photograph 12). It is slash-and-burn land and in most cases the word *khoriyā* is used with this meaning. The synonym of *khoriyā*, *bhasme* (which refers to swidden cultivation), is also mentioned by Sagant (1976) among the Limbus, as well as by Turner (1931). In Palpa district, the word *khoriyā* is reserved for a plot at the time of slashing and burning. The following year, when the cleared plot of land is cultivated, the field is called *lohase bāri*. Once the field is abandoned, it is called *prati bāri* (abandoned land). The term *khoriyā* is also used to designate fields with a slope so steep that they cannot be worked by the swing plough, and Narendra Khanal (1993) uses for these same fields the expression *bhoti khoreva*: the Tibetans' slash-and-burn land.



(A.C. Degail, August 2000)

Photograph 12

Swidden cultivation, *khoriyā*, in Masyam in Palpa district

Furthermore, certain land, even if it is on the valley floor, cannot be irrigated and here only maize, soya, millet, etc. are grown. In Palpa they are called *besī bāri*.³⁸

Where alluvial terraces at altitude cannot be irrigated, *ṭār khet* are replaced by *ṭār bāri* (non-irrigated fields on a high alluvial terrace), mentioned in Pyuthan and Rolpa; they are called *ṭārkhya* in Jajarkot.

The *ghar bāri* is a non-irrigated field where the house is set up and that eventually serves as a garden. The term "garden" itself is *bagaicā* or *phul bāri* (field of flowers).

Finally, hay meadows located on steep slopes generally with a southern exposure and where the grasses are used for thatched roofs, or more and more for feeding the herds, are called *khar bāri* or *khar pākho*. Rarely found in the middle mountains, they play a fundamental economic role in the low mountains and hills (Photograph 2, Figure 5). For several years now private trees have been planted here to make up for the supply of leaf fodder and wood, and tests are being made on forage grasses.

³⁸ MILLER, 1990.

The herds, one of whose main functions is to manure cultivated land, are either kept in stalls close to the houses, or left on common grazing land directly on the terraces that need to be manured (Photograph 13). Otherwise they are led to the forest and different types of pastures: pastures on a cultivated sector, *caran* (Photograph 14), or high-altitude pastures, *kharkā* (Photograph 15). Pastures at the foot of the great Himalayan ranges, clear of snow for only a few months during the monsoon, are called *bugyen*.



(J. Smadja, March 1982)

Photograph 13

Animals and mobile shelter, *goth*, moved from terrace to terrace to manure the fields. Salme slope. Nuwakot district

Such are the landscapes in Nepal and their components on which we have worked. Their lay-out is due partly to physical factors that will be presented in the following chapter. Yet each element of these landscapes – from ridges, to forests, to paths that run through them and rivers that bound them– also holds a special meaning for the populations. We will see this in the second part of this book and Pramod Khakurel illustrates it hereafter in Frame 6.



Kolang slope, Palpa district (Photograph J. Smadja, December 1997).

Photograph 14

Pastures on cultivated sector: *caran*



Shelter at Rupchet at 3,600 m, Salme. Nuwakot district (Photograph J. Smadja, June 1982).

Photograph 15

High-altitude pastures: *kharkā*

Frame 6

A Few Words about Landscape Elements in Likhu Khola

Pramod Khahurel

The data for this text was partly collected during enquiries carried out in the low mountain region of Likhu Khola in Nuwakot district in Central Nepal where Bahun-Chetris and Tamangs live side by side.

The crest ridge of a hill or mountain, called *ḍāḍā*, is an element that occupies a lot of space in the representation of landscapes and figures in many Nepalese expressions. From the *ḍāḍā*, individuals dominate their environment, their familiar universe, and the word *ḍāḍākāṇḍā* is used to designate the landscape that surrounds a village or a region. When the landscape is verdant, it is said that *ḍāḍākāṇḍā hariyā chhan* (the *ḍāḍā* are green), when it rains everywhere, that *ḍāḍākāṇḍā dhākera pāni āyo* (the *ḍāḍā* are covered, it rains). It is from the *ḍāḍā* that a town crier announces important messages to all the inhabitants of a village, which is expressed in Nepali by the expression *katuwāle lagāune*. If a member of a family voices remarks that must not be heard in public, they are told to go and shout in the *ḍāḍā*: *ḍāḍāmā gaera karāunu* (after having got to the ridge, you will be allowed to shout). In the past, if a woman committed, for instance, adultery with a man of untouchable caste, she was driven away, according to the customary law, four *ḍāḍā* further on, after her plaits of hair had been cut off: *culṭho kāṭera car ḍāḍā kaṭāunū*. The expression *ḍāḍā pāri* is often used in songs to designate an unknown world. When one goes nine *ḍāḍā* away, one is in *mouglān*, a faraway and unknown world: *nau ḍāḍā kāṭi gayo niṣṭhurīle māyālu lāi birsera...* (in forgetting one's love, the cruel man has gone off nine *ḍāḍā* away). Some *ḍāḍā* are sacred, these are often places of pilgrimage. Temples to one or several divinities are set up here. One therefore finds a temple to Shiva on the *ḍāḍā* of Shivapouri, a temple to Bhairawa on the Nuwakot *ḍāḍā*. For the Tamangs of the region, some *ḍāḍā* are sacred since funeral rites take place here, they are called *chihāṇḍāḍā*: *ḍāḍā* for incineration.

The forest, *ban*, is an uninhabited, though not uninhabitable place. According to Hindu religious philosophy, after the age of fifty, men must abandon family life, leave to live in the forest and prepare to receive salvation, *mokṣa*. The forest is also considered to be a place for meditation, especially for yogis. However, in day-to-day life, the forest space is not compatible with family life. According to a common expression, *banko bās hune bhayo* or *banko bās garāune bhae*, one has to lead a life in the forest when one is rejected by one's family. When a person can no longer bear their family members, it is suggested that they go to live alone in the forest.

The rocky escarpments, precipices, are called *bhir*. They are often associated with death. One considers that a trouble-maker is "fit to be thrown over

the *bhir*" (*bhirbāta goultiyāoune khālko*), that a person who climbs a *bhir* "is asking to die", *kālkhonou*. The situation of an individual who attempts to act in an out-of-the-ordinary way knowing that they risk killing themselves is illustrated by the proverb: *bhirbāta hāmḥālne gāilāi rāmram vanna sakinchha kandh hālna sakinna* (literally, when a cow throws itself off a precipice, one can only say "alas!"; one cannot carry it on one's shoulder). In other words, if someone deliberately goes out of their way to die, one can advise them not to do it, but nothing else.

The mountain faces which are essentially rocky are called *pahāro* and are considered to be strong, sturdy elements. Some expressions are related to this: *pahāro sanga kasaiko jod chaladaīna* (one is incapable of resisting the *pahāro*); *pahāro jasto baliyo* (strong like a *pahāro*); *pahāro rasāoulā barou nisthouriko man/hridaya rasāoundaīna* (the rock may weep, but the heart of a cruel person does not); one also uses the expression *dhungo jasto sāro man* (a heart as hard as stone).

There are different categories of path: *bāto*. The *mulbāto* is the main village path. No individual or animal has any problem in following it. The funeral procession must take the *mulbāto*, as any other path would become stained, and death would lurk there. Nowadays, due to the setting up of new villages, the main path is often abandoned; funeral processions and animals, however, continue to take this former *mulbāto*. There may also be *goretobāto*, paths that oxen and other animals may use, and *godretobāto*, paths taken by horses and animals carrying goods or equipment. The junction where the two paths meet is called *dobāto*; and where at least four paths meet, *chaubāto*. The two words *chaubāto* and *dobāto* are often mixed up in common usage. Passers-by from different horizons meet up at these cross-roads and more often than not a *pasal* (shop) or a *bhatti* (place where one can drink the local alcohol) has been set up. The *dobāto/chaubāto* are also considered to be favourite places for malefic spirits: the *bhut*, *pret*, *pichās*, *bir* and *chhaunda*. Forever on the watch, they await their victims at dawn, at midday, at dusk and at night, times when, as a precaution, children are forbidden to play there. Any sick person is supposed to be possessed by an evil spirit. To cure them, the Shaman is responsible for diagnosing the nature of the spirit and for carrying out offerings or exorcism which he performs at these cross-roads. By extension, one uses the expression *dobātomā laguera mansane khālko* for an evil person who often causes trouble and who is "fit to be sent to the *dobāto*". As for the adjective *dobāte*, it denotes someone who has a mind like a beggar.

The river, *kholā*, has a religious value; for the Indo-Nepalese, it represents the Ganges, and all Nepalese rivers join the Ganges, the sacred river. One goes down to the river from time to time to perform one's ablutions, offerings and to organise certain religious ceremonies, especially commemorative rituals intended for ancestors: *shrāddha*, *bhāgawat mahātmya*, which last seven days, or other

pujā such as *harekirtan*. On the day of *tij*, a women's religious feast, the latter go to the nearest river to bathe. The confluence of two or more rivers, called *dobhān*, is considered to be a place associated with death. Indeed, all communities, except for the Tamangs in the region, carry human remains to incinerate them there. The cadaver is reduced to ashes according to a religious ritual as prescribed by a priest. These ashes are then washed in running water from the river. For the Bahun-Chetri, it is forbidden to burn the dead in places where there is no running water. Evil spirits, especially the *masān*, roam in the *dobhān* and threaten individuals who venture there. In a pejorative way one calls someone who is very dark or who has escaped from a fire *masāne*. The *dobhān* can be holy places of pilgrimage, and in this case one calls them *ghāt*. In Nuwakot, the most well-known *ghāt* is Devighat; it is located at the place where the river Tadi and the river Trisuli meet. Every year, a large number of pilgrims bathe here. When one considers that a sick person will not survive another few days, one brings them to the *ghāt*. To die in this sacred place would help the individual to be forgiven for their sins.

Table 3**Some Terms Related to Nepalese Landscapes***J. Smadja*

This list of terminology has been compiled by all the researchers involved in the programme. Far from being exhaustive, it only mentions the main terms encountered. The abbreviations used mean:

D: in Dullu; G: Gurung; H: Hindi; J: in Jumla; K: Kirat; L: Limbu; M: Magar; N: Newari; W: Western Nepal; S: Sanskrit; Sn: Sunwar; T: Tibetan; Tg: Tamang

| Nepali terminology | Translation | Other terminologies listed |
|---------------------------|--------------------|-----------------------------------|
|---------------------------|--------------------|-----------------------------------|

Description of places

| | | |
|---------------------------------|---|---|
| <i>aul</i> | malarious warm lowland | |
| <i>besī, bensī</i> | see <i>aul</i> (valley floor) | <i>lung</i> (T, Tg), <i>ghunsa</i> (T), <i>kholo</i> (J) |
| <i>bhanjyāng, deurāli, neta</i> | pass | <i>la</i> (T), <i>langna</i> (W) |
| <i>bhavar</i> | Curiya foothills | |
| <i>bhir, bhalkhando</i> | precipice, escarpment, rocky face | <i>bra</i> (Tg), <i>pākhar</i> (D) |
| <i>bhiralo</i> | sloping (steep slope) | |
| <i>bhitri madesh, dun</i> | inner Tarai, closed valley, inner plain | |
| <i>caur</i> | flat grazing land | |
| <i>dah, kund, tāl</i> | lake, pond, pool | <i>gye</i> (Tg), <i>tso</i> (T) |
| <i>damsāilo, samma bhirālo</i> | gentle slope | <i>ble</i> (Tg), <i>karālo</i> (J, D) |
| <i>dāḍā</i> | crest ridge, summit, hill | <i>gang</i> (Tg), <i>sgang</i> (T), <i>dhuri</i> (M) |
| <i>dhanja</i> | crack, crevasse | |
| <i>dhāp, tari</i> | marsh, swamp | <i>syālā</i> (D), (J: marsh), <i>osilo</i> (D), <i>lung lung</i> (Tg) |
| <i>dobhān, muhān</i> | confluence | <i>beni</i> (S), <i>sangam</i> (S) |
| <i>gairā, garāi,</i> | depression, concavity, | <i>hoktung</i> (Tg) |
| <i>gairo, gahiro</i> | gorge, gully | |
| <i>gaunda</i> | narrow pass | |

| Nepali terminology | Translation | Other terminologies listed |
|---------------------------|--|--|
| <i>ghunsa</i> | lowland, warm | |
| <i>himāl</i> | high snow-capped mountains | <i>gling</i> (Tg, snow) |
| <i>inār</i> | natural well | <i>mula</i> (J), <i>hangkang</i> , <i>ko</i> (Tg) |
| <i>jagai</i> | land suitable for cultivation | |
| <i>jalādhār</i> | watershed | |
| <i>kachhar</i> | foothills | |
| <i>khet bāri</i> | all the fields on a farm | <i>sa</i> (Tg): cultivated land, fields |
| <i>khonch</i> | canyon | |
| <i>kunā</i> | recess, corner | <i>gu</i> (Tg) |
| <i>lekh</i> | upper part of a slope, highlands, summit | <i>lha</i> (Tg) |
| <i>madesh</i> | Tarai plain | |
| <i>maidan</i> | plain, flat area, square | |
| <i>okālo, ukālo</i> | rise | <i>kendo</i> (Tg) |
| <i>orālo</i> | incline | <i>kresu</i> (Tg) |
| <i>pahāro</i> | rock, face, precipice | |
| <i>pahār, pahād</i> | low mountains and hills (with no snowfall) | |
| <i>pahiro</i> | landslip, landslide, gullying, any erosion process | <i>dhi</i> (Tg), <i>chalā</i> (N) |
| <i>parbat</i> | mountain (relief in general) | |
| <i>phāṭ</i> | vast valley floor, alluvial basin | <i>gyulā</i> (J) |
| <i>phedi</i> | valley floor | <i>kākh</i> (J) |
| <i>photeko</i> | opening, break, cut, breach | <i>bre</i> (Tg) |
| <i>pokhari</i> | pool, basin | |
| <i>samma</i> | flat (bench) | <i>chyet</i> (Tg): bench |
| <i>śikhar</i> | summit, peak | <i>tuppā</i> (W), <i>gangri</i> (T), <i>pulum</i> (Tg), <i>tso</i> , <i>potso</i> (Tg: rocky peak) |
| <i>tār</i> | high alluvial terrace | |

| Nepali terminology | Translation | Other terminologies listed |
|--------------------|-------------|----------------------------|
|--------------------|-------------|----------------------------|

Irrigated land

| | | |
|---|--|--|
| <i>bagar khet</i> , <i>baguvā khet</i> | alluvionary flood paddy field | |
| <i>biyār</i> , <i>byāḍ</i> | tree nursery | <i>bennā</i> (J) |
| <i>dhāp khet</i> | marsh paddy field | |
| <i>gairi(ā) khet</i> | basin paddy field (easy access to water) | |
| <i>galbāri</i> | alluvial land (fertile, can be irrigated) | |
| <i>khet</i> | irrigated paddy field | <i>bu</i> (Tg), <i>jjulā</i> (W), <i>chyute</i> (J), <i>jawadi</i> (J), <i>āri</i> (G), <i>yupro</i> (G), <i>graha</i> (M) |
| <i>kholā khet</i> | riverbank paddy field | |
| <i>pākho khet</i> | terraced irrigated paddy field on slope (rare: field in which dry rice is grown) | |
| <i>phāṭ khet</i> | vast alluvial basin paddy field | |
| <i>sim khet</i> | water-drenched paddy field on hydromorphic land | |
| <i>ṭār khet</i> | high alluvial terrace paddy field | |
| <i>thāri khet</i> | paddy field whose irrigation directly depends on torrent water, with no feeder canal | |

Non-irrigated land

| | | |
|-----------------------------------|-------------------------|--|
| <i>bāri</i> | non-irrigated field | <i>bhuwā</i> (J), <i>mrang</i> (Tg: field or slash-and-burn), <i>ata</i> (G), <i>talo</i> (W): patch of land (non-irrigated) |
| <i>bagaicā</i> , <i>phul bāri</i> | garden, vegetable patch | <i>ware</i> (Tg), <i>bāri</i> (J) |
| <i>bānjho bāri</i> | fallow land | |

| Nepali terminology | Translation | Other terminologies listed |
|---|---|---|
| <i>besī bāri</i> | non-irrigated field on the valley floor or at the bottom of the slope | <i>lung mrang</i> (Tg) |
| <i>bhasme</i> | slash-and-burn cultivation | <i>mere pipa</i> (Tg), (<i>me</i> : fire, <i>pipa</i> : put), <i>shimrang</i> (Tg), <i>kuḍilo</i> (J) |
| <i>bhirālo pākho</i> (<i>bāri</i>) | sloping field | |
| <i>birauto</i> | land recently farmed on gullying | |
| <i>ghar bāri</i> | non-irrigated field on which the farm is set up | <i>ghaderi bhuwā</i> (J), <i>lahgan-khor</i> , <i>prijbewe</i> (G), <i>bhui bāri</i> (Sn) |
| <i>khoriyā</i> | swidden cultivation (shifting slash-and-burn cultivation) | <i>khore</i> (G), <i>lohase</i> in Palpa |
| <i>lekh bāri</i> | field at altitude, snow-capped in winter | <i>lha mrang</i> (Tg), <i>lekhali bhuwā</i> , <i>lekhtirko jaggā</i> (W) |
| <i>pākhero bāri</i> | non-irrigated field so sloping that it cannot be ploughed by the swing plough | <i>pakh-moro</i> (G) |
| <i>pākho</i> | non-irrigated field on slope. For some: sloping field (swidden cultivation) (Acad. Dic.) or uncultured pastureland (Gurung 1989, Zurich 1999) | <i>pakh-moro</i> (G), <i>tamo</i> , <i>hare</i> , <i>mehrkoī</i> : maize and millet crops, distinction between the 3 terms according to the altitude and climate (G). <i>kamda</i> in Sallyan |
| <i>pākho (e) bāri</i> | non-irrigated sloping field | recorded at Pyuthan, Rolpa, Sallyan, Kulekani, in the Limbu region |
| <i>pākho jagai / jaggā</i> | non-irrigated field which may be ploughed | |
| <i>prati bāri</i> , <i>pākḥā bāri</i> | abandoned land | |
| <i>swānra</i> , <i>garā bāri</i> , <i>samma bāri</i> , <i>pata pata</i> | non-irrigated terraced field | |
| <i>ṭār bāri</i> | non-irrigated field, on high alluvial terrace | |

| Nepali terminology | Translation | Other terminologies listed |
|--------------------|-------------|----------------------------|
|--------------------|-------------|----------------------------|

Grassy surfaces

| | | |
|------------------------------|--|---|
| <i>bugyen</i> | alpine pastures | <i>pātan</i> (W), <i>proh</i> (G) |
| <i>caran, gaucaran, khel</i> | grazing meadow | <i>pākhā</i> (J), <i>pang</i> (Tg), <i>kamle</i> (Palpa: short grass pastures) |
| <i>caur</i> | plane surface pastures | |
| <i>khar bāri, khar pākho</i> | hay meadow (<i>khar bāri</i> can sometimes be former terraced fields) | <i>kharen</i> (Gulmi), <i>khar melo</i> (Dullu: wooded meadows), <i>melo/melā</i> (J): designates farm work and by extension the land where one works |
| <i>kharkā, kharak</i> | pastures (often a clearing at altitude) | |
| <i>pākhā</i> | abandoned land or steep grassy slope not suitable for cultivation | |

Tree-covered surfaces

| | | |
|------------------------|-----------------------|-------------------|
| <i>ban</i> | forest, wood | |
| <i>bot, rukh</i> | tree | <i>shing</i> (Tg) |
| <i>bricheropan ban</i> | wood of planted trees | |
| <i>buto</i> | scrub, heath | |
| <i>ghāri</i> | thicket, grove, bush | |
| <i>jaṅgal, pātal</i> | dense forest | |
| <i>melo</i> | wooded sector | |
| <i>salleri</i> | pine forest | |

Structural elements of cultivated land

| | | |
|-------------------|---|-----------------|
| <i>āli, ālo</i> | bund in paddy field | <i>iljā</i> (D) |
| <i>bādh</i> | diversion of water using stones and branches | |
| <i>bār</i> | hedge, fence, enclosure | |
| <i>bhal khand</i> | drainage ditch | |
| <i>bhitto</i> | low terrace wall for <i>khet</i> | |
| <i>cheu</i> | outer edge of a field, area surrounding a field | |

| Nepali terminology | Translation | Other terminologies listed |
|---------------------------|---|-------------------------------------|
| <i>dhik</i> | mound, talus, talus separating two fields | <i>gapa</i> (Tg), <i>ḍhusko</i> (J) |
| <i>gara</i> | terrace, plot of land | <i>āwat</i> (D) |
| <i>gāro</i> | terrace demarcated by small dykes | |
| <i>kanlā</i> | talus, low terrace wall | |
| <i>kittā</i> | plot of land | |
| <i>kodāle</i> | small non-irrigated field which can only be ploughed by the hoe | |
| <i>kulo, nahar</i> | irrigation canal | <i>wālām</i> (L) |
| <i>kunā</i> | inner edge of the <i>bāri</i> | |
| <i>parkhal</i> | low stone wall separating a field from a path | |
| <i>pātā</i> | terrace surface on <i>bāri</i> (may be worked by the swing plough) | |
| <i>sādh</i> | limit, small levee of earth parallel to the slope separating two fields | |
| <i>surkā</i> | very narrow terrace on which the swing plough cannot be used | <i>cheber</i> (Tg), <i>jori</i> (D) |

Surface material, ground, state of ground

| | | |
|---------------------|--------------------------|-------------------|
| <i>bagar</i> | main riverbed, stony | |
| <i>balaṭe</i> | sandy | |
| <i>baluwā</i> | sand | |
| <i>cāmro māṭo</i> | compact earth | |
| <i>cimṭe māṭo</i> | sticky earth, clayey | |
| <i>dhaden</i> | coarse alluvial deposits | |
| <i>ḍhuṅgā</i> | stone, rock | <i>yumpa</i> (Tg) |
| <i>ḍhuṅge māṭo</i> | stony earth, rocky | |
| <i>gogreto māṭo</i> | very rocky earth, stony | <i>gorom</i> (Tg) |

| Nepali terminology | Translation | Other terminologies listed |
|---------------------------|--------------------------------|-----------------------------------|
| <i>kālo māṭo</i> | black soil | |
| <i>kamero māṭo</i> | white soil, lime | |
| <i>khare māṭo</i> | dry porous soil | |
| <i>koṭe</i> | sand, pelite | |
| <i>mālilo māṭo</i> | fertile soil | |
| <i>māṭo</i> | earth, soil | <i>sa</i> (T), <i>jha</i> (M) |
| <i>phushro māṭo</i> | greyish soil (dry pulverulent) | |
| <i>rāto māṭo</i> | red soil | |
| <i>seto māṭo</i> | white soil | |
| <i>simsar</i> | marshy plot of land | |
| <i>tandi</i> | dry soil | |

Water

| | | |
|----------------------------------|--|--|
| <i>bāḍhī, bhal</i> | inundation, flood, stream | |
| <i>chahara, chāng-chāng</i> | waterfall, cascade | |
| <i>chalne mul</i> | resurgence | |
| <i>chiso pānī</i> | cold water, cold spring | |
| <i>daha</i> | natural pocket of water | |
| <i>dhārā</i> | fountain | <i>wadi</i> (Tg), <i>gyung</i> (Tg) |
| <i>jaili</i> | gabions | <i>buche</i> (Tg) |
| <i>jal</i> | water, stream | |
| <i>kholā</i> | river | <i>kyu</i> (G), <i>nādi</i> (H), <i>gad</i> (W), <i>gandaki</i> (S), <i>kosi</i> (K) |
| <i>kholcā, bhel</i> | mountain stream | <i>shyong</i> (Tg), <i>khusi, khuwa</i> (K) |
| <i>kholso (ā), khahare</i> | temporary stream, small streams, gully, rill | <i>karpa shyong</i> (Tg) |
| <i>muhān, mul, kūvā, padherā</i> | spring | <i>ki-mlu</i> (Tg), <i>chume</i> (Tg), <i>chu mig</i> (T), <i>kyu-wadhu</i> (G) |
| <i>pānī</i> | water | <i>di</i> (M), <i>ki</i> (Tg), <i>chu</i> (T), <i>kyu</i> (G) |
| <i>tato pānī</i> | hot water, hot spring | <i>ilep</i> (Tg) |

| Nepali terminology | Translation | Other terminologies listed |
|---|---|--|
| Buildings, infrastructures, networks | | |
| <i>bāto</i> | main roads, paths and tracks | <i>gyam</i> (Tg), <i>lam</i> (M) |
| <i>bhangalā</i> | two-storey stall | |
| <i>bhatti</i> | place where alcohol can be drunk | |
| <i>cautārā</i> | resting place (stone platform), lay-by | <i>nen</i> (Tg) |
| <i>dobāto</i> , <i>chaubāto</i> | crossroads | |
| <i>dokān</i> , <i>pasal</i> | shop, inn | |
| <i>garhi</i> , <i>koṭ</i> | fortress, temple-fortress | <i>dzong</i> (T, Tg), <i>kanda</i> (W) |
| <i>gāū</i> | village | <i>namsala</i> (Tg) |
| <i>ghar</i> | house | <i>dim</i> (Tg) |
| <i>ghaṭṭa</i> | water mill | <i>cheto</i> (G), <i>chuta</i> (Tg) |
| <i>goreṭobāto</i> | path for animals | |
| <i>goṭh</i> | stall (possibly mobile shelter for shepherd and herd) | <i>gora</i> (Tg: mobile), <i>brang</i> (Tg: fixed), <i>chāpra</i> (M: shelter made of matting held up against a talus slope), <i>ghar goṭh</i> (J) |
| <i>hāt</i> | temporary market | |
| <i>hiunde goṭhero</i> | fixed shelter at altitude for shepherds and herds | <i>dungang</i> (Tg), <i>lekh goṭh</i> (J) |
| <i>kaṭerā</i> | shed, shelter | |
| <i>khāni</i> | mine | |
| <i>khor</i> | sheep pen, stable, stall | |
| <i>mandir</i> , <i>thān</i> | sanctuary, temple | <i>gombo</i> (T), <i>chörten</i> (T) or <i>mane</i> (Tg): offerings receptacle monument |
| <i>mulbāto</i> | main path | |
| <i>pauwā</i> | inn (with water near by) | |

| Nepali terminology | Translation | Other terminologies listed |
|---------------------------|-----------------------------------|-----------------------------------|
| <i>pāṭi</i> | shelter for passers-by | |
| <i>pul, sāngu</i> | bridge | <i>tsam (Tg)</i> |
| <i>thānti</i> | refuge | |
| <i>ṭol</i> | group of houses, neighbourhood | <i>bāḍo (J), bādā (D)</i> |

CHAPTER II

Ladakhi Landscape Units

Pascale Dollfus, Valérie Labbal

Ladakh lies behind the main range of the Himalayas, at the western end of the Tibetan Plateau (Figure 10). It is an area of high altitude, with land elevations ranging from 2,700 to more than 6,000 metres. In the rain shadow of the Himalayas, the summers are warm and dry, but the winters are very cold. Because of the very low annual precipitation and the high insolation, all agriculture is dependent on irrigation. Hence, of the 60,000 km² covered by the districts of Leh and Kargil, leaving aside Aksai Chin, which has been under Chinese occupation since 1962, less than 200 are farmed. Agriculture is undertaken in the valley bottoms on redeposited material such as fans, river terraces and moraines. Due to low temperatures and frost, the farming season runs from April to September. Beyond land under cultivation and banks of waterways planted with willow (*Salix sp.*), poplar trees (*Populus sp.*), tamarisk (*Myricaria sp.*) and sea buckthorn (*Hippophae rhamnoides*), vegetation is naturally sparse. Forests and hay meadows are not to be seen.

In this harsh environment where the naturalist records approximately ten ecosystems, the Ladakhi farmer distinguishes –and contrasts– several landscape units, according to topographical, bio-geographical and functional criteria. A first fundamental opposition differentiates the village *yul*, which is characterised by human presence from uninhabited or so-called "empty" – *stong pa*¹ – places, such as mountains, *ri* and gorges, *rong*.

The empty wild space: mountain, *ri* and gorge, *rong*

Mountain, ri

The mountain extents beyond the boundaries of the village, *yul*, an inhabited place people make their own. Denoting a relief, or more precisely "the

¹ For the notion of desert land, i.e. non-cropped land, whatever the state of the vegetation, and the village/desert-forest opposition in the ideology of Brahmanic India, see MALAMOUD, 1976. For Central Nepal, see LECOMTE-TILOUINE, 1987.

opposite of village",² no ecological unit characterises it. One term, *ri* (or *ri ga*), applies to granite peaks, ice-capped summits and moraine ridges, as well as sandy gentle slopes and pasturelands strewn in summer with primroses and saxifrages. Whatever its vegetation, the mountain is the archetype of the wilderness; not the fearful one of thick forests and lush vegetation, but that of virgin nature valued as being good and pure. Altitude and especially its position high above the inhabited world endow it with a positive charge,³ which impregnates it and emits it upon the plants, the animals and all sentient beings visiting it. As a place of moral replenishment, men seeking the absolute settle here, meditating in caves, *ri phug*, or hermitages, *ri khrod*. The mountain is also the realm of eagles and jackdaws, birds renown for

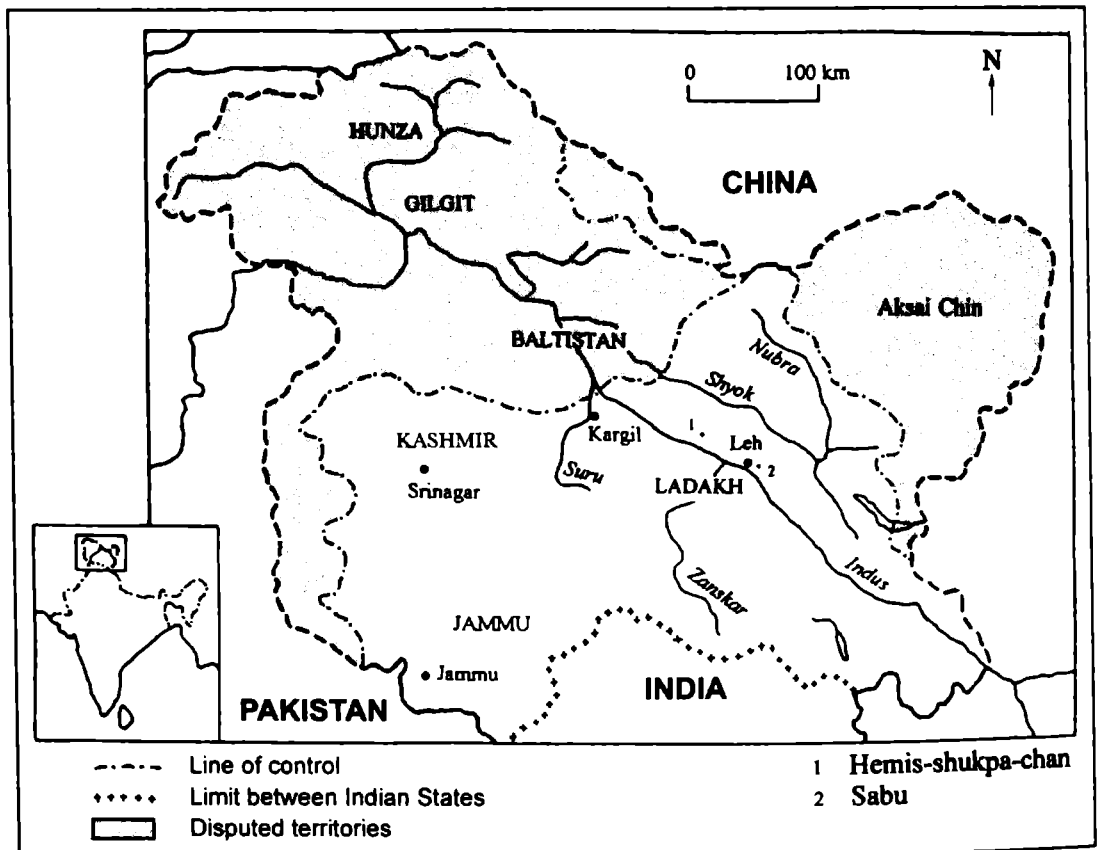
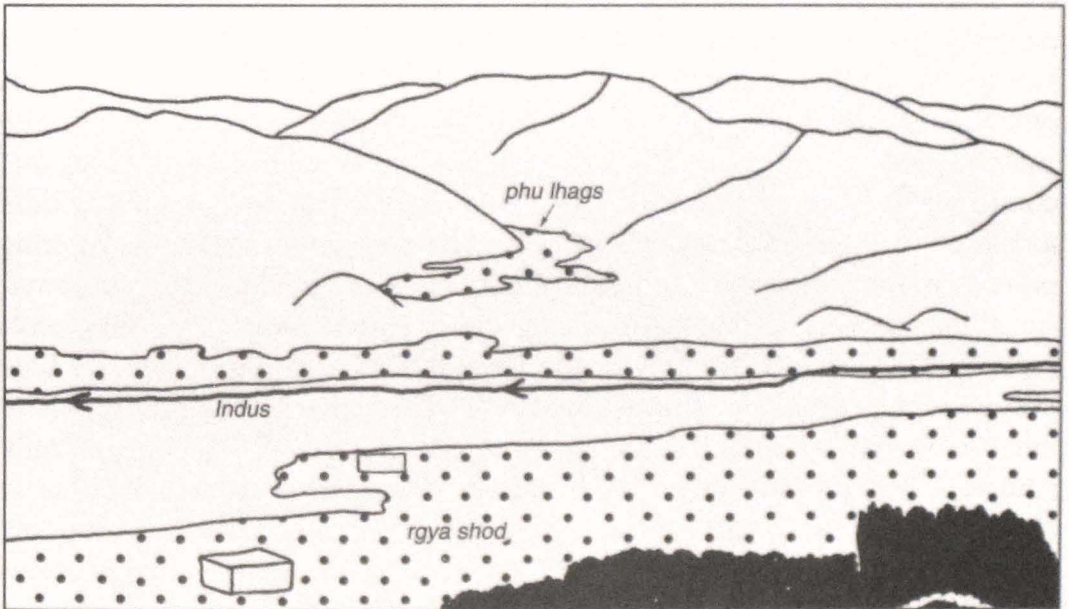


Figure 10
Location of Ladakh and fieldwork sites
V. Labbal

² This expression *l'Autre du village* is taken from MALAMOU (1976, p. 5) regarding the forest in the ideology of Brahmanic India.

³ MEYER, 1987.



Photograph 16 and Figure 11

The two types of oases: river oasis, *rgya shod*, and torrent oasis, *phu lhags*, from Stok, Central Ladakh

P. Dollfus

their longevity; a refuge for hoofed wild animals (*ri dwags*⁴) such as the ibex, a symbol of fertility, which is at the centre of many village rituals; a place for picking "pure" flowers, the only ones worthy of being lain on altars; and for gathering the incense offered to the gods. The grass, which is often short, is tasty and nourishing. It is a concentrate of nutriments, the very essence (*bcud*) of the mountain, which is conversely diluted in pastures of the wetter regions. Delectable to animals, it does not bloat their stomachs. Similarly, the water running through it is light, contrary to that of the river, which is qualified as heavy and weighing on the belly.

Although the mountain is uncultivated and sometimes categorized as wasteland, it is not without its resources. On the contrary, it is a privileged area for gathering, collecting and grazing. It provides inhabitants with fuel, in the form of dung and woody species (*Caragana brevifolia*, *Artemisia spp.*), but also with various plants for culinary, religious and medicinal purposes (*Rhodiola cranulata*, *Nepeta glcosa*, *Waldheimia stoliczkai*, *Gentiana spp.*, etc.). The livestock finds there the bulk of its food: goats and sheep are pastured on stony mountainsides planted with xerophilous vegetation; horses, yaks and cattle graze freely on alpine grassland, close to glaciers. The latter are referred to as *phu*,⁵ meaning literally the uppermost part of a valley, as opposed to *mda'* or *mdo* denoting the lower part of a valley, the place where it merges into the plain, or where one valley opens onto another. Folk songs praise the quality of the grass covering these high pastures, the beauty of the flowers, which adorn them like "turquoises and corals set in silver reliquaries", along with the rich diet of curds and milk available in summer camps. Shepherds generally settle next to a watering point (spring or stream) on a bench. Their camps are made up of enclosures, *ra* or *ra ba*, crude-stone shelters called *pu lu* and sometimes yak-hair tents replaced today by white sheets made from Indian Army parachutes or blue polyethylene tarpaulins (Photograph 17). These particular places where every day goats, ewes and *mdzo mo*⁶ are milked are called *bzhon sa*: "milk camps". They differentiate themselves from other summer places, *'brog sa* or *dbyar sa*, by the way they are set up and their activities, centred around milk and its processing. In Central Ladakh, such places are located at the margins of the cultivated land, *klungs*, and are characterised by small flat-roofed

⁴ Ladakhis often use the homonym *ri bdag* meaning "masters of the mountain".

⁵ Interestingly, *phu shing*, literally meaning wood [collected in] *phu*, is used as a generic term to designate "wood and dry dung" (HAMID, 1998, p.166).

⁶ A *mdzo mo* is the female hybrid obtained by crossing a yak with a cow.



(V. Labbal, Late July 1996)

Photograph 17

High pastures *phu* and shepherd's huts *pu lu*. Sabu, 4.600 m



(P. Dollfus, Early August 1998)

Photograph 18

Summer place *'brog sa* situated amongst mountain fields *ri zhing*, uphill from Nyemo, 4,250 m. Part of these fields is today abandoned land, *sa stong*



(P. Dollfus, June 1996)

Photograph 19

Gorge *rong*, a fearful place.

Locality known as Rong in the Hemis-shukpa-chan Valley, 3,450 m

houses made of mud bricks or stone, in which one or more members of a family stay from May to October.⁷ Whereas the *'brog sa* are always located high up from the village, near "mountain fields", *ri zhing* (Photograph 18), the *dbyar sa* may be situated downhill among apricot and apple orchards.

⁷ *'brog sa* is used in Zanskar area for summer grazing camps, located high up at altitudes of about 4,000-4,500 m.

Gorge, rong

Contrary to the mountain, which is positively connotated, the gorge, *rong*, is a fearful place, since it is –so they say– a hideout for evil spirits, especially for red and backless demons *btsan*. While villagers go during the daytime to cut the branches from tamarisks and willows, they avoid spending the night there. In winter the sun hardly penetrates and it freezes. In summer, on the other hand, the gorge becomes a furnace (Photograph 19).

The tamed space: cultivated land, *klungs*

Unlike the empty and wild untamed spaces of the mountain and the gorge, the field is the domesticated land *par excellence*: cleared of its stones, levelled, irrigated by a carefully-controlled water supply, it is regularly manured, tilled and weeded.

In the fertile flood plain of the Indus near the town of Leh, arable land spreads out endlessly over clayey soil, beyond marshy lands, tamarisks and thorny bushes hemmed in between the branches of the river. Such oases are locally known as *rgya shod*, "wide and lower [places]".⁸ On the other hand, oases located in narrow lateral valleys drained by snow-fed streams are called *phu lhags*,⁹ "higher and colder [places]". There, fields rise in terraces, and water is diverted by numerous intake dams. (Photograph 16, Figure 11).

From a terminological point of view, while people differentiate between two types of oases according to their location, they designate fields by a single term, *zhing* or, if it consists of a very small plot of land, *grwa gu*, *grwa* meaning corner and –*gu* being a diminutive suffix.

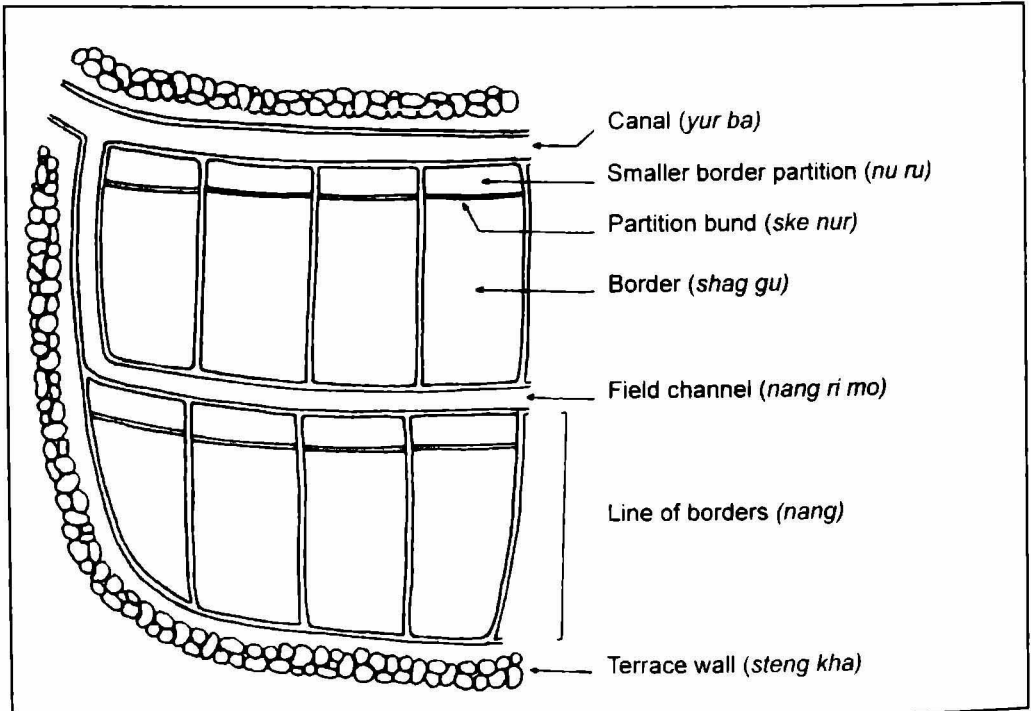
Field and associated terminology

In this arid region where all cultivated land is irrigated, most of the terminology regarding the field focuses on the set of structures ensuring water diversion, conveyance and storage. The wealth of vocabulary to describe it reflects the minute detail of the irrigation practices to which it corresponds.¹⁰

⁸ *rgya*, *rgya can*: having extent (JÄSCHKE, 1980, p. 105); *shod*: the lower, the inferior part of a thing (*id.*, p. 564).

⁹ *phu lhags*: higher and colder places (JÄSCHKE, 1980, p. 342); *lhags pa*: freezing wind (HAMID, 1998, p. 302).

¹⁰ For vocabulary and irrigation techniques in oases of Central Ladakh, see LABBAL, 2000.



Photograph 20 and figure 12

The field, *zhing* and its system of borders. Leh, 3,500 m
V. Labbal

The irrigation system is a gravity-fed system. Fields to be irrigated are divided into parcels called *shag gu*,¹¹ bounded by parallel earth bunds nearly ten centimetres high. During irrigation, water channelled by bunds moves down the border slope, infiltrating as it goes. Borders are generally rectangular in shape, except along field edges. Their width varies from one to two metres for cereal plots. Their length may reach five to ten metres. In the same plot, it is therefore common to see several lines of borders, called *nang*¹² separated by field channels or *nang ri mo*.¹³ The system of bunds which encloses the borders is called *shag ris*.¹⁴ Furthermore, each border is divided cross-wise into two unequal parts, separated by an inner bund. The smaller partition, which lies at the upper part of the border, is called *nu ru*,¹⁵ or *nur* while the partition bund is referred to as *ske nur* or "neck of the *nu ru*" (Photograph 20, Figure 12).

During irrigation, water first flows into this small partition. Once it is flooded, many cuts are made with a shovel through the inner bund. Such a method permits a more uniform spreading of water in the main partition. Then the sheet of flowing water moves down the slope of the border, guided by the border's bund.

Field classification

Ladakhis do not distinguish fields according to the altitude, exposure, soil, access to irrigation, and the like, but rank them into three classes according to their location within the cultivated land area and their proximity to the house with which they form an estate (*zhing khang*: fields [and] house) (Figure 13). Indeed in Ladakh, the estate-owning household, known as *khang pa*, is the key unit of economic and social village organization.¹⁶ Moving away from this centre is equivalent to going down in the scale of values.

ma zhing, "main field" or "mother field", is the best. Generally of a generous size, it is located near the house to which it belongs. Since carrying manure and weeding involve only short moves, it is the best maintained on the estate. Well situated and well cultivated, it produces the highest yield.

¹¹ *shag gu*, probably from *gshog pa*: to cleave, to split (JÄSCHKE, 1980, p. 566).

¹² *nang*: the interior, the inside (JÄSCHKE, 1980, p. 301).

¹³ *nang ri mo*: from *nang* (see note 17) and *ri mo*: drawing, picture, sketch (HAMID, 1998, p. 258).

¹⁴ *shag ris*: from *shag gu* (see note 16) and *ris*: drawing (HAMID, 1998, p. 260).

¹⁵ *nu ru*: of unknown etymology.

¹⁶ On estate-owning household *khang pa*, their rights and duties, see DOLLFUS, 1989.

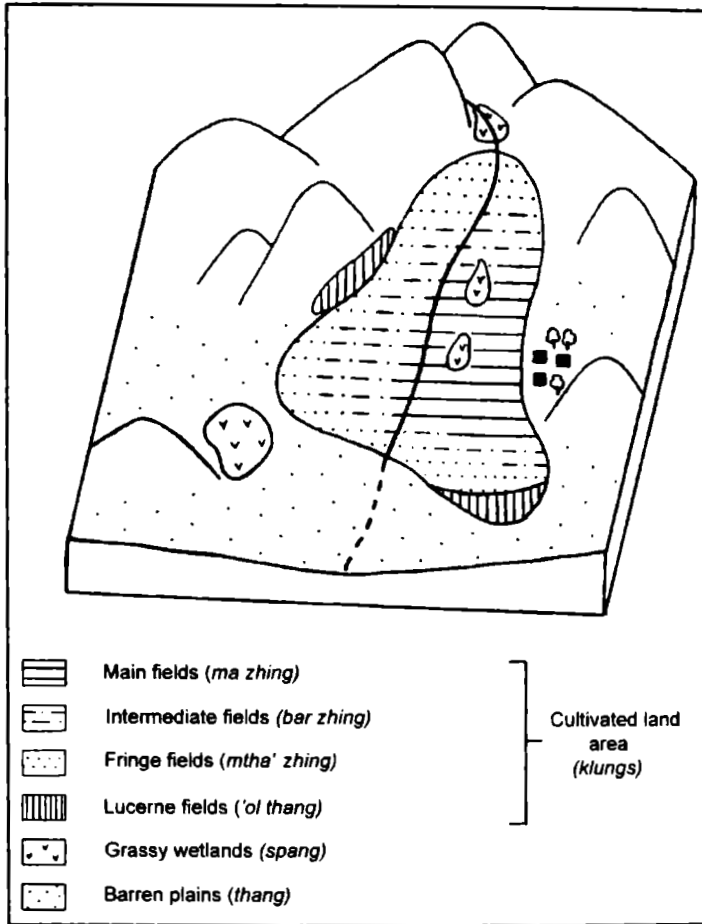


Figure 13
Distribution of the different types of field within an oasis
V. Labbal

The *ma zhing par excellence*, the pride of the family is an inalienable land which is passed down to the eldest from one generation to the next, along with the estate-owning household. The day it is ploughed and sown is one of festivity.

bar zhing, "field in between", also called *gzhung zhing*, "middle field", is an intermediate field, both in its location and in the average yield it gives.

mtha' zhing, or "fringe field", is situated on the limits of the cultivated area, in sectors where the authority of *lo ra pa*, the "guardian of the harvest"¹⁷, responsible for protecting the crop from livestock, is no longer legitimate. Located far from dwellings, seldom manured and rarely weeded,

¹⁷ The *lo ra pa* is a villager in charge of protecting the crops from the moment the first plantlets appear to be ready for harvesting. He is empowered by the village community to impose fines on owners of roaming animals.

subject to rock slides, fallen earth and gravel coming from the slopes that bound them, trampled on, and even sought by animals escaping the herdsmen's vigilance, it gives a low yield: "one or two measures of grain yielded for one sowed". In fact, farmers mainly cultivate them for the stubble they provide. Nowadays, due to children being schooled, there is a shortage of manpower and these fields, just as uphill the "mountain fields", *ri zhing*, which are one of their subcategories, are the first to be abandoned. From *zhing*, they turn into reverted land referred to as "empty land", *sa stong*, or "ruined field", *zhing gog*.

The particular case of the small village of Yangthang (10 main houses), located in the valley next to Hemis-shukpa-chan, is worth consideration. It stands out by the use of a different typology, which supplants the usual categories previously mentioned. There, the three different kinds of fields are defined according to the levies due to Ridzong, a nearby monastery that plays a key role in the religious and socio-economic village organisation. According to Herdick (1999: 213), basically, the land under ownership within the entire area belongs to this monastery. *Cha zhing*¹⁸ refers to levy-free fields owned by the farmer himself. *Shas zhing*, the largest fields, carry a levy payable to the monastery after the harvest: double the amount of the seed needed to sow them properly. *Thong ros* is a combination of the first two types, being land that has recently been made arable, and remaining free of levy for four years. After this period it is treated as a *shas zhing* field.

Elsewhere in the Tibetan area, different classifications are in usage. In Dolpo for example, in Northern Nepal, only two categories of field exist: the *zhing kha* that occupy the valley floor, which is liable to flooding, at an altitude ranging from 3,950 m to 4,250 m, and the *ri zhing* arranged on higher terraces, close to the confluence of torrents. In each category, fields are then ranked according to their size and evaluated according to the amount of seed required for sowing the field in question. Thus, a "big field", *zhing kha che*, may take sixty to eighty measures, a "field of average size", *zhing kha bar ma*, forty, a small "field [big as] the summit of a boulder", *zhing kha 'brag rtse*, five to ten.¹⁹ More westerly, in Humla, among "land

¹⁸ The terms *cha zing*, *shas zhing* and *thong ros* have been kept as written by Herdick 1999.

¹⁹ JEST, 1975, p. 105. Fields are also evaluated in "mõndor" (*rmon dor*, literally "a pair of plough-yaks), area which can be ploughed by a pair of yaks in one day: the equivalent of 0.05 hectare. In the same way, in Ladakh, the size of a field is measured by the number of days needed to plough it.

fields", *sa zhing*, the Nyingbas differentiate between "highland fields", *la zhing*, situated above 3,300 m, more arid, which only support one crop per year and "lowland fields", *shod zhing*, below 3,300 m, which may be irrigated and can produce two crops per year in rotation. According to N. Levine (1977, p. 38), the basis for this dual classification scheme "may well have been derived from the categories of governmental land and tax assessments. Here land is categorized as either *khet*, suitable for growing rice or wheat, or *pakho*, the less profitable arid highlands".

Land classification

In Ladakh, land classification depends on how the land has been developed, rather than its soil qualities. Thereby land is named and organised into a hierarchy according to its vegetation cover. The most valued is the cropped land, *zhing sa*, sown with barley, wheat and, in lower valleys, with buckwheat. Then there are the grassy wetlands, *spang sa*, and ground where perennial lucerne is grown, *'ol sa* (from *'ol*: lucerne, alfafa), thought to be of equal value. Then comes land planted with trees, *lcang sa* (from *lcang*: tree²⁰), and finally stony ground, *shag sa* (from *shag*: gravel, pebbles).

Land for vegetable gardens known as *tshas*, "garden", does not figure in this classification or in that of fields. Located near the homestead and surrounded by mud-bricked or dry stone walls, these gardens are above all planted with vegetables, even though flowers are also grown and sometimes even fruit (apple-, apricot-, and walnut-) trees. In these lovingly-tendered plots, new plants become acclimatised. Alongside turnips, which have been grown in Ladakh for centuries, they have welcomed the first carrots probably brought from Central Asia by caravan traders; potatoes, cauliflower, radishes and spinach introduced by Christian missionaries of the Moravian Church at the end of the XIXth century; and maize plantations experimented without success during the same period by British administrators. More recently, new varieties of cabbages, onions, tomatoes and even egg-plants have developed, brought from neighbouring Kashmir or from the West by passing tourists.²¹

Interestingly, in 1901, when the first Land Settlement Act was drawn up for the purpose of taxation, the administrator in charge of the Records of Rights adopted the Ladakhi terminology and the classification of fields into

²⁰ *lcang*, *lcang ma* denotes the tree and in particular willow; the other generic term for tree being *shing*, literally wood.

²¹ See Chapter IX.

"Majing", "Barjing" and "Thajing"(sic), the best being Majing and the worst in terms of yield being Thajing. The prefix "Bagh" was added wherever any of these three types of land were planted with fruit trees: thus Bagh-Majing (in Urdu *bagh* means garden). He also kept the designations "Öl-thang" ('*ol thang*) and "Chass" (*tshas*) to name the land upon which lucerne was grown for winter fodder and the land used for the cultivation of vegetables.²² On the other hand, he used the Urdu terminology in the rest of the Jammu and Kashmir state to designate land left fallow for a period of three years, *banjar jadid*²³ and land left fallow for more than three years *banjar qadim*.²⁴ Land not suitable for agriculture, either because it was built upon or because it was too rocky was called *gher mumkin*²⁵ and land upon which "white" poplar trees were grown, *safed azar banjar qadim*.

The potentially cultivable space: barren plain, *thang*, and grassy wetlands, *spang*

thang or barren plain

In Ladakh, *thang* designates a plain, a plateau, a flat and generally barren area. It can be qualified as "dry" (*thang skam*), as "empty" (*thang stong*), or else be defined by the presence of sand and called *bye ma thang*. This sand is of two varieties: soft, *bye ma 'jam po*, and rough, *bye ma rog rog*. The compound terms *rtswa thang* or *spang thang* which in other Tibetan regions respectively designate grassy or swampy plains, are not used. According to the villagers questioned, these expressions would be nonsense: a *thang* is by definition a non-irrigated and desert stretch and could not be covered in grass. Paradoxically, the same villagers call '*ol thang*, flat ground covered with lucerne.

These vast stretches of land that are virtually devoid of any vegetation provide welcome building materials (stones, gravel and sand), and also fuel (firewood as well as goat, sheep and donkey droppings). Indeed, despite their great aridity, they are rough grazing for sheep and goat herds, and in summer for donkeys kept in the village as common pack animals.

The absence of a steep slope distinguishes the *thang* from steppe-like slopes that, even though planted with similar vegetation (*Artemisia*,

²² Land Settlement Act: "The Records of Rights", Leh Archives. See Vohra 2000, p.151.

²³ In Urdu, *banjar* means "fallow land" and *jadid*: "new, recent".

²⁴ *qadim* (U.): "old".

²⁵ *gher mumkin* (U.): "impossible, unsuitable".

Astragalus, *Caragana*, *Stachyis tibetica*), are included in the mountain category²⁶ (Photograph 21). Their sparse and xerophilous vegetation sets them apart from *spang*, grassy wetlands.



(P. Dollfus, August 1998)

Photograph 21

The break in the slope marks the limit between the mountain, *ri* and the flat and barren plain, *thang*. Hemis-shukpa-chan, 3,900 m

spang or grassy wetlands

The *spang* is a grassy, damp ground, even marshland. It is a place dotted with numerous springs where underground water runs. It is characterised by short, thick grass, strewn with tufts of bulrushes and moss that "never dry out". The *spang* –the Ladakhis insist– "stays green" all year round. Donkeys, horses, cows and hybrids are led there during winter when they are not stalled due to heavy snowfalls; in summer, the lactating animals, kept in the village to provide daily milk, graze here. Neither the appearance nor the size

²⁶ The expression "the limit between plateau and mountain" (*ri thang mtshams*), which evokes a confrontation zone between two opposites under the aspect of a radical rupture, is used in medical literature to describe the treatment of fever by drugs of a cold nature (MEYER, 1987).



(P. Dollfus, August 1998)

Photograph 22

Grassy wetlands or *spang*: winter pastures. Hemis-shukpa-chan, 3,850 m

is a suitable criterion to define them. A *spang* may just as well be shaped by the frost or have a regular levelled surface and cover several sloped acres or only a square metre at the edge of a field (Photograph 22).

From thang and spang to field

Within the limits of the oasis, *thang* and *spang* are recognised as potentially cultivable land. The transformation of a barren plain into a field implies, on the one hand, that water is brought using irrigation channels and, on the other hand, that the sandy soil is enriched by adding manure or by growing perennial lucerne, a green fertiliser. Such land reclamation is mentioned in the Chronicles of Ladakh²⁷ from the reign of the mythical king, sPu lde gung rgyal, onwards. According to this text, it was accomplished by building reservoirs and irrigation canals, and above all by inventing a wooden swing plough fitted with an iron ploughshare and drawn by a pair of bovines of equal size.²⁸

²⁷ The Chronicles of Ladakh (*La dwags rgyal rabs*) is a set of heterogeneous and often contradictory manuscripts compiled in Tibetan probably in the XVIIth century.

²⁸ See Chapter IX.

Turning marshy land into fields, as expressed in Ladakhi by "breaking the *spang*" (*spang bcag byes*), also involves controlling the water supply and preparing the soil. This practice consists first of all in draining the area by diverting the water flowing through it, in breaking and removing the many rocks, in tilling and finally levelling the soil as well as erecting retaining walls where required due to the existence of a slope. Generally depicted as "full of rocks and stones", a "broken *spang*" is not considered to be good quality arable land.

The transformation of *spang* and *thang* into fields, as evoked in chronicles, travellers' accounts and by the presence of toponyms naming cropped land such as "Broken *spang*" (*spang bcag*) or "Big *thang*" (*thang po che*), is nowadays on the decline in the oases of Central Ladakh. Indeed, for more than ten years now, the development of *spang* and *thang* is mainly accomplished by planting trees (willows or poplars). This phenomenon, not a recent one, has today reached a scale so far known under the combined effects of schooling and government's incentives.²⁹ Contrary to farming and livestock cultivation, these clusters of trees do not require daily care, which is a considerable advantage for those households suffering from a manpower shortage. Moreover, recently, the Indian Government has offered two to five Indian rupees per plant, financed the fencing around them –generally made of barbed wire– and, for large-scale plantations, taken on wardens to keep watch. Parallel to this, it has been encouraging farmers to abandon cereal crops by selling them rice and wheat flour imported from Punjab or other regions of India at subsidized prices. In fact, eating off their own land by calling upon outside manpower for ploughing, sowing and harvesting in order to make up for the staff shortage today works out to be more expensive for the inhabitants of Leh and its vicinity than buying rice and flour in the retail outlets, popularly known as *ration stores*, set up by the government.³⁰

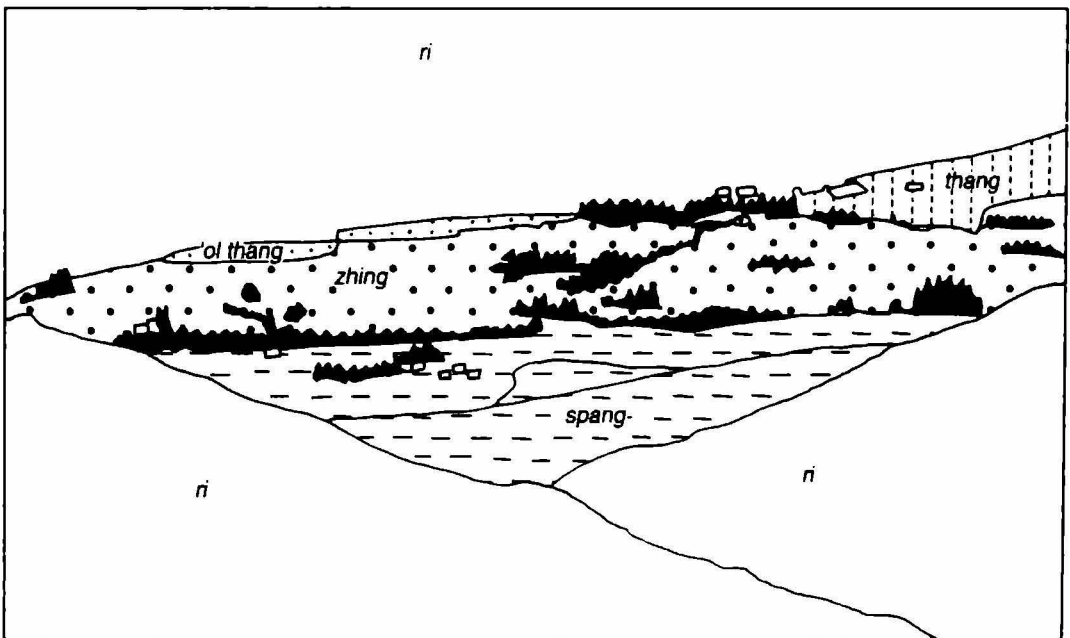
Spang and *thang*, when planted with willows and poplars, more rarely with fruit trees, and enclosed by mud-bricks or dry stone walls or rows of barbed wire, do not only change name but also status. From "villagers' property" (*yul pa 'i sa skyad*), they become privately owned (*grong pa'i sa skyad*, literally "household property"), such as "gardens" (*tshas* or U. *bagh*) or "groves" (*lcang sa*).

²⁹ See Frames 16 (Chapter XII) and 19 (Chapter XIV).

³⁰ Two conditions govern the sale of subsidized commodities. First the buyer must possess a "ration card". Second, purchases are subject to quota.



(P. Dollfus, late August 1998)



Photograph 23 and figure 14

Different landscape units: mountain *ri*, barren plain *thang*, grassy wetlands *spang*, and field *zhing*. Sakti Valley (Eastern Ladakh) 3,700-3,800 m

P. Dollfus

*
* * *

Compared with the extreme terminological diversity encountered in Nepal, what is striking is the small number of landscape units recorded in Ladakh and the consistency with which they are named throughout the territory. This fact may most certainly be explained by the climatic, biogeographical but also ethnic homogeneity in this high-altitude region situated in the north of the Greater Himalayan Range, where only irrigable areas can be farmed and where the inhabitants share –despite sometimes differing religious faiths– the same language, the same culture and the same farming practices. Moreover, the terms designating the main landscape units identified in Ladakh (*ri, lung, rong, klungs, thang, spang*) (Photograph 23, figure 14) also seem to be applicable to the whole Tibetan area, even if the reality they embody sometimes varies slightly from one region to another.

Table 4
Ladakhi Terminology of Landscape Units

P. Dollfus, V. Labbal

| Transliteration | Pronunciation | Translation |
|--------------------------------------|--|---|
| Relief, description of places | | |
| 'ba bo | ba-o | cave, cavern |
| brag | dak, tak | rock face, cliff, rock |
| brag phug | takp ^h uk | cave in a rock face |
| brag ri | takri | craggy mountain |
| brag zangs | tagzang(s) | precipice, steep stone mountainside |
| bye ma thang | pemat ^h ang | sandy plain |
| g.yang | gyang | precipice, abyss |
| gad pa | gadpa | conglomerate |
| gangs ri | kangri | glacier |
| gsum mdo | sumdo | confluence |
| kong ka | kongka | low pass or ridge |
| la | la | mountain pass |
| la mgo | lamgo | top of a pass |
| ldebs | ldebs | side or face of a mountain |
| lung, lung pa | lung, lungpa | valley |
| mda', mdo | da, do | lower part of a valley; meeting place of valleys, roads or rivers |
| pho long | p ^h olong | big rock |
| phu | p ^h u | the upper part of a valley |
| phu lhags | p ^h ulaks | oasis located along a snow-fed stream |
| phug, phug pa | p ^h uk, p ^h ukpa | cave |
| rgya shod | gyashod | oasis located in a large alluvial plain |
| ri mgo | rimgo | summit (lit. 'head') of the mountain |
| ri rtsa | ritsa | foot (lit. 'root') of the mountain |
| ri'i ngos | ri ngos | slope of a mountain |
| ri, ri ga | ri, riga | mountain |
| rong | rong | narrow valley, gorge |
| rtse, rtse mo | tse, tsemo | summit |
| sdings | sding, ding | flat basin, depression |

| | | |
|--------------------|-------------------------|-------------------------------------|
| <i>sgang</i> | sgang | projecting hill, spur |
| <i>skyibs</i> | skips | overhanging rock |
| <i>spang</i> | spang | meadow; grassy, marshy ground |
| <i>thang</i> | t ^h ang | arid plain; barren and flat stretch |
| <i>thang stong</i> | t ^h angstong | "empty" plain |

Surface materials and soils

| | | |
|-------------------------|----------------|-------------------------------------|
| <i>ar ka</i> | arka | crushed stone and plaster |
| <i>btsag</i> | tsak | red ochre |
| <i>g.ya mang</i> | yamang | slate, stone-slab |
| <i>g.ya sa</i> | gyasa | slaty soil |
| <i>gtsig</i> | tsik | red earth |
| <i>mar ka la ga</i> | markalaga | white, very fine clay |
| <i>mtshal</i> | tsal | vermilion |
| <i>nag chur</i> | nakchur | a clay of steel-grey colour |
| <i>rdo sa</i> | rdosa | rocky soil |
| <i>rdza rog</i> | dzarok | boulder-covered area |
| <i>rdza sa</i> | dzasa | potter's clay |
| <i>sa ma brag</i> | samatak | mixed earth and stony ground |
| <i>shag ma</i> | shakma | gravel, pebbles, small stones |
| <i>shag rug</i> | shakruk | stones |
| <i>shag sa</i> | shaksa | stony soil, gravel |
| <i>shal ma, shal sa</i> | shalma, shalsa | stony ground consisting of detritus |

Erosion

| | | |
|------------------|----------------------|---|
| <i>chu 'phel</i> | c ^h uphel | swelling |
| <i>chu log</i> | c ^h ulok | flood, flooded stream |
| <i>chu rud</i> | c ^h urut | flash-flood, water flooding in the desert |
| <i>kha rud</i> | k ^h arut | avalanche |
| <i>sa 'gul</i> | samgul | earthquake |
| <i>sa rud</i> | sarut | mudslide, landslide |
| <i>ser ga</i> | serga | crack, cleft, crevasse |

Irrigated lands

| | | |
|--------------------------------|-------------------------|--|
| <i>ol sa, 'ol thang</i> | olsa, olthang | lucerne crop |
| <i>bar zhing, gzhung zhing</i> | barzhing, zhungzhing | "middle field": field of intermediate quality and position |
| <i>klungs</i> | lhung(s) | cultivated land area |
| <i>lag tshugs</i> | laksts ^h uks | tree nursery, tree saplings |

| | | |
|---------------------------|--------------------------|--|
| <i>lcang sa</i> | lcangsa | wooded land |
| <i>ma zhing</i> | mazhing | "best field", close to homestead, producing a good yield |
| <i>mtha' zhing</i> | t ^h azhing | "fringe field": hardly manured, producing a poor yield |
| <i>ri zhing</i> | rizhing | "mountain field" |
| <i>tshas, bagh (urdu)</i> | ts ^h as, bagh | garden (vegetable garden, orchard) |
| <i>zhing</i> | zhing | field |
| <i>zhing sa</i> | zhingsa | arable land |

Field

| | | |
|-----------------------|----------|---|
| <i>nang</i> | nang | line of borders |
| <i>nang ri mo</i> | nangrimo | field channel |
| <i>nur ru</i> | nuru | smaller border partition |
| <i>rka</i> | ska | small mound of earth temporarily blocking a channel |
| <i>shag gu</i> | shagu | Border, field parcel |
| <i>shag ris</i> | shagris | system of earthen bunds |
| <i>steng kha</i> | tengka | terrace wall |
| <i>yur ra, yur ba</i> | yura | canal |

Fallow, fallow lands

| | | |
|------------------|----------|---------------------------------|
| <i>sa stong</i> | sastong | "empty ground" |
| <i>tha gog</i> | thagog | fallow, idle land |
| <i>zhing gog</i> | zhinggog | "field in ruins", derelict land |

Pasture lands

| | | |
|--------------------------|------------------|--|
| <i>'brog, 'brog sa</i> | dok, doksa | summer places in mountain pastures |
| <i>phu</i> | p ^h u | pastures situated at the top of the valley |
| <i>spang</i> | spang | grassy wetlands; meadow; lawn |
| <i>spang sding sding</i> | spang dingding | grassy depression |

Water

| | | |
|------------------|------------------------------------|-------------------------|
| <i>chu</i> | c ^h u | water, waterway |
| <i>chu dong</i> | c ^h udong | water hole |
| <i>chu mgo</i> | c ^h u mgo | source (of a river) |
| <i>chu mig</i> | c ^h umik | spring |
| <i>chu phran</i> | c ^h ut ^h ran | brook, rivulet |
| <i>chu rab</i> | c ^h urab | ford |
| <i>chu tshan</i> | c ^h uts ^h an | medicinal or hot spring |

| | | |
|----------------------|-------------------|--|
| <i>gram pa, 'dam</i> | dampa, dam | damp ground, marsh |
| <i>grog po</i> | tokpo, tokpo | stream, small river, torrent |
| <i>gtsang po</i> | ltsangspo | river, main river (in Ladakh: the Indus River) |
| <i>mtsho</i> | ts ^h o | Lake, pond |
| <i>spang</i> | spang | grassy wetlands |

Wooded spaces

| | | |
|---------------------------|------------------------|--|
| <i>lcang gseb</i> | lcangsep | grove of trees |
| <i>lcang sa, lcang ma</i> | lcangsa; lcangma | wooded land; tree in general, willow in particular |
| <i>lcang shing</i> | lcangshing | timber tree, willow wood |
| <i>nags</i> | naks | cluster of trees, plantation of trees |
| <i>nags tshal</i> | naksts ^h al | forest |
| <i>tshogs</i> | ts ^h oks | forest, thicket |

CHAPTER III

Some Elements Structuring the Himalayan Mountains

Olivier Dollfus and Monique Fort

The Himalayas are another dimension of the Earth, its immense vertical part. They loom up above immersed soils like an uprising continent, a strangely massive whole, but the mass of which appears to be detached from the rest of the world. However crazy it seems, this sensation dominates one's first approach as one ventures between the Ganges and Tibet. Here, the play of appearances upsets elementary laws, and what one sees is no longer subjugated by gravity. The prominence of the summits surmounts the scaled certainties of the plain; a territory then converges where reality is like a dream, where the view forges the vision.¹

André Velter, *Le Haut Pays*, 1988

Tourist guidebooks have popularised a simple yet spectacular picture of the Himalayas: a steeply sloped yet very human mountainside in the foreground, where villages and terraced fields stretch out, then on the next level, a higher and darker sector which corresponds to the high-altitude forest from which emerge, as out of a box, the high ice-capped summits which take up the entire background. This picture, which flattens out volumes and differences in altitude, is in fact only an archetypal and very simplified representation of the Himalayan reality, where the environments, forms of human settlements and land use of the mountain slopes are in reality extremely diversified.

¹ Translated from French: "*L'Himalaya constitue l'autre dimension de la Terre, sa part d'immensité verticale. Au-dessus des sols immergés, il s'impose comme un continent en élévation, un ensemble singulièrement massif, mais dont la masse paraît détachée du reste du monde. Si déraisonnable soit-elle, cette sensation domine l'approche première de qui s'aventure entre le Gange et le Tibet. Là, le jeu des apparences dérègle les lois élémentaires, et la pesanteur ne soumet plus le regard. L'évidence des cimes excède les certitudes étalonnées de la plaine; s'aborde alors un territoire où la réalité tient du rêve, où la vue engendre la vision.*"

This mountain range, on average 2,500 km long and 500 km wide, populated by ethnic groups of very diverse origin, with very varying degrees of development from one region to another, cannot be reduced to a single landscape, even if this one offers, in broad outline, some of the elements structuring the Himalayan space: sharp landforms, tiered environments with complementary resources, contrasts between the top and the bottom, hot and cold, damp and dry, the inhabited and the uninhabited, the realm of humans and that of the gods. In the following sections, using a series of "invariant" factors inherent to nature, even that of the Himalayan mountains (landforms and tectonics, atmospheric flows, gradients and ecological mosaics, availability of water resources), we will attempt to show how environments have become diversified and how we find ourselves faced with the present complexity of Himalayan landscapes. This analysis, preceded by a brief presentation of the main geographical units, is based exclusively on the examples which will be developed in the other chapters of this book and will therefore be centred above all on the Nepal Himalayas.

Belts of diversified and complementary environments

The Himalayan structure, an orogen situated right on the Asian continent between 25°N and 36°N in latitude, is made up of a series of more or less parallel and dissymmetrical crest lines, which rise from the Indo-Gangetic foothills in the south to the Upper Range and the Tibetan plateau in the north, offering, over a limited distance, a succession of environments with unevenly distinct features.

The vast alluvial Tarai glaxis, which rises gently (its slope does not generally exceed 1 per cent) from the flood plain of the Ganges to the front of the mountains, is formed by a series of coalescent cones built by the Himalayan rivers when abandoning their load on leaving the mountains. Periodically devastated by floods, this narrow band (50 km) of gravelly soils which to the south fringes the Nepalese space (which represents 14 per cent of its surface), bears young soil and a dense subtropical vegetation. Upon the eradication of malaria and the extension of major irrigation projects, this area has, over several decades, become the wheat and rice granary for the country. It is undeniably the region that offers the greatest potential for development. A growing season that lasts all year round, unlimited underground water reserves, flattish land regularly fertilised by the alluvium from flooding or irrigation, a relatively well-developed infrastructure allowing products to be sold easily on both the domestic and Indian markets

explain the attraction that this sector exerts on those populations down from the Himalayan mountains or those having left the overpopulated lands of neighbouring Bihar.

The long Curyia ridges are the first landforms, which rise above the plain and, as such, are very wet. These foothills and mountains, low (between 300 and 1,000 m) and stretching linearly, are often dissymmetrical, cut out from brittle materials (sandstone or clayey Siwalik "molasses"), deformed by the continuing Himalayan orogenesis. They form, with the *dun* that separate them (extended basins such as those of Hetaura, Narayangarh, the Dang and Surkhet Valleys...), a mosaic of environments where gullied slopes, long *saāl* wooded mountain slopes and valley floors that are subject to flooding alternate with each other. Populated by Tharu farming and land-clearing tribes, these lands belong to important Hindu landowners, of high caste from the plain or mountains, which may explain some of the sluggishness in adopting innovations made necessary by the boost in this region's development.

The Mahabharat range, which suddenly rises from 1,500 m to close to 3,000 m above the Tarai and Curiya hills, a low to middle mountain, which is still rising, is a remarkable climatic obstacle which intercepts monsoon rains (Photograph 24). The jagged ridges oriented east-west rapidly alternate with narrow valleys, drained by rivers that escape to the foothills by transverse gorges of a characteristically "bayonet" pattern. The few villages often occupy the ridges or secondary spurs.² For a long time the steepness of the slopes hindered permanent human settlement on the mountainsides. This explains the relative preservation of secondary subtropical and temperate forests, despite the strength with which torrential erosion and landslides scour the mountainside. It is nevertheless in this area, geologically very unstable but well situated between human settlements of the lower mountains of Pahar and the Tarai plain, that many hydroelectric projects are taking form.

Pahar, which extends further north, appears to be a relatively depressed region between Mahabharat and the middle mountains, and forms the foothills of the Upper Range. Made up of a series of low mountains barely exceeding 2,000 m in altitude (the *hills* of Anglo-Saxon authors), often with rolling ridges oriented east-west, it opens onto wide valleys that

² As in Masyam; see Chapter XVII, "A bocage landscape. Masyam and the hamlet of Kolang" (T. Bruslé, M. Fort, J. Smadja).



The Mahabharat Lekh is a range of low and middle mountains, which in the north dominates the Curiya hills. It is an area with rapid uprising reliefs (almost one centimetre per year), as expressed by a deep incision of the rivers which maintains the steepness of the hillslopes. This region remained uninhabited for a long time. The colonisation of land came about via the ridges, the most stable elements on these hill slopes which are forever being destabilised at the bottom (some light marks at the bottom of the photograph are landslides). Today the mountain slopes are more and more occupied, at least half-way up, whilst the forest has been converted into shrubs, as here in the south-west of Kathmandu. The valley floor is very narrow, which leaves little room for crops (chiefly paddy fields) and renders them vulnerable to flooding that frequently occurs during the monsoon season (Photograph M. Fort, March 1983).

Photograph 24
Mahabharat Lekh

locally converge into vast confluence basins (Pokhara, Besishahar, Arughat, Trisuli), ranging in altitude between 500 and 1,000 m. Though undulating and locally affected by landslides due to a predominantly schistose substratum, it is a privileged environment where mixed tropical (*sāal* or *Shorea*), subtropical (*Schima*) and temperate (oak) forests –on fersiallitic soils and brown soils– have largely been cleared to allow for a completely farm-oriented way of life under the influence of strong demographic pressure. The hill slopes are most often cultivated and arranged into terraces (south of Pokhara) or, in certain sectors (Gulmi, Argha Khanci, Palpa³), directly cultivated on the slope. It is the traditional area for Nepali peasants to settle, where the *bāri* fields occupy a large part of the hill slopes, whereas the *khet* are to be found exclusively on the valley floor or close to a permanent source of water.

In the whole of the Pahar region, the Kathmandu Valley, a vast basin perched over the Trisuli Valley in the west and the Sun Koshi Valley in the east, is an exception. Here in early times, the Newar developed an elaborate and meticulous farming technique based on an irrigation network taking advantage of the microtopography of terraces and of the capacities of the different lacustrine (sand and silt) soils, which fill the flat bottom (1,200 m) of this basin. Yields are higher than average and on some soils it is possible to grow three annual crops (two of which are rice).

Pahar is bound in the north by the lower slopes of the Upper Range. This region of middle mountains is in fact formed by the juxtaposition of large mountain slopes with a difference in altitude of several thousand metres (from 1,000 to 5,500 m), the steep (from 30 to 50° on average) slopes of which are lacerated by deep valleys almost oriented north-south, perpendicular to the mountain strike. The bioclimatic zonation is particularly marked and has been turned to good use over the centuries by populations that developed an elaborate agro-sylvo-pastoral system, though rudimentary and of low productivity, based on the complementary nature of soils (terroirs); the lower *khet* belt of inundated paddy fields (1,000-1,500 m); the *pakho* belt of maize and finger millet around the villages (1,500-2,000 m), the *lekh* belt of winter cereals (wheat, barley) up to 2,400 m, with the forest above this. Tradition is to have two annual crop cycles. Caste people are scattered over the lower slopes, while the Tibeto-Burman tribal population is

³ See *ibid.*

concentrated in large villages (Salme, Bharpak, Ghandrung) higher up the mountain slopes.⁴

Above the villages (from 2,200-2,500 m upwards) we shift to temperate forest formations oozing with humidity, which grip the slopes and where successive altitudinal belts of oaks, tree-like rhododendrons, firs and beech trees, with bamboo undergrowth thrive. Then at about 3,800-4,000 m the forest makes room for high altitude meadows on ridges or in the small valleys where the ice has melted. The scrub –which often takes over from degraded forest– and the meadow are used for grazing ovine and caprine herds during the monsoon. The high mountain pastures are linked to the villages by narrow, for the most part, cliff paths along which temporary habitats, *kharka*, sometimes surrounded by several fields, mark resting places for herds during their ascent or descent from high mountain pastures. The spectacular steepness of these highlands, the abundance and the violence of the downpours make it a sector very prone to erosion (landslides, flows of torrential debris etc.).

The inner valleys of the Higher Himalayas are a little different from these middle mountains. Situated above 3,500 m, most of them remain very isolated and their inhabitants live mostly off pastoral activities, supplemented by farming (barley, potatoes) at the limit of the ecological conditions (high valleys of Buri Gandaki, of Rolwaling). A dual habitat can very often be observed between a winter village and a summer village. In the Khumbu and Langtang Himal, hiking and mountaineering, principally structured by the existence of national parks, have brought in extra revenue, which allows populations in these environments to subsist.

Above 5,000 m, we are well and truly in the high mountains. The high valleys or the mountain pasture hilltops are dominated by the Upper Range or the Himal itself ("the realm of snow"), a wall of high ranges, often separated from each other by deep gorges. The rock faces of high summits, chiselled by ice, spill avalanches into wide glacial basins from which glacier tongues escape, soon to be broken up, and whose front rarely descends below 4,000 m. Eight Nepalese summits rise above the mythical altitude of

⁴ See Chapters VI ("A Reading of the Salme Tamangs' Territory and Landscape" by J. Smadja), XIV ("Resource Management and Changes in Landscapes within the Annapurna Conservation Area Project. The Example of Modi Khola" by I. Sacareau) and XV ("Parcelling of Land, Privatisation along with Collective Management of Space and Resources on the Salme Mountainside" by B. Ripert).

8,000 m, of which there is Mount Everest (8,846 m), the "third pole of the earth", still called Sagarmatha (in Nepali) or Chomolungma (in Tibetan). A territory for those people leading caravans who traditionally cross the Himalayas with their yaks over passes situated at between 4,500 m and more than 6,000 m, this high-altitude sphere is now the realm of the "sherpas" (a term that in fact covers representatives of many ethnic groups whose job is to accompany hikes and expeditions) and of mountaineers in search of the absolute, and the attraction it provides represents, from an economic point of view, a considerable source of revenue.

The high Himalayan mountains mark a remarkable bioclimatic limit, beyond which the humid monsoonal streams are practically no longer felt. In the space of a few kilometres, there is a shift from subtropical environments to the naked, stony slopes of the mountain deserts of Central Asia. These regions occupy all the north of Central and Western Nepal (Manang, Mustang, Dolpo, Humla) and form a set of very characteristic landscapes, that may also be found in Ladakh, far west of the range (Photograph 25): reliefs do not exceed 6,500 m, the high valleys situated at more than 4,000 m are cloaked in debris. A few inhabitants of Tibetan origin have settled in these cold and arid regions, beaten by winds, where plant cover is rare and intermittent. The summer warming at these altitudes allows farming with limited irrigation (a single annual cycle of winter cereals) and the extensive breeding of yaks and *dzo* (a cross between a yak and a cow) alongside ovine and caprine.⁵ But the conditions are often very harsh in winter; most inhabitants depart for the towns in the south or in India, leaving the elderly, women and children to keep watch over the village.

The differentiation between these environments and life styles, the result of complex evolutions, is above all conditioned by environmental, structuring and invariant elements; the uprising of reliefs, contrasted monsoonal climate, bioclimatic belts and disparities in water resources and the instability of hill slopes. These elements reflect the very nature of the Himalayan Mountains and their influence is exerted over a long-time scale, which is different from that of the history of peopling and land use by several human generations. We have set them out here to show the weight of these invariants on present landscapes.

⁵ BLAMONT, 2001.



In Ladakh, the possibilities of occupying space, though limited by the mountain features of this region, are exploited to the full, which sometimes leads to a dispersion of the habitat. These two farms have been set up close to a torrential river whose seasonal flow is supplied in spring by melting snow and in summer by the melting of residual glaciers and ice contained in the ground of the highest slopes. The river, lined by a riverine vegetation of willows in addition to some planted poplars, allows for irrigation which, thanks to the abundant sunshine, compensates for the shortness of the growing season. The severity and length of the winter, the effects of altitude (close to 3,500 m) and the continental climate, means that one has to protect oneself from the cold with a compact architecture, using thick walls. One also has to make reserves of food, piling it up on the roofs and in storehouses. Barley, the staple diet, is the main crop grown here (Photograph M. Fort, August 1977, during the summer).

Photograph 25

Two farms in Ladakh

A million-year-old mountain range and still rising

The primary factor, which structures these environments, is linked to the presence of elongated reliefs parallel to the range's overall strike which rises in steps to the highest summits. The origin and orientation of these reliefs is the result of a long history and directly illustrates the action of tectonic forces, which have given birth to and continue to shape the Himalayan range.

This is indeed the result of the convergence and collision of two continents, India and Asia. The impacting process, initiated more than fifty million years ago, is still not complete, and India moves into the Asian block at an average speed of 5 cm per year.⁶ The strong resistance of the Asian block to this movement has led to the bending and the deformation of the Indian continent on its northern border: folding and shearing of the crust, the fragments of which pile up and accrete into each other in the form of large thrust faults and nappes. This stacking of materials has brought about the all more recent reliefs as we move southwards (Mahabharat and Curiya) and towards the range's foothills, where deformation is most perceptible today.⁷

This continuous activity, powered by deep tectonic forces, is first of all expressed throughout the country by recurrent seismicity, experienced to an uneven degree by populations. According to data from the Kathmandu Seismology Laboratory,⁸ hundreds of microseisms are recorded daily on Nepalese territory, with greater density along lines of weakness in the Himalayan structure, such as the Thakkhola or Barigad faults. Seisms of average magnitude (4 to 5 on the Richter scale) are rarer: they are concentrated in sectors ranging from the foothills to the front of the Upper Range, and may have great incidence on mountain slopes; especially when they occur during the rainy season. In this case, they often trigger landslides, which carry off portions of cultivated slopes and even whole villages, with lasting disruptive effects on hydrography (disappearance of springs, damming of rivers leading to major flooding...). Nepal also lives in the fear of a seism of very high magnitude, which cannot be excluded in the near future. Recent geophysical studies, based on field recordings and historical accounts,⁹ have shown that major earthquakes, those exceeding a magnitude of 7 on the Richter scale, statistically have a chance of occurring about every 250 to 500 years (error margins are inevitable in this kind of estimation). Sectors not having experienced a significant earthquake for over more than a century therefore have a greater probability, according to calculations, of undergoing a very destructive earthquake in the near future: this is especially the case for Western Nepal.

The intensity of earthquakes may locally be accentuated by other parameters. Close to the Upper Range front, the range of elevations is an

⁶ VALDIYA, 1998.

⁷ DELCAILLAU, 1992; LAVE and AVOUAC, 2000.

⁸ PANDEY *et al.*, 1999.

⁹ BILHAM *et al.*, 1995; PANDEY *et al.*, 1999.

aggravating factor, which could lead to catastrophic ruptures. It appears that it was already the case around five hundred years ago in the Pokhara basin (certified by a legend), which was entirely submerged by a giant, flow of debris caused by the collapse of a rocky glacial mountain face, which probably came loose from the southern flank of Annapurna IV by a seismic shake (may be that of 1344, see Frame 7).¹⁰ In the Mahabharat, Curiya and Tarai areas, the slight depth of the detachment plane (only several hundred to several thousand metres), along which most seismic ruptures occur, explains the vulnerability of these regions to earthquakes, particularly those of the plain, which has become more and more populated.

The Kathmandu Valley is a situation apart. Situated in the zone geologically at risk, it is more sensitive to earthquakes due to the nature of its substratum, filled by about 500 m-thick lacustrine sediments: this ground is likely to become saturated with water, hence to become liquefied and amplify earth vibrations considerably. This valley was hit by several very destructive earthquakes¹¹ (probably of a magnitude greater than 8) over the last millennium, particularly in 1255, 1408, 1681 and 1833. The last to date, in 1934 ("Bihar seism"), is still vivid in memories, since it took numerous victims (8,618 recorded deaths) and caused much damage to centuries-old temples and historic monuments in the Valley (Photograph 26 and Frame 7). Nowadays, living conditions, the density of dwellings and building techniques have altered a lot since 1934, increasing the vulnerability of populations and material assets; it is to be feared that an earthquake of such great intensity, if it were to occur today, would cause much greater and more serious losses than in 1934.¹²

The tectonic activity of the Himalayan range is also expressed by a generalised uplift of reliefs. Latest estimations report a rate of uplift which may vary from 4 to 8 mm per year on average for Mahabharat Lekh and the Upper Range,¹³ as opposed to sectors where rising is "only" 1 to 2 mm per year (the Kathmandu Valley, Tinau basin). This continuous uplift of the Himalayan reliefs actually forces rivers to deviate their course, i.e. to cut through their valley more deeply in order to be able to maintain their junction with the Ganges base level, which collects all the waters from the

¹⁰ FORT, 1987a and GURUNG, 1965.

¹¹ For more details, see Frame 7 by Mahes Ray Pant.

¹² BILHAM *et al.*, 1995.

¹³ JACKSON and BILHAM, 1994; BILHAM *et al.*, 1997.

Frame 7

Contribution to the Historical Study of Seismicity in Nepal¹

Maheś Raj Pant

The devastating earthquake of 15 January 1934 was appalling enough in its consequences to prompt a number of Nepalese to chronicle the catastrophe in detail. The outstanding account is from the pen of Brahma Shumshere Jung Bahadur Rana. His book, written in Nepali and first published 14 months after the earthquake occurred, comprises 13 chapters and has in its penultimate chapter a description of earthquakes that struck the country in earlier times. Thus the book serves as a basic text for those working on the historical seismicity of Nepal.

Basing myself on historical sources, I am mainly concerned in this paper with supplying descriptions of two more earthquakes not recorded by Rana and with correcting the dates of two treated by him.

24 December 1223

There exists a collection of two late-fourteenth-century chronicles –one written in a debased type of Sanskrit and the other in Newari– joined together in a single manuscript and commonly known nowadays as *Gopālarājavaṃśāvalī*. The Newari chronicle refers to an earthquake which occurred a bit more than seven and three-quarter centuries ago. Rana is unaware of this earthquake, which took place on the 1st of the waxing moon of Pausa in N.S. 344, corresponding to 24 December 1223. Though some letters are defaced and some words are not adequately understood in this passage of the chronicle, it can be definitely concluded that this is the earliest earthquake so far known from an authentic historical source.

7 June 1255

Rana gives the date of the earliest earthquake known from historical sources as Monday, the 3rd of the waxing moon of the month of Āṣāḍha in Vikramasamvat (V.S.) year 1310 and Nepālasamvat (N.S.) year 374. The N.S. year corresponding to V.S. 1310 Āṣāḍha should show a difference of 937 years. Thus V.S. 1310 Āṣāḍha does not correspond, as Rana indicates, to 374 but to N.S. 373. It was customary in Newar kingdoms to give the date in the N.S. The source Rana used was no doubt dated as such and his mistake lies in converting the N.S. into the V.S.

Furthermore, an earthquake recorded in the two chronicles of the *Gopālarājavaṃśāvalī* is dated differently. They both recount the following facts:

A violent earthquake struck on Monday the 2nd² of the waxing moon of the month of Āṣāḍha in the year N.S. 375, when the asterism was Punarvasu and the *yoga* was Dhruva. The earthquake toppled very many houses and temples. It claimed the lives of one-third of the whole population and the king himself died

eight days later as a result. People left their houses and lived outside for a period of a fortnight to a month after the earthquake, while aftershocks were felt for the succeeding four months.

Though Rana does not specify his source, his description of the earthquake closely corresponds to the description of it in the Newari-language chronicle. Similarly, there is no doubt that the discrepancy in the year given by Rana (374) stems from his confusion over a Newari numeral in the Newari chronicle. It appears not to have used the Sanskrit chronicle, which cites the year not in figures but in words.

Since an astronomical verification of the dates also confirmed this, we can conclude that the earthquake therefore took place on the 2nd of the waxing moon of the month of Āṣāḍha in 375 NS, that is 7 June 1255.

After the 1833 earthquake, Campbell reported that the Brahmans in Nepal said (and firmly believed) that stories of an even more violent earthquake than this particular one [1833] had been passed down. This is said to have taken place about six hundred years ago. Many towns including Mangah and Patan were totally destroyed and thousands of their inhabitants were killed. At the time modern Kathmandu as a capital city did not exist.³ This no doubt refers to the earthquake of 7 June 1255.

14 September 1344

The Newari chronicle records one additional earthquake that occurred on the 7th of the waxing moon of the month of Āśvina 464 NS, corresponding to 14 September 1344. Rana says nothing of this earthquake. The chronicle describes the earthquake as being just as major an earthquake as the first two. It gives the time of the day when it happened: in the third *prahara*. As a full day consists of eight *prahara*, one *prahara* is equivalent to three hours. When taking into account the time of sunrise in the Kathmandu Valley during that period of the year, we may deduce that the tremor occurred sometime between midday and 3 o'clock in the afternoon. This earthquake, like the one in 1255, claimed the king's life. However, this time he died the day after the catastrophe.

4 June 1808

Rana describes another earthquake which struck Nepal with 21 tremors in the third *prahara* on the day of Daśaharā, V.S. 1866 / N.S. 930, that is 4 June 1810. As in the case of the earthquake that took place in 1255, here an error was made in converting the year. The day of Daśaharā, namely the 10th of the waxing moon of the month of Jyeṣṭha V.S. 1866 would correspond to N.S. 929 not N.S. 930, and the same day in N.S. 930 does not fall in V.S. 1866 but V.S. 1867.

Though we do not know Rana's source for his description of the earthquake, it more or less corresponds to a XIXth-century Nepali-language chronicle. According to this chronicle, the earthquake occurred on the 10th of the

waxing moon of the month of Jyeṣṭha, N.S. 930 which corresponds to V.S. 1867, that is June 1810 at 3 o'clock in the afternoon.

However, Daniel Wright, who translated a version of the Nepali chronicle which he published in 1877, does not agree with the year of the earthquake given in the chronicle and corrects it to N.S. 928, that is 1808. He must have got this information from another version of the chronicle still in manuscript form in the Saṃsodhana-maṇḍala collection in Kathmandu. It dates the earthquake to the 10th of the waxing moon of the month of Jyeṣṭha, N.S. 928 just as Wright corrected it.

All other manuscripts of the chronicle –except Wright's– mention how long the earthquake lasted, namely 21 *palā-s*. A *palā* is equivalent to 24 seconds and 21 *palā-s* thus amounts to 8 minutes and 24 seconds, which is indeed a long time. Ill-educated scribes no doubt confused the word expressing frequency, *palṭa*, with one expressing a standard length of time, *palā*. As for the Saṃsodhana-maṇḍala version, it does not mention the duration but reports the same number 21 as being the number of the times the earth shook. Interestingly enough, although Rana cites the year incorrectly, his assertion that the earthquake consisted of 21 tremors coincides with what we find in the version of the chronicle with the correct year.

Two other contemporary sources confirm Wright's date. One is a bilingual –Sanskrit and Nepali– document which describes the earthquake poetically. The other is an almanac of V.S. 1865 in which a note is added recording the earthquake on the same day specified above. One may definitely conclude that the earthquake occurred at seven minutes to three in the afternoon on 4 June 1808 and that there were 21 tremors.

¹ Seismologists examine very closely all historical facts regarding earthquakes and their periodicity for possible forecasting purposes. The restoration of historical data undertaken by Mahes Raj Pant is of major interest. This frame is merely a brief summary of some very in-depth research that is conducted within our programme but which cannot be published in full. Those interested are encouraged to refer to the complete version of the text published in English in *Adarsha*, no. 2, 2002. (J.S.)

² According to the Newari chronicle, the earthquake occurred on the 3rd, whereas the Sanskrit chronicle mentions the 2nd. An evaluation of all chronometric elements in both chronicles proves that the earthquake took place on the 2nd.

³ CAMPBELL, 1833, p. 565.

Himalayan foothills. This explains the "bayonet" course of the Pahar, Mahabharat and Curiya rivers, and in the valleys crossing them the alternation of longitudinal (east-west) sections and sections in deep submeridian gorges, which in certain cases leads to a real partitioning off of reliefs which are difficult to cross.



In 1934, the Bihar seism made many victims (nearly 9,000 deaths) in the Kathmandu Valley, causing much damage to the architectural heritage. Indeed, the vibrations in the earth's crust were amplified by alluvial and lacustrine sediments which fill in the valley floor, formerly occupied by a vast lake, to which some chronicles still bear witness. Here is the town of Bhaktapur after the seism (Photograph published in RANA, 1935).

Photograph 26

Bhaktapur after the 1934 seism

The major consequence of this tendency of rivers to erode deeper is the destabilisation of the lower slopes, with practically inevitable repercussions on their upper part, since instabilities propagate from the foot to the top of the slope and laterally. Nuances do exist however, since materials making up the slopes present more or less greater cohesion. This allows them to more or less resist this erosion over time. Thus, in the Curyia hills, marly and clayey rocks do not resist as well to erosion as the massive sandstone, though differences in altitude do not exceed twenty to thirty metres and therefore landslides are limited. In the Mahabharat mountains, however, the fact that slopes are cut through, over a difference in altitude of more than one kilometre, of mica(schistose) terrains of low resistance, favours the development of larger-scale landslides. Finally, the slopes of the Higher Himalayan Range are often very steep, since they are made up of

metamorphic (gneiss) coherent and massive rocks which generally better resist erosion, but which may suddenly be affected by high-amplitude mass movements (collapse of rock face, flow of debris etc.) with catastrophic consequences. Some of these mass movements occurred a long time ago (several thousand, even tens of thousand years ago), but the rubble or related collapsed materials may now be reworked by superficial dynamics and subject populations to very real dangers (Photograph 27). These slope instabilities, though variable from one region to the next, have been given the generic name *pahiro* in Nepali, which in fact covers a large variety of forms and dynamics, as we shall see further on.



The instability of hill slopes is one of the features of Himalayan mountains. The rapid pace at which the relief is uplifted, the high gradients of the slopes, the nature of the terrain and the monsoonal climate are the main factors. These dynamics nevertheless affect dry areas of the northern Himalayas, such as here along the Karakorum Highway, where the traffic is frequently interrupted by rock fall and by debris flows. These are supplied by a very voluminous mass of pulverulent matter resulting from a rock avalanche that occurred several thousand years ago. No technique, even the most sophisticated, is capable of containing this instability over a lasting period of time; so the Pakistanis have preferred to keep bulldozers permanently on the spot so that they can intervene very quickly to clear this highly strategic road (Photograph M. Fort, August 1989).

Photograph 27
Instability of slopes in Pakistan

Atmospheric flows and frontal effects

The climate of the Himalayan range is mostly governed by two main atmospheric flows: a dominant monsoonal flow, with downpours concentrated over the four summer months which punctuates the farming calendar, and a light westerly flow, especially noticeable in winter, which brings abundant snow precipitation to reliefs.¹⁴ The expression "subtropicality with a continental trend" fittingly summarises these two influences: on the one hand, because the differences between the monthly averages of the hottest month and the coldest month exceed 10 °C and, on the other hand, because temperatures can exceptionally drop below 0 °C at altitudes which are still not that high (1,500 m).

Climatic mechanisms are governed in summer by the arrival of a warm humid air mass from the southeast (from the Bay of Bengal), which is blocked against the mountain face. Generally speaking, this air mass contributes to equalising temperatures and to buffering thermal gradients.¹⁵ The Himalayas therefore seasonally belong to the tropical sphere. Nevertheless, the situation is not one of total uniformity; far from it. The average rainfall during this period decreases considerably from Assam to Karakorum, since the air masses progressively lose their humidity in sweeping across the range from east to west. In Nepal, this gradual dying out of the monsoon is expressed by strongly marked variations in precipitation from the Annapurna range onwards. East of this range, summer rainfall exceeds several metres, whereas in the west it hardly exceeds two. This is partly compensated for by the fact that, whatever the location, rain intensity can be strong everywhere, several dozen millimetres an hour, and can cause considerable damage, both on hill slopes (landslides) and surrounding rivers (floods).

Distinctions do exist however. On a Himalayan scale, the main contrast results from the barrier effect put up by the Upper Range against the humid monsoonal flows: north of the Upper Range, air masses that have released their humidity descend to altitudes ranging between 3,000 and 5,000 m, are compressed and "warm up", so to speak. They are the cause of very dry climates at high altitude: Jomosom (2,700 m) receives an average of 270 mm of precipitation per year; Leh station (3,600 m) in

¹⁴ DURAND-DASTES, 1969; DOBREMEZ, 1976.

¹⁵ THOURET, 1983.

Ladakh, situated several dozen kilometres north of the Himalayas, only receives 70 mm per year.

At regional level, other contrasts may be felt between very wet southerly faces (the effect of the anabatic winds that fully exert themselves on the mountain faces of the Curyia, Mahabharat and the Higher Range) and northerly-oriented slopes, in a relatively sheltered position. Furthermore, this contrast is reinforced by the fact that the southern slopes are the warmest: better exposed and sunniest. They dry quickly and can paradoxically suffer from a hydrous deficit, further accentuated by their steeper slopes. Yet the ground retains humidity almost all year round on the northern hill slopes which are shaded and less steep since they are on the dip slope.

These contrasts are best expressed where the ridges are oriented east-west, i.e. at Pahar, Mahabharat and Curiya level, whereas on the foothills of the Higher Range, where ridges are oriented north-south, these contrasts are less evident. These two areas also differ in the duration of their rainy season. The hills and middle mountains of the lower part of the Himalayas experience a typical monsoonal climate, with a rainy season lasting from four to four and a half months, followed by a long dry season; the monsoon's irregularity from one year to the next may, moreover, be the cause of severe droughts, all the more marked towards the west of Nepal. However, the middle mountains that stand directly against the southern flank of the Himalayas receive, on top of the monsoonal precipitations, storm precipitation in the spring months, which lengthens the wet season by as much. In the Annapurna area, where the mountain front rises quite abruptly, anabatic winds are very strong and combine with convection phenomena (due to the strong heat and large quantities of humidity that evaporate above the forests) to provide precipitation whose annual average easily exceeds 5 metres. This high water content in the atmosphere produces heavy cloud cover, which frequently appears between 2,500 and 4,000 m and maintains hygrophilous conditions.

During the cold season, the Himalayas are essentially influenced by "Mediterranean" disturbances from the west. These bring cyclonic precipitation with more marked effects in the west of the range than in the east. Above 2,500-3,000 m, this precipitation falls in the form of snow and above all affects the Upper Range and its foothills, as well as the north-Himalayan regions (Mustang, Dolpo, Ladakh) where snowfalls can be very heavy. However, there may also be occasional snowfalls on Mahabharat, where altitudes exceed 2,600-2,700 m.

Gradients and ecological thresholds

The combination of altitude and climatic factors shows in the distribution of vegetation, soils and, generally speaking, processes acting at the reliefs-water-atmosphere interface. Thermal and pluviometrical gradients condition altitudinal zonation, whereas topoclimatic gradients impose dominance effects, which can be felt on the main slopes and/or meridian valleys that originate north of the Upper Range.

The distribution of Himalayan vegetation is in line with vegetation zonation as can be observed in any mountain: as altitude increases, air pressure decreases, temperatures drop and with them the hygrometric capacity of air, which produces an altitudinal zonation of vegetation. Above subtropical belts, at about 2,000 m, a mixture of subtropical and "temperate" species thrive; then, from 3,000 m upwards, deciduous species gradually fade into coniferous species, whereas trees disappear above 4,000-4,200 m leaving bushy or grassy meadows, adapted to the cold and to drought.¹⁶ These vegetation "belts" identifiable on a landscape scale by their physiognomy are defined by several thresholds or remarkable discontinuities.

The first discontinuity takes the shape of a permanent belt of clouds – above 2,400 m– which is well expressed by the large quantities of moss, lichen and epiphytes. This limit often corresponds to a shift from subtropical species (such as *Schima* and *Castanopsis*) to montane temperate species (oak or *Quercus*). Below the limit of the mist is the warm subtropical area, characterised by considerable downpours during the monsoon, a long, hot, dry season, average temperatures on the whole above 18 °C and negligible effects of frost. This limit, important in landscapes, often corresponds to a shift from red soils, which are quite visible during the dry season when the fields are not all covered in crops, to brown forest soils. Most of the villages in the middle mountains are situated below this limit that marks, towards the North, the passage to the Upper Range hill slopes (e.g. south of the Annapurna or Dhaulagiri); in the Mahabharat. This limit separates the cleared and cultivated slopes from the forests much exploited for wood, fodder and forest pastures.

Another noticeable discontinuity: the lower limit of "active" snow from a geomorphological, pedological and biological point of view. This

¹⁶ DOBREMEZ, 1976.

limit is found in the Central Himalayas between 2,600 and 3,000 m. It is mostly governed by slope aspect and local atmospheric circulation; it therefore varies greatly, from one year to the next. It may drop to 2,600 m on shaded slopes and climb to 3,200 m on sunny slopes. This is a restrictive limit for certain crops such as maize and millet, but not for those well adapted to environments at altitude such as wheat, barley, buckwheat and potato, grown by Sherpas in the Khumbu or by the Thakkhali (the Kali Gandaki valley). In dry areas (Thakkhola, Dolpo, Ladakh), it is even an additional bonus in that it provides a little ground humidity necessary for cereal germination. Above cultivated zones, the repeated alternation between snowfalls and melting phases may maintain the superficial dynamics of slopes outside the wet monsoonal season.

The upper limit of the forest and trees is high and irregular. It may be governed by drought at altitude, summer coolness, and lowered by shepherds' intervention. Open and low tree formations (*Betula*, *Juniperus*) may climb as high as 4,200-4,300 m, whereas real forest (high-altitude birch forests) and forests with rhododendron undergrowth do not exceed 4,000 m. Large firs (*Abies spectabilis*) reach 4,000 m on wet hill slopes and pines (*Pinus excelsa*) grow in a scattered pattern up to 3,700-3,800 m on adret sides in the southern valleys of the Khumbu. These limits are neither natural nor stable in time. They are a result of a double apparently antagonistic phenomenon: climate warming and human activity. On the one hand, it may be noted that there is a historic upward shift of the tree line on the mountain slopes due to overall atmospheric warming which is particularly visible – as elsewhere in the world – through glaciers retreating. It is also illustrated by the proper regeneration, in particular, of *Abies* at their upper limit. On the other hand, pastoral arrangements have extended meadows to the detriment of forests, favouring the development of scrubby and creeping species (*Berberis*, *Juniperus*, *Rhododendron*) and therefore a change in the topoclimates by drying out the soil, which thwarts forest regeneration. In addition, this is hindered by trampling cattle which pack and render impermeable the soil, provoking superficial erosion (small steps, uprooting, piping).

Finally, the upper limit of plant life, which is also that of pastoral activities, is situated close to 5,000-5,200 m, a limit that may locally fluctuate depending on the topography and the type of soils. In the high inner valleys, mantled with morainic material as in the Khumbu, this limit is particularly high due to moderate humidity and summers with a mild

monsoon. This allows the development of plants of a short biological cycle, often of Tibetan origin. Elsewhere, advanced ranges (Gosainkund, lower hill slope of Ganesh Himal or Lamjung Himal) are visible, where rocky benches and basins of glacial origin offer a favourable topography, receiving enough rain and partly sheltered, suitable for high mountain pastures, in contrast with other steeper sectors (lower slopes of Annapurna I, southern flank of Dhaulagiri), dominated by rock faces barely leaving any room for grass or herds. Here we are faced with dominance effects which are the distinctive feature of these mountains.

Dominance effects

Dominance (or "cascading") effects express both the continuum of phenomena that take over from one another from the top down to the bottom of a mountainside (or flank) in the lower parts.¹⁷ These dominance effects are felt on different scales and concern different aspects of the physical environment (soils, land movements, winds). They are particularly well developed along the southern front of the Upper Range (Photograph 28).

On a mountain slope scale, these phenomena are linked to gravity, which allows the mobilisation and redistribution of water and debris on the slope, and the development of soils. At altitude, frost shatters the rock faces and produces coarse debris. When transported by ice or torrential flows, this reaches lower altitudes where, due to the increase in temperatures and ambient humidity, mechanical disintegration and chemical change phenomena take over. Soils develop, getting thicker and potentially richer as we move down to the bottom of the slope: after thin soils, very poor in the high alpine meadows ("rankers"), come the "nivosols", marked by snow, then brown or less "washed out" soils of the "podzol" type. The latter, characterised by their acidity and iron redistribution and accumulation phenomena often giving them a rusty to blackish colour, are linked to the transfer of the most mobile, actually the most fertile (base) elements, towards the foot of the slope ("leaching" process), a transfer favoured by the slope but which can be speeded up by deforestation.

¹⁷ BERTRAND and DOLLFUS, 1973.



The high Himalayan mountains, topped by ice-capped summits (Dhaulagiri, 8,172 m), dominate the valley floors (Kali Gandaki, 2,350 m). The effects of altitudinal zonation and dominance are particularly developed here. The coniferous forest gives place, around 4,000 m, to an area covered in meadows, where yak, ovine and caprine herds graze during the summer. This in turn gives place to bald rocky slopes and glaciers (altitude lower than 4,800 m). Avalanches of snow, debris flows and landslides triggered off in the upper parts of the mountain directly threaten Thakali villages in an unpredictable and invisible manner. The latter, set up on terraces, are thus relatively protected from violent winds that sweep the immense alluvial and stony plain of Kali Gandaki from south (left) to north (right), carrying sand and silt to the driest sectors of the Himalayas (Photograph M. Fort, October 1977).

Photograph 28

High mountains, Dhaulagiri dominating the Kali Gandaki valley

However, soils often do not have time to form or to thicken, since the steepness of slopes renders this thin loose soil unstable and provokes mass movements, or *pahiro*, on mountain slopes. These are very frequent. At the incipient stage of their development, there is always a discontinuity, a break in the balance, which may be caused either by a climatic (very heavy concentrated rains, prolonged rainy periods, sudden melting of the snow mantle) or seismic event, or by the destabilisation of the lower part of the slope, which may be either natural (downward incision by a river) or artificial (linked to human activity such as road building). Their distribution shows that even if they are locally associated with certain types of bedrock (notably when schist is present), they may occur practically anywhere.

It is the extent of the altitudinal range that will determine the volume of material moved by the *pahiro*, which may vary from several dozen cubic metres to several million cubic metres. In the high mountains or in the gorged sections of the most powerful rivers (Buri Gandaki, Marsyangdi, Kali Gandaki), large-scale collapse of rock faces may occur,¹⁸ yet its frequency in time remains low, even though locally certain sectors appear to be particularly threatened, such as the Kali Gandaki valley, near Tatopani.¹⁹ The most common situation is related to the step-like (east-west oriented) pattern of ridges, which oppose southerly abrupt rocky faces, where collapse occurs intermittently, to the long, northerly, gently-sloped, shaded dip slopes. These are more liable to landslides and earthflow (Photographs 29 and 30) which are often taken over by gullies downslope.²⁰ These gullies may be complex and evolve rapidly, like the Jharlang *pahiro*, in Ankhu Khola.²¹ Furthermore, it can be noted that a large part of mountain slopes that are currently affected by land movements are those which have previously been destabilised, such as Salme:²² there is therefore a dominance effect over time.

Finally, the sudden triggering of a *pahiro* may have a direct consequence on the valley floor; indeed, the sliding mass may temporarily obstruct the valley, block the flow of the river and lead to the formation of a lake upstream, with the threat of flooding the populations settled there

¹⁸ FORT, 2000a.

¹⁹ FORT, 2001.

²⁰ Example of the Sikha mountainside between Tatopani and Ghorepani, in the district of Myagdi; FORT, 1974.

²¹ THOURET, 1983.

²² SMADJA, 1992.

("back water" submersion) while the villages situated downstream are under the threat of a sudden rupture of the dam and of catastrophic flooding.

This dominance of upstream over downstream, of the hill slopes over the valley bottom, is all the more disturbing since landslides occur at altitude (sometimes even in glacier zones), far from inhabited areas and out of sight of witnesses eventually able to alert others.²³ It is especially the case with debris flows which, triggered by episodes of rapid melting of snow at altitude (often linked to sudden atmospheric warming), hurtle down the torrential corridors in a few minutes and destroy human settlements below (the Marpha experimental farm and the recently planted orchards were largely destroyed in this way in 1973). Ruptures of glacial lakes (Glacial lake outburst floods, or GLOF) at high elevations are also particularly fearsome.²⁴ All these large-scale phenomena are distinctive of middle and high mountains associated with the Upper Range.

The dominance effect may finally affect the mountain-valley wind system, particularly in large meridian valleys which link the subtropical areas of the south of the Upper Range to the cold, desert highlands of the north.²⁵ The phenomenon of alternative winds, common to all mountains (valley and mountain "breezes") takes on a very spectacular character here. The thermal contrasts between downhill and uphill produce compensation currents all the more violent since they are channelled by gorges several thousand metres deep. In the Kali Gandaki valley, for example, in a distance of only a few dozens kilometres there is a shift from an overheated subtropical atmosphere (this is the case in Dana, at 1,300 m where oranges grow) to a cool, dry atmosphere (Jomosom, 2,700 m): north of Lete (2,400 m), the valley wind (whose warm air rises uphill from downhill) starts to blow at about 9.30-10.00 a.m., at a wind speed that can exceed 100 km/h, and which only drops at night fall. It is towards 7.30 p.m. that the mountain wind takes over. Its cold drier air, down from the mountains, flows downhill along the valley. These winds are mainly powerful in spring, when the mountain slopes warm up rapidly during the day.

During the monsoon season, air masses are more homogeneous and thermal gradients moderate, so air movements are slower. In winter, cold descending flows prevail and may reach the lower valleys. Supplied with air

²³ FORT, 1987b.

²⁴ VUICHARD and ZIMMERMANN, 1987; MOOL, 1995.

²⁵ SCHWEINFURTH, 1968.



Benighat, set up at the confluence of the Kali Gandaki River (at the bottom) and of the Mayangdi River (top right) has considerably developed over the last twenty years, particularly under the influence of the road extension linking Pokhara to Baglung, perfectly visible (Photograph 30). The instability of the mountain slope is linked to the presence of schists, which can store a lot of water during the monsoon season, take on a viscous consistency and, from the landslide head, run as earthflow down to the Kali Gandaki River. In 1978, this river was blocked for several hours by such a phenomenon (Photograph M. Fort, 1978).

Photograph 29

Benighat in 1978



Benighat, twenty-two years later (compared to Photograph 29). The upper part of the site is being made stable temporarily, thanks to conservatory measures taken by inhabitants (planting of alders, *Alnus nepalensis*); though new landslides occur uphill, an indication of the persistent instability of the entire hill slope (Photograph M, Fort, 2000).

Photograph 30
Benighat in 2000

from snow-covered mountain slopes and large glacial amphitheatres, they can be locally supported by layers of freezing air generated by surface anticyclone. It then covers the Tibetan plateau and may cause a great deal of damage to crops.

Assets and constraints

Plants, soils and water are the environment's essential resources from which human activities have been able to develop.

Varied and complementary plant resources

The nature of the Himalayan Range, formed from the junction of two continents, and being a real bridge between the East and the West, explains the diversity and the wealth of the encountered biological heritage. Indeed four large stocks are combined here: a tropical Indian stock in the south, tropical monsoon in the east (Yunnan), semi-arid Mediterranean stock in the west and dry, cold Central Asian stock in the north. Depending on the regions concerned, the proportion of the encountered species will be different: thus the number of species of rhododendron, mainly originating from the oriental subtropical area, decreases from east to west in Nepal. Similarly, the deodar cedars and the *torulosa* cypresses, from the west, are not found further eastward than the Dhaulagiri range and the Kali Gandaki valley respectively. In fact, much cross-breeding has been done and the endemic species specific to the Himalayan mountains have further developed.²⁶

The variety of plant species, the abundance of forest biomass have led this resource to be abundantly used to satisfy various needs: needs in terms of wood and timber (fuel, building, tools and forges), fodder and medicinal plants. At village community level, the altitudinal zonation of physical environments has allowed for the complementary use of these resources, and also at certain periods, intensive exploitation of them. This is more or less directly encouraged by the political power in place and has locally resulted in an advanced state of deforestation.²⁷ For some decades now, a gradual mutation in the ways of managing tree resources has been noted, with a growing number of tree plantations, in particular in the fields, which in

²⁶ DOBREMEZ, 1976.

²⁷ MAHAT *et al.*, 1986.

certain sectors like the Palpa and Argha Khanci districts leads to replacing and gradually forgoing forest resources.²⁸

Soil mosaics

If in the Nepalese mountains there is a large variety of soils linked to the nature of the bedrock and the bioclimatic environments represented here, they nearly all have some farming potential at inhabited altitudes. If we disregard the case of irrigated land, the common denominator between soils is the facility with which the rocks making up the substrate –gneiss, sandstone and schist, for the most part– become weathered, due to the subtropical monsoonal climate. Indeed, high temperatures and abundant humidity encourage the disintegration and decomposition of the minerals in the bedrock and the production of abundant fine materials (regolith), which are easy to work with.

To be more precise, the forms into which they are weathered are governed by a certain number of factors which act either separately or in a combined manner. The slope is one of the most important of these (see *supra*). It is particularly at the foot of the hill slope where there is a break in the slope that potentially richer soils are to be found, since it is here that there is a concentration of the fertilising elements leached down from the upper part of the mountain slope. In the middle and low mountains, there are fewer differences in altitude, slopes are gentler and benches come in greater numbers. This contributes to creating a mosaic of alterites on hill slopes:²⁹ benches of rubefied alterites, brown alterites on cultivated terraces, lighter soils on moderate slopes, regoliths (thin very stony soil) on the steepest slopes. Another factor involved is the age of the parental material (very young soils from monsoonal river beds) as well as the nature of rock material. If the weathering of gneiss or sandstone frees both rock fragments and an important sandy fraction –which ensures the soil's good porosity and nevertheless has a good hold over the slope– the weathering of schists produces more, often rubefied, clay (due to its iron content) which on the whole is of lesser agronomic quality, but which adheres more firmly to sloped land; however, due to their poor permeability, these soils are more likely to be gullied if minimum care is not taken when cultivating them.³⁰

²⁸ SMADJA, 1995.

²⁹ See Chapter XVII "A Bocage Landscape. Masyam and the Hamlet of Kolang" (T. Bruslé, M. Fort, J. Smadja).

³⁰ CARVER *et al.*, 1995.



In the arid Himalayas (pluviometry less than 300 mm/year), situated north of the Upper Range, the high insolation allows crops to be grown at high altitudes, limited nevertheless by the short duration of the crop cycle, due to the temperature, the drought and the thinness of soils. Farmers have adapted to these conditions by developing irrigation techniques, improving their soils (adding fine sediments and manure), limiting the effects of shade. These two snapshots were taken at an interval of several weeks (end of July and beginning of September) in the high valley of the Indus (3,500 m), downstream of Leh, the capital of Ladakh. They show the speed at which the fields of barley have ripened. This also shows the proper use of space, since the edges of the plots, where Gramineae develop, will be carefully cut to provide an additional amount of fodder for the animals, kept at the bottom of houses throughout the snowy winter (Photographs M. Fort, July 1979 and September 1981).

Photograph 31 and 32

Cone cultivated in the high valley of Indus in July and September

Irrigated soils are a case apart. In the arid Himalayas (Mustang, Dolpo, Ladakh), these soils –initially poor and very stony– have been created from start to finish over the centuries by man, due to repeated additions of organic matter (animal droppings) and of fine sediments (alluvium) carried down by waters from ice-capped areas and brought by irrigation canals³¹ (Photographs 31 and 32). The soils in paddy fields on the valley floor (*bagar* and *kholā khet*) are also often the result of the overbank flow of rivers depositing the fine particles they carry in suspension.

Water

Water is the environment's worst distributed element, both in terms of time and space. The juxtaposition of portions of rocky and dried out mountain slopes with sectors dripping with humidity and the coexistence in a same vegetal formation of hydrophilous (*Usnea*) and xerophilous forms is striking practically everywhere. Yet it is a common feature of subtropical environments and of mountain topography, which means that the law of the ecological minimum is applied to water: water becomes the limiting factor which dominates the dynamics of environments. Thus, in most of the regions described, there is a pronounced drought due to either the long dry season of the monsoon climate, or a hydrous deficit caused by the cold at high altitude, or else the rapid flow of water or its infiltration into rocky masses. Only the lower part of the mountain slopes receiving a little snow in winter, stormy precipitations in spring, and downpours during the monsoon stand out as relatively wet environments. Moreover, drought contrasts with abundant precipitation, concentrated over time, from three to four months. Its ecological effects are limited by abundant runoff of water down steep slopes.

It can be noted therefore from these very general remarks that there are several types of water storage, which allows a certain redistribution of water resources both in time and in space. 1) Deep storage, of a geological type, exists –as in the Mahabharat or in the north of the range– where the land rises steeply and where volumes of rock are broken down and fractured. Despite the steepness of slopes, in the dry season this allows restitution –in the form of springs at the foot of mountain slopes– of some of the water, fallen as rain during the monsoon or freed by nival melting, then infiltrated. These springs, which contribute to supplying rivers and may locally provide water for irrigation, only play a minor role, however, in pedogenesis and plant life. 2) Groundwater storage hardly exists in the mountains: outside the

³¹ FORT, 2000b.

monsoon season they only subsist in the Curiya (Dun) alluvial basins and in the Tarai plain as throughflow underneath the stony beds of dried out rivers. In these sectors, storage is considerable in terms of its quantity and renewable (it fills up over the monsoon during the high-water period), and can, through pumping, enable the development of large irrigated perimeters. 3) Pockets of water at the surface (hypodermic runoff) may temporarily exist (following rainy periods) stored in weathered colluvia in low and middle mountains, especially in the regolith developed to the detriment of Kunccha schists. But these reserves, precious in terms of farming, nevertheless remain limited and run out most often during the dry season. This form of storage is more marked and lasts more on *ubac* than on *adret*, which contributes to increasing dissymmetry effects, particularly with regard to plant cover and the dynamics of the mountain slopes (these stocks of water may trigger superficial landslides). 4) Water retention in nival form only exists from 2,800 m upwards: here again, storage is temporary, more marked on *ubac* than on *adret*. This explains, at least in part, the dissymmetry in the relief, the plant cover distribution and human occupation of slopes in the middle mountains, situated on the lower slopes of high mountains. 5) In high mountains, lakes and especially glaciers store water over time; a small portion of this water is freed onto glacial margins during the hot summer season, and is added to the flow of rivers swelling from the monsoonal precipitations. On the northern flank of the Himalayas, these waters are of great value for irrigation: this is particularly true in Ladakh, where the melting of only winter snow would not be enough to maintain a sufficient water supply throughout the farming season.

Water from rivers, also a source of energy, is in principle available all year round. But variation in discharge, linked to the monsoon regime, limits the possible uses for this resource and all the more so since rivers transport an enormous amount of sediments in suspension. Hence resorting to diversions, even to settling basins, which are necessary once we start considering hydel plants and water turbines, a practice which is on the rise given the growing needs in electricity and the wish to access a certain degree of modernity (lighting and television in particular). Moreover, the stability of riverbanks or of the foot of hill slopes is far from being achieved (see *supra*), since sudden flooding can sweep away a whole valley floor destroying villages, bridges, fields and herds in the space of a few hours, as happened in the middle and low mountains of the Bagmati watershed in 1993.³² Crossing

³² DHITAL *et al.*, 1993; FORT, 1997.

rivers especially during the monsoon period has always been difficult, and one understands why cliff paths, which are less dangerous, have always been preferred. Modern means of construction (suspended cable bridges with metal roadways; concrete bridges) tend to become a general occurrence along the most frequented routes, where there are more and more roads and tracks suitable for vehicles. For this reason, the valley floors, which were feared for a long time (malaria, vulnerable to erosion and flooding), are paradoxically becoming attractive areas, yet the potential dangers are by no means eliminated, quite the contrary, hence increasing the vulnerability of populations and structures.

*

* *

A land of dangers, a land of labour, the Himalayan hill slopes offer unlimited potential and complementary aspects turned to good account by different ethnic groups who, through successive migrations, have populated the mountain slopes. If current landscapes are the expression of an interaction of natural forces (deep forces in the mountain which continues to rise, superficial forces of the climate and erosion, interfaces between soils and plant cover), they reflect the ingenuity with which men have, over the ages, shaped and exploited resources in these environments. The landscapes that we observe today bear witness to different times –the time of nature and the time of men– that have made their mark on places and filled memories.³³ times of nature (long time of orogenesis; intermediary times of climatic changes, of the erosion of rivers and glaciers; short times of seasons, of natural catastrophes) respond to the times of men (long times of Neolithic migration; intermediary times of how land is occupied, of deforestation or/and tree planting, of the eradication of malaria; short times of harvesting, of the arrival of electricity in a village, of a political uprising, and so on).

Nothing is ever defined once and for all. Environmental assets and constraints are circumstantial notions, variable according to the era and socio-economic level of the populations concerned. The Himalayan mountains would be, according to some, the scene of an ecological crisis:³⁴ nothing seems to prove this, since the natural phenomena observed today are in continuity with the processes which have created the range over several million years. However, Himalayan mountain living conditions have

³³ SMADJA, 2000.

³⁴ See the Introduction to this book.

considerably changed over the last decades under the influence of demographic pressure, technical progress and an opening onto the outside world forcing populations to adapt, to identify new assets, and sometimes to also undergo new constraints on the part of physical environments. For example, opening a road provides villagers with the means of selling their produce on markets; it also makes them more vulnerable to hazards (landslides, flooding) likely to suddenly interrupt the newly-created commercial network. Generally speaking however, it can be noted that the Himalayan farmer knows the environment in which he/she lives remarkably well; he/she has always been able to find the most appropriate solutions, at his/her level and independently of the religious rituals observed, to fight against erosion: the immediate rebuilding of collapsed cultivated terraces, the planting of trees or the protection –or even abandon– of lands under the threat of landslides, building of groynes or gabions along riverbanks to limit undercutting during the monsoon, to mention just a few. Besides, in a lot of these cases, these solutions have only been able to be applied collectively, by developing and reinforcing solidarity amongst villagers.

Even if one cannot deny the impact of physical factors, on a hill slope scale these factors, however, only make up a more or less substantive framework from which men have managed to shape their living space. The following chapters show the various ways in which populations have integrated and appropriated the particularities of each environment in order to enhance and manage the range of resources offered by the Himalayan environment.

CHAPTER IV

Population Densities and Resources in the Study of Nepalese Landscapes

Philippe Ramirez

According to Georges Duby's *Guerriers et paysans* landscape reflects "population density" and "the cultivation system".¹ The history of the population and its distribution indeed appear to be of obvious interest in researching landscape determinants. Agreement has to be reached however on the general relation between changes in the population and changes in the means of production, or rather in resource management.

According to a common idea, an increase in population could be conditioned by the spontaneous appearance of technical innovation allowing the constitution of a food surplus. The cause-effect relationship is unquestionably the opposite. Ester Boserup (1965), then Marshall Sahlins (1976) showed that empirical data revealed a natural tendency of societies to minimise their investment in work. It is the demographic increase, whatever its reason may be, which, by altering the population-resource balance and by eventually combining with other factors, forces new techniques to be adopted.

Thus it is legitimate to consider the pressure exerted by the population on environments as one of the determinant factors in the evolution and diversity of landscapes. The comparative and historical analysis of landscapes must therefore take into account demographic configurations of the region in question, in time and space.

The difficulties of this undertaking are twofold in the Himalayas. First, settlements are extremely mobile. Next, statistical data is recent and patchy.

The present distribution of populations in the Himalayas is very recent and is forever changing. It is the result of two vast migratory movements, the precise circumstances of which are largely unknown, but for which it is possible to outline the cultural components, orientations and chronology.

¹ DUBY, 1973, p. 25.

No tangible data enables us to go back further than the first millennium of our era –excavations have been very rare. We believe that this period saw the gradual arrival of groups speaking Tibeto-Burman languages from Tibet onto the southern slopes of the range according to a north-south and east-west direction. This movement continued over the course of the second millennium and involved the whole of the Himalayas.

At the same time, populations of Indo-European languages advanced, this time from the west and the south. This contribution, which represents the north wing of the very vast Indo-Aryan movement on the subcontinent and which extended to the Western Himalayas (Kashmir) at the very beginning of the first millennium, would only have reached the western border of Nepal in the first two decades of the second millennium (Malla empire). From there it advanced rapidly and massively towards the east along a zone of moderate altitude (800-2,000 m), from the XIIIth century onwards, especially in Central Nepal, reaching Sikkim in the XVIIIth century at least and continued under British incitement in the XIXth and XXth century as far as Assam, Bhutan and Myanmar. The origins of a very dense peopling of the low mountain belt, from Kashmir to Eastern Nepal, are attributed to this movement. Only the Eastern Himalayas (Indian state of Arunachal Pradesh) did not experience Indo-Aryan migrations. The population density is still very weak today (lower than 10 inhabitants per km²).

These two movements help give an account of the current demographic configuration of the Himalayas. They are all the more relevant if we mention two more recent ones. One is local and imperceptible, the other massive and brutal: first of all, low-mountain populations concentrated for a long time in centres at moderate altitude (1,500-1,800 m) extended along ridges and towards valley floors in the XIXth and XXth century; then in the 1970s, the sparsely populated southern plains of Nepal were massively colonised by hill communities under the incitement of the authorities; it is currently in these Tarai plains that more than half of the Nepalese live (9.6 out of 18.5 million in 1991).

Of course, the historical outline above raises a certain number of questions as to the respective effects of Tibeto-Burman and Indo-Aryan migratory movements on the changes in the population-resource relationship in this region. Indeed, high numbers were involved, but so was the confrontation between cultures and therefore between different technologies and economies. We refer you to passages in this book which deal more

specifically with the history –or shall we say, the histories– of farming in the Himalayas. We will concentrate here on the current situation, referring back only to the first systematic censuses; that of 1952-1954 for Nepal. We shall present a series of maps and graphs which attempt to quantitatively estimate, on a Nepalese scale, the overall population-land ratio. It will not be possible to consider this ratio as directly determinant at watershed or at district level. Its importance pertains to two other levels. If we admit that most Nepalese regions are integrated in national economic and demographic contexts, even in those of the subcontinent, the understanding of local phenomena relies on our taking into account the geography and changes in population at these levels. The best proof is the tremendous population movements provoked by the opening of the Tarai plains: concerning more than five million immigrants within the last fifty years. Regional demography is all the more critical in this region, which has the highest mountain population densities in the world. But the cartography of global demographic facts also reveals mergings and anomalies which could be immediately compared to the diversity of landscapes, in order to understand to what extent this reflects an essential *a priori* variable, i.e. human pressure on the soil. Determinant relationships between the population and means of production will hardly be touched upon here, but we will attempt to draw up a classification of Nepalese regions which integrate demographic and economic variables likely to impact the configuration of landscapes.

Here we shall not consider the population assessments sent by local authorities to Kathmandu over the course of the XIXth century in an irregular and almost anecdotal manner. They are of great use for local history, a lot less so on a Himalayan scale. The Nepalese state proceeded with a large-scale census for the first time in 1853-1856, but only in some regions and within particularly badly-determined limits, thus preventing any comparative evaluation. This is only really possible using the complete figures of 1952-1954 which, despite their approximations, shed some light on the demographic map of the country in the middle of the XXth century. Afterwards Nepal carried out four decennial censuses from 1961 to 1991. An examination of them does not reveal shortcomings important enough to affect our perception of demographic tendencies on a national scale. Strictly demographic data will be cross-referenced with agricultural statistics regularly published by the Land Tax Office and the Ministry of Agriculture. We will mainly rely on the first source which lists the status of lands officially recorded by landowners. Statistics concerning production level are

more subject to caution as they represent a major political issue for the Nepalese State.

Himalayas 1981: total human density

We mapped out (Figure 15) the total population density per square kilometre for the administrative districts of the Himalayas in 1981.² Data is taken from Indian and Nepalese censuses in 1981 and, for Bhutan, from official estimations (challenged by the United Nations). The Indian census does not provide figures for the western districts of Kashmir, whose territory is disputed by Pakistan. The reference units here are the Nepalese districts (*jillā*), the Indian districts (*jillā*) or sub-districts (*tahsil*) and the Bhutan districts (*dzongkhag*). These territories have the merit of covering similar areas. However, several of them, especially when oriented north-south, cover several ecological zones; Their average density therefore is likely to conceal important deviations. It is also to be noted that on the southern fringe we chose districts which are not strictly speaking situated in the Himalayas, but in regions administratively dependent on mountain areas.

Altitude would appear to be determinant here. The 1,000 and 3,000 m contour lines verify this. Above 3,000 m, i.e. for all the arid and cold area, where only one annual crop can be grown, density is lower than 20 inhabitants per km². Below 3,000 m there is a distinct cleavage between the Western Himalayas and the most westerly regions: in Bhutan, density rarely exceeds 50 inhabitants per km², everywhere in Arunachal Pradesh it is lower than 20 inhabitants per km²; in the Western and Central Himalayas, areas at an altitude of less than 3,000 m all house more than 50 inhabitants per km² but reveal remarkable variations: less than 100 in Western Nepal, but sometimes more than 200 elsewhere (country average: 102 in 1981; 126 in 1991). Below 1,000 m, including the reliefs, density is always higher than 100 inhabitants per km², with the exception of Western Nepal.

Urban concentrations

In this case, densities are naturally high.

Areas of urban concentration in the foothills. – Here we are not strictly speaking of a mountain area. There are 14 districts situated on the border of the Gangetic plain which house more than 200 inhabitants per km² and

² We have not had access to all local data of the 1991 Census of India.

whose population is more than 30 per cent urban: in Kashmir, around the town of Jammu (223,000 inhabitants); in Himachal Pradesh, in areas bordering on the Punjab; in Uttar Pradesh, around Dehra Dun (367,000 inhabitants); in Nepal, around the urban centres of Butwal-Bhairava (54,000 inhabitants) and of Biratnagar (93,000 inhabitants); in Darjeeling district urban areas (282,000 inhabitants).

The abundance of lands, cash crops, industry, the road network and the administrative activity easily justify the often recent –sometimes still moderate in terms of absolute value– development of these towns and the population concentration in the neighbouring countryside. Here densities are, however, equivalent to if not lower than those of the Uttar Pradesh, Punjab or Bihar plains.

Urban concentration in the mountains. – This involves two watersheds: in Kashmir, the Srinagar valley (708,000 inhabitants) and in Nepal, the Kathmandu Valley (766,000 inhabitants). These are old urban sites, associated with vast areas of irrigated crops and trade centres. The purely urban population represents 47 per cent of the total population in the Kathmandu Valley and 80 per cent in that of Srinagar.

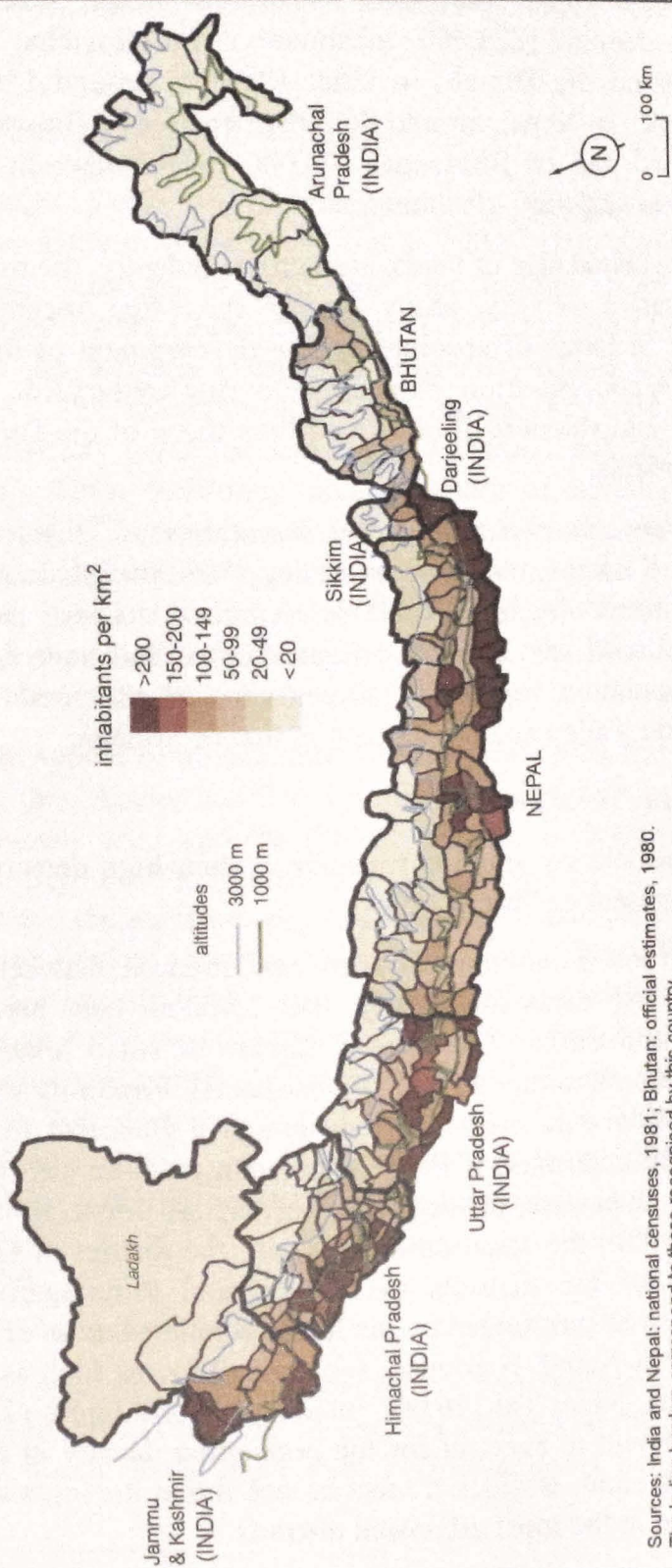
High density rural areas

Three areas clearly stand out insofar as their high density is not associated with the presence of urban poles.

The low mountains of Himachal Pradesh between the Chenab and Sutlej rivers, especially along the 2,000 m belt between Dharamsala (Kangra) and Simla. There are a number of small towns here (Simla, the most important, numbers 73,000 inhabitants). Proximity with the rich Punjab must be taken into consideration, though a glance at former demographic data should determine if the phenomenon must be attributed or not to the economic dynamics of neighbouring plains. More to the east, in Uttar Pradesh within the same altitudinal belt, the district of Garhwal as well as the south of the districts of Almora and Pithoragarh form a densely populated area surrounded by the lesser populated areas of the Yamuna basin and Western Nepal. Here also, some small towns such as Ranikhet (18,000 inhabitants), Naini Tal (26,000 inhabitants) or Almora (23,000 inhabitants) are not enough to account for the population density in districts which are 90 per cent rural. Besides it must be noted that the highest densities are not to be found in the most urbanised districts.

Figure 15: Total Human Density in the Himalayas in 1980.

P. Ramirez



Sources: India and Nepal: national censuses, 1981; Bhutan: official estimates, 1980. The Indian borders correspond to those recognised by this country. The districts situated in areas disputed between India and Pakistan have been left out.

The third high-density rural area is all the more remarkable, as it is exclusively rural: this involves the districts of Gulmi, Pabot and Syangja in Central Nepal. In this region, the presence of a former trans-Himalayan trade route linking Butwal and Mustang, which has become a trunk road over the last thirty years, must not be disregarded from being among the attractive factors, nor the Gurkha mercenaries' pensions. However, other areas lining the same route uphill and downhill do not differ in terms of density from districts of similar altitude.

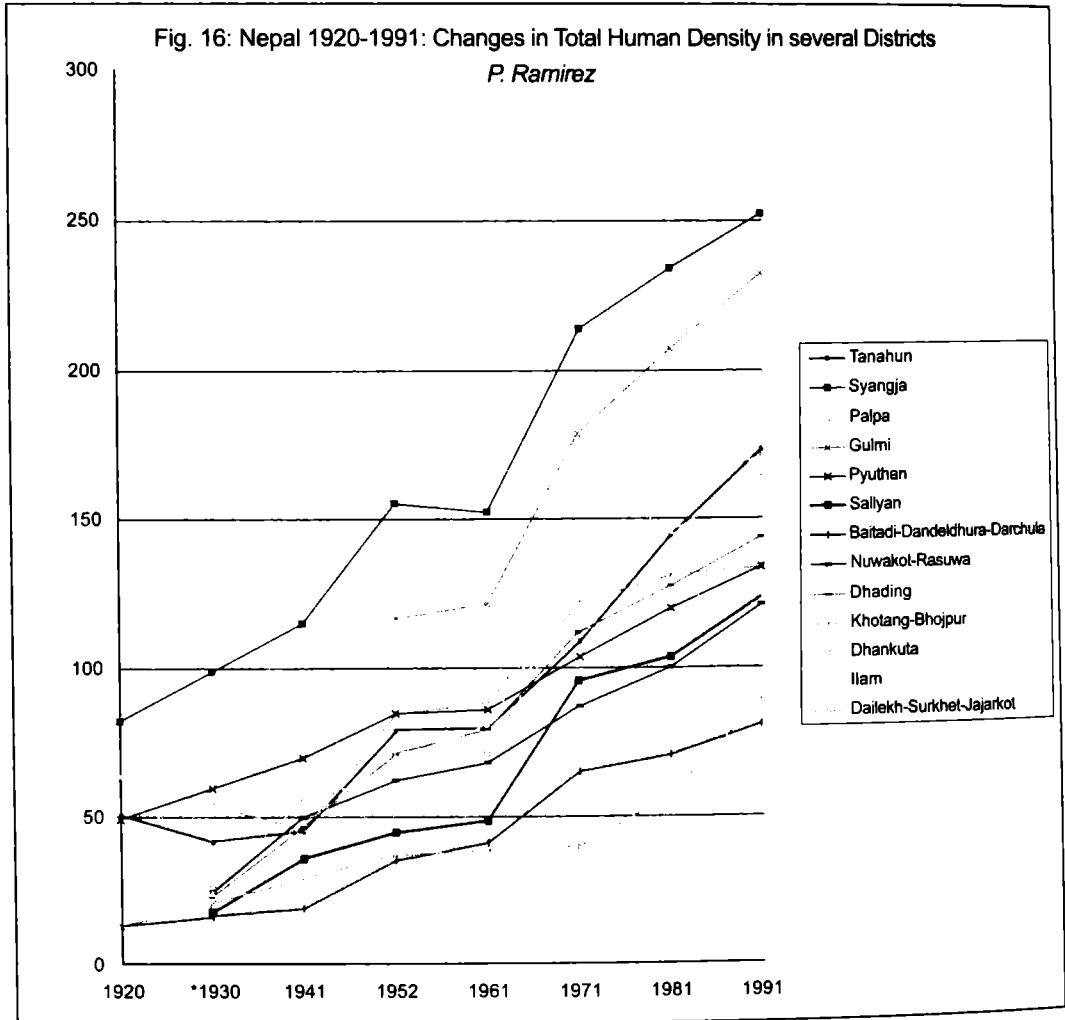
Finally the weight of political factors must be taken into account: at the western border with Nepal, at the one separating India from Bhutan, and the one separating Bhutan from Arunachal Pradesh, there are ruptures that physical variables alone could not justify. As obstacles to migrations and frameworks for the States' economic action, political borders have a very direct incidence on the geography of peopling and therefore on that of the landscapes.

Nepal 1920-1991: changes in total human density in several districts

How old are current demographic disparities? We have compared regional densities in Nepal (Figure 16) in post-1920 censuses. The major difficulty in these comparisons comes from the variation in territorial units on which figures are based. In 1961, most of the former districts were remodelled on the basis of *thum* (sub-districts), which gave the relatively smaller current districts. This re-shaping also included the transfer of territories between districts, so that the chronological comparison of densities implies a meticulous reconstruction of reference territories as well as the corresponding population figures. Finally, the data for certain districts is missing from the 1920 and 1941 censuses.

Comparison of densities over territories, whenever possible, nevertheless provides precious information. We have chosen six entities, all of them in regions of low and middle mountains. These six regions have experienced a demographic increase very comparable to that of the overall Nepalese population: slightly positive, even stable until the beginning of the 1930s, and rapidly rising from the 1940s onwards. The districts that will be mentioned in further sections of this book have undergone similar progression. It shall particularly be noted here that certain disparities in

densities revealed in most recent censuses existed as early as 1920. Most typical is the case of Syangja-Parbat which in 1920 already housed the highest population density among the six regions.



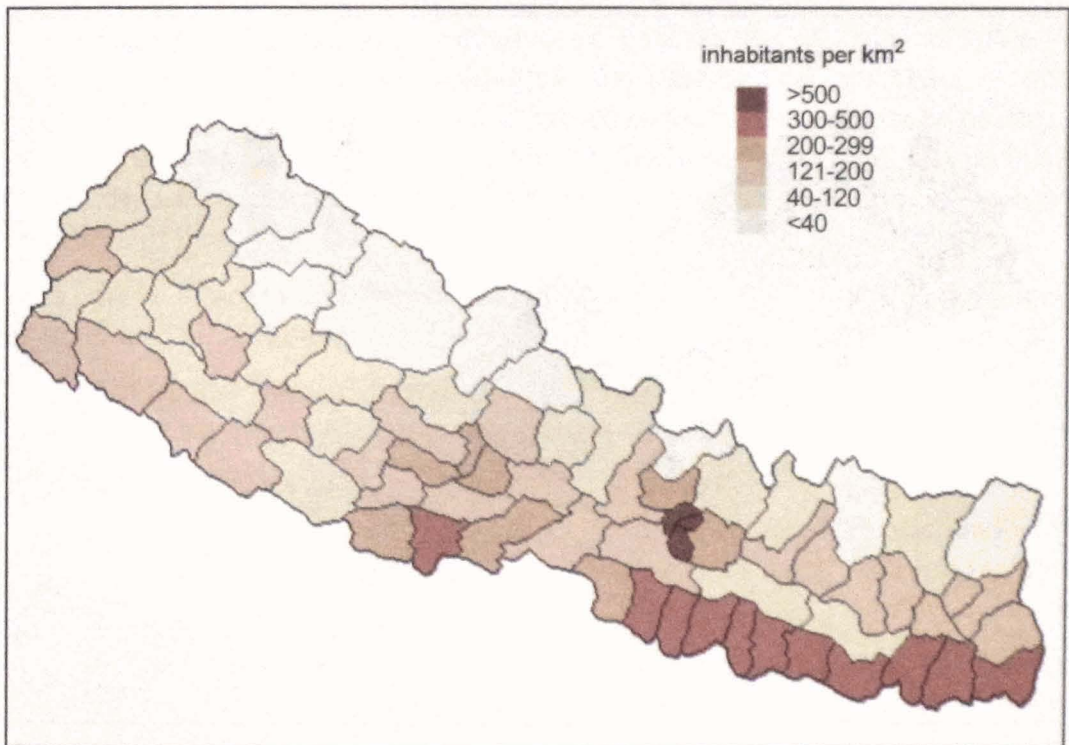
Sources: Nepalese censuses 1952-1954, 1961, 1971, 1981, 1991

Figure 16
 Changes in population density in some Nepalese districts, 1920-1991
P. Ramirez

Current demographic disparities in areas of low and middle mountains do reflect a tendency dating back at least eight decades and which has not been upset by the massive migration towards the plains.

Nepal 1991: total human density

This map (Figure 17) is above all given as a reference for the maps to follow. It helps to emphasise how the geography of gross densities differs from that of densities relative to the farmed area, which is a better indicator of effective human pressure on natural resources. So, whereas the Gulmi district is, in absolute value, four times more densely populated than the similar Doti district, it turns out that in Doti population density according to the farmed area is more than twice as high as in Gulmi. This may mean either great pressure on the land or a greater importance of cattle breeding. The following maps shall throw some light on this.



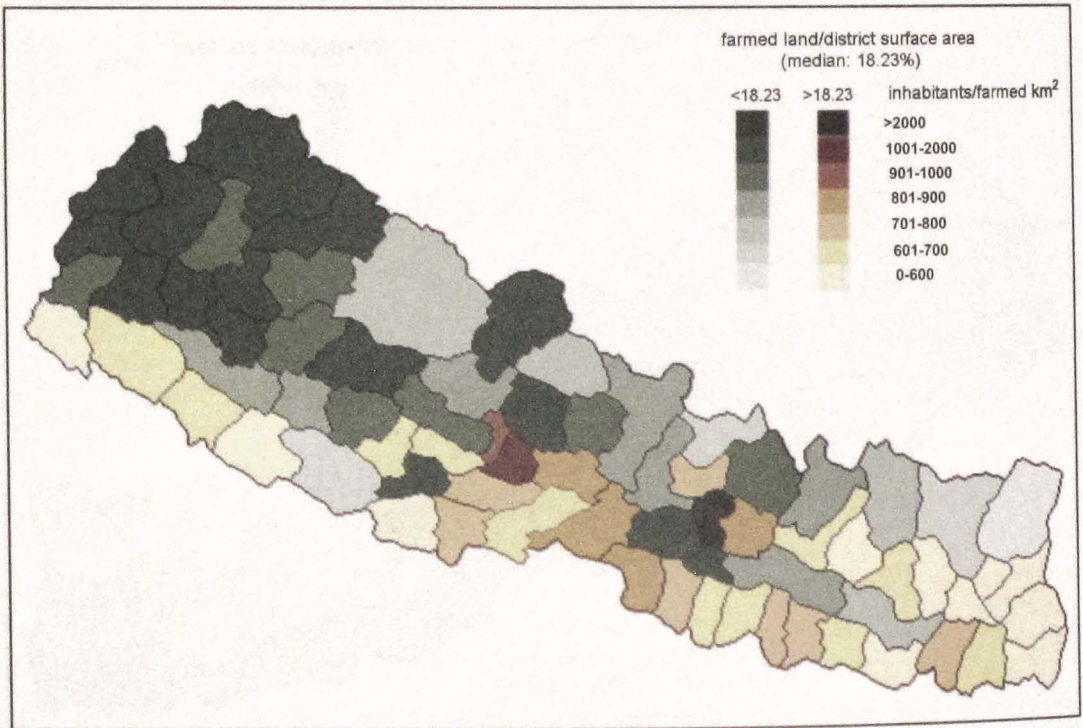
Source: Population Census 1991

Figure 17
Total human density, Nepal 1991
P. Ramirez

Nepal 1991: density per farmed km² and proportion of farmed lands

For Nepal, the surface area of arable lands per district is published by the Ministry of Agriculture. However, this involves estimations whose

incoherence may be estimated by comparing them to surface areas declared by farmers to the Revenue Office – arable surfaces turn out to be generally very much lower than those farmed in reality. So, rather than the classic map of densities per arable area, we have opted for one of densities per farmed area (Figure 18). Since the mode of land use is specified by the farmer when recording the land, we may estimate farmed areas by adding the following items: permanent crops, seasonal crops, (private) pastures, wastelands and ponds. What is missing are hay meadows (*khar bāri*), which do not exist as an official land tax category and which can be recorded indiscriminately as pastures or crops. Private forests undeniably represent an important resource, but we have preferred to map them separately.



Source: *Statistical Yearbook of Nepal 1997*.

Farmed surfaces: surfaces registered as having permanent crops, seasonal crops, as pastures, wastelands or ponds.

Figure 18
Human density per farmed square kilometre
and proportion of farm land, Nepal 1991

P. Ramirez

The density per farmed land provides an estimation of human pressure on the area that is actually productive, i.e. on immediately available food resources. It underlines any eventual disparities in productivity and imbalances between needs and production. Indeed, high density per farmed

square kilometre may correspond either to high productivity per hectare or to a deficit. Whatever the case, deviations within comparable ecological zones are remarkable: in the middle mountains of the Centre-West, between 603 inhabitants per km² in Gulmi and 1,130 in Syangja.

We introduced a second variable, the proportion of farmed land to the total area of the district. This provides an approximate idea of the availability of land. It must be pointed out that since collective pastures have not been recorded, they do not influence this variable.

One might therefore propose a first classification of most of the low and middle mountain districts in terms of human pressure on the farmed space.

A) The far western mountains, as well as the districts of Argha-Khanci, Baglung, Kaski and Lamjung in the Centre-West, are characterised by great pressure on relatively small farmed spaces. The importance of cattle breeding and collective pastures might be a determining factor, particularly in the case of arid zones at high altitude, less so for lower regions such as Acham and Doti.

B) In Syangja and Parbat in Central Nepal, although the farmed space is relatively large, human pressure is high.

C) In the nine districts of middle and low mountains east of the Kathmandu Valley, pressure on farmed land is low and land is relatively abundant.

D) The four southern districts encompassing *dun* (depressions), i.e. Surkhet, Sindhuli, Udayapur and Salyan, house both small populations and few crops.

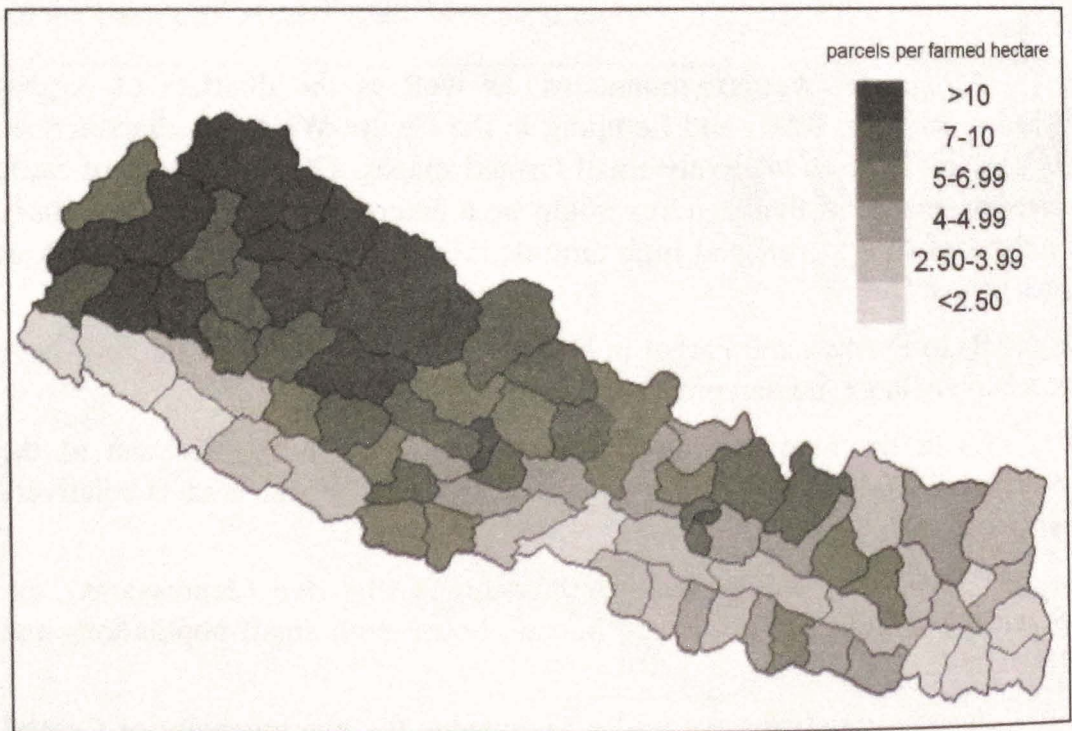
For the time being we will acknowledge the heterogeneity of Central Western Nepal according to these criteria.

Nepal 1991-1992: parcelling of farmed land

The data published by the Nepalese tax office include the total number of parcels recorded in a district. This helps evaluate the number of parcels per farm, a fundamental element in agrarian modes, but also the number of parcels per farmed surface unit, a fundamental element in landscapes. We have chosen the latter here.

Globally speaking, parcelling seems to increase with altitude, as well as from east to west. In this comparison, the high mountains where farming

relies on irrigation cannot be placed on the same plane as the middle and low mountains, where less land is irrigated. For the middle mountains, there is a distinctly positive correlation between parcelling and density per farmed square kilometre. The western half of the country is characterised by high parcelling, generally greater than six parcels per hectare. In the eastern half, this value is greater than five in only two districts (Okhaldunga and Khotang) and drops to two in Ilam and Terhathum. Differences in inheritance systems obviously play a role, with a greater trend towards parcelling among the Indo-Nepalese (Parbatiya) groups, who are less numerous in Eastern Nepal.



Source: *Statistical Yearbook of Nepal 1997*.

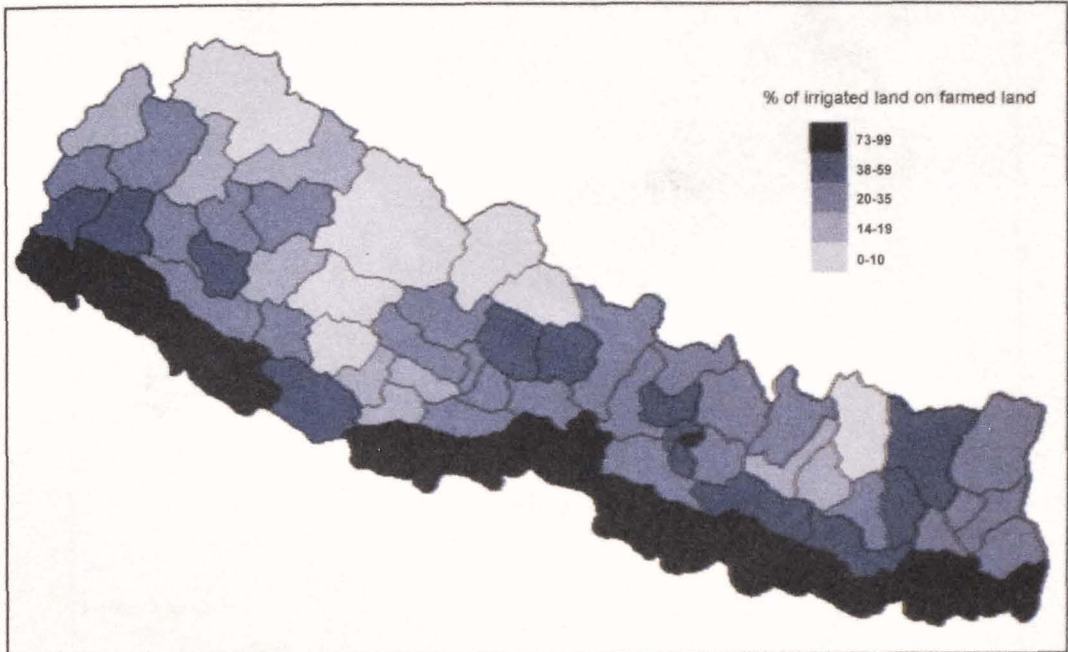
Farmed areas: areas registered as permanent crops, seasonal crops, pastures, wastelands or ponds.

Figure 19
Parcelling of farm land, Nepal 1991-1992
P. Ramirez

Nepal 1991: irrigation

The contrast between non-irrigated and irrigated land is fundamental both in Nepalese agrarian modes and landscapes. The cartography of the proportion of irrigated land within all farmed land (Figure 20) does not reveal

remarkable entities, save of course the Tarai plains where irrigated crops largely prevail. The interpretation of these data is difficult and contradictions between them and empirical observations are at times such that we are left casting doubt on their validity. Thus, in several high mountain districts, where it is common knowledge that irrigation represents a *sine qua non* condition in farming, the surface area of the irrigated land recorded is practically nil³ (Mustang, Manang, Dolpo etc.).



Source: *Statistical Yearbook of Nepal 1997*.

Farmed surfaces: surfaces registered as having permanent crops, seasonal crops, as pastures, wastelands or ponds.

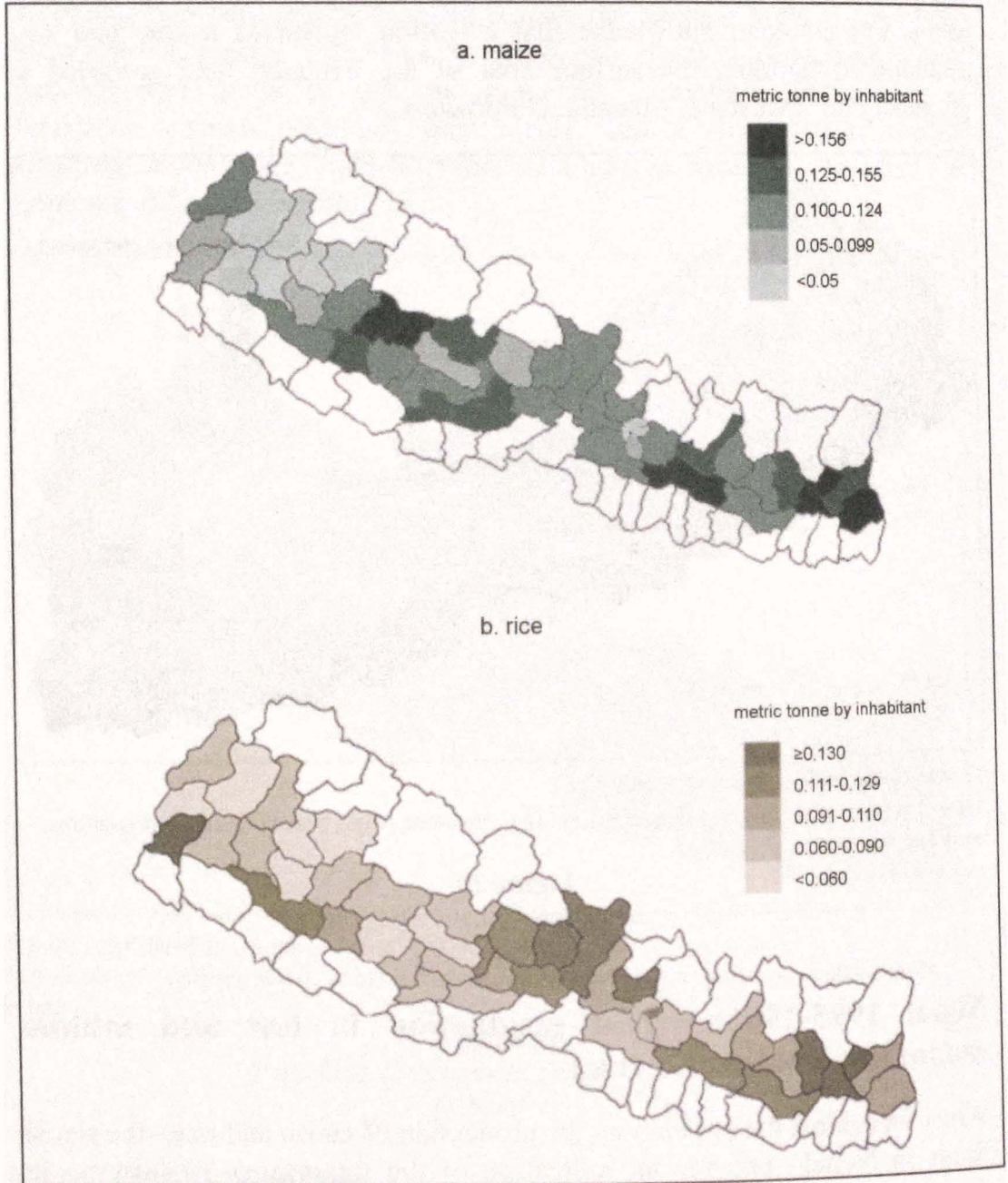
Figure 20
Irrigation, Nepal 1991
P. Ramirez

Nepal 1995-1996: cereal production in low and middle mountains (maize and rice)

When set against the population, the production of maize and rice –the staple foods in Nepal– provide an indication of the importance of farming in satisfying food needs (Figure 21). As such, there is confirmation of the relatively pastoral vocation of the Far West. Providing that data on which

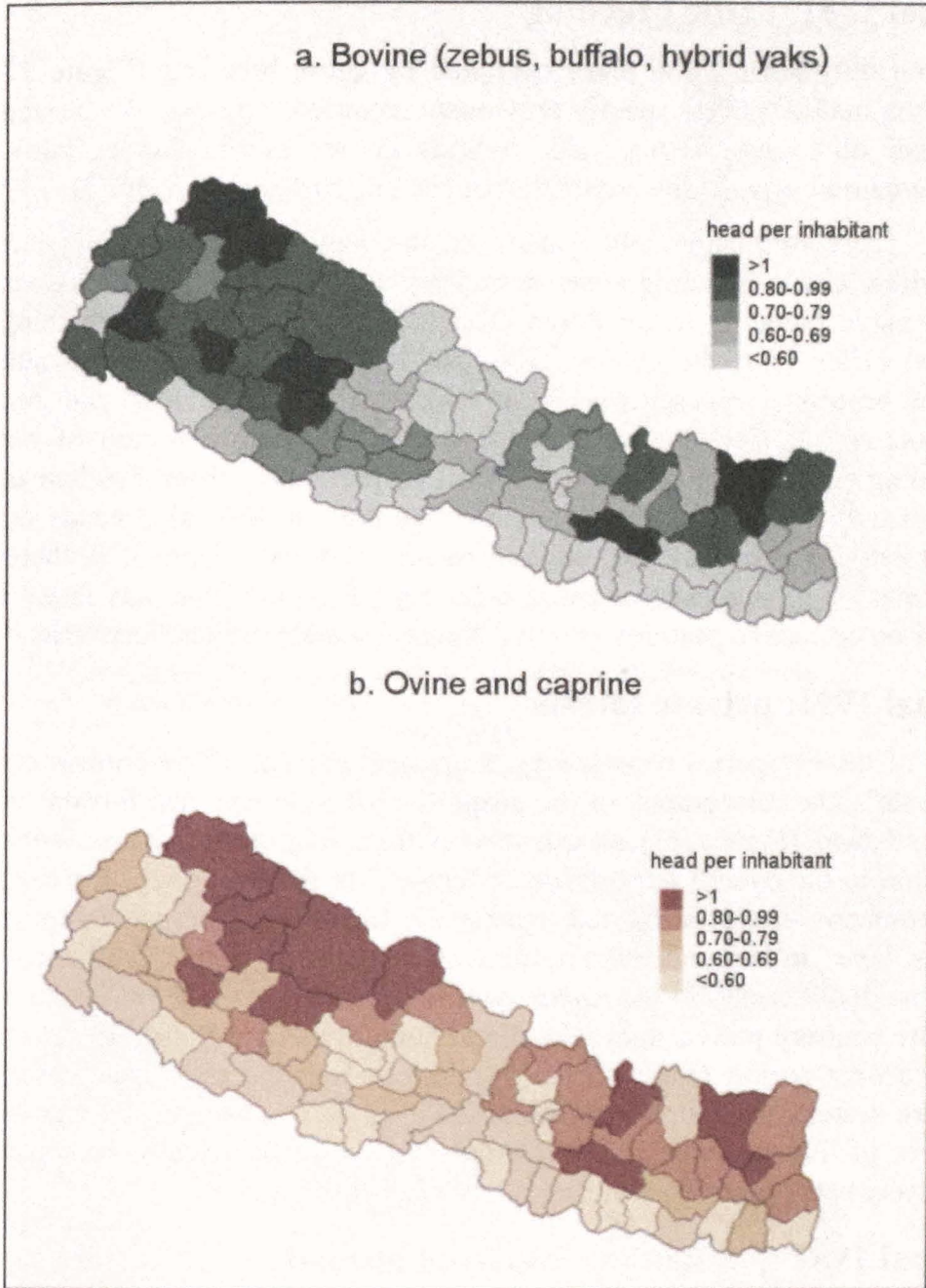
³ In high mountains, irrigated land not intended for rice has apparently not been registered.

they are based is correct, these two maps also highlight the relative importance of the irrigated (rice) and non-irrigated (maize) sectors in the landscape.



Source: Statistical Yearbook of Nepal 1997: 1991 population

Figure 21
Cereal production in low and middle mountains, Nepal 1995-1996
P. Ramirez



Source: National Census of Agriculture 1981-1982, 1985.

Figure 22
Cattle breeding, Nepal 1981
P. Ramirez

Nepal 1981: cattle breeding

Taking into account the place occupied by cattle breeding (Figure 22) in farming methods helps specify previously recorded contrasts. We plotted the number of bovine (zebus, yaks, hybrids known as *dzo* and buffalo) and ovine-caprine against the population of each district respectively.

These two maps help understand the south-north extension of cattle breeding. Cattle breeding areas in the mountain belt seem to be associated with cattle breeding lower down. Thus, the western and eastern thirds of Nepal differ from the central third where, whatever altitude and animal, cattle breeding represents a lesser share. Among the low and middle mountains, the Far West clearly stands out as being a region of bovine breeding compared to the Centre-West in particular, from Pyuthan up to Kathmandu. We have seen (Figure 18) that the Far West also stands out by the relative scarcity of farmed, and therefore private, land. It is therefore conceivable to suggest that cattle breeding here, more than anywhere else, relies on collective pastures –or on collecting fodder from collective land.

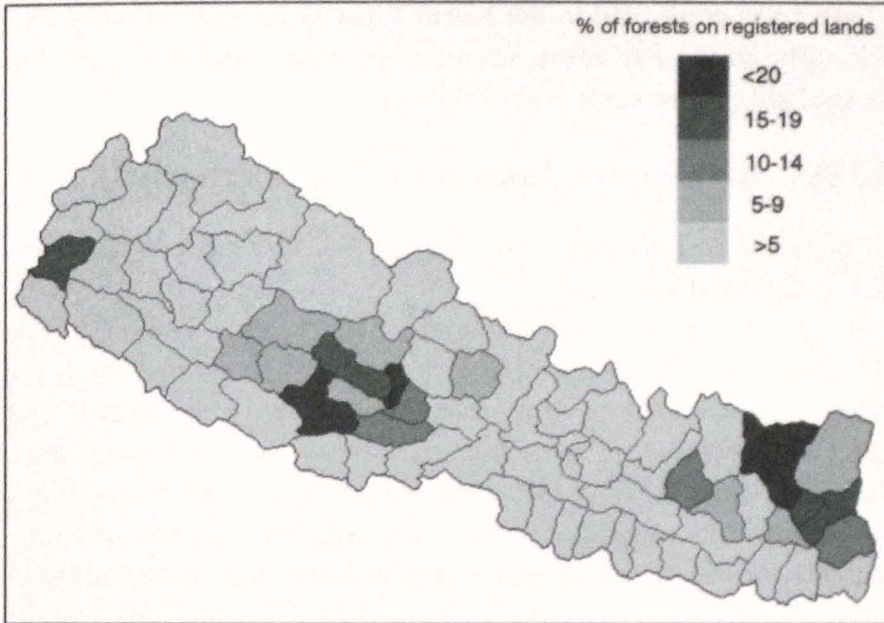
Nepal 1991: private forests

One of the categories recorded by farmers at the tax office corresponds to "forests". The cartography of the proportion of these "private forests" on all farmed land (Figure 23) reveals two particular groups, with no apparent relation to the overall importance of forests.⁴ In the case of the far east, the phenomenon could be plotted against the history of landownership: tribal lands, *kipat*, in large numbers in the east, included forests; their privatisation was no doubt easier. In the *raikar* system, prevalent in the west, forests were on the contrary placed under the direct authority of the State. However, the centre-west region ranging from Pyuthan to Syangja was under the same tenure system as Central and Western Nepal. In this region, the significant degree of forest privatisation therefore shall no doubt have to be sought in the recent extension of certain agrarian strategies.

Nepal 1981: population employed abroad

Remittances from emigration have to be considered as a resource whose relative importance has an impact on farming methods and therefore on landscapes. The Centre-West, a region of high emigration abroad (Figure 24), corresponds to the lands of the Magar and Gurung who were traditionally recruited in the Ghurkha regiments. To the far east, the Rai and

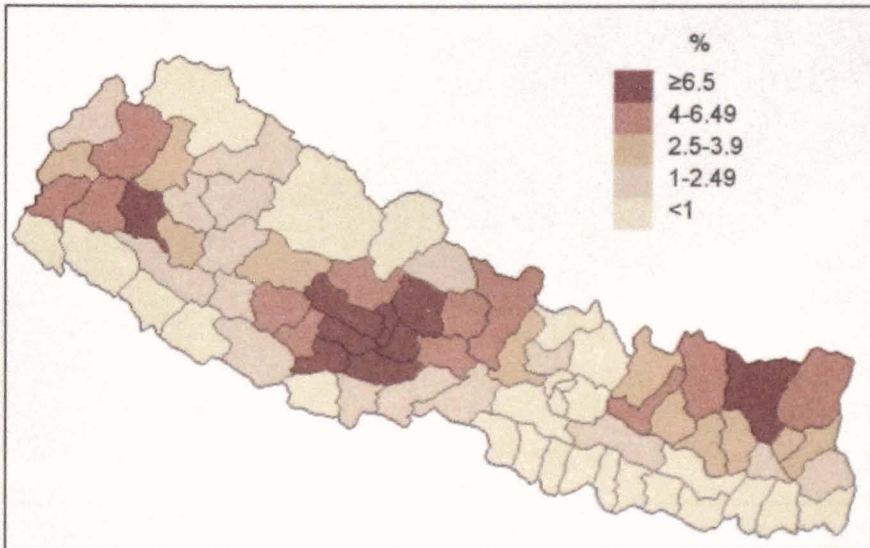
⁴ For the cartography of Nepalese forests, see KARAN and ISHI, 1996.



Source: Statistical Yearbook of Nepal 1997.

Farmed surfaces: surfaces registered as permanent crops, seasonal crops, as pastures, wastelands or ponds.

Figure 23
Private forests, Nepal 1991
P. Ramirez



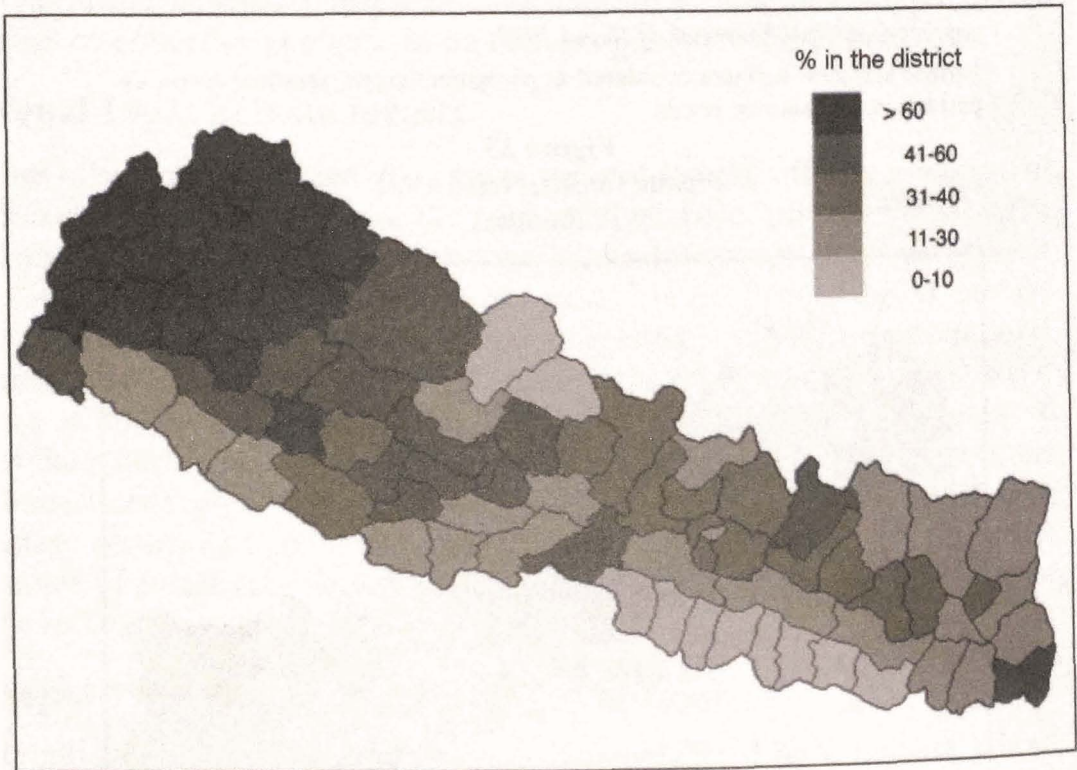
Source: Population Census 1981

Figure 24
Population employed abroad, Nepal 1981
P. Ramirez

Limbu have been employed in the North-Eastern Himalayas since the British period. Finally, in the Far West, seasonal workers leave each year for Indian Himalayan districts (harvests and building).

Nepal 1991: high-status Indo-Nepalese (Parbatiya)

It is not possible here to cross-check economic and cultural data. However, we felt it indispensable at least to provide a cartography of high-status Indo-Nepalese groups: Bahun (Brahmans), Chetri and Thakuri. These are generally presented as the promoters of irrigated crops in Nepal. However, the elements presented here show that the areas with the largest number of high-status Indo-Nepalese are not the areas that produce the largest quantities of rice. The Far West of Nepal, which includes the greatest proportions of Indo-Nepalese, also appears to be the region where, comparatively speaking, cattle breeding plays the most important role.



Source: *Population Census 1991*

Sum of Bahun, Chetri, Thakuri and Sannyasi categories

Figure 25

High-status Indo-Nepalese, Nepal 1991

P. Ramirez

Frame 8

Populations of Nepal*Philippe Ramirez*

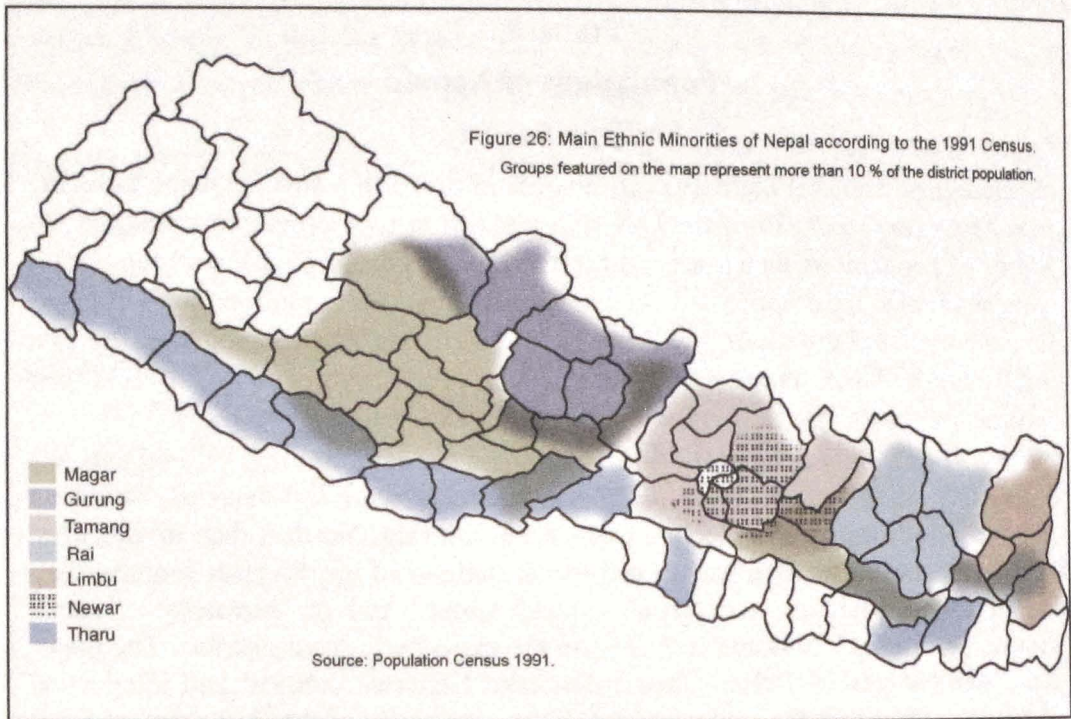
Nepalese populations (Figure 26) can be broken down into two language families: Indo-Aryan and Tibeto-Burman. This split pertains to two large components in the history of populations which are visible through physical (Caucasian/Mongoloid) types and which have witnessed encounters between immigrants on the one hand from the west and the south, i.e. from India, and on the other hand, from the east and the north (Tibet, Yunnan). Forms of social organisation can be characterised according to how close they are to the dominant Brahmanical model.

The ten million or so (1991) Indo-Nepalese or Parbatiya ("highlanders") descending from immigrants (Xth-XIIIth century) who followed the southern fringe of the Himalayas, associate themselves with the North-Indian civilisation: as founders of the modern Nepalese State at the end of the XVIIIth century, they imposed their language, the Nepali (Pahadi group) and the hierarchy of status groups, i.e. "castes". Nowadays they form the majority in most districts. The upper Indo-Nepalese castes (Bahun-Chetri) dominate Nepalese political and intellectual elites; they recognise the social and religious superiority of the Brahmans and call upon them to perform their household rites. Lower castes (Kami blacksmiths, Damai tailors...) provide all Nepalese ethnic groups with craftsmen.

The four and a half million Madeshi ("plain folk"), castes in the Tarai plains, culturally and socially very close to the inhabitants of the Ganges plains, speak Hindi dialects and are organised into a hierarchy which includes numerous specialised groups. With a large majority of Hindus, they include 600,000 Muslims. In the plains, –besides the recent mountain immigrants (1970s)– they live side by side with a certain number of groups who consider themselves to be indigenous and whose society is relatively egalitarian, especially the Tharu (1,200,000).

Save several northern pockets of specifically Tibetan culture (Sherpa, Bhotiya), the Tibeto-Burman family of languages is mostly represented in Nepal by five major ethnic groups with very complex identity and cultural features but whose social organisation is based on non-hierarchised descent groups:

- the Magar (1,300,000), some of whom maintain close relations with the Indo-Nepalese: they may only speak Nepali and call upon Brahman priests;
- the Gurung (450,000) and the Tamang (1,000,000), in contact with Tibetan civilisation (Vajrayana Buddhism);
- The Rai (525,000) and the Limbu (300,000), confronted more recently with the State (XIXth century) and whose culture marks a transition between the Central Himalayas and the Indo-Burman region from where they came.
- Finally in the Kathmandu Valley, the Newar (1,000,000), for the most part town folk, deeply influenced by Indian religious and political ideas, and organised into kingdoms and into castes for over a thousand years.



Source: Population Census 1991.

The cartography indicates that the ethnic group represents more than 10 % of the district population.

Figure 26

Major Nepalese ethnic minorities according to the 1991 census

P. Ramirez

PART TWO

***PERCEPTIONS AND REPRESENTATIONS
OF LANDSCAPES***

CHAPTER V

The Nepalese Landscape: Exegesis and Appropriation of the Country¹

Marie Lecomte-Tilouine

The vision the eye records is always poor and uncertain. The imagination enriches and completes it with treasured memories, knowledge, with everything that experience, culture and history leave to its discretion, without taking into account what the imagination itself invents and dreams when need be.²

Roger Caillois, *L'Écriture des pierres*

The notion of cultural landscape might at first sight be considered ethnocentric. Indeed, it corresponds to a linguistic deficiency in many languages, and in Nepali there is no equivalent term for "cultural landscape". In addition, though the Nepalese countryside is shaped in a particularly spectacular way by man's terracing the land, the purely aesthetic aspect of arranging nature, the garden (*bagaicā*), is only found in modern palaces and wealthy suburban areas.³ The difficulty, especially for someone studying an exogenous culture, lies in apprehending the vision or perception, both a subjective and culturally determined faculty. The problem is primarily methodological: in a society where the written word is rarely used and where

¹ A preliminary translation from the French was kindly done by Karen Lündstrom-Baudais, to whose memory I dedicate this article.

² Translated from French: "La vision que l'œil enregistre est toujours pauvre et incertaine. L'imagination l'enrichit et la complète, avec les trésors du souvenir, du savoir, avec tout ce que laissent à sa discrétion l'expérience, la culture et l'histoire, sans compter ce que, d'elle-même, au besoin elle invente ou elle rêve."

³ The term "garden", *bagaicā*, does exist, but is borrowed from Persian, like much of the vocabulary regarding the court and administration. As a matter of fact, one encounters garden only within the royal palace of Kathmandu and some recently created public parks. Temples, monasteries and private individuals, for their part, grow flowers mainly for ritual purposes in the "flower fields", *phulbārī*. On the other hand, the Queen's Wood (*rāni ban*) is a protected forest area which may be likened to a garden: described as paradisiacal. Abounding in fruit and scented flowers, it is a haven for all creatures and a place for lovers.

very few pictorial representations exist, we have no works through which a particular perception of the world would be revealed.

Nevertheless, the country is seen and therefore perceived. The only Nepali term that one can compare to "cultural landscape" or to the French *paysage* (i.e. what is seen of a country) is *drśya*, "the sight",⁴ but it is mainly used to mean "panorama". Thus in Nepali, the "vision" of the country as such is remarkable and conceptualised only when it is particularly widespread.

A last difficulty linked to the Nepalese context is the diversity of the ethnic groups that mix here. Although Nepali is the official language and the *lingua franca* of the country, the concepts conveyed by this language are not internalised by everyone, and it is never possible to talk about the Nepalese or even about the hill population in general terms. For example, the Magars who traditionally live at mid-slope level and at a high altitude consider the clear view to be one of the attractions of their habitat, while the realm of populations such as the Majhis stops precisely at the upper limits of morning mists. This group of fishermen and boatmen lives in time with the river, from their tightly packed villages set up on alluvial terraces.

Landscape and emotions

Without actually writing or theorising about it, the Magars like to sit on high ground, perch on rocky spurs overlooking precipices and watch birds of prey gliding over the emptiness. They rarely express their emotions, but their love of the country is one of those they allow to show through, especially when they are far from it or when faced with a foreigner. I remember a Magar friend who, during a walk along the ridge above his village, surprised me by crying out: "Oh, if you were married here, you could see this every day", taking in the extraordinary succession of mountains and valleys in front of us with a sweep of his arm. The landscape was so appealing to his eyes that he deplored that anyone could live far from it. Those who live there boasting the clear views regard those who have settled in "corners" (*kunā*), on valley floors, along torrents, gorges or very close mountainsides to be "hemmed in", and this feeling of being hemmed in is apparently so unpleasant that several women confided to having refused to marry a man living in such a "corner".

⁴ BOUILLIER, 1987.

In the mountains where the Magars and Indo-Nepalese caste groups live, the beauty of the landscape finds expression in the long walks that villagers are prone to take, using as pretext the two or three goats they have to put out to graze, in order to admire the view from the top of the ridge, or to go right to the bottom of the mountainside in order to sit at the water's edge and sing. When young women come back from the forest, they lay down their load of fodder or firewood at the mountain passes to summon in a somewhat impressive way Deorali, the goddess of the site, in whom they confide their sorrows in the form of songs. At the bottom of the valley, it is the steady, continuous stream of the torrent that inspires melancholy. Its murmuring evokes the heartrending songs of women on the way to their marital residence from their native home which they are fond of, since the river represents the condition of the woman forced out of her home by the very ones who brought her into this world. It also, more profoundly, incarnates the passage of time, the web of love, the separation of lovers and at the end of it all, its current carries away men's ashes.



Cremation platform at the Panauti confluence during the monsoon, which symbolises the end of the world (Photograph M. Lecomte-Tilouine, 1997).

Photograph 33
Panauti confluence

As for the forest, it gives rise to anxiety, not because one can get lost in it, since one can always find one's bearings using the mountain slope, but because of the dangers it conceals: brigands and terrifying spirits. At the same time it is a meeting place far from adults' eyes in songs that one strikes up in turn with a stranger or young person whose voice one recognises in the distance:

As you repeat the name of Ram,
I repeat yours.
Let us go and break branches
In the Queen's Wood⁵

The few unpruned trees are much appreciated by villagers who like to contemplate the roundness of their crowns and to settle under their foliage to talk or take a nap. Footpaths are lined with those sacred trees planted at resting places set up by men with the aim of gaining merit, obtaining a son, or in memory of the dead. Villagers lay down their load on these stone structures planted with a couple of sacred trees and lean against them in the shade or the shelter of bad weather. Lastly at the centre of the village, the *maidān*, an esplanade which is usually artificial, serves as the meeting place and as a playground for children.

Each category of landscape therefore evokes different feelings, emotions and through this poetics of the world the country forms an environment where man is not a spectator, but an integral element; he takes part in the various categories of this milieu and responds to it.

The country as a biotope

Generally speaking, the inhabited world is divided into three belts: the lowlands (*aul*) including plains and valley floors, the hills (*pahād*), and the mountains (*lekh*).⁶ This division not only applies to the whole of the country but also to each mountainside, where the bottom, the middle and the top are attributed the same characteristics. They form actual biotopes proper to the different groups of population and which contributes to defining their inhabitants. For people from the *pahād*, the *madesī*, a man from the plains or

⁵ Wedding song (*śilak*), sung at Isma in Gulmi district.

⁶ The Tarai plain is specifically called Madesh (Middle Country), whereas the term *aul* (linked to heat and malarial fever) is a generic term and denotes any low-altitude land; *besī* is synonymous with *aul*; *lekh* designates the summit of any elevation and the middle mountains, whereas the term *himāl* (snow-covered place) only applies to the high mountains.

valley floors "has a dark complexion, long legs, is cunning and deceitful, lives off rice and fish"; those from higher up, the *lekhālī*, are "thick-set and have a ruddy complexion. Strong, they are honest and totally lacking any guile, their food is plain and based on a meat diet". To find out if they are dealing with a *lekhālī* or a *madesī*, when faced with a person whose country they do not know, the Nepalese often ask if there are *sāl* (*Shorea robusta*) or *khasru* (*Quercus semicarpifolia*), trees typical of low- and highlands respectively. *Sāl* do not exceed 1,000 m and *khasru* are only found from 1,800 m upwards. Vegetation defines belonging as the different ethnic groups in Nepal feel particularly attached to an environment, their *hāvā pānī* (wind, rain), terms that not only denote the climate but also what is linked to it: the flora, fauna, type of crop, habitat, etc.

The native "climate" is described as being ideal and the only suitable one. Thus, a large number of Magars, for example, forgo jobs in India or in the Tarai and explain that they are unable to put up with the climate, and in particular the "hot water" (*garam pānī*) in the plains. Indeed, villagers make very few changes to their clothing when going on the jaunts they often have to make through the different environments that characterise the Himalayas: mountain folk come down in their woollen coats and those from the lowlands go up in simple cotton clothes and flip-flops. For those from the low and middle mountains, only their own environment represents a possible place to live, caught in a vice between two zones, the high mountains in the north and the plain in the south, described as "poisoned". In the plain, air, water and the sun's rays are, in their eyes, a source of disease. The air is pestilential, loaded with the deadly breath of snakes which transmit malaria; water flows warm, a sign that it is not drinkable, since the temperature is the only criterion by which peasants from the hills judge that water is all right, by testing it with their hand before drinking. Finally the sun is terribly scorching there. They tell of how people live at night, ploughing by the light of the moon like wicked spirits, how they have lost weight and the dangers they have escaped. Their trips northwards are less frequent, especially since the end of the salt trade with Tibet. People only go there on pilgrimages, to Dhorpatan or Muktinath, or else to harvest medicinal plants, but the elders recount how the poison in the air affected them on their way to get salt from Tukuche or Maikot. According to them, the high mountain air is unbreathable due to a plant which contaminates it, the *bhutkes* ("hair of the *bhut* wicked spirits"), and the only remedy for this ill is to bring oneself to eat the excrement of a black dog. The sun, more yellow, also makes one ill. The High Range, however, is held in great esteem as being the realm of the

great gods, such as the creating couple Shiva and Parvati or else the goddess of plentiful grain Annapurna, whereas the Tarai plain, and that of the Ganges are not considered sacred as such, because, as the old Om Bahadur from Darling used to say: "All gods live in Nepal, only Krishna is to be found in Hindustan."

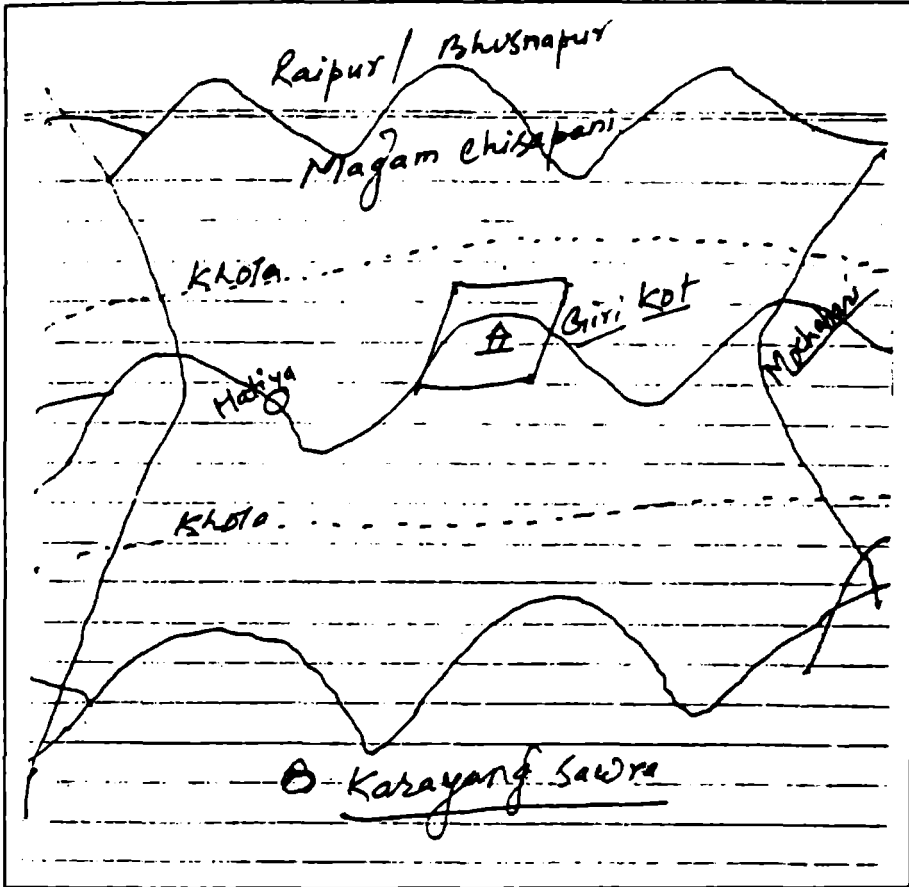
The four markers and divine diagrams

Like men, places are defined by what surrounds them, each point being determined by its four orient. Space is thus conceived as an environment, a particular context which gives meaning to the elements located there. The traditional way of recording land on the cadastre, for example, was to provide the four names of the owners of the land surrounding the field to be demarcated, without, in our eyes, any precise border being mentioned. Where this involves locating a unit of greater size, the reference marks are generally sanctuaries, which very often form a network of four gods, referring to this fundamental spatialisation structure which is the *cār killā* or "four markers"⁷ (figure 27).

The country is dotted with a chequer work of holy places, which form as many prominent milestones organised into networks. The *purāṇas* describe how Shiva wandered through the world carrying the dead body of his spouse Sati, sixty-four pieces of whom fell on the ground leaving holy traces there. In traditional Hindu thought, they render space sacred and organise it into a hierarchy. In Nepal as in India, divine geography structures the country, like a Mandala overlying the inhabited space, into the different categories of landscape. It gives it meaning and shape. The chronicle *Rājabhogamālā vaṃśāvalī*⁸ describes the genesis of this organisation of the world in the Nepal valley: in the Kali Yuga, men were surrounded by a multitude of gods, a shapeless mass with every part of it demanding offerings and sacrifices. A priest had the idea of organising them into a single ritual figure, linked to the territory: the god Nepal Mandala, who incarnated them all and whom it was finally possible to worship.

⁷ The four markers of Nepal, for example, are defined in the *Bhāṣā vaṃśāvalī* (Paudel ed., 2020 VS, p. 5) by its sacred landmarks: "To the west the seven Gandaki, to the east the seven Kausi, to the north Nilakantheshvar, to the south Srinatarambheshvar. May he who goes to this eminent place that is Nepal, within the four markers, serve it by his knowledge. May he achieve deliverance".

⁸ *Ancient Nepal*, vol. 8, 1969, p. 20.



This sketch is from a notebook kept by Krishna Rana, a Magar friend from the village of Pyugha (Syangja). He drew this map while sitting at the summit of Girikot. The reference point is surrounded by a square and by a square-shaped enclosure of mountains, the names of which are indicated on the four orient, the top of the drawing corresponding to the north (1996).

Figure 27
Example of a *topos* defined by its four markers

The various networks of gods define spaces with special features, as the work of Niels Gutschow has demonstrated so well. The Newar town is formed at the centre by the king's lineage divinity surrounded by gods from the different quarters, the most important of which are the Ganesh; then by an enclosure of Mothers, the Matrika, outside of which the untouchable groups live. The circles of Mothers surrounding the former capitals of the valley are in turn included in vaster networks, such as that of the four Narayana, the four Varahi, the four Ganesh, which structure the Kathmandu Valley and shape it into a unit, notwithstanding its former political divisions in several kingdoms.

However, these spatial diagrams that cover the country are not only cosmogrammes, or ideal models laid over a neutral space⁹ like those that Brahmans or Lamas draw on the plane surfaces of altars. Indeed the country they reflect and which they in turn contribute to defining is itself formed by meaningful elements such as rivers, summits, forests, precipices, caves, boulders and springs. In a certain manner, the country is itself a Mandala with an intrinsic outline and of which men make a mere exegesis. The Nepal Mandala is thus conceived as the space between the Sapta Gandaki and the Sapta Koshi, two ensembles of seven sacred rivers that surround it and define it, in its widest sense.

Ritually-defined territories, within which the individual takes his bearings, are therefore superposed on the environment described as natural and organised into various biotopes. These anchorage points substantiate the presence of gods in the territory and their preponderant role in producing a landscape.

Without referring back to correspondences between the various categories of space and the divinities inhabiting them,¹⁰ we now have to emphasise the way in which the gods manifest themselves in the country, how they shape it, how they are recognised by men and how "natural" sacred sites secure power or an identity within a territory. In order to address this delicate issue, there is no other choice but to examine a large number of examples, which might be seen as many anecdotes, since ideas related to the landscape are not schematized in a single place or work that would simply have to be studied. We shall take significant examples both from our field data and from texts, especially the *Himavant khaṇḍa*, a Puranic account on the Himalayas, written in Sanskrit in the XVIIth century.¹¹ Elements taken here and there form a set of coherent ideas on the country that primarily underline the degree to which it is seen through a religious screen, how the landscape is above all mystical, even if these mystics can be instrumental in forming the group's identity and if it is possible that both of them were formed concomitantly. The symbolic appropriation of the country by different communities and at different times produces a superposition of

⁹ Certain networks, however, seem to above all satisfy the need for a model: so of the four Varahi of the Kathmandu Valley –quoted in the *Bhāṣā vaṃśāvalī* and by many different informants– only three are clearly identifiable, the fourth being associated with different sanctuaries.

¹⁰ LECOMTE-TILOUINE, 1987, 1993.

¹¹ Published and translated into Nepali by Yōgi NARAHARINATH. The abbreviation HK makes reference to this book throughout the rest of the text.

sacred geographies where the most famous sites are part of a religious heritage common to various groups of population. Each makes it their own by formulating specific myths which associate it with the site, sometimes honouring different divinities there or performing worship which differs from that of others by its date, type of priest or offering. Such is the case of the main sanctuaries in the Kathmandu Valley, where Hindus and Buddhists possess distinct legends and worships linked to the same places, or the case of the Varaha Kshetra confluence in Eastern Nepal, where two major annual meetings gather, at different dates, Hindus from the plains and hills on the one hand and the Kirant tribal populations from the low and middle mountains on the other. This coming and going of devotees, their different notions of the same sacred place, and the gathering of very heteroclitic populations, suggest that the monopoly of the sacred site grants legitimate power over the country which is difficult to withhold for oneself. These places of power play a preponderant role in building intercommunity relations. These are arranged in space and time in recognition of the same sacred sites, but not of the gods who inhabit them, and even more so, not of the means of their worship.

The universe, the earth, the country as the body of the gods

In Hindu texts, the whole universe is born of the creative dismembering of a primordial being called Purusha. From his body comes water, earth, mountains and cereals. From his mind the moon, from his glance the sun, from his ear the wind, from his mouth fire, from his navel the intermediary belt between the sky and earth, from his skull the sky.¹² This cosmogony can be found in a more specifically Nepalese version of the creation of the world, recounted in the *Swasthānī vrat kathā*, where the goddess extracts the different components from the body of a demon in order to make the elements of the world, clearly showing the analogy between mountains and bones, the earth's crust and skin, etc. As bones form the basic structure of the body, mountains frame the world, supporting the earth and the sky. In the same way as men are born from bones (a term which designates the patriline) and join them after their death in the form of ancestors, Mount Kailash and by extension all the Himalayan summits form, according to Yogi Naraharinath, man's place of origin and his ultimate destination, after death. The mountains are thus one of the centres of the universe, the "centre

¹² HK 4, p. 53-58.

of elevation", among the various centres (*kendra*) that organise the universe and form genuine poles of attraction in the vision of Yogi Naraharinath:

Clouds burst when they reach mountains and it rains, but with the "centre" of water being the sea, all streams and rivers go off to join the sea. Since the earth is the "centre" of earthly things, earth, stones, even thrown into the sky, come back down to earth. The sun is the centre of splendour (*tej*) and when one lights a fire, the flames are directed towards it. Similarly, with the main centre of man's elevation (*udgamkendra*) being the Kailash and other mountains, those who know this secret, wherever they go in life, take in the end the northerly path, like Prithvi Narayan Shah, Amar Singh Thapa and the Pandava.¹³

Those mountains which are presented as the axis of the world when described as its bones, as well as attraction points, are at the same time strangely presented as being originally mobile.

In the *Himavant khaṇḍa*, Mounts Meru and Himalaya are Brahma's two sons. To marry them off, Brahma asked the ancestors to create virgins, and when the latter reached the age of seven, he sent Narada to ask two of them for his sons. But the ancestors refused, asserting that the mountains were stupid, without caste and any quality. Angered, Brahma made wings for Himalaya and was on the point of also making some for Meru when the gods stopped him by making the point that with their wings the mountains were going to destroy the world.¹⁴ To comfort his disappointed son Meru, Brahma married him with six of the ancestors' daughters. Then Himalaya married one of them, Mena, whom he forsook however for his maidservants. Poor Mena went to complain to her fathers, the ancestors, who cursed the mountain so that all the daughters whom he would have with his maidservants would turn into rivers. Himalaya then declared war on the gods with his wings which made him terrible, so that Vishnu destroyed them, but as consolation appointed him king of the mountains.¹⁵ Himalaya then obtained from Mena his daughter Parvati, "She of the mountain", who let the sweat from her body run into these two groups of seven rivers already evoked, the Sapta Koshi and the Sapta Gandaki, which frame the valley of Nepal. These rivers were created when the goddess devoted herself to extraordinary practices of asceticism to obtain Shiva as husband. At the hottest month of the year, she sat in meditation at the site of Gosaikund, surrounded by fire and facing the sun. Her sweat ran out into two groups of seven fountains. Rishi¹⁶ Kusik bathed in the sweat flowing from her right foot and the River Koshi was

¹³ NARAHARINATH, 1880 Sake, p. 9.

¹⁴ This mythological theme may be found in the writings of the poet Dharmaraj THAPA (2041 VS, p. 341), "like a vulture spreading its wings, the Himalayas seem to be ready to fly off".

¹⁵ HK 7.

¹⁶ Rishi: sage of divine status.

formed. Then the goddess went on a mount where there were mines followed by Rishi Sanatkumar; there, sweat ran off her ankle and took the colour of copper, forming the Tamakosi river; Parvati then stayed on the mount of gold, Hiranyasekhar, followed by Rishi Sanatana and sweat ran from the corner of her lips: the river received the name of the gilded colour of its water, Sunkosi. Again, the goddess went to another mount followed by Rishi Sananda and sweat ran from the corner of her eyes; she then went to a mount where there were silver mines, accompanied by Rishi Sanaka and red water ran from her cheeks, forming Arun. On another mount sweat ran from her curls into a river; then she stayed on a mount covered with *kus* grass accompanied by Rishi Kusika and a river of sweat poured from her forehead.¹⁷ After that the goddess moved towards the west and from her left half –left foot, left eye, etc.– ran the seven Gandaki from seven mounts.¹⁸

Each of these rivers is associated with a specific part of the goddess's body, with a mount, a colour, and a Rishi, forming a network of correspondences between the sensitive universe of the country, the toponymics and the divine actors who give them shape and meaning.

This myth gives the impression that the goddess is immense, since the sweat from her body forms powerful rivers. This impression is reinforced by the fact that Eastern Nepal is irrigated by the sweat from the right part of the goddess's body, and the west by her left part, evoking, regardless of the movements related in the text, a gigantic and immobile divinity, facing north, one foot on each side of Nepal. The goddess's body innervates the country in this way. Her flow of sweat does not, it seems, represent pollution,¹⁹ but rather the divine fertilisation of the land. Indeed, in the list of beings created by Brahma in the *Rudrākṣāranayamāhātmyam*,²⁰ sweat is one

¹⁷ HK 82, p. 16-70.

¹⁸ Text summarised from HK 44, p. 1-80. The Gandaki bear the name of Rishi Gandaki, who first bathed in the sweat that ran from the left foot of Parvati, standing on Mount Nilkut. Then the goddess went to Mount Raupyaśrngā and from her ankle came forth a river where Rishi Marici bathed; afterwards she took position on the high summit of Mahakut and from the left corner of her mouth came a yellow-coloured river in which Ganda Rishi bathed; again she moved to Mount Smanikut where a white river, the Seti, flowed from her head as a powerful stream. The goddess then went to Mount Ratnashringa where sweat ran from her curls. She then settled some distance away on Mount Ekashringa where water as white as milk ran out of her forehead. From Mount Dvikut, a river of dark blue sweat ran from the corner of her eyes like ink over a white sheet of paper. Then, taking the form of Jal devī, the goddess of water, she revealed the name of the seven sources to Rishi Gandak and turned back to the east.

¹⁹ As M. CARRIN-BOUEZ writes (1997, p. 12).

²⁰ Text obtained by King Tarak Bahadur Shah, edited by Yogi NARAHARINATH (1880 Sake, p. 22).

of the generating substances amongst others, as the text distinguishes: "those who are born of eggs, those who are born of matrices, *those who are born of sweat*, those who are born of the land".

In fact, all the rivers in Nepal form, according to Yogi Naraharinath,²¹ groups of seven. He names, from east to west, seven groups of seven rivers: the Sapta Mai, the Sapta Kaushiki, the Sapta Mati, the Sapta Gandaki, the Sapta Bheri, the Sapta Karnali and the Sapta Kali. Each of these rivers gives its name to the region (*prades*) it crosses, providing that it "splits" the Mahabharat Range. The Sapta Bheri, which flows into the Karnali River before the Mahabharat, does not therefore form a region.²²

Considered both as purifying and dangerous, the river is extremely ambivalent in popular religious practices amongst the hill people, recalling their two origins in the *Himavant Khaṇḍa*, as the result of a curse of illegitimate daughters on the one hand and as the holy sweat of Parvati, on the other. If the sacred and purifying character of the river is recurrent in texts, it is over all its confluences that are revered. As for the rivers, their fate is described as sad and solitary. That is why the confluence, as a union with another river, is conceived as redemption. The rivers and their confluences form a place of death, where dead bodies are burnt or buried under boulders, especially in the case of death caused by contagious disease. Indeed, water is a neutral element which absorbs impurities and neutralises contagion, contrary to fire, which transmits substances by their aroma. Therefore, in the event of death by contagious disease, the dead body is not incinerated, but buried under stones on the bank of the river. The neutralising role of the river in the case of an epidemic echoes its political neutrality. The waterway is a border that separates localities and administrative units such as zones and districts, as it separated the numerous petty kingdoms which were unified at the end of the XVIIIth century to form the kingdom of Nepal. The confluence used to form a sort of neutral point of convergence between various territories: thus the sacred Deughat confluence

²¹ 1880 Sake, p. 18

²² The region, such as Yogi Naraharinath defines it, is an entity of variable geometry. Nepal, so he says, is divided into six *prades* bearing the name of the six main waterways that "split up" the Mahabharat range, but on p. 26 he gives another division of the country into four *prades* called Kirat, Magarat, Khasan, Jadan, names that refer to the population groups occupying the territories: the Kirants in the east, the Magars in the centre, the Khas in the west and the Jads (Tibetan populations) in the north. For this author (p. 27), each region is associated with a particular divine form: *rudrākṣa* seeds with that of the Sapta Kaushiki, *śaligrām* fossils with the Sapta Gandaki, [natural gas] flames with the Sapta Karnali.

played this role between the Makwanpur and Tanahun kingdoms and that of Ridi is the intersection of the three former territories of the Palpa, Gulmi and Grahon kingdoms. Like waterways and royal territories, men converged and still do at these junction points with "the beyond" that the confluences represent and where renouncement reigns, as another sign of its neutrality.



The sacred confluence of the Kali Gandaki and the Ridi Khola is a good illustration of the importance of the confluence as a meeting point of distinct political territories. Indeed, this site is held in much higher esteem than the nearby confluence of Rudra Beni for example, which is made up of two large rivers, but both banks of which are situated in the Gulmi kingdom. The Ridi Khola, on the contrary, as small as it is, forms an extremely important point where the Palpa kingdom and the Gulmi kingdom meet. This photograph shows the gathering of inhabitants from these two territories on the day of Māghe Sankrāti (Photograph M. Lecomte-Tilouine, 1993).

Photograph 34
The Ridi confluence

Stones, "natural" divine revelations

Parallel to this sort of sacralisation of the world's elements, many are the sites that are considered sacred due to legends referring to them, without the mark of the gods being noticeable in their appearance. So in the region of

Janakpur, Lake Gangasar is said to be formed by the waters from the Ganga and the Yamuna Rivers which came in person to see the infant Mithi created there by the sages and who gave his name to the Mithila kingdom; not far from there, Lake Dhanusar is said to contain Shiva's bow and Lake Aragaja to cure all illnesses because Shiva came to bathe here.



Ram's footsteps are recorded in this boulder in the Pamphuka forest (Gulmi), where he came to hunt (Photograph M. Lecomte-Filouine, 1989).

Photograph 35

Ram's footsteps

Other places are much more intrinsically linked to the divine, which has left a perceptible mark on them. These "stigmata" are clear signs of the presence of the divinity. In many places in Nepal for instance, designs in the rock are called "footprints" and are said to have been made by Ram, Sita or Bhimsen, when they are of a large size. These footprints sanctify the country

and are sometimes conceived as the mark of deliverance granted to the beings who were condemned to petrification that they tread upon (Photograph 35).

For Nepalese hill people, the most revered godly representations are those they qualify as "natural" (*prakṛtik*), such as boulders whose shape (*svarup*) evokes that of gods. This aspect was highlighted during a visit to Elephanta with a young Nepalese Brahman from Syangja. On detecting the aesthetic shock I had on seeing the magnificent statues of Shiva, he reacted by stating that these were not of such importance in his eyes as they were not *prakṛtik* (natural). He went on to imply that human works could not achieve the same degree of sacredness as spontaneous and uncreated works found in nature, which are genuine divine revelations. He then added that he had seen far more remarkable divine images in caves in Nepal.

As a matter of fact, in the hills of Nepal, gods are not generally represented by human works, and when some are found, these are usually cheap statuettes bought on Indian markets which are placed next to an aniconic stone which is the main representation of the god. These raw stones, "natural" icons of gods, are called *śilā*, a term which denotes a "sacred stone" as opposed to ordinary stones known as *dhūṅgā*. Different factors turn a simple stone *dhūṅgā* into a *śilā*. God's appearance or that of his attributes can sometimes be detected: thus ammonites are conceived as representations of Vishnu's discus. They can be found on the banks of the Kali Gandaki, which is also called Cakravati, "having discs",²³ for this reason. There are also repeated occurrences where a stone, transported by men during a displacement, settles itself in a particular place and, not wishing to leave the spot, becomes immovable. Many are the myths about a lineage travelling around with its tutelary god in the form of a stone carried in a basket or palanquin. Generally, on arrival at a summit, the stone becomes so heavy that its carrier puts it down. It then fixes itself in the soil forever, forcing the group to settle there. Sometimes, the story involves young people who, when playing at the very popular game of *celo* which consists in throwing or piling up the biggest stones possible, discover by chance that one of the stones they are used to lifting to measure their

²³ The ammonite is the form that Vishnu took after having been cursed for having seduced Jalandhar's wife. It is enclosed in the *śaligrām*, a black spherical stone which is split into two to discover the divine form within. Three forms may be found within a *śaligrām*: the disc, an ammonite, the linga, a fossil of a conical shell and the eye, a metallic sphere contained in the stone.

strength has become impossible to lift.²⁴ Finally, *śilā* are also stones which move on their own, which fly, and which can be found one day in a familiar place as a sign of their divinity.

In these "natural" representations, it is the outward expression of a "work" or of a "force" in nature which is first of all recognised as a divine sign. We have already shown that the statuary is only of little interest to the hill peasant, but contemplating a natural object "that looks as if made by man" (*mānchele banāeko jastei*) commands admiration and arouses great interest. Crystals produce this feeling, as well as polished stones or limestone concretions. Selecting these works, showing them off and contemplating them constitutes a form of religious art, replacing visual art activities, which are extremely rare and mainly limited to rosettes sculpted on sickle-holders or painted on the walls of houses. These two combined facts: the non-representation and the selection of uncreated works tell us about the perception of landscape. It involves deciphering the signs of the gods' presence strewn over the country in order to recognise, identify and worship them. Without it being clearly formulated, this means of representing the gods is not a negation of artistic creation, but a way of expressing that this activity is not sacred if it is not undertaken by gods. Materialisation of the sacred involves a movement going from gods to men, who show themselves to individuals whom they personally elect, and human art consists in being attentive to these presences. This activity is illustrated by a man I encountered one evening along the Barigad River, who recounted how, while he was staying in India, in a dream he saw Mahadev who told him that he was residing in his meadows (*khar bārī*). Driven by a very strong impulse, the man returned home as quickly as possible and went to the place indicated, where he discovered the narrow opening to a very deep cave, at the bottom of which he saw statues of Mahadev and a huge divine snake (*nāg*). And on the path in several places, people talked of this discovery, whose fame had already spread over an area covered in a one- or two-day walk.

There exist plenty of extraordinary narratives of this type and they exert a real power of fascination. Indeed, if there is a form of communion with the divine that each and every one knows in his/her life in Central Nepal, a region where prayer is almost unknown, it is well and truly this

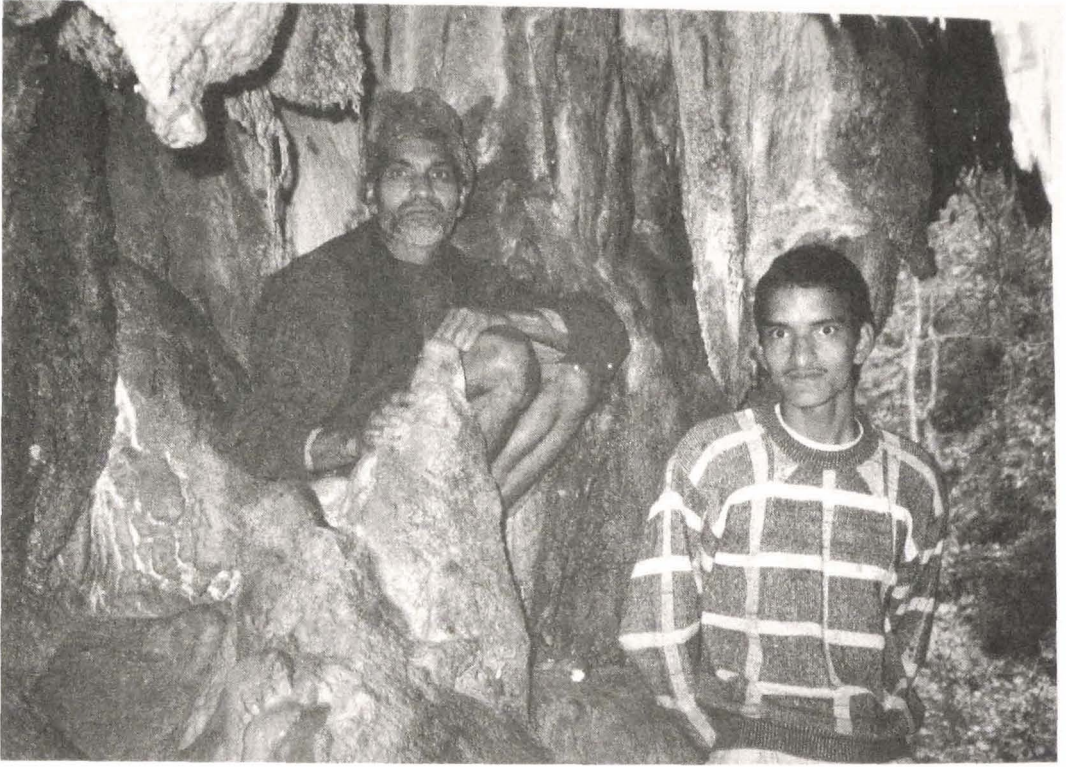
²⁴ Lifting stones is a game similar to divine election, with strength being recognised as a sign of power. It is usually a profane game, but in the Varaha Kshetra sanctuary for instance, pilgrims attempt to lift a small-sized copper-veined stone whose weight, according to the yogi who gets people to pit themselves against this form of Narayan, is 84 kilos.

form of election, the unexpected encounter with "natural" divine works. Men and women daily discover stones which attract their attention when working in fields or on their jaunts. Villagers, from the elderly to children, carefully take out from their jackets these stones they have found: polished black stones that they call "lightning-stones" and which, they say, fall from the sky with the lightning; ammonites, or God Vishnu's manifested form, quartz, raw garnets... The selection of "natural works" is not only in itself an artistic activity consisting in separating and showing off remarkable elements of the landscape as objects of worship or icons, but the attention bestowed on them also no doubt stems from another dimension. While a reminder of the gods' existence, they are the clearest proof of their intervention in nature and establish nature as being entirely a divine work.

These *śilā* are generally collected and offered to a sanctuary when one asks for a wish to be granted, or else placed next to lineage gods in the household sanctuary. The most "extraordinary" of them may become an object of worship, as a main divinity and sometimes at the very place they were found. Their "extraordinary" feature is there again difficult to define, with its not only being linked to the object's appearance, but often also to the circumstances, time or place of its discovery, since one does not necessarily look for divine figurative representation in stones; even when there is one, this is never thought of as being the copy of a human representation or as a game of nature, but as an authentic form of the divinity, as a revelation.²⁵ Thus, the circumstances of the discovery matter as much as the iconic aspect. The *śilā* of the Gupteshvar cave in Pokhara, for instance, revealed itself on the very night of Shiva Ratri, testifying to its authenticity and displaying its identity by the univocal date of its discovery.

Furthermore, if young modernist people often express disinterest, if not contempt towards certain aspects of their religion, such as rituals that call for lineage or village gatherings or else Brahmanic worship, they are, however, very sensitive to these manifestations and like to listen to and narrate accounts of discovering these "natural" divine forms and even more to set off on explorations in caves for this purpose.

²⁵ Roger CALLOIS (1981) describes the interest that these "games of nature" arouse from the Renaissance onwards. As opposed to the medieval Western tradition of not signing religious works, at the Renaissance there developed the notion of demiurge: the idea of exceptional individuals who give birth to their works through parthenogenesis. Parallel to this, the landscape inscribed in the stone simply became the game of nature and an object of curiosity.

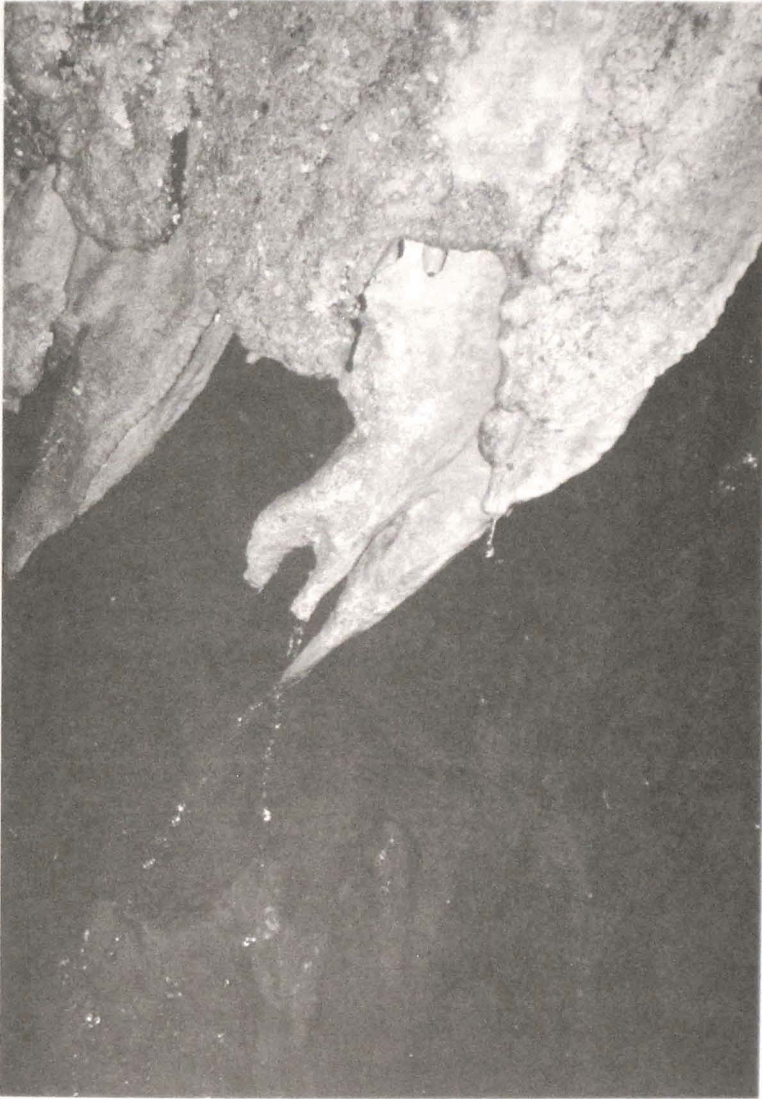


Two Brahmans, noticing us climbing the rock face leading to the Siddha cave joined the expedition organised by two of my Magar friends. Karikot VDC (Syangja) (Photograph M. Lecomte-Tilouine, 1993).

Photograph 36
Visit of the caves

Indeed caves are said to be the "wombs" of the earth and dwelling-places for holy men. They contain divinities inscribed in the rock which are read with an electric lamp by the priest or guide who leads you there. In the Gupteshvar cave, discovered near the Pokhara waterfall in 1992, a little girl reveals to pilgrims Mahadev's teeth, his trident, a tortoise, a snake and many other things, in the shape of the rock (Photograph 37).

But the *śilā* is not only a static representation of the god to be found one day by elected people. It is a living stone. From it emanates a power that defies the law of gravity: sometimes it is so light that it flies away and sometimes so heavy that no-one can lift it, despite its small size. Certain *śilā* constantly grow bigger. Others inexorably sink into the soil or else emit electrical discharges. Often, they cannot rest until they have revealed their true nature to human beings, exhibiting in a particularly demonstrative manner their active and lively character.



These stalactites are seen as a cow's udder dripping with milk and it is for this prodigy that devotees come to this site, which is difficult to access. Same location as Photograph 36 (Photograph M. Lecomte-Tilouine, 1993).

Photograph 37

Cow's udders in the Siddha cave

Their inner life and their own will are often demonstrated by their frequent refusal to be locked away in a temple: they regularly destroy building endeavours undertaken by men.²⁶ They transcend the mineral realm

²⁶ The stone venerated as Devi in Dedhabau, a locality in Central Mahabharat, was originally a stone that young shepherds threw. One day it started to grow and became an object of worship. When villagers decided to build a temple for it, it spoke through a shaman, *lāmā*, in these terms: "Do not bother to build me a roof, as I am going to build one myself." And

to join the living ones, such as the vegetal realm where a *śilā* is said to "take root", or the animal and human ones where it moves alone, begins grazing on crops or displays signs of its organic being, such as heartbeats and bleeding. The *śilā* of Sikhari (The Hunter) in Purkot lets forth an enormous swallowing noise when offerings are poured over it. The stone of Bhageshvar in Doti has wept blood ever since the god, who was in the habit of milking a cow after taking on human form, was attacked by the owner of the animal with a sickle.²⁷ Finally, other *śilā*, like the one that represents the King of Beni in the Jagannath temple in Dholathan, makes a noise interpreted as its heartbeat. The story goes that the stone is the form that the King of Beni, who had no bones and consequently could not move, took when the Gorkhals came to attack his capital and all his subjects fled, leaving him alone to face the enemy.²⁸

On the hill overlooking the very holy confluence of Deughat, a dark stone covered in ammonites is revered as Cakravarti. Sometimes considered as a form of Narayan or as the Goddess, this stone is worshipped first of all because it is powerful (*śaktiśali*), because it grants wishes and because it is constantly growing. Some say that the stone is 7,000 years old and that it came through the air from Mount Kailash. Others recount that it is the form taken by Mukunda Sen, King of Palpa, who was the first of the 91 kings initiated by Gorakh Nath. At the time of the Sen kings, Dharmaraj Thapa reports,²⁹ a Bote fisherman followed the flow of the Kali Gandaki River, starting from Ridi. Upon reaching Deughat, he caught a stone in his net and threw it onto the riverbank. From that day on, wherever he fished, in the Kali or Trisuli waters, he would always bring up this stone which in the end he, so beside himself with anger, violently hurled at a big boulder. Blood ran out of it. Trembling with fear, the fisherman took the stone with him, covered it in dung and showered it with praise. From that time on, when the fisherman was out, the stone played with the children or went out to nibble mustard leaves in the fields, until the day came when the man had a dream: "I am Mukunda Sen. I was in the form of a *śilā* in the waters of the Kali Ganga where sand had covered me. You alone were able to catch me with your net. Now lay me down in such and such a place." The dream had given meaning

as the villagers point out, today the foliage of the trees forms a roof for it (information from Netra Lal Pandey).

²⁷ See CALISE, 2039 VS, p. 63. But more generally, there is an extremely large number of stones that bleed in Nepal.

²⁸ *Mecīdekhi Mahākālī*, 2031 VS, vol. 3, p. 627.

²⁹ 2050 VS, p. 218.

to the stone. The very next day it was taken in a palanquin preceded by a fanfare to the summit it had pointed out.

Finally, the sacred stone is recognised as having creative power. When a *śilā* flies into a peasant's courtyard and the latter appropriately recognises the divine presence displayed as such, his prosperity grows and harvests swell in his silos, but if he is not careful, quite the opposite happens and often, so it is said, fire destroys his house. The *śilā*'s creative power is often shown to men in an even more direct way. Whoever passes his/her arm through the hole in Grandmother's *śilā* in Thulo Lumpek, has to make a wish aloud, so a Magar from the Pyugha village told me. "One then hears a reply and receives something in one's hand: a piece of paper, a pebble, a flower." As for him, he confided, he had received a flower.

These living and divine stones blur the limits between the categories of the world: the mobile and the immobile, the living and the inert.³⁰ The *śilā* partakes both of creation, creature and creator.

They recall the ascetics with creative powers who become mineral or vegetal during meditation.³¹ In a local version of a famous Hindu myth, King Yayati and his daughter arrived one day at Lake Dudh Pokhari in the Lamjung kingdom, during a hunting party. There Rishi Cyavan was standing in meditation, looking as if he were an ant-hill as time went on. He gave out a sound. The king's daughter, wondering what it was all about, pierced the mound with a needle and it wept blood. She had pierced the sage's eyes.³²

Another category of representations conceived as "natural" works involves statues that in our eyes are sculpted by man, but whose discovery is similar to that of *śilā*. Unearthed during landslides, terracing work or else by ploughing, they are supposed to date from a mythical age and to be the result of divine work, revealed to the chosen ones. That is how the famous Rikhesvar statue in Ridi was supposedly found in the waters of the Kali Gandaki by the powerful monarch Mukunda Sen from Palpa or how, much

³⁰ In Ancient Greece, statues were conceived as immobile forms of the gods: "the material object is the god himself but in a static position, at rest in the space of movement" (DETIENNE, 1997, p. 38).

³¹ Immobile ascetics in meditation see their bodies becoming covered in mushrooms and: "up to today Khas Brahman do not eat mushrooms, remembering that eating mushrooms is equivalent to eating the flesh of Rishis" (THAPA, 2041 VS, p. 185). It is said that when in meditation, ascetics feed off substances from the earth and drink the moon and sun's rays, just like plants.

³² THAPA, 2041 VS, p. 187-188.

more recently, in June 1992, a female medium went up to a rubbish tip armed with a trident that she planted in the rubbish asserting that there was a sullied god in there. Since then the Shiva *linga* unearthed there has been a destination for pilgrimages which the inhabitants of the Kathmandu Valley particularly go on in order to make up for the wrong done to the god. In both cases, the personality of its discoverer and the circumstances in which the icon was discovered confer authenticity on it, and contribute to making it a divine embodiment.

Though many of the stories examined in these pages may appear as mere folklore, we shall note that the concept of divine revelation is not only fully emphasised in Nepalese popular religion, but is also a fundamental feature of Hinduism in even its most scholarly and urban forms, as Hindu gods, however represented, reveal themselves, let themselves be seen (*prakṛt hunu*) to the devotee who personally receives "their vision" (*darsan*) as a blessing.

Shaping the landscape

Gods also manifest their presence in the country by larger-scale phenomena, in actually shaping the landscape. This is how Manjushri dug out the Rolwaling Valley with his plough and split the mountain holding prisoner the waters of the lake that covered the Kathmandu Valley with a single stroke of his sword; or how Bhimsen opened the Pandav Khani mine with a crushing blow, planting his feet on each of the two mountains surrounding it. He caused springs to gush forth here and there by striking the ground with his mace and threw Jarasandha's body³³ into the Karmanasa River (Doti district). It became impure to the extent that today people still do not drink its water for this reason.

In many respects, Bhimsen appears as a Gargantuan figure, a brave and violent giant who transforms the landscape as he passes.

A similar creative role is attributed to the witches in the Dhaulagiri region, who also leave their mark on the landscape and enjoy altering it through their "games".

A long time ago, a man had nine daughters. Then, after these nine girls, a son was born to him. But these nine sisters had the idea of learning the witch's formula. Their witch-mistress told them: "You must offer me your little

³³ King of Maghada likened to a demon, enemy of Krishna.

brother as a guru-sacrifice and eat his blood, heart and liver also. Only then would I make witches of you". This is why the nine sisters offered their little brother in *guru pujā* and became witches. Once witches, they sometimes walked to the east, sometimes to the west, sometimes to the north and sometimes to the south, and in this way they reached the village of Kol, located to the north of Mahat. At the time, there was a river south of this village. Because the witches could not cross it, they started to build a bridge with red stones at the place called Chamare, at the bottom of the village. But while they had not yet finished the bridge, the day dawned and, hearing the rooster sing, they said, "it is now daytime, people will see us", and so they left the bridge unfinished [which can still be seen today]. Then they went to the place called Birgung where they hung a large rope from a *jumlyāhā* tree to make a swing. There they played and, taking the blood, the heart and the liver of the animals in the neighbourhoods, they ate them, so people say. One can always see this *jumlyāhā* tree in Birgung, from the place called Dikhundanda, on the path which leads to Takasera when one goes to the north-east from Mahat. These nine witch sisters also built a dam on the Syarpu Khola, which formed a lake. They threw leaves of a tree called *tusāro* into it and one says that they were transformed into fish. Today still, there is a multitude of fish in Lake Syarpu.³⁴

Myths about gods creating lakes or drying out valleys abound. Let us quote, as an example, the story of the Lake of Rukum, the plot of which is associated with a number of other lakes, such as that of Pokhara.

Under Lake Kamalpokhari there was formerly a village called Gairi. One evening Mahadev reached this place but nobody, except an old woman, offered him shelter. The villagers' behaviour angered Shiva, and the next morning, he told the old woman to stand on the roof of her house and to not go down. He then climbed the nearby hill from where he submerged the village. This event is marked in the landscape by a stone emerging from the waters of the lake, which is called "the house of the old Kutuni".³⁵

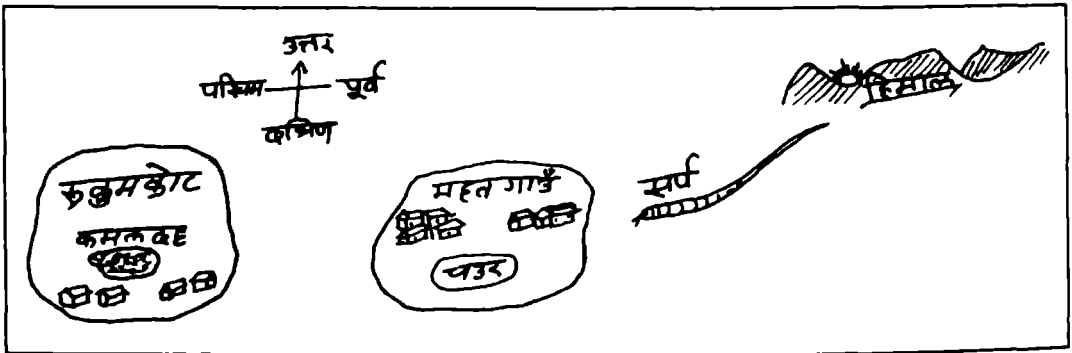
While we can see in these myths about deluges and droughts a popular memory of tectonic movements, it seems that they also emphasise, no doubt first and foremost, the idea that world order falls in line with human order, whether it be moral, ritual or social. Therefore, the terrible earthquake in 1933 was of course associated with men's sins, but also with the king's

³⁴ This lake is located in Baphikot VDC, Rukum district. These data on Mahat were collected and written on my request by Chitre Bahadur Gharti, who had been posted to this village. I would like to thank him for his help.

³⁵ *Mecīdekhi Mahākālī*, 2031 VS, vol. 4, p. 64.

absence, as he was visiting abroad, which contributed to the overall chaos.³⁶ The whole universe is sustained by the gods' presence and the world's elements, made up of divine bodies or gods' habitats, are taken up in a vast movement once men no longer behave as they should. There are particular sites, such as hermitages, lakes or summits that man must not soil or cultivate.³⁷ When it became victim to pollution, Lake Mahat, for example, took the initiative of moving away to Rukum (figure 28):

A snake descended from the mountain and arrived on pastureland (*caur*) in the middle of Mahat, where it disappeared, transforming this pasture into a lake. But people of Mahat threw impure things into this lake, such as cows' skins, buffalo horns, pig excrement, and washed dirty things in it. Then the god of the lake became furious and again, in the form of a snake, went to Rukumkot. There too it disappeared into a large pasture. And just as at Mahat, it formed a large lake there. As the village of Rukumkot was located below this lake, people did not throw dirt into it and so the *nāg* has not yet left. An American tourist entered the lake to see how deep it was, but he has not yet come out. So nobody knows how deep it is. To breed fish there, people tried to acclimatise alevins fished elsewhere, but they never survived. It is called Kamaldaha because lotuses, *kamāl*, grow there.³⁸



The story, drawn by Chitre Bahadur Gharti, shows the three successive biotopes of the divine snake, from left to right, with Rukumkot situated west of Mahat. Each village looks like a closed entity, contrary to the mountains. It is clear here where the houses are located with respect to the lakes.

Figure 28
Story of lake Mahat, in the form of a drawing

One can read in this Kham Magar legend the distinction between waters situated upstream, such as sources, lakes, and rain, which are considered to be pure, and those situated downstream, soiled by the

³⁶ SHARMA K., 1959.

³⁷ Ploughing in particular being likened to sullyng the soil.

³⁸ Myth collected and written up by Chitre Bahadur Gharti.

impurities they carry.³⁹ The incompatibility between habitations upstream and stagnant water downstream is such that it is the very elements of the landscape, such as the lake, which move, by the determination of their *genius loci*, in order to readjust to this conception of the world. Pure water is the vital biotope for divine snakes and it marks their presence, just as the earth must remain uncultivated around Shiva temples and hermitages. As this short text shows, water is a particularly mobile element and its movements are often interpreted as divine actions. Thus, the Dhor Baraha place of pilgrimage is located at the source of the Uttar Ganga and the presence of the god is manifested, people point out, by the fact that the river flows northwards there, a sacred course opposite to the expected direction on the southern side of the Himalayas and a particularly auspicious orient.

To our eyes, the surprising mobility of such a fixed element as a lake recalls the narratives about flying stones or trees and the myths about winged mountains. Yet if indeed these changes form a kind of ordering of the universe, other more frequent events such as devastating hail storms, earthquakes, floods or landslides are never left to chance and are the subject of exegeses in that they are divine signs. People answer these messages by pacification rituals and changes in their own polluting habits.

Semiotics of the world

All the changes in the landscape are thus interpreted, but in certain places the perceptible omens in the landscape form a real language, a semiotics which has univocal meaning. Thus it is said that the Bhavisyavatka Lake, located in the district of Bhojpur, turns red when an outstanding person arrives in the district.⁴⁰ Another example of such a phenomenon is found at the Sal Kumari temple, in Dingre (Rukum district). It is said that water runs from the middle of the three fountains situated below the Goddess's *sanctum* only during worship and that if it does not run at that time, it is the sign that there will be famine.⁴¹ Blood from the goddess Kalika of Gorkha flows in the Siddha Gupha cave several kilometres from there when disaster has just hit the country.⁴² Finally, a more complex form of communication is found in Doti, as smoke comes out of the Jvalamukhi cave when the country meets

³⁹ On this theme among the Kham Magars, see Anne de SALES, 1997; who describes the movements between these two categories of water during a rite aimed at bringing rain.

⁴⁰ *Mecīdekhi Mahākālī*, 2031 VS vol. 1, p. 618.

⁴¹ *Ibid.*, vol. 4, p. 63.

⁴² ACARYA, 2055 VS, p. 35.

with defeat, and fire announces an earthquake.⁴³ These examples emphasise how the various signs occurring in the landscape are conceived as divine messages. Their meaning usually needs to be deciphered but their knowledge guarantees superior power to men by announcing future events. More generally, those who are vigilant enough avoid many an obstacle and detect warnings, attempts at communication or traps laid by supernatural beings. This visual watchfulness is particularly important in the forest, the realm of savage beings, spirits and animals, and helps avoid ambushes such as lassos that creatures lay on the path to catch heedless men, and in return enables game to be spotted by its tracks and excrement.

If only small discrete elements are usually there to remind men of the presence of gods in the world, there exist some sites where the whole of nature is perceived as "a temple", offering a real mystical and initiatory journey at the end of which man reaches the *sanctum*. There, difficulties in physical progress are overcome by deserving persons only, without weakening:⁴⁴

To reach the lake [of Kalingcok], one has to cross dense forests [...] [then] to go through a stone passageway called "the gate of Dharma", because it is said that only "dharmic" people can pass through there. One arrives at the holy place of the gods by two paths, coming [respectively] from the east and the west. From the east, it is necessary to climb 155 steps. Because it is said that sinners cannot climb these degrees dug out on a terrifying cliff, they are called *pāpīṭārā*, "sinners' staircase". From the west, one meets a scale of 22 levels which connects two eminences separated by a very deep chasm.⁴⁵

This type of site, like a temple, is made up of thresholds marked by terrifying passages. However, as opposed to the temple's threshold which marks and sanctions a social order separating pure castes from the others, or the priest and the initiated ones from laymen, the temple of nature above all sanctions a moral order without bothering about social and ritual status.⁴⁶ The country is there as if created by design to form an initiatory journey

⁴³ CALISE, 2039 VS, p. 117.

⁴⁴ In fact, more generally speaking, climbing each mountain and crossing each river are presented as tests placed under the patronage of the divinities of the place: Deorali, the goddess of the passes may well make the ascent steeper or the load heavier for those she wishes to punish, while the Nag snakes or the Masan evil spirits in the river may well cause the person who crosses their domain to perish.

⁴⁵ *Mecīdekhi Mahākālī*, 2031 VS (1974), vol. 2, p. 98.

⁴⁶ This remark, however, is relative as social order is also thought to be the result of moral order.

which inexorably distinguishes good from bad; it acts as a divine revelation highlighting the profound nature of each person, which is expressed by their manifest qualities such as courage (to cross a precipice) or in other contexts, strength (to lift a stone).

The nature of the sacred site is still more complex, since, following quite another logic, certain places have such an intrinsic virtue that their only contact automatically transfigures a person whatever his/her ritual or social status and moral values. The *Himavant khaṇḍa* tells how a fisherman had the nerve to throw his net in front of the hermitage of a Rishi who, in a fit of anger, turned him into a wild boar. Having wandered in this shameful form for a thousand years, he came upon Mount Tamracud and settled there next to a lake. Through the virtues of the water he recovered his normal form and was soon carried off by a flying cart to Shiva's heaven. The sacredness of the bath was such that the whole group of Majhi fishermen was then promoted to the rank of gods for a period of a thousand years as granted by Shiva.

At other times the virtues of the place are structured by a kind of arithmetic through which a multiplication of the qualities obtained by performing the ritual is operated. The *Himavant Khaṇḍa*⁴⁷ provides an accurate typology of the merits achieved at each site during the *sandhyā* rite: when performed at home, the quality is multiplied by one, at a river by ten, in a cowshed or a hearth of Agni by one hundred, in a sacred place, a *tīrtha*⁴⁸ or a temple by a thousand million and one thousand, on the ridges of high mountains and at the foot of *kiṃśuk* trees by tens and tens of millions, in a Shiva temple by infinity.

In the same way as certain places provoke by simple contact, as in a telluric movement, the multiplication of the merits of the ritual or the sanctification of the sinner, in return the degree of spirituality transforms the perception of the world, emphasising how the ordinary landscape is only a façade masking the divine nature of the world. It appears in its true form to the pure and remains concealed to others in the same way as access to the sanctuary is reserved for the chosen few. The *Himavant khaṇḍa* describes how a group of barbarians were surveying the Himalayas in search of mineral deposits. It turned out that one of them, called Karang, on arrival on the fourteenth day of the bright fortnight of *sāun* at the shore of a sacred lake where Dravyeshwar's *liṅga* was standing, drank from this water, washed his

⁴⁷ HK 10, p. 24-49.

⁴⁸ Holy place situated along a river.

feet, hands and head, thus unknowingly performing the gestures of Brahmanic ablutions.

He then sat down on the bank of the Changorure River and exclaimed: "My dear, my sons, my brothers, this mountain is like a resplendent peak. To its west, to its north, to its east, and on all its sides, it is so [...], look at the mounts from where the Gandaki run! They are all of gold and covered in a multitude of jewels, look in front of you!" His followers answered him: "Master, we do not see these mountains covered in gold, only in trees, lianas, leaves and stones." Karang said: "O my sons, this pure water opens the eyes".

And so they drank some, performed their ablutions and saw.⁴⁹

Sacred sites, sources of authority

The specific characteristics of the country are closely linked to the identity of those who reside there, establishing a stable, if not incorruptible, link between a group, a place and a divine event of which the group is the guardian. The sacred site and the sanctuary therefore form tangible connections with the country through memory, knowledge and practices that are related to it and remain the exclusivity of the local group that has produced them or has taken responsibility for them. The huge Pyungha slab of rock is one example, no doubt somewhat extreme, of the fundamental role that the sacred site plays in building the group's identity, but which very clearly underlines by its disproportionate character a phenomenon that crops up elsewhere in revelations of a lesser scale.⁵⁰ The gigantic Pyungha boulder is held as highly sacred by the Magars, who call it Koti Lung, "the beauty-spot stone". In the narrow canyon formed in it there is a sanctuary to Sahakali, a goddess who appeared to a Bote boatman in the form of a young girl. Having reached the other side of the Kali Gandaki, as he asked for the fare for the crossing, the young girl opened her bodice and displayed a hollow breast filled with sacrificial threads. The boatman naturally immediately set up a sanctuary in the canyon. However, the site is not sanctified by the goddess; rather she was placed there because the site was sacred. The very special value attributed to it is connected to its primary and miraculous formation, for the "beauty spot" is said to have come loose from the mountainside situated on the other side of the Kali Gandaki River and would have come willingly to settle in this place. For the Magars, it is of

⁴⁹ HK 8, p. 26-62.

⁵⁰ The village of Pyungha is situated in the district of Syangja, in the loop of the Kali Gandaki River.

crucial importance as a way of anchoring their identity in the landscape and as a divine testimony of the primacy of their occupation of the territory. This group is keen on keeping for itself the privilege which links it to the sacred site and, so it is said, all the meadows situated on top of it can only belong to a Magar. Contrary to the usual rules, the sacred megalith's surface is exploited for its grass, despite its access at the least perilous, but it is strictly forbidden to sully it with excrement or to shoot birds there.

In an image altogether similar but opposite to the one where the god naturally comes to find his place on a sacred site, certain places are conceived as the body of gods. Thus, many hills, like the one where Kirtipur is situated in the Kathmandu Valley, are made up of the body of a snake, *nāg*. Other less obviously chthonian gods also prove to be an integral part of the country, as the legend about Bhageshvar in Doti shows:

One day the Tibetan king Jhampal entered Doti and removed all the gods from the sanctuaries to carry them away to Tibet. He also sought to carry away Bhageshvar and even his temple, when the god declared: "My feet are the bank of the Seti River, the rivers of the mountains are my head and my roots extend as far as they flow. That is why you will not be able to carry me away. If you make me tremble, there will be earthquakes in all the sanctuaries" and [the king], feeling that he had lost, went back.⁵¹

"Rooted" as he is, Mahadev shows the foreign king that he is the country's power, which cannot be taken over. Through this dimension, Mahadev is forever linked to autochthonous, or at least, local power. His scope of intervention over the territory extends to all the sanctuaries which, in this striking image, appear like a gigantic network of defensive weapons protecting the country. However, the god's anchoring capacity does not always serve local or formerly settled populations, as this phenomenon is also often presented as the sudden will of a travelling god, and was therefore probably used to legitimise territorial conquests as well.

Indeed, the myth of the god's entrenchment in a recently-conquered territory is a recurring theme among high-caste groups who migrated from India to the Himalayas. This is how, for example, the Bhusal Brahmans symbolically and quite genuinely took possession of the north of Purkot, in Gulmi, forbidding access to the sanctuary and to the summit where it is situated, to any person not having undergone the twice-born initiation. When the Purkote Bhusals' ancestor set out from Argha carrying a *śilā* in his

⁵¹ CALISE, 2039 VS, p. 63.

basket, with the intention of going "wherever his carrying rope would take him", he reached the Guranse summit where, exhausted, he laid down his load. There the latter became so heavy that he was unable to pick it up again, as the *śilā* it contained had implanted itself in the earth and disappeared. When the Bhusal came back accompanied by men carrying stones and tools in order to build a temple to the Goddess, they were stopped in their ascent by a terrible hailstorm. Hardly had they backtracked when the sun came back out. They concluded from this that the goddess Malika, materialised in the *śila*, was opposed to a temple being built above her, as it would be contrary to her wild character (*jāgali*). In this myth, the divine stone chooses at will a spot on the territory and, as soon as it has gained control of the elements, reveals itself to men. This communication, as essential as the sacred place itself, is hence shaped by the god who provides men with direction. In addition, it ensures the Bhusal Brahmans' power over this collective place for summering cattle which was originally the big Malika forest. The tutelary god's anchoring forever links the group to its new territory, while guaranteeing a kind of holy exclusivity. One can without a doubt associate this widespread myth of establishing a god with a practice, of which little is known but which consists in capturing a place by planting a stake (*kilā*) there. It is reported that two Gurung brothers, driven away from everywhere by their Ghale enemies, ended up settling in Yangjakot after having planted a stake⁵² there and, in the Gorkha chronicles, that Prithvi Narayan Shah sent an emissary at night to do the same thing in the enemy camp at Nuwakot to ensure its capture. More generally speaking, one may wonder if the large number of stone pillars to be found in Western Nepal has not come to "establish" the power of the sovereigns in the soil. Indeed between the term *kilā* (derived from Sanskrit) meaning: "stake, nail" and *killā* (derived from Persian) originally denoting a fort and by extension the borders or markers of a territory, in Nepali there is a kind of common semantic field in addition to, or superposed over, their homophony.

*

* *

The vision of the country as portrayed in these legends, and in various practices of popular religion, reveals a particular religiosity where the world is scattered with divine presences. The gods maintain a very close relation with the elements of nature in which they are typified. Even the most revered gods of the main temples in Nepal come from natural or rather, should we say, obviously supernatural sacred sites, such as Pashupati where in the past one revered a Linga of light, Muktinath and Jvalamukhi where gas flames burn, without taking into account all the confluences, caves, summits, springs.... which are all places of worship.

However, beyond the sacredness attributed to extraordinary phenomena in nature and to the images which are formed by certain categories of space, Nepalese ideas regarding the landscape appear as a conceptual game on the theme of creation, in which each element of the world is likely to transcend its own register. Inanimate creation becomes creature and the creature becomes creation. The stone is a source of thought, a source of power. Combined with dream which often gives it meaning, it is around this apparently simple object, whose complexity is conferred upon by narratives, that communities are structured on a site by appropriating a territory and by excluding strangers or even autochthons.

In Nepal, the landscape is religious, mystical; man lives there as if surrounded by a forest of symbols, according to the poet's expression. The gods' anchoring points confer meaning and shape to the environment. They intrinsically connect the country to those who live there and who are aware of its meaning, in a perpetual movement provided with new revelations, which in turn sustain new links. The vast number of legends that refer to remarkable sites in the landscape –whether it be a simple stone or a whole mountain– without a doubt possess a dimension which goes beyond folklore and the anecdote. These narratives establish and formalise relations between the different components of the world. They emphasise the extent to which nature is thought to be supernatural work, the knowledge of which allows men to come to terms with it and to turn it to good use. That is how the King of Doti put an end to the conflict between himself and the King of Tibet, his former friend, "when he learnt that it was because of an ammonite" whose appearance coincided with the beginning of hostilities. He then split it into two equal halves with a strike of his sabre, and probably symbolically

divided the territory evenly with this gesture.⁵³ But as for those unaware or strangers passing one of the twin toad-shaped stones in Chainpur, they will immediately be thrown into the air and over to the other stone,⁵⁴ for one must beware of appearances and learn how to negotiate with the invisible forces of the world that they reveal.

⁵³ CALISE, 2039 VS, p. 59: this split ammonite can be found near the temple of Tedi, Mahadevsthan gaun pancayat, Doti. The passage goes as follows: "In bygone days, the King of Tibet and the King of Doti were on good terms. They both paid visits to each other. However, with the appearance of the ammonite, the King of Tibet started being a nuisance. When the King [of Doti] heard that it was because of this ammonite that he has become a nuisance, he split it into two with his sabre [...]." Further up in the text it is said that the two halves of the stone are perfectly equal.

⁵⁴ SHARMA S.R. (2014 VS, p. 13): "At the place called The Stone-Toad, there is a stone in the shape of a toad. In the past if people who walked along this path went on their way without offering flowers to the stone, it [the toad] carried them off and dropped them lower down, on Madi ridge. Here there is another toad-shaped stone and those who pass by without honouring it were [inversely] carried off back up there."

Frame 9

Landscape, Myth and the Identity of a Tantrist Community

Nicolas Sihlé

Chongkor (Chos-'khor) is a village community of Tibetan Tantric priests, *ngakpa* (*sngags-pa*), situated at the top of the Muktinath valley, in Lower Mustang. Like most Tantrists, the Chongkor priests practise primarily rituals of a worldly orientation (apotropaic rites, etc.). In particular, they are specialists of powerful exorcisms, "wrathful" (*drakpo*, *drag-po*) rituals.

The site where Chongkor was founded stands out due to its geomantic features: "the earth in a triangle, the sky in a triangle" (*sa druksum nam druksum, sa gru gsum gnam gru gsum*), as a well-known expression in the valley goes. The "earth triangle" is formed by two rivers (Dzong Tsangbo and Tanggar-gyung) and the rock face of the Dügukor mountain, which together form a perfect triangle around Chongkor (Photographs 38 and 39). The "sky triangle" is made up of three angles on the horizon, each formed by the sides of two adjacent mountains. Actually, in Chongkor nobody seems able to locate these precisely. Whereas in the past this triangle may have had a specific but now forgotten purpose, today it is primarily the heavenly duplicate or complement of the earth triangle.

The figure of the triangle points to Tantric symbolism. Indeed, in the common classification of rites into pacification, augmentation, subjugation and wrathful rites (*zhi gyé wang drak, zhi rgyas dbang drag*), the triangle symbolises the last category. It is a recurrent figure, as in the triangular enclosures which appear in many of those rites. This place has distinguished itself therefore as conducive to Tantric practise, and particularly for worshipping a wrathful deity, such as Manjushri Yamantaka, on whom local tradition is centred. Lama Tsapgyepa, the founder of Chongkor, is said to have settled here because of these favourable geomantic features.

While the triangle on which the community has settled can be considered to be under control and subdued, on the contrary, the triangular opening of a cave situated in the rock face of the Dügukor, just behind Chongkor, is an ominous element in the landscape. A Tibetan master, on his way through the area in the 1950s, diagnosed it as being "an earth enemy" (*sadra, sa-dgra*), the "wide open mouth" of a "crag demoness" (*drak-sinmo, brag srin-mo*). Following his advice, the villagers (partially) refilled it, but it is now wide open again, which is the cause for some anxiety. The formal analogy with the mouth of a wrathful deity, as represented on the ritual cake (*torma, gtor-ma*) which serves as the deity's support in rituals, is striking, all the more so that this mountain, according to local tradition, is, in a sense, a *torma*.

Indeed, among the great deeds of the founding lama, glorified in local lore, one often hears the story of how the three summits situated behind Chongkor, including Dügukor, were visualised by Lama Tsapgyepa as substitutes for *torma*.

These summits are thus associated, in a sense through the ritual, with the three main tutelary deities of Chongkor, Padmasambhava, Manjushri Yamantaka and Vajrapani.¹

This religious community thus recognizes in its landscape its founding myths and its very religious identity.

1. The monks of the neighbouring *sakyapa* monastery prefer to see in the surrounding summits a slightly different, more classic, triad, i.e. that of the "Protectors of the Three Families", Avalokiteshvara, Manjushri and Vajrapani. Moreover, the formal analogy with the *torma* is sometimes taken further, with the snow on top of the three summits being compared to the butter ornaments (*kargyen*, *dkar-rgyan*, "white ornaments") of ritual cakes; the whiteness of the snow refers to that of the butter, both particularly auspicious symbols.



The village of Ch'ongkor (3,700 m), with a south-easterly exposure, is dominated (left) by the rocky face of the Dügukor and framed by two gorges that form a triangle with the Dügukor (Photograph N. Sihlé, November 1996).

Photograph 38

Ch'ongkor and the top of Muktinath Valley



The triangular shape of Ch'ongkor's land, demarcated by the rivers Dzong Tsangpo (foreground) and Tang-gargyung (background, only the ridge is visible) can be seen. P: Purang land. C: Ch'ongkor land. D: Dzong land (Photograph N. Sihlé, April 1997).

Photograph 39

Ch'ongkor's "land triangle"

Frame 10

Disorder and Multiplicity of Sacred Geographies

Nicolas Sihlé

In the Nepalese Himalayas, perceptions of sacred geography vary greatly, at local, valley or even village level. The landscape is a sort of reflection of the beholder, and notably of the beholder's pantheist religion, sometimes with animist features. These open religious systems accommodate differences, by incorporating rather than rejecting them. Thus the landscape ends up accumulating influences and strata of interpretation.

Let us take the Muktinath Valley, in Lower Mustang, dominated by the famous Hindu and Buddhist sacred place of the same name. Some elements in the landscape associated with the sacred site are the object of representations that are largely shared throughout the valley. The learned Buddhist tradition has left its mark here: the holy place of Muktinath and the surrounding mountains are

inscribed in a classic *mandala* scheme, described in a guidebook to the sacred places of the region.¹ The Hindu deities of the sanctuary have a second, Buddhist identity.² The most pre-eminent element from the local perspective, however, consists of two scree slopes, on the mountainside behind Muktinath, with light grey and dark grey stones, the "White and Black Stones" (De'u Kar-nak, rDe'u dkar nag), which surround the "The Karma Mirror" (Lé-gi Melong, Las kyi melong). Together, these provide a representation of the entire world's good and bad karmas.

As for the rest, the valley may appear to be, in many respects, a rather heteroclite juxtaposition of themes and patterns, both general in their recurrence throughout the Tibetan world³ and purely local through the reciprocal ignorance in which they hold themselves, from one village to another.

Thus in Chongkor, a village community of Tantrists, the place, by its triangular nature and through the local identifications of the mountains surrounding it, is defined by its reference to the practice of Tantric rites.⁴

In the Dzong village, the residence of the noble lords stands on the head of a *garuda*. Other elements in the Dzong landscape are associated with the body of mythical bird, but this model ultimately has a limited scope. It is said that, upstream of the nearby river, a "hidden country" (*beyül, sbas-yul*) has been discovered, and that fruit and grains fallen from its mills have been found in the water. Stūpas, trees, ponds and caves—everything has its own history, sometimes crucial, sometimes anecdotal.⁵

As for Purang, its space is organised according to "four ponds and four stupas": at the foot of the Muktinath stupa, presumptuously turning its back on it, one finds the *mandala* again.

Finally, in an adjacent valley in the village of Lubra emerges above all the classic theme of the submission of the *genius loci* by the founding lama.⁶ One also hears accounts according to which in olden times the fields were cultivated (and the meditation caves on the site, shaped) by protector deities. The latter element can also be found in accounts about a cave close to Chongkor—of course with no reference to the case of Lubra: the sacralisation of the landscape does not quote its sources.

Ramble's work⁷ on Mustang also clearly shows that an element such as the name of a place god may appear, according to the local (village) pantheons, with extremely varied attributions. Ramble presents libation texts which order the realm and its place gods and define, by the sequence of the divine sites, "an imaginary map of the kingdom".⁸ Not all libation texts, however, carry as much meaning. A similar text from Chongkor hardly provides the priests who recite it with any significant organisation of their space. Furthermore, the heteroclite

assembly formed by the place gods proper to that community is particularly lacking in features that would structure it.

Both from indigenous and scholarly perspectives, the need to put order, to find some unity in the sacred landscape ultimately remain thwarted by its irreducible diversity.

-
1. MACDONALD, 1979; SNELGROVE, 1979.
 2. JEST, 1981, p. 58-59.
 3. MEYER, 1987.
 4. See Frame 9.
 5. S AUL, 1998, Chap. 10.
 6. See TUCCI, 1980, p. 168; RAMBLE, 1983.
 7. RAMBLE, 1995, 1996, 1998.
 8. RAMBLE, 1996, p. 145.

CHAPTER VI

A Reading of the Salme Tamangs' Territory and Landscape¹

Joëlle Smadja

The Earth becomes men's Earth when, ceasing to be anonymous, it is named by them.²

Translated from Pinchemel, *La Face de la Terre*, 1988.

Toponymy is a field for research barely explored in the Himalayas.³ However it is of great help in understanding the territory and the landscape of societies of oral culture who still live mainly off the resources of their natural milieu. Such is the case of the Tamangs in Salme, in Central Nepal. The natural features of the mountainside they occupy, their religious and social practices have already been the subject of much research.⁴ Findings demonstrate that "a village like Salme possesses neither land register, archives nor registry office. Historical documents on the village are extremely rare; where they do exist, they come from outside and are written in a language alien to the community (Nepali). For villagers, the past is above all associated with legends and founding myths. They obviously play a determinant role in collective representations",⁵ and, we may add, in their relationship with the environment that is inhabited by divinities, demons,

¹ Table 10 in Annex and the fold-out map at the end of this book accompany this text. I would like to thank Corneille Jest who followed up and encouraged this work on toponyms from the very start.

² "*La Terre devient Terre des hommes lorsque, cessant d'être anonyme, elle est nommée par eux.*"

³ For Nepal, save the work of M. LECOMTE-TILOUINE, 1990, on a village in the centre of the country and that of J.C. REGMI, 1994, on the town of Kathmandu, the only comprehensive study in this field is that of M. WITZEL, 1993, focusing on hydronymy carried out on an overall country scale.

⁴ This research was conducted within a pluridisciplinary programme, "The Mountainside Programme", grouping together ecologists, geomorphologists, climatologists, agronomists, social anthropologists, etc. and has led to several theses, articles and books, among which there is a collective work edited by J.-F. DOBREMEZ, 1986.

⁵ Translated from French. TOFFIN, MEYER, JEST and GARINE, 1986, p. 55.

spirits, ancestors. The population's selection of identified, recognised and named places, as well as the symbols, accounts or anecdotes attributed to them either explicitly or implicitly contribute to organising and managing space and resources. The building of space into a socialised milieu is thus translated for a large part in the toponymy: "a verbalised expression of a certain view of the territory".⁶

Thus, this chapter provides a toponymic analysis that helps to compare the knowledge of populations from Salme with what has been gathered by scholars: it is not a question of favouring some rather than the others, but of using them in their complementarity. The aim is also to show the relationship the Tamangs have with their environment, the way in which they perceive it, understand it, appropriate it in order to form their territory and one of its expressions, a visual one, the landscape.

Fieldnotes

In the 1980s, any Tamang from the Salme mountainside, at least any male member,⁷ knew the place names. Discovered in the course of their various daily activities, these were a means of accessing past knowledge of their community, their environment, its resources, assets and constraints, pitfalls and rules. They were also a practical means of locating on a daily basis, and some of them have been included in the land register of 1979.

Most of the place names mentioned here were recorded between 1982 and 1996,⁸ during my various stays there. When the first recordings were made, there was only one sketchy topographic map for the sector, set to a scale of 1/36,360, very inaccurate and with no place names. The location of toponyms and their cartography helped, in a first phase, to find one's way and were then used to contribute to other research. Then the names and their meaning were checked with different informants, often during lively group discussions, which led villagers to compare their viewpoints and to call to mind stories and anecdotes. As an inexhaustible subject, the toponym is both a crossroad for the different disciplines and an exceptional communication tool between the researcher and the persons questioned. It is a privileged

⁶ COLLIGNON, 1996.

⁷ Though women move over the slope a great deal, they have a more restricted scope of movement than men and therefore have a lesser knowledge of the places furthest away from their dwellings.

⁸ This was first of all done by Jacques Wiart (in 1981), then by Jean Berthet-Bondet (in 1982 who contributed data provided by the land register). Corneille Jest coordinated this work.

source of access to the knowledge of populations regarding their environment. Therefore other than the meaning of the toponym in itself, related data were gathered to provide information on the history of the place, its perception, its representation and, for the natural resources mentioned, on their use.⁹ In 1996, it was clear that young generations who had been to school did not have as good knowledge of the mountainside and of its toponymy as their parents. Therefore final verifications and translations were made with the village "elders".

This work led me to consider a corpus of 450 toponyms most of which are included in Table 10 and figure on the map accompanying this chapter.¹⁰ To facilitate reading and to simplify presentation, the names of torrents, which almost systematically borrow the name of the place they cross, are not mentioned here, except for those that provide new information.

A population of Tibeto-Burmese language and culture, the Tamangs who would have originated from Central Tibet,¹¹ borrow words or whole expressions both from Tibetan and Nepali, either by using them as they are or by adapting them. The toponyms recorded are therefore specific to the Tamang language, to Tibetan (T) or to Nepali (N).¹² If certain names in Tibetan make reference to the history of mountainside occupation, it would nevertheless be risky to establish a strict chronology of toponyms based on the different languages. I have therefore only made mention of the origin of the word as far as possible. Moreover, I have adopted a very simplified

⁹ To interpret, translate and comment on the toponyms, –besides fieldwork and information collected and recorded through informants– I have relied on the work published in DOBREMEZ (ed.), 1986, especially the text by TOFFIN, JEST, MEYER, BLAMONT and the one by TOFFIN, JEST, MEYER and GARINE, as well as on the texts by WIART (1983), by TOFFIN (1985) and by SMADJA (1986). The Tamang-Nepali-English-French dictionary by MAZAUDON (1994) as well as STEINMANN'S book (1987) allowed me to check the meaning of certain words.

¹⁰ Additional information is provided in Table 10 (in Annex) for each toponym cited. The toponyms in this table are given in alphabetical order and each comes with coordinates for situating them on the fold-out map at the end of this book.

¹¹ Given their oral and written traditions, the Tamangs of the Upper Anku Khola/Trisuli are supposed to come from the region of Uichang (in Tibetan: dBus-gstang: Central Tibet, the Tsangpo/Brahmaputra valley) and more precisely from the Uiseme Gombo monastery situated between Lhasa and Shigatze (see HÖFER, 1981; TOFFIN, JEST and BLAMONT, 1986), from where they are said to have migrated, for reasons which remain mysterious, perhaps in the course of the XVIth century. Those from Salme supposedly arrived on the mountainside later.

¹² In the text and in Table 10, the names in Tamang are not followed by an abbreviation. I would like to thank Pascale Dollfus for her help in transcribing the Tibetan words.

phonetic transcription for Tamang. I must point out that this is the work of a geographer, not of a linguist or anthropologist, the purpose being to show one of the possible readings of the Salme territory and landscape. It is obvious that other types of analysis might be carried out using this toponymic corpus.

This study was carried out on a scale of the mountainside as a whole, and did not cover the toponyms specific to the hamlets themselves, an analysis of which is given in Toffin, Meyer, Jest and Garine (1986).

Finally, let us specify that these toponyms were given, as indicated by the villagers, even the oldest ones, "oh...years ago" by their elders and have hardly changed since. I, for my part, noted no change between 1982 and 1996.

Salme mountainside and its population

A large mountainside in the Middle mountains of Central Nepal, it is situated about thirty kilometres northwest of Kathmandu in Nuwakot district (Figure 29). With a south-easterly exposure, it stretches from south to north over an area of nearly ten kilometres. It starts with a subtropical environment at 1,250 m, then reaches alpine meadows at 4,000 m (Photograph 40, Figure 30).

A fault line, along the Bramding Shyong torrent, divides the slope into two units. North of the torrent, the slopes are steeper than 35° and covered in forest. South of the torrent, slopes of 25° and 35° on average are cleared and terraced for cultivation. The large gully of the Thar Shyong torrent, for which I shall keep the commonly used Nepalese name in the text to denote this type of form in Nepal, the *pahiro*, cuts a gash from east to west in the cultivated sector.

The monsoonal climate is characterised by a rainy season from June to September (80 per cent of annual precipitations, i.e. about 3,200 mm) and by less wet seasons (800 mm of water) the rest of the year. It allows irrigated crops of rice to be grown in summer, as well as pluvial crops of maize in spring, millet in summer, wheat and possibly barley in winter.

Villagers still live mainly according to an agro-sylvo-pastoral system, using natural resources in the environment. Bovine ensure the workforce for

ploughing. Along with, caprine and ovine, they also provide manure for fields and, incidentally, food products. Animals are fed crop residues, grasses and fodder taken from the forest where timber and firewood are also cut.

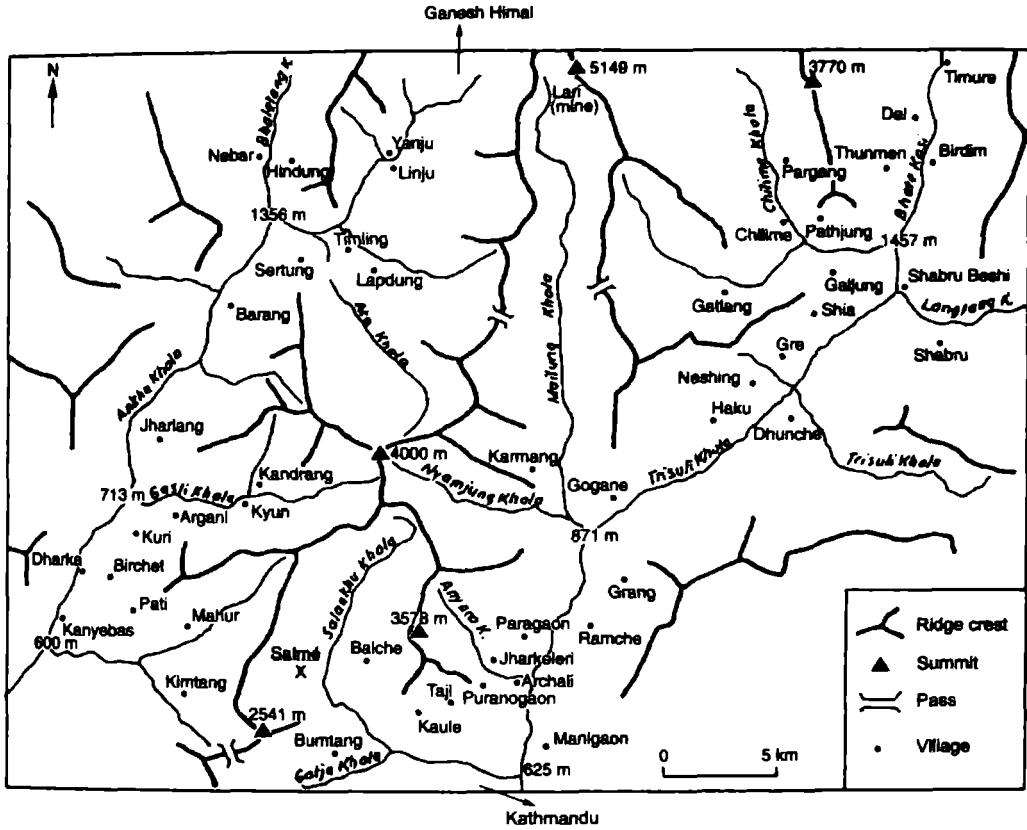


Figure 29
Location of the Salme mountainside
J. Smadja

In the cultivated sector, several hamlets line the slope. At 1,850 metres, the most important one, that of Salme, has given its name to the mountainside: it is an administrative unit which corresponds to a VDC.¹³ The population of a total of 1,500 inhabitants in 1982, around 1,800 in 1996, is mostly Tamang, of the Blenden and Dimdung clans. It is also made up of Ghales, likened to the Tamangs whose language they speak, as well as of Kamis, an Indo-Nepalese people of artisan caste, in this case blacksmiths.

¹³ VDC is the abbreviation for Village Development Committee which in Nepali is *gāu bikas samiti*. Since 1991, the VDCs have replaced the *panchayat* (see Chapter XII, "Discourse and Law: Resource Management and Environmental Policies since 1950" B. Ripert, I. Sacareau, T. Boisseaux, S. Tawa Lama).

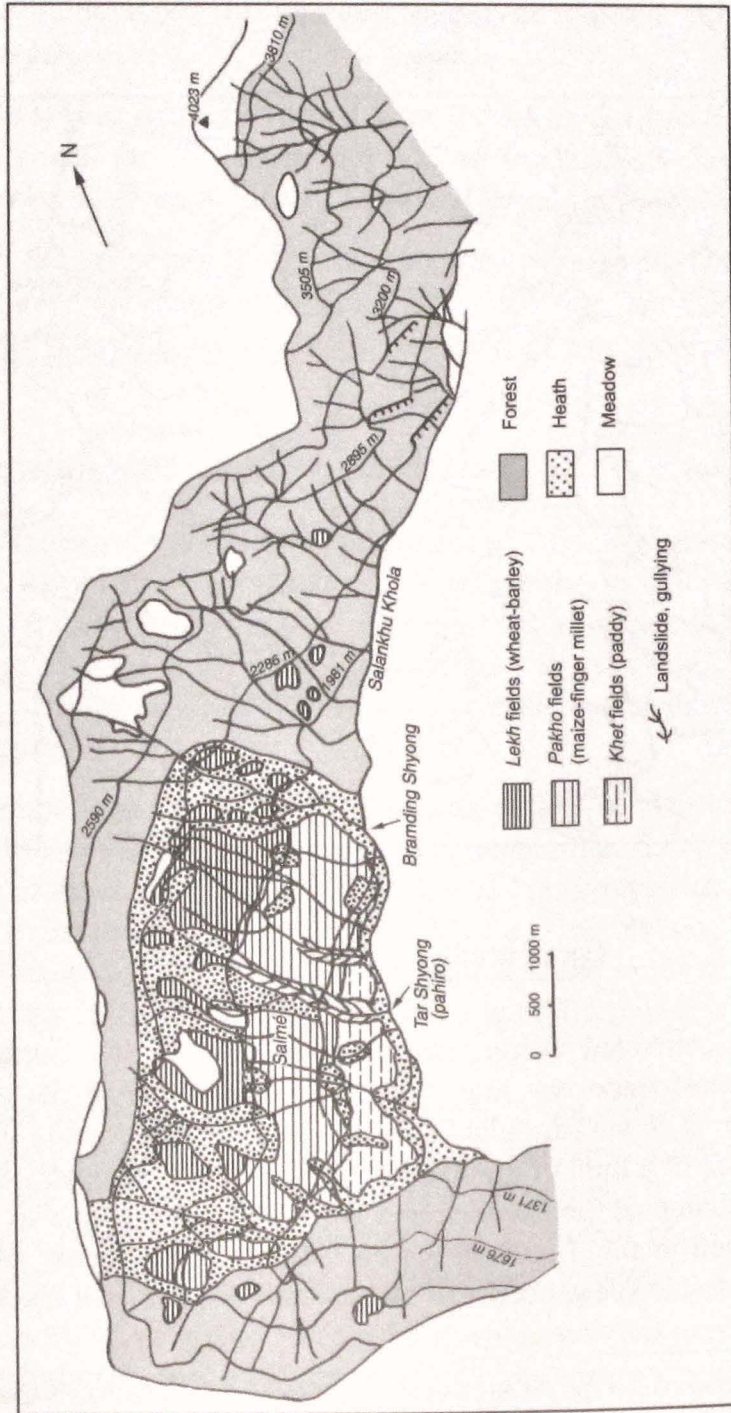


Figure 30
 Land use on the Salme mountainside in 1982
 J. Smadia

Religion combines "pre-Buddhic" tribal rites and elements from Tibetan Buddhism, Shamanism as well as from Hinduism. The specialists are respectively, the *lambu* priest who ensures, among others, worship of the various tutelary divinities of the territory, the lama who intervenes especially to fight against certain meteorological phenomena –i.e. hail, hurricanes, drought and against "natural" catastrophes– and the *bompo* Shaman, who is a mediator and healer. In Salme there is no Hindu religious specialist.



(J. Smadja, April 1996)

Photograph 40

Salme mountainside with an ESE exposure. Nuwakot district

The Salme mountainside is known from many perspectives and has been widely described. The Salme territory –which corresponds both to a strictly demarcated space and to a milieu appropriated and exploited by the population, as we will see later on– and its landscape, such as the toponymy and associated comments reveal themselves to us, complete the vision we have of them and sometimes also diverge. First of all, we shall focus on what toponymy teaches us about natural data, milieux and resources.

Physical data, milieux and resources of the Salme territory

The mountain, slopes, counter-slopes and spatial markers

In oronymy, we find the attributes of a steeply sloped mountainside. Often as a suffix, the summits (*tso*), rocky peak (*potso*), ridge (*gang*), qualify many places. They are inhabited by the main divinities of the territory called *shibda-neda*¹⁴ or *yul-lha* (T). Ridges are considered to be like *lha* environments, symbols both of life, health, pure air and in all cases have a positive connotation, as opposed to lowlands, *lung* environments which shelter underground divinities.¹⁵

The *shibda-neda* have been reported in several localities. In Sundung and Saljung Bra, places that shelter eponymous divinities, they are common to all clans. Elsewhere, they are specific to the different groups of population.¹⁶ These divinities are called *devi* when they are female and *mahadeo* or *mahadev* when they are male. Associated with fertility, prosperity and good harvests, they protect territories from bad weather, but can also cause catastrophes such as landslides, hail storms, hurricanes or a great drought if they have not been properly revered. Over the year they are worshipped on various occasions, the description and explication of which may be found in Toffin, Jest and Blamont (1986).

When it is abrupt and forms rocky precipices, the slope is often designated by the affix *bra*. It is pointed out as a danger to men, for example in Cheche Bra, "Precipice of Cheche" (from where Cheche fell), or else angered divinities may hurl down herds, as at Bic Rang Bra. As for slopes journeyed over by men, a single toponym takes into account their steepness and the difficulty in climbing them at Chyam Sepa Kendo, at an altitude of 3,300 m where villagers say the steep climb (*kendo*) is so hard, especially when carrying a load, that no (*sepa*) water is left in the body, not even any urine (*chyam*). If no other reference is made to steep slopes, the suffix *ble* on the other hand, used nine times, denotes cultivable "gentle" slopes. Dry basins (*hop*) are also mentioned, as are depressions or hollows (*ko*), but the

¹⁴ In Tibetan: *gzhis-bdag*, *gnas-bdag*.

¹⁵ The term *lha* denotes both high-altitude milieux fit for men and the divinities of the summits, both notions being one and the same. In a similar way, the term *lung* makes reference to both low hot (often malaria-infested) milieux and to demons.

¹⁶ In Yung Kapkap, "Pile of Boulders"; in Boldo, "Divine Word"; in Omgang, "Blade of the Mill" (on which a magic formula, *mantra*, was written to keep away hail); in Sing Lha, "Naked (or Moving) Heights"; in Tala Gang, "Ridge of the Gap"; in Gyentso Wang, "Red Earth Hole"; in Hongale Tala, "Top Gap"; etc.

suffix most used, 41 times, is *chyet*, the bench. A godsend in this mountain environment, benches and everything that is reverse gradient are sought after, recognised and systematically named.

A suffix which gives a spatial indication is often attached to the main name of a place. This is true of *dung*, below, the bottom; *gyap*, on the other side; *gu*, the corner, the back; *cho* (from *cheu*, N), the edge; *gung*, the centre, the middle; *me*, lower part, at the bottom; *kra*, above. To the question, "where are you going?", villagers from Salme more often than not reply by positioning themselves with respect to verticality: "up", *tor*, or "down", *mor*. If the cardinal points are part of the vocabulary of religious specialists, especially *bompo* Shamans, they are hardly used by the population. On the other hand, villagers situate themselves according to the place where they are and therefore talk of spaces situated "in front of them" or "behind them", "opposite them" or "on the other side".¹⁷ The mountainside you are on is called *jasam*, the opposite side, in this case that of Balche, is called *khiumsang*. For the mountainside situated behind you, once the ridge has been crossed, the expression *gang gyap* "the other side of the mountain" is used. The side of the mountain that you are now on is called *gang ngon* (*nounje*), "this side of the mountain". They are still translated respectively by "the wrong side of the mountain" and "the right side of the mountain".¹⁸

The cartography of the toponyms of this mountainside reveals gaps and filled in places, corresponding to wooded and cultivated territories. This is very indicative of the way of appropriating space.

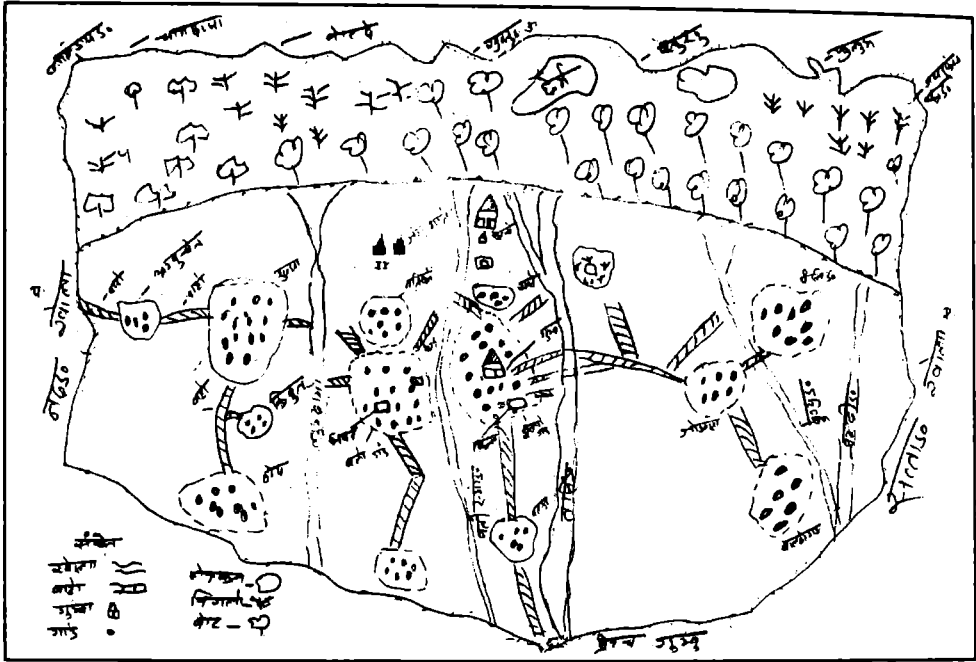
The "cloudy forest", a "desert-forest" devoid of men

Entry into the forest is denoted by the toponym Paatal Sung,¹⁹ "Entry to the Dense Forest", and the "Summit of the Forest" by that of Bakai Tso. However, contrary to the cultivated space where there are plenty of toponyms, the forest space in itself is not often named, leaving large empty spaces on the map. This is not for lack of research, since the whole mountainside has been covered numerous times and in all directions. The lack of names indeed reveals the lack of appropriation of the environment

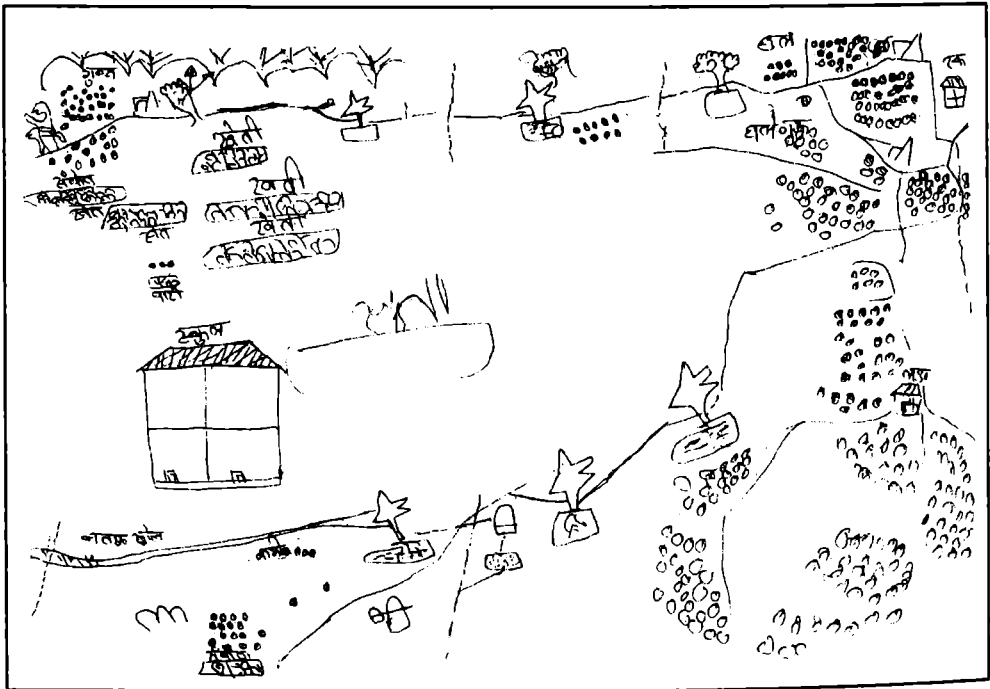
¹⁷ This has already been reported in TOFFIN, JEST and BLAMONT (1986) and SMADJA (1986).

¹⁸ TOFFIN, JEST and BLAMONT, 1986

¹⁹ Paatal or *pātal* means "dense forest" and *pātala*, of Sanskrit origin, means "hell, abyss" (TURNER, 1931). However, although these words are of different origin and meaning, the Nepalese asked mix them up and generally only refer to the second definition when they hear the word *pātal*. In Salme, it is given as "dense forest", but its negative connotation is obvious here.



In a "molecular structure", "atoms" including cultivated and inhabited parcels of land are linked up to each other by a network of paths (Drawing recorded by J. Smadja, April 1996).



The presence of *nen*, resting places made up of a platform and a tree, and the paths linking them up is to be noted (Drawing recorded by J. Smadja, April 1996).

Figure 31 and 32
Salme territory as seen by schoolchildren of about age ten

and only a sporadic frequentation in order to take the resources necessary for running farms. Drawings of the Salme territory, made by children of about ten years of age, illustrates this further: no-one mentions the forest space situated north of the cultivated sector. Only the intensively-exploited forest fringes to the west are sometimes represented: these are woods, not dense forests (Figure 31 and 32).

This forest "with no name" recalls the "desert-forest" devoid of men of the ideology from Brahmanic India as evoked by C. Malamoud (1976) and mentioned by various anthropologists carrying out research in Nepal, and in particular M. Lecomte-Tilouine (1990) about a Magar mountainside in Central Western Nepal. While it is situated in the upper part of the mountainside, paradoxically, the desert-forest devoid of men on Salme territory is a fearful place, with a negative connotation associated with *lung* environments, with death. Little known and frightening, it is inhabited by demons, wood-dwellers, *ban jankri*, or half-human half-supernatural beings,²⁰ both opposed and close to Man, as culture, and forever threatening to return villagers to their initial state of wandering and savagery.²¹ However, as C. Malamoud points out (1976), the forest remains within reach of the village and thus as part of the latter, the old man could go and retire there. Places for meditation are reported in Salme forest, the "Temple of Red Monkeys" at Jyajung Gombo and the "Retreat" at Chamkang.

The negative overtone of the forest is also due to the somewhat restricted view from here, whereas places with a beautiful, clear view are thought to be pleasant.²² Visibility is all the more reduced since a belt of cloud covers the forest area between 2,400 and 3,000 metres in altitude, in the afternoon from October to May and all day long during the monsoon. This is the area of cloudy forest, of "Nebelwald".²³ Its local appellation at its lower part, *mukpa ble*, "the slope (which takes hold) of the clouds", illustrates this well. As people also quote one of the proverbs in use in Salme, *saunla mundungla*, "the month of *saun* (15 July-15 August) is a dark month". Indeed, in commenting on this, villagers add: it rains all day, the days are short and dark, "we can't see anything", "it's like at Tsherma". On saying that, they make an analogy between this locality getting its name from a plant that grows abundantly, *tsherma* (*Zizyphus incurva*), and the

²⁰ TOFFIN, 1985.

²¹ See CAMPBELL, 1988; LECOMTE-TILOUINE, 1987.

²² As V. BOUILLIER (1987) also demonstrates, in Indo-Nepalese territory.

²³ See SMADJA, 1986.

word *tsher* (T) that means "sad", "melancholic". Situated on pastures at 2,700 m at the heart of the forest and always in the clouds, Tsherma is perceived as an unpleasant place on the mountainside. The forest is even more feared during the monsoon, a period during which the inhabitants of Salme, very busy with farming activities, hardly set foot there. Only a few pastures bordering the forest are used in this season. These observations corroborate G. Toffin's notes (1985) about the vocabulary used by hunters, who for the expression "in the forest" say *mukpa nang* "in the clouds".

Pasturelands explicitly named

Although the Tamangs are today much more of a farming community than a cattle-breeding one, the pastoral space is named more explicitly than the cultivated space. For the whole of the mountainside, the only toponyms, with the exception of a few paddy fields, mentioning both a surface and its appropriation for a purpose, are meadows (*pang*), and pastures (*kharkā*, N). *Pang* are limited to the cultivated sector or to its periphery. The grass here is very short due to being over-grazed. *Kharkā* are distinct from these in as much as they are generally found in forests, animals stay in them for long periods, and permanent stone stables, *dungang*, provide shepherds and cattle with shelter. Annual herd movements over the slope according to the crop calendar and the transhumance of animals –from Salme as well as from surrounding villages, passing over the mountainside or having transited that way in the past– explain the large number of pastures. They are exhaustively named and occupy a privileged place in the nomenclature.

Potentialities but no land allocation in the cultivated territory

In the cultivated sector, there are many toponyms, but they rarely refer to land occupancy. Some mention fields or former slash-and-burn (*mrang*), abandoned land (*pākhā*, N), freshly cleared ground (*shing*), but they never, apart from very exceptionally, give any indication as to the type of crop grown. Sangle, "Finger Millet Straw", Popo Long, "Many Ears of Corn", or else some suffixes such as *bu*,²⁴ irrigated paddy fields, are the only names which give some indication of the crops. The rarity of toponyms regarding crops reveals that farming is not rigidly set, and it confirms previous observations.²⁵ Indeed, in Salme there is no "land for wheat" or "land for

²⁴ Term probably borrowed from Newari, since paddy fields were introduced to the mountainside relatively late. Besides, one may wonder why a Newari, not a Nepali term was adopted.

²⁵ SMADJA, 1986, 1995.

maize" or land for other crops, a fact that recent changes in the mountainside, such as the introduction of a variety of red rice at altitude, have incidentally proven. Instead, there is land with its own physical properties –some of which are indicated in the toponymy– that are used in varying ways according to needs. Just as they do not provide indications as to the occupancy of land, toponyms are not given to denote the property of a field –besides, they do not correspond to parcels of land, which up to now has been split between the different ecological belts²⁶ – but they are attributed to groups of terraces with the same overall features, most often belonging to several farmers. They give a glimpse of the assets or constraints of cultivable sectors by designating benches and gentle slopes as previously mentioned, as well as the state of the soil, especially in Katre, "Hard (soil)", in Baset Kharka, "Pastures of Small Stones", in Kandrang "Stony (ground)". The most frequent ones are those related to the water content of the soil and lead us to examine the hydronyms in more detail.

Water, a source of life and of worry

The availability of water is not a major problem, as the mountainside benefits –contrary to southern sectors of low mountains and hills–, from meltwater and orographic rains in spring.²⁷ However, its distribution is uneven depending on the season or on the ecological belt and largely influences activities and land use. Bhume, a Hindu divinity, protector of the territory in the same way as the *shibda-neda* but who is more precisely in charge of the cultivated sector, is associated in Salme with the divinity Lha Wangbo who rules over the rain, the excess or lack of which conditions harvests.²⁸ Assets and constraints linked to water clearly appear in the hydronymy that offers a very precise recording.

²⁶ Will the regrouping of land in progress on the Salme mountainside (see Chapter XV, "Parcelling of Land, Privatisation, but Collective Management of Space and Resources on the Salme Mountainside" by B. Ripert) lead to renaming places? This is to be studied in the years to come.

²⁷ See Chapter 1, "Geographic Units and Landscapes in Nepal. Local Terminologies" by J. Smadja.

²⁸ This remark leads to another one. The Sime Bhume of the Indo-Nepalese world are sometimes considered to be divinities of the territory marking the border, with *sime* therefore coming from *simana*, "the border" (STEINMANN, 1987; TOFFIN, 1987b). As for Marie LECOMTE-TILOUINE (1987), she considers that *sime* comes from *sim*, "wetlands", that can be found for example in the expression *sim khet* (paddy fields on wetlands). The fact that in Salme, Bhume is associated with Lha Wangbo, god of the rain, confirms this meaning.

Water in the soil is reported as being in excess in Sa Chu, "Water from the Earth", in Lun Lun Gu, "Bottom of the Marsh", in Kirka Me, "Under the Wet Place". It is also "Bench of the Mud" in Gar Chyet, and "Boulder of the Mud" in Gar Potso, sectors in the north part of the cultivated mountainside that correspond to an old large mudflow where soils are silty, hard and compact in dry periods, muddy in wet periods and always difficult to plough.²⁹ Other muddy spaces are mentioned in Gar Gang, south of the *pahiro*, and in Dowa Bolwa, "the Wild Boar (wallows) in the Mud", on the west ridge. The few references to *bu*, irrigated paddy fields, also indicate the presence of water.

As for running water, springs, *chume* or *kimlu*, and fountains, *wadi* or *gyung* –providing men and cattle with a supply of water as well as irrigation of paddy fields or ground for growing rice and finger millet–, they are all given a name; as is the case for a simple place where water can be found: Ki Tso, "Summit of Water".

Basins that have in the past formed small lakes and are nowadays only filled intermittently are mentioned in Tsona, "Black Lake", in Gye Chyet, "Bench of the Lake", and in Pelche Gye, "Pelche Lake (basin)".

Rivers are called *kholā* (N). The one that drains the mountainside is the Salankhu. Torrents –their water is used for watering animals as well as for irrigation and operating mills³⁰– are called *shyong* when their debit is permanent and *karpa shyong* when it is intermittent. Contrary to the *karpa shyong* and *kholā*, the *shyong* almost systematically borrow the name of the place they cross. One of them, located in the central part of the mountainside, is an exception however. In its upper course, it bears a specific name: Drupcyo Shyong, "Lustral Water Torrent". This name is only attributed to it near its source, close to the ridge, a "pure" place where a feminine divinity resides, Drupcyo Wadi Bomo, along with another goddess, Cyangsar Lhamo, who are both supposed to protect the area surrounding the sacred springs.³¹ We again find Cyangsar Lhamo at Kimlu Gu locality, "Bottom of the Spring". There the *bompo* Shamans dedicate a ceremony at

²⁹ SMADJA, 1986.

³⁰ The debit of the torrents conditions the use of water mills. At the height of the dry season, if a mill supplied by a permanent debit is too far away, the water mill is abandoned for a hand mill, which is set up in each house (SMADJA, 1986).

³¹ This is also the case in other Tamang communities in this region (see HÖFER, 1994).

Magh Sangkranti to them.³² Shamanism situates this lustral water mid-way between water from heaven and underground water, in fact much like the tree, a source of life.³³

As for underground water, in particular from springs, but also wetlands, marshes, etc. it is where the *nāg-nāgini*³⁴ (N) reside; these are snake divinities from Hindu mythology associated with water and rain. While assimilated here to the *lu* (*klu* in T) that are considered to be the owners of the soil in the Tibetan world,³⁵ they are also included in the general pantheon of the *shidba-neda*. The *nāg* can become very irate if they are not respected. If a tree is cut down, or a stone simply moved at their place of residence, they take their revenge by causing landslides, the loss of harvests or the death of herds, as is said to have already happened in the *pahiro* sector. Villagers explain that if certain places are suitable for *nāg*, it is also the case for men. Therefore there is competition between them, Man somehow "stealing" space and resources from the divinities that "settled" before him. The results is a kind of set of implicit rules between man and nature: the divinities, when angered, ensuring in a certain way the stability of the milieu, or at least its protection in sectors known to be unstable and that have to be used carefully.

The large number of *nāg* mentioned on the mountainside is the sign of a wet milieu, where plenty of water is present and may therefore, beyond its beneficial effects, cause some worry due to the malign divinities which worm their way into it. Villagers from Salme distinguish three categories of *nāg*: the *lemba nāg* or inoffensive *nāg* (also called *naïve* or *dumb*), the *pākhā nāg* on abandoned ground and the *kali nāg* on irrigated land. These *nāg* are more or less "restless" and cause a great deal of trouble to the *lambu* and lamas in charge of controlling them,³⁶ as illustrated by accounts referring to the different localities, such as the one below:

³² Festival of the winter solstice in *māgh* (mid-January to mid-February). Timed with the solstice, it is in fact brought forward or put back a fortnight.

³³ See HÖFER, 1994, p. 312.

³⁴ *nāg*: masculine form, *nāgini*: feminine form. The masculine is used in the text when one talks of *nāg* in general.

³⁵ STEIN, 1971.

³⁶ Only *lambu* are supposed to revere the territory divinities and exorcise demons, but as indicated by TOFFIN (1987a), lamas, Buddhist priests, can accompany them, and even stand in for them. This seems to be largely the case in Salme at least as far as the *pahiro* is concerned. This is all the more understandable if one bears in mind that *lha* divinities of the "tribal" religion are thought to be ancient, very evil divinities who were pacified in the past by Buddhist priests (TOFFIN, 1987b). In this case, their task would not be complete.

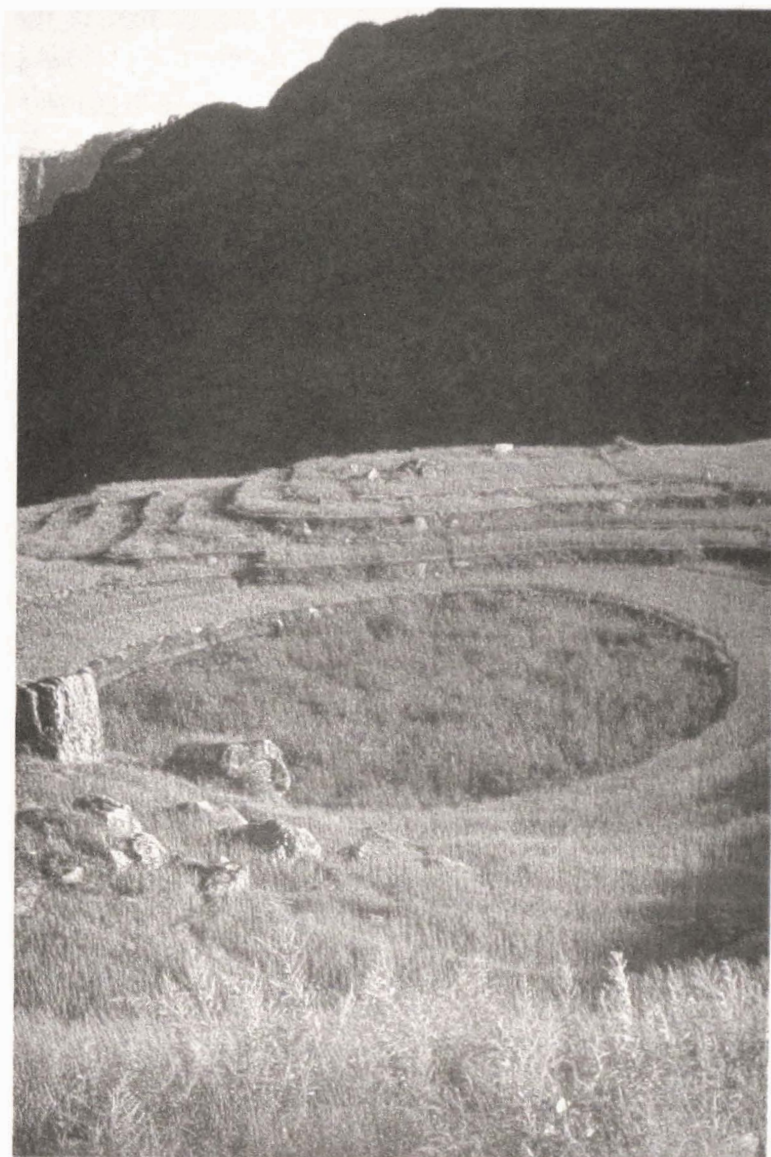
A snake divinity sometimes called *lu*, sometimes called *nāg*, that resided in Jharlang in Ankhu Khola, arrived on the Salme mountainside, in Boldo, on the ridge between Ankhu Khola and Salankhu Khola. From there it went down to Tsona, "Black Lake" where it settled and, from that moment on, many villagers fell ill. The lama Sanka Raja, the first Dimdung to arrive in Salme, endowed with great power, was meditating nearby in Neje Gombo. He took nine pots (*chalang*) and nine stone pilons (*breyung*), heated them in the fire for nine days and then threw them in the lake. Surprised by the sudden heat, the snake fled and went down to the Nadang Shyong stream. It arrived at the Gunsā irrigation canal, which it followed as far as the small lake Gye Chyet (Photograph 41), where it spent the night. That same night, Sanka Raja built two *mane*³⁷ with his own hands. The snake went down the slope followed by the lama. At Bretsa Gombo locality, the snake made a dam on the Nadang Khola hoping to create another lake by changing its course, but the lama freed the water by reciting an incantation. Today still one can see the change in course on the Nadang Khola. The snake then left the Salme mountainside and went down to the bottom of the Salankhu Khola valley, to Gomrap. The lama forbade it to return and harm men. That is how the Salme mountainside got rid of the malevolent *nāg*. Since then, at least once a year, the inhabitants of Salme make an offering on all these sites and each year a kid goat is sacrificed in Gomrap.³⁸

Parallel to "divine legislation", the ban on cutting trees near springs has been mentioned for a long time in the Nepalese legal code,³⁹ for, they say, springs would end up running dry and would no longer irrigate the *khet*. In Salme where rice farming, introduced in the XXth century, did not occupy a large place until recent years and where there is no shortage of water, it is not so much the irrigation problem but the risk of landslides that seems to motivate a certain preservation of trees near water points and the respect, or at least the fear, of underground aquatic divinities. Moreover, it may be noted that most *nāg* are located in the *pahiro* (gully), a sector that is particularly unstable.

³⁷ The *mane* (called *chorten* in Tibetan: structures holding offerings) are stupas, stone structures in the shape of a pyramid. They can be built to commemorate an important act in the life of the community, a merit-seeking act, or to invoke the protection of the gods, against erosion for instance.

³⁸ Text reconstituted from accounts gathered by Corneille Jest and Joëlle Smadja.

³⁹ See the writings of Ram Shah, for example, dating back to the beginning of the XVIIth century (RICCARDI 1977); see also Chapter X, "The Nepalese State and the Transformation of Landscapes [...]" (P. Ramirez).



(J. Smadja, July 1982)

Photo 41

Former lake Gye Chyet today turned into a paddy field

The pahiro and its cohort of divinities

Erosion, called *dhi* in Tamang –a generic term used for all its manifestations– is only evoked twice in the toponymy: in Dhi Tso, "Top of the Landslide", in the northern part, and in Naga Sepa Dhi, "Landslide of the Killed Pheasant", in the lower part of today's large *pahiro* called Tar Shyong, "White Torrent". This proves the age and the regressive aspect of the erosion

process.⁴⁰ Indeed, a series of imbricated scars shows that in the course of decades, and even centuries, this *pahiro* has undergone periods of stability, of recolonisation by vegetation and that it has been regularly reactivated.

Located along a geological fault⁴¹ (Figure 33), it is destabilised by micro-seisms occurring several times a week, by stronger seisms (*sangkul*) – at least three of which have caused damage in the course of the XXth century alone, as reported by the population of Salme – and by extremely violent monsoon rains which occur at least once every decade.

The large *pahiro* as a whole is not denoted as such in the toponymy, but names and divinities make reference to the constraints of the milieu. They can be found, amongst others, in Sa Chu and Lun Lun Gu, as already mentioned. Lining the whole of the gully, *nāg* are legion, bearing witness to its instability. Moreover, uphill from the *pahiro*, in Gyu Luba, "Wet Cave of Sheep" (where water seeps out during the monsoon), and Shol Mrang, "Slash-and-Burn of Footprints", the goddess Syelkar Jyomo resides and she is invoked to limit the phenomenon. She rules over its fate. She is supposed to reside in the whitish rocks (Shyelkar comes from the Tibetan *shell*, "crystal" and *dkar*, "white"); the *pahiro* indeed forms a vast whitish gash in the mountainside where bare soils of talc-schist and serito-schist are called "white soils",⁴² Tar Shyong itself meaning "White Torrent". This divinity is reported in other Tamang communities in the region.⁴³ Villagers from Salme regularly make offerings to her, they build stupas for her as at Mane Chyet, "Bench of the Stupa", where they are forever saying prayers to limit degradation.

The relentless, no doubt secular, fight against this gullying, the only noticeable erosion process on the mountainside,⁴⁴ is narrated in accounts associated with certain localities. Villagers compile both their mythical and real history from these, as follows.

⁴⁰ An erosion process is said to be regressive when it progressively splits the slope upwards.

⁴¹ SMADJA, 1986, 1992.

⁴² A study of the types of soil has shown that villagers identify three categories of soil depending on its colour, "black", "white" and "red" soil, *kalo*, *seto* and *rato mato* (N), which correspond to classes highlighted by the pedological analysis (SMADJA, 1986). This classification is underway in a large part of Nepal and is found, *inter alia*, among the Tamangs in the east studied by B. STEINMANN (1987).

⁴³ HÖFER, 1994.

⁴⁴ SMADJA, 1986, 1992.

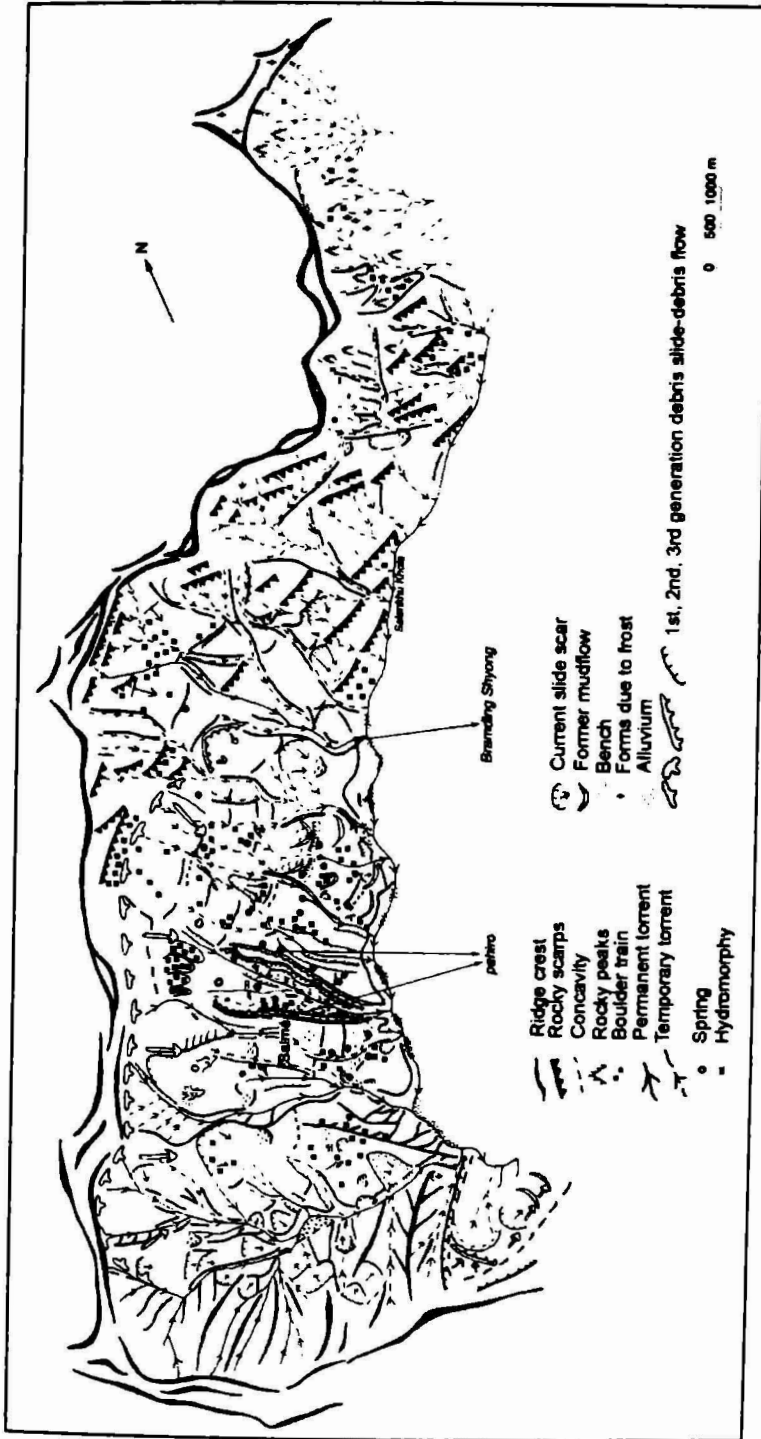


Figure 33
Simplified geomorphological map of the Salme mountainside
J. Smadia

In bygone days, there was no gully from Drang Chyet to Thulo Gaon; the surface was flat. The Tar Shyong ran peacefully between alders and pine trees. At Ya Gang, "the Bank (of the torrent)", there was a temple set up by Tibetans. Everything was going smoothly; they revered their gods and made them offerings. Then the inhabitants of Salme, probably Blendens,⁴⁵ destroyed the temple and cultivated fields in its place. The temples and its land were "thrown" into the torrent. Then the anger of the gods, especially the *nāg*, exploded and the gully formed over successive periods. In order to contain it, the lama Dolchen Gombo made *puja* (offerings) near Naga Sepa Dhi in Balden Sepa to calm the *nāg* there. The *nāg* moved up to Kal Sepa, "End of the Wild Arums", situated at the heart of the present-day gully but, malevolent and very "restless" as it was, it cut another gash. The lamas again recited incantations so that it would leave the place, but it did not go very far and from then on resided at Kha Chet where it dug a waterway only worsening the gully. Kha Chet means "the (lama's) Word is not Enough" and therefore evokes the powerlessness of men and gods when faced with this phenomenon. At Sa Nen, "Resting Place of Earth", close to Kha Chet where, due to gullying, there is no vegetation and where bare soil shows through the surface, cocks are sacrificed to fight against erosion. Several *mane* have been built: one at Tsakar U, "Shelter under Rock of the *Michelia*", considered to be the source of the Tar Shyong and therefore of the *pahiro*,⁴⁶ on which the formula *Om Mani Padme Hum* is inscribed; two others at Ya Gang and at Boldo Gang, where there was also an irritated *nāg*. Yet the erosion process took on greater proportions, and therefore in the 1960s the villagers let alders grow and colonise the whole of the gully, as shown in an aerial photograph dated 1967.⁴⁷ They attached *kata*, Tibetan greeting scarves to the trees along the *pahiro* so that the latter would not be cut down. There was then a respite.

However, in the 1970s the *pahiro* was reactivated by a series of fires in Gunsā then in Salme –leading to the sector being cleared to rebuild houses– by several years of paroxysmal rains, and by a major earthquake in 1976 during which extensive rock fall occurred (Figure 33).⁴⁸ Water and landslides carried away the *mane*, bridges and paths, in the same way as they did most of the houses in the hamlet of Boldo Gang, the inhabitants of which

⁴⁵ When it is the Dimdungs who recount the story, and *vice versa*.

⁴⁶ Let us bear in mind on this subject that caves, shelters under rock and springs, are considered to be the place of residence for underground divinities, the *lu* or the *nāg*, who may be at the origin of disasters, here therefore of gullying.

⁴⁷ SMADJA, 1986.

⁴⁸ See SMADJA, 1986.

moved further north towards Pangling. Among all the efforts made to control the phenomenon, in 1985 a wire possessing divine powers was set up all along the gully, on both sides, while another one stretched from Thulo Gaon to Drang Chyet. After another period of calm when vegetation grew back from 1985 to 1991, and following the particularly devastating 1992 and 1993 summer precipitations, erosion again started to cut a gash as deep as the oldest scar during the 1996 monsoon, dividing the mountainside into two totally separate blocks.⁴⁹ That being so, the *pahiro* has for a long time now constituted a separation axis since, when the mountainside was first exploited for farming purposes and prior to the introduction of rice, wheat and barley, maize was grown north of Tar Shyong and finger millet to the south.

Today villagers are dubious about the course of action to take when faced with this gulying, one of the community's main sources of worry, especially as each year it carries away cultivated land (Photographs 42, 43 and 44). The gods are deaf to all their prayers and even the gabions set up recently in different sectors have been swept away. According to some people, two divinities perhaps confront each other in this place, for others, water should be diverted underground to get rid of the malevolent divinities associated with it and finally for others, the protection of the sector to allow alders to grow back would be a solution to their evils. Yet is it really advisable to have to forever cross a wooded space at the heart of the cultivated sector? Besides, many *pahiro* in Nepal occur in places that are not cultivated and are covered in forest.

The flora inscribed in the Salme territory

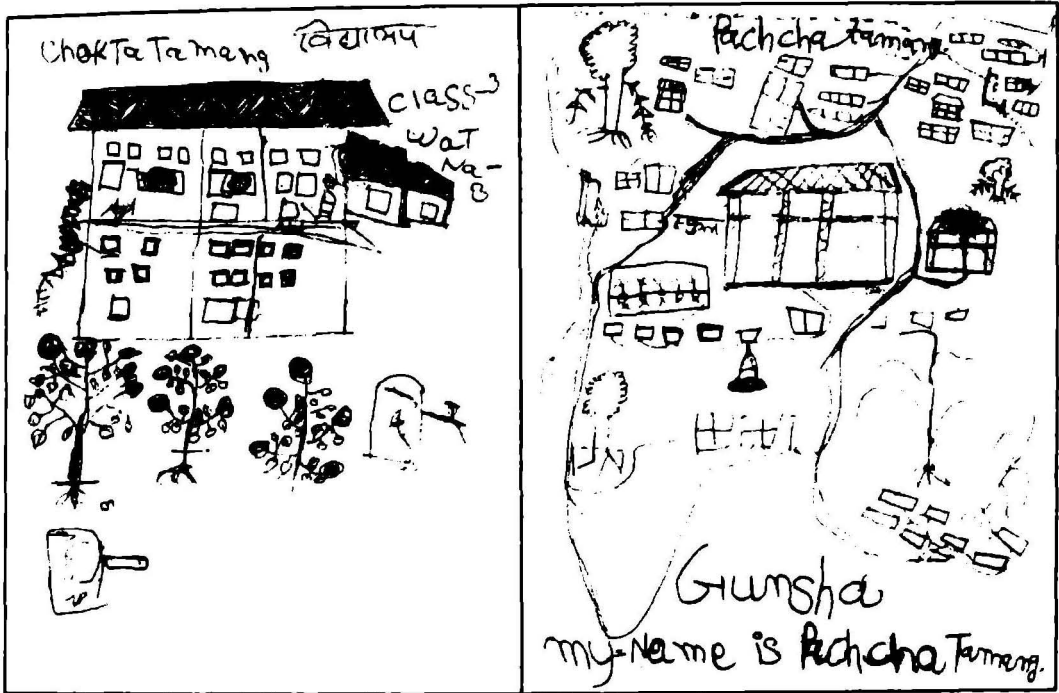
Vegetation on the whole is well represented in the toponymy. Taking into account all species, seventy-four references to flora have been noted, of which there are forty-six different species. The tree is the most prominent. Information provided by toponyms and their cartography can run counter to the image given by the simple study of natural milieux. The distribution of toponyms between the cultivated space and the forest has illustrated this. This is also the case of names devoted to trees: the southern part of the mountainside is partially cleared, but toponyms mentioning trees are more numerous here, whereas they are rare in the forest. The Tamangs then, who have the reputation of being more ready to cut than to protect trees, have inscribed in their territory about forty different trees, whose names and the

⁴⁹ For more details, see Chapter XV by B. Ripert.

resources they provide are common knowledge to everyone. We must point out here that the tree is considered to be a communication axis with the divine. Its roots ensure contact between underground demons of death and protective spirits of "above" and of life. Its fruit and flowers are associated with procreation, its trunk represents strength.⁵⁰ It is the very symbol of life, which may eventually explain the number of trees named on the cultivated territory, a territory of men and culture (as opposed to nature). Children's drawings, in which trees always occupy an important place, are also a good example of this (Figure 34 and 35). Divinities reside in trees; the *kag* (*Bombax*) the most sacred of them all, must not be felled.

The names of the places themselves do not provide any indication of the use of tree resources (except for some religious functions). It is through information related to toponymy that I obtained this information –building timber, firewood, charcoal made by the Kami, fodder, used for food, medicinal, religious purposes, for day-to-day activities– in addition to the very detailed recordings made by J. Wiart (1983). Not all the species used by villagers are mentioned in the toponymy, but the selection it reveals is useful in assessing a certain diversity –the one favoured by the village community– and its changes in the course of time. Certain trees therefore characterise localities, but these have become rare. This is the case with the *tsakar* (*Michelia doltsopa*), the former presence of which is proven by the toponyms Tsakar U and Tsakar Koltsa. These trees, used in the past essentially for timber, have become scarce, at least those of adult size. The same goes for the *chembe* (*Michelia champaca*), reported in Chembe Kharka. Today they are a protected species. Other species in danger of becoming extinct are: *chatangje* (*Machilus*), as the comment on the Chatangje Bra locality informs us; *kato* (*Juglans regia*), mentioned at Kato Ble, which are now protected; as well as *solshing* (*Quercus glauca*), that can be found at Solshing Gang. Apart from fodder, *solshing* produces firewood and is excellent for woodwork, one of the best for making swing ploughs and draw bars. Villagers explain that in bygone days only this wood was used for this purpose and swing ploughs lasted twice as long. Nowadays, young *Quercus lamellosa*, which gives good fodder, yet is not as solid for swing ploughs, has taken over from it.

⁵⁰ See HÖFER, 1994.



Note should be made of the importance of trees and of the way in which they are portrayed (Drawings collected by J. Smadja, April 1996).

Figure 34 and 35

The village of Salme as seen by schoolchildren of about ten years in age

Today other trees, sometimes of poorer quality, also supplant those previously used for timber. This is true of *biuru* (*Prunus cerasoides*), reported at Biuru Gang, which in the past was only used for building mobile shelters, mills and provided wood for charcoal as well as fodder. The *thangshing* (*Pinus roxburgii*), whose name is evoked at Thangshing Tsam, "Pinewood Bridge", are now also used for timber, whereas in 1980⁵¹ they were only used for building mills. The *giangshing* (*Alnus nepalensis*), a colonizing tree that grows very quickly, especially in eroded and damp milieux –the toponym Giangshing Nen is given on the edge of the Salankhu Khola, next to Dhi Tso: "Top of the Landslide"– was sometimes used, up until recent years, for the framework of shingle-roofed houses (*panglep tse*). At present there are fewer shingle roofs, as they have been replaced by corrugated iron or flattened cans, while alder, which is not a threatened species, is no longer cut for this purpose.⁵² It is still used to make floors inside houses, mills, bridges and mostly provides wood for cooking as it is

⁵¹ See WIART, 1983.

⁵² See SMADJA, 1995.

easy to cut and burns slowly. A small bamboo plant, the *wambi*, that gave its name to the locality Wambi Chyet and that was used to make flutes, has also become scarce.

The related data compiled regarding the toponymy therefore provide us with invaluable information on the state of tree resources, on the problems the population has to face and on the means that they have found to solve them. This information also helps explain recent protective measures taken in certain sectors of the mountainside.⁵³

Furthermore, toxic plants for cattle are explicitly reported at Murpa Ble, "Gentle Slope of Poisonous Shrubs", and indirectly at Pra Bar "Fencing made of *Pieris formosa*", and at Domshing Kharka, "Pastures of *Lyonia*".

F. Meyer and G. Koppert (1983) have shown that in the village of Salme, 41 per cent of the vegetables and fruit eaten were wild. Many of them figure in the toponyms:⁵⁴ for fruit or vegetables at Ambu Chyet, Chengso Ble and Pakha, Kalang Dung and Tsang, Kale Chyet, Kato Ble, Kierpa Chyet, Moje Hop, Mole Gang, Namum Chyet, Pada Potso, Pangkyung Kharka, Polang Chyet, Tenga Chyet; for grass at Tengar Chyet and Gu; for leaves at Lung Martang and Ma Ble.

Places such as Blenshing Chyet, Bramji Gang and Punki Bra bear the name of plants used in food preparations, others those of plants used in everyday activities, such as Blenshing Chyet again and Namun Chyet.

The Chendi Rungba, Lumtang, Moje Hop and Pangkyung Kharka localities refer to plants used for religious worship.

Several species used for medicinal purposes have given their name to the places where they can be found, at Ambu Chyet, Chendi Rungba, Chengso Ble and Pakha, Kato Ble, Pada Gang, Pangkyung Kharka, Pongche Tso, Tagpa Chyet and Gang, Tanga U.

As we can see, many of these plants are versatile.

Toponyms related to vegetation, whether they denote their rarity or their abundance, give an indication in any case of the selection made by villagers in their daily life and of the attention they pay to these species, as revealed by comments regarding the use of the resources mentioned. They

⁵³ See *ibid* and Chapter XV by B. Ripert.

⁵⁴ For further details on data concerning the flora, refer to Table 10 in annex; this saves the text from becoming too tedious for the reader.

portray an image of resources at a period in time –impossible to date– but when they were probably more abundant than today. When reading the map, it also refers us to a stage in mountainside development when the southern sector was not deforested and uniformly cultivated, but was broken up by numerous hedgerows and by uncultivated spaces that were intensively exploited. These offered a wide variety of resources, as was the case on most Nepalese mountainsides at the beginning of the century.⁵⁵

Modest representation of wildlife

The animal kingdom occupies a lesser place than the plant kingdom in the toponymy. Thirty-eight references are made to it, with eighteen different animals being named, six of which are birds, six are mammals, four are insects, one is a worm and one is a batrachian.

Among these animals, some are emblematic, such as the monal pheasant (*nadang*), from Nadang U, Nepal's national bird and king of animals for the Tamangs. Its feathers are used by the *bompo* Shamans. Reference to the wild boar (*dowa*) at Dowa Bolwa may also be noted. This mammal also symbolises Varaha, one of Vishnu's Avatar. It is supposed to carry the world on its horns and sometimes tip it from one to the other, therefore causing earthquakes.⁵⁶

Some animals are hunted for the food they provide and are also possibly used for medicinal or religious purposes: this is the case of the frog (*peng*), found at Peng Kyoba, which can be eaten and is a cure for syphilis, or the porcupine (*dumshing*), reported at Dumshing Kung and at Dumshing Nen, whose meat is sought after and whose quills are used by the shaman in exorcism rituals.⁵⁷ Others are mentioned for their production at Ye Bra, "Rock Face of Wild Bees". Finally "Lots of Mice" are reported at Nyam Nyula.

Some animals have been the subject of a legendary hunt that has remained engraved in memories: this is the case of the "Killed Crow" at Taprang Sepa, the "Killed Vulture" at Jarku Sepa, the "Landslide of the Killed Pheasant" at Naga Sepa Dhi, the "Killed Tiger" at Taa Sepa, the "Dead Bear" at Towam Shiwa, etc.

⁵⁵ See Frame 14 in Chapter X.

⁵⁶ See SLUSSER, 1982; LECOMTE-TILOUINE, 1993; and the Introduction to this book, Figure 2.

⁵⁷ TOFFIN, 1985.

Others appear to present a permanent threat to cattle, crops and men: at Chen Kung, the "Leopard's Lair" and at Chen Kung Chume, the "Source of the Leopard's Lair"; at Bandare Kharka, "Pastures of Monkeys"; at Taa Gang, "Ridge of the Tiger"; at U Chen, "Leopard of the Shelter under Rock"; or else at the Mlut Ki Shyong torrent, "Torrent of Leech-Infested Water"; at Timra U, "Shelter under Rock of Bovine Ticks"; at Nu Gang, "Ridge of Hornets". At Dang Chyet animals are hunted to protect crops.

Some toponyms are related to pets. One may note Ta Ware "Garden of the Horse" –today there are no horses in Salme– or the reference to an accident at Mahi Kang Kyupa, the "Buffalo's Twisted Leg".

Beyond the sphere of vegetation and wildlife, other places concealing cures are mentioned: at Brashyong and Brashyong Bra, "Precipice of Bituminous Rocks ", and at Men Tso, "Summit of Medicines".

Thus this toponymic survey provides information on the large amount of resources used and recognised by the villagers of Salme.

Founding places on the territory

Another category of toponyms is not associated as much with resources and data on nature as with spatio-temporal markers of the territory. These may be both visible and invisible, physical and symbolic, while being more anthropocentred. They correspond to places around which the community's identity, its territorial anchorage, is permanently reasserted.

Elders' territory, history of the place, memory

As part of the Salme Tamangs' memory, toponyms etch their ancestral presence in the territory and in daily life. They help us to retrace part of the history of this mountainside.

Several toponyms refer to the "first inhabitants" (*neje*) of the mountainside, but they give no indication of the different clans and of their former settlements. Do these *neje* represent the Titungs who are supposed to have been the first to arrive on the mountainside, or do they represent the Dimdungs who drove away the Titungs and are the true ancestors of today's inhabitants of Salme? Do they not rather make reference to mythical and legendary founding places around which the appropriation of the territory, hence the population's identity, are pieced together? Indeed, the expression "first inhabitant" can be found at "essential" sites. At Neje Gang, "Ridge of

the First Inhabitant", what is considered to be the tracks of the hooves of the black and white cow (*salmo* in T) can be seen in the rock. This cow has given its name to the mountainside (*salmo gang*, now Salme). This "*neje*" is also mentioned at Neje Kharka, "Pastures of the First Inhabitant", at Neje Gombo, "Temple of the First Inhabitant", where a divinity called Pangshyur Jyomo (?) is thought to reside and where a *kunggar*⁵⁸ can be found, as well as at Neje Gung, "Middle of the First Inhabitant('s mountainside)". Interestingly enough, this last toponym reveals that the middle of the mountainside is recognised and named, and is located near Bramding Shyong, the major geological and geographical axis, the limit between two types of slope, and today between the forest sector and the cultivated sector, the true backbone of the mountainside. For villagers it seems to be a fundamental guide in organising the landscape. Moreover, the only toponym indicating the "confluence", Saptang, is located at the place where the Salankhu Khola, the mountainside's major waterway, and the Bramding Shyong meet. Finally, it is immediately above Neje Gung that the main divinities of the territory may be found, at Sundung and Saljung Bra. These divinities are linked to the mountain gods of the Tibetan world as presented by Meyer (1987) while Bramding Shyong could be considered to be the vertical axis which links the different stages of the world: "For the community whose site he protects, the mountain-god is not only a centre of spatial cohesion, he may also be the mythic ancestor of the origins both of the territory (the world) and of its inhabitants (men)".⁵⁹

Furthermore, toponymy provides indications on the former sites of Titung settlement, at Jyajung Gombo, "Temple of Red Monkeys" where the ruins of a temple and a meditation cave can be found, at Dzong, the "Fortress", at Chuta Chyet and Chuta Gang, "Bench of the Mill" and "Ridge of the mill", and at Cho Barmo (?). The Dimdungs would then have settled at Kusu Gombo, "Temple of Penitence", the ruins of which are still visible. It is said that a terrible struggle between the Titungs and Dimdungs occurred in this place. Nearby, at Molam Deva, "Place for Prayer", the fragments of a snake's body, cut up and turned into still visible stones, would testify to this struggle. At Kusu Gombo, holes in the rock are thought to represent holes made by the bird *Khyung* that killed the Titung lama in his struggle against Sanga Raja, from the Dimdung clan.⁶⁰ Since this struggle, the Titungs are no

⁵⁸ *kunggar* are stone monuments set up on a base, erected to the memory of a *bompo* shaman.

⁵⁹ See STEIN, *Épopée de Gésar*, quoted in MEYER, 1987. Translated from French.

⁶⁰ TOFFIN, MEYER, JEST and GARINE, 1986.

longer allowed on the mountainside. The Dimdungs subsequently settled at Gar Chyet, "Bench of the Mud", at Dingchet, "Meeting Place", at Sur Ku, "Nine Rocky Edges". Tsona Pang was one of the places where they met and made decisions.

The Blendens supposedly arrived next, at the close of the XVIIIth century, at the time when Prithivi Narayan Shah reigned over the newly unified Nepalese Kingdom. This king is said to have offered the Salme territory as a reward to the Blenden lama, Cheku Dorje, originally from Jharlang in Ankhu Khola. The story of this donation and of Cheku Dorje is common knowledge among villagers who always take pleasure in telling it, all the more so as, for once Tamangs come across as enjoying a better status than Brahmans. This original account⁶¹ relates the aversion of the Tamangs for the southern lowlands, the latter's insalubrious and unhealthy aspect, and their preference for the highlands. Indeed, Cheku Dorje refused the land initially offered by Prithivi Narayan at Sallyantar, near Arughat, at the confluence of the Buri Gandaki and Ankhu Khola, since "it is infested with mosquitoes and ghosts which poison the lives of women in this locality". The land in the Batar plain, near Trisuli, which he was then granted, was no better as far as he was concerned, as "this region is covered in red earth that is slippery in times of rain and arid in sunny periods. It is only in Salme, where he flew to, that he judged the climate suitable".⁶² He took up residence at Gyalkap, the "Palace". The toponyms Blenden Pang, "Meadow of Blenden", Gyalkap Kharka, "Pastures of the Palace" enable us to follow

⁶¹ Recounted in *ibid.*

⁶² It is difficult to know whether geomancy played a role in establishing the village of Salme. The fact remains that the mountainside, as we have seen it, has an easterly exposure and all the houses open onto the east, an auspicious direction *par excellence*, both in Buddhism and in Hinduism. Furthermore, the main temple in the village, in Pelche Gombo, as well as the whole of the village of Salme overlooks the Trisuli Valley to the east and its road leading to Kathmandu is lined to the west with gentle bifid ridges shaped out of red earth. It is limited to the south by the Salankhu Khola, which is itself dominated by Mount Fuygri. Finally it is surrounded in the north by the *pahiro's* gullied schist then uphill by the snow-covered Ganesh Himal Range. In fact, its location is based on criteria that correspond to rules evoked by MEYER (1987): "It is a good thing that a site is marked out by the 'four pillars of the earth': an open space to the east, a rise to the south, a hill to the west and curtain-like mountains to the north [...]. Similarly, prosperity is ensured by the presence and the integrity of the 'four protectors of the earth': to the east, the light-coloured tiger in the appearance of a road or a pale-coloured rocky formation; to the south, the blue turquoise dragon, a waterway; to the west, the red bird, red earth or rocks; to the north the bearded tortoise, gullied schist or a mass of rocks" (Ri-chos mtshams Kyi zhal-gdams las sa-dpyad rin-chen kun-'dus, in MEYER, 1987, p. 121). Translated from French.

through the places occupied by Blendens. Another historic place for Blendens is Gombo Chyet, the temple where Cheku Dorje, who meditated there, died. In conflict at one time with the Blendens, the Dimdungs left Salme. They came back to it later, when a Dimdung lama married one of Cheku Dorje's granddaughters.

It is said that the Gyeldang Ghale arrived later from the west. The first was Nyemal Ghale, originally from Jharlang. He initially settled at Drang Chyet and at Sur Ku, then at Ghale Gaon.

The names of places occupied by these different groups on their arrival on the mountainside are mostly Tibetan, recalling their ancestral origins. Moreover, the charcoal-based soils testify to the clearing of land and slash-and-burn that these first occupants of the mountainside practised.⁶³

More recently, the Blendens founded the hamlets of Gunsä around 1820-1830 and of Hop in 1910-1915. The creation of these settlements is no doubt related to an extension of the cultivated territory.

Bamen Gora, "Stable of the Brahmans", is a toponym that also reflects a recent past. A bovine herd (60 to 70 heads of cattle), belonging to the priests of the Nuwakot temple at the Rana period (1846-1951), occupied this place. Up until 1959, from June to November, the animals would graze on Salme land, especially on abandoned or fallow land.

The stages in the occupation of the mountainside on the whole show a progression of settlement towards the south, but it is interesting to note that today, due to a reactivation of the *pahiro*, among other things, there is a trend to relocate to former sites in the north, such as Pangling, downstream from Dzong, formerly occupied by the Dimdungs. Besides, it is Dimdung families who go there today.

In addition to former settlement sites, the territory includes anecdotal historical sites, such as that of Mar Muwa, "Lost Gold". Some activities in day-to-day life –though for some probably ancestral– still performed in these places, are evoked at Chuta Chyet, "Bench of the Mill", Khol Gang, "Ridge of Oil Press", Miab Yung Nen, "Resting Place of Whetstone", Pi Kli Potso, "Boulder of Slag", Tsam Tsapa, "Squaring of the Bridge", Gol Potso, "Boulder of Charcoal".

⁶³ SMADJA, 1986.

A closed territory

The community's identity is also expressed at borders by certain toponyms conveying a very marked territorial unit.⁶⁴ Contrary to the Indian world – where, according to Malamoud (1976), the village is more like a network of institutions than a fixed territory, inspiring a low "territoriality" – or to the Indo-Nepalese world where the village is often difficult to define, as shown by Ramirez (1990), the Salme territory is closed, strictly demarcated. Sacred doors, *Kani*, mark the entrance to the mountainside. Divinities protect and keep watch over its borders where conflicts have arisen regarding resource management, as testified by certain accounts associated with place names. Several toponyms make reference directly or indirectly to this territoriality.

Thus, at 3,150 metres in altitude, at the localities of Sundung and Saljung Bra, upstream from the Bramding Shyong torrent, at the junction between crops and the forests, between Salme and Anku Khola, the main divinities of the mountainside keep watch like sentries. They are supposed to consult each other and protect the territory from their promontory. According to the legend, they took revenge on the inhabitants of Kimtang in Anku Khola, who had come to steal wood in this sector, by sending horrendous hailstorms over their village.

About Sing Lha, "Naked (or Moving) Heights", a summit at 4,000 m in altitude overlooking the valleys of Anku Khola and Trisuli, the story is told whereby a religious structure, a *kunggar*, was erected for the *bompo* Shamans from Sertung, Timling (villages situated in Anku Khola) and Salme. However, the *bompos* from the first two communities took possession of the place, chasing away the one from Salme. So the *bompo* from Salme, Kamba Nursing, made sure that the inhabitants of Sertung and Timling became quite mad, eating grass and being incapable of standing up. He made everything move ("*sing sing*"), trees and stones, as if there was an earthquake. To calm the Shaman's wrath, the villagers from Timling and Sertung apologised, bringing offerings, especially some *rakshi* (alcohol made from cereals), gave him their hat, and the *bompo* from Salme became respected and very important.

At 2,930 m, the Gongga Banjang pass also marks the border, because it is the pass where one pays tribute (*gonga*). Territorial resources have also been the subject of conflicts, with villagers from Salme and Balche fighting here and there on the pass over the appropriation of pastures.

⁶⁴ See also on this subject TOFFIN, MEYER, JEST and GARINE, 1986.

This very marked territoriality again emerges in the texts recorded by Höfer (1997) on the cult of the village territory among Tamangs from the Trisuli area (Frame 11), and it seems to be common to Tamang populations. The consequence of this is that ills are associated with strangers, especially with those from *lung* milieux.⁶⁵ Thus certain disasters are attributed to the *māi*, considered to be *Nepali Bhut*, spirits from the Kathmandu Valley. *Māi* are reported on the mountainside at Pada Gang, "Ridge of Rhododendrons", at the boundary between Salme and Bumtang, as well as at Boldo Gang, "Ridge of the Divine Word", a hamlet that was constantly threatened by further gullying of the *pahiro* and that has now been destroyed. As ambivalent divinities, the *māi* would be the source of illnesses that they could eventually cure if they were properly revered. They are particularly invoked to cure children. Höfer (1994) indicates that in Tamang country they are perceived as intruders and must be escorted back to the Kathmandu Valley.

Similarly, the crossroads (*lamto*), mentioned at the western border of the mountainside at Lamto Pang and Lamto Kharka obviously indicate an opening onto other regions with which exchanges can be made, but they also represent dangerous sectors, evil places where malevolent spirits, especially foreign ones, lurk.⁶⁶ During exorcism rituals, the Shaman, in his search for the agents that might have harmed his patient, goes to look for the evil spirits at the crossroads: "*Let us go and find the harmful agent which soars near the crossroads.*"⁶⁷ The account about the *nāg* from Jharlang which was banished from the Salme mountainside (see above) also refers to the notion of the other, stranger, troublemaker.

In the 1980s for many villagers, village borders were the borders of the known world. Kathmandu was still called Nepal, though few of them had ever been there. Only a rare few had travelled abroad. In 1996, their horizons had widened, temporary work migrations led to international destinations and a "Nepalisation" of society seems to have taken place. Yet at the same time, the borders of Salme territory seem to be even more marked, in relation to stricter management of resources that is accompanied through written legislation by more and more explicit, rather than implicit rules.⁶⁸

⁶⁵ See note 15.

⁶⁶ This is hardly specific to Salme, but can be found in many places in Nepal (see, among other things, Frame 6 by P. Khakurel, Chapter I).

⁶⁷ HÖFER, 1994, p. 97.

⁶⁸ For more details, see Chapter XV by B. Ripert.

Toponyms and the accounts associated with them confirm villagers within their borders and in their identity that partly depends on their position with respect to others, those on the other side of the mountain slope.

Frame 11

**Excerpt of Ritual Texts Related to the Cult of the Village Territory
among Tamangs from Trisuli Area. Texts collected by
A. Höfer (1997)**

hai, may incense be burnt, may (you) be incensed!,

(I) have offered golden rice with (my) hand.

Amid the (constellation of the) auspicious stars, amid the (constellation with) the auspicious sun, in the sun's beam of light, (I) have come to offer a sacrifice, have come to prepare a sacrifice, O syibda-neda of the area.

(O you who) as to origin, originated in the area of Kalliri, (and)

as to residence, hai, are residing in the area of Bhokteni, O syibda-neda of the area,

hai, protect, shield (us)! [...]

In (our) area, provide steps (for us) when walking on the steep slope, provide a bridge (for us) when walking across water (river)!, [...]

[...] let the year be a good one –will offer a sacrifice for a good year–, ward off tempest and hailstorm (?), ward off the insects (?), ward off the firebrand (?),

hai, protect, shield the precious cattle, the precious yak!,

protect, shield the masters, the mistresses (of the households), the children, the youths in (our) area!,

protect the crops, remove the illness, remove the epidemic, protect, shield (us), O syibda-neda of the area! [...] [P. 151.]

In incensing (from the region) of the upland (I have incensed with the smoke of the syukpa phasyu, in incensing (from the region) of the lowland, (I) have incensed with one hundred (portions of the) smoke (of) the resin of the jesyin, O syibda of the area, dear Master, may (you) be incensed!,

in incensing from the meadow, (I) have incensed with one hundred (portions of the smoke of the) pansan-lugu, in incensing (from the region) of the water, (I) have incensed with one hundred (portions of the smoke of the) chyuden-dermo, O syibda of the area, dear Master, may (you) be incensed!,

in incensing (from the region of) the steep slope, (I) have incensed with one hundred (portions of the) smoke (of) the brajyu of the steep slope, O syibda of the area, dear Master, may (you) be incensed!,

in incensing the syibda of the area, (I) have incensed with one hundred (portions of the smoke of) a million syinne-nargu, O syibda of the area, dear Master, may (you) be incensed!.

From below in [...] (our) own area of Bhokteni, from within (our) dwelling place on soil and stone, (I) have incensed, O syibda of the area, dear Master, may (you) be incensed!, [...] [P. 156.]

... O syibda of the area, dear Master, who resides majestically in the area of Kalliri, may (you) be incensed! [P.157.]

A settled population forever on the move

This closed territory is nevertheless a territory that constantly undergoes the coming and goings of travellers. The paths, of which there are many on the mountainside, do not, however, bear a name, with the exception of the "Crossroads" already mentioned. Only stages on a route are named. For inhabitants of the region, transport is on foot, with no help from pack animals. Heavy loads are carried on men's backs up steep slopes and often in the blazing sun. *Nen* are resting places where the traveller can stop for a while. They are arranged so that the *doko* (N), bamboo baskets, can be easily set down and where at least one tree always provides some shade. Each named without exception, they line the mountainside punctuating the walk. Toponyms that denote them, along with those related to trees, come in greater numbers; they are moreover sometimes associated, as for instance Krosying *Nen*, "Resting Place of Sumacs", Giangshing *Nen*, "Resting Place of Alders"...

Nen are daily resting places when it is necessary to carry wood, crops, and fodder from one ecological belt to another. Stops are also made here on longer runs, though in this case, the journey can be broken up by resting in shelters under rocks, called *U*. Under the "*U*", of which there are plenty in the forest, one can take shelter from the rain, take refuge from wild animals and leeches, spend the night there and cook food; one always finds a place to light a fire and a watering place nearby.

These many resting places are, among other things, an indication of how difficult the walk is on these steep slopes. But *nen* and *U* do not only symbolise resting places, they are also meeting places where one can share a cigarette, a snack, small talk and a few relaxing moments. They are a component of the population's way of life. They are also and above all the sign of travel. They are the mark of a society which, though settled today, is

always on the move over the slope, exploiting different belts. While the *nen* are more the symbol of a daily activity and of an agrarian space,⁶⁹ the *U* are associated with trade and transhumance activities. Destinations for transhumance over more or less long periods,⁷⁰ *kharkā* (pastures), as already mentioned, all possess one or more *dungang* (permanent stone stables) that are also used as overnight accommodation for shepherds, herdsmen and their herds. The word *dungang* is not mentioned in the toponymy, but that of *kharkā* includes it implicitly. In addition, the toponyms Yarsa, "Summer Dwelling", and Gunsā, "Winter Dwelling", recall population movements in former times depending on the season and transhumances, whereas today they are fewer. The practice of *gora*⁷¹ is somehow what remains of this way of life. Mobile "stable-houses" sheltering both men and herds and moved from terrace to terrace as the fields are manured, the *gora* are places where, in the 1980s, villagers still spent almost six months a year, a time they preferred, so they said, to the time spent in the village. Today this system, that was associated with common grazing land, is gradually disappearing to make room for fixed shelters, *brang*, from where manure is taken to the fields. Amounting to only a handful in the 1980s, *brang* have since increased in number, adding to the landscape a significant number of buildings scattered over the mountainside. The *gora*, symbols of travel, of a journey, call to mind Melanesian pirogues, "floating houses", studied by J. Bonnemaïson (1990), that provide a certain security and at the same time allow movement over the mountainside. Their increasing scarcity is an important sign of the changes occurring in the Salme village community.⁷²

On a yearly timescale, travelling time is winter when there are few farming activities, whereas the monsoon period is one of arduous activities in the fields; at this period, movements, rendered difficult anyway, are a rare occurrence.

Reading the toponym map thus highlights two ways of perceiving space: a space for settling, that of dwellings and crops, which is overlaid by a space for travelling whose resting places are symbols or geosymbols such as defined by J. Bonnemaïson (1997). One can therefore consider that the

⁶⁹ This observation is valid for Salme that is not a place of passage; elsewhere, the *nen* or *cautārā* (N) are also stages on long trade routes.

⁷⁰ Transhumance is carried out in high-altitude pastures on the mountainside and, during the monsoon, on those situated at the foot of Ganesh Himal.

⁷¹ The equivalent of *goth* in Nepali, but mobile.

⁷² See Chapter XV by B. Ripert.

population of Salme makes up a settled society for which mobility remains fundamental. Contrary to the Melanesian space described by J. Bonnemaïson (1990), Salme territory is demarcated and closed, but it does not exclude, as in Melanesia, a "reticulate" space of travel, a meshing only the nodes of which are named: the *kharkā* with their *dungang*, the *U* and the *nen*. The children's drawings still illustrate the closed territory within which, in a "molecular structure", "atoms" incorporating plots of crops and houses are linked to each other by a network of paths (Figure 31). Paths, always well represented, are lined at regular intervals with *nen* (Figure 32).

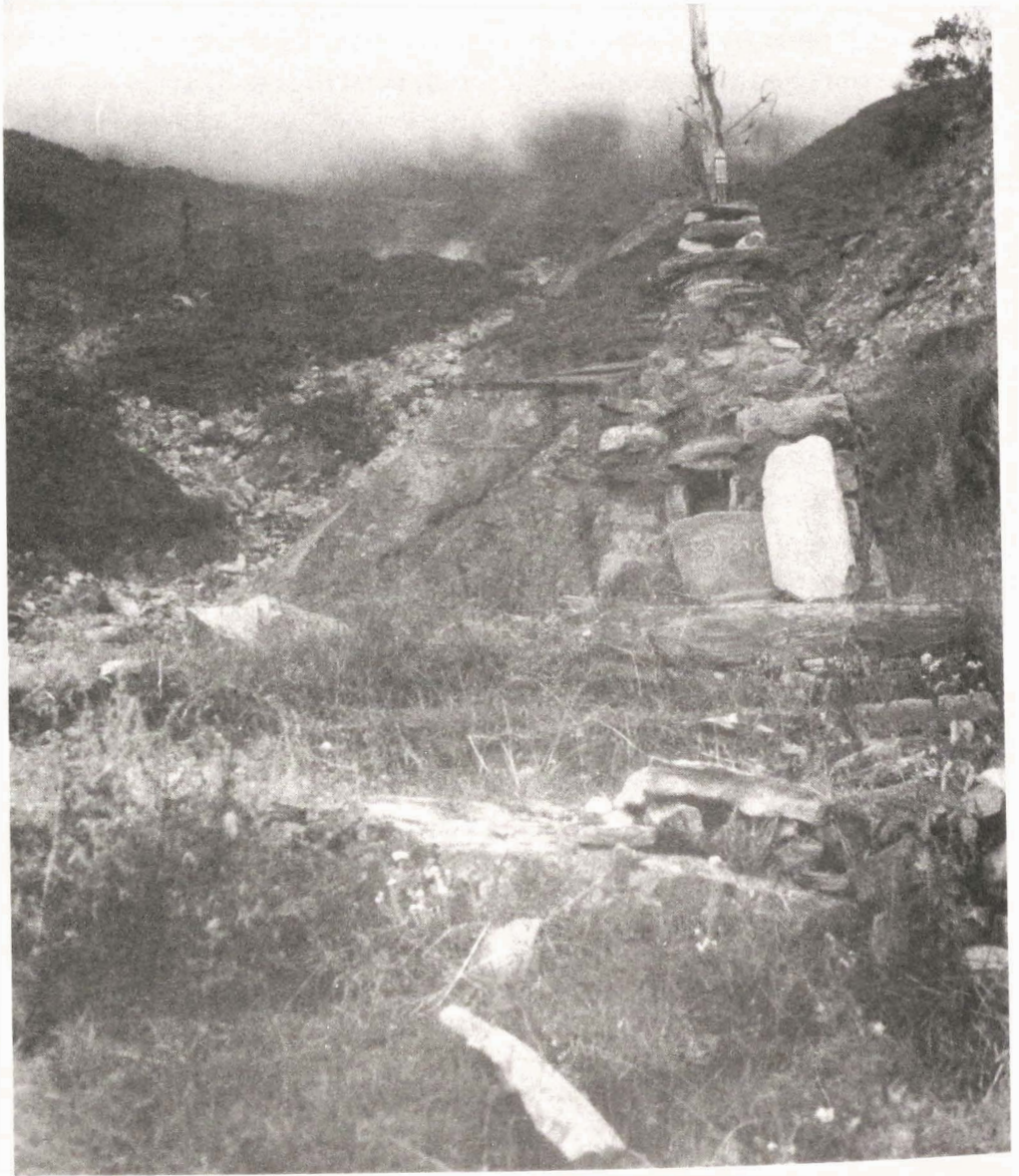
In addition to the space travelled by laymen there is the ritual one of the *lambu*, who goes to various sacred places⁷³ to invoke and revere the divinities of the territory, or the ritual but dreamlike one of the *bompo* Shaman "creator of a symbolic topography".⁷⁴ Thus in the religious sphere, journeys in space are also constant, whether they are expressed in discourse or in practice. Cutting the sacred pole of the *bompo* or cremation rituals carried out at altitude still illustrate this.

The religious territory

Religion is present everywhere on the territory of the Salme mountainside, but only the buildings of Tibetan Buddhist religion are directly visible in the landscape and usually mentioned in the toponymy. This particularly involves the *gombo* temples in which lamas officiate. They are all named, whether they are in ruins, fallen out of use or frequently used. The Dimdung clan and the Blenden clan each have their *gombo*. The Dimdungs' *gombo* is situated in the upper part of Thulo Gaon, though it was formerly at Kusu Gombo where there are now only ruins. The Blendens' *gombo* is located at Pelche Gombo, whereas before it was at Petangtang (Gombo Chyet). An old *gombo* of the Titung clan is reported at Jyajung Gombo, three others at Boldo Gombo, Neje Gombo and Bretsa Gombo. Certain stupas are listed in the toponymy, those of Dzor Mane, Mane, Mane Chyet. At Ombriba, a cairn is made of engraved stones. Other stupas were reported when information related to toponyms was collected: at Gyalkap Kharka, Lapcheko, Yarsa Kharka, Bamen Gora, at the summits of Sing Lha and Machembo, at the Gongga Banjyang pass. Sacred stone doors *kani*, decorated with religious

⁷³ In Gyentso Wang, Kimlu Gu, Gyu Luba, Tharnu Gang, Bakai Tso, Sundung, Bar Lha, Paatal Sung, Boldo, Neje Gombo.

⁷⁴ LOSONCZY, 1990.



(J. Smadja, July 1982)

Photograph 44
Mane at the edge of the papiro

motifs, indicate the entrance to the village at Ser Gang, between Salme and the *pahiro*, at Dhoka Dhunga on the right bank of the Nadang, as well as at Pada Gang, further south, on the boundary between Salme and Bumtang. In addition, *ser-tho* (T), a pile of three stones intended to keep away hail, is built each year by the lamas at Gombo Tso, Ombriba Gang, Omgang, Yung Kapkap, Dhoka Dhunga, here and there over the cultivated sector.

The only visual evidence making reference to Shamanism is the *kunggar* (see above), which have been erected at Pelche Gombo, Sundung, Neje Gombo, Tala Gang and Sing Lha, as well as the *bompos'* sacred poles mentioned at Dungma Sa, "Land of the Sacred Pole", and at Pasam Tsapa Tso, "Summit of the Cutting of the Sacred Pole".

Sacred woods, at Tharnu Gang, "Ridge of *Euphorbia*", at Gar Gang, "Ridge of the Mud", and the main one, at Bar Lha, "Powerful Divinity", house territory divinities and are strictly protected by the populations. The one at Bar Lha, in particular, forms a remarkable unit in the cultivated sector. This wood was once partially cultivated, and one can still make out the shape of the terraces today. However, the owner of the plot of land fell ill and he was told that if he continued to cultivate it, he would die. So he left the wood to grow to its present size. It became sacred and villagers no longer have the right to take cuttings, not even of dead wood. Its very modest size does not make it a very fearful place and it can be easily circumvented if one wants to avoid it.

As for Hinduism, it is materialised in the form of small sanctuaries, *than* (N), surrounded or not by small walls, and that are most often dedicated to Bhume.⁷⁵ Bhume *than*, only located in the cultivated sector, are listed at Gar Gang, Gyentso Wang, Gunsa, Hop, Kortung, Pam Parang, Wadi Ble and Yarsa.

For the rest, religion is not directly visible in space, at least not for the layperson. *Nāg* occupy wet places, sources, lakes, hedgerows. Territory divinities are represented by lithic forms. A boulder stuck in a field may be one of them, but the uninformed observer would have difficulty in recognising it as such.

At Salme, Bhume, the *lu* or the *nāg* are all considered to be *shibdana*, but comments regarding divinities in different localities leave one to

⁷⁵ Divinity protecting the territory, to be more precise, in charge of the cultivated sector. see *supra*.

think that divinities really protecting the territory reign only at the summits. "Ama jasto" (N), "they are like mothers" so the villagers say, which justifies their anger when villagers behave like naughty children. In fact it seems that even though they threaten the community in the case of bad behaviour, they reserve their torments for strangers, for villages beyond the mountainside. They keep watch on the borders, and concerning problems specific to the mountainside, they would delegate to the *nāg*, a kind of tiny unpredictable, unruly genie, whose character can be linked to one that is just as unpredictable and haphazard, that of erosion, especially in the *pahiro* sector. *Nāg* are much more uncontrollable and irritable than non-ophidian divinities at the summits, their action is more local, whereas that of the summit divinities concerns protection of the territory as a whole. As for Bhume, located in the cultivated sector, it is said that she more especially rules over crops. Associated with a rain divinity (see above), her nature is particularly ambivalent, like that of all the divinities residing in wet places, springs and waterways. Demons *mang* only rarely appear in the toponymy due to their essentially roaming character, hence the great difficulty the Shaman has in neutralising them. However, a reminder of the places from where they were driven away appears in the toponymy, for instance at Mang Gyang Ble, "Gentle Slope of the Chased Away Demon".

Frequenting space and its times.

Perceptions, dangers, fearful places, pleasant places

Salme territory is marked out by dangers. Some of them are indicated by the toponymy: poisonous bushes, torrents infested with leeches, precipices, etc. Some places, we have seen, must be used or frequented with caution: all those where the *nāg* reside, or crossroads. Others correspond to unlucky places, haunted by the souls of the dead and are particularly feared, especially at night. This concerns cremation sites often located on rocky hillocks and mentioned at Shyel Bum, "Large Crystal Boulder", at Solshing Gang, "Ridge of Ring-Cup Oaks", at Dursa Potso, "Cremation Boulder", but also at Chume Bu, Dang Chyet, Gombo Chyet and at Tengar Chyet. This also involves places where ghosts (*singo*, in Nepali *bayu*) roam around: Panda Bari, "Field of the Cluster (of stones)", is haunted by Tsekyap, a man who died at this place and who torments the living; at Pasam Tsapa Tso a *singo*, named Chechen and who is said to have been killed by a tiger, roams around. These places have the same negative connotation as the forest or crossroads.

As opposed to this, certain milieux are considered to be pleasant, since they are at high altitude, the protecting divinities are present, the view is always clear, and they are associated with the cold and with winter. This is most particularly the case of Boldo, Omgang, Sing Lha, Sundung, Yung Kapkap or Sem Tso U, "Shelter under Rock of the Pleasant Summit".

All these perceptions stem from more general oppositions between top and bottom, *lha* milieux and *lung* milieux, gods and demons, day and night, winter and monsoon, pleasant places and unlucky places, time of travel and time of work in the fields, cultivated space and forest, life and death. It is through all these oppositions, this series of spatial alternations and temporal alternations that we can get a better grasp of the Salme territory and its landscape. However, this dichotomy, though complicating a first interpretation of the landscape, is still limiting, since all these perceptions are fundamentally ambivalent. The *lha* divinities are in turn protective and malevolent. The forest is feared though located at altitude. As for resources, the tree, a symbol of life, is greatly valued, whereas the forest space, associated with death, is dreaded; water is both beneficial and evil due to the malicious divinities it transports. The monsoon is perceived as a "descending"⁷⁶ season, an unlucky dark period of catastrophes, of bad omen, a period of disorder in the course of which the land is left to the demons that prevail over the divinities protecting the territory.⁷⁷ This period of intense activity and of illness in man and cattle, is no less awaited as it lavishes its nourishing waters. Similarly, land situated in *lung* milieux shelters demons, but is also thought to be the most fertile for crops. Each element carries in itself its opposite. This being so, generally speaking, it may be considered that for the population of Salme, mountainfolk from, let us not forget, the Tibetan highlands, the winter, altitude, the cold pure air, a bright sky, no work in the fields, travel associated with cattle breeding or trade, are highly valued and are expressed in the territory, whereas wild places with hardly any view, work in the fields and the damp heat of the monsoon are stigmatised.

*

* * *

⁷⁶ Among the Limbus as described by SAGANT (1976), but also obviously among the Tamangs of Salme.

⁷⁷ GABORIEAU, 1982.

The landscape that the Salme mountainside offers us does not correspond to a simple arranged space, but to a territory that a population has appropriated by selecting and naming a certain number of places, all bearers of a meaning constituent of its identity.

It is a milieu regarded as sacred, whose "spatial cohesion" appears to be established in the central part of the mountainside, around the Bramding Shyong axis, at the top of which are Sundung and Saljung, the main divinities protecting the territory, and not far from there the Drupcyo Shyong, "Lustral Water Torrent", and the sign of a "first inhabitant" at Neje Gung. The territory is organised around Bramding Shyong. In the north, the forest has very few names attributed to it, is unappropriated and feared. In the south, the sector is arranged, cultivated, well-ordered, and organised by men. It is all too obvious how important it is for the Tamangs from Salme not to let this sector return to its natural state, to its wild state. There is no doubt that the fine layout of Salme's cultivated territory, the maintenance from which it benefits all year round,⁷⁸ is also an attempt at leaving as little hold over it as possible to demons and evil spirits that lurk everywhere where there are masses of fallen rocks, undergrowth, abandoned land, and so on.

The analysis of the toponyms and their cartography highlights a space presenting hazards that matches and at the same time differs from the one that can be identified by only taking into account the mountainside's physical data. These results may be useful for those who wish to undertake actions to improve the stability of the mountainside or to manage resources, since it is indeed true that "the territory is woven with practices and knowledge indispensable for action that development projects all too often neglect".⁷⁹ With such projects incorporating data on risks perceived and/or recorded over time by the population, it would no doubt be possible to implement development measures adapted to the society in question and thus more readily accepted. The setting up of a forest at the heart of the cultivated sector to stabilize the *pahiro*, for instance, as has already been recommended by experts, would not receive the consent of a population for which that would somehow mean the setting up of "disorder" in a "well ordered" space. However, tree barriers capable of warding off malicious divinities prove to be more appropriate: "Only small walls or hedges that surround the fields are supposed to bar the way to small divinities (from

⁷⁸ See SMADJA, 1986, 1992.

⁷⁹ BLANC-PAMARD, 1999, p. 76. Translated from French.

the forest)", as Marie Lecomte-Tilouine (1987) tells us. Similarly, optimal management of resources may be prompted by the selection made by the villagers and by their knowledge of the recorded species, their use and their evolution in time. The tree, as long as it does not belong to the forest, appears to be widely valued and any attempt at a move towards increasing the number of individual trees can only be encouraged. This explains the successful outcome of numerous such experiments in Nepal.

Through this study, I have attempted to "restore substance to the place",⁸⁰ to restore to it an identity endowed with meaning, both on an ecological level and depending on its use⁸¹ or its perception. By demonstrating the links the Tamangs maintain with their territory, the way in which they portray it and, simultaneously, the role played by space in their culture, I hope to show the point of integrating what may be called a form of "Tamang geosophy" into "scientific" knowledge. The few drawings illustrating this text provide part of this geosophy and provide a good picture of the Salme territory and landscape as perceived by the population (Figure 31). On these drawings, the "dense" forest of the upper part of the slope is never represented. In the lower part, the cultivated territory, men's territory, is marked off in the west by ridges where the main divinities reside and in the north by the Branding Shyong. A wood that is not as dense as the forest and that is better controlled dominates the living and crop space that is, itself, perfectly laid out. Here the main temples and stupas, the waterways –the path crossing the Tar Shyong not being usable– are indicated and, in this closed territory there is a network of paths where there is non-stop travel.

⁸⁰ BONNEMAISON, 1990; see also HOFFMANN, 1995.

⁸¹ BLANC-PAMARD, 1995.

CHAPTER VII

A Foray into Ladakhi Place Names

Pascale Dollfus, Valérie Labbal

The place names analysed here were collected in Central Ladakh, in two villages both situated on the right bank of the Indus River, and watered by snow-fed streams.

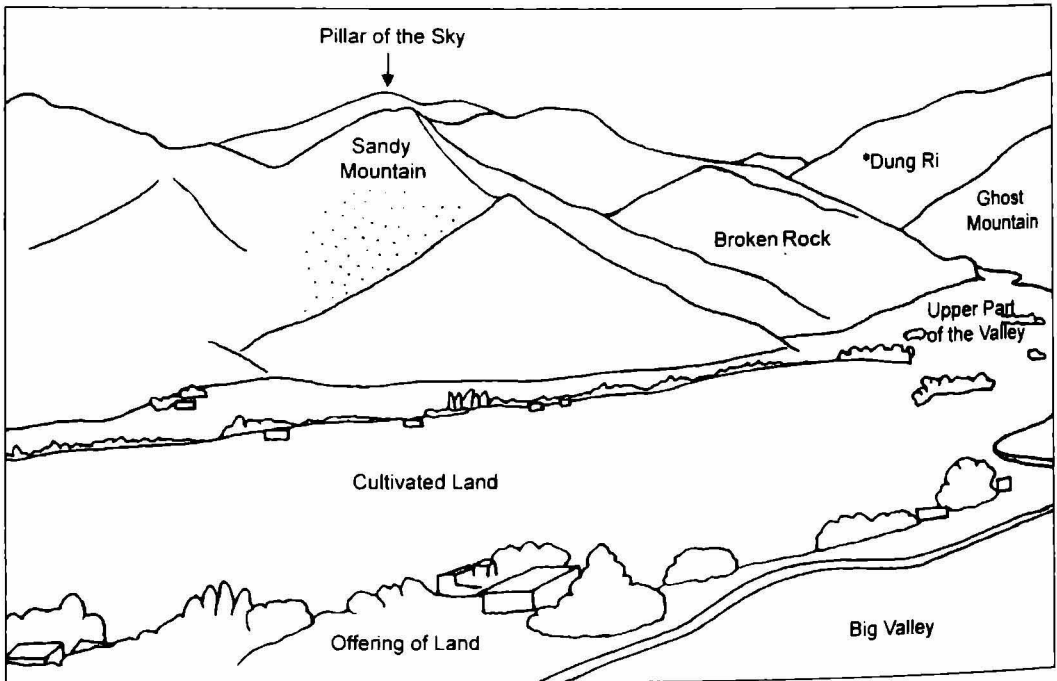
Sabu is located in Upper Ladakh, six kilometres to the east of the town of Leh (Photograph 45, figure 36). The oasis stretches out into a long south-facing valley, bordered by rocky spurs with no particularly prominent summits, but interrupted by small glens and valleys. Downhill, it opens out onto the wide Indus plain to which it is joined by a vast and barren alluvial fan. The fields rise from 3,400 to 3,950 m in altitude, over a distance of nearly five kilometres. This "Offering of Land", *sa phud*,¹ as the name of the village when originally uttered implies, proves to be generous to men. It is, so they say, one of the most fertile valleys thereabouts. Wheat is not cultivated above 3,600 metres, but barley is raised far above the permanent dwellings.

Hemis-shukpa-chan is situated in Lower Ladakh, some 80 kilometres west of Leh, and a three-hour walk away from the main road. (Photograph 46, Figure 37). A steep path, following the course of the fast flowing stream coming from the glacier above, leads up through a narrow gorge to the first fields, and summer houses located among orchards at 3,600 m in altitude. The valley then suddenly widens onto an open space containing terraced-fields scattered around clusters of houses. At 3,950 m, on the north-western edge of the oasis, fields give way to damp and grassy land, dotted with numerous springs. Nearby stands the sacred grove of juniper trees (*shug pa*, *Juniperus sp.*), from which the village takes part of its name; the suffix *-can*

¹ *phud* denotes a "thing set apart, used particularly of the first-fruits of the field, as a meat- or drink-offering, in various applications". *rdo phud*, *sa phud* an offering of stones or earth when a house is built. JÄSCHKE (1980, p. 343-44).



(V. Labbal, August 1993)

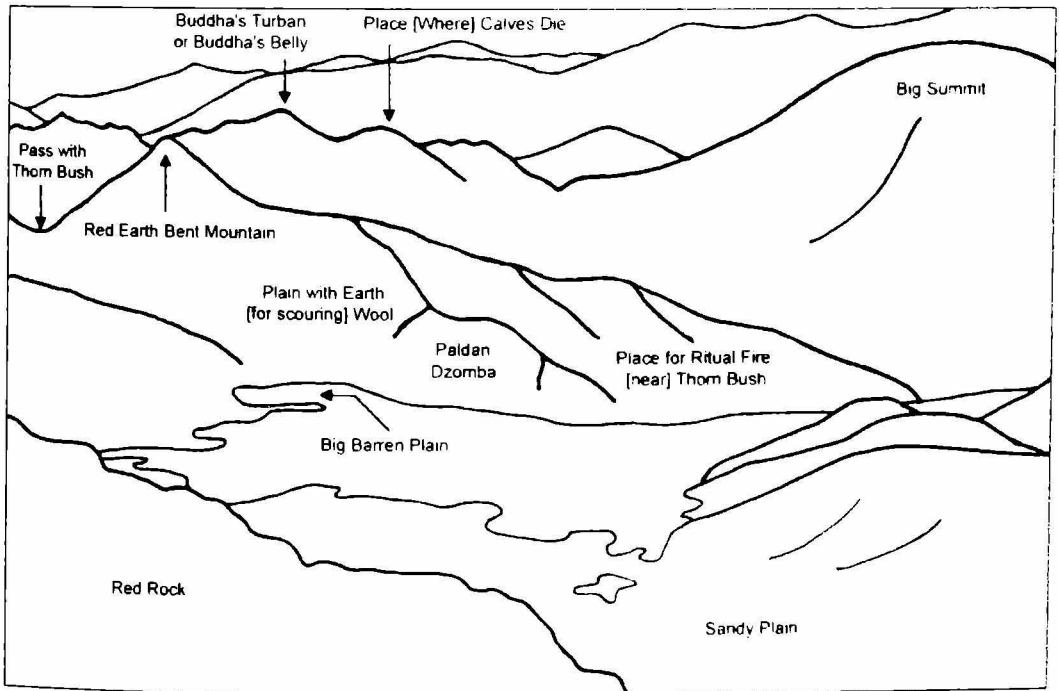
**Photograph 45 and figure 36**

Sabu. In the foreground are the fields of Lungs, at about 3,500 to 3,600 m in altitude

V. Labbal



(P. Dollfus, August 1984)



Photograph 46 and figure 37
Hemis-shukpa-chan. The village lies at an altitude of 3,650 m
P. Dollfus

means "provided with". Regarding *he mis*, it supposedly derives from the Sanskrit *hima* meaning "snow".²

Our corpus associates names denoting both built structures such as pens, houses or groups of houses, cultivated and grazing lands, along with prominent elements of the landscape to which man does not have access except with his eyes, such as high summits, peaks and ridges. Whereas the corpus recorded at Sabu favours used and useful places such as fields and pastures, the one for Hemis-shukpa-chan is centred on mountains.

These toponyms are drawn from everyday language, a dialectal form of Tibetan,³ and are supposed to be meaningful. Therefore we consider it legitimate to propose the locally-provided translation for it, even if it is sometimes risky. Indeed, the homophony of certain terms or changes of pronunciation over time may lead to confusion, even to mistaken interpretations on the part of the inhabitants themselves. In Sabu, for example, whilst most of the villagers explain the name of the locality Yulgog, occupied by a vast irrigation reservoir, "Ruined Canal" (*yur gog*), a native notable one day made the remark that the reservoir in question had been dug at the place of the original fort and village, no longer in existence today; the toponym "Ruined Village" (*yul gog*) therefore calls for interpretation and translation. Similarly, regarding the canal named "Saser", people hesitate to translate it by "Yellow-land Canal" (*sa ser yur ba*) or "New-land Canal" (*sa gsar yur ba*). In fact, the latter proposition, though pronounced slightly differently from the current name, seems more appropriate. As actually stressed by inhabitants from the houses nearby, the area irrigated by this canal is characterised more by its late colonisation than by its yellow colour. Finally, in Hemis-shukpa-chan, the translation of Sta mgo, naming a village sector, by "Horse's Head" (*rta mgo*), although commonly admitted, is hardly convincing. The villagers give no explanation, but comparison with other sites leads us to translate this toponym by "Horses' Gate" (*rta sgo*), a widespread name in Ladakh denoting the place on the approach to the royal residence where horsemen dismount.

Among the hundred and thirty-five or so place names listed, all attributed "very many years ago", only about fifteen remain obscure. When

² According to Sonam Phuntsog, a local scholar, Hemis-shukpa-chan is a misspelling of Hay-shuk, with hay meaning "boulder" and shuk(-pa) "juniper" (personal communication).

³ Only two names include non-Ladakhi words: one is Urdu, the other from the Indo-Iranian "Dardic" language. Ladakhi terms are transcribed according to Wylie's system.

asked about these, villagers simply reply, "it's a place name", with no further comment. In Tables 11 and 12 in the appendix, we have transcribed them exactly the way our informants spelt them.

Following the example of Tibetan, Ladakhi is a monosyllabic language in which the minimum phonemic and semantic unit is the syllable. From a linguistic point of view, the names collected occur in both simplex and compound forms. Simplex forms consist of an adjective or noun: "The Peaked One", *gzar mo*; ⁴ "Furrows", *sul*; "Junipers", *shug pa*, etc. Compounds, which are greater in number, generally include one term naming the natural feature of the landscape they denote (i.e. glacier, *gang ri*; mountain, *ri*; hill, *sgang*; valley, *lung*; pass, *la*; low and open pass, *kong ka*; basin, *sding*; arid plain, *thang*; grassy and wetlands, *spang*; spring, *chu mig*), and a second element qualifying it, either an adjective ("Flattened Open Pass", *kong nyag*; "Big Summit", *ri mgo che...*) or a noun ("Mist Mountain" *rmogs ri*; "Glacier of Crystal, *shel'i gang ri...*). Others are formed by a common name followed by the suffix *-can* meaning "having, possessing, endowed with, be present, being provided with, like" ("Snow-covered", *kha can*; "Like a Jug for Beer", *chab rkyan can*; "With Apricot Trees", *cu li can*), or by a pair of juxtaposed adjectives ("Sandy [but] Pretty", *bye ma bde mo*; "Wide [then] Narrow", *zheng can phra mo*). Still others are expressed in the form of a proposition generally including a verb. "The Place Where the Horse Died", *rta shi sa*, ⁵ denoting an arid plain situated on the borderlands of Sabu oasis, illustrates this last category.

Furthermore, many place names, whatever their grammatical form, function as a pair, integrating a vertical dimension introduced by "upper" (*gong ma*) as opposed to "lower" (*yog ma*, *'og ma*): "Upper Turret" (*spe'u gong ma*) and "Lower Turret" (*spe'u yog ma*); "Upper Spring" (*chu mig gong ma*) and "Lower Spring" (*chu mig yog ma*), etc. ⁶

Naming mountains and barren plains

Beyond irrigated fields extend the so-called "empty land" of mountains and barren plains, frequently travelled by villagers in the course of their

⁴ The second syllable, *mo*, is an affix specifying the gender (feminine).

⁵ In these constructions, nothing expresses the tense of the verb, or the sign of the plural or singular. Only the context tells us if it is fitting to translate *rta shi sa* by "Place [where] the Horse Died", "Place [where] Horses Died", "Place [where] Horses Die", etc.

⁶ It involves names of canals and village sectors within the oasis, as well as names of summits, ranges and valleys situated inbetween. Yet it is also used for larger geographical places such as a village or region.

gathering and herding activities. In Sabu, it is the names of glens and valleys that were exclusively brought up by the men, women and children when questioned, all in relation to shepherding the flock (Figure 38). In Hemis-shukpa-chan, the corpus originally drawn up in collaboration with a privileged interlocutor, a learned man acquainted with traditions, denotes the special attention given by the inhabitants to the summits that are for the most part named.

Size, shape, and appearance

Oronyms are mainly descriptive. They essentially refer to the visible, to what the eye perceives: size, shape, appearance, colour, type of the soils and plant cover.

Next to the widespread names such as "Small Mountain" (*ri chung se*), "Large Grassy Wetlands" (*spang po che*) or "Wide Valley" (*rgya lung*), size is conveyed by many metaphoric figures taken from everyday life. These are represented in Sabu by "Pillar of the Sky" (*gnam'i ka*), such a high mountain that its summit seems to support the sky, "The Voracious One" (*hab gdang*), a large open valley that looks like a wide-open mouth ready to gobble up heaps of food; in Hemis-shukpa-chan, one finds "Big Shadow" (*sgrib chen mo*), such a high rocky face that it throws a huge shadow over pastures lying at its foot.

Names describing shape are all just as expressive. "The Peaked One" (*gzar mo*), already quoted, is a mountain sharpened "like the tip of a well-whetted knife". The eloquent "Jagged Summit" (*cong cong rtse*) speaks for itself; the same goes for "Boulder-lid" (*pho long kha leb*). "Big Upper Chain" (*rgyun chen mo gong ma*) and "Big Lower Chain" (*rgyun chen mo 'og ma*) denote two very long mountains that, one above the other, "stretch out, running endlessly like rivers" and the "Fat-wrapped Old Lady" (*rgad mo tshil khur*) is a squat mountain with padding. "Bride and Maid" (*bag ma dang ya to*) name two small triangular hills standing side by side. Finally, "Like a Jug for Beer" (*chab rkyan can*) designates a mountain shaped like the copper pot in which this drink is served, while "Nose-ring Open Pass" (*khug ru kong ka*) evokes by its concave shape the ring (*khug ru*) fitted in the nostrils of cattle.

Names suggesting the smooth, rugged or striated aspect of a mountain or rock face are also self-explanatory. "Iron Nails" (*lcags zer mo*) names a rocky face pricked with bits of such metal; "Cushions on Dogs' Paws" (*khyi sbal*) denoting a ridge scattered with moss stains to look at and to touch,

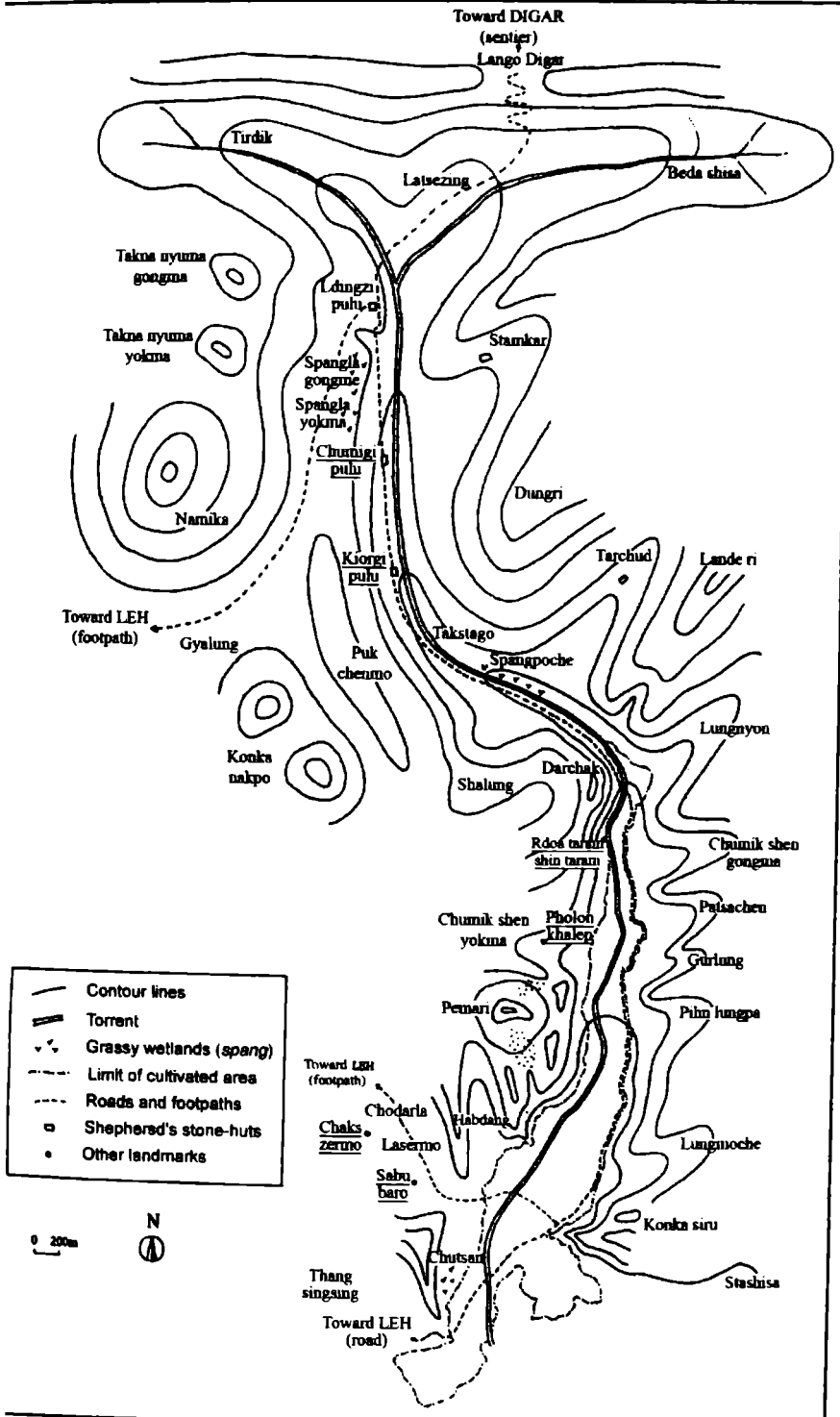


Figure 38
 Place names of the non-cropped land in Sabu
V. Labbal

calls to mind the cushioned part of dogs' paws. "Moustache[-like] Mountain Foot" (*sma ra ri rtsa*) and "Furrows" (*sul*) refer to the patterns made by the folds in the geological layers forming the so-called mountains.

References to types of soils and rocks, through their great number and diversity remind us of the omnipresence of minerals in this highland country named - and located - "between passes" (*la dwags*). They affect mountains, passes, valleys, basins, and plains. Examples denoting mountains, hills, ridges and passes include: "Red Rock" (*brag dmar*), "Red Schist" (*g.ya dmar*), "Sandy Mountain" (*bye ma ri*), "Dusty Mountain" (*thal ri*), "White Clay" (*rdza dkar po*), "Detritus and Clay Summit" (*shal ma rdza mgo*), "Stony Hillock" (*shag sgang*), "Yellow Pass" (*la ser mo*), "Sandy Pass" (*bye ma'i la*), "Silver-coloured Open Pass" (*dngul mdog kong ka*), "Red Rock Open Pass" (*brag dmar kong ka*), "Black Open Pass" (*kong ka nag po*). Basins, valleys and glens are represented in "Gravelly Basin" (*shag ma sding*), "Detritus and Clay Valley" (*shal lung*), "Provided with Soda" (*ba tshwa can*). Finally, for barren, flat tracts, one finds "Clay-Slate Rocky Ground" (*rdza rog*), "Rocky Sandy Plain" (*brag bye thang*), or "Plain with Earth [for scouring] Wool" (*bal sa'i thang*).

Flora and fauna evoked as resources

Though uninhabited and arid spaces, mountains⁷ are not lacking in resources. Place names designating glens, depressions and other unsown land used for grazing and gathering testify to this. Indeed, flora is generally cited as a resource (fodder, fuel, medicinal or wild edible plants), whilst fauna is evoked through livestock and animal products.

"*Ephedra gerardiana* Plain" (*tshe pad thang*) denotes a vast stretch of sand and stone where this plant from the Joint-Pine family thrives. Its leaves are nibbled by sheep and goats and the woody parts are collected to be used as fuel. "Food Valley" (*za lung*) is so named as it houses a large number of species of wild edible plants (*za tshod*), eaten as green vegetables after cooking. Similarly, "Stipa Basin" (*pi li dig dig*), "Wild Rose Valley" (*se lung tse*), "Pass with Thorn Bush" (*tsher ma can la*), the glen "Amidst Honeysuckles, *Lonicera* sp." (*sred gzhung*), or else the localities "With Apricot Trees" (*cu li can*), "Red Willows" (*lcang ma dmar po*), "Junipers" (*shug pa*) (Photograph 47) name areas characterized by a great abundance of

⁷ For the mountain viewed as "uninhabited", as opposed to the "inhabited" cultivated land area, see Chapter II, "Ladakhi Landscape Units" (P. Dollfus, V. Labbal).

these grasses, bushes or trees, used for food, medicinal or religious purposes, or as fuel and fodder. Paradoxically, plant cover is sometimes implied through its absence as in the following names: "Cleared Open Pass" (*kong ka sing sing*) and "Cleared Plain" (*thang sing sing*) denoting places where "not a single blade of grass grows".

Fauna crops up rarely in place names. Thirteen toponyms listed refer to it; only two of them name wild animals including birds: "Plain of the Wild Kids" (*bi gu thang*), and "Pigeons' Open Pass" (*phur gon kong ka*), so named since the latter gather here in autumn before swooping down on the ripe crops nearby. The other eleven refer to domesticated animals (horse, ox, calf and goat) as well as to livestock farming. "Place Where One Leads Oxen" (*glang to 'khyer sa*) denotes a high-altitude valley where yaks and hybrids are grazed from the month of June onwards. "Top of Goats' Pass" (*ra la mgo*) designates a passage across a ridge used daily by shepherds and flocks. "Place [where] Calves Die" (*be do shi sa*) refers to a cold glen where the sun only rarely shows through. "Where Butter is Kept" (*mar bkag*), refers to a shepherd's shelter situated on upland pastures where butter from milk collected there is stored.



P. Dollfus, August 1998

Photograph 47
"Junipers", Hemis-shukpa-chan

Man remarkably absent

Man, for his part, very rarely figures in the names of places other than the inhabited ones. Only five place names evoke him directly. They are in Hemis-shukpa-chan, "Place [where] the Flag Was Tied" (*jhan da btag sa*), "Chocho's Cremation Place" (*Jo jo sreg sa*), "Place [where] the Lama Regained Consciousness" (*bla ma gso sa*); in Sabu, "Place where the Wandering Musician Died" (*bhe da shi sa*). The first is the name of a mountain at the summit of which Indians in charge of drawing up maps long ago planted a flag (*jhan da* in Urdu) as a marker. The others describe respectively a locality where the body of an old woman nicknamed "Chocho" was burnt after she died of exhaustion having tried to flee robbers; the place where a holy man miraculously came back to life; and a glen where a musician (*bhe da*), a stranger to the village, died of thirst, hunger and cold after having lost his way.

In a similar intimate register, pertaining to anecdotes rather than to what is visible, some toponyms underline the dangers that can only be learnt through experience. This is for example the case of "Place [where] the Horse Died" (*rta shi sa*) naming an arid plain where many animals were supposed to get lost, in particular the above-mentioned horse, and of "Place [where] Calves Die" already quoted, but also of "Great Valley [giving] *khra sang*" evoking an ailment – *khra sang* – confined to the mouth and affecting young animals, caused by ingesting a poisonous plant. There is also "Mad Valley" (*lung smyon*), qualified as such because of the instability of its mountainsides: it is said that rain, though rare in the region, on many occasions produced excessively dangerous mudslides.

Naming canals and fields

The uninhabited area of mountains and arid plains contrasts with the cultivated land carefully managed by man, criss-crossed by canals and irrigation channels, each given a precise name. The names of fields, groups of fields, reservoirs and canals are taught very early on through farming activities. This knowledge, first limited to names needed for turning one's own land to good use, deepens afterwards when taking on "harvest guardian" or "water manager" duties, given each year by assigning turns in all the houses within the oasis. The "harvest guardian" (*lo ra pa*), in charge of protecting the land under cultivation from roaming animals throughout the farming season, becomes familiar with a large number of place names during his/her rounds. The "water manager" (*chu dpon*, lit. "lord of water"),

responsible for water distribution, and therefore for opening and closing all the reservoirs and canals, travels daily over the oasis in all directions, in order to guarantee a proper coordination of irrigation. At the end of their stint, lasting about seven months, both of them know every single plot of land by its name.

Reading the names of canals once again testifies to the pre-eminent part of what is visible in the naming of the different places or elements in the landscape. In Sabu, one finds common names referring to size and position: "Main Canal" (*ma yur*), "Small Gully" (*grog chung*), "Lower Canal" (*yog yur*) and "Upper Canal" (*gong yur*). Other names contain topographical indications. So, "Upper Turret" (*spe'u gong ma*) and "Lower Turret" (*spe'u yog ma*) are two parallel canals which stretch out opposite the "Turret Valley". Similarly, canals known as "Meyek's Mound" (*mi nyag rdung*) and "Hill Corner" (*sgang zur*) find their origin in the prominence next to which they are dug out. Finally, a large number of canals take their name from the house for which they serve (or have served) the fields and which often stands nearby. "Weaver Canal" (*thags mkhan yur ba*), "Great Stupa Canal" (*mchod rten chen yur ba*), "New House [Canal]" (*khang sar*), "Broken Head [Canal]" (*mgo bcag*) and "Red Willows [Canal]" (*lcang dmar po*)⁸ are fine examples of this.

Fields are generally designated by a collective name which concerns a whole sector of the cultivated land area –no doubt a relic of an old cadastral survey– and which often corresponds to the land served by one canal. The same name therefore is given to the canal, the area it serves and the fields also included within it. As a household usually owns plots of land scattered all over the oasis, this name is generally enough to distinguish the field in question from another.

Some fields, however, bear proper names. This is especially the case of the "main field" or "mother field" (*ma zhing*), which is the most important that a family owns and the field where all the principal rituals connected with agriculture are celebrated.⁹ Their shape –"Two Corners" (*gnyis gru*), "Triangular" (*zur gsum*), "Square" (*zur bzhi*), "Long Field" (*zhing ring*)– and their location –"Small Field [in the vicinity] of Lucerne" (*'ol'i grwa gu*), "Small Field [in the vicinity] of the Stream" (*grog po'i grwa gu*)– frequently

⁸ Weaver, Great Stupa, New House, Broken Head, Red Willows are all names of houses in Sabu.

⁹ See Chapter II, Ladakhi Landscape Units (P. Dollfus, V. Labbal).

turn up in their name. On the other hand, the type of soil and its fertility potential are never taken into account. Only one name in our corpus, "Rocky Ground" (*rdza*¹⁰), indeed incorporates such criteria. Finally, once again, local history plays a minor role. Two fields in Sabu bear the name of their former owner, according to a practice endorsed long ago throughout the Tibetan plateau:¹¹ "Lord Targye" (*jo rtags brgyad*), "Female Medium's Field" (*lha mo zhing*). In Hemis-shukpa-chan, a small field (*grwa'u*) abandoned for a long time and named "Dance Place" (*rtses sa*), evokes an event marking the history of Ladakh, i.e. the illness of King Jamyang Namgyal, a sovereign who reigned over Ladakh at the beginning of the XVth century, and who was punished by a local deity for having trespassed on his private property. The story goes like this:

Having spotted an ideally flat and sunny stretch between the villages of Hemis-shukpa-chan and Temisgang, Jamyang Namgyal decided to turn it into a winter vegetable garden (*rgun tshas*), and with this in mind he undertook major irrigation work. The building of an irrigation canal was well under way when suddenly a lizard appeared. This was no ordinary lizard. It was strange and of an unbelievable size, as big as an eight-year-old child. As soon as the workers saw it, they started shouting, "Kill it!" Others, however, said, "Don't touch it! Leave it alone!" In the chaos, a man broke away from the group and struck the lizard with a pickaxe. At the very same moment, King Jamyang Namgyal in residence in the "Castle of Flowers" fell ill. The doctors summoned to his bedside diagnosed leprosy, the illness *par excellence* inflicted by the powerful *klu* spirits of the underworld. Work was stopped on the spot, the hole was hastily filled in and the earth was shovelled back while high priests celebrated lofty ceremonies throughout the country. All to no avail. Sores were still visible on the king's body, denouncing his wrongdoing and forcing him to hide from his subjects.

At the time, New Year dances were held in a large field called "Large Dance Place" (*rtses sa chen mo*) opposite Padma Tsering house. That year, however, to avoid the king's having to show himself with his ugly face eaten up by leprosy, his advisor requested that the dances take place in a small field located below the Castle of Flowers. Thus, the sovereign could attend the dances from the windows without actually having to go out. That is why this

¹⁰ According to villagers, the name *rdza* given to this plot comes from *rdza rog*, which means "stony ground", not from *rdza*, "clay".

¹¹ In "The Biography of Milarepa", portraying the life of a great saint and poet who lived in Tibet in the XIth century, the custom of giving fields the name of their previous owner comes up in several examples.

place is known as "Small Field-Dance Place" (*rtses sa grwa'u*). New Year dances are still performed here today.¹²

Names providing an indication of the history of land use are also an exception. In Hemis-shukpa-chan, "Big Barren Plain" (*thang po che*) refers to former times when this sector of the oasis was not yet cultivated. In Sabu, a field named "Broken Grassy Wetlands" (*spang bcag*), recalls the hard labour long ago when men toiled with a pick to turn a damp place littered with numerous stones into arable land.

Naming village sectors and houses

Allusions to past events or to bygone practices, quite rare in the naming of topographic elements and fields are, however, preferential spheres for naming groups of dwellings (*srang tsho*, *bcu tsho*) and houses.

In Hemis-shukpa-chan, the village sector "Outside the Castle" (*phyi mkhar*) thus recalls the time when houses were grouped together at the foot of the rocky mound supporting the Castle of Flowers.

In the past, at the foot of the rocky spur on which the castle had been built were the sixty houses making up the village. Small and huddled side by side, they were grouped together within an outer clay wall that protected them from pillaging and plundering [...]. Fields were outside, so small groups ventured out during the day [...]. What happened then? The village extended further and further. Buildings sprung up outside its walls. One after the other, main houses were built near the fields belonging to them.¹³

The village sector "Cut off by the Gully" (*rko bcod*) testifies in itself to the change in the bed of the stream supplying the oasis, a change occurring following a rupture upstream of a glacial constriction. This hydrographical upheaval therefore isolated a part of the houses and fields from the rest of the oasis.

There was once a large lake between the villages of Tia and Hemis-shukpa-chan. One day, a shepherd, who was keeping watch over his animals there, heard a voice. It came from the lake and said: *mtsho 'phud da, 'phud da* (the lake is going to overflow). Having heard this voice several times, the shepherd looked around. There was nothing, he could not see any one; nobody who might have said: *'phud da, 'phud da*.

¹² Account picked up during fieldwork and translated from Ladakhi by P. Dollfus.

¹³ Account picked up during fieldwork and translated from Ladakhi by P. Dollfus.

Once again, [the shepherd heard] *'phud da*, and then the lake overflowed. Water came [this far]. Many fields were swept away. When the water came, the torrent which at the time flowed through the middle of the village, where mills can be found today, changed its course. It came that way. The village was cut in two, half was left here, the other half over there. At the bottom of the village, many fields were isolated from the other side of the torrent. This place was named "Cut off by the Gully" (*rko bcod*).¹⁴

In Sabu, the group of houses called Meyek (*mi nyag/me nyag*) and considered by villagers to be the oldest inhabited place in the oasis, evokes the origin of one of the founding families of the village, which asserts that it descends from this region of North-eastern Tibet. The etymology itself of Sabu, a distortion of *sa phud* ("Offering of Land"), refers to the history of Ladakh such as it is recounted by oral tradition. Indeed, it recalls the land grant made by the sovereign Jamyang Namgyal, to a great Tibetan master who had cured him of a serious illness (see above). Finally, according to some informants, the name of the village sector Ayu, situated completely downhill from the valley, is supposed to be a contraction of *a phyi yum*, a term of address referring to Queen Gyal Khatun, the Muslim wife of Jamyang Namgyal.¹⁵ This place dotted with many springs and trees is said to have formerly been an ornamental garden, arranged to remind the Queen of the vegetation in her native country, Baltistan (Figure 39).

In attributing house names (*khang pa'i ming*) that, in the absence of a patronymic, are the ones by which individuals are socially recognised and named both inside and outside the oasis, the geographical framework sometimes comes into play. Houses named "Those of the Lower Canal" (*zur 'og pa*),¹⁶ "Those Provided with Apricot Trees" (*cu li can pa*) and "Those at the Corner of the Hill" (*sgang zur pa*) are cases in point. However, the qualities ascribed to the founding ancestor or to a grandfather with an outstanding personality play an essential role. The names then provide us with information on the functions this person would exercise: "Minister" (*blon po*), "Representative of the Royal Palace" (*mkhar sdod pa*), "Headman" (*grong dpon*, lit. chief of a village); on their profession or speciality: "Physician" (*am chi* or *lha rje*), "Astrologer" (*on po* or *dpon po*), "Painter" (*dpon*), "Weaver" (*thags mkhan pa*), "Blacksmith" (*mgar ba*); on their physical or moral virtues: "Thin Person" (*skyu ru pa*); "Religious

¹⁴ Account picked up during fieldwork and translated from Ladakhi by P. Dollfus.

¹⁵ *a phyi* means grand-mother and *yum* means mother in formal speech in reference to historical figures.

¹⁶ *-pa* is a nominal particle used to express membership in a profession, religion or place.

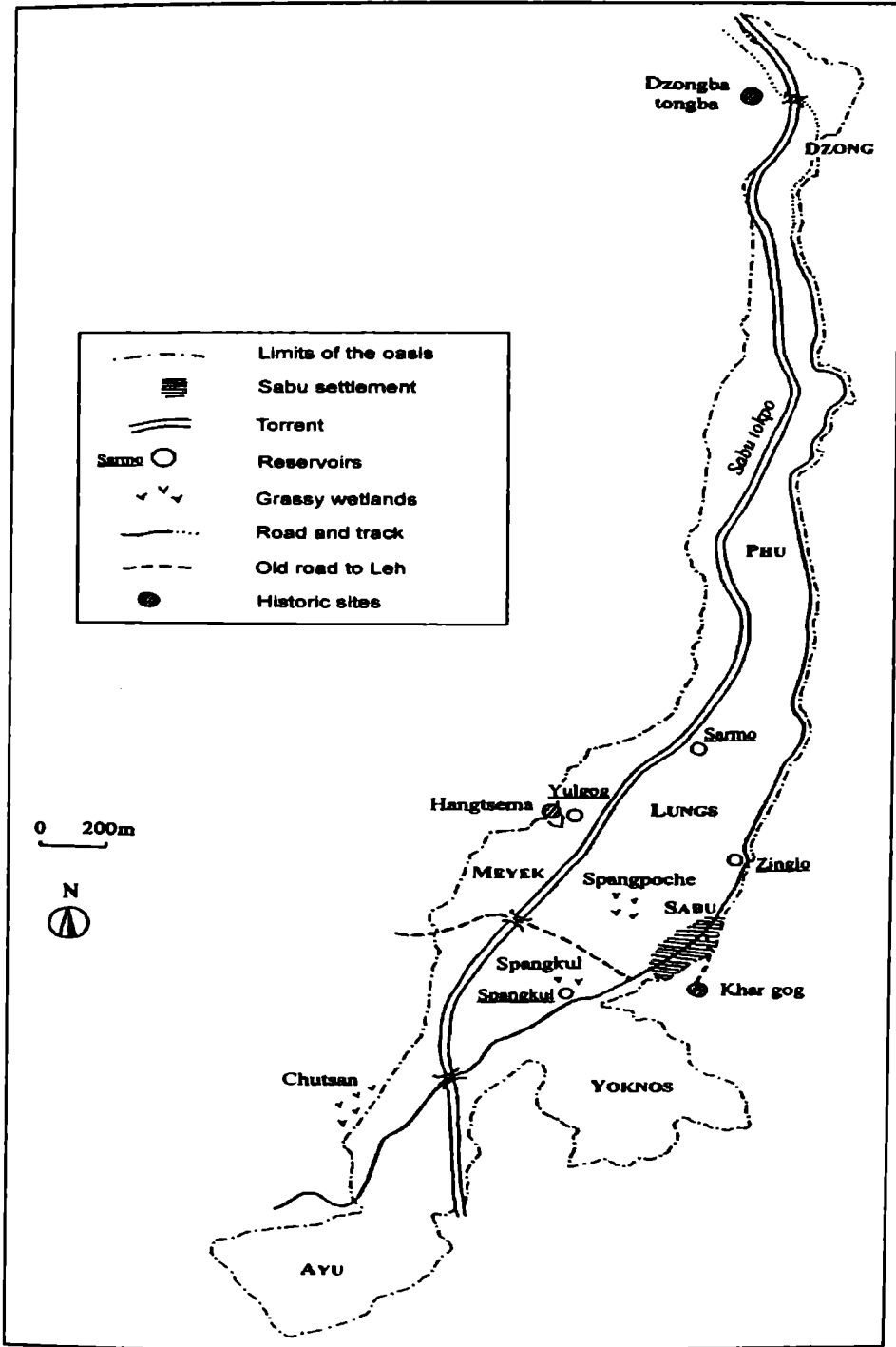


Figure 39
Place names of the cultivated land area, Sabu oasis
V. Labbal

Practitioner" (*chos pa*); on their condition: "Rich Man" (*phyug po*); on their presumed origin: "Those from Changthang" (*byang thang pa*) or quite simply on their name: Padma Tsering, Norbu, Phuntsok.

Naming bodies of water

Hydronyms are hardly significant and very few in number. In our corpus only two toponyms name waterways and four springs: a surprisingly low number compared to other Himalayan regions, which offer detailed registers.¹⁷ Similarly, the presence of water in the ground is not mentioned, apart from some exceptional cases. On the high-altitude pastures of Hemis-shukpa-chan, a locality is thus designated by the expression *chub chab chib*, an onomatopoeia that evokes the noise of running underground water.

In Ladakh, it is true that the hydrographical network is not very vast and springs are sufficiently rare for their simple presence to be sufficient for marking out a place. Thereby, in Sabu for example, two small valleys both containing a spring, are designated by the same expression "Provided with a Spring" (*chu mig can*), after which the position relative to each is specified (i.e. "The Lower Provided with a Spring", "The Upper Provided with a Spring").

This small number is accompanied by a remarkable semantic deficiency. As opposed to oronyms, names attributed to bodies of water are indeed striking in that they lack diversity and originality. Waterways and high-altitude lakes rarely bear a specific name. They are commonly designated by the appropriate generic term with the addition, if necessary, of the name of the more or less large area they cross or on which they are situated. Locally, the Indus is named "River" (*gtsang po*), exactly like one of its tributaries, the Zaskar River which drains the eponymous region.¹⁸ Lakes and ponds are referred to as "lake" (*mtsho*); streams and rivulets born of glaciers and high-altitude névés are known as "torrent, stream" (*grog po*)¹⁹ or more simply "water" (*chu*); a term which is made more explicit, when necessary, by the name of the oasis which it serves: *sa bu grog po*, *he mis grog po*. The forced intimacy between the oasis and the waterway that

¹⁷ See Chapter VI, "A Reading of the Salme Tamangs' Territory and Landscape" (J. Smadja).

¹⁸ *gtsang po* is also the name by which Tibetans designate the Brahmaputra all along its journey through Tibet.

¹⁹ *grog po*: a deep well, ravine, lateral valley (JÄSCHKE 1980, p. 78); *chu*: 1. water, 2. brook, river (*ibid*, p. 157).

gives it life and livelihood thus appears reinforced by the use of the same name. Among hydronyms, only springs are sometimes given specific names. In Hemis-shukpa-chan, among the dozen springs listed over the whole of the territory, four are named: "Upper Spring" (*chu mig gong ma*) and "Lower Spring" (*chu mig yog ma*), "Spring of the Lord" (*jo chu mig*), and "Tarka Spring" (*tar ka chu mig*), a term of unknown meaning. In Sabu as well, one spring in particular stands out. It possesses, so they say, therapeutic virtues and is therefore named, following the example of other medicinal springs that are hot springs, "Hot Water" (*chu tshan*²⁰) even though this is not the case. During the summer months, villagers from the surrounding area come here in the hope of curing their head- and stomach aches.

This semantic deficiency in hydronyms goes as far as the marshes and grassy wetlands (*spang*), the names of which hardly vary from one oasis to another. This may seem paradoxical in an arid environment where, due to an average yearly rainfall of less than 90 mm/year, water is as precious a resource as it is a limited one. However, examination of the map of Hemis-shukpa-chan, drawn up at our request by a native schoolteacher, confirms the following: in this rugged landscape, dominated by vertical lines, it is actually the prominent hills, mountains and the deep notches formed between them, not the hydrographical network that prove to be relevant to farmers inhabiting these highlands (Figure 40 and 41). In addition, summits, peaks and pinnacles are not only spatial landmarks but also temporal markers. Many of them, chosen according to their position along the horizon, play the role of sun markers, *nyi tho* (from *nyi ma*: sun, and *tho*: mark or register).²¹ Certain points are noted for calendrical purposes and are named as such. For instance, those associated with the solstices are known as: "Place of the Suns' Returning" (*nyi ma log sa*), "Sun Returning" (*nyi ma log byes*), and "Place of the Sun's Staying Still" (*nyi ma bzhugs sa*). Others indicate that time has come to start irrigating, sowing or harvesting. Thus, one sun marker in Hemis-shukpa-chan is formed by the shadow of a prominent peak, which lies to the north of the village (Photograph 48). Throughout March and April, as the sunrise moves north, the shadow of the sunrise moves southward. When it reaches a certain point, it is the moment to plough and sow the main or mother field, *ma zhing*.

²⁰ The suggestion has been made that *chu tshan* (literally hot water) was a distortion of *chu sman* (medicinal water).

²¹ For *nyi tho* or sun markers, and their use, see KHOO 1997, p. 240-244.

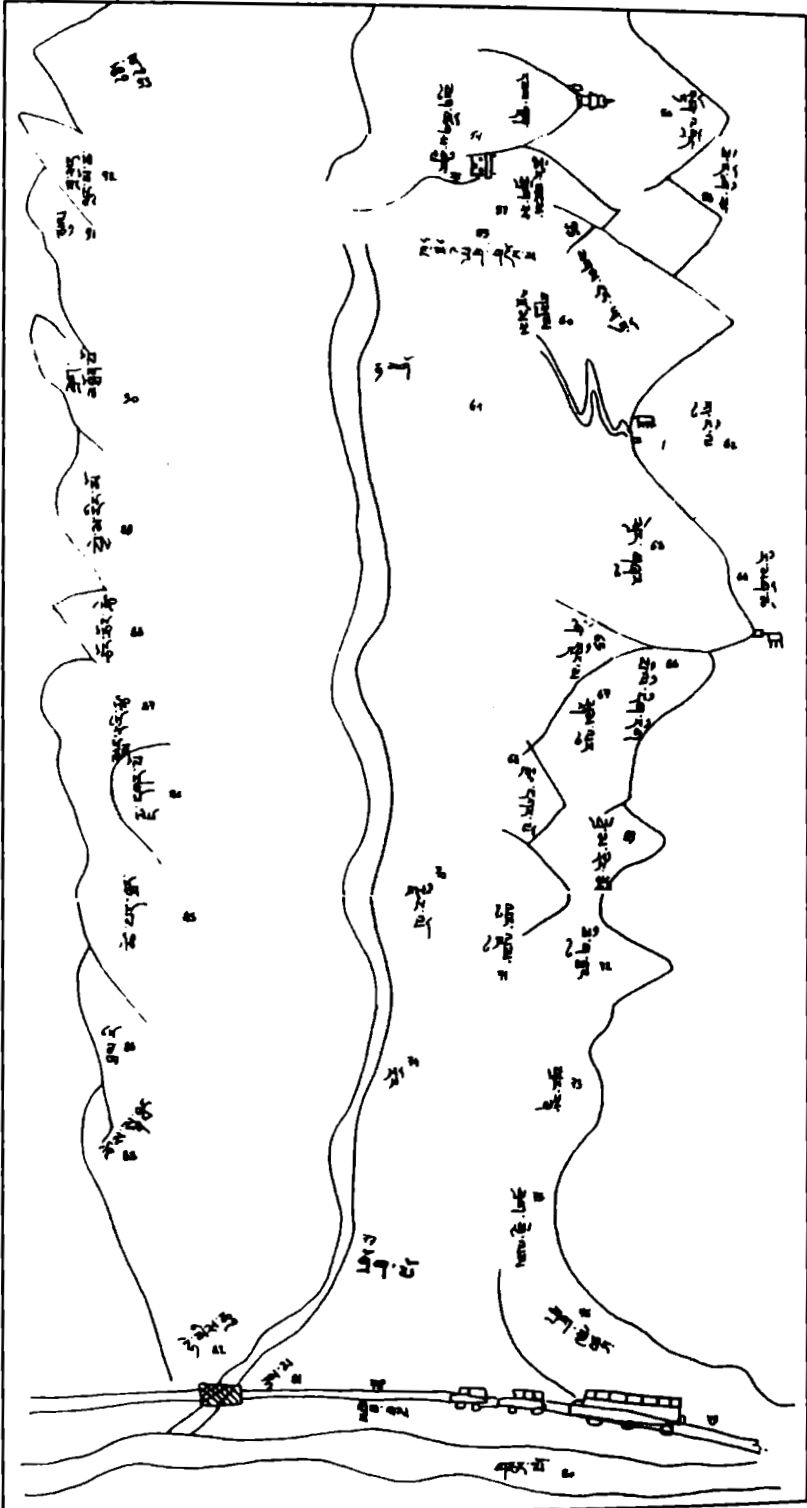
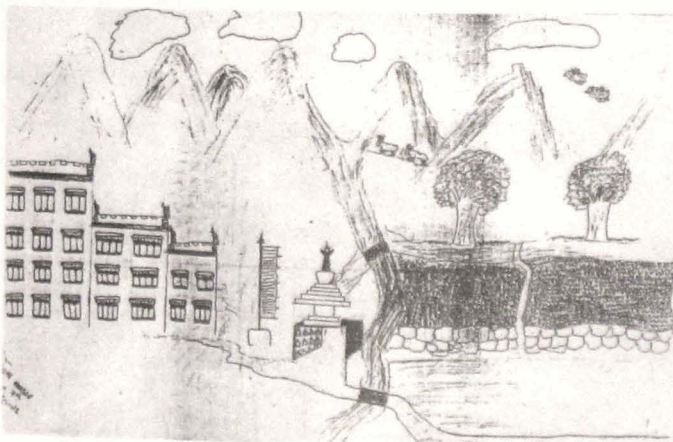


Figure 40
Extract of the map of the Hemis-shukpa-chan valley
drawn up in 1997 by T.T. Namgyal, a native schoolteacher



The village is represented with its trees, which the Government strongly encourages to plant, and especially its mountains, from which the torrent gushes out and waters the oasis. Without water, there is no life. The mountains, spatial and temporal markers, are also revered as water suppliers, indispensable for any human settlement.

Figure 41

Children's drawings of Hemis-shukpa-chan (1997)



Sun marker (*nyi tho*) indicating the beginning of ploughing and sowing
(photograph P. Dollfus, August 1998)

Photograph 48
Nyi tho, Hemis-shukpa-chan

*
* *
*

All these place names, created by and for the people inhabiting the place, make up an extraordinary recording of the milieu,²² of its resources and its dangers, and also of the outstanding events in village and family life. Their semantic analysis highlights the importance granted by the Ladakhis to what is visible, to what the eye perceives, as opposed to what is not visible but stems from history and local beliefs in naming pastured and cultivated spaces. It also reveals a utilitarian and pragmatic vision of the territory: of mountains picked out as "sun markers", of caves viewed as "shelters", of valleys named according to the resources they offer (fuel, fodder, plants for food or medicinal purposes). Curiously enough, religion, which in Ladakh significantly impregnates even the slightest daily actions, hardly appears in the toponymy, with the notable exception of the names of monasteries, hermitages and other Buddhist structures. Barely 5 per cent of the names collected make reference to it. In Sabu, there is a field called "Top of an Offering Cake" (*tshogs rtse*), as it formerly contained an upright stone the conical shape of which recalls that of the cakes made mostly of flour and butter collectively consumed in Tantric rituals. The story goes that when the owner of the field, eager to make farming work easier on his land, broke this stone, milk ran from it, proving its sacred character. Outside the cultivated land area, a mountainside (*ldebs*) owes its name "Mountainside [with] the Protector" (*mGon po ldebs*) to the figure of the great guardian of the Dharma known as Mahakala (*mGon po*), which can be seen in the folds of the rock; a small valley is called "Auspicious Enclosure" (*ra bkra shis*), because one day a villager had a vision of a monastery full of monks. In Hemis-shukpa-*chan*, two mountains and an upright stone bear the name of the divinities for which they constitute the palaces or *pho brang*: "Tashi Palmo" (*bKra shis dPal mo*), "Paldan Zomba" (*dPal ldan 'dzom ba*) and "Queen with a Stone Face" (*jo mo brag gdong ma*). Finally, there is a mountain towering in the east of the oasis called "Teacher's – i.e the Buddha himself - Belly" (*ston grod*) that was once a pilgrimage destination for women wanting to conceive a child.

Another mountain called *ston grod*, "The Teacher's –i.e. the Buddha himself –Belly" towers up behind the mountain known as *dPal ldan 'dzom ba*. [...] In the past, those who could not have children went on a pilgrim to Mount Kailash to carry out circumambulation. Those unable to do so simply went

²² BLANC-PAMARD 1999.

round this holy mountain (*gnas ri*). Those who had the faith drew great benefit from this circumambulation and saw their wishes granted.²³

The place names do not provide indications as to the presence of gods, spirits and demons as reported by villagers in several localities and which are, furthermore, the subject of many stories. In Hemis-shukpa-chan, for instance, the large meadow that stretches at the foot of the juniper grove has the reputation of being a place highly sought after by the *klus* who inhabit bodies of water and who particularly appreciate these trees for the pleasant fragrance they produce. Similarly, the valley called "The Bottom of the Gorge" (*rong mthil*) is known by everybody for being a *btsan lam*, i.e. a path regularly taken by the red *btsan* demons, extremely attractive when seen from the front, but seemingly with no skin and revealing their internal organs when seen from behind. However, in each case, nothing in the toponymy leads one to imagine their existence. No name cites them directly or indirectly. Nevertheless, one exception must be quoted: "Ghost Mountain" (*lha 'dre ri*). The name refers to a evil spirit of a dead being, *lha 'dre*, that haunts the sector and whose appearance frightens shepherds staying in the nearby crude stone shelters in the spring and summer days.

This situation is diametrically opposed to what prevails in the sacred places (*gnas chen*) opened by Tantric masters and sanctified by the coming of great meditators, where the divine is inscribed in the toponymy, as well as in the landscape. At Phu mkhar dzong, a place of pilgrimage located in Western Ladakh, the mountains are all thought of as palaces (*pho brang*), castles (*mkhar*) or thrones (*khri*) for divinities or exceptional beings and have for a name: "Sanctuary of Hayagriva, Vajrapani and Garuda" (*rta phyag khyung gling*), "Palace of Worldly Protector" (*zhing skyong pho brang*) or "Castle of Gesar"²⁴ (*Ge sar'i mkhar*). Figures of Buddhas and Bodhisattvas can be seen in each rock face, or else spontaneously-formed images (*rang byung*) are objects of worship. The same rock fold which, in Hemis-shukpa-chan, gives the face the name of "Moustache[-like] Mountain Foot" or "Furrows", is called "Meditation Rope" here. Similarly, caves called "Head Trap [for goats]" (*mgo khad*) or more simply "Big Cave" (*phug chen mo*) in Hemis-shukpa-chan and in Sabu, are described as "Adamantine Treasure Cave" (*rdo rje ke'u tshang*), "Contemplation Cave", (*Ting 'dzin phug pa*) or else "Cave of Sin" (*sdig pa phug pa*) in these holy sites.

²³ Account picked up during fieldwork and translated from Ladakhi by P. Dollfus.

²⁴ The fearless Gesar, King of Ling, is renowned throughout Tibet and Central Asia. He represents the ideal warrior.

CHAPTER VIII

Christian and Hindu Share of the Territory in the Magar Village of Pathardi

Lucile Viroulaud

Since 1978 an evangelical minority has been settled in a Hinduised Magar community –the village of Pathardi, in the district of Tanahun in Central Western Nepal– itself part of a strongly Hindu Nepal. The evangelists settled via the community clinic. The doctor, posted there between 1988 and 1995, was the son of the founder of the first Christian movement, INF (International Nepal Fellowship), set up in Nepal after 1950. At present, the INF represents one of the most powerful protestant movements in the country. It is implanted throughout the country, especially within ethnic minorities such as the Magars.

The case of Pathardi is not very representative of the current influence of Christianisation in Nepal where, in certain districts such as Dhading, whole villages have been converted. However, it is interesting to see how a Christian minority has been able to come into being in a Magar village and how its presence has generated a spatial division between Hindu territory and Christian territory.

A Christian world apart

Geographical situation

The district of Tanahun is in the low and middle mountain area between the Tarai plain and the Himalayan summits. Reliefs are steep, deeply dug out by fluvial valleys, while terraced fields rise in tiers along the slopes. Villages occupy the flanks of the mountainsides.

Pathardi is located in ward 6 of the Bhanumati V.D.C. (Village Development Committee) (Figure 42). This ward also includes part of the hamlet of Paimi, perched at the top of a hill, where the population is mostly made up of Magars and some Indo-Nepalese families such as the Kamis (blacksmiths), the Sarkis (tanner-cobblers) and the Damais (tailor-

musicians). Lower down, six Magar houses have settled in the hamlet on the Rithabhajyang pass. Then there are the hamlets of Asparidi and Badanda, situated below this pass on a northerly-oriented mountainside, mostly made up of a Magar, but also Chetri, Thakuri and Brahman population. The difference with the other hamlets making up this ward is that Pathardi is the only one to be exclusively inhabited by Magars.

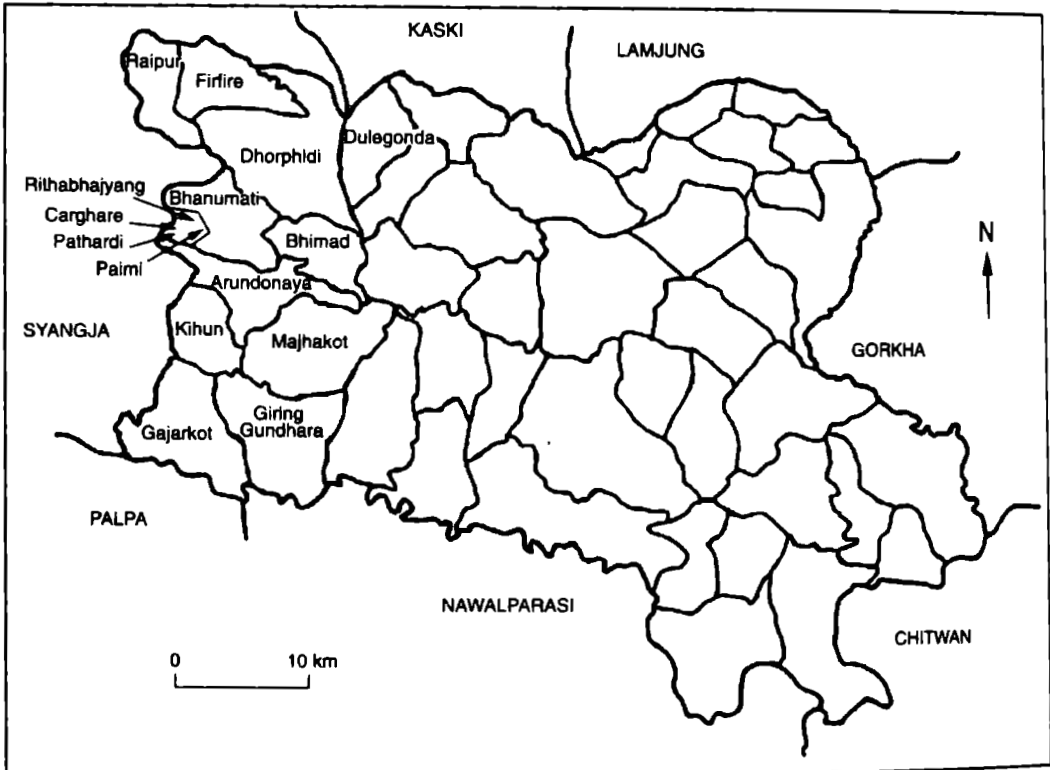


Figure 42
Bhanumati in the Tanahun district
L. Viroulaud

Pathardi is situated at between 800 and 900 m in altitude, on a hill oriented east-west; the lower part of the northern side belongs to the hamlet of Asparidi. The southern side, less densely populated, is covered in forest and is cultivated. The west is given over to the forest and crops, while the east houses almost the entire Pathardi settlements. Most of the hamlets in the region occupy the east side of the hills. This favourable exposure is essential for establishing settlements, and recently-built Christian houses have taken this into account. The lower part of the village territory includes irrigated fields called *khet*, then mid-way up the mountainside, there are fields of dry crops where mostly maize and finger millet grow and where settlements are

more highly concentrated. The upper area, less inhabited, is largely occupied by pastures and woods (Figure 43).

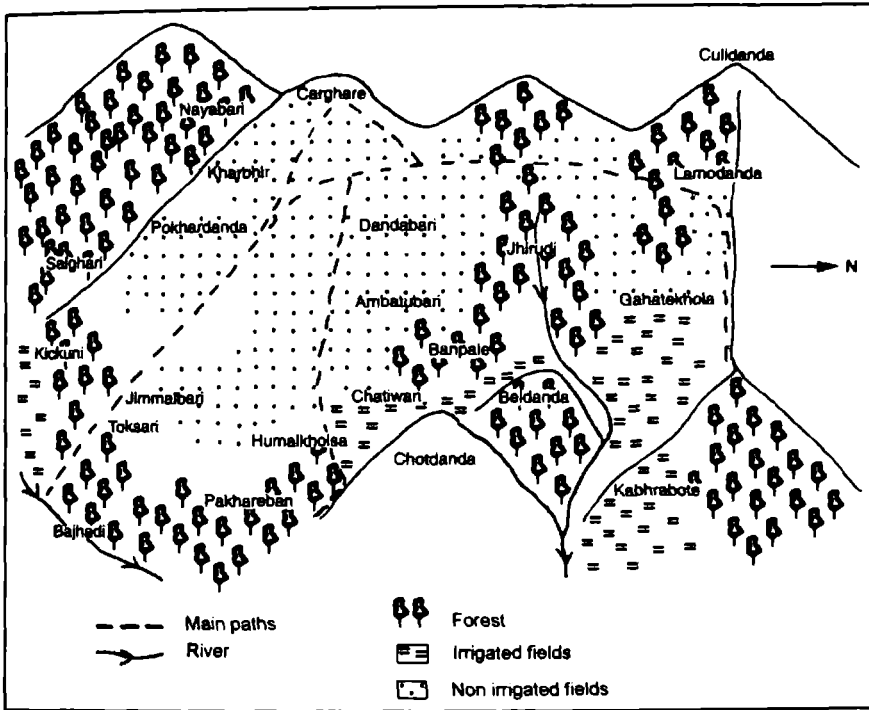


Figure 43
Soil occupation in Pathardi
L. Viroulaud

Social context

The Magars, of Tibeto-Burman language and culture, represent 20 per cent of the total population of Tanahun district, according to the 1991 census. Influenced by Hinduism, they have, however, preserved their own traditions regarding the system of kinship and their marriage rules.¹ Thus specialists consider that they form a tribe fully integrated in the social hierarchy of Nepal structured according to the caste system. The question now remains as to whether, under the influence of Christianisation, Magars continue to respect their own cultural traits. On this subject, it is fitting to recall that for a long time Nepal's social organisation remained under the influence of Hindu absolutism. Up until the end of the XVIIIth century, the term Nepal designated the Kathmandu Valley, itself made up of three kingdoms: Kathmandu, Patan and Bhadgaon.² At the time, only a handful of missionaries

¹ LECOMTE-TILOUINE, 1993, p. 33.

² GABORIEAU, 1994, p. 1.

had visited these territories. In 1768, Prithvi Narayan Shah, head of the Gorkha kingdom, took over Kathmandu and unified the different principalities in the Central Himalayas. Political unification was followed by severe measures issued against any Christian presence in the country, measures which were reinforced by the Rana regime from 1846 onwards. From then on, there was the total closure of the country to foreigners, then the application of a Hindu law code, instituted according to caste rules, aimed at integrating the different ethnic groups which occupied the kingdom. It was a case of Hindu proselytism.³ In 1950, the country opened its borders to the outside world for the first time. Nepalese Christians, having taken refuge in neighbouring territories, therefore settled more freely in Nepal. However, the laws remained very strict and it was still forbidden to convert to Christianity. Hinduism alone prevailed in the country.⁴ On 9 November 1990, a new constitution instituted relative religious freedom. In actual fact, since then Christian converts have been tolerated, but do not have any legal rights.⁵ A brief overview of the history of how the Pathardi Christian community was formed is indispensable to understand how it managed to develop despite an unfavourable social and political context.

How the evangelical minority came to settle in Pathardi

In 1959 Hilda Steele, an evangelical missionary belonging to the Christian movement that founded the first church in Nepal, decided to visit two women converts in the village of Pyersingh (district of Syangja). In 1962, with the consent of the village council, she had a clinic built. In 1967, another missionary, May Cundy, joined her. In 1978, the two women, faced with local problems, chose to close the community clinic in Pyersingh and to settle in Pathardi where there were more converts and where the pastor, from the founding lineage in the village, had managed to buy enough land to build the clinic.⁶

Therefore the Pathardi crest ridge, at a place called Carghare (*car*: four, *ghar*: houses), was chosen to build the community clinic set up by the missionaries and run by the village Christians. A real Christian hamlet subsequently developed around this. Today Pathardi is occupied by about fifty households, eleven of which are Christian. Elsewhere in the *ward*, there

³ GABORIEAU and CLÉMENTIN-OJHA, 1994, p. 6.

⁴ GABORIEAU, 1978, p. 250.

⁵ GABORIEAU, 1994, p. 12.

⁶ See CUNDY, 1994.

are fewer converts: for instance, in Paimi, out of a total of four hundred households, four are Christian; in Rithabhajyang, out of six families, two are converts; in Asparadi there is only one Christian household out of a total of about forty, and in Birgule, of the five houses, only one is Christian. Thus ward 6 includes a total of nineteen Christian houses, some of which have common family ties and which are found mostly in the village of Pathardi.

There is a very clear limit between Christians and Hindus. Indeed, seven houses of converts, including that of the pastor, are situated in Carghare near the community clinic in the upper part of the village. In 1978, this space was covered in forest, which is considered by the Hindus to be where evil spirits dwell; it symbolised a wild and dangerous world. Children were afraid to take the path circumventing the Carghare crest ridge to get to school. This part of the mountainside was known as the domain par excellence of *bhut*, *pret* and *masan*, evil divinities. It appears that villagers left no other choice to Christians than to settle on land where nobody had ventured prior to the building of the community clinic. Through their spatial settlement, Christians expose themselves to being likened to harmful malevolent spirits. They are ranked as being an evil influence and, therefore their god does not vie with local traditional divinities.

The village religious universe is strongly marked in the landscape, and it is also through it that Christianity gains in value. I will rely, in what follows, on examples of daily village life involving Christians and Hindus, in an attempt to show how inhabitants view the Christian territory.

Times and places for meeting

There are some special occasions during which Christians and Hindus meet, especially at Hindu feasts, which do not leave Christians indifferent, but also at mixed marriages and finally, to a lesser extent, during farm work.

Times for feasting

Often village feasts are, for Magars, a means of bringing together family and friends. They also provide Christians with the opportunity of mixing with Hindus. The cycle of feasts in the village of Pathardi coincides with the Indo-Nepalese calendar, in use throughout Nepal.⁷

⁷ GABORIEAU, 1982, p. 12.

The majority of villagers follow Hindu festivals and Christians celebrate them in their own way, especially the women's festival of Tij and the Dasain festival. At the time of Tij, Christians model their ceremonies on those of the Hindus: in both communities, only women get together. Christian women sing and study the Bible. The session is led in turn by young girls from the village who, for this, take up position in front of the altar. During one ceremony, one of them, dressed in a sari, came behind the altar to dance a few steps in time to the tune sung by the assembly. She explained a few passages from the Bible, sometimes helped by the pastor. Hindu women were invited by a Christian woman from the village to attend worship, but none of them showed any interest in this new religious doctrine.

It is not rare that Christians organise worship or entertainment on the day of a Hindu feast. It was the case in 1996 when the Christians organised a show on the Parpokhari pass, near Rithabhajyang, an unavoidable passage between the different hamlets, at the time of the Dasain festival, the Hindu national feast. Places of honour were provided for Hindu men from Pathardi, for civil servants from Paimi and for the pastor. There were theatre and dance performances and, according to one of the main organisers, the religious message underlined the damaging effects of drugs, the right to choose one's marriage partner and the Christians' power to cure the sick. The populations did not rate this programme very highly, since its ultimate purpose was to show the superiority of Christianity over local customs. On the day of giving *tika*, during the Dasain festival, a cult gathering about forty people was held in the church.

It does happen that Christians invite Hindus to film-shows, which travel from village to village. Christians try to promote their religion through films which emphasise the strength of Christian prayers in fighting against illnesses and Jesus's miraculous power in curing the sick. In fact, this type of demonstration apparently barely interests Hindus who leave well before the end of the film.

These periods of Christian feasts, modelled on the Hindu religious calendar, therefore represent an exchange between the two spiritual communities, particularly endorsed by Christians. The latter make the most of this to impart their teachings to the village population. They attract their Hindu neighbours using sophisticated means, but, in spite of it all, the latter remain impervious to their convictions. Through this example, the Christian territory perhaps comes over as being like a playground where people can

discover cinema and Western music. This approach therefore lends it a festive air.

Weddings are also an occasion for Christians and Hindus to meet. For instance, when a boy, whose parents had converted to Christianity, married a young Christian girl, who was from a practising Hindu family, the future couple married according to Christian rites. A Hindu ceremony then took place at the young girl's parents' house, where the night was spent dancing and singing. Certain marriage rites are the same for Christians and for Hindus, such as the presence of witnesses, slipping on the ring and offering presents. This analogy no doubt encourages meetings between the two communities. However, such moments are very rare.

In fact, Christians do not venture to the lower part of the village unless there is a traditional religious event.

Farming activities

Farming also brings together Christians and Hindus, either because Christians possess land on Hindu territory or because Hindus call upon the help of Christians to make up work teams.

Farming and animal husbandry are still the main economic activities in the village, as everywhere else in Nepal, and there is no distinction between the two religious communities in this respect. Villagers mainly eat rice. They sometimes alternate with mashed corn mixed with seasonal vegetables: lentils or potatoes bought at the nearest bazaar, Bhimad.

Both Hindu and Christian men have the task of working the swing plough in the field and of hoeing, while the women sow, plant and harvest. However, on certain days that are looked upon as being inauspicious, the Hindus are forbidden to work the swing plough, to dig, to work in collective work teams, *parma*, for fear of being fined by the village committee. As for Christians, they totally disregard what they consider to be superstitions. The first Wednesday of the month, the day of *natle*, a Hindu village crier reminds villagers of these restrictions. Christians therefore set themselves apart by refusing to observe local customs.

Inhabitants work in teams and each member thus receives, in turn, the help of this collective manpower. Though some occasional exchanges are observed between Christians and Hindus –Christians form their own teams, but sometimes call upon their Hindu neighbours if need be and vice versa–, generally speaking, both communities live separate from each other.

Farming does not therefore seem to be suitable ground for communication between the two groups.

Finally, Hindus venture, if need be, onto Christian territory to go to the community clinic. This does not, of course, stop them from first turning to a local healer, *lama*, but the community clinic remains a place for both communities to meet.

Save these rare occasions, Christians and Hindus have no contact with each other. Relations only exist between persons of the same denomination, or ultimately of the same lineage, given that Christians have often converted the members of the entire lineage.

In addition to the rare exchanges with their Hindu neighbours, there is yet another trait which sets Christians apart: the absence of religious emblems in the ground, or rather their concentration in one place.

Christian territory and Hindu territory, symbols and religious landscapes

Whereas places of worship line the Hindu territory which is entirely deified, Christians do not revere earth divinities, and apart from one temple and the cemetery, they do not manifest their dogma by any visible religious insignia.

Hinduists and Christians faced with local divinities

It would appear that the Hinduist Magars from Pathardi mainly focus on small divinities associated with the territory or the soil, which have their own specific place of worship on the local territory and are also beneficial to farming and cattle breeding. The great divinities, masters of nature, leave them indifferent, as does the Christians' almighty God towards whom they show no curiosity. For example, the cult to Siddha, the divinity of crest ridges, bearer of rain and master of cattle breeding, who the Magars traditionally hold in high esteem, no longer appears to be the cause for particular worship by villagers. On the other hand, the *nāg pancami* festival devoted to *nāg* –divine snakes inhabiting the underground and influencing harvests– is still important. The ritual is celebrated near several sources of water, *padhera*, on the Pathardi mountainside. It is intended to counter the attacks made by the snakes, masters of soil and rain, since villagers believe that they can cause natural catastrophes such as drought or landslides. Another ritual, devoted to Jal Jhankri –a forest divinity who resides in

irrigated fields, stagnant water and streams⁸ – also highlights the link that the Hindus establish between their milieu and the divinities. Several small stone altars where the ritual is performed are devoted to him: near Pathardi Khola and near the *bari* fields. This divinity is associated with the rice harvest because villagers particularly revere it at this period, during the month of *kartik* (November-December).

New converts to Christianity are not concerned with protecting their rice fields even though this cereal is still their staple diet. Indeed, due to a shortage of family manpower, Christians have sold their paddy fields or possess very few. With this in mind, their abandoning the Jal Jhankri ritual may seem obvious. More generally speaking, they have completely done away with agrarian worship and offer no special prayer to protect the fields. They have not apparently sought to combine their traditional beliefs with their new religion which refutes any form of idolatry. The new converts' belief in one god, who on his own ensures the protection of everything that surrounds them, is reason enough for them not to participate in local worship. The Christians' lack of participation in worshipping the territory's divinities sets them apart from village farming life. They are not implicated in regulations governing work in fields and they even plough on the day of *natle*. The pastor himself does not hesitate to dig on those days in non-irrigated rice fields (*gaia dan*). Certain accounts by village converts regarding their religious experience relate the strength of the Christian god triumphant over demonic powers which sometimes take possession of animals. Christians feel protected by their God with almighty power over nature. They therefore find themselves left out from all important events which bind village unity, especially the ritual of Bhaer, a soil divinity.

Wooded highlands and their symbolism

Two Hindu divinities, Candi and Mandali, have their temple built in the forest at the top of the hill. Candi, a divinity who harms cattle, is worshipped collectively by the ward, near a tree (*simal*) situated in a passage place. Mandali is considered to be a lurking malevolent divinity. Some villagers recount that in the past the dead were revered at Kolpadanda, a place where villagers still worship Mandali. Parallel to this, Kawakita⁹ shows that the stones representing Mandali in the village of Sikkha are to be found near tombs. The choice of the place of the temple, in the Pathardi community,

⁸ LECOMTE-TILOUINE, 1993, p. 265.

⁹ KAWAKITA, 1974, p. 116.

may therefore be linked to the idea that Mandali maintained a special relationship with the dead. Villagers in *ward* 6 honour this divinity every first Wednesday of the month, which corresponds to *natle*, except for the month of *saun* (July-August). Its malefic influence no doubt explains why on certain days villagers forbid the use of farm tools and the land from being ploughed. This approach to the sacred geography of the Hindu territory reminds us that the wooded summit is more strongly associated with a divine space, maleficent for man and his farming activities and associated with the dead. Death is also present in places of passage where villagers do not linger. Even the Christians never venture into the cemetery that they set up on abandoned land at the top of Pathardi hill, near the pastor's house. It is a place that is difficult to access and barely visible. Here there is a tomb made of cement and a cross planted in the ground in honour of two Christian women. This, along with the Protestant temple, is the only religious symbol visible on Christian ground.

As for the location of the Protestant temple at the top of the hill, it may, in an ambivalent way, remind us of the existence of the *kot*, an arsenal-temple erected by kings at the top of mountainsides. A *kot*, symbol of the king's divine power, has been built at Paimi. In building their church at the summit, missionaries have probably sought to acquire, according to the traditional model, dual power, both divine and political. Nowadays, the *kot* is no longer used by villagers from Pathardi, even for Dasain; it was, however, still used when the Christian temple was built. At the time of the *pancayat*, this religious site at the top of the hill was therefore very closely associated with the *kot*. The association of political and religious authority in local tradition can also be found in the function of the yogis, Hindu renouncers studied in length by V. Boullier (1997). Their monasteries are "situated in border areas, often on the margins; they are the bridgehead of civilisation";¹⁰ "yogis have been associated one way or another (through mythology, rituals, State management, etc.) with sovereignty".¹¹ Yogi monasteries and Christian temples satisfy the same rules with regards their location: "The jungle or the forest, the wilderness as opposed to the socialised world of the village, are common ground for the king and the ascetic. It is in solitude, far from the rules of the world, that the renouncer practises meditation in a state of peace and harmony with the natural environment";¹² "each yogi hamlet has its

¹⁰ BOULLIER, 1997, p. 155.

¹¹ *Ibid.*

¹² *Ibid.*

cemetery [...] in the temple precinct".¹³ Without going as far as thinking that missionaries take themselves for yogis, the Protestant temple actually looks like a yogi hermitage. The place of Christian worship at Pathardi was indeed erected on forest land renown for being dangerous, well away from the villagers' space, where Christians tend a flower garden, and where there reigns around the Christian temple an atmosphere of peace and harmony with the surrounding nature. As for the yogi monastery, there is a cemetery below the Christian temple. Associated with the royal power of the *kot* situated at the top of the hill, this place of worship has truly acquired all the features of the yogi monastery.¹⁴ Ascetic sanctuaries in the Bulmi region particularly occupy wooded summits.¹⁵

Christians and possession

Hindu lineage cults are totally prohibited amongst new Christians, whom one might believe to be insensitive to any attack by spirits who died a violent death. However, this is not the case. To ensure their own protection and to drive away evil which comes to perturb men, the practice often adopted by Christians is the laying on of hands. However, to fight against disease in animals they make use of veterinary medicines and offer prayers to God to grant a cure. Like their Hindu neighbours, they attribute the cause of their illness to malevolent divinities which they also call *bhut, pret*. While Hindus act individually and beg Baraha to rid them of the trouble, Christians say group prayers and do not hesitate to gather together to pray when one of their members encounters a problem. Christians therefore have their own remedy to defend themselves against evil spirits which they recognise, like the Hindus, as being harmful. They arm themselves against these negative processes with worship where certain participants enter into a state of possession which frees them of this evil. During possession cult, Christians let themselves be carried away by God's strength which seems to help them vanquish the forces of evil, the source of their current problems. According to Höfer (1973), possession is the privilege of specialists and is not accessible to the layperson. He points out, with regards the Tamang ethnic group, that "to a certain extent, possession may be considered a logical alternative to the shamanistic journey to the Other World. (Both, possession and journey, aim at a direct contact with the superhuman. While, in a journey, man goes to the gods, in a state of possession, the gods come to

¹³ *Ibid.*, p. 65.

¹⁴ LECOMTE-TILOUINE, 1993, Chap. 9.

¹⁵ *Ibid.*, p. 307.

man –to put it in the simplest terms)." (p. 162) Indeed here, for Christians, the state of possession is comparable to that of the shaman, the only one capable of communicating with the gods. Thus for Christians, possession is accessible to everyone. They become potential shamans. They can call upon God whenever they see fit. Robert Deliège (1992) thus talks of voluntary possession, and this is what seems to characterise Christians in Pathardi. For them, evil spirits are not reincarnated as in popular Hinduism. They have therefore transformed the local meaning of the *bhut*, evil spirits sometimes of persons who have died a violent death, by giving it a simple meaning of maleficent spirits that lurk in forests, on footpaths, most often at night. Man therefore struggles in a world of malefic spirits which, for a committed Christian, does not condemn him to undergo these evil influences for the next life. Thanks to God, this reality offers the possibility of living under favourable auspices.

New Christian converts therefore offer no other worship to anything else linked to the soil. Nature no longer bears the divine Hindu aspect. There is no longer any relationship between men, nature and the divine. Their territory does not have the same religious dimension; it presents a neutral and marginal aspect compared to that of their Hindu neighbours.

*

* * *

As far as the Hindus are concerned, men, nature and the divine maintain a constant relationship. Gods reside in cultivated, wild or inhabited spaces, and it is with them that men have to negotiate. Their landscape is lined with altars dedicated to their numerous divinities. Christians, on the other hand, seem to make do with an almighty God who protects the territory. Daily prayers and main worship once a week sometimes leading to possession seances, are enough to face the constraints of nature. The cemetery is the only existing mark on the ground, though difficult to access because it is hidden behind brushwood in the forest.

As demonstrated by Marie Lecomte-Tilouine, the forest underlies the "world of the dead who remain", i.e. their spirit still lurks among men, and "the world of those who have lost culture".¹⁶ Hindu Magars thus rank the Christian territory alongside the domain of the dead due to the fact that Christians have set up their cemetery there. For Hindus the forest is also the

¹⁶ LECOMTE-TILOUINE, 1987, p. 68.

place of illness and only the shaman can venture there to vanquish his patients' illness. It is perhaps not sheer coincidence that Christians built a community clinic on this spot: it also respects the categories of used space in Magar Hindu thinking and bestows symbolic elements on the landscape. These call to mind the shaman with his healing powers, isolating himself in the forest in order to communicate with the divine and to restore order.

Finally, Christians have easily managed to use Magar representations when setting themselves up. However, by occupying the wooded sector, they are still considered by Hindus to be associated with harmful demons. Furthermore, by no longer deifying the territory, Christians cut themselves off from part of social life. The separation between the two communities, which is already real in terms of space, is only further accentuated.

PART THREE

***HISTORICAL DATA ON LAND USE AND
RESOURCE MANAGEMENT***

CHAPTER IX

Agriculture in the Himalayas: a Historical Sketch

Pascale Dollfus, Marie Lecomte-Tilouine, Olivia Aubriot¹

The diversity of farming practices contributes to the richness of Himalayan landscapes. Far from being handed down from time immemorial, agriculture has undergone a complex history throughout the region. In this chapter, we explore the subject by focusing on the Indus Valley in Central Ladakh and the Kathmandu Valley in Nepal, which are representative of the two main situations prevailing in the whole range. The former, located at high altitude (3,300-3,900 m) on the northern side, is influenced by Tibetan culture, while the latter, at low altitude (1,400 m) and on the southern side, is mainly under Indian influences.

Archaeological data

Archaeological research in the Himalayas is recent and remains sketchy. The first large excavation programmes began only in the 1980s, and except for Mustang, some parts of the Nepalese Tarai, and Kashmir, few regions are well documented. In such a context, each discovery alters any previously acquired knowledge. Yet, the data available suggest very ancient migratory trails as well as the coexistence of two great cultures. Like the Indian subcontinent,² the Himalayan region has always been a crossroads where the handaxe culture of Indian origin met the chopper³ culture from South-East Asia.

¹ The data regarding Ladakh have been contributed by P. Dollfus, those regarding Nepal by M. Lecomte-Tilouine and O. Aubriot. A certain number of acronyms are used in reference to authors frequently cited: C for CAMPBELL, 1837; HP for the *Hodgson Papers*; MT for MOORCROFT and TREBECK, 1971 [1837]; RRS for *Regmi Research Series*.

² According to AGRAWAL (1982, p. 265), in the Stone Ages, India was a meeting ground for the handaxe culture of Europe and Africa and the pebble-tool culture of China and Southeast Asia. In India the first traces of human occupation discovered to date go back to the second interglacial period, between 400,000 and 200,000 BC.

³ Choppers are made from pebbles and from flakes of worked flint modules.

The peopling of the Himalayas dates back at least to the Middle Pleistocene, as attested to by several settlements on the borderlands of the Dun valleys and at the foot of the Siwalik, in the Nepalese Tarai.⁴ The Palaeolithic sites of Dang-Deokhuri and of Satpati (Lumbini) have revealed handaxes, made by groups of the Acheulean tradition who were originally from India, whose presence in the Tarai was –it appears– only temporary. These sites form the north-east border of the handaxe culture that stretches from Africa up to the Gangetic plain. Human occupation at the foot of the Siwalik lasted over the Late Pleistocene and the Early Holocene, as shown by the various flake and chopper industries at the sites of Patu and Chabeni. The increase, at that time, in the number of sites compared to those of the Middle Pleistocene seems to be linked to the onset of wetter conditions, as can be seen by the presence of lignite.

Patu, on the Rato River (Mahottari district), dates from the Early Holocene. G. Corvinus⁵ shows how the site contrasts with that of Dang, but presents similarities with the Hoabinhian of Vietnam. This link with South-East Asia is even more obvious at Chabeni (Lumbini), where a sumatralithe industry was set up during the same period over a former Palaeolithic handaxe site.

Thus, two cultures of very different origin succeeded each other in Nepal during the prehistoric era: an Indian type culture at the Palaeolithic and a South-East Asian type one at the Mesolithic.

Save in the above-mentioned lowlands, and with the exception of Kashmir, no peopling prior to the third millennium BC has been uncovered in the Himalayas.⁶ However, on the Tibetan plateau, archaeological excavations have revealed several Palaeolithic and Neolithic sites which attest to the importance and continuity of its occupation since this period.⁷

⁴ All the data regarding the Nepalese Tarai are taken from CORVINUS 1985 and 1996.

⁵ CORVINUS, 1996, p. 7: "This industry bears no comparison with any Indian assemblage and seems to have affinities rather with South-East Asia, with some elements (such as the 'hâche courte' and sumatraliths) of the Hoabinhian in Vietnam".

⁶ Kashmir seems to have been inhabited as early as the Palaeolithic period, as demonstrated by the site of Pampur, close to Srinagar, which has a flake industry.

⁷ For the archaeology of Tibet, our main source is CHAYET, 1994. Important Palaeolithic material has been uncovered in Tibet, but it is only surface collection material which has to be dealt with carefully. The material unearthed on the oldest Tibetan Neolithic site, that of mKhar-ro in Eastern Tibet, has led to two periods of occupation being differentiated, the older dating back to the IVth millennium BC. The dwellings and the many tools –scrapers, sidescrapers (racloirs), arrowheads, grinders and millstones, ploughshares and hoes in hewn

From Qinghai to the Nepalese border, no handaxe has been discovered. This confirms that Tibet belongs to the chopper culture which extends north-east of a line going from the Ganges delta to the Caspian Sea.

The only Neolithic sites uncovered in the Himalayas are situated in Kashmir. In Burzahom, near Srinagar, a farming economy developed from 2375 to 100 BC associating wheat (*Triticum aestivum* and *T. sphaerococcum*), barley (*Hordeum vulgare*) and leguminous plants (*Lens culinaris* and *Pisum sativum*) imported from the Middle East –via Harappa–, with horticulture of autochthonous species such as the walnut (*Juglans regia*) and fruit trees originating from Central Asia, such as peach (*Prunus persica*) and apricot (*P. armenica*). Rice (*Oryza sativa*), which was domesticated in the Ganges Valley from the IVth century BC onwards, was grown there during the first millennium BC (1000-600). This monsoon crop succeeding winter cereals (wheat and barley) represents the first attested annual double rotation, which is still in practice today.⁸

From the third millennium BC onwards, villages of pit houses, associated with a late Neolithic culture linked to that of Kashmir (notably in Burzahom) developed in the Swat Valleys, north of the Indus Plain. At the time, contacts were established with the plains, as shown by the objects of Harappan workmanship. Then relations were set up with the northern borders of the subcontinent, partly explaining the very original character of Swat cultures. The number of farmsteads grew there during the second millennium, with wheat and rice cultivated from 1700 BC onwards.⁹

In Ladakh, the oldest artefacts are petroglyphs portraying hunting scenes with maces, ibex, felines and horses. By analysing and comparing the style, these rock carvings have been linked to the Metal Age.¹⁰ They attest to the presence of peoples living on hunting and herding on these highlands, from the end of the third millennium to the IVth century BC. Akin to the groups from the Central Asian steppes and in contact with Achaemenian Persia and the Zhou Dynasty of China, they might be the ancestors of the

stone– as well as animal bones and plants (among which millet comes in abundance) have revealed inhabitants living off hunting, livestock and farming. Other sites, located on the banks of the Tsangpo (or Brahmaputra) in Central Tibet, are later ones. (CHAYET, 1994, p. 38-46).

⁸ LONE *et al.*, 1993.

⁹ JARRIGE, 1985.

¹⁰ Faced with the impossibility of distinguishing a Bronze Age from an Iron Age in the Tibetan area, specialists use the expression "Metal Age"; see CHAYET, 1994.

Sakas from Xinjiang and Khotan. They were probably on transhumance between high-altitude summer places in Ladakh, Zaskar and Central Tibet and their winter quarters located in oases in the foothills of the Kunlun Range, which were accessible by Gilgit or by the northern Ruthog route.¹¹

In Mustang, funeral caves situated between Marpha and Tukche in the Thak Khola have revealed copper objects similar to those of the Copper Hoard¹² culture which developed in the Ganges Valley over the second millennium BC. A receptacle made of birch tree bark dated to the IXth–VIIIth century BC was also found. In Phudzeling, in the lower valley of Muktinath, and in Mebrak further north, caves have been discovered that were inhabited at the same period and contained various kinds of cereal: barley, wheat and buckwheat.¹³

Digs carried out in the Nepalese Tarai at Tilaurakot where Kapilavastu, the capital of the Shakyas, stood, testify to the occupation of the area from the XIIIth–Xth centuries BC onwards.¹⁴ At the neighbouring site of Lumbini where Siddharta Gautama was born in the VIth century BC, grey pottery dating back to the VIIth century BC have been unearthed.¹⁵

However, it is not possible to date the shift in the Himalayas from an economy essentially based on hunting, fishing and gathering to a lifestyle based on farming and cattle breeding. We can only work out hypotheses from discoveries made in neighbouring regions, from second-hand information and from literary texts wavering between the mythical and the normative, such as epics or royal chronicles.

The Indus valley in Ladakh

Myths, epics and chronicles

Towards 430 BC, Herodotus, relying on information obtained from the Persians, relates the existence in a sandy desert in Northern India, of a belligerent people who possessed gold extracted from the ground by amazing ants. Megasthenes, Strabon, then Pliny the Elder, took up the account and added new elements. They named these men "Dards" (Derdai,

¹¹ FRANCFORT *et al.*, 1990.

¹² The Copper Hoard culture preceded the Painted-Grey Ware (or PGW) culture, present in the Ganges Valley between 900 and 500 B.C.

¹³ SIMONS *et al.*, 1994.

¹⁴ RIJAL, 1979, p. 34.

¹⁵ RAO, 1968, p. 2.

Daradrai, Dardae...) and situated them in far inaccessible high mountains. The *Mahabharata*, echoing these authors, reports –somewhere in the Himalayas– the presence of gold-digging ants, linked to hill people bringing yaks' tails, feathers, honey and medicinal herbs from Uttara Kuru and Kailasa for personal use.

Though there are no indisputable arguments to identify these "Dards", it is generally agreed that the Land of Gold is situated on the border of Ladakh and Baltistan, in the auriferous valleys of the Upper Indus and its tributaries: the Shyok and the Suru Rivers.¹⁶ It is also in this region that oral tradition situates the founding of the first Ladakhi village and the beginning of barley cultivation. The various accounts of origin¹⁷ do not refer to autochthonous people, but relate how emigrants from neighbouring lands settled in uninhabited valleys (lit. "empty", *stong pa*). They all agree that three brothers originally from Gilgit were the first inhabitants of Ladakh. Attracted by these valleys brimming with game, which they discovered by chance on hunting trips, the three men decided to return there some months later as soon as their meat supplies were exhausted. At the place where they had previously stopped to rest, there now stretched a field of barley ready to be harvested, which had sprung up after seeds from the straw stuck to their boots had fallen to the ground. Delighted by this fertile land with plenty of wildlife, they chose to settle here. They brought with them some grain, two sticks of freshly-cut willow and birch,¹⁸ a bow and arrow, as well as their knowledge of irrigation. Over the years many men from all four directions – Kashmir in the west, cis-Himalayan valleys in the south, Central Asian oases in the north and Tibet in the east– came to join these pioneers and founded other villages.

The Chronicles of Ladakh (*la dwags rgyal rabs*), a set of heterogeneous, often contradictory texts, compiled in Tibetan probably in the XVIIth

¹⁶ For an in-depth discussion and an interpretation of the different sources related to gold-digging ants and to the Dards, see BOULNOIS, 1983, p. 48-63.

¹⁷ These accounts come in various forms but the story remains the same. See VOHRA, 1982; FRANCKE, vol. 2, 1992 [1926]; PATHAK, 1996; KAPLANIAN, 1981. Some are Ladakhi accounts, others '*brog pa*'. The name '*brog pa*' (lit. inhabitants of the high pastures, '*brog*') is given by Ladakhis (speaking a Tibetan dialect) to speakers of an Indo-Iranian ("Dardic") language, grouped together today in four villages in North-Western Ladakh and commonly recognised as the first inhabitants of the country.

¹⁸ In the accounts on the foundation of a settlement, it is often a question of planting a stick in the ground to test soil fertility. If it buds, the decision is taken to establish a village or a fortress in this place. The trees usually cited are the walnut, birch, willow or "fruit trees".

century, do not mention this story. Neither do they evoke the anthropogonic myth widespread in the Tibetan world¹⁹ whereby the bodhisattva Avalokiteshvara extracted five "sorts of seed" (barley, wheat, rice, mustard and peas) from Mount Meru and thus enabled the descendants of the first ancestors – a monkey and a rock demoness – to become human. Indeed, as soon as they started eating the plants they had cultivated, instead of feeding themselves on wild berries, their body hair fell off, their tails shrank and they took on a human form.

The Chronicles of Ladakh borrow the notion of progressive degeneracy of humanity from Indian Buddhism and cite rice as the first cereal. Men, at first luminous beings, gradually became more substantial by tasting honey-flavoured nectar, then a sweetened cream and finally rice that grew spontaneously without ploughing, each ear of which contained several measures of grain and every grain of which was the size of four fingers. In eating this coarser food, men got thicker, exhaled bodily fluids (urine, mucus, etc.), and became sexed.²⁰

The Chronicles situate the invention of ploughing and combined irrigation under the reign of the mythical Tibetan king sPu-lde gung-rgyal (alias Bya-khri), son of Gri-gum "killed by the sword", first sovereign to leave a corpse on earth as mortals do:

The three ores [iron ore, copper-ore, and silver-ore] were melted with coal, and silver, copper, and iron showed themselves.
 Pieces of wood were pierced, and ploughs and yokes were made.
 Two equals [*mdzos*] were put into the yoke, and the plains were ploughed into fields.
 The water of the lakes was led into irrigation canals, and bridges were built across rivers.²¹

If this text does not enable these techniques to be dated, it is nevertheless interesting to note that, in the genesis of inventions, the swing plough comes first and appears simultaneously with irrigation, which is indispensable on this arid land. It precedes by several generations other innovations such as the production of beer using barley or rice; the making of curds, butter and cheese from milk; pots from clay; water mills and

¹⁹ Different versions of this myth exist in Ladakh, in Mustang, in Bhutan, etc.

²⁰ FRANCKE, vol.2, 1992 [1926], p. 66-67.

²¹ *Ibid.*, p. 79.

weaving. The latter are presented as contemporary with the introduction of Buddhism in Tibet, towards 650 AD.

Once the Chronicles deal with the historical period, remarks regarding the invention of farming and pastoral techniques stop. From the foundation of the Ladakh kingdom in the Xth century²² by a descendant of the former Tibetan royal dynasty to its annexation to Kashmir in the middle of the XIXth century, the Chronicles essentially relate the lofty actions of the elite, the conquests and meritorious deeds of kings and their ministers. Written in a sectarian tone, they provide little information on the country and its people. Similarly, with the exception of the smallpox epidemic in 1802, quoted because it caused the premature death of one of the last sovereigns, they do not mention any cataclysm: earthquake, flooding, drought or famine.

Local production, however, is apparent through the taxes in kind levied by Ladakhi kings from their subjects, and through the tributes paid by the kingdom to its powerful neighbours. This mainly involved livestock farming and, to a lesser extent, hunting, the products of which were exchanged with neighbouring states for agricultural commodities. One thus learns that at the beginning of the XVIIth century the great King Seng-ge rNam-rgyal filled the kingdom with yaks and sheep thanks to his successive conquests. He also presented one hundred ponies, one hundred yaks, one hundred cattle, and one thousand sheep and goats to the great Tibetan *siddha* sTag-tshang ras-pa. We also find that, as a clause of the 1682 peace treaty signed with Kashmir, King bDe-legs rNam-rgyal promised to send every third year eighteen piebald horses, eighteen white yak tails and eighteen pods of musk to the Nawab of Kashmir in exchange for five hundred bags of rice. The only mention of any farming activity in the Chronicles is a reference to "a grain tax" (*bru khal*²³) levied per household.

The first descriptions of farming practices in Ladakh come from Jesuit missionaries sent there in the XVIIth century²⁴ to check the rumour

²² As early as the VIIth century A.D., Ladakh and the neighbouring countries (Spiti, Lahaul, Kinnaur), as well as the westernmost part of Tibet, were conquered by the Yarlung dynasty and these territories were called Ngari (mNga' ris), "subordinates". Nevertheless, it seems that from a cultural point of view, the upper Indus Valley remained in the Kashmir sphere of influence until its conquest around 950 by a descendant of the former Tibetan monarchy, dPal-gyi-mgon.

²³ This expression that MACDONALD (1982, p. 54) translates by "barley tax" does not however specify the type of grain.

²⁴ In 1602, a Portuguese merchant from Almeida visited Ladakh. Unfortunately, he left no eye-witness account.

circulating in Europe whereby a Christian country containing many churches, priests and bishops stretched out on the other side of the mountains in the north.²⁵

Observations by Portuguese and Italian missionaries (XVIIth and XVIIIth centuries)

In his letters, Father Francisco de Azevedo²⁶ depicted the salt marshes and the high plateaus of Eastern Ladakh where, at more than 4,300 metres, shepherds lived in tents and reared sheep, which grazed on the lush pastures alongside rivers. In Gya, a village situated at 3,940 metres, the ruler's wife made him a gift of a dozen big apples, "much resembling the very large and good ones of Lisbon".²⁷ Then Azevedo described the Indus Valley containing many fertile barley fields whose grain "resembles more that of wheat, and as food it is very nourishing and pleasant to taste".²⁸ He also devoted a few lines to Leh: "By the town itself passes a mountain stream which works a large number of water-mills; a few trees are also found here."²⁹ Barley, eaten in the form of flour and beer, made up the staple diet of the population. Tea, the leaves of which were imported from China, was drunk by the wealthiest.

Almost a century later, the Italian priests Ippolito Desideri and Manuel Freyre, sent to Lhasa to revive the Tibetan mission, drew a similar picture of Ladakh which they crossed from west to east during the summer of 1715: a mountainous, fairly unproductive and sparsely populated country, with almost no trees, where barley was the main crop, supplemented by a little wheat, and in some places apricot trees. We have no knowledge of any other

²⁵ When in 1600, Saint François-Xavier's great-nephew accompanied the Mughal Emperor Akbar to Kashmir, a Muslim merchant told him that the Kingdom of Tibet which stretched to the east from Kashmir as far as Cathay contained many Christians and a good number of churches (TAYLOR, 1985, p. 35).

²⁶ In April 1624, Antonio Andrade and Manuel Marques, two Portuguese Jesuits, left Delhi for Tsaparang, capital of the Kingdom of Guge in Western Tibet where, under the sovereign's protection, they founded a mission. Soon the situation turned against them. During the winter of 1629-1630, the king of Ladakh took over Guge, the Christians were imprisoned and the mission destroyed. To attempt to save them, Father de Azevedo left for Tsaparang to weigh up the situation. On 4th October 1631, accompanied by Father de Oliveira, he reached Leh where he met the Ladakh sovereign to beg for their mercy.

²⁷ C. WESSELS, 1992 (1924) p. 107.

²⁸ *Id.* p. 107.

²⁹ *Ibid.* p. 108.

witness account from that century.³⁰ Admittedly, Tibet continued to attract Westerners, but they got there either by the south (Bhutan) or by the north (Mongolia), spurning Ladakh. Additional information regarding soils, natural resource management, farming practices and crops came only in the first decades of the XIXth century with the travel report by the British William Moorcroft and George Trebeck sent off on reconnaissance trips,³¹ and the accounts of their Indian assistants Mir Izzet Ullah and Gholaum Hyder Khan.

Accounts of British administrators and travellers in the XIXth century

Moorcroft and Trebeck surveyed Ladakh from the high plateaus of Rupshu in the east to Baltistan in the west between 1820 and 1822. They admired the ingenuity of the irrigation system, made up of a network of canals equipped with various structures (reservoirs, water mills), as well as for the simplicity and quality of farming tools. The main instrument was a plough made "entirely of wood, generally willow, save the point, which is formed by a small piece of iron".³²

They accurately described the tillage process, using land reclaimed from the mountain, then the preparation of the soil, enriched with human excrement easily recovered each year thanks to cleverly designed latrines, and mixed with the ashes of burnt fuel; dung and droppings were not used for manuring but kept preciously as fuel for cooking due to the shortage of wood.

Ploughing and sowing of barley and wheat took place from March to mid-May, after the winter frosts.³³

Ploughing is performed by a pair of zhos driven by the ploughman without reins, but guided; when well broken in, with the utmost precision by the voice or by a willow wand. [...] The furrow made is superficial in mellow

³⁰ We know that Philip Efreinov, a Russian non-commissioned officer, having escaped from Bukharia where he had been sold as a slave by Kazakh nomads, reached Leh in 1781-1782: but he said nothing of Ladakh save that it was totally impossible to get there on horseback due to the immense precipices and the horrible paths. Of Tibet he wrote: "In certain valleys, good crops of cereals are grown; elsewhere people move camp, always stopping for their herds where there are good pastures" (personal translation from Russian by L. Boulnois).

³¹ MT, vol.1.

³² MT, vol.1, p. 273.

³³ All witness accounts agree on this point, except KHAN (1835, p. 177) who wrote: "They sow the wheat in November, and which lays in the ground covered with snow until March, when it thaws, and comes up luxuriantly."

lands, even not exceeding four or five inches from the top of the ridge to the bottom angle, but the clods are broken, and the earth is made almost as fine as for garden culture, and the seed is covered with especial care. [...] According to the dryness of the ground water is let in, either previous or subsequent to the first ploughing. After the land has been once ploughed, the manure, brought in sacks upon asses to the field, is spread over it, and a second ploughing takes place, in the furrows of which the seed is sown. The grain is sometimes sown broad-cast, at others in the furrow, and is also put in by the dibble.³⁴ In the neighbourhood of Lé the plant was suffered to acquire a height of five or six inches before it was watered, but after this it was refreshed by a thin coat of water almost every day. [...]

The necessity of taking advantage of every available article for the food of the cattle leads to a regular and effective mode of weeding the corn fields, and when the corn has been sown for about three weeks, women and children are turned into the field every morning to collect the grass and weeds springing up with the grain. No harm results from this process, and although the stems are for a little time disturbed by the footsteps of the weeders, they are never trodden down, and recover their erect position in a few hours after the field has been watered. The regular removal of the weeds gives the corn the benefit of the full power of the soil, and gives light and air access to the roots of the plants.³⁵

Depending on the village, wheat and barley were harvested in September or October.

Instead of the crop being bound in sheaves in Ladakh, it is laid on the ground in flat unbound bundles, so piled, that the ears are concealed by the butts of the stems for a few days in fine weather to ripen more completely; but if it is cloudy, or rainy, it is exposed in shocks, with the ears uppermost, on large stones on the sides of rocks, where, by a few showers, the straw loses its white or cream-like colour, and speedily contracts a tint bordering on that of sulphur, without spoiling its quality, unless there be an excess of rain, which seldom happens. When the soil is very dry, the grain is pulled up by the roots; when moist, it is cut by means of a greatly-curved, but short-bladed sickle [...]. Every inch of straw is of value to the farmer for feeding his cattle in the long winter of Tibet; and this value suggesting the pulling up of the straw by the roots, where it can be extracted without bringing up soil along with it, indicates also the expediency of cutting the stem as near to the ground as possible, in situations so moist as not to admit of the former method being employed; [...]³⁶

³⁴ A method used in Nubra, as the author later specifies.

³⁵ MT, vol. 1, p. 271-274.

³⁶ MT, vol. 1, p. 282-283.

In this very harsh environment, Moorcroft and Trebeck were surprised by the high yields achieved. They were amazed that Ladakhi farmers, who did not practise fallow and crop rotation, but obtained an average of ten times the quantity of seed sown (and even twenty times in Dras, in the west of the country), with healthy ears rarely suffering from parasites and fungus, and a regular, clean grain.³⁷ Nevertheless, in Spiti and Upper Kinnaur in a similar milieu, Hutton in 1838, astounded by the large number of abandoned fields and deserted villages that he passed through, ascribed this situation to a single crop with no fallow period which, by exhausting the soil, forced inhabitants "to seek employment and subsistence in a happier clime".³⁸

Among the cereals as reported in Ladakh at the beginning of the XIXth century, barley called *nas* in Ladakhi, was far from being the largest one in terms of quantity. It was grown on all categories of land, from 2,700 m –the lowest altitude in the region– to 4,500 m. Moorcroft and Trebeck distinguished husked barley with six rows of grain locally called *Swa (so ba)* and no different from the common barley of Europe, which grew in the warmest localities, from naked barley termed *Sherokh (shi rog)*, grown on elevated and cold sites. The latter, the most widespread in Ladakh, was characterised by a grain which the glumellae do not stick to. This included six varieties named, according to the colour of the grain, the shape of the ear, and the rate of growth: *Chu Nas*,³⁹ slow or late barley; *Giok Nas*,⁴⁰ quick or early barley; *Nas Yan Karmo*,⁴¹ or "white barley [which] produces more"; *Nak Nas*,⁴² black barley; *Tughzut Nas*,⁴³ or six-sided

³⁷ In 1849, in Southern Tibet between Gyantse and Shigatse. CAMPBELL (1855, p. 228-229) noted the same remarks. Barley was the prime cereal grown. There was hardly any rotation of crops; wheat could therefore be sown for generations on the same land. For manuring, cow dung was not used or very little, as it was kept as fuel for the fire. Human excrement mixed in with ashes from the hearth made up the main source of fertiliser. Besides, in towns, the contents of public latrines were a source of revenue for the government.

³⁸ HUTTON, 1839, p. 942.

³⁹ *Chu Nas* may be a deformation of *lchi nas* "heavy barley".

⁴⁰ *mgyogs nas*, literally "quick barley", is the main variety in the Dras region in Western Ladakh.

⁴¹ While MOORCROFT and TREBECK referred to it as "early barley", *nas yang dkar mo* means "white barley which produces more". It was preferred to all other kinds of barley, as its yield was high, and its flour of good quality.

⁴² *nag nas*, "black barley", was a very hardy barley, growing at the most extreme altitude at which cereal could be raised, but was depreciated due to the greyish colour of its flour.

⁴³ *drug zur nas*, "six-sided barley", was considered inferior both in quality and yield to "white barley".

barley; and Mendokh Nas,⁴⁴ or flower-barley, said to have been introduced from the neighbourhood of Lhasa and imported by Tibetan traders.⁴⁵

Summer wheat (*Triticum aestivum*) or To (*gro*) came in second place. It was raised between 3,000 and 3,800 m. According to Drew,⁴⁶ "little of this is consumed by the Ladakhis themselves; they grow it for the market, for the use of the people in the town and of the travelling merchants." Moorcroft and Trebeck mentioned three indigenous kinds of wheat –To Chand, red wheat; To Karmo, white wheat, an early wheat; and To Surutze.⁴⁷ All had the merit of being hardy, but the To Karmo was the most productive, and yielded the finest flour. They also cited a beardless variety, termed To Mondhu (*gro man gru*) "wheat with no corner", also known as Hasora wheat, from the region whence it comes. It was cultivated in some of the western districts of Ladakh, and was characterised by a very solid straw, a short and broad ear, enclosing from forty to seventy round yellow grains, whereas local wheat produced longer reddish grains.⁴⁸

Buckwheat (*Fagopyrum sp.*), Do or Bro (*bra bo*), more sensitive to the cold, only grew in the lowest and warmest valleys, between 2,700 and 3,200 m. It was sown at the beginning of August after the barley harvest, then reaped in September.

Millet (*tse tse, Panicum milaceum*), reported in the high valleys of Kinnaur and Kumaon, is not quoted by Moorcroft and Trebeck. It is mentioned, however, by Drew, as a second crop in rotation with barley in Western Ladakh and in the valleys of Shyok and Nubra in Northern Ladakh which, due to a lesser elevation, benefit from a milder climate.

Due to the high altitude and to the lack of water, rice does not grow in Ladakh. It was nevertheless known and appreciated by local nobility, who imported it from neighbouring Kashmir for its personal consumption. As for maize, the British residents' attempt at introducing it to Leh in the middle of the XIXth century failed, as the ears did not ripen.⁴⁹

⁴⁴ *me tog nas*, "flower-barley", was introduced to a limited extent at the beginning of the XIXth century; no mention is made of it today.

⁴⁵ MT, vol. 1, p. 276-277.

⁴⁶ DREW, 1976 [1875], p. 246.

⁴⁷ To Chand: *gro chen?* i.e. "large wheat"; To Surutze: ?; To Kar mo (*gro dkar mo*), "white wheat", was known to be the earliest.

⁴⁸ MT, vol. 1, p. 274-275.

⁴⁹ DREW, 1976 [1875], p. 246. The maximum altitude for growing maize is estimated by AMATYA (1968, p. 34) as being 2,550 m.

Besides these cereals, leguminous and oleaginous plants were cultivated in fields: mainly peas Shanma (*sran ma*, *Pisum sativum*) sown, harvested and ground with barley, and white mustard (*nyuns dkar*, *Brassica campestris*). Villagers ate the mustard leaves boiled as a vegetable and crushed the grains to extract oil that they used for cooking and especially as fuel for lamps.⁵⁰ In addition, different varieties of radishes (*la phug*), white onions (*tsong*) and turnips (*nyung ma*) grew in the well-manured vegetable gardens located next to the house. The turnip, which could be found up to 4,500 m on the banks of Lake Tsomoriri in Eastern Ladakh appears to be *the* vegetable of the high Himalayan and Tibetan valleys. Grown for its leaves and root, it is mentioned in the very first reports by Western travellers and their interpreters. In 1631, de Azevedo confided that green turnips exchanged for dried dates are a treat.⁵¹ In the XIXth century, Ullah (1826) described them as very fine, while Cunningham (1848) found them of excellent quality and really delicious.

Whereas in Ladakh and Spiti⁵² the turnip was above all a garden vegetable, in Kinnaur it was sown in fields during August, when barley and wheat had been reaped. In Soongnum (2,800 m), according to Hutton (1840), turnips, which were the staple food for men and cattle during autumn and winter, were cultivated with great care. In order to increase their size, the fields were thinned out and the roots planted at some distance from each other. By this means they came to perfection and were dug up in October. Ripe turnips were of a yellow colour and farinaceous, and were said to weigh up to two kilos. They were then cut into slices, dried and stored for early winter. They could then be ground and mixed into wheat or barley flour.

In Ladakh, the cosmopolitan town of Leh, where people from Central Asia, Tibet, Kashmir, and even Punjab met, offered a wider variety of vegetables. In addition to onions, turnips and radishes, there were cabbages, kohlrabi, garlic, and carrots growing in vegetable gardens there.⁵³ The latter would have been introduced to the capital, then to neighbouring villages, by

⁵⁰ The oil obtained from apricot almonds was used as fuel for lamps and as a cosmetic for the face and hair.

⁵¹ DIDIER, 1996.

⁵² While WILSON (1979 [1885]) described turnips in Nako (Upper Kinnaur), HAY (1850) noted that there were no vegetables at all in Spiti.

⁵³ Gholaum Hyder KHAN, in Leh in 1819, noted: "The common vegetables cultivated here are Savoy cabbages, very fine turnips, carrots, onions, garlic, radishes, some meytee-ka-sang, and mustard-tops." (1835, p. 178).

traders from Central Asia, hence their name *sa rag tur man*, derived from Turki, distinct from the term denoting the carrot in Central Tibet.

Upon reading the chronicles and accounts by travellers and administrators, Ladakh, and especially its central part along the Indus River, appears as a self-sufficient country that never experienced great famine. Demographic growth was very low, yields were high –given the altitude and weather conditions–, earthquakes were rare and of weak intensity, diseases and devastating insects hardly known. Certain years, due to untimely snowfalls or to epidemics affecting the herds, farmers and herdsmen experienced poor harvests and heavy losses in their livestock. However, unlike their neighbours from Baltistan, Spiti and Kinnaur, they were never forced to emigrate or reduced to living on wild grasses, roots or horse chestnuts as the inhabitants from Kinnaur were after the terrible invasion of locusts, which devastated their crops in 1817.⁵⁴

The Kathmandu Valley

The Kathmandu Valley is a privileged site for studying the history of farming in the Himalayas. There are numerous documents, going back as far as the XIth century and since the XVIIIth century foreigners have visited the valley: Capuchin missionaries, then British envoys and residents. Though the Valley provides information about the agrarian practices in use on the southern side of the Himalayas, its particularities should be noted: for two thousand years now it has witnessed a high population density, state-controlled forms of power and flourishing trade activities.

Myths and chronicles

Chronicles relate that the divinity Manjushri first drained the lake⁵⁵ covering the valley. Then, sanctuaries were founded (Swayambhu-nath, Guyeshvari, Pashupatinath) along with the town of Manjupattan, ruled by the Indian king Dharmakar. There is no mention of autochthonous populations, but of

⁵⁴ CUNNINGHAM, 1844. In the case of a food shortage, the inhabitants of Kinnaur ate horse chestnuts and apricot almonds, which they left to soak for several days in water to extract the bitterness, then dried and ground them.

⁵⁵ Nothing is yet known of the prehistoric period of the Kathmandu Valley. Fossils help date its soil to the Pleistocene, an era when the lake covering it dried out, but no Palaeolithic or even Neolithic site has been unearthed. Only a polished axe dating from the Neolithic period has been found by BANERJEE and SHARMA (1969), but not *in situ*. For CORVINUS (1985), it might be a Tibetan artefact brought there as a sacred stone.

pilgrims coming in large numbers to honour the gods of Nepal. A deluge befell them and water is said to have flooded the valley again, forcing the population to take refuge in the surrounding hills. At this mythical time, no mention is made of farming products, even if the first action of Manjushri was to plough a plot of land by harnessing a tiger and a lion or a lion and a griffon.⁵⁶ This land still exists. It is situated north of Kathmandu and belongs to priests from the Thamal monastery. Wright⁵⁷ states that it is the first field in the valley to be planted with rice each year. In this myth, Manjushri shapes the valley's landscape, by this ploughing which initiates its farming vocation, but also by planting trees along the Bagmati which today form the sacred Mrigasthali forest.⁵⁸

After this first mythical time presenting Nepal as a place of pilgrimage, where hermitages and monasteries sprang up, there follows a long period during which the Kirants from the east are said to have ruled over the valley. They are presented as savages, and their capital city, established in the jungle, as being frequently attacked by wild beasts.

The *Gopala* chronicle emphasises that the Kathmandu Valley was originally covered in dense forest. The names of the first dynasties, Kirant, Gopala and Mahisapala (savages, herdsman and buffalo keepers), reinforce this assertion.

Licchavi and Thakuri periods (300-1200), beginning of rice cultivation

Historical documents attest to the presence of groups speaking Sanskrit and Prakrit during the Licchavi period (30-879), such as the Licchavi, Vrijii, Shakya and Koliya. The pottery unearthed in Dumakhali, ten kilometres north-east of Kathmandu, shares similarities with that of Northern India,⁵⁹ proving at least that the Valley's inhabitants maintained trade relations with the Gangetic plain at that time, or that they came from this region.

Licchavi sovereigns encouraged the clearing of new land by exempting it from taxes.⁶⁰ The building of a field or canal constituted a

⁵⁶ This myth remains a mystery, since the reason for Manjushri's action is explained in a tautological manner. It is said that the god ploughed to make the king believe that the earth had been ploughed by a god (which is in fact what happened...).

⁵⁷ WRIGHT, 1993 [1877], p. 85.

⁵⁸ HASRAT, 1970, p. 11.

⁵⁹ RICCARDI, 1988.

⁶⁰ JHA, 1970, p. 194.

praiseworthy act, undertaken by kings and pious men.⁶¹ However, villagers benefiting from water from a royal canal had to pay a tenth of their harvest in tax.⁶² During the Licchavi period, rice, garlic and onion cultivation are mentioned.⁶³ Rice in particular held predominant importance, since a unit of measure of cultivated land (*manika*) was calculated according to the paddy produced.⁶⁴ Similarly, many documents relate to the donation of rice fields.

In an inscription mentioning rice, wheat is also quoted as flour needed for a ritual.⁶⁵ The rearing of pigs, poultry, cow-buffaloes and bulls is reported.⁶⁶ As for wood and fodder resources, they were already an issue as they were the cause of conflicts between villagers.⁶⁷

-
- ⁶¹ D.R. REGMI, 1983, vol. 2, p. 27, inscr. XLVII, dated 492 Samvat (1098 A.D.): "Now Bharawi built a water conduit as an object of fame for the enhancement of the virtues of his parents and of himself", and inscr. LXXV, p. 40: "Let it be known to you within the boundaries of your land, past kings and other pious men, in order to enhance the welfare, had created specified fields [...]."
- ⁶² Inscription of King Jisnugupta, dated 654 A.D. (BANERJEE, 1985, p. 38).
- ⁶³ Mention of rice fields (D.R. REGMI, 1983, vol. 2, p. 48 and 72, inscr. LXXVI and CXVIII) and of tax exemption on garlic and onion (*ibid.*, p. 32, inscr. LIV).
- ⁶⁴ D.R. REGMI, 1969, p. 269. VAJRACARYA (1974) discusses the *manika* unit and proves in a convincing manner that it refers not to *mānā*, as has often been suggested, but to the modern *muri*. In a more recent publication, D.R. REGMI (1983, vol. 3, p. 28-29) shows that the inscriptions do not help evaluate the volume of this unit.
- ⁶⁵ D.R. REGMI, 1983, vol. 2, p. 75, inscr. CXXII, by Narendradeva (born to the Licchavi family), 686 A.D.: "Here are the regulations for donations. The head of the area will give 4 manikas of rice on Kartika sukla 11 (ekadasi) to repair the thoroughfare, on the next day [...] an arrangement is to be made to feed, eatables like ghee (clarified butter), wheat flour, etc. to be provided and to make another grant for setting up pillars, one, rice 54 manikas, thereafter for a flag during bull fights 25 purana, for the daily worship of Lokapalasvami and for purification 40 manikas paddy, and again the man who sets up the image will get manika bhuktika paddy."
- ⁶⁶ *Ibid.*, p. 43, inscr. LXVIII: "Please know that we are pleased with you as you have nursed to care fowls, pigs and infant deer and fishes [...]. This inscription may shed doubt on the grounds on which the famous historian Baburam Acarya remarked when asked: "have the Magars any connection with the Licchavi period?" when he replied: "Magars reared pigs during the Licchavi period. On the other hand, the Licchavis were ritually pure. Some of them were Buddhist too. Therefore, they could have vanquished the Magars had they so wanted. But they did not establish any relationship with the Magars. Licchavis regarded Magars as untouchable" (RRS, 1973, vol. 5, no. 11, p. 212). Without wondering how the Licchavis' purity and belief in Buddhism made them so strong in the eyes of B. Acarya, one may however note that they benefited from the presence of pigs, after all very numerous in the holy town of Pashupatinath at the beginning of the XIXth century according to WRIGHT (1993 [1877], p. 12). Mention of rearing bovine is also found in D.R. REGMI, 1983, vol. 2, p. 49 and 64.
- ⁶⁷ D.R. REGMI, 1983, vol. 2, p. 36, inscr. LX: "For the inhabitants of your village, going from here to collect wood, grass and leaves, everywhere in the forest and then after collecting

In Dumakhal, grains of rice have been found in the second and third strata of the site, the latter dating back to the VIth century.⁶⁸ However, according to the Chinese pilgrim Wang Hiu-en-ts'e, farming was hardly developed during the VIIth century in the Kathmandu Valley: "There are many merchants here, both travelling and settled; farmers are rare".⁶⁹ Another Chinese source points out: "because they do not know how to plough with oxen".⁷⁰ The Chinese pilgrim is surprised that oxen in the Valley do not have a pierced nose, and deduces that they do not work. Nevertheless, Regmi⁷¹ highlights the use at the same period of the term *gohale*, which according to him indicates that ploughing with oxen was a well-known practice. We should add that to this day, the Nepalese do not pierce the nose of oxen, but still manage to plough with them.

Despite its early mention, rice cultivation is not thought of as being autochthon nor even very ancient in the Valley. Its introduction from the Gangetic plain is narrated in various sources. The *Bhasa vamsavali*⁷² indicates that prior to the reign of Amsuvarma (605-621), inhabitants of Nepal only lived on fruit. Then, rice was introduced by the hero Balbal or Balabhadra:

In Nepal in the past, working in paddy fields, planting rice, turning the soil with a hoe, cutting rice, beating it, drying it, husking it, flattening it: none of that existed. There was only fruit and papaya. Under this king's [Amsuvarma] reign, by the gods' favour was born Balabhadra who, after discussing it with the king, built paddy fields and taught the subjects what to do: to build paddy fields, to sow seeds, to plant rice, to cut it, to dry it, to husk it, to flatten it, etc [...]; he taught them everything.

The most widespread myth about the introduction of rice is found in the story of Matsyendranath recounted in Newari by Vajracarya (2014 VS or 1957 A.D.):

Gunakamadeva (r. 987-990) king of Bhaktapur, had a young daughter by the name of Gunalakshmi, who cried all the time. Her mother told her that if she

them while they go silently, the inhabitants of Pherang kotta and others will not in any way deprive them of their sickle, dagger, hoe, spade and wood, and shall not detain them. If anybody knowing this transgresses this order, he will be punished according to the rules applied to breakers of the king's law".

⁶⁸ RICCARDI, 1988.

⁶⁹ Quoted by LÉVI, 1905, vol. 1, p. 164.

⁷⁰ *Ibid.*

⁷¹ REGMI, 1969, p. 264.

⁷² PAUDEL, 2020 VS (1963), vol.1, p. 85. Translated by M. Lecomte-Tilouine.

carried on, she would hand her over to the jackal. The princess grew up and a jackal got into the habit of coming to scream every day in front of the palace. The sovereigns turned to their astrologers for help, and the latter replied that a promise made to this animal had not been kept. The king and the queen then remembered what they had said and offered the jackal their daughter's hand in marriage. The animal turned out to be god Narayan who congratulated the sovereigns for their loyalty and in return offered to grant them a wish. The king consulted his people to see what they wanted and the latter replied that they did not have any rice (*wa*) and that the sovereign should ask his son-in-law for some. Narayan then announced to the king: "Send people to Madhesh to fetch some grains of rice. Sow it after the eighth day of the bright fortnight of Jesth and leave it until Asadh, then during Asadh, transplant it." The king followed the god's advice, but the husk turned out to be empty upon harvesting the rice. Narayan explained to the king that only his own master Karunamaya had the power to grant this grain and that he would help their lineage to bring it back to Nepal in one generation's time. It was thus that some years later, Narendradeva, the son of King Gunakamadeva, set off on an expedition to Kamuni kshetra in Assam to fetch Karunamaya. At the end of a perilous journey, the god of abundance finally settled in Nepal in the Kingdom of Patan and the grain thus began to flourish in the valley.⁷³

This myth was too hastily summarised by Locke⁷⁴ with regard to this passage. Indeed he writes: "Narayan [the jackal] then appears to his father-in-law in human form and as a boon gives him rice to plant, as up to that time there was no rice in Nepal." In fact, it is not Narayan the Jackal who offers the rice. He simply advises the king to dispatch men to India, to the Ganges plain, to look for rice. Afterwards, the Jackal's role is only to explain the rice cultivation calendar. In the myth, rice is definitely thought to be of Indian origin and to have been introduced late into the Kathmandu Valley.⁷⁵

The Valley's inhabitants hold rice in great esteem. The prodigies associated with it are recorded by chronicles, such as this plant with one hundred and twenty-four ears that grew in a sage's field.⁷⁶ It is also said that specimens of rice grains of extraordinary size, thought to have grown in the

⁷³ Translated by Sushila Manandhar and Krishna Rimal.

⁷⁴ LOCKE, 1973, p. 42.

⁷⁵ Based on Locke's translation, TOFFIN (1990) sees in the person of the jackal the manifestation of the "oldest Newar ethnic base", holder of rice, facing the royal family of Indian origin, whereas in the myth, the Newar population suffers from hunger and does not have any rice. The Newars then ask the king to intercede with the god Narayan on their behalf in order to get rice.

⁷⁶ PAUDEL, 2020 VS, vol. 2, p. 71.

Valley in the past, are kept in the Pinta Bihar monastery. Wright⁷⁷ adds that these grains, which are as big as small areca nuts, can be seen in the month of Sawan. The Newars today say that the varieties of rice cultivated by their ancestors had such big grains that these had to be cut into slices to be eaten. They base this legend on the fact that in Newari "to serve rice" is said, "to cut rice" (*jatayegu*). Men would have been cursed by the gods to having the size of their grains shrink.⁷⁸ Similarly, rice was used to test the solidity of religious structures. So, when Bhupatindra Malla had a five-story temple built in 1703, "At the moment that the foundation of the temple was laid, a Jyāpu [peasant] sowed some rice, and when he went to take it up, he found he could not pull out the plants, but had to use a spade to dig them up", an omen showing the stability of the foundations.⁷⁹

The Malla period (1200-1768): the introduction of maize

If the Licchavi period is marked by the introduction of rice, linked to prosperity, the Malla period is associated with the introduction of maize, seen as a harmful grain, bringing famine. Still today the Newars eat it only rarely, arguing that this crop is "suitable for animals".

The arrival of the first maize grain is recounted in a similar way in various chronicles. In the *Padmagiri vamsavali*,⁸⁰ it is said that under the reign of Trilokya Malla⁸¹ (1561-1613), a maize seed was brought from "Eastern countries" in a bag of leguminous plants (*urd*). The king consulted astrologers about it. With the latter declaring that this seed would bring famine, he sent it back to its native region, while banquets for the Brahmans and rituals for the gods were organised so that the kingdom would not be hit by famine.

We have no idea how maize was adopted under these conditions, but it was apparently known and commonly eaten from the mid-XVIIth century onwards in the town of Bhaktapur, as witnessed by this passage from the *Bhasa vamsavali*⁸²:

⁷⁷ WRIGHT, 1993 [1877], p. 117.

⁷⁸ Personal communication by Sushila Manandhar.

⁷⁹ WRIGHT, 1993 [1877], p. 195.

⁸⁰ HASRAT, 1970, p. 59.

⁸¹ In the *Bhasa vamsavali* and in the chronicle edited by Wright, it is not under this king's reign but under that of his son, Jaggajyoti Malla, that the grain arrived at the palace in a bag of beans (*mās*).

⁸² PAUDEL, 2020 VS, vol. 2, p. 67-68. Translated by M. Lecomte-Tilouine.

In Sambat 783 [1663], in the month of Bhadau [...], the king of Kantipur and of Lalitpur encircled the town of Bhaktapur, so that its inhabitants could no longer leave by any gate. [...] not finding anything to eat, they suffered greatly [...]. In the town, there was such famine that with a *dam*, one could only buy twelve grains of maize, and with a *mohar*, only two *mana* of unhusked rice. [...] Those who had nothing to eat started eating leaves from trees, cotton and grass.

The chronicles suggest that maize started to be grown in the Kathmandu Valley in the first half of the XVIIth century. However, it is difficult to evaluate the extent of maize cultivation, as it is not used in rituals and therefore does not figure in donation texts.

More generally, documents from the Malla period contain very few elements regarding crops and farming.⁸³ Mention is made of paddy fields, of fallow practices and of ploughing fallow land.⁸⁴ Numerous donations of land only specify the size offered (up to 400 *ropani*, i.e. 20 hectares) with no indication of the type of terrain, nor whether it is cultivated.⁸⁵

Whatever the case, this period is characterised by "an admirable system of land registering, which could do credit to the British government of India".⁸⁶ Jaya Sthiti Malla (r. 1382-1395) reformed the *ropani* land measurement. The size of this unit defined according to the quality of land⁸⁷ was reduced under his reign.⁸⁸ This proves, according to S. Lévi, that the

⁸³ It is not reasonable to evaluate farming in the Kathmandu Valley on the basis of the goods exported to Tibet (e.g. rice, wheat, pepper and red capsicum), as was done by D.R. REGMI (1966, vol. 1, p. 536). Indeed, we have no idea of where they come from. Pepper, for example, is not cultivated today in the Kathmandu Valley, but is imported from India, as was no doubt the case at the time.

⁸⁴ "[...] by the law of Bhumicchidra [by which was meant 'the uncultivated fallow land' the donee bringing it under plough]..." (D.R. REGMI, 1983, vol. 2, p. 82, inscr. CXXXII).

⁸⁵ M.C. REGMI, 1971 p. 512.

⁸⁶ LÉVI (1905, vol. 1, p. 298) quoting HODGSON.

⁸⁷ "According to later chronicles Jaya Sthiti Malla introduced a new measure of land, and this he fixed in four standards as the cultivable land dictated. In the words of the chronicler 'In the first class a ropani as 95 hāths, for a second class 109 hāths, for the third class 112 hāths and for the fourth 112 hāths'. The statement, however, is not corroborated by facts. A hāth was to be of the length of 24 lengths of the joint of the thumb, according to the same source." (D.R. REGMI, 1965, vol. 1, p. 299).

⁸⁸ The land-surveying pole was reduced from 10.5 cubits to 7.5, which proves that the value of the land had increased (LÉVI, 1905, vol. 1, p. 299).

value of land had increased, since wages were paid in *jagir*⁸⁹ land. Indeed "the unit of measure is not a unit of surface, but a unit of value".⁹⁰

Correspondence by the first Capuchin missionaries⁹¹ offers information on the late Malla period. Father Giuseppe da Ascoli recounted his journey to Nepal between January and March 1707.⁹² Two *kos* (one *kos* = two miles) away from the village of Darbanka, he noted that people were dying of hunger in the hamlet of Hahara and that rice was cultivated in the village situated between Kurkut and Sankhu. One *kos* away from Sankhu, he also recorded the presence of wheat and mustard in a well-irrigated valley. Finally, he emphasised the contrast between the Kathmandu Valley, "where one can find everything for living" and even "enough flour to make raviolis", but no bread, and the region he had crossed after India "where nothing but rice cooked in salted water can be found".⁹³

Ippolito Desideri sojourned in the Valley in 1721 and stated that rice was the main food whilst millet was the staple diet for the poorest, both cereals also being brewed as alcohol.⁹⁴ At some point (Filippi 1995 [1937]: 317) this author emphasized the importance of wheat: "The chief products are wheat, rice, a certain black millet, vegetables and various kinds of fruit such as prickly pears, pineapples, lemons and oranges." However, Father Loro contradicted this in a letter dated 1744: "The kingdom is abounding in rice, which forms the daily bread of its inhabitants. There is still a little wheat, which is most often used to make alcohol [...]."⁹⁵

⁸⁹ In 1792, the Bahadur Shah land register measured land in *ropani*. The results were kept secret, but the people attributed the regent's sudden disgrace to the sin of measuring the limits of the land (HP, p. 299). It is interesting to note that during the Gorkha period, length measurements, for fabric for example, made reference to barleycorn. A cubit was equivalent to two spans, i.e. twenty-four finger widths, each finger width measuring eight barleycorns (D.R. REGMI, 1966, vol. 2, p. 500). Would this reference stem from a society where barley prevailed over rice? As for weight measurements, the standard used is also grain, without the type of grain (barley, rice, etc.) being specified.

⁹⁰ LÉVI, 1905, vol. 1, p. 299.

⁹¹ Among them, one may cite: Desideri who sojourned in Nepal in 1721; Father Cassiano whose journal dates from 1740; Father Giuseppe *alias* Joseph who resided in the Valley from 1763 to 1767.

⁹² Letter dated 8th March 1707 quoted in PETECH, 1952. We would like to thank Luce Cayla for translating the letter from Italian.

⁹³ PETECH, 1952, vol. 1, p. 24 and 27.

⁹⁴ "Much rice is grown, as well as wheat, sugarcane, vegetables and fruits." (FILIPPI, 1995 [1937], p. 315.)

⁹⁵ PETECH, 1952, vol. 2, p. 163.

Accounts by British envoys at the turn of the XIXth century

Though the documents quoted above form an essential source for reconstructing the history of agriculture in the Valley, a detailed description of farming practices becomes available only with the accounts of the British envoys and residents.⁹⁶

Frame 12

A Word about Famine in Nepal

Marie Lecomte-Tilouine

The Gopala chronicle¹ recounts recurrent famines in the Kathmandu Valley between the XIIth and XIVth centuries under the reign of Amrtadeva (1174-1178), Arimelladeva (1200-1216) and especially Abhayamalla (1216-1255). Under the latter's reign, it did not rain during the months of Asadh and Bhadra 1219, and consequently half of the population died of hunger. Again in 1232, they were struck by severe famine and the price of farming produce reached extraordinary proportions, while a third of the population died. A similar disaster again hit the Valley of Nepal in 1244.

Later, in 1316, harvests were destroyed by hailstones as big as "large mangoes and oranges" and a quarter of the population died of hunger. In 1328, the exorbitant price of rice indicated a scarcity and, in 1329, an epidemic called "maize-death" (a particularly surprising name if one considers that maize was introduced on the Indian subcontinent by the Portuguese) spread. In 1380, rice was transplanted very late due to the lack of rain, no doubt leading to meagre harvests and, in 1384, it is said that people could not afford to buy grain because of the extremely high price.

The repeated mention of scarcities for the period 1200-1400 is relayed by later chronicles describing famines throughout the XVth, XVIth and XVIIth centuries and even at the beginning of the XVIIIth century. The *Padmagiri* chronicle² relates a seven-year long famine under Gunakamadeva, then another lasting twelve years under the reign of his son Narendradeva, which in 1513 caused the dispersion of the inhabitants of Bhadgaon. Famines also marked the reigns of Amara Malla (1529-1560), of Suvarna Malla (beginning of XVIIth century) and of Vishnu Malla (beginning of XVIIIth century).

⁹⁶ The data exploited here mainly come from Kirkpatrick who sojourned there in 1793, from Hamilton who resided there in 1802-1803, from Hodgson and from Campbell, whose observations date back to 1830-1840. Campbell's article, the main source on this topic, is completed here and compared with unpublished data from Hodgson, kept in the Indian Office Library in London (*Hodgson Papers*, vol. 15). We have kept the authors' spellings for vernacular terms.

Furthermore, it is a well-known fact that in 1767 Prithvi Narayan along with his army started to block any importation of food into the Kathmandu Valley (especially rice and beans³). Father Giuseppe, a witness to this siege, recounts: "The King of Gorkha, despairing of his ability to get possession of the plain of Nepal by strength, hoped to effect his purpose by causing a famine, and with this design, stationed troops at all the passes [...] every person who was found on the road, with only a little salt or cotton about him, was hung upon a tree [...] and, when I arrived in this country, at the beginning of 1769, it was a most horrid spectacle to behold for many people hanging on trees in the road."⁴ One may deduce from the effect of this blocus that the Valley did not produce enough food for its population as early as the XVIIIth century, i.e. prior to the massive settlement of the Parbatiyas attached to central government after the conquest of the Kathmandu Valley by the king of Gorkha.

A century later, in 1863-1864, the absence of rain during the monsoon season was yet again the cause of a terrible famine. The government forbade any exportation of grain and even went as far as confiscating the whole of the 1866 harvest in order to redistribute it equally.⁵ Food was no doubt so much scarcer in India at that time that the Nepalese people, faced with a famine, considered it worthwhile to sell their grain there.

More often than not, famines were caused by the shortage of monsoonal rains. This dependence indicates a rain-oriented method of farming, with the water for irrigation canals often being deviated from rain-fed streams. But, as noted by Hasrat (1970: 22 fn.1): "These reported famines are totally contrary to modern experience. In the last 30 years there has been one bad harvest and even then about half of the average crop was got."

Several hypotheses may be put forward to explain the recurrent famines in the Kathmandu Valley during the medieval period, then their disappearance at the end of the XIXth century: the introduction of new high-yield crops, such as maize in the XVIIth century or the potato in the XVIIIth century, parallel to the disappearance of low-yield crops such as non-irrigated rice; the development of irrigation networks and of food importations; and finally, perhaps, more favourable weather conditions.

1. D. VAJRACARYA & K.P. MALLA 1985.

2. HASRAT 1970.

3. NARAHARINATH, 2023 VS, p. 463.

4. GIUSEPPE, 1790, p. 317.

5. RRS, 1976, vol. 8, no. 11, p. 201-205.

* *Categories of landscape and soils in the Valley*

The first travellers appreciated the Valley's great fertility: no sterile land was seen and water was plentiful.⁹⁷ Lowlands were entirely irrigated, while both dry and wet crops coexisted on higher land, where irrigation posed more of a problem. The whole valley was perfectly shaped into terraces, save the summits: "The hill sides have the appearance of steps of stairs rising one over the other and diminishing in breadth as they ascent until at the summit they vanish into spaces so small, as to be incapable of growing more than a dozen plants of rice".⁹⁸

The Newars ranked the alluvial soils of the valley floor as follows: sand (Phiso-cha), considered to be hot and bad, clay (Guthi-cha), cold and good, and swamp (Pon-cha) fit for rice only. The mixture of clay and sand was the most sought after. Clay covered in a thin layer of sand also produced good results, but the opposite was not true. Black earth (Dan-cha) was used as cement for building instead of rare and expensive limestone, which was not found in the Valley.

Fossil earth (Kon-cha) was used as manure.⁹⁹ Containing a lot of silica, it was particularly adapted to clayey and chalky soils.¹⁰⁰ It was extracted during the winter months and stored in piles, then spread as a fine powder over all types of soil prior to growing rice. Orange clay was spread over sandy soils for growing wheat, peas (Oorid) and dry (or rainfed) rice. Nevertheless this clay was not considered to be a fertiliser but matter to improve the consistency of some excessively sandy soils.

The Newars distinguished two main categories of field according to the kind of soil, but above all its irrigation possibilities:¹⁰¹ Luckaboo meaning "watered field", i.e. rice field, and Wullaboo meaning "dry rice (Wulla) field".

The Luckaboo¹⁰² was of very clayey soil and situated in the lower part of the Valley near a watercourse which guaranteed irrigation all year round. Rice was grown during the monsoon and wheat in winter. Included in Luckaboo category, Poomboo fields remained wet all year round and gave a

⁹⁷ HP, p. 15.

⁹⁸ C, p. 113.

⁹⁹ HP, p. 1.

¹⁰⁰ C, p. 70.

¹⁰¹ C, p. 68 and 74.

¹⁰² Spelt "Lākhāboon" by Hodgson (HP, p. 2).

single but excellent crop of rice. Luckaboo rice fields were also ranked according to their yields: the best were called Dol or Jhul by the Newars, Sym and Panikhet by the "Parbattiahs".¹⁰³

The Wullaboo was situated in the upper part of the valley floor and was of a far inferior value. It was less likely to be flooded and therefore only suitable for growing dry rice, leguminous plants, vegetables and coarser grains such as maize, finger millet and buckwheat.

This description gives an idea of the meticulousness with which the Newars categorised fields according to the complexity of soil classification and irrigation possibilities. This conceptual wealth was echoed in the practices of soil amendment, which were (and still are) unusual in Nepal.

* Cropping pattern

The cropping pattern, already very intense at the beginning of the XIXth century, differed according to the type of field. On marshland, there was only one paddy crop. On irrigated land, there was an annual rotation, which did not vary: transplanted paddy was followed by wheat, mustard, radish or garlic. On wetlands at the highest point in the Valley, transplanted rice was followed by wheat or dry rice, then by mustard or radish.¹⁰⁴

On dry highlands, a rotation over three years prevailed: wheat was followed by leguminous plants (Oorid) for two successive years, then dry rice by leguminous plants (Oorid or Mong).¹⁰⁵

In the best fields, three crops per year were grown with no fallow period. The cropping pattern was then so intense that while women harvested paddy, men were already turning over the earth at the other end of the field for cropping vetch.¹⁰⁶ Fallow periods were only practised in winter if dry rice was to be sown in spring.¹⁰⁷

¹⁰³ HP, p. 3.

¹⁰⁴ CAMPBELL, 1837, p. 83. *A Gazetteer of Afghanistan and Nepal* dated 1908 also described on these lands a series of three crops a year: transplanted paddy followed by wheat, followed by radish, mustard or buckwheat (p. 114). Maize is not mentioned as a winter crop on wetlands in this book.

¹⁰⁵ In *A Gazetteer of Afghanistan and Nepal* (1989 [1908]), this rotation is no longer mentioned: wheat is followed by maize, ginger, curcuma or red capsicum.

¹⁰⁶ C, p. 116.

¹⁰⁷ C, p. 84.

Two tillings with a hoe were done.¹⁰⁸ To prepare the soil for winter, the field was turned over three to four times and ridges formed for this fallow period. When the land was tilled a second time in spring, ridges and furrows were inverted, exposing the roots, which were still in the earth. Campbell remarked that this method allowed stubble to decompose thoroughly within the billon and expose their roots. The billons were flattened when sowing took place.

* *Crops*

At the beginning of the XIXth century, rice was the main crop in the Kathmandu Valley. Hodgson mentioned four sorts: Ghaiya (Oola in Newari) or dry rice, and three types of transplanted rice: Touli (Newari: Pooa), Angha (Newari: Kowa) and Malsi (Newari: Malsi).¹⁰⁹

• *Rainfed (and untransplanted) rice, Ghaiya dhan*

This crop was apparently very important in the past. First of all, it occupied a large part of arable land. According to Campbell,¹¹⁰ one third of the cultivated surface area of the Valley at the beginning of the XIXth century was sown with rainfed rice. One might be led to think that it had been even more widespread in the past since the Newari term for non-irrigated land literally means "rainfed rice field". It also bore great symbolic importance, for it marked the opening of the sowing season. This was carried out on the day of the first bath of the god of prosperity, Matsyendra from Patan, i.e on the eighth day of the bright fortnight of the month of Cait.¹¹¹ Seeds were sown in earth that had been turned over twice, and the clods of which had been broken up twice using a wooden mallet. It was sown in lines, seed after seed, using one's fingers. All observations showed that this crop was well tended; the soil had been hoed two or three times and frequently weeded. On harvesting in September, only the ears were cut.¹¹² Today, rainfed paddy is considered to be best for preparing *baji*, flattened rice.

¹⁰⁸ C, p. 115.

¹⁰⁹ HP, p. 1. A rice field or paddy field is covered with water (ABÉ, 1995, p. 21). It should be noted that for HODGSON, Angha rice is transplanted into rice fields, whereas for CAMPBELL, it is a transplanted rice but not flooded.

¹¹⁰ C, p. 122.

¹¹¹ HP, p. 1.

¹¹² HAMILTON, 1971 [1819], p. 223.

• *Irrigated rice*

In the Kathmandu Valley, irrigated rice has been transplanted after being sown in nurseries. Just like rainfed rice, its cultivation followed the ritual calendar: sowing started at the second bath of God Matsyendranath in the month of Baisakh, then twenty-four days were assigned to transplanting it, in the month of Jaith.¹¹³ According to Hamilton,¹¹⁴ the ritual performed by the queen on the eve of the new moon of Asadh ended the transplanting season. Thus on the day of Krishna Chaturdasi, the queen and her young slaves transplanted a small rice field located within the royal palace, which had to be the last in the valley to be transplanted. The co-existence of these two different ritual dates which end the transplanting season raises some questions. Indeed, Hodgson's dates are earlier than Hamilton's by a fortnight. One might imagine that the rite performed by the queen respected a ritual farming calendar imported from Gorkha, the royal family's native place, where the valley floors are at a lower altitude than the Kathmandu Valley, which would explain that pricking out took place at a later date.¹¹⁵ Hodgson's data, closely related to Matsyendranath, would actually be of Newar origin.¹¹⁶ The influence of the Gorkhali on rice farming in the Valley has been important, since they would have introduced the Malsi type of rice.¹¹⁷

Irrigated rice was weeded two or three times, regularly watered and harvested in October-November using the sickle, the stalks being cut at their base. According to Hamilton,¹¹⁸ at the very beginning of the XIXth century, the major part of the irrigated rice harvest was turned into *hakuwa*, fermented rice. The sheaves were piled up into stacks three metres by two in size, covered with clods of earth, and left this way for eight to twelve days before being threshed. Still today fermented rice is made according to ritual

¹¹³ HP, p. 1. HODGSON (p. 3) points out that only fields of the first category are transplanted over these twenty-four days; fields of the second category which cannot be transplanted prior to the beginning of the descending season, are planted with Angha rice, a poor type of rice.

¹¹⁴ HAMILTON, 1971 [1819], p. 224.

¹¹⁵ In a legend retold by THAPA (2041 VS [1984] p. 204-207) King Yasobrahma from Lamjung and his queen transplant a ritual field of rice (the Lakshmi-Narayan *khet*) on the fifteenth day of the month of Asar.

¹¹⁶ Without making reference to these rituals, CAMPBELL notes that transplanting takes place between mid-June and the end of July.

¹¹⁷ C, p. 100. Malsi rices represent a dozen varieties among the thirty or so listed by CAMPBELL.

¹¹⁸ HAMILTON, 1971 [1819], p. 224-225.

procedures: peasants from Khokna and Bungamati celebrate the Buraca rite, which consists in placing a straw effigy of the goddess of prosperity, Lakshmi, in the centre of the stack of rice. At the end of fourteen days, the householder pays worship to the stack. Then a meal -including red beer made from the fermented rice and flattened dry rice- is organised in the field before the rice is threshed. Finally, this unhusked rice is taken home and again worshipped at the entrance, as well as in the storeroom.¹¹⁹ The term *hakuwa* seems to be the generic name for fermented rice, which is made in fact according to two processes: in the second one, only the green grain which has not come undone at threshing is kept in a stack. The rice obtained by this method is called *pathuwa*.¹²⁰ Fermented rice is considered to be more wholesome, more easily digested and "colder" (*swardi*) than white rice. Furthermore, it puffs up more upon cooking.

Several origin myths explain this special technique of rice fermentation, which is not practised outside the Valley.¹²¹ One version prosaically attributes its discovery to the land tenure.

Farmers of Nepal usually do not possess lands of their own. Most of them work as tenants and have to submit almost 50 per cent of the produce to the landowners. But the sly farmers want to deceive the landowners. So while thrashing the paddy in the field in the presence of the representative of the owner of the land, a cunning farmer usually strikes the sheaves lightly only (...) to retain most of the grains on the plants (..) and after some days gets a significant amount of paddy in the form of the Pathuwa [...].¹²²

Yet the most widespread version of the *hakuwa* discovery is linked to an invasion of the Valley at a time when rice was being harvested. Peasants threw it in water and covered it with earth so that the enemy could not get it. A week later, when they had left the Valley, the peasants were obliged to eat this fermented rice which they actually found delicious.¹²³ Some sources report that this happened during King Prithvi Narayan Shah's invasion of the

¹¹⁹ We would like to thank Satya Shrestha-Schipper who kindly carried out research on our behalf.

¹²⁰ This distinction is made by GAJUREL and VAIDYA (1984, p. 192-193) and confirmed by our informant Krishna Rimal, whereas CAMPBELL (1837) and TOFFIN (1977, p. 79) describe the one given for the *pathuwa* by GAJUREL and VAIDYA as a technique for obtaining *hakuwa*.

¹²¹ To our knowledge, in the Himalayas, only the Newars eat rice fermented according to this process.

¹²² GAJUREL and VAIDYA, 1984, p. 194.

¹²³ Information gathered by Colonel Crawford, member of the Kirkpatrick mission in 1793 (HAMILTON, 1971 [1819], p. 225).

town of Kirtipur,¹²⁴ whereas the Jyapus of Bungamati associate the event with King Mukunda Sen's visit to Matsyendra of Patan.¹²⁵ The *Padmagiri vamsavali*¹²⁶ relates that under the reign of Ramasimhadeva's son, King Mukunda Sen of Palpa invaded the Nepal Valley at the time of harvest. Peasants left their homes after burying their rice and radishes. When the king had left, they unearthed it and found it half rotten; they therefore called the rice Hakua (black rice) and the radishes Sunki (rotten vegetables).

Whether the invasion is attributed to Prithvi Narayan (XVIIth century) or to Mukunda Sen (XVIth century), the main lines of the myth are the same: a famous king from the west, Khas or Parbatiya, by ransacking the Valley, becomes the involuntary cause of this wonder. Indeed, for the Newars, fermentation adds strength (*bal*) or energy (*tagat*) to the grain.

It is remarkable to note how the introduction of a crop like rice is conceived as a gradual process in the Newars' understanding. In the beginning, peasants dying of hunger asked their king to introduce it. This supposes that they knew of its existence, but that the adoption of a new crop was subjected to royal approval and could not come from a personal initiative. This hypothesis is reinforced by the myth of the introduction of maize, in which the first grain was rejected by the king after he had consulted his astrologers. Once the king's agreement is obtained, divine intervention is needed. In the myth recounting the origin of rice farming, this intervention is even twofold. At first the rice obtained on Narayan's advice was empty and produced grain only at the end of a long ritual quest, to bring the god of prosperity, Matsyendranath, to the Valley. Yet, the locals had to wait for the arrival of a foreign king to turn this product into a culturally "perfect" food. This account underlines the very special relation that the Newars maintain with farming. The natural aspect of rice cultivation is minimised to the extreme: sown with no ritual care, the plant does not give any grain. Royal and ritual interventions allow the new crop to produce a yield. This is not totally satisfactory though, and finally the new technical invention is once again linked to a divinity, to a king as well as to Newar trickery, which renders the grain "wholesome". Each year, the link between the rice crop and Matsyendranath, its divine patron, is reaffirmed by ritual dates for sowing and transplanting, which are those of

¹²⁴ GAJUREL and VAIDYA, 1984, p. 192.

¹²⁵ Personal communication from Satya Shrestha-Schipper. One finds this latter version in the chronicles.

¹²⁶ HASRAT, 1970, p. 51.

his worship and which are, more generally, closely linked to the sun's path (i.e. a symbol of kinship).

• *Wheat*

Contrary to rice, wheat –which existed in two varieties, red and white– received little care; the earth was only turned over once when it was hastily sown at the end of November. The seeds were half covered with roughly broken up clods of earth. Wheat was neither weeded nor manured. Its plants were uprooted at harvesting at the end of May.¹²⁷ Its grain was exclusively consumed in the form of alcohol. Nevertheless, along with rice, it was the only cereal shared with the landowner in the Adhiya tenure system.¹²⁸ This suggests that wheat alcohol was particularly sought after.

It is notable that winter wheat was already grown on irrigated land in the Valley as early as the first half of the XIXth century, whilst it was introduced into the Gulmi and Pokhara regions only at the beginning of the XXth century and into many localities of the Central Mahabharat as late as the 1990s.

• *Maize*

Maize was probably not a predominant crop in the Kathmandu Valley in the XIXth century. Occasionally grown during the monsoon on mountainous lands bordering the valley, it was nevertheless well tended.¹²⁹ It was weeded several times and fed both ashes and fertiliser after it had been thinned out for the first time.¹³⁰ According to Hodgson,¹³¹ maize was mainly used to make beer. Campbell¹³² however reported that the "Bhoteahs" and the low castes, who appreciated its nutritive qualities, ate it. In the hills surrounding the valley, roasted maize was actually the only food available to the poor in August and September.¹³³ As for the Newars, they considered that maize was fit for animals and only ate its cobs when they were fresh and roasted. The stalks, after being cut into pieces, were given to cattle and to elephants.¹³⁴ They also served as litter and fuel.¹³⁵

¹²⁷ HP, p. 3-4.

¹²⁸ HP, p. 8.

¹²⁹ C, p. 60.

¹³⁰ C, p. 125.

¹³¹ HP, p. 9.

¹³² C, p. 126.

¹³³ C, p. 126.

¹³⁴ HP, p. 7.

¹³⁵ C, p. 127.

• *Garden produce*

Vegetables and oleaginous plants already held an important place at the beginning of the XIXth century. Grown on irrigated land, mustard, garlic and radishes were carefully tended.¹³⁶ Curcuma, ginger, capsicum, lettuces, spinach and Cucurbitaceous were also to be found.¹³⁷ These vegetable gardens were fertilised with human excrement and slurry, and their products were not shared with the owner.

Farming in the Kathmandu Valley in the XIXth century was therefore characterised by the intensity of the crop cycle and the extreme care given to the different stages in the cultivation process. Only wheat seems to have been neglected, which may be explained by share-cropping, forcing peasants to give half of their harvest to the landowner. Rice also came under this law, but its economic, symbolic and gustatory value encouraged maximum production.

Major changes

In the Kathmandu Valley, the introduction of irrigated rice is linked to the first millennium, that of maize to the XVIIth century, while the abandon of dry rice dates back to the XIXth century. In Ladakh, barley is presented as an original crop and potato, recently adopted, as the main introduced crop. Can these two examples be generalised on a broader scale? Are they representative of the Himalayan Mountains? Some information, taken here and there, show that these two models prevailed almost everywhere in the mountain range, though obviously, each place has experienced its own specific agrarian history.

Nevertheless it must be noted that a large family of cereals, the millets, absent from both examples studied here, seem to have played an important role in the Himalayan hills.

The Kathmandu Valley and the Upper Indus Valley (Ladakh) do not allow the changes in agrarian landscapes to be well documented. The

¹³⁶ HP, p. 3-4. Sown after turning over the earth three or four times, breaking the clods of earth twice and flooding once, mustard seeds were covered with a thick layer of Kon-cha earth. The fields were dug into billons in view of producing maximum yield and the mustard was sown very densely in order to provide green vegetables as it was gradually thinned out. When the mustard was ripe, the plant was pulled out and beaten with a stick.

¹³⁷ However, this rich and abundant crop was not taxed.
HP 15, p. 4.

available information does not date the first cultivation process, and does not document the intensification process, which had already been largely initiated at the time of the first observers. Everywhere else, major transformations in farming shaped the landscape during the XIXth and the XXth centuries.

Expansion of irrigated rice and abandon of rainfed rice

Irrigated rice is the oldest quoted cereal in Nepal. Nevertheless, the frequency with which it is mentioned in written documents should be subject to caution, given its paramount symbolic importance. Indeed, its introduction and the building of rice fields are conceived of as founding events, both in ancient chronicles and in contemporary oral traditions. These can overshadow the existence of other cereals.

As we have seen through the chronicles from the Kathmandu Valley, its introduction is the very basis of farming. This mythical motif is found in the Jumla region, in North-Western Nepal. The *Jumlesvar vamsavali*¹³⁸ recounts:

In the past, during King Bhopata's reign, there was a lake in Jumla. There were no paddy fields (*jiula*). After drying the muddy water and clearing the forest, the god Shri Candan Nath brought a grain of rice from Kashmir and settled in the village of Lacchu. When Budhai Budho went to the Sipali River from Mount Narsingh to collect *ningalo* bamboo, he heard a child crying in a wild sheep lair. Budhai Budho carried the child back to his house and called him "Lacchal kheti". Candan Nath gave the grain of rice to this child and Lacchal kheti asked him how he was to go about growing rice. The guru replied that the forest had to be cut down to make a field. On the 11th day of Chait, the rice had to be soaked. On the 16th day, it had to be taken out of the water and left to dry in the sun. Once dried, it had to be kept in the house covered in fabric. On the 20th day, it had to be sown onto the field.

This myth explains the introduction of rice in the very special context of Jumla, where high-altitude conditions force peasants to follow the technical process described by Candan Nath to the letter in order to facilitate the germination of seed.

As far as the tribal populations are concerned, it is not certified whether they knew of a form of rice cultivation prior to the arrival of the Khas. These Indo-Nepalese's ancestors who settled as early as the VIIIth

¹³⁸ NARAHARINATH, 2012 VS [1955] p. 107-109. Translated by M. Lecomte-Tilouine.

century in Kumaon, established kingdoms going back to the XIIth century in Far Western Nepal and to the XVth century in the centre of the country. We know that until recently, ethnic groups which settled along rivers traditionally practised extensive and shifting paddy cultivation along waterways.¹³⁹ However, the introduction of intensive rice cropping,¹⁴⁰ transplanted in specially arranged and planed paddy fields, may possibly be connected to older cultures which flourished in large centres such as Lumbini and Janakpur in the Tarai, as well as the Kathmandu Valley.

In the hills, the first mention of rice fields can be pinpointed to the Gorakhnath cave of Gorkha. Dating back to the Licchavi (1002), the inscription includes the terms *khet* and *manika*.¹⁴¹ However, with the Licchavi having their capital in the Kathmandu Valley, this recording may refer to land offered to the Gorkha god but located in the valley they ruled over. Apart from this document emanating from a great dynasty, which left many writings, documentation about the Hill kingdoms dates back to a later period. Some texts dated or referring to the XVIIth and XVIIIth centuries deal with donations of rice fields and protection measures related to irrigation canals.¹⁴² An edit attributed to the king of Gorkha, Ram Shah (r. 1606-1633), not only attests to the presence of irrigated rice in Gorkha, but also to legislation regarding irrigation.

¹³⁹ JOSHI, 1970, p. 40.

¹⁴⁰ Ancient descriptions of ritualised transplanting sessions and the name "*ropai*" (i.e. transplanted) rice indicates the existence of the technique of rice transplantation among the Indo-Nepalese populations as distinct from the sowing of seeds practised by fluvial tribes in the Tarai. In 1935 however, in lower Kumaon, both rice cultivation methods were still practised depending on the care taken in growing the crop and on the available quantities of water (PANT, 1935, p. 106-119).

¹⁴¹ VAJRACARYA, 1973, p. 523-526.

¹⁴² In the documents included in VAJRACARYA and SHRESTHA, 2037 VS, one finds a mention of rice field, *khet*, and of a canal as early as 1662 in Dolakha in Eastern Nepal (palm leaf document, number 1, p. 189) and as early as 1665 in Nuwakot, Central Nepal. There, a text dated 1763 grants a paddy field growing *mārsī* rice (document 34, p. 29). A *khet* is mentioned in Doti in 1697 (1754 VS) in a royal donation (NARAHARINATH, 2022 VS [1955] p. 651). A donation of 80 *muri* of *khet* (about a hectare) was made by the king of Gulmi in 1749 (1671 Sake), and a gift of 40 *muri* of *khet* in 1751 (1673 Sake) and of 20 *kutmuri* of *khet* in 1815 (1872 VS) [SHRESTHA, 1983]. A donation of 100 *muri* of *kholā khet* in 1703 was made by the king of Pyuthan as well as confirmation of a gift of 40 *muri* of ritual rice *aksetyā* in a *guth khet* in 1788 (1845 VS) (GIRI, 2052 VS [1995], p. 931). A donation of *khet* was made by the king of Palpa in 1783 (GHIMIRE, 2045 VS [1998], p. 210). Intervention of the king of Palpa for the protection of an irrigation canal in 1795 (*ibid.*, p. 219). Existence of a royal canal *rāj kulo* in Argali (in the Kingdom of Palpa) in 1787 (PRADHAN, 1990, p. 41).

On the outskirts of most ancient Hill kingdoms, irrigated rice was cultivated on vast valley floors which were like royal granaries. Their control seems to have played a vital role in these mountainous principalities.¹⁴³ In the Gulmi region, villagers visibly began to shape paddy fields on valley floors and along waterways. Mountainside canals, which are more difficult to set up, were dug on royal order, as their name *raj kulo* or "royal canal" testifies.¹⁴⁴

The interest that rulers took in rice no doubt contributed to the expansion of irrigated rice cultivation in the hills at the medieval period. Witness accounts by the first travellers corroborate the fact that paddy was pre-eminent in the hilly country valleys in the XVIIIth century. Thus, Desideri, travelling from Kathmandu to Patna in 1721-1722, recounts: "In these valleys, the Parbettia, as the inhabitants of these mountains are called, sow rice, so the fields are always full of stagnant water at least a handsbreadth deep."¹⁴⁵

Generally speaking, local populations closely associate irrigated rice and the cultivation of the valley floors in the hills with the high-caste Indo-Nepalese, who settled there from the XVth century onwards. Ethnological studies support this view, even though the vocabulary used in the Tibeto-Burmese languages does not enable us to be categorical about this: whereas 80 per cent of the rice-related nouns in Tamang terminology are of Nepali origin,¹⁴⁶ the Magars and the Limbus possess a greater proportion of vocabulary in their own languages.¹⁴⁷

Finally no document enables us to truly evaluate the state of rice cultivation in the hills prior to the XIXth century. M.C. Regmi (1971) conveys the image of a barely cultivated region, where much land is still to be cleared, as encouraged by the government.¹⁴⁸ According to him, farming in the Kathmandu Valley was more intensive than in the hill districts.¹⁴⁹ For this author, the time and effort devoted to irrigation canals, the rules drawn

¹⁴³ RAMIREZ, 1993, p. 263-264.

¹⁴⁴ AUBRIOT, 2004, p. 69-72.

¹⁴⁵ FILIPPI, 1995 [1937] p. 319.

¹⁴⁶ Personal communication from András HÖFER.

¹⁴⁷ SAGANT, 1976. 30 of the 93 terms for rice growing used by the Limbus as studied by Sagant, are of Nepalese origin. Of the 12 terms for rice and paddy fields used among the Southern Magars (personal work by M. LECOMTE-TILOUINE), none are of Nepalese origin.

¹⁴⁸ Farther west, Kumaon is described in 1814 as being cultivated and Garhwal as "a desert" (*Military History of Nepal* 1983, p. 145-147), yet with rice as the main crop (*ibid.*, p. 56).

¹⁴⁹ M.C. REGMI, 1971, p. 18.

up for their maintenance and the detailed water right regulations in the Kathmandu Valley are signs of intensive farming. He adds that, on the contrary, the absence of written regulations outside the valley, where kings did not interfere with water distribution (leaving peasants to organise themselves according to their customary rules) infers less intensive farming.¹⁵⁰ We would argue, however, that the attention the king paid to irrigation management is not a clear indicator of the type of farming.

With the Gorkhali unification, the objective was to encourage land improvement, especially for irrigated rice production,¹⁵¹ which guaranteed the State better revenue. Incentive rules for the construction of canals were still in application under the Rana government. It is clearly stipulated in the 1854 Legal Code that neither thing nor person may prevent the building of canals and irrigated land; houses themselves must be moved if necessary. An edict sent to Dolakha in 1847, in reply to a complaint about the drought caused by cutting trees, stipulates that forests must no longer be cleared for farming and that trees bordering canals, reservoirs and springs must not be felled.¹⁵² However, it is difficult to grasp the influence of these incentives on the development of irrigation –and therefore rice farming– in the XIXth century. In fact, it appears that the number of irrigation networks only surged in the course of the XXth century, with the demographic explosion.¹⁵³

¹⁵⁰ Thus one of Ram Shah's edicts (1603-1633) stipulates: "Not to hear the complaints of the water carriers, the oilmen and the persons who fight about the conduits and ducts carrying water into their fields from running streams, because everyone of them has equal need of these; therefore, let them do according to their custom and need" (*Gorkhā vamsāvali*: HASRAT, 1970, p. 110). This declaration is remarkable since it displays an egalitarian ideology as far as the means of subsistence are concerned, within a very hierarchical caste society.

¹⁵¹ A text dated 1834 addressed to the Jumla authorities stipulates: "Wherever waste land can be irrigated through the channel, make arrangements for their conversion into paddy-fields" (*RRS*, 1971, vol. 3, no. 3, p. 59).

¹⁵² *RRS*, 1981, vol. 13, no. 6, p. 83-84.

¹⁵³ According to an enquiry conducted throughout Nepal on 109 irrigation networks, 18 were created prior to 1800, 20 or so in the XIXth century and the remainder (i.e. 70 %) dates from the XXth century (BENJAMIN, 1992, p. 29). Nevertheless, these figures (which are not official statistics) must be handled with caution, since many of the networks studied are situated in the Tarai, which experienced considerable agricultural development over the XXth century. Our own research in the Gulmi region, however, confirms a considerable rise in the number of irrigation canals in the XXth century (AUBRIOT, 2004). In Darling (Gulmi), paddy fields were built from 1920 onwards (LECOMTE-TILOUINE and MICHAUD, 2000). Similarly, in Kimtang, in the Ankhū Khola, rice cultivation was only introduced in 1955 (BLAMONT, 1983).

Parallel to this, many areas in the hills were shaped into terraced rice fields devoid of irrigation canals, but flooded by rain water which they trapped.

Rainfed paddy, which can be described as the poor relation of irrigated paddy, has undergone a very marked decline since the XIXth century.¹⁵⁴ In the Kathmandu Valley, memories of it waning are still vivid: near Buddhanilkantha, for example, peasants point out many irrigated fields which were still cultivated with rainfed paddy in the 1970s.¹⁵⁵ Kirkpatrick mentioned two varieties of this rice in the Kingdom of Tanahun: the Towli, ripe in summer, and the Ikaro, ripe at the winter solstice.¹⁵⁶ In Eastern Nepal, Hooker also described a rice grown with no irrigation, the "large, flat coarse grain" of which becoming gelatinous and often pink when cooked.¹⁵⁷ Eight to ten varieties existed there. They did not need to be irrigated due to the humidity of the climate.¹⁵⁸ This rice formed the staple diet for the Lepchas of Darjeeling,¹⁵⁹ and throughout the Limbu country, its cultivation was still ritualised and chanted over in the 1960s:

[A]n old man Shorokpa by name proposed to work in the field in a dancing manner. He first of all introduced the system of planting paddy in a dry field. He, first of all arranged a dozen of young boys, to stand in a line at one corner of a prepared flat field, holding cross sticks [...]. He then made arrangement of another dozen of young girls to stand behind the boys with a bag of corn seed to be dropped into the holes made by the young boys. Now, when the old man started singing and marching before them, the whole line of boys and girls marched after him singing, making holes and dropping seed into the holes according to the rhyme of the song.¹⁶⁰

In Kumaon, the Rajis of Askot cultivated rice in small forest clearings in order to supplement "other natural vegetable foods".¹⁶¹ In the Central Mahabharat, according to villagers, rainfed rice was an important crop.¹⁶² Today, despite its recognised gustatory qualities, rainfed rice is on the point of extinction in the hills of Nepal, remaining marginally cultivated by those

¹⁵⁴ Flattened rainfed rice was previously on sale on the market, whereas today only flattened irrigated rice is sold.

¹⁵⁵ Personal information from C. JEST.

¹⁵⁶ KIRKPATRICK, 1969 [1811], p. 82.

¹⁵⁷ HOOKER, 1987 [1885], p. 123.

¹⁵⁸ *Ibid.*, p. 146.

¹⁵⁹ *Ibid.*, p. 123.

¹⁶⁰ CHEMJONG, 1966, p. 89.

¹⁶¹ PANT, 1935, p. 88-89.

¹⁶² Information gathered by N.L. PANDEY.

who do not have paddy fields. Its yield is indeed twice as low as that of irrigated paddy (2.5 *muri* versus 4 *muri per ropani*).¹⁶³ Besides, it requires a lot of weeding and, in Gulmi at least, its grain cannot be offered to the gods.

The maize conquest

In 1793, Kirkpatrick mentions maize as one of the main crops in non-irrigated fields of the hills.¹⁶⁴ Paradoxically, if maize was carefully tended in the valley even though marginal, it was neglected in the hills where bears wreaked havoc on this crop.¹⁶⁵ Elles describes it, however, as growing "luxuriously though hardly any care is bestowed upon it" in the hills.¹⁶⁶ Maize was planted in holes at the end of May. It was usually a single annual crop apart from rare places where it was cultivated alternately with potatoes. Maize colonised newly-cultivated land¹⁶⁷ and grew on poor soils; it was perceived as being a regenerating plant for the soil.¹⁶⁸

In Eastern Nepal, Hooker mentioned maize on foothills in association with millet and paddy. He reported the predominance of this crop on 25° slopes and pointed out that villagers liked its taste.¹⁶⁹ The way it was stored in a granary mounted on four posts, as observed by Hooker in 1850 in the Myong Valley, is still in practice today.¹⁷⁰ In the 1880s, Elles¹⁷¹ mentioned it in the Deokhur Valley in Western Nepal, from where it was exported to India. In 1910 the price of maize was given for numerous districts of Nepal,¹⁷² showing that it was very widespread.

The history of the spread of maize in Nepal, between the beginning of the XVIIth century when it appeared as a harmful plant from the East and

¹⁶³ ELLES (1986 [1884], p. 42). According to Kansa Tamang, from Balkani VDC, a sown *mānā* produces a *pāthi* (information from C. JEST). Rainfed paddy cultivation in the Himalayas reaches higher altitudes than the limit of 1,500 m put forward by UHLIG (1978, p. 525). It can be found at 1,800 m, for example in Northern Gulmi (unpublished information, M. LECOMTE-TILOUINE).

¹⁶⁴ KIRKPATRICK, 1969 [1811], p. 93-94. However, maize was still not cultivated in Garhwal in 1809 (RRS, 1971, vol. 3, no. 7, p. 153).

¹⁶⁵ CAMPBELL, 1837, p. 127.

¹⁶⁶ ELLES 1986 [1884], p. 42.

¹⁶⁷ C, p. 125.

¹⁶⁸ C, p. 129.

¹⁶⁹ HOOKER, 1987 [1855], p. 148.

¹⁷⁰ *Ibid.*, p. 173.

¹⁷¹ ELLES, 1986, [1884], p. 47.

¹⁷² Dailekh, Dolakha, Kabhrepalanchok, the seven villages of Bhadgaun, East no. 3, Nuwakot, Salyan, Lamidanda, Jhiltung, West no. 2, West no. 4 and West no. 5, Pyuthan, Gulmi, Madi, Malang, Dansing, Salyan, Kathmandu (RRS, 1981, vol. 13, no. 6, p. 92-96).

was sent back to its native land, and the beginning of the XIXth century when it was reported as being predominant in the hills, remains unclear. Indeed, it does not figure in any text due to its profane and far from prestigious character. Its impressively large proliferation throughout the country does not seem to have been encouraged by State regulations, contrary to paddy or cash crops such as cotton or indigo.

Frame 13

Change in the Price of Farming Produce

Marie Lecomte-Tilouine

Without taking into account the rupee's exchange rate, a comparison of the prices of farming produce throws interesting light on the history of agriculture, population movements and food habits (Table 5). According to A. Campbell (1837) and data collected in the *Regmi Research Series* (see Sources below), from 1792 to 1929 in the Kathmandu Valley, the price of maize was multiplied by 26, that of rice by 13 and that of wheat and finger millet by 11. In the course of this period, prices remained stable between 1792 and 1816, increased to an enormous extent between 1816 and 1832, then only rose slightly until 1900 (with however some exceptional years with poor harvests linked to the drought, such as 1836) and finally remained stable between 1900 and 1930. The price of rice, for example, was multiplied by five between the period 1792-1816 and 1832, then again by two over the four years from 1832 to 1836. Finally, between 1832 and 1905-1932, its price only doubled. As for maize, its price decupled between 1816 and 1832, going from 80 *pathi* per rupee to nine *pathi* in 1832 and seven *pathi* in 1836. Again between 1836 and the years 1905-1929, the price of maize doubled, reaching three *pathi* per rupee. Globally speaking, the price of maize therefore increased twice as much as that of rice between 1792 and 1929.

Campbell associates the rise in prices in 1816 with the loss of land in the Tarai following the Sugauli treaty, then the increase in 1816 to 1832 with the massive arrival in the valley of a population of civil servants and soldiers from these territories. The significant difference between the rise in prices of the various foodstuffs revealed new food practices: whilst maize was only eaten by the Bhoteahs and by the poorest, the demographic increase would have, according to Campbell, forced a large number of people to eat it. This may also suggest that maize farmers, i.e. hill populations, settled at the time in bigger numbers in the valley, due to the unification of Nepal. The price of rice, wheat and millet increased in about the same proportions from 1792 to 1929, contrary to that of maize. Between 1816 and 1832, the price of all foodstuffs increased enormously, though that of maize in a more spectacular way than that of the others and, after 1832, the price of rice and maize went on to rise until it doubled in 1929 whereas that of millet and wheat increased to a lesser extent during this second period. One may conclude that rice and maize have become the staple food for the population of Kathmandu.

Table 5
Quantity (in *mana*) of Cereals Obtained for One Rupee
(between 1792-1816 and 1932)

| Years | Hulled rice | Wheat | Finger millet | Maize |
|--------------------------|-------------|-------|---------------|-------|
| 1792-1816 | 100 | 320 | 520 | 640 |
| 1832 | 40 | 40 | 84 | 72 |
| 1836 | 24 | 38 | 52 | 56 |
| 1952 (royal purposes) | 32 | 40 | - | - |
| 1900 | 13.25 | - | - | - |
| 1905 | 15.5 | - | - | 24 |
| 1910 | 18.5 | - | 48 | 34 |
| 1914 | 15 | 24 | - | 28 |
| 1926 | 13 | 20 | - | 20.5 |
| 1929 | 15 | 28 | - | 25 |
| 1932 | - | 28 | - | - |

Sources: A. CAMPBELL (1837) and *Regmi Research Series* (1971, vol. 3, no. 5,7; 1976, vol. 8, no. 1; 1977, vol. 9, no. 5; 1978, vol. 10, no. 10; 1980; vol. 12, no. 2, 10; 1981, vol. 13, no. 7,8,9,10; 1985, vol. 17, no. 4/5).

The potato epic

The introduction of the potato in the Himalayas is due to administrators and missionaries. It was introduced in Bhutan in 1774 on Hastings' advice. He assigned G. Bogle the task of planting ten to fifteen tubers in each village they passed through in order to spread the crop in the country. There numerous fruits and vegetables¹⁷³ as well as various cereals (wheat, barley, maize and rice) already thrived.¹⁷⁴ Two centuries later, the potato, along with cardamom cultivated in the south of the country, represented Bhutan's main cash crop. The surfaces allotted to its cultivation increased from year to year. In the upper valleys in the North, it tended to gradually replace traditional subsistence crops, such as buckwheat, wheat and barley.¹⁷⁵ In Nepal, Kirkpatrick mentioned potatoes upon his visit to Kathmandu in 1793, but emphasised that the inhabitants did not know how to reproduce them and

¹⁷³ Turnips, leeks, shallots, watermelons and melons, cucumbers, eggplants, strawberries, blackberries, apricots, peaches, apples and pears.

¹⁷⁴ BOGLE, 1996.

¹⁷⁵ YOUNG, 1991.

had to buy new seeds every year in Patna, in Bihar. In the 1830s, Campbell reported, with no further detail, a rotation between potato and maize in "certain places in the hills". He added that peasants from the surrounding area sold their harvest on the Kathmandu market first at the end of July and a second time in November, bringing with them more waxy and chalky red potatoes than those from India. In 1884, Elles described the cultivation of a large round red potato in the Kathmandu Valley, planted in lowlands in January and February and dug up in May-June.¹⁷⁶ However, this kind of potato was barely cultivated, since the Nepalese preferred the small red "kidney-shaped" one from the surrounding mountains.¹⁷⁷

In 1848, Hooker reported potato in the upper valleys of Nepal, among the Bhotiyas of Yangma, west of Kanchenjunga. He suggested that it might come from the vegetable gardens of European settlers in Darjeeling or from the garden of the British resident in Kathmandu. It was introduced at the same period (between 1840 and 1860) among the Sherpas of Solu-Khumbu, where the light sandy soil of this region offered an extremely favourable milieu for its development, "they thrive so well that a field in which potatoes are planted yields very much more food than the same acreage with buckwheat can yield even in a good year".¹⁷⁸ Within a few decades, its cultivation transformed the Sherpas' whole economic system¹⁷⁹ and made it materially possible for religious life to flourish with the creation of numerous temples and Buddhist monasteries. Elsewhere, the introduction of this tuber came much later, but created a similar stir. In the Ankhu Khola, the "white" potato seems to have come from Kyirong in Tibet and to have been introduced in the years 1935-1940.¹⁸⁰ In the hills of Central Western Nepal, the potato was imported from Dhorpatan towards 1920-1930, but we have no idea of how it reached this remote valley.¹⁸¹ Since then, many pastures have been turned into potato fields, which today represent 90 per cent of the Kham Magars' food during summer.¹⁸² It emerges from these data that the potato has undergone two movements in Nepal spreading south-

¹⁷⁶ ELLES, 1886 [1884], p. 43.

¹⁷⁷ For the potato in Nepal, see among the Limbus: SAGANT, 1976, p. 208-209; among the Gurungs: PIGNÈDE, 1966, p. 130-131; among the Sherpas: FÜRER-HAIMENDORF, 1964, p. 30.

¹⁷⁸ FÜRER-HAIMENDORF, 1964, p. 9.

¹⁷⁹ It was introduced to Rolwaling in about 1860-1870 (SACHERER, 1974, p. 317-324).

¹⁸⁰ BLAMONT, 1983.

¹⁸¹ For example in the north of Gulmi, see LECOMTE-TILOUINE and MICHAUD, 2000.

¹⁸² MOLNAR, 1981, p. 26.

north and north-south, contrary to other crops which have apparently not experienced such north-south movement (at least recently).

In the Western Indian Himalayas, the eight potatoes brought over in a small box to Khyelang, in Lahaul, directly from Europe by the Moravian missionary Heyde in 1857 also radically transformed the region's agricultural landscape. Since the opening of a road in 1970 linking Manali to the Indian plains by the Rohtang pass, the potato, essentially cultivated in the past for domestic consumption, has become the main export product and has supplanted traditional crops of barley and buckwheat. Today it makes up the staple diet of the population whose agriculture, economy, and consequently lifestyle, has been transformed by it.¹⁸³ Such a change has not occurred in Ladakh where this tuber, introduced in 1875 by Johnson, governor at the time, basically remains a vegetable garden plant. However, since several thousands of Indian soldiers settled in the Indus Valley in the 1960s following the Aksai Chin conflict, the farming of this crop has noticeably developed. It represents a godsend for the inhabitants of Leh and of neighbouring villages, who cultivate it more and more. Sown in April in vegetable gardens or in fields, potatoes are harvested in autumn and stored in a hole dug about two metres deep in the field, then covered with earth according to a method learnt from missionaries. The preservation of potato seeds remains a delicate process and the Himalayas contain several sites, such as Dhorpatan in Nepal, where villagers have to walk several days to get their supplies.

Intensification of farming and impoverishment of crop diversity

Slash-and-burn cultivation was current practice in the lower Kumaon towards 1930. Shrubs and bushes were cleared and burnt, and the earth broken up with a hoe. Timber was left to dry throughout winter, then burnt too. Finger millet, amaranth, leguminous plants or buckwheat seeds were then hastily sown on the ashes. The fields were then made into terraces and regularly cultivated after a period of a few years, this slash-and-burn cultivation being similar to clearing ground.¹⁸⁴

In Nepal, slash-and-burn cultivation was also widespread at this time in the hills. In Darling (Gulmi district) for example, trees were cut to a height of 1.50 m on a plot which was ploughed around the edges prior to

¹⁸³ MEIER, 1997, p. 298; STUTCHBURY, 1994, p. 159-160.

¹⁸⁴ PANT, 1935, p. 82-89.

setting light to it so that the fire would not spread to the entire forest. Maize was then sown in holes.¹⁸⁵ Today slash-and-burn cultivation is practised on a marginal scale in remote territories, such as in northern Gurung and Tamang villages¹⁸⁶ or along the Central Mahabharat. There, despite its marked decline as a consequence of forest legislation and development programmes (such as Action Aid), many peasants express their reticence in abandoning it, as it requires no fertiliser and gives good yields. The main plants cultivated on freshly cleared ground are maize, rainfed paddy, millet (*samar*, *kauno*, *junelo*) including finger millet (*kodo*), buckwheat, taros and leguminous plants (vetch *gahat* and black beans *mas*).¹⁸⁷

Whilst the farmable territory proved to have its limits, the increase in the need for food gave rise to a great intensification of crop cycles and cattle breeding practices in the hills. On non-irrigated land, a rotation system of three crops over two years on a slope separated into two halves seems to have prevailed until the 1930s.¹⁸⁸ It made room for an annual rotation of two crops, also supplemented with marginal crops.¹⁸⁹ Consequently, barley, which was slow to ripen, was often abandoned. Where they have not given over to maize and finger millet, barley fields have been turned into paddy fields, such as in the Central Mahabharat.¹⁹⁰

These crop transformations have had a visible effect on the landscape: not only is the paddy field zone invading that of rainfed fields little by little, but the division of territories into two soles has also totally disappeared. Furthermore, there is a poorer diversity of crops: buckwheat *phapar*, many kinds of millet –*kauno*, *samar*, *cinnu*– cotton, sugarcane, amaranth, only to quote those that people remember, have greatly declined, or have even been totally abandoned. Where it has survived, buckwheat is mainly intended for the poor, as are millet and amaranth. Only one kind of millet, finger millet (*kodo*), persists as its yields are good and its grain makes an excellent alcohol.

The disappearance of sugarcane and cotton crops, of considerable importance until the end of the XIXth century, stems from market

¹⁸⁵ LECOMTE-TILOUINE and MICHAUD, 2000.

¹⁸⁶ MESSERSCHMIDT, 1976, p. 168; TOFFIN, 1986.

¹⁸⁷ Information gathered in 1997 on our behalf by N.L. PANDEY.

¹⁸⁸ BLAMONT, 1983; LECOMTE-TILOUINE and MICHAUD, 2000.

¹⁸⁹ A mustard plant, whose leaves have been eaten before it ripens, is sown as soon as the field is empty.

¹⁹⁰ Information gathered by N.L. PANDEY.

phenomena. Despite a few attempts, Nepal has never succeeded in developing cash farming. In the XIXth century, the government sought to promote cash crops. The cultivation of indigo was encouraged at the beginning of the century, but was abandoned towards 1860 with the discovery of new dyes. It was replaced in the Eastern Tarai by jute from 1850 onwards, which also fell into rapid decline. The Rana favoured sugarcane plantations, at the same time encouraging those of tea in Ilam and Udayapur in the low mountains in the south-west of the country.¹⁹¹

The place wheat holds differs depending on the regions and altitudes. It has been cultivated for a long time in the west, both in rainfed fields and irrigated fields,¹⁹² in the Kathmandu Valley and the surrounding areas nearby,¹⁹³ as well as in the hills of Arun where it was present in 1920.¹⁹⁴ In Kimtang, in the Ankhukhola, it was part of the biennial rotation at the beginning of the century on the bottom of the mountainside, whereas from 1,800 m upwards, an annual harvest of winter wheat was produced.¹⁹⁵ Despite government incentives¹⁹⁶ aimed at promoting winter crops, wheat seems to have only been introduced in the lower parts of the hills of Central Nepal at the beginning of the XXth century.¹⁹⁷ In the higher altitudes of this region¹⁹⁸ as well as in the Central Mahabharat,¹⁹⁹ it appeared even later, from the 1970s onwards, replacing the winter fallow period on irrigated

¹⁹¹ RRS, 1976, vol. 8, no. 10.

¹⁹² Main crop quoted by HAMILTON in 1819 for the Jumla region (1971 [1819], p. 284). In Kumaon, in 1935, in low valleys, wheat was cultivated in winter both in rainfed fields and paddy fields (PANT, 1935). On high land it was irrigated, cultivated in summer (*ibid.*, p. 45) and already mentioned in 1814 (*Military History of Nepal*, 1983, p. 146).

¹⁹³ The hills and valleys around Pharping were widely cultivated and produced wheat (KIRKPATRICK, 1969 [1811], p. 75). According to CAMPBELL (1837, p. 60), on the hills south and west of the Kathmandu Valley, the slopes were too steep to be terraced and the soil, which was not irrigable, was too poor to grow wheat or leguminous plants.

¹⁹⁴ NORTHEY and MORRIS, 1974 [1927], p. 251.

¹⁹⁵ BLAMONT, 1983, p. 534-535.

¹⁹⁶ RRS, 1971, vol. 3, no. 4, p. 93.

¹⁹⁷ Thus, in 1819 and 1900, wheat was not cultivated in Palpa (HAMILTON, 1971 [1819], p. 178; "An Account of Nepal", anonymous, 1900) whilst it could be found in large quantities in Baglung in 1924 (LONDON, 1928, p. 17). In Aslewa (Gulmi) the introduction of winter wheat in rice fields took place towards 1910-1920 (AUBRIOT, 1997).

¹⁹⁸ In Darling, it only represents a marginal crop, due to the shortage of water and to common grazing on the fields during winter (LECOMTE-TILOUINE and MICHAUD, 2000).

¹⁹⁹ It dates from the 1970s in Gothadi, Dhedagaun, Mithukaran, Bharatipur, Naram, Rucang, Baidi, Ghiring and Khairang localities, and from the 1980s and 1990s in those of Chip-Chipe, Bhirkot, Kot darbar, Kaule, Dhusa, Dadakharkha, Jaubari, Mityal, Sahalkot and Jhirabas. (Information: N.L. PANDEY.)

terraces or taking the place of buckwheat. The introduction of winter wheat in irrigated fields calls for collectively abolishing common grazing on such land, and it consequently leads to a vast upheaval in the agro-pastoral system: carrying with it manure and fodder, and foddering of cattle.

In the Himalayan hills, ever since its likely introduction in the first millennium, irrigated paddy farming has continued to spread from the valley floors to extreme altitudes for this crop.²⁰⁰ Maize has carved out a whole domain on the mountain slopes since the XVIIth century. As for the potato, it revolutionised the economy and inhabitants' lifestyle in the upper regions of the hills and in the high mountain valleys between the XIXth and XXth centuries. Today, the place occupied by these two new crops is such that in some localities they are thought to be the oldest ones, a sign that they are fully integrated. In the same way, FÜRER-HAIMENDORF noted in the 1960s that there are very few Sherpas who knew that there was a time when the potato was not grown in the Khumbu.²⁰¹ And in the village of Cautara, in Central Nepal, two Tamang informants affirm that in the past the main crops were maize and potato (rather than wheat and barley) and that finger millet was only introduced towards the mid-XIXth century, followed, a little later, by irrigated paddy.²⁰² Whatever these beliefs, the massive spread of rice, maize and potato, as well as the intensification process, has occurred to the detriment of many rustic plants, which are now only marginally cultivated.

*

* * *

The two regions studied, the Kathmandu Valley and the Indus Valley in Ladakh, stand out by the intense and ancient cultivation of their land. We can only trace back changes in the types of crops here, without being able to actually grasp the process of transforming uncultivable land into arable land. In both cases, clearing land dates back to a mythical era. For a long time in the Kathmandu Valley, the cultivated territory has no longer been able to expand. In Ladakh, preference is given to investing in tree plantations and lucerne fields as encouraged by the government and, to a lesser extent, to marketing garden crops. Indeed, increasing surfaces allotted to cereals (wheat, barley), through time- and energy-consuming irrigation networks, is

²⁰⁰ This altitude is around 2,000 m in Nepal, with a variety of rice found up to 2,800 m in Jumla district.

²⁰¹ FÜRER-HAIMENDORF, 1964, p. 30.

²⁰² Personal communication by A. HÖFER, who points out that, for his informants, "formerly" refers to the XVIIIth and XIXth centuries.

not thought to be profitable. In these two regions, animal husbandry has taken a back seat. This situation, which is certainly not representative of the entire Himalayas, still shows a pattern towards which Himalayan agrarian systems have been heading since the beginning of the XXth century. This pattern includes the following features: disappearance of slash-and-burn cultivation; abandon of rustic plants and adoption of foreign crops or of improved varieties, development of irrigation, and a global changeover to intensive farming. These trends developed with administrative reforms that have contributed to its growing momentum, such as forest legislation, which fixed the limits of arable land; the creation of the Pancayat system in 1962, which created closed territorial administrative units; the cadastral survey, which divided common land and individualised it; various government subsidies and guidelines which favoured one crop to the detriment of another.

CHAPTER X

The Nepalese State and the Transformation of Landscapes according to Administrative Documents Dating from the XVIIIth and XIXth Centuries

Philippe Ramirez

The traditional State is commonly perceived as being basically a predator, with the sole preoccupation of raking in a maximum amount of revenue while ignoring any ecological balance. If its action had any influence on the transformation of landscapes, this would only be unconsciously through the effect of its fiscal policy and its land laws. The ecological policy would only have come about after the introduction of scientific expertise and the implementation of "development policies".

Here we show firstly that at State level an ecological conscience existed in Nepal at least four centuries ago, that the role of trees in maintaining ground stability and water resources was a well known fact and was the subject of regulations; secondly, that in the XVIIIth-XXth centuries the Nepalese State held an ideal notion of land use, resource and landscape management, that of a populous and resolutely rice-producing Nepal, and that it summoned up the means to achieve it. We are not presenting a systematic history of policies and legislation as applying to resource management, but a set of texts throwing light on the Nepalese State's philosophy in this field.¹

Protection of trees

The following edict is proclaimed: forests are to be preserved near watering places. If there are no trees, there will be no water whenever one looks for it.

¹ These texts above all come from the *Regmi Research Collection (RRC)* compiled by M.C. Regmi and partly translated into English in the *Regmi Research Series (RRS)*. The direct exploitation of the documents in Nepali, now accessible at the Department of Archaeology of Nepal, should considerably advance our knowledge on the local history of resources.

The watering places will become dry. If forests are cut down, there will be avalanches. If there are many avalanches, there will be great accidents. Accidents also destroy the fields. Without forests, the householders' work cannot be accomplished. Therefore, he who cuts down the forest near a watering place will be fined five rupees.²

This 14th edict by the Gorkha king, Ram Shah (1606-1636), included in the first legal code known for the mountains of Nepal, is invaluable as far as the subject we are dealing with here is concerned.³ It first bears witness to how old official measures are to protect the forest in Nepal. It above all shows that at the time there was indeed an awareness of the link between trees, soil maintenance and water availability. Finally it provides us with information on the pragmatic and ideological motives which underlie tree protection.

Without being too rash, we may suggest that the text reflects what was already common knowledge among peasants of Gorkha, a small-sized principality, where its leaders' knowledge of ecology was no doubt no different from that of the population.

It is impossible to say whether writing such an edict was motivated by a particularly alarming degradation of the milieu at that time, or if it was simply the legal translation of a precautionary attitude. Whatever the case, landslides (*pahiro*) were frequent enough to attract the attention of the authorities. The phenomenon is therefore far from recent, and it is no doubt because it is part of the peasants' immediate experience that its mechanism is so well described here.

While the previous edict, the 13th, proscribes cutting trees along footpaths "in order to protect passers-by from the heat", in the 14th edict, the legislator explicitly indicates that the major concern behind protecting certain wooded areas is the safeguard of irrigated land. This indication is important since it suggests that in the eyes of the legislator, irrigated land is a privileged farming sector. As expressed in terms characteristic of the Hindu ideology, if irrigation is compromised, "the householder shall not be able to carry out his work". The sovereign is the one responsible for this. The 12th

² RICCARDI, 1977, p. 52.

³ The principality of Gorkha, in Central Nepal, is the seat of the Nepalese dynasty. At the end of the XVIIIth century, the Gorkhali conquered all the principalities of the Central Himalayas to form Nepal as we know it today. Up until 1951, their sovereigns and generals were the exclusive holders of State power.

edict, prescribing the protection of pastures, is more explicit in this respect: "It is difficult for the Brahmans to find any means of sustenance and in this case the king may be guilty". In Hindu ideology, the "householder's" (*gṛhasthī*) prime duty is to achieve prosperity; the role of the king is to guarantee the conditions for this.

The principles laid down by this edict help understand the Nepalese State's ecological policy during subsequent periods. In addition, the very terms of the edict represent a reference model in the XIXth and XXth century texts regarding forest management. This will be clear from the documents presented below, both in the petitions made by the subjects and in the orders given by the government.

The first written codification of civil law after Nepalese unification (1769-1805), the 1854 Muluki Ain, includes a whole section entitled "cutting the trees". Its second article reiterates the measures decreed by Ram Shah, in more concise wording, where the description of the erosive mechanism has disappeared:

2. The owner should not cut trees along trails, near springs or irrigation canals.⁴

Though with the Muluki Ain, bans extend much further:

1. Anyone who cuts trees within an area where it is prohibited by a decree, or within a tax-free domain (*guthī*, *birtā*, *bekchāp*) of somebody else, will be fined 4,3,2, or 1 Rps according to the tree category (*abal*, *doyam*, *sim*, *cahar*). The wood will be returned to the owner.
3. On the entire Gorkha kingdom territory, including the Tarai, [all except *birtās*] landowners are not allowed to cut wood for trade. This is allowed only for house building, gardens and orchards.
4. A *birtā* owner may cut and sell the wood of trees situated within his own *birtā*. [*Ibid.*]

Cutting wood on estates directly under the State's (*raikar*) authority is from now on strictly limited to non-commercial use. Only the ultimate owner of this land, hence the State, enjoys the right to make financial profits from cutting wood. A real monopoly is therefore created and its importance in the assets of the oligarchy in power from 1946 to 1950, the Rana, is hardly a secret. The beneficiaries of *birtā*, tax-exempted lands, escape this monopoly. This respects the logic of the *birtā* by which the sovereign

⁴ 1854 Muluki Ain, p.157.

relinquishes all the products of an estate to the benefit of an individual, the *birtāvāla*, and its descendants. Thus, all in all, the same goes for trees as for the other products of an estate in the Nepalese jurisdiction: their full use only falls to the "owner" *stricto sensu*, i.e. to the sovereign and by conveyance to the *birtāvāla*. The inhabitants of the estate only make use of the land as the king's tenants, farmers or sharecroppers and similarly their right over the trees surrounding this land is limited to needs directly linked to housing and cultivation.

Two new notions appear in the Muluki Ain's forest law of 1918: firstly the reforestation of abandoned land, whereas prior principles opposed this, and as we shall see later, the protection of certain species:

5. In case any person reports that he has raised a forest on a particular [taxable land] in consultation with the villagers, but that the forest has remained unprotected because of the absence of an official order, or demands an official order granting him authority to raise a forest in specified areas other than those cultivated by another person, and in case the inhabitants of the adjoining area are found to have expressed their consent in writing, an order granting the applicant authority to raise a forest on such land [...] should be issued.⁵

The cutting down of "10 species" –not specified– is forbidden.

Species whose trade is forbidden even to *birtāvāla* are identified.

2. A *birtā* owner may cut trees on his lands in the hill region of Nepal, other than areas where cutting of trees is prohibited by official orders or notifications, and sell the timber, except *sāl* (*Shorea robusta*), pines, magnolias and walnut trees.⁶

In the southern plain, the Tarai, whatever the status of the land, cutting trees becomes forbidden on principle, and when permitted, is closely regulated:

4. In the event where it becomes necessary to cut trees in forests on *birtā* lands in the Tarai region, other than forests located in the Mahabharat area and those where elephants and rhinoceros live or roam about, the *birtā* owner concerned shall request permission from the chief of the local *Kāṭmahal* [Forest Office] to cut trees in forests on his *birtā* lands and sell the timber. The chief of the [Office] shall refer the case to the Prime Minister. If the

⁵ RRS, 1981, vol. 13, p. 130-132.

⁶ REGMI, 1968, p.248.

Prime Minister issues an order permitting the cutting of trees in forests on such *birtā* lands, the *birtā* owner shall cut at his own expenses only such old and mature trees as he can sell, leaving every other tree standing, so that the forest is not completely destroyed, subject to the condition that if he makes a profit from the sale of timber after deducting expenses incurred on cutting and transportation, he shall share the profit with the government equally. After the *birtā* owner has transported the timber to sale depots at ferry-points and sold it, he shall credit half of the profit made by him to the accounts of the government, and appropriate the balance himself.

The traditional monopoly of *birtā* holders is now challenged, as protected species elude it. Furthermore, as far as selling wood is concerned, the *birtā* situated in the plains come under legislation that applies to land directly managed by the State. The fact is that forests in the Tarai represent a considerable economic resource particularly valued on the Indian market, notably for railway construction. Juicy contracts are granted to contractors (*ijārādār*) in the Tarai. Rana leaders do not wish to let the woody resources from vast *birtā* estates they have themselves conceded totally slip through their fingers. The State shall therefore collect part (half, so it would seem) of the profits of the trade. But the terms of the law reveal a concern for the management of resource over time. Felling authorisations do not indistinctly involve the whole of a space, but only the trees which will actually be sold. Moreover, it is to be noted that cutting is on no account authorised in the Mahabharat, which Nepalese leaders consider a strategic rampart, or on elephant and rhinoceros territory, i.e. on hunting areas for the Rana dignitaries.

In the Muluki Ain of 1935, protected species are specifically named; they may only be cut upon authorisation from the State: seventeen in all, thirteen for the Tarai, four for the mountains (Table 6).

It is therefore undeniable that a legal framework had been organising tree exploitation in Nepal for a long time. Whether its deeper motives were the conservation of the country's resources or the special interests linked to the timber trade remains to be seen.

Table 6
Trees Protected in Nepal by the 1935 Code

| Tarai | |
|----------------------|---------------------------------|
| <i>sakhu [sāl]</i> | <i>Shorea robusta</i> |
| <i>sisau</i> | <i>Dalbergia sisoo</i> |
| <i>karma (haldu)</i> | <i>Adina cordifolia</i> |
| <i>sattisāl</i> | <i>Dalbergia latifolia</i> |
| <i>bijayasāl</i> | <i>Pterocarpus marsupium</i> |
| <i>semal</i> | <i>Bombax ceiba</i> |
| <i>tūni</i> | <i>Cedrela toona</i> |
| <i>kusum</i> | <i>Schleichera trijuga</i> |
| <i>jāmun</i> | <i>Syzygium cuminii</i> |
| <i>botdhayēro</i> | <i>Lagerstroemia parviflora</i> |
| <i>asnā</i> | <i>Terminalia tomentosa</i> |
| <i>pajan</i> | <i>Ouginesis ouginensis</i> |
| <i>khayer</i> | <i>Acacia catechu</i> |
| Mountains | |
| <i>sāl</i> | <i>Shorea robusta</i> |
| <i>sallo</i> | <i>Pinus spp.</i> |
| <i>cāp</i> | <i>Michelia champaca</i> |
| <i>okhar</i> | <i>Juglans regia</i> |

Source: *RRS*, 1981, vol. 13, p. 129-132

Nevertheless, law was a tool that populations regularly used in their petitions to the authorities. The wording of these petitions, which evoke legal texts, suggests that these texts were known. One of the most complete documents consists in the reply to a petition dated 1846 from the region of Dolakha (Eastern Nepal).

[Headmen, miners and other people] in Simras, Phasku, [...] and other areas in Dolakha district submitted the following petition to Kathmandu: "Because of the indiscriminate extraction of the *malingo* in the Selung area, the work of both the government and the people had been obstructed. These days the plants have started growing again. However, people take away the young shoots for sale, or cut the plants to make wicker goods for sale, because there are no restrictions. Virgin forests have been cleared for agriculture, with the result that sources of water have dried up in many places, and irrigation channels constructed on the rice-lands assigned to military personnel and

others have been damaged. In case a royal charter (*thiti-bandaj*) is granted, we shall protect forests in this area."

The following royal order was then issued: "No person shall be allowed to take away young shoots or cut the *malingo* plant for the next years in the Selung area. No new lands shall be cleared for cultivation in the forest situated beyond the village, although lands previously reclaimed may continue to be cultivated. Miners should cut only such wood as is suitable for the manufacture of charcoal. The tenants concerned shall collectively repair and maintain irrigation channels on rice-lands assigned to military personnel. Trees adjoining dams, irrigation channels, sources of waters, and reservoirs shall not be cut."

"Do not set up homesteads on or bring into cultivation main paths at Chaitraghat and elsewhere, as well as other paths, pasture lands, water-springs, and other lands affecting the easement rights of others. If homesteads have been up on such lands, shift them elsewhere and plant trees there. Obtain permits from the local *amāli* for timber required for the construction of houses, cottages, fords and road-side shelters."

The previous royal order on this subject was cancelled, and Bishnu Kanta Upadhyaya Koirala was granted authority to protect forests in the Selung area of Dolakha district.⁷

Characteristically in this type of petition, the complaint situates its main object, the disappearance of bamboo, in an alarming global situation which in a stereotyped fashion underlines the threats incurred by springs and paddy fields. Just as characteristic is the mention of wrongs done to the State's property by the disappearance of a resource, which here is *jāgir* land, i.e. officers' tenures-salaries.⁸ Corresponding to real facts or used only as mere rhetoric, the relationship between deforestation, the drying out and the instability of the ground is clearly established. The request is for a protection decree (*thiti bandaj*), specifically applying to the locality. The authorities give a somewhat stock reply: it reiterates, in the very terms of the law, the bans on cutting trees near springs, canals, reservoirs and footpaths. But it also stipulates relatively precise measures which include putting a stop to clearing land, authorisation requests, including the cutting of wood for non-commercial use, and the naming of those in charge of protecting local forests.

This document illustrates several of the main texts relating to forest protection policy in the XIXth century.

⁷ RRS, 1981, vol. 13, p. 83-84.

⁸ See also for example RRS, 1982, vol. 14, p. 150-153.

The threats evoked by the sources available result from several causes. The most important were excesses due to clearings, possibly associated with slash-and-burn, as along with the demand for household wood. These are the effects of strong demographic pressure.⁹ Yet it must be pointed out that the cutting of firewood (*daura*) and timber (*kath*) by peasants themselves is mentioned in most cases in an apparently conventional series of acts of plundering. A larger collection of documents would enable the geographic distribution of such phenomena to be specified. However, as we will see below, other types of documents portray very contrasted images of demographic pressure according to the regions in question. Note should be taken of the fact that nowhere is cattle breeding mentioned as threatening the forest itself. A single petition from the Jumla region complains of animals that roam into neighbouring forests and damage crops.¹⁰ However, the degradation of forests leads to the increased scarcity of Gramineae (*khar*), as expressed in several petitions, as well as in Dolakha in 1899:

Order to the local headmen [*amāli*, *thari*, *majhiyā*, and *mijhār*] of Pakarbas (Dolakha):

The local people have submitted a complaint through the *Amali* to the effect that people from outside that area have reclaimed forest lands there and destroyed forests, and that, consequently, not even *khar* grass and leaves, or timber and roofing materials for huts and cottages, are now available. We hereby order that, in the future:

1. No person shall be allowed to cut *sāl*, *sallo*, and *bhorlā* trees in new forests.
2. Kipat owners and *birtā* owners shall protect forests on their *kipat* and *birtā* lands. They shall not set fire to such forests, or allow any person to clear new forests.
3. The Sanghu (beams placed across streams) on the Bhatauli-Khola shall be made [new] every year through the *amāli*.¹¹

Beyond household or farming demands are those related to industrial or craft activities: coal making for mines, basketry, pine-torch making.¹² Wood-cutting for making weapons is obviously not mentioned in these documents; it is revealed however by the reservation of certain forests for this purpose.¹³ Cutting timber for commercial purposes does not seem to

⁹ For slash-and-burn, see for example for Gorkha in 1846: *RRS*, 1986, vol. 18, p. 177-180.

¹⁰ *RRS*, 1986, vol. 18, p. 112.

¹¹ *RRS*, 1983, vol. 15, p. 92-96.

¹² e.g. *RRS*, 1981, vol. 13, o. 44-47 and p. 83-84; *RRS*, 1985, vol. 17, p. 122-123.

¹³ *RRS*, 1983, vol. 15, p. 92-96.

involve the mountains. This concerns the southern area (Curiya and the Tarai), from where most of the timber used in the districts in Northern India as early as the beginning of the XIXth century comes,¹⁴ as well as in some localities around the Kathmandu Valley where certain villages complain about the activity of contractors (*ijārādār*).¹⁵ In the case in point, there is evidence of a wood shortage mainly in the area surrounding the Kathmandu Valley.¹⁶ This is confirmed by the impressions given by the British resident H. Lawrence, in post in the capital from 1843 to 1846:

Fuel and grazing are the two great wants of the poor here [...] Where every inch is cultivated there is scarcely any grazing ground [...] The surrounding hills belong to certain chiefs who cut timber. Even were it public property, the labour of cutting and bringing it such a distance would make it inaccessible to the poor.

Small branches, chaff, dried leaves, the sugarcane from which juice has been squeezed, straw and such like insufficient substances are the fuel on which the poor people depend. [...]

[Indeed, timber was so scarce that] Every timber long enough for the beam of a house is brought from the Tarai.¹⁷

Resorting to petitions in evaluating the ecological situation of ancient Nepal poses two important problems: on the one hand, do the available documents reflect a common situation on a kingdom-wide scale? On the other hand, what credit should be granted to alarmist descriptions?

The available petitions only enable the state of degradation to be estimated for the localities concerned. The fact that an important proportion of petitions concern the Kathmandu Valley and the surrounding area may mean that there was strong pressure on resources in this region at the given periods of time. This may also reflect, due to the proximity of central administrations, a greater propensity of the population towards producing such grievances.¹⁸

Nevertheless, it was in the litigants' interest to draw a darker picture of their locality: the principle indeed being that the author of an admissible petition sees himself entrusted with the responsibility of managing the local

¹⁴ Report by F. Buchanan on the district of Purnea (Bihar) in 1810; Nepal above all exported *sāl*, as well as swing ploughs (RRS, 1970, vol. 2, p. 35-44).

¹⁵ For example, RRS, 1983, vol. 15, p. 92-96

¹⁶ *Ibid.*

¹⁷ RRS, 1982, vol. 14, p. 35.

¹⁸ It has to be pointed out indeed that in the *Regmi Research Series*, our major source of documents, the Kathmandu Valley and Eastern Nepal are significantly over represented.

forest. The most significant example concerns a certain Shobhananda Banda, who in 1831 bemoans to Kathmandu the immoderate cutting of *sāl* and pines in the three districts of Tanahun, Lamjung and Kaski; he claims that wood is likely to run short for the State's needs and for building huts, fords and forts. He is subsequently granted the authority to protect forests over the very vast area situated "west of the Chepe, east of the Kali, north of Gaighat and south of the Tingaun mounts", i.e. almost 10,000 km².¹⁹

And so it would seem that such concessions naturally gave birth to vocations. As an example, after a litigant had been granted responsibility for protecting the forest of Kharibote at Bhirkot in 1832, five years later a petition emerged from a nearby locality and thirteen years later a concession was conceded in a third Bhirkot locality.²⁰

One must not overlook the fact that these documents stem from administrative and legal procedures and therefore reflect the relationships between local communities and the State, as well as internal relationships within these communities. Besides, it is not unreasonable to claim that they provide us with more reliable information on political facts than on the actual state of resources and of the landscape. Obviously certain complaints appear as outcomes of wider local conflicts:

Order to the *amāli* [magistrates], *thari* and *dware* [lower collectors] of Mahadeva Pokhari [names following]:

"A royal order has been issued previously to Vishnu Simha Thapa to plant trees on a plot of land known as Hilekharka as well as to protect the *pāṭal* forest around the local *koṭ*.²¹ Complaints have been received that Vishnu Simha Thapa has prevented the local people from grazing their cattle and using paths through that place, stopped rent and other payments to *jāgirdārs*, and that the *pāṭal* forest has always been protected by the officials of the *koṭ* themselves."

The order issued previously appointing Vishnu Simha Thapa as caretaker of the *pāṭal* forest of the *koṭ* is hereby cancelled. The Bhote subjects of Hilegaun shall be allowed to use their lands as before. Customary payments shall be made, and the forest protected as usual.²²

Situations of this kind must draw attention to the influence that internal political quirks exert on changes in the environment. With this in

¹⁹ RRS, 1982, vol. 14, p. 150-153.

²⁰ *Ibid.*; 1986, vol. 18, p. 177-180.

²¹ *Koṭ* indistinctly denotes a fort or the sanctuary of the Goddess of the territory.

²² RRS, 1983, vol. 15, p. 92-96.

mind, the landscape is not only a product of relatively stable and measurable factors like human pressure, agrarian techniques or types of land tenure, but also the product of the history of social relations which is less intelligible.

The policy of the pre-modern Nepalese State in terms of protecting the forest is not limited to mere intentions or even to the promulgation of general laws. They are expressed through fully concrete measures. Gorkhali Nepal inherited a large number of protected forests set up by subdued sovereigns, often bound to religious institutions, particularly in the Kathmandu Valley.²³ Confirmation of these estates and the arbitrations associated with their management have given rise to several documents which testify to the ancientness of the institution in the Himalayas and its sacred character. An order dating from 1796 proves to be of exceptional severity as far as this is concerned:

The Betyani forest in Belkot had been conserved from former times. We have now received reports that cane and trees are being cut there. We hereby proclaim that anyone who cuts timber in that forest will have his hand cut off. Announce this to every one there, and conserve the Betyani forest properly.²⁴

The Gorkhalis are to follow the tradition of ancient kings by introducing a large number of protected forests, but through new perspectives. These forests come under two not necessarily exclusive categories: on the one hand, the *birtā* estates granted to Brahmans and to dignitaries, and on the other hand, much vaster spaces, specifically devoted to developing the forest, with or without any utilitarian aims in mind.

Of course, in many cases, the forest is not protected with the sole aim of developing global resources nor for maintaining the soil, but in order to ensure the supply of wood for a specific activity, such as the construction of irrigation canals in Kaski (Central Nepal) in 1833:

The Saunepani forest in Kaski district had been reserved for the supply of timber to construct embankments along the Pardi canal. A *chataidār* (caretaker) was appointed for that forest, with authority to cut timber for this purpose and impose a fine of five rupees on any person who did so forcibly for his personal use. The *chitaidār* was paid remuneration in the form of five *muris* of paddy every year from rents on lands assigned for that purpose.²⁵

²³ For the Kathmandu Valley, see *RRS*, 1983, vol. 15, p. 92-96

²⁴ *RRS*, 1988, vol. 20, p. 136. For Sindhupalcok, see also documents dated 1842, p. 92-96.

²⁵ *RRS*, 1982, vol. 14, p. 150-153.

In other instances, however –examples shall be given below– protection pursues purely ecological motives.

Protected forests do not always exclude the possibility of cultivation; while clearing and, of course, tree cutting are forbidden, the existing cultivated plots are likely to be maintained.

Dhoksila (Sindhuli), 1842:

1. Do not allow any person to cut green trees or reclaim lands in the forest area situated east of the Dhoksila-Khola, west of the Kahule-Khola, north of the Kyaurani-Khola in Thalagaun, and south of Danduwagaun in the Bungnam area (of Sindhuli).
2. Do not allow any person to cut trees on the borders of rice-fields, or along paths, and near sources of water.²⁶

Contrary to this, Kathmandu may in an authoritarian manner evacuate whole territories, as was done in the Inner Tarai in 1817:

The inhabitants of the Sindhuli-Makwanpur region situated west of the Kamala river, north of the Churia hills, east of Chitaun, and south of the Mahabharat mountains were informed that it had been therefore decided to develop forests in that region. They were, therefore, ordered to shift their settlements to other areas. Any person who possessed no lands elsewhere for the purpose was asked to apply to the government for an allotment.²⁷

Two other documents certify that such measures were applied again over the XIXth century in the same region and that they did not always spare the *birtā* estates, going against the traditional sovereignty of their owners over all products of the domain.²⁸

From the first decade of the XIXth century onwards, forest wardens (*citaidār*, *caukidār*, *caprāsi*, *mahāneś*) were appointed and paid in the form of specific plots of land. They were entrusted with managing the forest, had the power to impose fines and they possibly reported to the authorities the most serious acts of plundering.²⁹

A decree dated 1883 thus ratifies the appointment by high dignitaries of wardens assigned to keeping watch on the forests falling within their *birtā* estates in the Kathmandu Valley. It mentions the very detailed list of fines

²⁶ RRS, 1983, vol. 15, p. 92-96.

²⁷ RRS, 1980, vol. 12, p. 117.

²⁸ *Ibid.*

²⁹ For the Kathmandu Valley, see for example RRS, 1983, vol. 15, p. 92-96, p. 107-110.

applying to these forests since 1786. Here closure was total: nothing could be taken and venturing into these forests was forbidden.

1. Any person who breaks the eggs of birds: one rupee.
2. Any person who kills a bird: one rupee.
3. Any person who takes out loads of foliage (*syāulā*) from forests: two rupees and eight annas.
4. Any person who cuts unyu grass from forests: eight annas.
5. Any person who grazes cows and buffaloes in forests: eight annas for each animal.
6. Any person who grazes sheep and goats in forests: five annas for each animal.
7. Any person who picks fruits or digs tarul (*Dioscorea saguina*) in forests: one rupee and eight annas.
8. Any person who takes out dry or rotten timber from forests: eight annas.
9. In case any of our hunters hunts in forests without our permission: ten rupees.
10. Any person who cuts a tree below the height of a man's thigh: five rupees.
11. Below the height of a man's waist: ten rupees.
12. Above the height of a man's waist: fifteen rupees.
13. Any person who only moves about in forests: five annas.
14. If any hunter of the General visits the forests with the motive of hunting: ten rupees, and the case shall be referred to us.
15. Hunters paid to hunt shall be imprisoned for six months. The sentence shall not be commuted to a fine.
16. Bears or tigers coming out of forests shall be killed by any one who can do so. This shall not be considered to be an offence.³⁰

The conservation of protected forests sometimes consisted in a relatively elaborate set of apparatuses, sustained over the long term and implemented by such important means as military force.

Kaski 1881:

"On the orders of Prime Minister Jung Bahadur, forests in the area situated between Pokhara and Dhiki-Bhanjyang, the catchment area of Phewa-Tal in Kaski district, had been declared protected. Red flags had been installed on the boundaries of the protected forests, along with a wooden inscription prescribing that any person who cuts timber in those forests, or sets fire to them, or clears them for agriculture purposes would be punished by the appropriate tribunal [*adālat* or *amāl*].

³⁰ RRS, 1987, vol. 15, p. 107-110.

During the time when Colonel Tek Bahadur Kunwar Rana was Chief of the Kaski-Lamjung Tahasil Office, eight men belonging to the Bhairav Dal Battalion had been employed as forest guards there. They were paid a salary of Rs [NPR] 50 each. They were subsequently withdrawn.

On Baisakh Sudi 7, 1938 (April 1881), Captain Komal Singh Mahat Chhetri, Chief of the Kaski-Lamjung Tahasil Office, reported to Prime Minister Ranoddhip Singh that it would not be possible to protect that forest merely through the orders of the government. He pointed out that Dhiki-Bhanjyang was situated at a distance of 5 or 6 kos from the Tahasil Office, so that effective supervision was not possible. Captain Komal Singh Mahat Chetri, therefore suggested that eight forest guards be appointed to protect the forests on monthly salaries paid through the Kausi Tosakhana.

Prime Minister Ranoddip Singh then issued the following order: Military personnel had been assigned to protect these forests because a military contingent had been stationed at Pokhara. There is no such contingent there at present. Two men shall therefore be procured from the new battalion that has been created in Palpa to work as forest guards there."³¹

It must be pointed out that the state's concern did not in this particular case apply to a cash forest but to a wooded area conditioning a lake's water supply, that of Pokhara.

Many petitions, as well as corresponding orders, justify protecting the forest by associating the specific needs of farmers with the conservation of State revenues. If yields are jeopardised by the degradation of the milieu, indeed not only is the farmer wronged but also the State to which no income can be paid. Whereas two centuries before, Ram Shah's edicts morally justified the sovereign's responsibility in agricultural success –to ensure the Brahman's means of subsistence– from now on the motive is more strictly economically oriented. The State's prosperity is indissociable from its subjects' prosperity, because it is they, specifically qualified as "tenants", who work to produce the revenue.

In 1846, the inhabitants of Macchegaun (south of the Kathmandu Valley), who farmed utilised land assigned as payment to an officer (*jāgir*), complained that:

Every year, *ijārādārs* cut trees in the forest of Balagaun, so that the forest is being destroyed and irrigation channels are drying up. Consequently, we are not able to sow our fields in time. Because fields are not being sown in time, we are unable to raise the quantity of grain needed for the payment of *kut*

³¹ RRS, 1981, vol. 13, p. 127.

rents. Even then, our landlords (*talsing*) collect the stipulated *kut* rents from us. We are thus being forced to sell our children.

The government then issued an order granting authority to Kapardar Kirtidhwaj Pande to collect rents on *jāgir* lands in Balagaun on *theh* [contract] basis in the following manner:

From Baiskha Badi 1, 1903 (April 1846), pay a total amount of Rs [NPR] 78-4 (inclusive of Rs 65-4 assessed as tax during the settlement of 1894 Vikrama, and Rs 13 as asmani payments) to the *jāgirdār-amāli* concerned. Appoint a *mahānes* [guard] to protect the forest, the water-spout, and the roadside shelter (*pāṭi*) at Balagaun. Do not impress unpaid labor (*jhārā, beṭh, begār*) from them for other purposes. Make available dry or fallen timber to beggars, mendicants, etc., as well as for the purposes mentioned in the stone-inscription. Punish poachers with fines.³²

The texts presented so far help demonstrate that starting in at least the XVIth century, i.e. prior to the building of Greater Nepal, the Nepalese authorities expressed concern for environmental conservation. The issue here is the environment more than the ecosystem, since it is the substratum of the farming activity which is at stake in these documents: soil, water resources and wood resources. Attention is above all focused on the factors conditioning farming production. Thus, wild animal species only appear in very few texts which are mostly concerned with the protection of plants.

As for the forest, the existence of a legislative framework upgraded several times over, the multiplicity of decrees and orders, the sophisticated means to apply the latter, and their permanency over time, allow us to speak of a real resource management policy. Of course, this must again be placed in the context of XIXth-century Nepal, a State undergoing juridical and political unification, and there may be some debate as to the real effect of official injunctions on practices. However, ecological processes were obviously taken into account.

The dream of a populous and irrigated Nepal

The role of the pre-modern Nepalese State in the genesis and in the transformation of landscapes was not restricted to their conservation. Very early on, the Gorkhali showed a willingness to transform or, as we would say today, "to develop" the country. This undertaking was rooted in a particular ideology: the kingdom's prosperity was supposed to rely on an abundant

³² RRS, 1983, vol. 15, p. 92-96.

population, harmoniously distributed and fully devoted to irrigated rice cultivation.

The documents presented in this chapter will illustrate the components of this ideal Nepal, the policies implemented to achieve this and the difficulties and contradictions that they were bound to imply. However, seeking to understand which landscapes the Nepalese Government dreamt of may also, in another way, enable us to imagine what the real landscapes, though absent from the documents, looked like.³³

The philosophy of the Nepalese State regarding its relationship with the land and its inhabitants draws its inspiration quite largely from the testament (Dibya Upadesh) that the founder of Nepal, Prithvīnārāyan Shāh, bequeathed to his successors shortly before his death (1775):

Where ore is found, even if a village stands there, move the village and exploit the mine. If a house is built on a terrace, move the house, dig a canal, open a field and till it.

If the subjects are prosperous, the palace will be powerful; the king's treasury is it's own people. You shall not grant any farming [for tax collection]. The government will fix and collect the taxes and check the accounts annually.³⁴

These last orders were barely followed. On the contrary, the previous ones set the tone for the State's authoritarian interventionism on the very formation of the landscape and for systematic preference given to irrigated crops.

One of the most amazing aspects of the XIXth-century orders is Kathmandu's determination to forbid any migrations within the Nepalese territory itself. Thus, in 1804, in the kingdom's recently annexed eastern provinces:

Royal order to all officers, magistrates and collectors in the region south of the Himalayas, east of the Dudhkosi river, north of the Mahabharat mountains, and west of the Tamakosi river:

Any person who acts as follows shall be liable to punishment on his person and property:

1. Evicts the occupier from his homestead and farm.
2. Vacates his place and shifts to another place.³⁵

³³ The administrative documents provide very little detailed description of local landscapes. One of the only examples is the complaint addressed in 1892 by a community living on the edge of the Kathmandu Valley: *RRS*, 1981, vol. 13, p. 44-47.

³⁴ NARAHARINATH, 2009 VS, p. 13.

³⁵ *RRS*, 1989, vol. 21, p. 156.

As early as 1799, in an area of Jumla province (Western Nepal) bordering Tibet, an appeal was made to the army to bring back offenders to their villages of origin:

To the magistrate of Satsayabhot: "We have received reports that the inhabitants of Charka and Lagukhola have left their villages and are living in the area under your jurisdiction. It is not proper to depopulate a border region and allow people to settle elsewhere. Accordingly, you are hereby to send back such people along with the soldiers who have been sent from here. They shall return to their lands and make their villages populous."

[Forty years later]: to the elders and subjects of Chharka and Lagukhola: "because you live in a border region, we hereby exempt you from the *jhārā* obligation to come [to Kathmandu] and transport stones and timber. You may continue to live with full assurance in your homesteads and villages."³⁶

Here migrants evidently fled their villages in order to evade statute labour. The weight of obligations (taxes and statute labour) owed to the State, as well as power abuse by its representatives appear to be as common a reason for migrating as natural disasters. There is consistent documentation on the subject.³⁷ Statute labour, taxes, civil servants' severity and corrupt practices, oppression of creditors, flooding, tigers, motives for emigrating are not lacking.³⁸ And the Nepalese predisposition towards migration is well known. It is sometimes less of a repulsive factor than an attractive one which motivates migrants. Indeed, living conditions are very contrasted in the Nepal of the XVIIIth and XIXth centuries. Forms of tenure and the weight of obligations changed so considerably from one region to another, from one estate to another, with landowners possibly competing to attract rare manpower. But though populations were traditionally mobile, this seemed to considerably preoccupy the authorities:

1807 in Dhading: "Because new taxes and obligations were imposed in Dhading, you have shifted to other areas. You will not be required to pay more than what is current in other areas. We hereby restore the previous arrangements. Come back to your lands, prove faithful to the State (*dhungo*), and make the area populous once more."³⁹

³⁶ *Ibid.*

³⁷ See, for example, for 1800-1802 in the feudatory Kingdom of Doti, still administered by the army, *RRS*, 1974, vol. 6, p. 230.

³⁸ See for example *RRS*, 1988, vol. 20, p. 165; 1989, vol. 21, p. 156; 1974, vol. 6, p. 240; 1981, vol. 13, p. 171-176; 1986, vol. 18, p. 133-137; 1987, vol. 19, p. 159.

³⁹ *RRS*, 1988, vol. 20, p. 165.

Civil servants, magistrates, estate-holders and farmers were regularly warned about the depopulation of their area. This was a permanent preoccupation: soon, it was expressed in the orders by recurrent wording, including areas where depopulation was not an issue. Confirmation of a village magistrate's charge, in Salyan (Western Nepal) in 1825 concludes as follows:

The villages and households shall be made populous. Existing inhabitants shall not be evicted. The magistrate shall not demand additional payment for newly established households, nor shall the villagers demand remissions for depopulated households.⁴⁰

It is not enough to say that the State was preoccupied by depopulation: it refused the slightest sign of this. A house in ruins was after all just the consequence of the permanent absence of its inhabitants and in itself had no economic and judicial implication. Still, even this was intolerable:

In Chitlang, 1807, revenue functionaries and other people complained to Kathmandu that many people of that town had shifted to other areas, and so their houses had become dilapidated. The complaint added, "Many people do not repair their houses on the plea that these have been mortgaged to their creditors, nor do they let other people occupy such houses."

The following royal order was then issued: "Houses which have become dilapidated because their owners have gone elsewhere or because they have been mortgaged to creditors shall be repaired, with the expenses attested to by four prominent (*bhalādmī*) local people. Such houses shall then be allotted to new occupants (*kuriyā*). The owner or creditor may subsequently reoccupy such houses after paying the repair expenses."⁴¹

Force was not necessarily used to counter these movements. To encourage peasants to come back, the government often just as well renounced introducing new service charges. Thus, from time to time the fear of depopulation was strong enough to alter the otherwise uncompromising tax collection policy.

While the State was discouraging mobility among farmers, it was launching ambitious colonisation projects. Since, for Nepal to become the peopled country its leaders dreamt of, it was not just a question of preventing existing villages from becoming depopulated; the whole territory also had to be occupied. In the XIXth century huge expanses of virgin or very sparsely

⁴⁰ *RRS*, 1989, vol. 21, p. 110-111.

⁴¹ *RRS*, 1989, vol. 21, p. 115.

populated areas still existed. Nepal looked nothing like the overpopulated country that we, rightly or wrongly, perceive today. This assertion is not based on censuses, which were rare and patchy at the time; it stems from the contradictory nature of Kathmandu's policies. From the early XVIIIth century onwards, radical measures were taken to attract settlers to "virgin land" (*kālābanjār*) or abandoned land. This above all involved the southern plain, the Tarai, and more precisely its third portion to the east, where colonisation may have benefited from the presence of some ancient localities –the west of the Tarai was so wild that it was to remain "forgotten" until the middle of the XXth century. In the mountains, however, there was still plenty of virgin and abandoned land.

The colonisation process primarily depended on fiscal measures. In 1799 in the Eastern Tarai, cultivators of newly reclaimed land benefited from the application of a progressive tax rate over five, seven or ten years. However, this was obviously insufficient: in the decades to follow exonerations were to be granted over a period of two years in 1810, three years in the years 1828-1829 and up to ten years. There was also a definitive exemption on a tenth of land in certain areas at the beginning of the XXth century.⁴² The State eventually took over spending incurred by colonisation, from the construction of irrigation canals to financing the rites to expel wild spirits.⁴³ As early as 1814, in Chitwan, settlers were granted subsistence revenue and agricultural loans.⁴⁴

Government services only took over these operations at a higher level. Here, as in many other sectors, it was contractors or local dignitaries who took the initiative to reclaim land, who organised the arrival of settlers and who took charge of transferring the part of the income owed to the State. As far as they were concerned, incentives appeared to be very advantageous: for instance, in 1828, in Chitwan, the total income of a village was on offer to whoever would organise the construction of ten villages on virgin soil.⁴⁵ Moreover, the peopling of virgin areas was to be achieved by granting *birtā*. From the beginning of the XIXth century, these tax-free estates were indeed preferentially granted in uninhabited areas of the Tarai.

⁴² See for example *RRS*, 1974, vol. 6, p. 240; 1989, vol. 21, p. 10-11; 1986, vol. 18, p. 97-102; 1978, vol. 10, p. 129-131; 1974, vol. 6, p. 1-4.

⁴³ On this subject see *RRS*, 1986, vol. 18, p. 97-102.

⁴⁴ *Ibid.*

⁴⁵ *Ibid.* p. 64.

These two components of the peopling policy rapidly clashed. On the one hand, the State forbade the depopulation of existing villages, and on the other side, it attracted settlers to unexploited land. Such a policy may only be viable when a sufficiently large population is concerned, the landless part of it being assigned to colonisation. A certain number of difficulties facing the central authorities clearly indicate that Nepal was not in such a demographic situation at the time. On the contrary, several documents confirm a shortage in manpower, a phenomenon that may be witnessed at least for the XIXth century. This shortage became manifest in two ways: first, peasants readily left localities when hit by disasters or subjected to excessive obligations in order to settle in milder climes –some examples have been given above. Then, authorities in charge of colonisation sometimes struggled to attract candidates. Incentives were reinforced over time, a push which in itself is significant. However, that does not seem to have been sufficient to channel the required manpower. A severe competition ensued between estates, as well as uncontrolled workforce movements between areas falling under different modes of tenure or subjected to different rates of taxation. At first, the authorities had not apparently measured this risk. Thus in 1799, the suggestion was made to the heads of estates in the Eastern Tarai that settlers be drawn there by calling upon farmers whose land was allocated to the State revenue (*raikar*, *jagir*).

We have deputed *Kāji* Abhiman Singh [a general/minister] with authority to reclaim and settle *kālābanjār* and other waste lands, other than lands already under cultivation (*sanbati*). Obtain allotment-certificates (*patta*) from him against payment of taxes at the following rates. [...] Continue cultivating the lands that are already under cultivation, and retain their cultivators there as usual, so that revenue may not decline. Attract settlers from *birtā* and *jāgir* lands, as well as from the Moglan [i.e. India], and reclaim and settle *kālābanjār* lands.

If cultivators on cultivated *raikar* lands willingly take up *kālābanjār* lands for reclamation, so that revenue from *raikar* lands does not decline, they shall be permitted to do so. [...] ⁴⁶

This advice was followed up so readily that the conditions offered to settlers by holders of estates exonerated from tax –naturally in a favourable position– led to a fall in the population on common law land and therefore to a drop in State revenue.

⁴⁶ RRS, 1978, vol. 10, p. 127-128.

As early as 1805, strict orders had to be published forbidding settlers already on *māl* land, i.e. those subject to tax, from being recruited. Moreover, although previously reticent to authorising foreign settlers on Nepalese territory, Kathmandu explicitly ordered the exclusive recruitment of Indians on leading fronts.

Royal orders to the *jāgirdārs*, *birtā* owners, and *amalidārs* who have obtained permission to reclaim *kālābanjār* lands in Bara and Parsa.

"Procure ryots only from the Moglan (i.e. India) to settle on your *jāgir*, *birtā*, or *kālābanjār* lands. If you attack settlers from *māl* lands, you shall be held liable for the payment of revenue on such lands. Do not reclaim your lands by depopulating *māl* lands. Any person who disobeys this order shall be severely punished."⁴⁷

Serious difficulties in recruiting farmers persisted until the first decades of the XXth century. This is witnessed by the adoption of a vigorous attitude in the application of certain colonisation programmes: in Surkhet valley, until 1927, the head of the tax office was required to reclaim 200 *bighā* (146 hectares) of new land each year, at the risk of being sanctioned with an equivalent sum.⁴⁸

This therefore seems to be proof of the determination of Nepalese leaders in the XVIIIth and XIXth centuries to take into hand the shaping of the kingdom's demographic morphology. Moreover, the forms that this policy took and the obstacles it encountered reveal a country with a low population and an abundance of cultivable land. Yet State interventionism did not stop there. If the country was to be peopled, it also had to be totally dedicated to the crop *par excellence*, irrigated rice. Both intentions were associated in a recurring principle: whoever wished to cultivate new or abandoned land could do so providing that they practised irrigated rice farming.

Many documents, the oldest going back to the end of the XVIIIth century, confirm that preference given to irrigation, as imposed in the Dibya Upadesh, was largely respected.⁴⁹ Since the sovereign held ultimate rights over land throughout the kingdom, the application of this principle did not encounter any legal obstacle. Important means were indeed devoted to

⁴⁷ RRS, 1983, vol. 15, p. 65. For the promotion of Indian immigration, see also RRS, 1984, vol. 16, p. 76-80, vol. 12, p. 61-62. In the middle of the XIXth century, incentives for settling on the Nepalese side as well as the excessive burden of the ground rent taken by landowners in the Bihar led very many Indian peasants to come and settle in the Nepalese Tarai.

⁴⁸ REGMI, 1968.

⁴⁹ See for example RRS, 1989, vol. 21, p. 137.

irrigation work. On *serā* land, assigned to supplying the palace, it is not surprising that the army itself was requisitioned to build embankments.⁵⁰ More amazing, in certain instances, individuals were permitted to resort to statute labour in order to dig a canal, which would supply their own land. Thus, in 1810, a certain Madhav Khatri obtained eighteen hectares of wasteland east of the Gandaki River (Central Nepal). He was authorised to clear this land and to transform it into paddy fields by using statute labour from among the inhabitants of four village communities (*thum*). Farmers would be able to retain the entire revenue over two years and would be protected from eviction.

Register the lands at the royal palace in the year 1869 Vikrama Samvat through Kaji Balanarasimha Kanwar. Settle tenants (*kuriya*) in areas which can be irrigated. The inhabitants of the four *thums* mentioned above have been granted exemption from the obligation to provide *jhara* labor for the construction of [a bridge on] the Bagmati River [in Kathmandu]. Their labor shall be used for land reclamation as mentioned above. On the 20th day of the month of *kartik*, they shall construct an irrigation canal at Phorsay as ordered by [you].⁵¹

In a significant way, these authorisations sometimes applied to holders of *birtā* estates.⁵² It must be kept in mind that the State did not collect any revenue on such estates and therefore that its own revenue was not affected. Similarly, territories administered by ethnic communities, under the *kipat* tenure, who only paid a fixed sum to Kathmandu, were not spared by the systematic promotion of irrigated farming. In 1805, the authorities lost patience when noting that ethnic groups from the east showed little interest in their irrigable land (*khet*).

Royal order to Limbus, Lepchas, Loharungs, Majhiyas, Bhotes, etc. in the Chainpur region east of the Arun river: "Cultivate only *pakho* [dry] lands, and let *khet* [wet] lands remain uncultivated. In the future, do not let *khet* lands remain uncultivated. Otherwise, you shall be severely punished."⁵³

This shows that preference for rice farming did not only stem from a will to maximise rent, but also from an ideological principle.

Irrigation networks are a permanent preoccupation for government services. Petitions reporting a threat to irrigated land are carefully taken into

⁵⁰ *Ibid.*, p. 10-11.

⁵¹ *RRS*, 1986, vol. 18, p. 120.

⁵² *Ibid.*, p. 137.

⁵³ *RRS*, 1978, vol. 10, p. 81-86.

consideration, such as the one below submitted in 1858 by villagers to the Pokhara court:

These days many undesirable practices have become rampant in our village. Irrigation channels are not repaired during the appropriate season. After the rice-fields are sown, fences are not erected. Cattle are not tethered, and are not watched over during the day. As a result, cattle stray in the rice-fields of the valley all through the time between the planting and the harvesting of the rice crop. Because of the problem of stray cattle, the rice crop is harvested after Kartik 15 or 20, even before it has ripened. People who live in areas adjoining the rice-fields take their cattle near the fields and then let them stray there. Others too follow suit, with the result that cattle and laborers go to the rice-fields on the same day. Because of such difficulties, weak people are unable to harvest their crops. If steps are taken to put an end to these difficulties, all persons, high or low, will be able to harvest their crops easily, pay their rents, and maintain their wives and children.

Reply from the authorities:

1. On the 10th day of the month of *jestha*, assemble all the villages and repair irrigation channels in the customary manner.
2. On the first day of the month of *ashadh*, erect a stockade in each area where cattle may graze. Tether cattle in the night.
3. When the rice-fields are sown, the *katuwal* [village peon] shall see that cattle are not loose. After sowing is completed, fences shall be erected. Cattle shall not be allowed entry in areas bordering the valley. Do not let cattle loose in the night.
4. The rice-crop shall be harvested only after it is ripe. After harvesting is completed, the *katuwal* shall dismantle the fences and let cattle graze in the fields.
5. Any person who grazes his cattle on the borders of rice-fields shall be punished with a fine of one rupee for each animal.
6. Any peasant who does not assemble on the day fixed by the office for repairing irrigation channels shall be punished with a fine of one rupee and forced to join the work.
7. If stray cattle enter into the fields, the *katuwal* shall seize them and hand them over to the court [*adalat*]. The *adalat*, on its part, shall confiscate such cattle and send them to the royal cattle-farm. If the *katuwal* does not do so, he shall be punished with a fine of five rupees.
8. Any person who contravenes these regulations shall be severely punished.⁵⁴

⁵⁴ RRS, 1980, vol. 12, p. 76-77.

Furthermore, as in the case of trees bordering cultivated fields, instructions concerning the protection of irrigated areas figure in a large number of ordinances where irrigation is not the main topic. In the 1850s, these texts nearly always ended with:

Repair dams and irrigation channels through your own labour if these are damaged. Put manure on the lands. Do not cut trees on the borders of the fields.⁵⁵

The "all irrigated" policy receded over the first decades of the XXth century with the creation of an agricultural management office and the publication of the first technical reports on cultivation practices. The imposition of specific crops without taking into consideration the milieu was called into question and it was understood that this could be detrimental to the income of the State.⁵⁶

*
* * *

The documents available therefore clearly give evidence of the Nepalese State's intervention in resource and land management in the XVIIIth and XIXth centuries. This in no way implies that Nepal's current landscapes are the result of this intervention, nor even that they were affected in a significant way. There simply existed a set of principles, legal tools and a lasting administrative practice aimed at controlling the relationships between peasants and their milieu. This policy was irrefutably shaped according to the governing elite's interests, by ensuring that its revenues were maintained and developed. However it also satisfied ideological principles that made it apply on a global scale even where these interests were not directly at stake.

These elements must draw our attention to the existence of environmental protection and agricultural development policies in so-called "traditional" States. The example of "hydraulic cities" is a well-known one;⁵⁷ it seems that the phenomenon was much more widespread. Moreover, in the context of contemporary Nepal, it is also the perception of development and protection policies which is the issue here. Can they still be perceived as innovations by the modern State under the impulse of international scientific

⁵⁵ *RRS*, 1981, vol. 13, p. 191.

⁵⁶ See the very instructive results of the survey on crops on the outskirts of the Kathmandu Valley, financed by Prime Minister Chandra Shumsher in 1925 (*RRS*, 1989, vol. 21, p. 1-3).

⁵⁷ WITTFOGEL, 1957; COEDÈS, 1968 [1st French ed. 1948].

and technical expertise? Can one attribute the drawbacks of these "innovations" to the absence of ecological awareness, considering that, as we have shown here, this awareness has largely been attested over the last three centuries?

The real impact of former policies on agrarian landscapes is, of course, difficult to assess using the type of texts presented here –for the reasons we have stated. However, these texts throw some light on the demographic and ecological context at the time, that of a country with a low population and considerable variations in human pressure on the soil from one region to another, and even from one valley to another. The general impression created by these documents –for it is an impression– is that there existed several heavily-exploited areas, hemmed in by a vast wilderness (Frame 14); at the fringes between these two spaces, there seems to have been large stretches of wasteland, totally abandoned or occasionally cultivated. Finally, we must again insist on the huge contrasts. If certain localities show all the signs of what we would today call an ecological crisis, others cruelly suffer from a shortage of farmers.

The inhabitants of Bohragaun village in the *darā* [unit] of Asi in Jumla submitted the following complaint to Kathmandu: "Many people of our village have died, so it is now thinly populated. Consequently, the inhabitants of adjoining villages, as well as Chinasim, have now started grazing their goats, horses, buffaloes, and calves in our forests. They have damaged our crops and demolished the walls of terraces on our *swanro* [dry] lands and also embankments on our rice fields. We are thus unable to raise any crops. In winter, they forcibly remove the stubble on our lands, so that we are unable to graze our own oxen. In these circumstances, it is proving difficult for us to continue living in the village."⁵⁸

Frame 14

Forestry in Nepal in 1928 according to J.V. Collier

In Appendix XIX of Perceval Landon's book, published in 1928, there is a text by J.V. Collier which throws light on the dilemma posed by agricultural development with regard to deforestation at the time. Here is an excerpt:

For whereas the early cultivators were clearing and burning worthless material, the cultivator of the present day is often felling forest of great commercial value, and one of the most urgent and difficult problems of the Government is the control of this substitution of crops for forests. There is no doubt that Nepal, with

⁵⁸ RRS, 1986, vol. 18, p. 112.

her growing population and with the tendency of her helpless surplus manhood to emigrate into India, must adopt and press forward a policy of tree felling in all localities where crops can grow and men live happily. But there are economical and there are wasteful methods of carrying out such a policy, and the methods of the past have not always been the best.

The present policy of the Government is:

(i) To replace forest by cultivation wherever conditions for cultivation and human habitation are favourable;

(ii) To prohibit the removal of forests where the climate is too unhealthy, and where crops can only be grown with the risk of loss of the life or vigour of the cultivators;

(iii) To insist on large extensive clearings, so that the depredations of wild animals are reduced and the climate improved;

(iv) To realize in full the value of the forests cut and replaced by crops.

There is no doubt that this is a wise policy. If it is carried out faithfully it will increase the area of crops, and render the country more dependent on its own food supplies; while it will lessen or completely stop the present drain of the country's manhood into India. This policy must be pursued for many years before there need be the slightest grounds for fearing that sufficient forest will not remain. For in the temperate zone it is certain that cultivation can never occupy more than one-third of the total area, the remainder being too steep or rocky to admit of the growth of crops. Perhaps in the Valley of Katmandu and its vicinity a condition has been reached in which it would be wise to call a halt to the increase of cultivation, for in this valley civilization dates back so many hundreds of years that there are now signs of an insufficiency of forests and the fuel which they supply. But elsewhere the day on which the restriction of cultivation need become a question for consideration is still far off.

If, in the past, mistakes have been made [...], they have taken the form of allowing the clearances to be made in a haphazard manner, and without sufficient forethought. Small islands have been cleared in seas of forest, with the inevitable result that the forest has within a short time reconquered its territory. Thousands of these deserted clearings are to be seen throughout the whole extent of the forests. They have taught the lesson that clearances are useless and wasteful unless they eventually coalesce so as to form one great cleared area, which wild animals cannot invade, and which exposure to sun and the free circulation of winds will render more healthy.¹

1. P. LANDON, 1928, Nepal, London, Constable and Co. Ltd., vol. 2, p. 252-253.

CHAPTER XI

The Khimti Wilderness: Regulations and Conflicts A legal and Historical Approach

Bruno Muller

Land titles issued after 1791, once Nepal was unified, endorsed a whole past. In the east, in the Khimti valley, in the area said to be "near" the Kirants' land, a hundred kilometres as the crow flies from Kathmandu (Figure 44 and 45), the Sunuwars, a small tribe among other Kiranti tribes, were the most acculturated. In bygone days, they had been hunters. Armed with bows and knives, men would run about the woods and bring home large game such as deer, wild boar, antelope-goats; the wilderness was their territory, while their wives in the village harvested millet. This tale leaves us perplexed. The landscape, however, had already borne the marks of change two centuries before. Fields had taken over from forests, terraces had encroached on slopes, irrigated paddy fields occupied the lower section of mountainsides; men, often from the west, settled and founded hamlets. This took place in the north and on the ridges among the Bhotos who were Buddhist farmers, often cattle breeders, but especially merchants. This was also the situation in the south, on the lowlands, among the Indo-Nepalese, people of caste, Hindu peasants, mostly rice farmers. Sunuwar land, very often divided on paper, was still –in people's minds– a single territory and land titles drawn up in accordance with the promise made in times of war had recorded this old tale in the form of a compromise.

Compromise? This also seems to be the case for the expression "wilderness", since it covers such varied places as fallow land a stone's throw away from houses, pastures and the forest furthest away. Nevertheless, the wilderness clearly stands out as soon as one sets it against what is man-made or against fields and crops. Long ago, this space was also a "jungle" where wood-dwellers (*jaṅgali*), considered to be uncultivated beings, lived. Up to 1950 it was *kipaṭ* land, i.e. a privilege which was imprescriptible

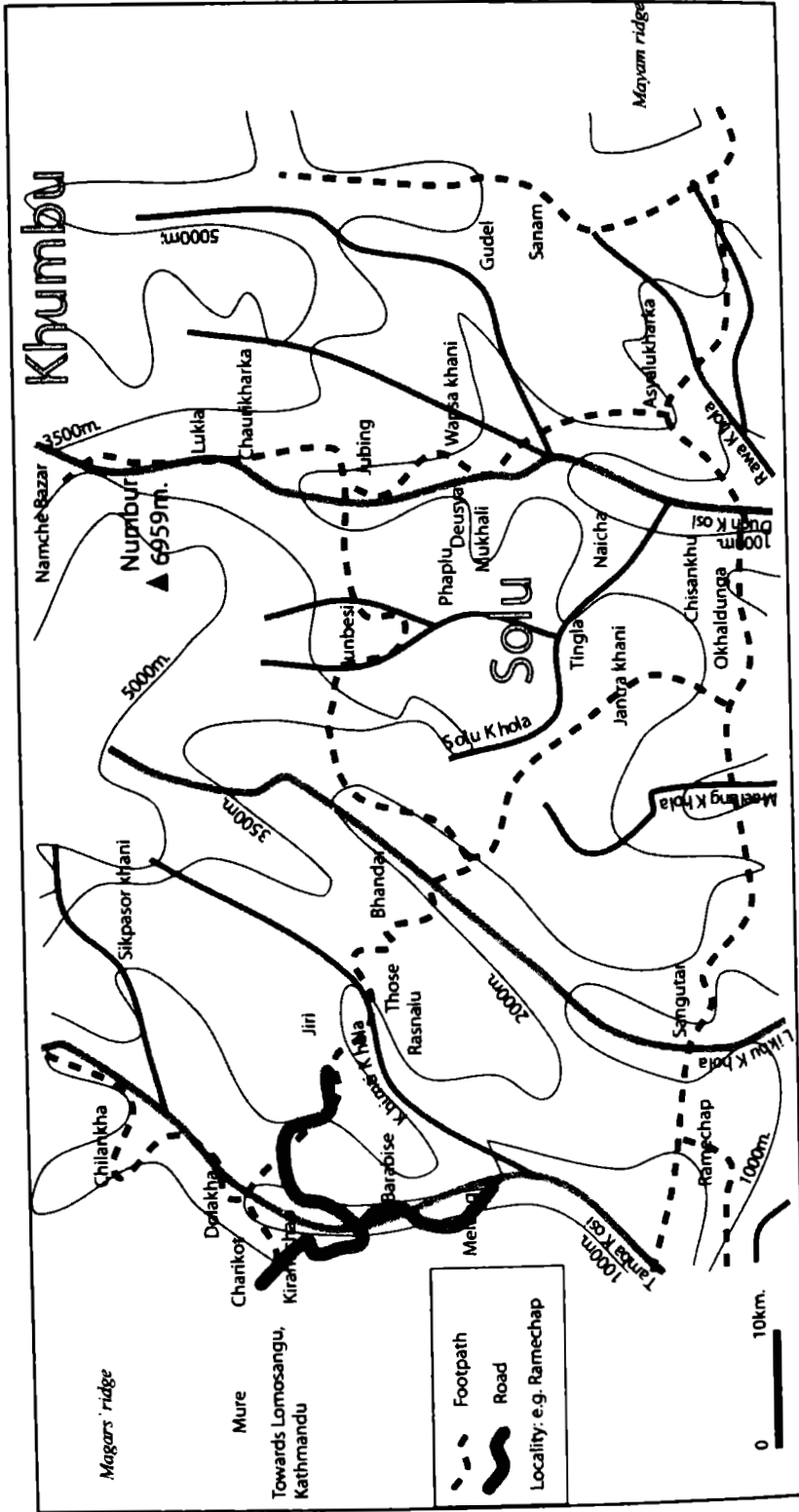


Figure 44
Regions in the East, between the river Tamba and Dudh
B. Muller

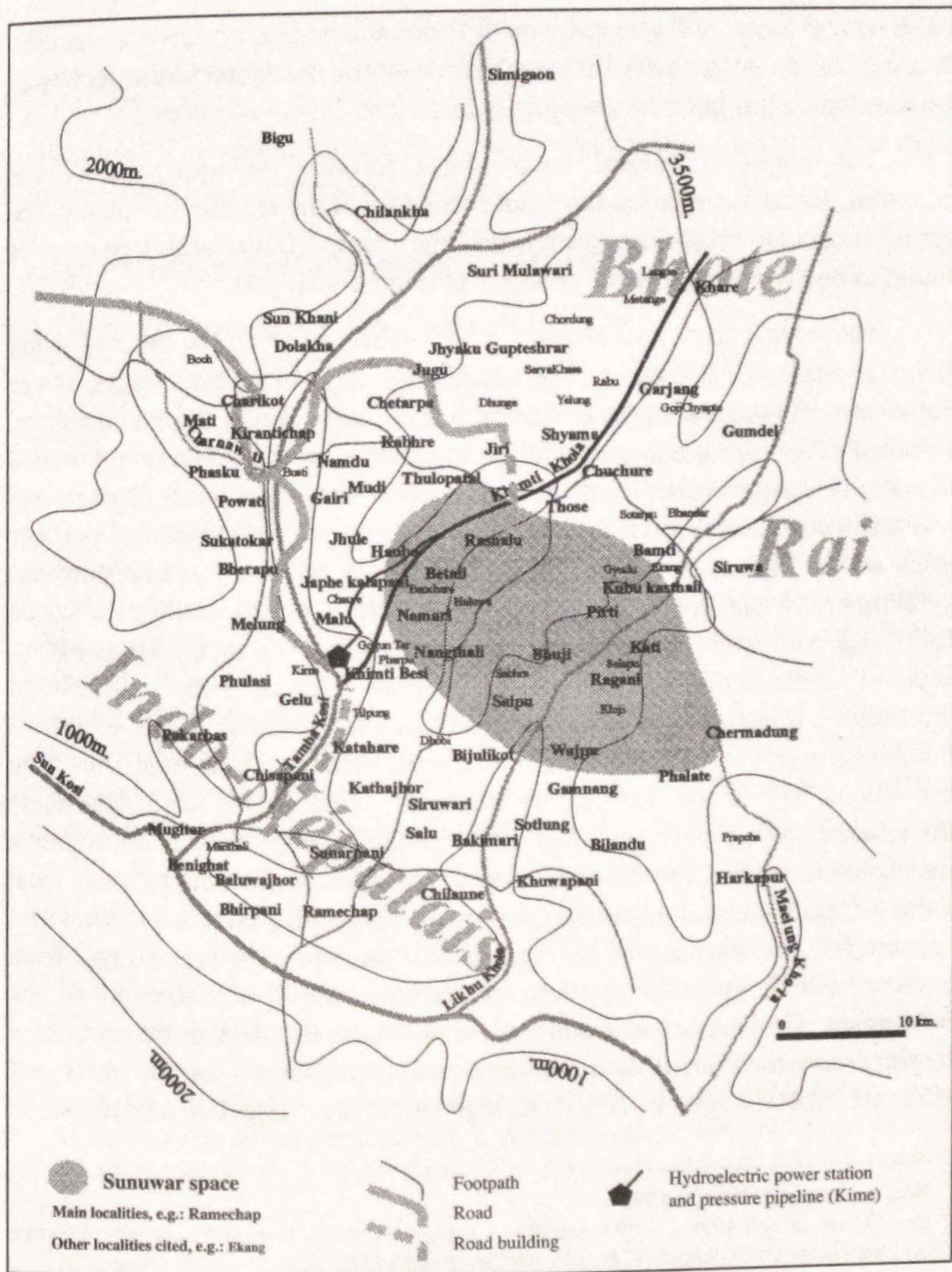


Figure 45
Sunuwar space
B. Muller

vis-à-vis the State. It remained, and still remains today a reserve where men or their herds go to help themselves. Over the last few years, in Nepal, wooded space has become a major issue.

The major ecological catastrophes foreseen by experts have not occurred, forest boundaries have not receded and the terrible flooding of the great Himalayan rivers has not reached the plains.¹ Better still, tree cover is found to be progressing, with villagers playing a vital part.²

The wilderness was already a debatable issue at the time of King Bahadur Shah (1791), and it was notably the case in Khimti, which stands out clearly in texts dating from that period or later.³ It was a debatable issue, amongst others, from a patrimonial point of view, in terms that might be said to denote compromise. Either it involved the right over pastureland ownership contained in various writings, the simple recognition of debts or titles at the highest level (the king's edict, *lāl mohar* or *rukkār*), or else agreements (*kayal nam patra*), conciliations (*gaj patra*), writings obtained following complaints (*binti patra*), accusations (*ujuri patra*, *pherād patra*), acts of defence (*uttar patra*), confessions (*kayall nām patra*), and arbitrations (*phaisala*). It also involved easement, which is the subject of numerous ordinances (*sanad*), granted by the different Rana ministries from the second half of the last century onwards. What do we learn from these documents? What part can they play in the current debate on resource management, given the features already evoked (definition by law, local value of the documents) that have led me to deal with pastures and the forest separately? The purpose of this text is to take into account excerpts from ancient texts chosen in relation to the law and the protection of the wilderness. However, I will add two viewpoints: the first in the form of a hypothesis which justifies a chronological presentation of the texts and addresses the changes in Nepalese legislation regarding the wilderness. In

¹ See, for example, HÖFER, 1993.

² See GILMOUR and NURSE, 1991; see also Chapter XVII, "A Bocage Landscape. Masyam and the Hamlet of Kolang" (T. Bruslé, M. fort, J. Smadja).

³ About thirty texts gathered together and translated in MULLER, 1986a; see also MULLER, 1984 and 1986a. The documents were found on site, at the village head's house, with their descendants, particularly among the Chetris, who have the habit –of great use to us– of keeping all their papers and sometimes of recopying those of others. Some texts presented here are an exception, especially those regarding the king's herds in Jiri, which I owe to J.- C. MARZE, historian, who in the 1980s worked on sorting documents at Lagat Phat, Kathmandu.

Nepal, parallel to the generalisation of common law (the end of privileges),⁴ are we not looking at the emergence of public law, albeit on a village scale and as yet unfinished, the upshot of which would be opinion, possessions and power? The second shows how law combines with history as a result of group or individual strategies.

First writings: pastoral property titles

Privilege: His Majesty the King first and foremost

In Nepal, in 1806,⁵ "due east of Magar ridge⁶ situated between the Sun Kosi and Tamba Kosi valleys, east of the Halahuli pass and west of Mayam ridge",⁷ there was a stretch of land which belonged to two ancient districts, East no. 1 and East no. 2. In the villages of the different cantons (*thum*) lived "dignitaries, subjects", notably those, acting as intermediaries between the populations they represented and the State, tax collectors called *amāli* (the head of the village counsel and the judge for minor crimes), *dwāre* (a government representative whose jurisdiction exceeded the village boundary), *mukhiyā* (the village headman), *thari* (the agent of a lower rank than *mukhiyā*), *rāi* (the village headman of *rāi* communities, especially in the middle-Kirant region, East no. 3), *mājhiyā* (the equivalent to *thari*), *mijhār* (the village headman of *bhoṭe* communities), *gorcā* (or *godecā*), in charge of the *bhoṭe* village of lower rank than *mijhār*). The king addressed all of them and said:

In times past there was a royal charter of rules for the *goṭh* which stipulated:

"For our *goṭhs* in Pirti, Jiri, Khimti, Boc, Phaplu, on pastures, dense highland forests and small lowland walls for the use of different *thum*: the Sunuwar *kipaṭiyā* of the twelve Bhoṭe and Kiranti villages must each give for our *goṭhs* two pastures from their own *kipaṭ*; on pastures put aside for the *goṭhs*, do not set up new dwellings; this charter is such that nobody must damage foliar fodder or grass for cows or cow-buffaloes by clearing the forest, cutting down trees, tilling the land with a swing-plough or hoe, cultivating the land, setting up houses; households settled long ago shall not partake in winter

⁴ I refer to the work of historians of Nepal, and in particular to those of M.C. REGMI (1976, 1978 a and b, 1988).

⁵ 1862 VS, *cait*, 12th day of the dark fortnight (March- April 1806). VS: Vikram Sambat. The Vikram era, in use in Nepal, started 57 years before the Christian era.

⁶ The Magar ridge is east of the Dudh Kosi, and more specifically east of a tributary of this, the Rawa Khola.

⁷ The Mayam ridge can be found in the Sun Koshi and Tamba Koshi valleys; the Halahuli pass is not marked.

cropping⁸ on winter pastures nor in summer cropping on summer pastures; do not create any new terraces on pastures outside existing terraces; within their own constituency, *dokyā* subjects, when using *goths*, shall ensure the portage of hulled and unhulled rice, salt from Tibet and butter from Nepal; they shall ensure the transfer of *goths* by building shelters, stables, and by transporting equipment; *dhākryā* subjects shall, when using *goths*, prepare fords, foot-paths, paddy fields, arrange pastures damaged by streams and landslides: they shall graze their cows, cow-buffaloes, calves, young buffaloes, male buffaloes and young bulls as recorded [?] in the documents. [...]

The *kipatīyā*, who used to each give two pastures in accordance with this charter, shall each continue to give two pastures: on *goth* land: paddy fields, *khuwā*⁹ areas, pastures, fields adjoining houses, *chāp* (tax-free land), sites built on, we have cancelled charters for some who, after having drawn them up, benefited from them, and we are establishing a charter for our *goths*; the *goth* shall not leave uncovered a single inch of what makes up grandfather's land and grass [?], *tāp*, attributed to these cows and cow-buffaloes as up to now one has gathered together these *goths*; *goths* shall not encroach, without any notice, on the land of our ancestors where, for a long time now, *goths* have not encroached; a hefty fine shall be imposed on those who, on land set aside for *goth*, clears the forest, cuts down trees, tills the land with the swing plough or the hoe, cultivates it, sets up houses, transforms pastures, harms foliar fodder as well as the grass for cows, cow buffaloes, young buffaloes and calves [...]"

The State possesses *goth* in Pirti, a Sunuwar village in Likhu Khola, in Jiri, in the Khimti valley, in Khimti (Khimti Bensi, at the confluence of the river Khimti and Tamba), in Boc, near Carikot, Phaplu, in the Solu region further to the east.¹⁰ What are *goths*? Usually the term denotes a shelter for the herd and its keeper: a small light mobile hut, which is put up and taken

⁸ A document, not reproduced here and dated 1895 VS, *baisākh* 9th day of the dark fortnight, Thursday (April-May 1838), mentions buckwheat and mustard.

⁹ Form of landed tenure (according to GABORIEAU, 1977); the term here designates *goths*, especially those of the king.

¹⁰ In 1838 (according to documents cited above), there were *goths* in Dolakha, Ramkot (western bank of the Tamba Kosi), Phalgu, Dhuni, Katakuti (not marked), Phasku (western bank of the Tamba Kosi, south of the Charnawati), Jiri, Khimti, Betali (Khimti Khola), Japhe (eastern bank of the Tamba Kosi), Pirti, Bhujji (Likhu Khola), Kothya, Tilyakhu (not marked), Svalu (Solu Khola riverbank locality?); Doluna, Kusiya (not marked), Sabhra (Likhu Khola), Phaplu, Cisangkhu, Naica (western bank of the Dudh Kosi), Deusya, Mukhali (western bank of the Dudh Kosi, north of the Solu Khola), Tingla (southern bank of the Solu Khola).

down according to the herd's movements. Yet here, *goths* are more than this. They represent pastoral units with a legally recognised existence, shelters without a doubt, but also herds and pastured areas which are –along with real pastures covered in grass, trees and forests– fields during the fallow period, especially paddy fields once they have been cleared of rice from November to June. On the ground, the *goth* mark is temporary. Their ancestors created them. Perhaps they go back to the time not so long ago of the Gurkha conquest. The State owned the animals. At the turn of the XIXth century, in Jiri Khimti, the King of Nepal owned some 12,000 heads of cattle.¹¹ The shepherds, *gothalo*, Indo-Nepalese¹² immigrants from the west, ordinary Hindus of caste and Brahman, earned their pay in kind and benefited from the surplus production in exchange for the regular supply of stock farming products –especially butter.¹³ They raised buffaloes and bovine; others, in other places, on other itineraries, herded sheep, and were official wool suppliers.¹⁴

But the king's herds did not stay in one place, they moved around, going from village to village, only spending a short time in each place. The inhabitants of the localities concerned were the Sunuwars, Bhotes and Kirants (Rai,¹⁵ *kipatīyā*, otherwise known as holders of *kipat*, land recognised by the sovereign State from 1773 onwards as being collective property, inalienable in principle. Starting in 1791 –almost twenty years after the Gurkha conquest, which had led to the unification of the Kingdom of Nepal– they received written confirmation of what former tribes had been promised: the guarantee of benefiting peacefully from land they had considered to be theirs for a long time. However, they had to relinquish to the king two

¹¹ HAMILTON, 1971, p. 165: "One day to Jirikampti, where the Raja of Ghorkha has 10,000 or 12,000 cows on fine plain land, kept waste on purpose."

¹² Indo-Nepalese, especially Chetri if one refers, for example, to the names *gothālo* as mentioned in a document not reproduced here dated 1858 VS, *paukha*, 5th day of the bright fortnight, Friday (December 1801-January 1802): the shepherds Parsuram Khadka, Jasaram Khadka, Atal Basnyat, Pitman Karki.

¹³ Document dated 1863 VS, *bhādra*, 14th day of the bright fortnight (August-September 1806), addressed to Barja Barna Karki *gothālo*, the founding ancestor of the Karkis of Rasnalu.

¹⁴ Document dated 1872 VS, *śrāvan*, bright fortnight (July-August 1815), on inheriting the responsibility for a sheep *goth*.

¹⁵ Bhoté: here Sherpas from the north settled in the Solu, the high valleys of Tamba, Khimti and Likhu, well before the times of the Gurkha conquest; the term "Kirant" is applied to the Rai, though the Sunuwars also come from the group of Kirant among whom there are, among others, the Limbu, the Hayu, the Jirel and the Syrel.

pastures from their own village, situated in high-altitude forests and, on fallow land, fields at the foot of slopes, where the grass growing on the small walls separating terraces was used as fodder. After 1806 other texts witnessing the royal privilege followed.¹⁶

However, inhabitants did not relinquish all the land in question. They merely left its usufruct, only the part for use by herds, the wild part where cows and cow-buffaloes were usually put out to graze. However, this meant their not being able to build, clear, cut down trees, cultivate the land in winter on winter pastures and grow crops in summer on summer pastures: to freely dispose of their property. Furthermore, they had to work with State shepherds. The *kipaṭiyā* (the *doke*) supplied the *goth* with rice and salt, ensured transportation of butter from cows and cow-buffaloes to Nepal, the former name for Kathmandu and the valley. They helped with cattle herding. The other villagers, not holders of *kipaṭ* land (the *dhākre*), on the one hand maintained the pastures and paths and on the other hand looked after the herds and offered their services to shepherds.

Taking possession of land

In 1791, in Khimti and further east in Likhu, "in the constituency of Tilpung, Haluwa, Namari and Solu, among the following parcels of land, the Bancare Phedi bench, Ragani, Holapu, Selapu, Salapu, the two pastures in Citre, as well as above the river Angphekala, the ridges of Sarva Khasan Dorje and Chertung",¹⁷ Ajit Khadka¹⁸ received pastureland from the State. Here he could settle his cows and cow-buffaloes. In summer, herds were led to high-altitude pastures (upstream from the rivers Khimti and Likhu) and in winter they came downhill again once the harvest was over. In the year 1865 VS (1808) a royal charter was supposedly drafted on behalf of Chatra Sing Karki Ksetri, from Betali, for his own animals to be led to high-altitude pastures of Dhunge Jyepang (Khimti), land of the Bhote which they claimed (see *infra*). In Praca, a village in the Maelung valley, Brahmans drove their herds according to the ongoing pasture tenure

¹⁶ NB: these settlements were reaffirmed during lawsuits. For example, in 1801, 1822, 1838.

¹⁷ Precise location: in Tilpung in the lower course of the Tamba Koshi, in Haluwa and Namari on the eastern bank of the Khimti Khola, in the Solu in the northeast. They were given the names Bancare, the native village, Ragani and Salapu (with Selapu and Holapu?) on the eastern bank of the Likhu, Sarva Khasa, Dorje and Chertung (for Chordung?) north of Those, in the upper course of the Khimti Khola.

¹⁸ In the year 1848 VS, *caitra*, 31st day of the dark fortnight, Tuesday (March-April 1792). Seat: capital Kathmandu.

(*mayau birtā*) where others were joint owners, and in 1849 they had still not forgotten their imprescriptible tribal right.

In the new political context of the Gurkha government, land between the rivers Khimti and Likhu, both downstream and upstream, was seized. This was *kārki*, *khadkā*, Brahman, Chetri, Indo-Nepalese. It was legally partial, seasonal and pastoral. Sometimes appropriation was the subject of dispute, discussion and contestation, sometimes it was contestable, and sometimes it was not or seemed to never have been. Who ensured the harvest when, each year, the herd and its guardian were no longer there? Today, Ajit Khadka represents the ancestor of a Chetri lineage of the same name which peoples Bancare, whilst the place was a winter pasture before being turned into a large village. Here, the temporary settling of herds therefore preceded the definitive settling of their founding ancestor's sons and grandsons, resulting in total possession of land: elsewhere, appropriation was the subject of arbitration at the highest level of State, or was arranged locally. Here is what Tantarke Mijhar, Kebe Mijhar, Tharung Matamba Chodar Mijhar, the fathers and sons Khambe Sherchimbe Godeca Takto, living in Shyama, Yelung, Rabu in the Khimti sector, the Solu region, said one day in 1826¹⁹ when gathered at Ekang court (*amāl*) and addressing Chetris from Betali:

For a long time now, our *jimi-pagari* ancestors [masters of the land, literally "those who wear a turban", i.e. a sign of power] have ceded the following pastures to the *mukhiyā* Shiva Raj Karki on our Dhunge land:

You have obtained the right to the following pastures: beyond the river Chahare, on this side of the river Kopce, below Kopce pass, below Purana Jharsadi, Sabuk Homace and yak pastures, pastures formerly laid out: Dhunge Nagi, Mul Katera and the woods, brushwood, base, that you have arranged, the Gairi Nehele Mahabbir sector, below and above the cliff for use by the Shire Sunuwar, the top of Gairi, Gupha ridge, the dense forest and the Nagi fallow land, borderlands mapped out or yet to be mapped out;

We, the *jimi-pagari*, *mijhār* and *godecā*, have taken up seat here declaring: "From now on still, in accordance with what is written, we, the *jimi-pagari*, shall not withdraw from your descendants the right to these pastures; whether the herds shrink or grow, do not pay any less than the 6 rupees of *kharhari* tax for these pastures; we ourselves, the *jimi-pagari*, shall not increase the tax to more than 6 rupees; we, the *jimi-pagari*, shall not practise destitution (*pājanti*)

¹⁹ In the year 1882 VS, *māgh*, 5th day of the bright fortnight, Sunday (January-February 1826); tribunal seat of *amāl*, Yakang.

of the said pastures by entrusting them to others; we, the *jimi-pagari*, shall collect the *kharcari* rent directly from you for the pastures [...]."

Bhotes from Shyama, Yelung and Rabu rented pastures from Karkis from Betali. They had been doing so for a long time, since the time of their ancestors and of *mukhiyā* Shiva Raj Karki. In 1808, for two plots of land, Nagi Katero and Mul Katero, the Chetris represented by Chatra Sing Karki, obtained the king's confirmation of their rights. However, the Bhotes insisted on claiming the property. Their relinquishing the use of two other pastures, Talo Base and Upallo Base, to the Karki dates back to 1826. Today, nearly two centuries on, the contract remains valid and over the last few years migrations of Chetri herds have been seen during the summer towards Upper-Khimti. The Bhotes renewed their commitment: they were not going to abandon the cattle breeders, but would collect a rent of six rupees every year from them, whatever the circumstances. To start with there was a debt to be paid. And the debt was ongoing and accumulated interest. The land, rented at six rupees a year, was a guarantee:

Having invested sums of money, you may ask for interest on the sums spent on the said pastures, if each year debtors pay interest on the sums, creditors shall pay the *jimi-pagari* the *kharcari* rent for the year; whether one puts out one's own herds out to graze on the said pastures or whether one lets others graze their herds, leaving one's place to others, or whether one leaves the pastures unused, we shall collect the six-rupee *kharcari* rent from you directly [...], we declare that we shall not forsake you through your lineage [...] we have further said: "Should any brother amongst us, the *jimi-pagari*, having today drafted this convention, abandoned his land and gone abroad, should he, having invested sums of money, reimburse the said sums with the pastures, we, the other *jimi-pagari*, shall collect from your hand the *kharcari* rent that we, the *jimi-pagari* resident on this land, have registered; we shall not part with the pastures."

That is why:

We shall not use wood, foliage or bamboo from stables and shelters for animals; we shall not damage anything; we shall not touch the fodder; should anyone amongst the *jimi-pagari* villagers do anything illegal with the fodder and should they destroy or scatter the wood, foliage and bamboo from the stables and shelters for animals, they shall repair this [...].

Later, in 1874:²⁰

Should we, on not respecting the aforementioned provisions, seek to obtain a higher *kharcari* rent, should we, without your agreement, set up *dhākre*,

²⁰ In the year 1931 VS, *akhād*, 14th day of the bright fortnight, Sunday (June-July 1874).

proceed with making you destitute (*pājani*) and quarrel, should we clear woodland or *mālingo* bamboo on the aforementioned pastures, plant yams in the pasture meadows or practise swidden cultivation, should we produce yams and other crops outside already established fields, should one, by settling animals and putting them out to graze, have not respected the provision according to which villagers must not practise slash-and-burn farming, nor set fire to the land, should one have cultivated the land any old how or put animals out to graze, we shall in no case lodge a formal complaint declaring that your animals have grazed on our crops; should we, *mijhār*, *gorcā* and villagers, argue over the aforementioned provisions, we shall be punished by law insofar as we have quarrelled over pastures for which we ourselves have drawn up an agreement and we shall be made to pay you damages for this, including reimbursing the aforementioned *kharhari* rent.

Or later still (1887²¹), despite previous undertakings, because the Bhote had done it again:

From now on, on the four Dhunge Kharka pastures, i.e Mul Kharka, Nagi Karka, Upallo Base and Tallo Base, one cannot settle one's herds except for plough oxen; during the monsoon in the month of *asār* [June-July], should one settle a single herd among those of the *mijhār* and *gorcā* headmen, each one in turn and on the following day of *sāune sankrānti* [1st day of *sāun*, i.e. 16 July], should one withdraw the herd, the *mijhār* and *gorcā* as well as villagers shall not settle their herds during the month of *jeth* [May-June], the month of *sāun* [July-August], the month of *bhadau* [August-September] and the month of *asauj* [September-October]; during the month of *asār*, the *mijhār* and *gorcā* shall settle a single herd on these four pastures.

The day after *sāune sankrānti*, after having withdrawn the herd, you alone, "users" of the pastures, shall have the right to enjoy Tallo Base, Upallo Base, Nagi and Mul Kharka; you other *mijhār*, *gorcā*, villagers, etc. shall not settle your sheep, goats, cows, cow-buffaloes or yaks; in the month of *kārtik* [October-November], only when "users" of pastures have finished grazing and only when 'users' have left the pastures, shall the *mijhār*, *gorcā* and villagers bring their herds; one shall not grow winter crops on winter pastures nor summer crops on summer pastures in pastures and reserves for herds; villagers settled on the said pasturelands shall not set up their herds there; "users" shall not hunt their plough oxen; the *mijhār* and *gorcā jimi-pagari* of the subjects shall not make any nominations [*pājani*] for the benefit of other persons; they who make a *pājani* shall be punished in accordance with the law; of the 7 *dhārni* of butter of the *kharhari* rent we shall exempt you of 1 *dhārni* of butter for the upkeep of the *mijhār* or *gorcā* herd during the

²¹ In the year 1944 VS, *mārga*, 13th day of the dark fortnight, Sunday (November-December 1887).

month of *asār*; henceforth pay 6 *dhārni* of butter each year; the *jimi-pagari* and villagers shall not set up their herds apart from their plough oxen; they who shall be the first to overstep, transgress this agreement, shall be punished in accordance with the law.

Land shortage, a new deal

"Whatever the size of the herds, even if pastures are left unused, we collect the rent but do not go near the fodder", said the Bhotes. Commitments were not kept, others were made: six rupees for the rental, or seven *dharni* of butter (1874), or only six (1887) with the heads of the village having the right to settle a herd there and for the villagers to take oxen there for ploughing. In Khimti, the Bhotes and others, Sunuwars, *kipaṭiyā*, immigrants in villages or descendants of immigrants, everybody –to varying degrees– cleared land, practised swidden cultivation, cultivated the land, set about growing yams, potatoes, carried out slash-and-burn, led their own herds as well as those of others to graze and had houses built. At the end of the XIXth century, partly as a consequence of the growing demography, farming both spread and intensified. Large herds had already disappeared or were on the verge of doing so –those of the Kharkis, for instance, which only included twelve stalls in 1874, or those of the king, for whom the allotment of two village pastures was to be replaced by a tax payable in butter, then in money. Thus, on a private scale, rules emerged for using pastures. They multiplied and became more explicit: faced with the growing importance of farming, herd owners, starting with His Majesty the King, the first of them, defended their way of working and their property. This was the case in Jiri at the end of the XVIIIth century or later, in Shyama.

In Rasnalu (village in Khimti), the largest cattle breeders had previously been the Sunuwars. As *kipaṭ* tenure holders, from the paddy fields at the foot of the slope to the ridge, they benefited from grazing rights on fallow land and pastures. It was in Rasnalu, precisely on these lowlands, that Baj Barna Karki settled. He was a Chetri known for having been in charge of the king's herds and whose descendants made up the densest Indo-Nepalese population of the village. The facts date back to 1800. A century later, in exactly 1908,²² Dhan Man Karki at the head of the so-called Indo-Nepalese (twenty-seven families) lodged a complaint:

²² In the year 1965 VS, *mārga* (November-December 1908).

Majesty,

Since bygone days, after having finished harvesting paddy fields in the village of Rasnalu, in accordance with the village counsel, on the same day, we have settled our herds, put them out to feed on grass and fodder, ensured the manuring of paddy fields, settled the *kuṭ* and *ghiu khāni* payment with the *jāgirdār*; in this year 65 (1908), with the said Lieutenant Jitman Sunuwar from Rasnalu having given the function of village *mukhiyā* to Santa Bir Sunawar, the younger brother of the father of the same Lieutenant Jitman Sunuwar, the village made the payments and gave *asār* and Dasain presents; in addition, regarding the fodder of the Rasnalu lowlands, it was stipulated that one would settle the herds the same day; later, the *tālukdār* and Mal Karna Gaurung from this village declared: "Today, let all our subjects settle their herds on their own paddy fields"; whereas one had settled the herds on the said paddy fields and on other land on the same day, at the Thekdar *amāl* tribunal of the said lieutenant the aforementioned *mukhiyā* Santa Bir Sunawar accused twenty-eight persons, including Dhan Man Karki Chetri, of transgressing the rules by settling their herds; summons to attend proceedings in fourteen days' time were posted on our doors and we met at the lieutenant's house;

Due to the conflict with the aforementioned *mukhiyā*, Santa Bir Sunawar, not seeing it the same way, we lodged a complaint with the government through the intermediary of the *dwāre* of the East no. 2 stations;

Majesty, regarding these paddy fields, we have paid for the *jāgirdār*s' *kuṭ* and *ghui khāni* services; since the olden days there has been no tax on grass; now we would like this rule to be confirmed; such is the petition presented by the twenty-seven persons and the said Dan Man, i.e. twenty-eight persons in all; I would therefore like the subjects to obtain confirmation of this rule as indicated by our petition [...].

Herds grazed on these paddy fields left for fallow. Villagers got together. They arrived at a common agreement regarding the day for setting up stalls. On the said day, the rice had to have been harvested everywhere. Each one set up his *goṭh* on his land. Cattle could wander freely over fallow ground. They found plenty of fodder on the small walls. As this land had been closed to grazing animals according to the rules in force since the weeding of rice in the month of August, the grass had grown. By setting themselves up on the same day, cattle breeders found themselves at an equal advantage. For the litigants, the purpose of these pastures was clear: to ensure that the paddy fields were manured.

As before, the Chetris took part in pasturing. Why would they be excluded? Did they not offer gifts for using it, especially *asār* and Dasain

gifts, to the village representative, the *mukhiyā*, as proof that they recognised the Sunuwars as masters of the land? Did they not pay tax on paddy fields, the *kuṭ* (in kind) flat rate and the supplement in cash *ghiu khāni* to the *jāgirdār*, the army? Because, in reality, for a long time, the Sunuwars had no longer owned the rice land. Half of it had been confiscated in 1805. As for the other part, they had parted with it in exchange for the work of the Brahmans.²³ The head of the village and his deputy, the *gauruṅ*, decided to set up stalls. The Chetris therefore built them on this land. The *mukhiyā* Santa Bir Sunuwar complained and took the case to court, *amāl*, which was presided over by his nephew, Lieutenant Jitman Sunuwar. What was the complaint about? Since 1908, the head of the village had no longer been the same. His uncle had taken his place. Perhaps he was of a less obliging character and one therefore understands why Jitman, the brother's son, could be a good mediator in this matter. Perhaps he still considered the rice fields to be *kipaṭ* land, and would have been satisfied if he obtained a right to the grass.

Rules for protecting the wilderness seemed to fall within the ancient framework of interethnic relations. More than a century after the acts of war, the domination of a global society over small submissive populations reappeared, not moreover without in return provoking claims as shown by the schemes of Santa Bir Sunuwar or the behaviour of Bhote in Shyama. However, at the beginning of the XXth century the context changed. The wilderness where one could freely lead cows and cow-buffaloes lost its former abundance. Cattle breeders stood up for themselves: sometimes their opponent was a Chetri, a Brahman, let it be said, a "foreigner", but sometimes it was not the case. Where they had once been bound by the *kipaṭ* values, the communities of the same lineage were now torn apart. Ethnicity, which was not everything, was good at masking differences between groups' means of production, their interest, their choice of lifestyle, the degrees of affluence and power. In Rasnalū at the beginning of the XXth century, certain persons claimed their pastures to be totally independent; others wanted to preserve the joint ownership. In the 1920s,²⁴ two Sunuwar pastures were the subject of internal quarrels within the community. Several court actions ensued. Here is a first document:

²³ In the year 1882 VS, month of *mārga*, 10th day of the bright fortnight, Tuesday (November-December 1826).

²⁴ In the year 1978 VS, *paukha* (December 1921-January 1922) and in the year 1978 VS, 15th day of *māgh*, Saturday (January-February 1922).

On two pastures:

- one pasture called Surke recorded as being the responsibility of our ancestor Sarva Jit Sunuwar,
- next door to this same Surke pasture, a pasture called Dabre acquired by paying the sum of 8 rupees; since our ancestors' time, we have all got into the habit of forbidding the use of these pastures and making them an enclosure as of the full moon of *caṇḍi* [May], putting our herds out to graze there at one time during the month of *sāun* [July-August], forbidding the use of regrowth fodder, settling our herds in the month of *māgh* [January-February] in winter, settling our herds at one time, taking them away at one time due to the rules regarding use and grazing and according to the view of all our brothers, co-holders of these pastures [...].

Dabre and Surke were pastures. They were closed to grazing animals. The *mukhiyā* decided. Common law required him to consult the members of his clan. The *gaurung* (pasture warden) did his duty. He put up stakes all around the outside of the pastures. At the top of these, he placed a stone which he tied with strips of bamboo: the visible mark of prohibited land. When herds had been driven away from crops everywhere, cattle breeders set up stalls, all on the same day. The grass, protected up to then, was plentiful. These pastures were used twice: in July-August, the grass was excluded from grazing as of the *caṇḍi* full moon and in January-February, with its regrowth being protected from grazing animals upon the departure of the herds in August. What did the prosecution have to say?

At that time, with the above-named "guilty parties", the *mukhiyā* Man Dhoj and Kala Bhote asserted that on these pasturelands one could build houses, that once the houses were finished, one could recover the pastures; they settled on an agreement with the "guilty parties" and had houses built; so, when Ran Bahadur Sunuwar had built a house with the idea that we should all build one, that the houses would then occupy the pastures to "pay" the brother co-users and that those among us having built houses had to recover the pastures, with this idea in mind then they forsook [*pājani*] the brothers, villages, neighbours, Bhote, Sunuwar; they encouraged Phurka Bhote, Ritenji Bhote, Pachodor Bhote, Kalu Bhoten Kami Bhote, Badal Sing Sunuwar and Bahadur Sunuwar to build houses and they themselves built houses; the said "guilty parties" built houses up to the years 75, and 77 [VS]; forcing us to remove our pastures, they left their sheep, goats and horses to roam and they sometimes caused losses to fodder.

That is why, having inspected the pastures and fodder, we said that herds could not be settled there without a village counsel being held and we have reserved the pastures; both sorts of "guilty party", those who encourage others to build and those who, having built, have put up other persons in these pastures, said: we shall not accept their objection; herds must be settled:

they settle their herds in the month of *kārtik*, we remove our part and leave all the fodder from the pastures for the year 75 to be grazed; considering that leaving fodder for grazing, the "guilty parties" caused damage, not seeing it this way, we have come to lodge a complaint to this tribunal [...].

Parath, the litigant, referred to two categories of defendant. Some men had prompted the building and privatisation of pastures: the *mukhiyā* Man Dhoj Sunuwar²⁵ and Kala Bhote, probably *mijhār*, i.e. responsible for the Bhote community. Others followed; they were Sunuwars and Bhotes: they built houses; in the years 1919, 1920 and 1921, although they owned other land subject to individual tax and on which they resided, they left their animals –sheep, goats, horses, as well as cows, oxen and buffaloes– there to graze. They took up stubble-burning, says another document not reproduced here. Without taking into account the opinion of those using the pastures, regardless of the regulations, they settled their herds there in October–November of the year 1921. Parath pursued and concluded:

Violating pastures used since the time of our ancestors [...] and that we use in virtue of the rules, whereby nobody must build a house here, the aforementioned Kahar Sing does indeed own a house on land called Rani Pokhari which is subject to tax; Bhadar Bahadur, Kabilal and Ran Bahadur do indeed own houses on land called Rasnalu Dharapani, land subject to tax; Phurba Bhote, Ritenji Bhote, Pachodar Bhote, Kalu Bhote and Kami Bhote do indeed own their own formerly-built houses on land called Dharapani; after asking Ran Bahadur, Bhadra Bahadur, Kabilal and Kahar Sing for permission, they exploited the situation by removing our winter and summer grazing areas situated on our common-use pastures; on top of that, after Mangal Dhoj and Kala Bhote had expressed their opinion whereby it was of little consequence if houses were built on these pastures, they encouraged Ran Bahadur Sunuwar to build a house; in this way, on our common-use pastures of Dabre and Surke, during winter and summer grazing this year 78 VS [1921], on two occasions, they caused the loss of fodder amounting to about 2,000 loads; so we would like this tribunal to seize these sixteen persons, summon them in our presence, take note of the evidence and witnesses mentioned in the attached list and carry out justice; to deduct 1,000 loads from the 2,000 damaged loads from Mangal Dhoj, Birkha Bahadur, Khadka, Ran Bahadur, Bhadra Bahadur and Kabilala's parts; to punish them in accordance with the law, given that they have caused the loss of 1,000 loads of fodder belonging to us; to make them each pay 40 rupees of damage for the 1,000 loads of fodder, which amounts to about 0,04 rupees a load; to have the houses of those mentioned, which are not subject to tax, removed and have them transferred to their own old land which is subject to tax; to

²⁵ In Rasnalu, the title of *mukhiyā* was alternatively held by several families.

confirm our ancestors' provisions regarding pastures and to ensure that the rules are enforced; should the said 'guilty parties' cut wood, *ghuḍe*, *ninālo* and *jhāprā* bamboo which are protected by ordinance and should they commit offences, we shall lodge another complaint; if these remarks are not accepted, we shall proceed according to the law [...].

The litigant wanted compensation for the damages: first, 40 rupees equivalent to the price of 1,000 loads of fodder, and second, the destruction of illegally built houses. What did he gain? The "guilty party" was summoned and went before their judges. They made commitments. The houses would not be taken from them. Here is what they said:

That is why from now on, in these pastures, in accordance with the provisions of bygone times, the use of fodder is forbidden at the *caṇḍi* full-moon; in consultation with their brothers, the *kipaṭiyā* shall be able to settle their herds and put them out to graze in the month of *śrāvan* [July-August] as well as at regrowth; the *dhākre* shall not cause any harm nor put out their herds to graze; given that a complaint has been lodged against us whereby, amongst the sixteen of us on the list, Khadka Bahadur, Birkha Bahadur, Dil Bahadur and Mangal Dhoj, had settled our herds without consulting our brothers, from now on, we shall not bring our herds or settle on these pastures without having consulted our brothers; we who have built houses on these pastures and live in them, i.e. our *kipaṭiyā* brothers Kaman Sing Sunuwar, Rana Bahadur, Bhadra Bahadur, Kabilal and *dhākre* subjects Dal Sing Sunuwar, Bahadur Sunuwar, Ritenji Bhote, Pachedar, Bote, Phurba Bhote, Kami Bhote, Kalu Bhote and Kala Bhote, we own houses on these pastures, but as long as you others have not settled your herds nor put out fodder for grazing, we shall not settle our plough oxen, cows, cow-buffaloes, sheep, horses, nor shall we put them out to graze on the fodder;

We, *kipaṭiyā* brothers, as long as all our brothers' herds have not been settled, we shall not leave our cows, oxen, cow-buffaloes, sheep or horses to roam; as for the right concerning goats and horses, we shall not let them in the millet, barley or wheat stubble, nor in corn stalks, nor in high-season fodder; we must only put them out to graze on uncultivated land and on steep slopes; if one considers that we have wreaked havoc without taking into account these written provisions, that we have caused losses to fodder on these Dabre and Surke pastures, in virtue of this conciliation, may we be imposed fines at a steep rate of 5 rupees after counsel has been held among the brothers in the village or else on lodging a complaint and punishing us at the regional tribunal; we shall not lodge a complaint [...].

The forest, the property of each and every one

Run by the State, decided on by the villagers

The protection of the forest in Nepal, considered independently of pasture rights, is nothing new, an issue that has only cropped up in recent years, or a product of recent governments during the latest advisory councils. In the past, it went hand in hand in some cases with ownership and in others with easement.²⁶ The tree and the respect of it were subjects taken up by the young Gurkha nation, and in 1854 Jang Bahadur had a text about this published in the legal code, the first in the history of the kingdom. Afterwards protection appeared in successive laws, covering reams of pages, or else in the form of ordinances that the State delivered to villagers in the second half of the XIXth century, as for example in Salme²⁷ (Central Nepal), in Gulmi²⁸ (west), in the Khimti region (see *infra*); it was in force here and there in the 1950s still, when men subscribed to old customs, and I quote the famous example of the Sherpas from Khumbu. It no doubt goes back much further. Local traditions did exist. Certain provisions had been the subject of earlier writings. This is the case of the rules applying to Resunga, a sacred forest, established at the time of Bir Shah, King of Gulmi, thirteen generations before the Gorkha government was set up, when this King of Gulmi, in return for a land title, made the place the realm of cows and their breeders. The same goes for regulations regarding the communal forest in Rasnal, which had already been written about in 1828, because it represented a reserve of indispensable assets (wood and fodder, the cattle route) and soil cover against the devastating effects of the monsoon in this steeply-sloped country, through the regulation of water from upstream. Forest protection is therefore not new. Nevertheless it has its own history and developed, especially in the second half of the XIXth century, in a particular context of various upsurges simultaneously involving the State's authority, demography, cultivating land to the detriment of herds and money exchanges. So from 1871 onwards, the date at which one of the versions of the Code was issued, the government was even more committed to protecting forests: it backed the rules to which it found itself subjected.

²⁶ The inhabitants of Rasnal used the word *sandhi sapan* (strictly meaning "right of passage", otherwise here "right associated with one's residence"); I have translated it by "collective reserve or easement".

²⁷ According to a document that Denis BLAMONT (CNRS) sent to me.

²⁸ See MULLER, 1986b.

In Khimti, land was sometimes the subject of attributions, divisions and conflicts between populations. This was the case of pastures, but at the end of the XIXth century it was also true of the forest space. In Betali, in Rasnalu, inhabitants complained. The forest which they lived next to was slipping through their fingers; its products, at one time for sale, now left for the town. Whole trees were burnt to fire ovens, the best oaks were destroyed and the woods were ransacked. Those responsible were the Tamangs, Bhotas and newcomers. Above Betali there were some specialised farmers. They produced potatoes by the old *khoriyā* (weeding and slash-and-burn) technique. Below the Tambe summit (Rasnalu territory) others were Khanel miners and ironsmiths. The State, given its tax system and requirements, favoured this production. Seventy-two people, including those responsible for the paddy fields, the *jimmāwāl* Samar Dhoj Sunuwar, gathered together in Rasnalu one day in 1904²⁹ and addressed the State:

In the woods of our *kpaṭ* village constituency called Rasnalu, the lama, called Sarka, cuts trees, clears the forest, degrades and cultivates, but due to the charcoal needed by the government we tolerate wood clearing, except in our reserve of 300 households; these days, the said Sarke lama brings over other people, Newars; they cut down trees in our reserve, on the very threshold and at the door to our houses, on riverbanks and at the source of rivers; they cut down woods that are protected, closed to grazing animals or maintained for a long period of time by virtue of counsels held amongst our subjects, an ordinance having appeared in the year 1885 VS [1828]; they cut down small trees; they carry out slash-and-burn and cultivate crops, they deplete our reserve and riverbanks, provoke the drying up of the water needed for the 372 paddy fields set aside for our village constituency, provoke landslides, the degradation of our houses and our fields and paddy fields; we have suffered great prejudices; your Highness, by pleading to the government, we would like, on behalf of *mukhiyā* Laksuman Sunuwar, an ordinance to be drawn up in order to ensure the protection and the maintenance of the woods situated within the following limits, i.e.:

- east of the river Chahare, of Dhunga Gade ridge and of the river Bhitari,
- west of Rata Pani, Red Water and of the river Pokharin, the Pond,
- north of Tabe Gorase,
- south of the river Khimti [...].

Your Highness, may this public service deliver an ordinance [...] which states: in the above-mentioned woods, use whatever you need for whatever use it may be by virtue of the advice given by the *tālukdār*; should anybody

²⁹ In the year 1961 VS, 10th day of *jeth*, Sunday (June-July 1904).

cut down the woods in spite of this advice, the *citāidār* shall seize them and take them to the nearest tribunal to be punished [...].

This enquiry by the forestry commission ensued, whereby the army base in Melung, responsible for forest control, was asked:

When this forest was cut down and cleared, did or did not the sources of water for the 372 [?] paddy fields dry up, and the villagers, do they have or do they not have a reserve? The army replies: it turns out that in the ordinance dated year 85 VS [1828], the four limits now requested by the said Laksuman Sunuwar for the maintenance of the woods have not been stipulated; [...it does indeed state that one shall] not cut down trees or clear *khoriyā* fields but only from top to bottom in the 372 paddy fields and at the sources of streams [...].

The reply from the forestry commission came as follows:

We considered that a forestry inspection ordinance should be allocated on behalf of Laksuman Sunuwar residing in Rasnalu as well as the *tālukdār* and the subjects of this village, which states: no live trees shall be cut at all; no *khoriyā* or *lohase* land shall be cleared; nobody, save high-ranking huntsmen, has the right, when hunting, to catch animals living in this forest with bird-cones, snares or slip nooses, nor to hunt or kill them; may this be forbidden; nobody may go against what is written; should anyone do this, you shall take the said guilty parties to the state tribunal near the forest and have them punished according to the law; do not contravene the law in any way; protect forest enclosures by following the above-mentioned provisions [...].

Local government offices subject to State orders

At the end of the XIXth century and at the beginning of the next one, forest protection varied from one locality to another. Some villages disposed of an ordinance, others did not. Documents reported different situations in any case. Those of Rasnalu were not those of Betali. Nor were they the situations of Those. The law at the time (1871 code) had obliged everyone to submit a claim, if they wanted the State to guarantee forest protection. Villagers were granted free expression. Nevertheless, common elements were to be recognised through background diversity: the arrival of new populations, environmentally-damaging specialised industries, based on trade and money. In Rasnalu, Sarke Lama was held responsible for clearing the land;³⁰ supported by the granted ordinance, the Sunuwars mounted a court case against him. This caused a lot of fuss in the Khimti valley. Sanctioned by a

³⁰ A few punches were also thrown. This anecdote and history sometimes contradict each other.

heavy sentence, the man and his relatives (16 families) were forced to cease all industrial activity. Today the descendants of these miners live scattered over the region, and nothing is left of their former hamlet below Tambe mountain, except for a few souvenirs.

Rasnalü had benefited from two ministerial ordinances for this court case, one dated 1904 as just mentioned and one dated 1909, which was the result of a reform. Which reform? At the turn of the century, the State further committed itself to forest protection. One text gives the overall reason for this: "Forests are devastated".³¹ Therefore, in the nearby Kirant region (East no. 2), villagers complained about various matters. Article 7 of a long ordinance³² signed by Chandra Shamsher Rana, Prime Minister at the time, contains the reply about the forest:

To the *tālukdār*, *thari*, *mukhiyā* and subjects of the different villages of Dolakha jurisdiction, East no. 2, [...] to those who pleaded by saying that in the woods situated in your different village constituencies, the army carried out an inspection every six months seizing and bothering even those who did not even cut any trees, we say: "In withdrawing from the army's jurisdiction the woods situated within your village constituencies, we give the responsibility for these to you, *tālukdār* and subjects; protect, maintain and enhance the forest; by holding counsel between you *tālukdār* and the subjects, accept that anyone, if the need arises, may take dry and fallen trees from this forest; if trees have to be cut down to build houses, hold counsel between you *tālukdār* and the subjects, accept that as much wood be cut as necessary to build houses, but without damaging the forest; should somebody not respecting the rules clear 'unnecessarily' and degrade the aforementioned forest, seize them and take them to the tribunal, have them punished according to the law; in order to draw up your own forestry inspection ordinance stipulating the limits, write down the four limits of your own constituency as well as the names of the woods and give the report to the forestry office; so, having had the registers corrected according to general use, you shall obtain a forestry inspection ordinance through this public service; should officials be brought in from the district headquarters for a forestry inspection and should it be considered that you have cleared the forest 'unnecessarily', you shall be punished in accordance with the law "[...].

The reform introduced the direct responsibility of villagers in forest protection. They were, according to the terms of the law, subject to inspection. Their representatives all had to appear before government services in order to receive a ministerial ordinance. Up until 1907, these

³¹ Excerpt from the ordinance dated 21st day of *baisākh*, 1965 VS (April-May 1908).

³² In the year 1964 VS, 3rd day of *asār*, Tuesday (June-July 1907).

handwritten documents contained regulations. They bore the double seal of the ministry; they were nevertheless originals, specific to each village containing the expressed opinions of the inhabitants since they came from their statements. Drafting them was optional. In forest management the State was thus arbitrator, even with regard to its own government services (offices, army). The reform turned these principles upside down. On the one hand, it imposed similar regulations on all villages. The content of forestry documents issued following the reform was the same as below:

Excerpt of the ordinance in the village of Hanba:³³

Do not let anybody cut live trees, set fire to or clear *khoriyā*, *lohase* fields, carry out slash-and-burn, set bird-cones, snares, slip nooses and hunt, wreak havoc; do not contravene what is written; as for wood, hold counsel between you *tālukdār* and the subjects, depending on the person's needs, let them take dry and fallen trees; if live trees have to be cut to build houses, stables, lodges, shelters, walkways and bridges, let them take the necessary timber within reasonable limits: if the *tālukdār* needs some, he shall consult the subjects, in the same way that if the subjects need some, they shall consult the *tālukdār*; one shall, as far as possible, cut dry and fallen trees and small branches while preserving the main branches; otherwise, by preserving resting places, the sources of streams, sanctuaries, the reserve and riverbanks, by proceeding in a dispersed manner in the woods, the main aim being to not damage the forest, by choosing places that have become tufted –with the intention of clearing the forest, in a reasonable way– and the biggest, oldest trees that have reached full maturity; seize the persons who in this forest do not respect these written rules and transgress the directives, take them to the neighbouring State court and have them punished in accordance with the law; if, according to what is written, officials are brought in from the district headquarters to carry out a forestry inspection and if one considers that you have not respected these rules, that you have cut "unnecessarily", cleared land, that the forest has been devastated, you shall be punished according to the law; bearing this in mind, ensure the protection and maintenance of the forest.

Administration without the State

A history of Nepal regarding its relationship with authority would have shown that since its origins at the end of the XVIIIth century, the State had further tightened its hold over the territory and its people. Developments in forest legislation, which can be glimpsed on examining these few texts, illustrate the change. Public authorities showed a growing interest in forests,

³³ In the year 1965 VS, 27th day of *asauj* (September-October 1908).

ranging from the protection of the sacred tree in the first version of the Code in 1854, to that of the wood that everyone wanted to defend, according to the terms of the 1871 law, and then to all forests throughout the kingdom at the end of the 1907 reform. Indeed, the reform was not limited to East no. 2: it was widened to the whole of the West after 1910, and to the whole of the mountain territories after 1913. Based on reports showing that punishment was well and truly inflicted on those who cut down woods, government services deemed the new measures positive.

Extracts from the Gulmi (West) forestry ordinance:³⁴

In accordance with these reports, forestry protection ordinances were drawn up in the East sector; according to a report on punishments for those who cut wood in the East regions 1 and 2, on Sunday the 10th day of *māgh* of the year 66 VS [1909], the office of *khadga nisāna* decided to protect, maintain and exclude a forest in the West sector as in the East, to draw up ordinances as in the East, including the carrying out of occasional inspections.

I have pleaded because in accordance with previous reports, one had well and truly done what needed to be done to draw up ordinances on behalf of the *tālukdār* from the East and the West 1, 2, 3 and 4, though nothing has been done to set up ordinances on behalf of the *tālukdār* of the wooded areas in all the hills of the constituencies outside the previously mentioned places [...].

However, in all matters related to forest protection, the rules were applied without their having to be reported to the State, or without the latter having to be the judge. This was particularly the case of nearby woods, in the familiar framework of everyday relations. These rules could be reiterated, especially after a conflict which, it was hoped, might serve as an example.

Here is an excerpt from an agreement signed by one hundred and fifty-one people at the local *amāl* court of Betali,³⁵ rules governing the wooded space of a whole slope as far as the woods on the ridge:

From now on, in high-altitude woods, woods in the middle of the village, low-altitude woods, at the top and bottom of paddy fields, next to the River Khimti, at sources of water, at fountains, at resting places, in woods on various parcels of land mentioned in the list,

if houses, stables, lodges, shelters and bridges have to be built, use the necessary wood by consulting the *tālukdār* and the dignitaries from the whole village;

³⁴ In the year 1973 VS, 25th day of *baisākh* (April-May 1916).

³⁵ In the year 1970 VS, 16th day of *asauj*, Wednesday (September-October 1913).

if you yourself illegally cut wood from these forests, in accordance with the ordinances mentioned above and according to the law, the *tālukdār* will take you to the village court and have you punished;

regarding wood and low-altitude fodder, with the exception of plough oxen and dairy cows, you shall not settle cow-buffaloes in *asār* [June-July];

after weeding paddy fields according to the tradition and "tying stones" to stakes on the edges of the enclosure according to custom, punish with a fine at the village court those who, exceeding these limits, put out their herds to graze and cut fodder; then, after having cut the rice on the lowlands in *maṅsir* and having finished making the grindstones, lead the herds into the paddy fields, the government's herds first of all, if His Majesty the King's herds are there, the subjects' herds may come next and ensure that the paddy fields are manured;

have punished those who do not thus respect these rules, who lay waste, cut fodder on the lowlands, clear the forest, cut firewood, as well as those who have trees cut without consulting the *tālukdār* at the top of the village, in the middle of the village, at water fountains, at resting places and water sources for paddy fields; we shall proceed according to law;

List

- in the dense forest of Baguwa, cut dry trees on the day when Langka and Shri Mahakali sanctuary is used, otherwise do not cut any;
- in the woods of Lahatahar in Lama Caur [the lama's meadow], of Duduwa, Thotneri, Mul Pani [main water], Jagera [the reserve], Nun Thala [salt area], Okhar [walnut trees], Bhoai, Bhimsen Than [Bhimsen sanctuary], Til Khoriya [freshly cleared ground for sesame], ensure the protection of fodder trees; otherwise, for your work, use wood after consulting the *tālukdār*; do not cut any either before or after;
- nobody shall clear the Dewali Tara woods and undergrowth;
- nobody shall clear the woods of Patle Sim [Patle marsh] and of Asare Pani Kula Khet [the Asare paddy fields, canals and water] in the old groves of the village and the wood maintained by Jodu Karki, for whatever usage there may be, do not cut any without asking the *tālukdār*;
- nobody shall cut the woods and undergrowth of groves, meadows or Juke Pani [bloodsucker water];
- for whatever usage there may be, save the shelters for the threshing areas, do not cut *Shorea robusta* or Paire pines in the Bahun lowlands, neither *Shorea robusta*, pines nor any other wood in the forest in the high- and low-lands of Sera Jamune Jaisi.

*

* *

In Khimti valley, the oldest established populations, the Bhotas uphill, the Sunuwars downhill, had formerly benefited from the *kipaṭ* right, i.e. inalienable property exempt from tax, a privilege which the Nepalese nation enjoyed. It indistinctly applied to houses, the fields surrounding them, terraces, paddy fields, from the river up to the summits. It therefore included the vast wilderness, the woods and abandoned land, those at the foot of the slope, along with the large deep forest leading up to the ridges; it included pastures –summer pastures, 2,000 m away from crops up to the forest and winter pastures, on the small walls of terraced fields stripped of their crops and left abandoned during fallow periods. As property was collective, internal rules governed its use. Men, often clan members, gathered together and made suggestions. The decision belonged to the *mukhiyā*, the eldest amongst them, whereas its application fell to their deputies. Thus they obeyed orders, those of the forest warden, who supervised wood cutting, and those of the pasture warden who ordered mobile stables to be put up or taken down.

The Bhotas and Sunuwars owned some of the wilderness according to the *kipaṭ* right. They were not always the only ones to use it. The king made the village grant him two pastures and in addition to that he demanded that villagers contribute to tasks such as carrying parts of stables and building them, arranging a path, keeping watch over animals, ferrying rice and salt, and carrying butter to his capital. To drive their cow and cow-buffalo herds, the Chetris who had settled on the lowlands sometimes disposed of titles which came under common law (*raikar*), or in the form of a privilege (*birtā*). Some, for lack of better proof, had their right of creditor confirmed, and obtained an agreement on the pastures in question. Others still, in a more delicate situation, proposed the fertilisation of crops as a sole argument for establishing their herds there. For who can dissociate the right to manure from the right to graze? The inalienability of the *kipaṭ* tenure was one thing, the reality to which the wilderness barely escaped, despite the collective use it was put to, was quite another.

Provisions to protect the wilderness, as witnessed by texts prior to 1950 and even certain circumstances at the beginning of the XIXth century, fell under soil ownership, independently of the land's status. They aimed at defending it against any threat. Or else they were addressed to the rightful users themselves, at least to part of them who, wanting to alter its use, contested the reasons: in Rasnalū, within the *kipaṭiyā* community, users had argued, some upholding the integrity of pastures, others insisting that they be

shared. Otherwise they addressed others: Bhote *kipatīyā* from the Upper Khimti where Indo-Nepalese families, just like the king, held pastures; the Bhote who had settled late on the ridges of two villages, one Sunuwar, the other Chetri. The wilderness was indeed threatened. The growing demography was at cause. Generally speaking, it led to extensive and intensified farming. Added to this came the development of industry and trade, including the Bhote miners' activity just below the Tambe summit. Let us also mention, in both cases, encouragements from the State which often granted property titles by addressing villagers as follows: "have houses built and populate", "may your village prosper and the number of households increase; cultivate the land"; "share the land". Thus men cleared land, practised swidden cultivation, planted yams and sowed potatoes, carried out "devastating" slash-and-burn, even on lower slopes, felled large trees, cut young plants, built houses, cultivated, wreaked destruction everywhere, even as far as the banks and sources of streams, adding still to these disasters by bringing their herds and those of others...

Stakes with a stone tied to the end were erected all around the outside of pastures: the grass was thus protected. It could continue to grow, as the protection periods were long: two months, three months, four, five... Afterwards, when rice was weeded in August, or at the full-moon in *caṇḍi* or in *asār*, or on the first day of *sāun*, no-one could cut fodder and grass or put their cattle out to graze. Nor was it possible to clear land, cultivate it, build new terraces, till the land with the swing plough or hoe, fell trees, destroy woods and undergrowth, build, cultivate in winter pastures during the winter and cultivate in summer pastures during the summer. The *gauruṅ* made it plain. The warning could not be any clearer. Has anyone gone against the rules? He has built on prohibited pastures; he has led his cattle here, put up a stable; they have carried out slash-and-burn. So let them be denounced, seized and punished according to the law! Such were the pasture rules. Yet what about the forest? It made up a useful reserve, avoided springs drying up and landslides, especially in gullies threatening irrigated land, near banks and along streams. Its protection stems from an ancient oral tradition. It is in the second half of the XIXth century that in a significant way, this appeared in writing, specifically and distinctly from the pasture issue. The role of the wilderness had changed over time. From being pastoral, moving, temporary, it had become farming, sedentary and permanent. Cleavages had appeared. They opposed peasants to newcomers, whose way of life was based on trade and industry, even though this industry was based on farming products and traditional techniques. To ownership rules were added the needs of the

neighbourhood, the inhabitants' right to easement. Lakshman with his seventy-two signatures pleaded the dual –local and family– cause, residence and ownership inheritance, the mountainside and the *kipat*, Rasnalu in its entirety and the Sunuwar, the territory and the lineage. Later, before the judges, the *mukhiyā* Parath pursued the case presenting both types of evidence.

Forestry regulations governed man-forest relations. They imposed limits on freedom to take cuttings; it was advisable to use reserves sparingly, to limit oneself to the strict minimum, to one's homestead, not to cultivate by carrying out slash-and-burn, not to hunt or wreak havoc by just cutting anywhere. It was necessary to act in such a way that it preserved what nature held most fragile and essential: to cut the secondary branches of a tree rather than the main branch; to choose dry wood that has fallen rather than live wood; to opt for felling trees of little use or very big, old ones that had reached maturity rather than trees of great value such as *Shorea robusta*, pines, or trees providing fodder; to cut bamboos of common species rather than bamboos of rare species; not to clear ground, cut or prune close to the sources of streams and fountains, near riverbanks, paddy fields, in resting places, places that were kept as reserves or sanctuaries. Men would collect in a haphazard manner with the intention of clearing overgrown areas, preferably at a good distance from the village, in the direction of the highlands rather than the lowlands: they would look after the forest. This right to use the nearby forest emerged little by little. In Rasnalu, at the beginning of the XIXth century, this appeared in writing in a simple document where indications regarding the perimeter were missing. After that codes began to appear –the first in 1854– which dealt with the tree in a short chapter. Then other more important versions followed, which the State was able to use as a basis when granting a large number of ordinances. Various villages in Khimti, such as Those, Betali, then Rasnalu, obtained theirs in this way. Then the same right was finally enforced in the low and middle mountains of Nepal.

Such was, at least on paper, the wilderness's right which applied until 1950. It was a question of defending the heritage, whether pasturelands or woods, that formed the village environment. Today, Nepalese forest management is the subject of debate. After forty years of a power exerted by the State alone, one discovers the virtues of making local communities responsible for villages and forests. Was this new? It might have seemed so, but a decision inspired by a similar conviction had been taken almost a

century earlier, in the Rana government's authoritarian terms, and on a national scale. At the time, indeed, the State became alarmed and noted both the guilty negligence of its forestry office –the army– and the devastated state of its forests. One would be more likely to talk of restoring power, even though the context is different. For the wooded space, which is going back today to being a wilderness,³⁶ is not what it used to be, a space where one took what one needed freely. There was a melting pot of people who shared the joint heritage of a mountainside, argued over grass and got together to fight their common cause. It is no longer *kipat* land, nor anybody's land, pastured land, and is no longer even a resource, since there is no longer any reason to take anything from it for lack of large herds to graze there. So what purpose does this forest cover, which still remains, actually serve, if not an ecological one; to protect land above villages and to ensure the endless survival of a vital milieu for human activities? Here is undoubtedly the ultimate point of convergence and agreement in the debate on this subject.

³⁶ In Khimti, over the last few years one notes a return of leopards. The law protects them, while there tends to be less human presence in the forest. Just a coincidence?

CHAPTER XII

Discourse and Law: Resource Management and Environmental Policies since 1950

*Blandine Ripert, Isabelle Sacareau,
Thierry Boisseaux, Stéphanie Tawa Lama*

In the course of the XXth century Nepal underwent two major episodes at the origin of important mutations at economic, political and environmental levels. In 1951, it opened its borders to observers, experts, researchers, tourists, as well as to international aid. In 1990, a revolution led to a liberalisation of the political regime. A series of transformations within the country could be observed between these two dates, linked to new foreign influences, to a government shifting from autocracy to parliamentary democracy, and to the will to boost economic development.

These changes have had repercussions on the territory's structures on a national scale, on ways of managing natural resources and finally on landscapes, for which we will draw up a general picture here. Since 1950, three periods should be taken into consideration, each of which illustrates a stage in the development of foreign influences, of discourse or of the types of measures taken.

The new political and economic context of the years 1950-1960

The 1950s mark a turning point in the history of Nepal. Restoration of the Gorkhali monarchy drew the country out of the isolation into which the Rana regime had plunged it and ushered in an unprecedented phase of political and economic opening. The implementation of new administrative structures, Nepal's new position on the international and regional chess-board and the will to modernise the country with the help of foreign experts, all led to a first phase of changes over the territory. Opening the country to the international tourist industry and the beginning of reforms in the farming and transport sectors are indicative of the keynote policy at the time, the economic development through the systematic exploitation of natural resources.

Restoration of the Gorkhali monarchy and the administrative reorganisation of the country

In 1947, the British departure following India's independence saw the Rana dynasty lose its main support and precipitated the opposition movement to the regime. With the help of the Indian Congress, King Tribhuvan recovered his throne and his authority in 1951. But the democratic opening that the sovereign attempted to initiate was short lived. At his death, his successor Mahendra (1955-1972) used agrarian unrest in Far Western and Central Nepal as a pretext to re-establish an autocratic regime in December 1960 and to promulgate, two years later, a new constitution which gave him absolute power. This enabled him to reorganise the country's administrative structures by re-establishing the old "pancayat system", which became the administrative framework for development operations on a regional and local scale. The country was divided into 14 development zones, 75 districts and 3,000 pancayat villages, themselves divided into 9 to 23 wards. Each territorial level had an elected assembly which was in turn responsible for electing its representatives to the territorial assembly at a higher level.

The institution of the "pancayat system" enabled the king to justify his coup in the name of a return to an old tradition which he presented as more adapted to the socio-cultural realities of Nepal than the democratic system.¹ The king transformed it into a real system of government which prevented any political parties or trade unions from expressing social conflicts. The population only truly expressed itself at local pancayat level, but the latter only possessed limited power insofar as the most important issues were settled by the districts' central authorities through the chief district officer: his duty was to ensure that reforms were applied and that development operations supervised by the administrative commissioner of the development zone were undertaken.

The tightening of the country's domestic political life with a return to autocracy and the implementation of administrative structures, which enabled a tighter control over the territory by the State, coincided with a political and economic opening of Nepal in the new international context resulting from decolonisation and the Cold War.

¹ The word *pancayat* refers to a council of notables, which can be found historically at the level of village or caste administration, and which has largely been praised in Indian nationalist literature as a millennium-indigenous model of local democracy.

Integrating Nepal in a new international context

Newly independent India, which favoured the overthrow of the Ranas, was Nepal's "natural" economic partner. Trade soared as Nepal found its economic independence: India, which above all sought to sell its products on the Nepalese market, was both the kingdom's first customer and first supplier. The fact that Nepal was an enclave put India in a dominant position, and the economic dependence of the former was accentuated with the closure of the Tibetan border in 1959, after the Chinese occupation of Tibet. Indian manufactured and agricultural products appeared on mountain and hill bazaars, competing with local products.

Nepal then became involved in diversifying its political, economic and cultural relations with partners other than India, by establishing diplomatic relations with a large number of countries² and by playing an active role within the United Nations, of which it became a member in 1955. It called for international aid to subsidise the scheduled reforms and the country's modernisation, which was facilitated by its neutrality in conflicts on the subcontinent and worldwide. During this first phase in its opening, the main donors were India, China, the United States, the USSR and the United Nations.³ It was the beginning of international funding, which was not to stop increasing and becoming more diversified in the course of the decades to come, and which marks foreign governments' ever greater influence and right to monitor Nepal and its public policies.

The 1950s were thus marked by the arrival of many foreign experts who worked on farming or industrial (e.g. hydroelectric dam) development programmes launched in the early 1960s. They also took part in drawing up Nepal's tourist policy and in creating protected spaces.

This appeal to foreign experts illustrates the willingness of the new regime to open the country economically. It undertook a series of reforms and measures intended to develop and modernise the kingdom.

Plans for the exploitation of natural resources

From 1956 onwards, the national economy was organised according to a set plan while the government began to articulate its development objectives

² In the mid-1960s, Nepal had established diplomatic relations with twenty-four countries, whereas there were only five in 1957 (ROSE, 1971).

³ The amounts attributed went from 141 million rupees in 1964 to 291.1 in 1972 (BLAIKIE, CAMERON and SEDDON, 1980).

around five-year plans. The priority of the first four plans very clearly shows an attempt at boosting economic growth and the desire to develop agriculture. In the first plan (1956-1961), priority as far as budgeting is concerned is given to building roads and high altitude airports, the objective being to "open up" the country and to impose the State's authority in regions far from the capital. However, the operation remained partially unfinished, so regions north of the range and in the west of the country remain isolated.

The new regime's second great initiative was the development of farming production –in order to satisfy the needs of a population undergoing a strong demographic increase– and the rebalancing of a very unequal land distribution. The agrarian reform of 1964 did away with the old system of privileged tenures, *birtā*, *jagir*, *rakam* and *rajya*, and transformed them into *raikar*. Only the Limbus' *kipat* land and *guthi* land maintained their status, the latter financing State religion. The rightful claimant of land became the owner in the modern sense of the word. The reform limited the size of real estate to 3 hectares in the Kathmandu Valley and to 18,4 in the Tarai. Any farmstead exceeding this ceiling had to be redistributed to those who had actually been cultivating the land for one year, against compensation for the owner. Yet in practice, only 1.5 per cent of cultivated land was redistributed among 10,000 peasant families.⁴ Easy terms were offered to peasants in debt. However, the reform did not solve the problem of the shortage of land. It did prevent the extension of large ownership by inciting capital holders to invest in industry or trade rather than in the purchase of landed property.

To increase farming production, the State launched a policy to conquer new land, by systematically giving prominence to the Tarai. This had already been the subject of a deliberate policy to take over virgin land and wasteland for farming from the beginning of the XIXth century onwards. Nevertheless, it was especially after 1920 that this colonisation took on a systematic nature, organised by the State for the benefit of peasants with no land in order to lessen pressure on land in the mountains. Wasteland benefitted from tax exemption over a period of three to six years, then from preferential rates. The building of roads in the Tarai and especially a vast campaign to eradicate malaria sponsored by the World Health Organisation accelerated and amplified this colonisation movement. However, demographic pressure in low mountains, migratory manoeuvres and growing claims from peasant

⁴ World Bank, United Nations Development Programme, 1990, *Nepal: Relieving poverty in a resource-scarce economy*, vol. 1, Kathmandu, p. 33.

with no land (*sukumbasi*) led to the unauthorised clearing of ground which prompted the creation of the Nepal Resettlement Company in 1963. This institution was intended to control and organise settlers. Migratory movements had indeed escalated between the mountains and the Tarai, so much so that between 1952 and 1971 the population of the Tarai shifted from 2.9 to 4.3 million inhabitants, thus representing 32.6 per cent of the country's entire population.⁵

This path-finding front managed to transform the Tarai into a breadbasket region, especially for the Kathmandu market, and in fact into the main region where industries were concentrated outside the capital, due to the development of new towns springing up along the Indo-Nepalese border.

During this period, Nepalese milieux were considered to be an economic resource for which the State meant to control management and to boost revenues. Private forests were nationalised in 1957 (Private Forests Nationalization Act), primarily for political and economic reasons. This involved depriving local elites of land they appropriated for themselves under the Rana when they supported their regime, and to challenge a system of feudal tenures. The objective was also to exploit some of these forests and market the wood. Prior to this date, the State had had little to do with forest management, with the exception of the Tarai, where the forest was exploited in order to supply wood to India, under British domination at the time. In the rest of the country however, forests were either under the control of local community authorities or in the hands of dignitaries.

Although the Nepalese State did not have the institutional capacity to implement this nationalisation properly, the latter had consequences on forest resource management, especially as the State did not have the human, technical and financial capacity to ensure the management of this heritage itself. By denying any role to local community forest management, the new legislation awakened the hostility of traditional users and nourished an attitude marked by a total lack of responsibility with regard to forest resources. The law stipulated that no compensation would be granted to the owners of forests. If many remote villages remained in total ignorance of this nationalisation (in this case there had been little effect on the use of forest resources), in others, on the other hand, a large part of private forests was cleared as quickly as possible, in order to be able to claim ownership of land

⁵ Central Bureau of Statistics, 1971.

rendered cultivable.⁶ Faced with its failure, in 1961 the State attempted to promote better forest management by favouring the planting of trees, reintroducing the notion of private forest and distributing seed. But foresters and the Forestry Commission were already perceived by the population as being a police force opposed to their interests. Moreover, forest management was divided among numerous government authorities, preventing efficient administrative coordination.⁷

Landscapes and natural milieux, the bases for budding tourism

The opening of Nepal's borders facilitated the arrival of foreign tourists on the territory. The initiative first came from mountaineers. Himalayan expeditions which up till then had operated from Darjeeling could from then on be undertaken in Nepal with authorisations granted by the king. Following the ascent of Everest by Hillary and Tenzing, large-scale expeditions were launched to conquer the main summits of Nepal. Though very few in number, they employed tens, if not hundreds of carriers to ferry equipment and food from Kathmandu to the base camps. The needs of these carriers, who had to feed and warm themselves, drove them to cut wood along footpaths and on the outskirts of villages. This exerted new pressure on local forest resources.

At the same time, Kathmandu became the meeting place for mountaineers and for European high society, who travelled to the Tarai to take part in tiger or rhinoceros hunts, organised along the lines of former royal hunts. However, faced with the risk of seeing these animals become extinct, the king decided to create a "rhinoceros sanctuary" in Chitwan in 1964. This was the beginning of a government policy to preserve the fauna and the flora (Figure 46), while at the same time the Tarai was undergoing massive immigration, as sought by the State, of peasants from the hills and Indians from the Ganges plain in search of new land to clear. The photo safari, organised using the model of "jungle resorts" in the African reserves, took over from big game hunting.

In 1958 the opening to international tourism which was then limited to the Kathmandu Valley and to the Tarai, was encouraged and organised by

⁶ WALLACE, 1986.

⁷ The Department of Forests remains the main organisation, but there are other public institutions such as the Timber Corporation of Nepal and the Forest Products Development, responsible for the marketing of forest products.

the Master Plan of Tourism drawn up by French experts. The objective was, through private initiatives, to favour the development of tourism which would increase foreign currency inputs and would be used to reinforce economic development.

In 1964, one of the originators of the conquest of Everest between the two wars, Colonel George Bruce, opened the first trekking agency in Nepal, Mountain Travel, and proposed the first hiking circuits in the country. Trekking came into being in two main forms: hiking on an individual basis with accommodation provided by the locals⁸ and hiking in groups staying on campsites organised by foreign tour operators or by Nepalese trekking agencies. The latter activity opened a new market for employment, portage for tourists, which became part of the traditional labour migrations of the Nepalese peasantry.

The flow of tourists, at first meagre, rapidly soared,⁹ despite slow and irregular developments in the means of transport. They particularly turned to the Everest and Annapurna ranges because of the development of trekking and expeditions. The new Master Plan for Tourism of 1972 recognised this spontaneous development in mountain tourism in Nepal: trekking then appeared the best way to visit the country's mountains and boost local development at a low cost. The creation of forms of accommodation was left to private initiative, i.e. to villagers in trekking regions. In these new practices the Nepalese government saw the opportunity to exploit the Himalayan landscapes as any other resource, in particular by collecting royalties on any high mountain expedition. Access to regions situated outside the Kathmandu Valley was subject to payable authorisations that enabled the State to acquire foreign currency and control the flow of tourists.

During the 1950s it was therefore economic development and environmental control which took precedence in the State's policies for a better exploitation of natural resources. The State barely intervened in tourism, considering no doubt that the beauty of the landscapes was a sufficiently attractive factor, and so, during this initial period, it left a relatively large scope of action to local populations.

⁸ Even if the first tourists were put up by the inhabitants, it did not take local populations long to build simple lodges and to set up dormitories in their high-altitude huts, especially in the Annapurna and Everest ranges.

⁹ They went from 6,179 foreign visitors in 1962 to 12,567 in 1966, to reach 45,970 in 1970.

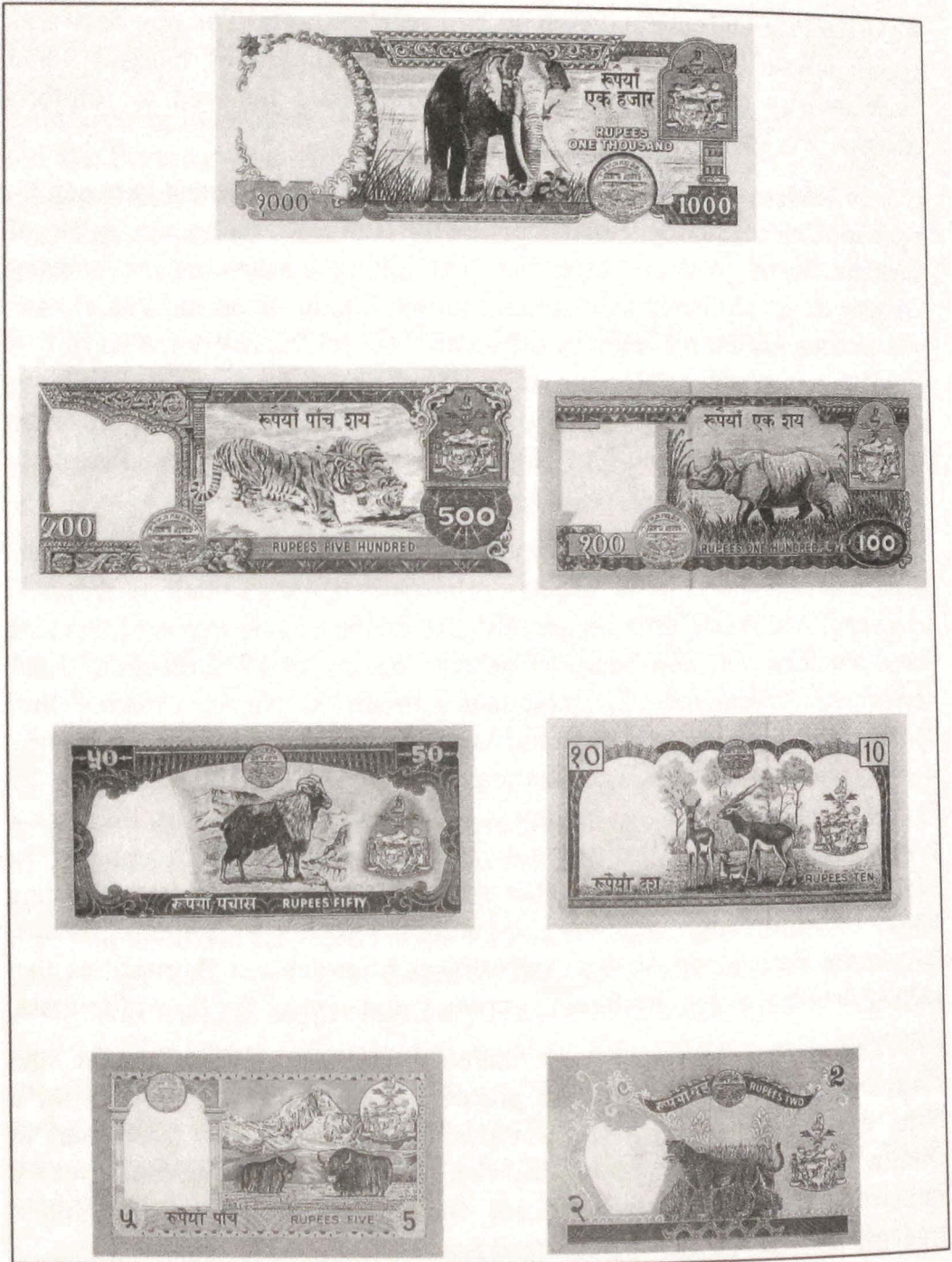


Figure 46

Nepal's wildlife represented on bank notes

The following two decades, however, were marked by the emergence of an environmental problem: Nepal became the field of application for new policies in terms of nature protection which were based on catastrophist theories fashionable in the 1970s on an international scale, i.e. in the context of an energy crisis.

Awareness of environmental problems in the 1970s

The emergence of an international discourse on the environment

The early 1970s were a turning point in the awareness that the planet is an ecological unit under threat. The prospective study by the Rome Club, *Limits of growth* (1972), popularised¹⁰ the notion of non-renewable resources and of their scheduled depletion. Hundreds of nature protection organisations, the success and popularity of which continued to grow, saw the light of day. They were massively present when the first international conference on the environment was held in Stockholm in 1972. There environmental preoccupations were presented as being a global problem requiring the implementation of appropriate policies. A specialised United Nations agency, the UNEP (United Nations Environment Programme), was created partly to this effect.

The 1980s then became the decade of "sustainable development" which sought to reconcile nature protection with economic development. The "World Conservation Strategy"¹¹ of the IUNC (International Union for Nature Conservation) in 1980 inaugurated this new course of action. In 1987, the report by the World Commission for Environment and Development, *Our Common Future*, the fruit of four years' work, defined the notion of sustainable development and remarked that "time has come for an alliance between economy and ecology, in such a way that governments and their citizens may take responsibility not only for environmental damage but also for the policies which cause this damage". The apotheosis of international awareness of the environment was to occur five years later in Rio, at the "World Summit".

Nepal could not escape these developments as it granted considerable room to experts, international organisations and to their funding. Its environmental policy followed the changes in international ideas and the

¹⁰ It will be circulated in more than ten million copies in thirty languages.

¹¹ It was the prelude and the conceptual basis for more than fifty national strategies in countries in the south, especially in Nepal. See HMG.IUCN, 1988.

country very often seemed to play the role of a laboratory for the implementation of the latest theories in fashion. Given the best mark among developing countries for its nature protection policy,¹² it also signed most of the conventions and international treaties on the environment.¹³

The "Himalayan ecological crisis": peasantry in the dock, in a difficult economic context

The previous decades' development did not live up to its promises in terms of results. The population did not stop growing, with an increase averaging 2.66 per cent per year for the 1970s.¹⁴ During this decade, the surface area of cultivated land per inhabitant fell in all regions of Nepal.¹⁵ Nepal had not experienced a "green revolution" like India and the rest of Asia, and the slight increases in farming production were generally only due to the extension of cultivated surfaces to the detriment of the forest, not to the increase in productivity. The agrarian reform had had no effect as far as this was concerned; Nepal had to import cereals and to accept food aid. Its dependency on international aid increased as well as its debt.

Evaluations made by international and Nepalese organisations showed that the situation had kept on deteriorating since the 1970s.¹⁶ Efforts to eradicate malaria and the new accessibility of the Tarai were supposed to absorb the excess population from the low mountains. These, like certain middle mountain districts, indeed encountered very high densities per square kilometre cultivated, in the range of 1,500 to 2,500 inhabitants/cultivated km² for a national average of 580.¹⁷ However, from the 1980s onwards, the Tarai "fills up with people" with an average density of 209 inhabitants/km², and up to more than 300 inhabitants/km² in certain districts of the eastern

¹² HEINEN and YONZON, 1994.

¹³ IUCN/BELBASE, 1997. In particular the Paris Convention (Heritage of Humanity), Ramsar Convention (Wetlands), Washington Convention (Trade in endangered species), Rio Convention (Biological diversity), Vienna Convention (Ozone layer) and the Convention on Climate Change, etc.

¹⁴ Central Bureau of Statistics, 1985.

¹⁵ SILWAL, 1995. Between 1971 and 1981, farming production increased much less than the population in 14 out of 15 regions and food production per inhabitant dropped in all regions except for two, the mountains in the west and the east (SILWAL, 1995).

¹⁶ The National Planning Commission reports that national production only increased by 2.2 per cent per annum between 1965 and 1980, whereas the population increased by 2.66 per cent per annum and even by 4 per cent in the Tarai, if one includes the Indian immigrants (GOLDSTEIN *et al.*, 1983).

¹⁷ Atlas du Népal, 1976/1977, as well as, here, Chapter IV, "Population densities and resources in the Nepalese landscape approach" (Philippe Ramirez).

Tarai.¹⁸ In 1988, the Nepalese Minister of Finance recognised that Nepal ranked among the poorest countries in the world, with an income of 160 dollars per inhabitant, life expectancy of 52 and a rate of 69 per cent of illiterate adults.¹⁹

It is in this context of difficult sustenance, debt and of poverty in the low and middle mountains, that experts and the government built the famous theory of "Himalayan Environmental Degradation".²⁰ This theory was presented in the form of an eight-point scenario,²¹ which predicted a collapse of the social economy and irreversible damage to the environment before the year 2000. The international context of the 1970s played in favour of these hypotheses after the energy crisis of 1973 which underlined the chronic problem of deforestation in developing countries. This was where wood was the main source of energy for cooking and heating.

In this theory it was often presented as a fact that the main guilty parties were peasants from low and middle mountains, made responsible for flooding in Bangladesh, the transformation of landscapes, climatic change and finally the accumulation of products of Himalayan erosion in the Indian plain. So the behaviour of some million peasants was supposed to affect the

¹⁸ The net volume of migrations in 1981 represents 261,880 persons in the Eastern Tarai, 185,420 in the central Tarai, 106,763 in the Western Tarai and between 40,000 and more than 90,000 in the far west of the Tarai (GURUNG, 1989).

¹⁹ GABORJEAU, 1995, p. 83.

²⁰ IVES and MESSERLI, 1989.

²¹ IVES (1987) analyses these eight points that can be summarised as follows (see the "Introduction" by J. Smadja, *supra*): from 1950 onwards, following the introduction of Western medicine, modern notions of hygiene and the disappearance of malaria, one notes a demographic explosion in the country, accentuated by uncontrolled Indian immigration after the opening of the Tarai. This explosion generated a greater demand for energy, timber, fodder, land, for a society still largely rural. These new needs exert greater pressure on milieux, which is expressed by deforestation. According to some experts, 50 per cent of Nepalese forests disappeared between 1950 and 1980, and in the year 2000 this was to involve all wooded areas. This deforestation would provoke catastrophic soil erosion, would increase the number of landslides and would alter the hydrological cycle; all of this expressed by flooding and earth deposits in the plains during the monsoon, and by the drying out of springs and wells during the dry season. These effects were to have repercussions as far as the Ganges and Brahmaputra plains and in the Bay of Bengal. In the hills, with the distances between villages and forests increasing, there was to be a drop in work productivity and human energy, and there would be a tendency for cattle excrement to replace wood for cooking, hence a drop in the yields of private productions of manure. This would therefore yet again lead to clearing land to create new land, filling in the deficit inherent in falls in yields.

life of several hundred million men and women in Gangetic India and in Bangladesh. Many estimates were then made to support this accusation.²²

These ideas were largely disseminated by the Nepalese media and the NGOs present on the territory. The Nepalese government found a certain advantage in this theory. Linking the deforestation of Nepal to floods in the plain went to show that a huge population was concerned by the problem, which justified an influx of funds beyond proportions with simply the Nepalese population. It was also a question of playing on the growing sensitivity of the international community towards the "degradation of natural heritage". Furthermore, identifying a scapegoat –the ignorant mountain population– justifies the radical nature of the environmental policy which was set up in the 1970s.

The first steps in a nature protection policy for wildlife and around the great summits

The first nature protection measures focused on wildlife.²³ In 1950, a first law, the *Wildlife Conservation Act*, provided a legal framework for the protection of the rhinoceros (*Rhinoceros Unicornis*) and its natural habitat by setting up a "sanctuary" in Chitwan in the Tarai. This first measure was characteristic of the fundamental inclinations of Nepal's protection policy: it responded to a situation deemed catastrophic, it crystallised around the protection of an emblematic species for which we fear extinction, and it instigated what was to become the main, if not the sole, axis of the protection of nature, giving the status of a protected area to one part of the national territory, favouring conservation rather than management.

²² One has attempted, for example, to calculate the volume of wood used by a farmer every year and to compare it to the volume of Nepalese forests. In 1985, a report by the World Bank estimated the lifetime of forests in the low mountains and its biodiversity at fifteen years, and at twenty-five years for this in the Tarai.

²³ Texts of law consulted (the versions used are private translations made by Nepal Press Digest (Private) Ltd., Lazimpat, Kathmandu): *National Parks and Wildlife Conservation Act*, 11 March 1973; amended on 6 October 1974, 23 December 1982 and 27 September 1989. *National Parks and Wildlife Conservation Rules*, 11 March 1974; amended on 15 May 1975, 2 October 1978, 22 January 1979 and 7 October 1985. *Himalayan National Park Rules*, 10 September 1979. *King Mahendra Nature Conservation Trust Act*, 25 April 1982. *King Mahendra Nature Conservation Trust Rules*, 15 October 1984; amended on 3 March 1986. *Forest Act*, 24 March 1993. *National Parks and Wildlife Conservation (fourth amendment) Act*, 9 July 1993. *Forest Rules*, 3 April 1995. *Buffer Zones Management Rules*, 9 July 1996. *Conservation Area Management Rules*, 30 December 1996. *Environment Conservation Act*, 8 July 1997. *Environment Conservation Rules* 1997, 7 September 1997.

This course of action clearly stood out in the enactment of a second law in 1973, the *National Parks and Wildlife Conservation Act*. It is still applicable after having been amended four times and defines the types of protected area: national parks, nature reserves, wildlife sanctuaries, hunting reserves, to which conservation areas and buffer zones have subsequently been added. It gives the government the power to upgrade a portion of the territory by simple notification in the Official Journal, but also to downgrade it, to alter its limits and to transfer its ownership. Limiting entrance to the parks and reserves only to authorised persons, it draws up the list of regulated actions in these spaces²⁴ and defines the powers of investigations and of prosecution in the event of violation.

The Tarai was the first space to be concerned by this law. The rapid and intense colonisation of the plain, which was accompanied by new pressure on the forest and on fauna, sustained alarming estimations regarding the level of rhinoceros and tiger populations. With occasional protection measures taken in the 1950s proving largely ineffective, in 1973 on the advice of foreign scientists, the government created Nepal's first national park: Chitwan Royal National Park, which today covers 932 km². The chosen demarcation sought to avoid as much as possible the presence of villagers within the park, a primary preoccupation regarding demarcation based on ecological criteria. In addition, and for the first time, inhabitants of the surrounding villages were forbidden access to the park to collect green wood, fire wood, fodder or grass. Hunting and grazing were also prohibited, as well as any entrance into the park between sunrise and sunset. The army was held responsible for ensuring that these regulations were applied, with recourse to force if necessary. Three years later, in 1976, a protected area was attributed to the Royal Bengali tiger, the Bardiya Royal National Park (today 968 km²) in the Western Tarai. Two wildlife reserves complete the set up, one in the Far Western Tarai (Shuklaphanta, 305 km²), the other in the east (Koshi Tappu, 175 km²).

If the great fauna of tropical milieux held the attention of certain scientists, others focused their efforts and their interest on areas that included the highest summits in the world (notably eight of the fourteen summits

²⁴ Authorisations and regulations involve hunting, harvesting plants and minerals, violating wildlife and forests, crop raising and cattle breeding, diverting waterways, buildings, carrying weapons, munitions or poison. The law draws up the list of protected species, but also foresees the possibility of building hotels or of setting up a system of public transport in each protected area.

above 8,000 m). In 1976, three national parks were created: the Langtang National Park (1,710 km²), north of Kathmandu, the Sagarmatha National Park (Nepalese name for Everest, 1,148 km²) in the east and the Rara National Park (106 km²) in the west.

The argument raised in creating these parks in mountain areas appeared to be a new version of the "Himalayan Environmental Degradation" model: tourists, in the same way as peasants and cattle breeders, were placed in the dock; the arrival of more and more foreigners, whose presence and fuel needs caused more pressure on natural milieux, aggravated the threat which already weighed on them due to deforestation and overgrazing.²⁵

However, in 1970, when the creation of parks was envisaged, those tourists stating that they had come to Nepal to go on a trek amounted only to 556. Even if their number increased rapidly over the 1970s,²⁶ one could not talk of a massive flow of tourists. It was true that the presence of tourists, even in small numbers, already affected landscapes and the environment: small lodges sprung up in villages and sometimes right in the middle of a forest. Their building and the cooking of food for individual travellers led to additional needs in wood, on top of those of groups of campers and their porters. This new situation fuelled alarming speeches on a possibly excessive number of tourists. However, in the absence of real studies to measure the degradation of the milieu, one was often content to generalise according to isolated observations, speaking for the whole territory. Moreover, up until 1976 –the year when trekking permits were introduced– neither the precise number of hikers, nor their distribution over the range were known: overall figures for those crossing the borders were used as a basis, which in no way prejudged the direction of the flow of tourists in the country.²⁷

²⁵ International nature protection organisations, influenced by biologists' experiments carried out in the large American parks on the "load capacity" of a natural milieu, soon got tools used for managing animal populations to be applied to populations of tourists, especially since tourism rarely gets good press and is most often the subject of negative discourse (DEPREST, 1997). Discourse which does not always come free of any hypocrisy, insofar as the Nepalese authorities are fully conscious of the secure contribution in foreign currency that tourism provides and of the strong impact that the image of a preserved nature can have on the number of tourists.

²⁶ The number of visitors who claim to have come trekking in Nepal doubled in four years. They were about 13,891 for the whole of the country in 1976, the date the parks were created in the mountain area. The 20,000 mark was reached two years later.

²⁷ Besides, it is not in the Annapurna range, by far the most visited by individual tourists and groups of campers, that a national park has been created, but in the Everest and Langtang

From the very start, the creation of parks was therefore founded on very classic contradictions. On the one hand, in heavily threatened areas, international nature protection organisations pushed for the creation of parks from which the population would be excluded, along the lines of the Anglo-Saxon model.²⁸ On the other hand, the State hoped to be able to use the label "park" to attract tourists. Through the agency of the 1978 Master Plan of Tourism, the Nepalese government made no secret of it: the creation of national parks had to promote tourism and economic development in mountain regions. Accepting the creation of national parks also helped appeal to international nature protection organisations for financial aid by brandishing the threat of degradation of the milieu by tourists, while justifying the introduction of an entrance fee which benefited the State. It was also possible that the monarchy saw in these parks a way of integrating outlying border spaces into the national territory by adopting a tighter check on minority ethnic groups and their resources, using the expedient of the army, police and park officials.

Notwithstanding these economic and political considerations, the "conservationist" ideology prevailed by relying on catastrophist arguments, the scientific validity of which may be questioned, considering the conditions in which preliminary studies were carried out when certain parks were created.²⁹

With this conception of nature protection, access to the parks and to their natural resources by populations living there or alongside them who

range, where the number of visitors is far from reaching the same level. In 1980, 14,332 trekking permits were issued for the Annapurna range versus 5,836 for Everest, 4,113 for Langtang and 3,179 for all the other ranges (*Nepal tourism statistics*, 1988, Ministry of Tourism). Similarly, one may cite the park created around Lake Rara where there are practically no tourists.

²⁸ In this regard, the interest the WWF and the IUCN showed for Nepal in the early 1970s allowed an "international integration" to be implemented by advocating the application in Nepal of solutions adopted at that time in the Western field of environmental protection.

²⁹ The Sagarmatha Park provides a good example of this. Introducing a preservation order on the Everest area mobilised many international efforts, mountaineers, the FAO, the IUCN and above all the New Zealand Government which probably felt that it had a special vocation following Hillary's success. A series of field enquiries (NAYLOR, 1970; LUCAS *et al.*, 1974) was led by New Zealand experts in the Khumbu. But most of the sites chosen were situated on mountainsides which had for a long time been subjected to considerable natural erosion (active faults and unstable layers of soil). This cannot be blamed on overexploitation by peasants and yak breeders (BROWER, 1991). Nevertheless, these reports, ending with particularly alarming conclusions, attribute the degradation of the environment to the number of tourists and to overpasturing.

draw all or part of their sustenance from them became a problem.³⁰ The implementation of a legislation aimed primarily at conserving natural balances produced perverse effects that were expressed by new imbalances between populations and resources.

Indeed at the beginning, the law was enforced in a most restrictive manner by the armed forces. Thus any taking of live wood was forbidden and collecting dead wood was subject to authorisation. This quickly led to conflicts between local populations and park wardens. The restriction of forest takings caused sometimes brutal confrontations with the army (in Chitwan, in Sagarmatha). In the Everest region, Hillary had to play the role of mediator between the State and the Sherpas who obtained two guarantees: they would not be displaced and they would be consulted on any decision-making and management. Fewer precautions would be taken with three villages in the Lake Rara National Park, where inhabitants did not benefit from the same international fame as the Everest Sherpas: they were purely and simply expelled.³¹

The interdiction to freely use natural resources in the parks created greater pressure on the milieux situated in outlying areas. Furthermore, villagers had to face the growing damage caused to their crops and cattle by wildlife. This was on the increase,³² without the State being able to provide the slightest compensation. The authorities were thus compelled (in Sagarmatha in particular) to bend their rules: it was possible to collect dead wood without any authorisation as well as to cut three adult trees per household per year.

If when first analysed, these conflicts seemed for the most part to be the consequence of a rigid application of the law by the authorities, they were more likely to be the inevitable result of two factors: on the one hand, of the guilt that was laid on the populations who were considered solely as predators according to "conservationist" conceptions; and on the other hand, the fundamental unsuitability of national park set-ups, strongly inspired by the great American parks and ill suited to regions which had long been more densely populated.

³⁰ In Chitwan, (today 250,000 persons live alongside the park) the population finds itself brutally deprived of access to its traditional resources; in the Khumbu, 3,000 Sherpas are affected by the parks regulations.

³¹ See Chapter XIII, "Environmental Protection, Impoverishment of Men. The Village of Botan on the Periphery of Rara National Park" (S. Shrestha).

³² Estimated at 60 in 1960, the rhinoceros population in Chitwan exceeded 450 in 1994.

From the mid-1980s onwards, as soon as protected areas were inhabited, the relation that people maintained with their milieu was considered differently and new types of management were applied.

"Sustainable development": local populations at the heart of official discourses

A combination of elements led to the turning point of the early 1980s: conflicts which broke out in the parks, of course, but also, on an international scale, the growing success of discourse on "sustainable development", defined as a pattern of economic development supposed to be in harmony with the great ecological balances in order to conserve natural resources for future generations, while ensuring the elementary and legitimate needs of the populations concerned.

Foreign researchers, geographers and foresters started denouncing the exaggerated nature of the discourse on deforestation and the lack of integration of local populations in environment management. On the one hand, a new generation of researchers challenged the "Theory of Himalayan Environmental Degradation", by exposing the dubious methods and faulty calculations which were used to describe a major ecological crisis.³³ They showed that there was no proof that peasants were at fault and demanded, in the future, more analytical stringency and expert methods rather than generalisations based on a few isolated results. On the other hand, new scientific production in the field of ethnoecology appeared from 1985 onwards highlighting the existence of community management of natural resources by traditional societies and prompting the government to take better account of local populations.³⁴

On an international scale, the world conservation strategy established by the IUNC, the WWF and the UNEP in 1980, and then the report by the World Commission for Environment and Development in 1987 (the work on which had started in 1983) also marked an important change in mentalities. It became necessary to involve local populations more closely if environment protection policies were to be successful. They had to be provided with compensation in order to more readily accept the setting up of protected perimeters.

³³ See for example IVES and MESSERLI (1989), MAHAT *et al.* (1987), THOMPSON *et al.* (1986), or SMADJA (1986, 1992, 1995), FORT (1988).

³⁴ See for example the bibliography of an article by MÜLLER-BÖKER (1991) which quotes many of these pieces of work.

In Nepal these changes in the understanding of environmental problems first of all emerged in the forest policy, then in the protection of nature, accompanied by a gradual decentralization at national level.

Indeed, it soon appeared that the Nepalese State did not have the human, technical and financial capacity to ensure, on its own, the management of its forest heritage which it had nevertheless nationalised. Therefore, even if in 1961 forests were formally attributed to *pancayat*, any management decisions were in theory taken by the forestry department while, in practice, no real forest management in the true meaning of the term existed.

The forestry law of 1978 introduced the notion of participative management and the decentralisation law of 1982 bestowed power on the *pancayat* to form "people's user committees". These were called upon to manage forest spaces in particular. Community forestry was presented as being the best means of satisfying populations' basic needs. The organisation of forest management by village communities, though under the State's control, was in this way made official. However, if the law stipulated that any member of a community could have access to the forest, in practice, one sometimes noted that access to forest resources depended on socio-religious structures and the balances of power on a village scale (Frame 15).

Frame 15

Socio-religious Discriminations in People's Access to Forest Resources

Isabelle Sacareau

A problem sometimes overlooked by experts is that of the unequal access different population groups have to natural resources. Most of the time, the relation between demographic growth and pressure on resources is perceived on the scale of a strictly demarcated territory and of a population taken as a homogenous entity. It is a well-known fact that the members of a village community do not form an undifferentiated whole with the same behavioural patterns, the same socio-economic status or the same rights and duties, especially when this involves a pluriethnic village. In a recent survey on three case studies, Adhikari¹ showed the existence of former discriminations against service castes in their access to the forest and its management, with these discriminations still being felt today. The three villages analysed by Adhikari (Lachok, Riban and Ghachok) are situated on the right bank of the Mardi Kola (Kaski district) between 1,200 and 1,500 m in altitude. Two types of totally distinct forest are utilised here: this involves, on the

one hand, community forests located near villages at an altitude lower than 2,500 m, which are subjected to forestry committee regulations; and secondly, a high-altitude forest which belongs to the State, can be freely accessed and is shared by the three villages on the slope. Perceptible differences emerge in the community forests between Lachok, a pluriethnic village, and Riban which is mostly inhabited by Gurungs.

In Lachok, a dozen Bahun-Chetri families have held land rights since the XIXth century over the current community forest they acquired in two ways: some parcels of forest land were registered from 1883 as private property, in the same way as farmland (so-called *bijan* forests), whereas others were granted to them as well as to some Gurung families in the course of the XXth century by the high authorities (so-called *sanad* forests). According to the former *jajmani* system, service castes were authorised to take wood from their landlords' property depending on their needs.

Neither the nationalisation of forests in 1957, nor recent legislation (the 1967 Forest Protection Act and the 1970 Forest Product Rules), which encouraged the setting up of user committees, challenged the Bahun-Chetris' rights to forest resources. In fact, it is quite the contrary. Even if the law stipulates that any member of a village community can have access to the forest, in practice high castes have been able to maintain their privileges to the detriment of lower castes. The four user committees set up in Lachok in 1985 still group together the families that formerly owned *bijan* and *sanad* forests, while excluding other villagers. Each member may take a certain quantity of products from the forest, as fixed by the committee, depending on the state of forest resources and on the needs of each family. This share is calculated in proportion to the surface of forest property. The same system prevails for paying the forest rangers assigned the task by the committee of checking that this distribution is respected and of fining offenders, whether landowners or illegal users. These user, ownership and management rights for which the committee holds a precise register, are transmitted by way of purchase or by inheritance. In the course of time and with the distribution of inheritances, inequalities between landowning families have increased, as well as conflicts concerning the demarcation of private parcels. As for service castes, they do not have the right to take part in community forest management, since they are not part of the user committee; they can only collect dead wood, but only on parcels of forest belonging to their former landowners. They are forbidden to cut timber and to take fodder. Since most of them are landless, they are not able to plant private trees around fields, as the Bahun-Chetris have been doing for about twenty years. From now on the forestry department forbids making charcoal, so that the Kamis (blacksmiths) have been deprived of their traditional activity. The only area that the service castes can utilise is the high-altitude forest. This is not subject in principle to any restricted usage, but its utilisation is the subject of quotas decided on by the user committee at the end of the 1980s. Its distance from the village means long (up to 14 hours) working days for them to collect certain species (*arundinaria spp.*) used for

making mats and baskets. The time spent on such a task prevents them from looking for other forms of income which would enable them to be less dependent on local resources, just as the Gurungs do, with work outside their village contributing to lightening pressure on the forest. Furthermore, service castes are faced with the hostility of inhabitants from the neighbouring village, Ghachok, who for a long time have claimed to hold exclusive rights over this forest and they have repeatedly wanted to deny the former access.

In the Gurung village of Riban, however, there is only one forest committee that groups together all the inhabitants of a village, service castes included, giving each one equal rights and duties regarding cutting wood and collecting foliar fodder. Only cutting green wood is subjected to certain restrictions, but the committee generally seeks a consensus among all the households, depending on the specific needs of each. The principle is the same for sharing the cost of keeping forest rangers. The poorest families who hesitate in paying the required 45 NPR may pay this amount in several instalments. Otherwise they sell some firewood in exchange or offer a few hours of work to the community.

Adhikari's survey thus shows that, clear legislation may nevertheless conceal traditional modes of forest management and peasants' unequal access to resources on their own territory: in Riban, as in Lachok, current practices have continued where past ones have left off. Yet the Gurungs' community structures have favoured an equal share of rights and responsibilities with regard to the forest, whereas in Lachok its management is still in the hands of the dominant castes and forces low castes, who are nevertheless the most dependent on local resources, to exert increasing pressure on the high-altitude forest. This much localised analysis, according to which it would be difficult to make generalisations, nevertheless has the merit of drawing attention to the fact that the management of a forest, which is supposed to be common property, can in reality reproduce socio-economic inequalities between castes.

1. ADHIKARI, 1996.

The nature protection policy also developed towards a better consideration of populations, their practices and their problems within –but also on the edge of– protected areas.

The new conceptions of "sustainable development" were implemented in the Annapurna region which had not been taken into consideration when the first national parks were created. Taking into account the relative increase in tourism in the range, the authorities decided to experiment with a new form of environment management, by relying on the participation of local populations.

Frame 16

National Park and Natural Reserves in Ladakh*Pascale Dollfus*

The creation of parks and reserves is a recent initiative in Ladakh, as in the whole of the State of Jammu and Kashmir, in which Ladakh makes up two districts (Leh and Kargil).

Hemis High Altitude National Park was created in 1981 on the initiative of the IUNC's Snow Leopard Recovery Programme in order to protect the snow leopard (*Uncia uncia*), an animal that is almost extinct and whose population in Ladakh is estimated at between 200 and 300 animals. Situated on the left bank of the Indus River, it covers 3,350 km² (including the valleys of Markha and Rumbak) at an altitude ranging between 3,400 and 6,400 m, and shelters –along with snow leopards, marmots, four species of wild sheep and goats– the bharal or blue sheep (*Pseudois nayaur*), the ibex (*Capra ibex sibirica*), the Ladakh urial (*Ovis vignei vignei*), the Tibetan argali (*Ovis ammon hodgsoni*), and about fifty bird species. The very few villagers –262 in 1981– living inside the park have not been displaced and, to date, they have not been imposed any restriction as far as their user rights are concerned. In order to attempt to prevent the massive felling of different species of trees sold in Leh in the form of charcoal, the Department of Wildlife Protection, assisted by several local NGOs, regularly organises awareness campaigns in the course of which videos and sketches are presented with such eloquent titles as: "No Tree, No Life, or else I Love and I Preserve my Country". In addition to this, field trips are provided for children, whilst their teachers are offered training sessions.

In 1990, a small reserve of some 70 km² was set up on the right bank of the Indus, not far from Leh, in Sabu, in order to save a species of partridge (*Alectoris chukar*). Finally in Zanskar, the "Lungnag Wildlife Sanctuary", a habitat zone of the blue sheep and the ibex, came into being in 1992.

A new plan of action was drawn up, the "conservation area". This new category of protected space was the result of a study carried out in the Annapurna region by the King Mahendra Trust for Nature Conservation (KMTNC), a national NGO which concluded with four main recommendations:³⁵ (i) associate villagers with decisions regarding resource management; (ii) provide alternative energy sources in order to lighten pressure on forests; (iii) promote public awareness and education concerning

³⁵ KMTNC/ACAP, 1996.

the environment; and (iv) set an entrance fee for hikers, the proceeds of which will be used to finance local development and conservation actions. These principles were not to be made legal until 1996.³⁶ However, their practical application was guaranteed from 1988 onwards by the KMTNC, in the Ghandrung area first, then gradually around the Annapurna range (today 7,629 km² with 120,000 inhabitants concerned). In virtue of this new conception of protection, the status of inhabitants changed from being undesirable to being actors capable of ensuring, on their own, efficient management of their natural resources.

The conservation area was divided into several zones with different management objectives depending on the level of protection sought (special management zone, wilderness, protected forest and pasture zone, intensive management zone, biotic and anthropological zone).

The 1970s therefore witnessed the emergence of an environmental problem in Nepal. After the threat created by people destroying milieux, the danger of which was exaggerated all over the place in the 1960s and 1970s, there came the threat of tourism causing degradation. International pressure groups, which were also its sponsors, pushed the Nepalese government into successively experimenting with different methods of protection and natural resource management, from the national park to the conservation area (Figure 47). From the 1980s onwards peasants were more and more closely associated with these policies. Yet any initiative by local populations remained closely framed by the authorities higher up and had to fall into line with the ideology of the time, in a political context where there was no democracy.

New dynamics appeared in Nepalese society at the beginning of the 1990s. Partly as a result of previous efforts, the country became more and more modernised with the spread of certain goods, whereas the territory gradually took shape under the impact of migratory movements, urbanisation and the penetration of the market economy. New ideas spread and the population, in particular when urban and educated, was more and more critical of the autocratic regime.

³⁶ Promulgation of the Conservation Area Management Rules.

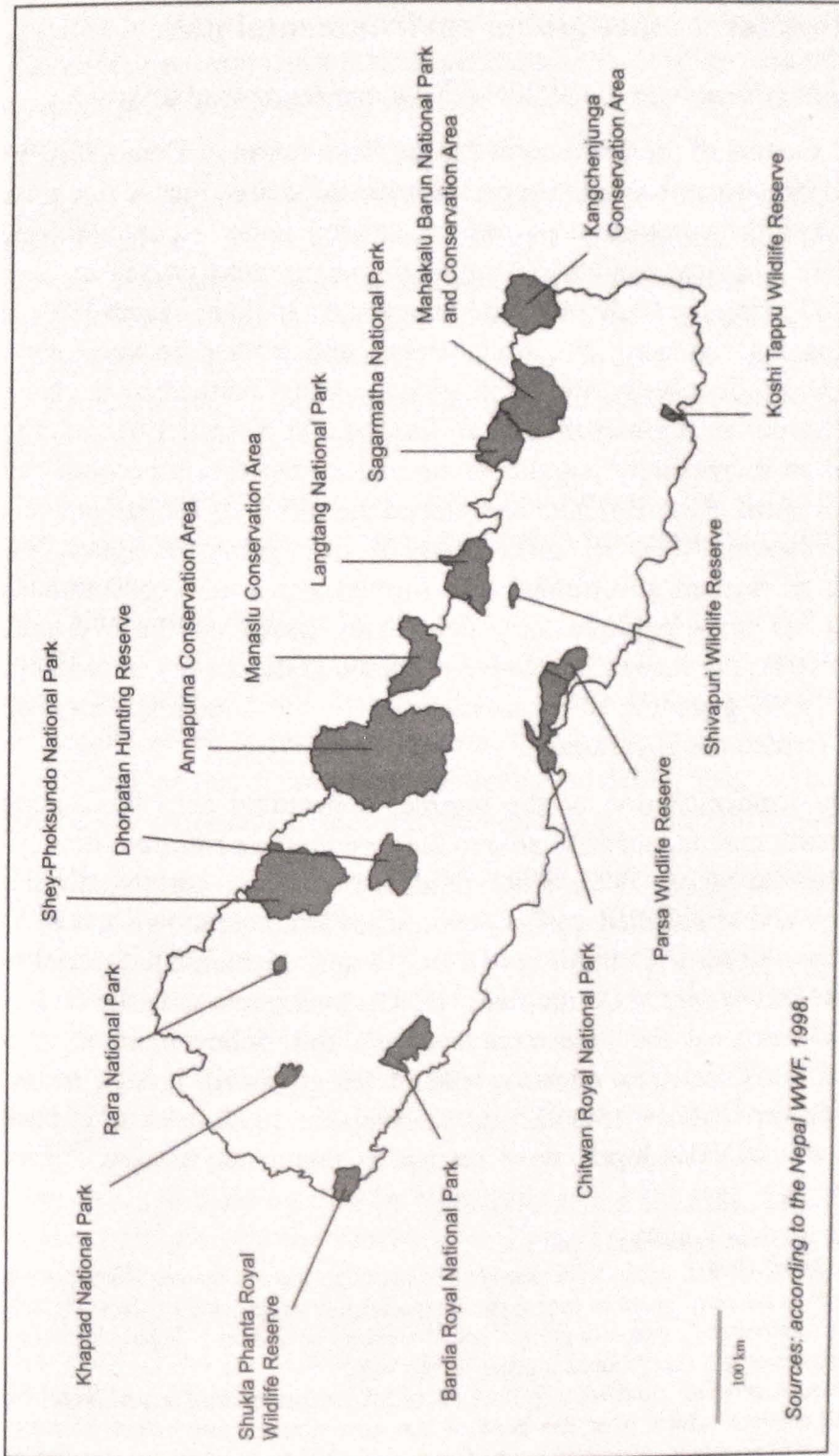


Figure 47
Map of protected areas in Nepal, 1997
B. Ripert

New actors for a more global environmental policy

Political liberalisation in the 1990s: advent and hazards of democracy

The rapid success of the Movement for the Restoration of Democracy in the spring of 1990 is ascribable to several factors: the union, for the first time, of Congress and the communist parties (assembled under a common banner) against the "*pancayat* system"; popular discontentment caused by a price increase following the trade blockade imposed by India in March 1989, after negotiations on renewing the trade treaty and transit between the two countries had failed; lastly, the international context marked by the collapse of the authoritarian regimes in Eastern Europe. On 8 April 1990, after three months of an increasingly popular revolt and its repression becoming more and more violent, King Birendra announced the lifting of the ban on political parties. Following this, all institutions of the "*pancayat* system" were dissolved, an interim government was formed and a new constitution was passed. It set up a parliamentary democracy based on the Westminster model. In 1991, the second legislative elections in the history of Nepal (after those in 1959) gave the absolute majority to the Congress Party which therefore formed the government.

The democratisation of the regime, understood as a broadening of political participation, notably came to the fore by the decentralisation policy implemented in March 1992, which redefined the administrative division of the country and established a local government structure at two levels: 3,995 Village Development Committees (VDC³⁷) and 36 municipalities electing 75 District Development Committees (DDC). In contrast with the centralism which characterised the "*pancayat* system", this policy claimed to be a privileged instrument in allowing the different social groups to access political power.³⁸ In the second local elections, in 1997, quotas (25 per cent of seats at the VDC level) were set up in favour of women.³⁹ Finally,

³⁷ In Nepali: *ga.bi.sa.* (*gāu bikas samiti*).

³⁸ MARTINUSSEN, 1993. So each VDC, made up of members elected by the different wards has to appoint an advisory board to enable the categories not represented by those elected (e.g. the "user committees", women's groups, social workers or underprivileged classes) to take part in managing villages grouped together in the VDC.

³⁹ This measure, adopted unilaterally by the CPN (UML) – Communist Party of Nepal (United Marxist-Leninist), which is at the head of the government – just before holding local elections, was no doubt influenced by the fact that in 1993 India adopted a decentralisation policy providing for women's quotas (33 per cent of the seats) at all levels of local self-government.

decentralisation granted a new role to non-government organisations, invited to become the government's official partners in its development mission. The number of these organisations increase spectacularly upon liberalisation of the regime.

Even if the 1990 constitution maintains the definition of Nepal as a "Hindu kingdom", it officially recognises its "multiethnic and multilingual" character. This ethno-linguistic multiplicity finds expression in a growing number of new political formations which display an ethnic or regional identity, and whose discourses converge in the denunciation of the domination exerted on political, economic and educative institutions by the Bahun-Chetri and by the Newars.

As regards protection of the environment, the new constitution contains several clauses relative to the State's responsibility, contrary to the previous one (1962) which did not deal with these issues. However, it does establish a connection between the protection of nature, which it presents as a priority, and the development of societies living in this environment. It therefore remains at the "conservationist" conception stage without taking into account, in the terms of its clauses, the society concerned.⁴⁰ As for the new political parties stemming from democratisation, they have granted an uneven amount of place in their programmes to environmental policies.

The young Nepalese democracy today seems to be threatened by the government's chronic instability since the 1994 mid-term legislative elections. If the Congress and Communist parties dominate the political arena, they can no longer govern without the support of one or the other of the small parties, and coalition governments come and go with no other common ground than opposition to the previous coalition. Political violence caused by the Maoist revolt spreading through the poorest pockets of the country's central zone and leading to brutal repression by the police, is another threat to democracy. The Nepalese parliament gives the image of an assembly paralysed by the short-term vision of parties that happily use the street and demonstrations of strength (general strikes, torch-lit processions) to express their demands. One can fear that this incapacity of parties to abide by the rules of the parliamentary game will be used by the king to justify a return to a more authoritarian regime.

⁴⁰ IUCN, 1991.

Frame 17

The Place of Environmental Issues in Electoral Manifestos*Stéphanie Tawa Lama*

Electoral manifestos are a particular type of political discourse. These ten-page booklets generally contain an introduction which presents the history of the party, the outline of its ideology and when applicable, the policies it has implemented in the past; a list of problems identified by the party and the solutions it proposes; and lastly a summons to vote for the party. Manifestos thus lay out each party's ambition to be the spokesman for the targeted voters, by expressing, as best they can, the voters' preoccupations. By extension, manifestos constitute a precious source of information on those themes that are likely to rally voters. In short, they give the composition of the political agenda at a given moment.

Here we have compared four political parties' manifestos for the 1994 mid-term parliamentary elections –the Nepali Congress (NC), the Communist Party of Nepal (United Marxist-Leninist) (CPN (UML)), the Rashtriya Prajatantra Party (RPP) and the Sadbhavana Party (SP)– and the space taken up by environmental issues in each of them.¹

The notion of environment (*bātābaran*) appears as a full-fledged item only in the RPP manifesto where it is associated with the "preservation of the forest and fauna". In all the other manifestos, it is the forest which is the focus of environmentally-oriented preoccupations. The forest is a theme in itself for the CPN (UML) as for the SP, whereas it is associated with the agrarian reform in the NC manifesto.

For each party, the emerging problem is the same: the country's deforestation and the landslides along with erosion of soils that it provokes. Based on this common observation, different responses are put forward. The NC and the CPN (UML) advocate collective management of forests; the CPN (UML) and the RPP propose developing alternative forms of energy (gas produced from cow dung [*gobargas*], solar energy and above all hydroelectric projects) to satisfy fuel needs; finally the SP suggests developing the farming economy of migrants' native regions –migrants being considered as the main culprits for deforestation in the Tarai– in order to eradicate the very cause of this immigration.

Forest management, and to a broader extent the natural resource management policy, thus enables each party to highlight both its priorities and its difference. The CPN (UML) and the RPP, by lumping together deforestation and hydroelectricity, express their opposition to the agreement reached by the Nepal Congress government and India, whereby the latter can now build a dam at Tanakpur. The CPN (UML) affirms that rivers constitute "the Nepalese people's inalienable heritage", thus demonstrating a nationalism which implicitly opposes

the NC, whereas the RPP explicitly flaunts its opposition to the Tanakpur agreement. Here the forest issue defines the separation line between nationalists and "pro-Indians" (i.e. the NC). Furthermore, by insisting on the need to ensure employment for those who are deprived of revenue due to forestry protection, the CPN (UML) demonstrates its concern regarding social justice. Lastly, by affirming that "deforestation leads to an economic, cultural and social imbalance," the SP (which wants to be the representative for the inhabitants of the Tarai) legitimizes its opposition to immigration by the "landless" (*sukumbasi*) in the Tarai through ecological arguments.

The second preoccupation regarding the environment, as found in all the manifestos, concerns the need for planned urbanisation as opposed to the "wild" urbanisation under way, along with better management of water and sanitation, and a control of industrial and traffic pollution.

Apart from these two themes, common to all parties, only the NC and the RPP announce the creation of new protected areas, and both parties associate the decontamination of lakes and mountains with the development of tourism. The RPP mentions its respect for the Agenda 21 adopted in Rio in 1992 and displays its willingness to protect the fauna. Finally, the SP affirms the need to "preserve the ecological balance of SAARC countries", in full agreement with the links that this party claims the people of the Tarai have with India.

In the end, the very minor character of these preoccupations, as indicated by their position in the hierarchy of the problems addressed by manifestos, leads one to think that, apart from deforestation and urban pollution, environmental issues hardly interest the Nepalese people. One might then wonder if nature protection policies are drawn up to satisfy a domestic demand.

1. I would like to thank Pramod Khakurel for his help in translating the manifestos.

Associating local populations more closely with environment management

If populations find themselves at the heart of official discourse in the 1980s, their implication only becomes real from the early 1990s onwards, both in forest management and environmental conservation.

In 1992, a decentralisation law reinforced the role of "user groups" as local development organisations. In addition the 1993 forestry law provided a precise definition of the rights and duties of these groups, entrusting them from now on with managing the forest income as well as deciding on its use.⁴¹ The forestry office of each district takes on the role of technical

⁴¹ Nevertheless, the State withholds landed control over the whole of the country's forested territory with the exception of private land recently replanted with trees.

advisor to user groups and becomes answerable for the implementation of the sustainable management of forests for the benefit of the inhabitants. Indeed it still has the power to disband user groups and to recover forests on behalf of the State.

The development of this policy and its practical implementation were greeted as a success and quoted as an example in many publications.⁴² It was in fact particularly effective in the mountains, but is still much less so in the Tarai. Today it is estimated that 500,000 hectares⁴³ have been attributed to user groups, which represents less than 10 per cent of the country's wooded surface. This does not prevent many an "observer" from attributing the improvement they think they detect in the state of the country's forest cover to "collective forestry". On the other hand, it is true that tension has decreased between the populations and the Forestry Office, resulting from a set-up whereby the positive aspects of traditional management systems may be included and enhanced.

Major changes have taken place in the field of nature protection and more particularly of conservation areas. The fourth amendment to the 1973 law, enacted in 1993, provides for the direct allocation, without transiting through the State's budget, of 30 to 50 per cent of a conservation area's income to local community development.⁴⁴ The 1996 regulations regarding conservation areas make provisions, through a limited-term contract, for a protected area to be managed by a private or non-government institution and for civil servants to be appointed to liaise between the State and the manager. The State therefore theoretically keeps close supervision over the institution, but these regulations open the way for NGOs to implement a new policy which puts them into direct relation with local communities.

A new local institution specific to the conservation area, the Conservation Area Management Committee (CAMC), was created in each VDC. This body –in addition to the democratic representation⁴⁵ of the

⁴² HOBLEY *et al.*, 1996; NESAC, 1998.

⁴³ *Spotlight*, July 1998.

⁴⁴ In the Annapurna Conservation Area, this represents on average a budget equivalent to the one granted by the State to each VDC.

⁴⁵ Two thirds of the members are chosen by villagers, the remaining third is appointed by the conservation area manager. The creation of this body raises problems as it enters into competition with the VDC. The latter could have played the role of CAMC, especially in a so-called conservation and development approach.

VDC– is in charge of establishing rules for using natural resources and priorities on behalf of inhabitants. This is in order to use funds intended for developing and protecting conservation areas.⁴⁶ The pattern is therefore very similar to the one set up for collective forestry in the rest of the country.

At the same time, a similar plan of action, "the buffer zone" was created around national parks and reserves in order to ease conflicts with residents. This zone was defined in 1993 in the fourth amendment to the 1973 law as an "area surrounding a national park or reserve [...] to allow forest resources to be used under regular conditions and to the benefit of local populations". The power of the park or reserve manager extends to the buffer zone, but the inhabitants, whatever the case, still own their land. The manager has the possibility of forming user committees to implement collective forestry. Finally, and here is a major provision, the amendment provides for 30 to 50 per cent of park income, the greatest part coming from the tourist trade, to be reinvested in local development activities. The first buffer zone saw the day at the end of 1996 around the Chitwan Royal National Park. The second, in 1999, was created around the Bardiya Royal Park. It is still too early to determine the consequences of this plan of action. However, in the same way as for conservation areas, it represents a major stage in the association and involvement of populations in nature protection.

The willingness to involve populations is not limited to different types of protected area. The State and various government services, by disseminating information, attempt to make the people living in the whole territory aware of this issue. Newspapers, read in towns, publish an increasing number of articles on environmental protection. Every week the radio broadcasts several programmes devoted to the environment and forest management. Various NGOs organise informal training courses to make rural populations aware of environmental preoccupations. Forestry offices offer courses to the heads of village forestry committees. Yet today, for the State, school is the most effective way of reaching a large population throughout the country.

⁴⁶ However, the manager's –through his/her intermediary the State's– supervision is still very present. All the decisions of the CAMC must in fact be ratified by the manager, both for the use of natural resources and for the allocation of financial products. Besides, most of the land remains State property.

Frame 18

The Place of the Environment in School Textbooks*Blandine Ripert*

Even though in 1995 the country boasted about 20,715 primary schools and the names of 42 million children registered for school admission,¹ public education is a relatively recent phenomenon since one had to wait for the fall of the Rana dynasty for it to be accessible to everyone. Secondary schools which allow pupils to follow the school syllabus and, for some, to complete it by sitting the School Leaving Certificate (SLC), are still few and far between, and less than a third of primary school children attend them.

In Nepal's education system, school textbooks are the basis for teaching and primary-school teachers prepare their lessons using these. Each pupil has several textbooks on different subjects according to his/her level. School textbooks and curricula have been thoroughly transformed over the last forty years.² As of 1971, after the institution of the New Education System Plan (NESP), textbooks make explicit reference to the natural environment and its protection. From this very same date, scientific subjects and social studies are presented as major new themes in the school syllabus (National Plan Commission, 1993). According to Pratyoush Onta (1996), education has become central in the process of a planned socialisation of the various communities within a single nation. The environment is therefore above all addressed from a wildlife protection angle. Various national symbols and emblems that figure, for example, on Nepalese money, make reference to wildlife and are represented in textbooks.

After the democratisation in 1990, textbooks were revised once again, at a rate of one level per year. The King of Nepal no longer appears on the first page of the new textbooks and the ethnic diversity of the country and of its landscapes is now highlighted in the illustrations of the texts. In these new textbooks, the environment becomes a subject in its own right: each level now has its own book. During the first three years of primary school, the term used to designate the environment can be translated as "what surrounds me" (*mero serophero*) and is associated with a standard of hygiene. In intermediate classes, the themes discussed are more elaborate and it is the term *bātābaran* which denotes the environment. It refers to disasters caused by the non-respect of the environment, restricted more often than not to deforestation. The main solution put forwards to solve the problem involves planting trees. Illustrations highlight wooded landscapes, and dry crop terraces are always surrounded by fodder trees. Landslides are always associated with disaster-stricken landscapes cleared of trees.

In the new secondary school curriculum, environmental problems encompass air, water, soil and even noise pollution that affects rural and urban milieux. It therefore follows on from the conception held by the IUNC (which had

a part in preparing certain textbooks) which, since 1990, has not only limited its scope of action to conserving natural milieux, but has extended it to all environmental problems. The tone is often dramatic.

From the first year of secondary school, for instance, the environment textbook is exclusively devoted to the link between Nepal's demographic growth and the degradation of its environment.³ The theory of the degradation of Himalayan milieux can be found here. In this textbook, demographic pressure accounts for all the ills of Nepal, from deforestation to climatic changes, and from the degradation of the cultural heritage to that of public services. The alarmist tone of the book leads to causes and effects often being mixed up. Elements of physical geography are at no time raised to explain erosion and landslide phenomena. Only the "inappropriate" techniques used by peasants, such as farming on sloping fields and excessive pressure on resources, are held responsible. Damage to the environment is said to be responsible for a desertification of Nepal, which is presented as the spectre to be feared over the years to come. The dry regions of Dolpo, Mustang, Manang, Dang Okhaldunga and Salyam demonstrate the extent of this desertification whereas no climatic feature is put forward to understand this in its context. Only birth control and environment conservation/protection can put a stop to this process and must be implemented by each and everyone, starting with school children, who are encouraged to disseminate the knowledge acquired in this field at school within their home environment.

The creation of national parks and reserves is presented as being a great environmental effort on the part of the government, but textbooks also highlight village initiatives in protecting and planting trees, especially the creation of "user groups" which receive the go-ahead from the District Forestry Office. The various administrations present in each district are described as being intermediaries for providing advice on local environmental protection efforts.

1. Central Bureau of Statistics, 1997.

2. The analysis of recent textbooks only focuses on the first six years of study, the only ones for which these books had been altered and published by 1996. I would like to thank Yam Bahadur Tamang who helped me to translate these textbooks. The textbooks consulted: *Mero serophero*, 2050 VS (1993), class 1, no. 100; class 2, Nyaachyo M., no. 127; class 3, no. 133. *Mero nepali kitab*, 2050 VS (1993) class 2; class 3; class 3. *Mero bātābaran*, 2052 VS (1995), class 4, Regmi D., no. 144. *Mero desh*, 2052 VS (1995), class 4, Thapa G., no. 136. *Hamro janasankhya ra bātābaran siksā*, 2052 VS (1995), class 6, Shresta P., Shresta B., no. 85. *Hamro sāmājik siksā*, 2051 VS (1994), class 6, Ghimier B., Subedi R., Khatri L., no. 256. *Hamro nepali kitab, bātābaran rakshya*, 2052 VS (1995), class 6. They are published by the Ministry of Education, Curriculum Development Center, Bhaktapur.

3. The title of the textbook is explicit: Study of our demography and of our environment (*Hamro janasankhya ar bātābaran siksā*), P. Shresta, B. Shresta, 2052 VS, class 6. Bhaktapur, Curriculum Development Center, Ministry of Education, 85 p.

A growing number of environmental NGOs

Since the country returned to a constitutional monarchy, instituted a democratic regime and opened up economically, the number of NGOs has considerably grown: they are estimated at more than 30,000.⁴⁷ Today, no-one is actually capable of providing a proper figure due to the fact that there is no centralised census.⁴⁸ However, only about 850 of them are considered to be really active. The percentage of international aid in the country's budget is forever growing and sponsors have largely encouraged recourse to this type of organisation.

The protection of nature, and beyond this of the environment, has experienced the same trend. It is estimated that more than one hundred or so NGOs work around this theme. However, if numerous NGOs of modest size have been created since the recent democratisation, most of them are at best the driving belt of a few important NGOs involved in this field. The latter did not wait till 1990 to play a major role. Democratisation of the regime was not needed for them to settle in, develop and prosper.

Nepal thus relies on four main environmental protection NGOs, both for the elaboration and for the effective enforcement of its policies: the King Mahendra Trust for Nature Conservation (KMTNC), a national NGO created by the 1982 law and closely linked to royal power, and the International Union for Nature Conservation (IUNC) of which Nepal has been a member since 1973. The Mountain Institute (TMI) and the World Wildlife Fund (WWF), are two American NGOs set up in Nepal since the mid 1980s and since 1993 respectively. Parallel to government structures, these four NGOs, which have now emerged as actual institutions, have pooled together their widely-used scope of expertise and action. Three of them (KMTNS, TMI and WWF) have been contracted to directly and fully manage the country's three conservation areas, inhabited zones which cover 7 per cent of the country's surface area.⁴⁹

Alongside these major NGOs, there also can be found a vast number of small local organisations of user committees, forest user groups, women's and mothers' groups, lodge management committees, youth clubs, etc. Their

⁴⁷ *The Rising Nepal*, 6 April 1996.

⁴⁸ BONGARTZ and DHAL, 1996.

⁴⁹ The KMTNC manages the Annapurna Conservation Area, the TMI the Makalu-Braun Conservation Area and the WWF that of Kanchenjunga. See HMG 1993, IUCN 1996 and 1998.

existence is defined by law. This is the basic unit of what a structuring civil society may be, with no mediation by the previously-described NGO type. In conservation areas, most programmes rely on these groups and relatively few NGOs are present.⁵⁰ In the rest of the country, it is the State that urges the creation of this type of local organisation.

Numerous virtues are attributed to NGOs. According to Chitrakar (1996), they often fill the empty space left by the State or make up for its incompetence. Moreover, he translates the Nepalese expression "*gair sarkari sanstha*" used to describe an NGO by "in the absence of government". They could be an asset for decentralisation of the country undertaken since democratisation, by offering technical assistance to inexperienced local institutions. In addition, in the environmental field, they could help local communities set up natural resource management systems. Finally, they could guarantee that State funding, 500,000 rupees, would be allocated to each VDC and used properly while, through their practices, they could be the vector of democracy where these new ideas have not yet caught on.

Today however in Nepal, these organisations are more and more criticised, concerning their role, their effectiveness and their integrity. The vast majority of them are still concentrated around the capital, without showing any concern for the rest of the country. Questions are also being raised as to the waste of energy that their increasing number signifies. It can be gathered from a series of interviews carried out in 1998 with heads of NGOs and villagers that for many Nepalese an NGO especially represents the opportunity of finding a paid job.⁵¹ Furthermore, the primary aim when creating an NGO is often to tap money from abroad.

On another level of analysis, in the context of a developing country such as Nepal and in the particular field of nature protection, NGOs appear to be mediators between international and national levels on the one hand, and between local and national levels on the other. The combination of this double mediation leads to establishing a referential within which the country's policies in environmental matters are developed and applied.⁵²

⁵⁰ The TMI favours this method of working, whereas the WWF prefers to call upon local NGOs.

⁵¹ BOISSEAUX, 1998.

⁵² "Mediation" and "referential", according to the meaning given by Pierre Muller in his analysis of public policies. A mediator is an "agent who constructs the referential for a policy, i.e. the creation of cognitive images determining the perception of the problem by the groups present and the definition of the appropriate solutions" (MULLER, 1994).

Indeed this process is fundamentally the consequence of international "experts", then relayed by NGOs, focusing on real or supposed problems.

The role played by the IUNC in Nepal illustrates this international influence. Its basic mission is to "promote a common approach", throughout the world, towards nature protection and its "sustainable" management.⁵³ In Nepal today this organisation appears to be the "watchdog" of international law. For some time now it has exerted pressure on the Nepalese government accused of not fulfilling its international commitments.⁵⁴

On a national scale, when all is said and done, it is only a small number of people –belonging to the government, to one of the four main NGOs mentioned, or even to one of the national NGOs (some go from one sector to another)– who develop and apply the country's policies. Connections with international environments are all the more important as most funding comes from there and is set up through circuits which form systems such as the United Nations (UNESCO, FAO, PNUE, PNUD), development banks (World Bank and the Asian Development Bank), the World Environment Fund and bilateral co-operations (USAID, SDC ACDI, Dutch, Finnish cooperations ...).

Mediation between international and national levels is extended to local populations. It is not a coincidence if teaching and training are considered by the four NGOs as being the basic essentials in conservation programmes. Through its deep-rooted action and active approach, training aims at shaping people's notions of environmental problems and nature protection. Like any long-term action which claims to take on mentalities and behaviour, it is too early to know what will emerge from this. The first results are sometimes surprising or comical, so great is the gap between the discourse taught, repeated and often deformed, and the real problems that populations face.⁵⁵

But local-national mediation also works from the bottom upwards and has enabled conceptions forbidden in the first years to be re-examined. As intermediaries between a centralising and interventionist power and

⁵³ SMILLIE, 1995.

⁵⁴ A book was published on this theme in 1997, *The Implementation of International Environmental Law in Nepal*, and the first 1998 issue of the IUCN information bulletin dwells on the subject.

⁵⁵ In the course of numerous interviews carried out in villages (BOISSEAUX, 1998), far from any road infrastructure, one of the first environmental preoccupations cited is the "lack" of oxygen (!).

populations who have solutions to put forward, the NGOs have no doubt helped adapt policies to the needs of people, an operation which has had the same kind of consequences at international level.

From nature protection to an environmental policy

The different developments in the conception and the management of protected areas and forest spaces since 1950 have given rise to a relatively complete, coherent and pragmatic nature protection policy today.

Up till now, the existence of a forestry policy and a nature protection policy have not really constituted an environmental policy. For a long time indeed, the attention of decision-makers focused almost exclusively on the protection of a nature thought to be seriously threatened by human activities. This ended up overshadowing the country's other environmental problems. The 1990s marked a profound change concerning those matters, in several stages.

The 1988 National Conservation Strategy, despite its name, constitutes the first Nepalese political document which deals with the environment globally, and in relation to society. The essential conceptions linked to the notion of sustainable development figure here. Among the State's priorities, the new 1990 constitution mentions environmental protection. Some years later and for the first time, the Eighth Plan (1992-1997) included a specific environmental policy, though it was not before 1993 that its detailed wording as well as that of an associated plan of action (Nepal Environmental Policy and Action Plan) was defined. An advisory body for environmental protection (Environmental Protection Council, EPC) under the Prime Minister, came into existence in 1992; its vocation was to coordinate the country's environmental policy. In 1995, the Ministry for the Environment and the Population was created after the environment had fleetingly come under the Ministry for Forests. Finally, the first legislative and statutory provisions were enacted in 1997 (*Environment Protection Act and Rules*). Problems specific to urban areas, starting with the Kathmandu Valley (water management, atmospheric pollution, refuse management, town planning rules, conservation of the cultural heritage), but also those associated with the emergence of more intensive farming (use of pesticides, chemical fertilisers, etc.) are from now on an integral part of the country's environmental preoccupations.

However today –like yesterday– no serious evaluation of the state of the country in terms of nature and milieu is available. The most diverse and sometimes contradictory speculations about the extent and the quality of the forest cover,⁵⁶ for instance, or about the causes of erosion, continue to circulate. One is forced to note that there is a cruel lack of indicators to evaluate the incidence of trends over the last twenty years on ecosystems.

Furthermore, even if the solutions implemented are recognised as being innovative and particularly interesting, they only provide a less-than-perfect answer to the country's problems. Indeed, in terms of nature protection, all efforts today are exclusively focused on a small proportion of the territory,⁵⁷ relatively scarcely populated, whereas more populated areas are neglected. The buffer zones recently created attempt to check the excessive use of natural resources concentrated around national parks, with the risk of putting off the problem even longer.

Today, after the notion of sustainable development, that of biodiversity, its protection and its development, offers new perspectives. This is what guides current decisions. A national plan of action regarding biodiversity was in preparation in 1998. Affiliating international energies and funding, this concept appears to be a formidable factor in developing environmentalist and conservationist conceptions. In Nepal, perhaps even more so than elsewhere, biodiversity is not confined to only protected areas, but it is partly the direct consequence of an action by man's shaping ecosystems. This biodiversity may be managed, not merely protected, and finally its very management and development may be a source of income for populations. This therefore offers much vaster perspectives than the sole protection of endangered species exclusively funded by the tourist trade.

*

* * *

⁵⁶ A national forestry inventory is being drawn up with the support of the Finnish Cooperation. A long-term job which summons substantial means, it is in any case, according to the project managers, impossible to seriously compare its results with those of any partial inventories previously undertaken (difference in method, criteria, etc.). See HURTIG, 1998.

⁵⁷ Even if it represents 16 % of the Nepalese territory. See KMTNC, 1998.

Today, like fifty years ago, Nepal remains basically a rural country. Indeed the livelihood of nearly four fifths of its inhabitants depends on farming, pastoral and forest activities which continue to shape most landscapes.

However, since 1950, new ways of using the space have appeared. In agriculture, tensions between farming and the forest have intensified under pressure from a boom in the population, but also due to insufficient progress made in terms of farming yields. In certain spaces, it is the agro-sylvo-pastoral activities themselves which have been challenged or even banned under the effect of two contradictory trends, linked to the country's economic development on the one hand, and to the demarcation of protected, supposedly "natural", forever-extending spaces on the other hand (Figure 48).

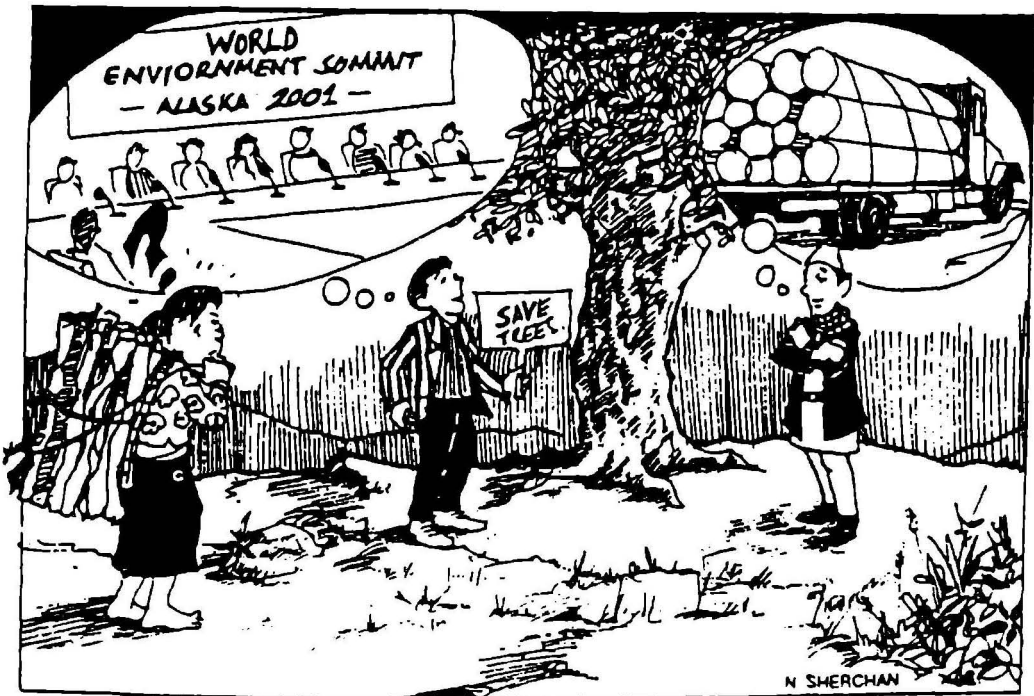


Figure 48

"Forestry in an accountable democracy. Confusion, conflicts and choices"

A.R. Tuladar, Himal 4 (4) 1991

Nepal is consequently developing towards the specialisation of its spaces according to their dominant or exclusive economic function: more and more intensive farming, in the Tarai for example; urbanisation and industrialisation, mainly in the Kathmandu Valley, along the Indian border

and close to main roads; nature protection and the tourist industry around the major summits and in part of the Tarai.

These changes are the consequence of national public policies often inspired by the international scene and they are sealed by development experts and large international nature protection organisations, which today include more and more Nepalese ones. For Nepal, due to its political and economic opening up, the second half of the XXth century represents a period of hurried change, which is gradually integrating it into the globalised world.

With the passing years, the country appears like a real laboratory experimenting with environmentalist theories: these, developed (and largely funded in their implementation) by international institutions, are applied by the Nepalese State and questioned by villagers through the conflicts they create at local level, conflicts which bring about a redefinition of these theories and therefore of the policies for which they are the basis. They have given birth to different forms of natural resource management but have not been able to gather exact data on the state of natural milieux.

In the space of forty years we have gone from promoting the exploitation of natural resources in the perspective of economic development, a mark of the 1950s, to being obsessed with nature conservation nourished by the Himalayan crisis scenario in the 1970s, to end up, at the end of the XXth century, with a more global and integrated approach to development and environment management problems.

Parallel to this, the status and role of local populations in resource management have changed: largely ignored or considered as those mainly responsible for environmental degradation, they were most often at the receiving end of the policies implemented. They were eventually considered to be an essential link in the success of programmes decided on at a higher level. Today they are more closely associated with environment protection operations, and the State's control over the exploitation of resources by controlling populations appears to be a constant feature of the different policies implemented in this field.

However, the cross-layering of diverse influences –international organisations, NGOs and their local relays, foreign experts, forestry lobbies, national and local institutions– does not come without any conflict or contradictions, as these influences stem from sometimes divergent interests: the environment is at the centre of multiple concerns.

On an international scale, the Nepalese government's environment protection policy might have appeared at a given time as a means of giving guarantees to sponsors, of obtaining financial aid by going one step further in the catastrophist discourse in fashion at the time.

On a national scale, this policy seems to have led to naming scapegoats (peasants, tourists), whilst the State avoids tackling the burning issues of those "with no land". The theme of deforestation in the Tarai, in particular, has led to political exploitation by intimating a massive immigration of mountain populations.

On a local scale, the implementation of administrative structures to control and manage natural resources, and forest resources in particular, has brought to light a rural elite, which, through its social status, holds considerable power over villagers. Foresters, national guards in parks or those in charge of protected areas, have an important role to play in villages where their power competes, wherever it does not take its place, with the power of VDC-elected representatives.

As for the NGO network, it claims to make up for the State's inefficiency while encouraging it to respect its international commitments in terms of the environment. Nevertheless, by ensuring this role of an essential link between the latter and local societies, it completes a pyramidal framework of populations.

Sometimes thought to be at fault, sometimes invited to actively take part in politics they have not chosen, in the end villagers have relatively little leeway and have to compromise between the need to survive and an array of laws and regulations which limits their access to local resources.

PART FOUR

***LOCAL PRACTICES,
BETWEEN CHOICE AND CONSTRAINT***

CHAPTER XIII

Environmental Protection Impoverishment of Men: Botan Village on the Periphery of Rara National Park

Satya Shrestha

For more than four decades, the landscape of Botan village in the Jumla district (Western Nepal), has undergone important changes. A good part of the forests around the village have been turned into fields. Villagers are conscious of this deforestation which they deplore. However, this is no new phenomenon in the history of Jumla. It is said to have begun towards the end of the Kalyal dynasty (end of the XVIIIth century), just before integration of the region in the Nepalese Nation-State.¹ Despite these antecedents, massive deforestation supposedly began in the region, as elsewhere in Nepal, in the 1950s due to a surge in the population. According to Bishop's estimations, in one year over the period 1969-1970, each household averaging six persons used approximately 6,100 kg of firewood. By comparing the topographic maps based on information from 1950 with the Landstat picture taken in 1972, he showed that approximately 50 per cent of forests had been destroyed between two decades leaving less than 20 per cent of forests in the whole of the Karnali region.² The same author pointed out³ that if measures were not taken against this deforestation, the area would be stripped of all its trees by the end of the XXth century. Forecasts made by this author proved to be largely exaggerated, which shall not be the topic of our discussion here; however, we shall see that the measures taken to protect forests in the course of the last four decades have had a particularly negative impact both on milieux and on the populations who use them.

After having described the geographic and economic situation of the village of Botan, we shall focus on how the village territory is divided

¹ BISHOP, 1990, p. 122-123.

² *Ibid.*, p. 268-269.

³ BISHOP, 1978, p. 24.

according to farming patterns and the traditional method of resource management. We shall then more specifically discuss the historic context of deforestation in the village, the measures taken to counterbalance the phenomenon –in particular the creation of the Rara National park in 1976– their consequences on village life and how villagers adapted to these environmental changes.

Geographic and economic situation of the village

Botan is located north of Jumla Bazar, in the Karnali region (Figure 49). It is situated at an altitude of approximately 2,800m, on the periphery of the Rara National Park. The village is made up of 145 households, 4 of which are Lohars (blacksmiths) and 141 are Matwali Chetris (the Chetris who drink alcohol). The latter belong to four different lineages: Rawot, Budha, Thapa and Aidi. The village is divided into several quarters (*bādo*), each made up of one or several *pāgri*, arranged into terraced houses forming one long flat-roofed building. The main entrance of each house (*dhong*), gives onto the same terrace (*otālo*), from which one can go from one house to the next. The ground floor of all the houses is used as a cowshed and the first floor serves as the living area. In principle each *bādo* is occupied by the same lineage.

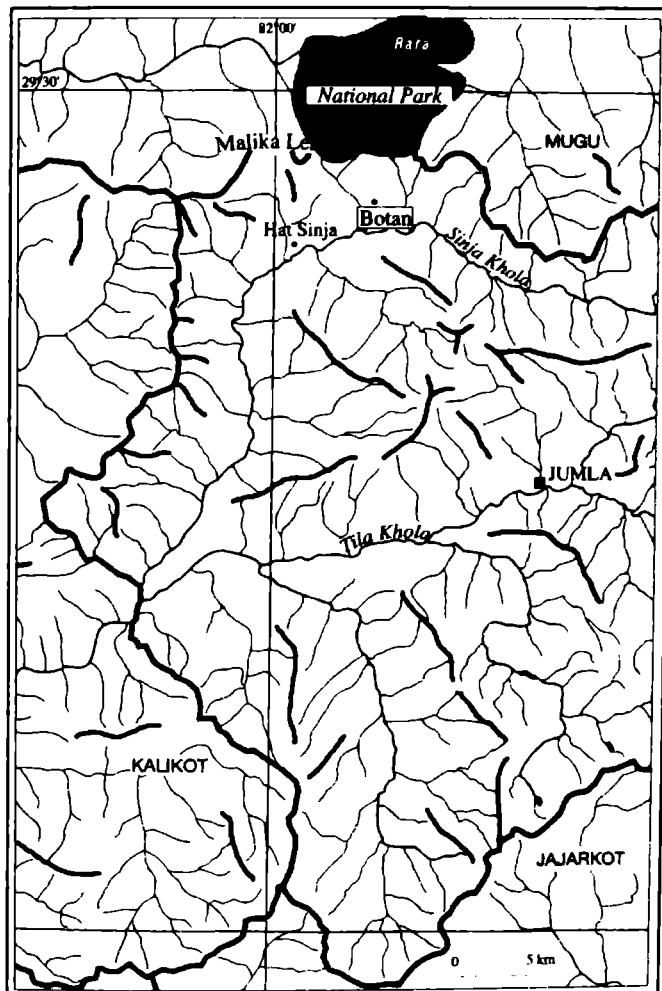
The economy of the Botals (inhabitants of Botan) is today first and foremost based on farming followed by animal husbandry, which is on the decline but still plays an important role in their economy. In general, the Botals practise dry farming on sloping, not terraced fields. The main harvests are wheat and barley in summer, millet and potato in autumn. Maize, amaranth, beans, etc., are also cultivated. The introduction of rice in the village is quite recent: over the last few years, with the construction of a canal, some villagers have transformed their dry land into irrigated land located below the village, which receives enough sun for rice farming.

Division of the landscape

In pursuit of agriculture and animal husbandry, the villagers have exploited different categories of landscapes.

The term *jyulā* denotes irrigated field where rice is cultivated. Land nearby or surrounding the house is called *bāri* (vegetable garden). The *bāri* covers a small area and is used to plant vegetables in summer; in winter it is used as a pen for cows and oxen so that they can warm themselves in the

sun. All the non-irrigated fields are called *bhuwā*. This term also designates the intermediate belt on the mountainside, situated between 2,800 and 3,000m, where most fields are to be found.



Source: from a background map drawn up by D. Baudais.

Figure 49
Location of Botan village

The *lekh* is associated with three types of landscape depending on the context: the summit, high-altitude fields or summer pastures. If the term *lekh* is used in reference to movement in space, it above all denotes the summit of the mountain from where one can go to the other side of it. The *lekhāli bhuwā* (often called simply *lekh* or *lekhtirko jaggā*) refer to fields which are situated at high altitude, where villagers cultivate potatoes, wheat, barley, buckwheat and beans once a year; this area cannot produce more than one

crop a year. The distance between the *lekh* and the house is often a two- to three-hour walk. If the term *lekh* is used in the context of livestock, it denotes high-altitude pastures, often situated above cultivated land on the *lekh*. During the summer, animals are not kept in the village, except for oxen, which are needed to till the land and trample the cereal in order to hull it. Cows and sheep are taken to the *lekh* where villagers own a cowshed (*lekh goth*).

Pātan denotes high-altitude pasture, often situated above 4,000 m and two to six days walk from the village. It is sometimes found within a forest or sometimes above it; this may be the result of clearing the forest.⁴ Herds of sheep, goats and horses are kept in this pasture for two or three months over the summer.

The words *ban* and *jangal*, used as synonyms, designate the entire forest.

This last category of the territory plays a very important role in villagers' daily life. They not only take firewood and timber from forests for building but also wood for making tools. Most of their tools, including the plough share, are made of wood. Only tools used for cutting are made of iron, and there are about a dozen of these. The forest also provides dried pine needles, which play a fundamental role in local agriculture. In the absence of chemical fertilisers, villagers fully depend on traditional fertilisers (*porso*), animal manure mixed with dried pine needles (*syāulā/piral*). The technique consists in spreading a layer of dried needles in the stall so that they become softened by the manure. After about ten days, the manure is taken out and left in the open air for two weeks to leave it to decompose totally before spreading it on the fields; another layer of dry needles is then placed as litter. To obtain a good return from farming, a lot of fertiliser has to be used and consequently a large quantity of pine needles is needed.

Traditional management of forest resources

Besides government regulations regarding felling trees (which we shall discuss further on), villagers continue to refer to a traditional institution for the management of forest resources that are essential for them so that the whole community can benefit from them. This traditional institution called *ban narālo* has always been responsible for overseeing animal movements in

⁴ BISHOP, 1990, p. 46.

order to protect the grassy slopes (*melā/melo*) prior to harvesting the fodder for winter and to coordinate the collection of dry pine needles (*syāulā*).

Livestock and their feed

The Botals are traditionally known for being shepherds rather than farmers. In the past, they secured their livelihoods with wool products such as mats, blankets and fabrics which they traded with their neighbours for rice. Their herds of sheep and goats were also used as a means of transport while trading. Wheat and barley were exchanged for salt⁵ and wool with the north (Humla, Mugu, Tibet); and part of the exchanged goods was then sent to the south (Surkhet) to trade for rice and Indian salt. When Tibet came under Chinese control in 1959, the Botals had almost stopped this type of trading; however until the establishment of Rara National Park, their herds remained a financial guarantee when necessary.

Villagers have always made large reserves of fodder to feed their herds in winter as in this season the pastures nearest to the village are covered in snow. In autumn, hay is abundantly collected and left to dry. Villagers cannot cut grass anywhere they like; each household owns its own hay meadow which is called *melo/melā*. It can only be exploited by its owner. Although it is not recorded on the land register, the *melo* is treated as any other immovable property, such as field or house. It is divided among brothers when land is redistributed.

Before the harvest of hay, the grassy mountainsides have to be protected from the herds. Until the establishment of the National Park, the forests and pastures closer to the village were protected from cattle grazing there from mid-July to mid-October. In mid-July cows were led to high-altitude pastures whilst oxen were kept in the village to work in the fields. During this period, special care was taken to ensure that the oxen did not graze in the protected forests. They were again allowed back in the forest after the grass had been collected, around mid-October.

Collecting pine needles

Dry pine needles, as we have already mentioned, make up a large part of traditional fertilisers. Therefore, in order to guarantee an equal distribution among villagers, dry pine needles are gathered collectively twice a year in the different forests belonging to the village. These collections are organised

⁵ Until today the demand for Tibetan salt in this region has remained high.

once just before winter, in the month of November-December (*mangsir*) and once in the month of April-May (*baisākh*).

In the past, this traditional institution operated with the help of a group of men and women chosen informally by villagers to enforce forest regulations,⁶ and the members of the group were renewed every year. However, if the group had carried out its function properly, it would be re-appointed for another year. In return for the services rendered, the organising group received a *pāthi*⁷ of beans, a *pāthi* of barley and a *pāthi* of wheat every year from each household, and it would be shared among the members of the group.

The organising group decided on the day for collecting pine needles and also verified that all the women were in the village on that day, because only women carried out this work. If women were absent from the village, their families had to be informed well in advance, so that they could bring back the women in time. In principle, daughters do not carry any wood or fertiliser in their natal home; however, they are invited to come and help their natal household in collecting dry pine needles.

For half a century, this traditional management system has largely been disrupted by the series of environmental protection legislation; nevertheless, it partly persists in Botan. In 1994, villagers appointed a forest warden to enforce the rule which had never been totally respected; he was paid 600 rupees per month by the VDC (Village Development Committee). Since 1995, in order to ensure an equal distribution of pine needles among villagers, a woman is allowed to bring back no more than two loads a day. As in the past, once the date for collecting pine needles has been fixed, the warden goes around the village announcing the date so that the women will be present on that day. On the day itself, all the women meet early in the morning in the centre of the village, the warden then accompanies them to the forest to avoid any cheating.

Historic context of deforestation in the surrounding areas of Botan

The history of the transformation of the Botan landscape is similar to the one in Eastern Nepal studied by Sagant, who underlines "the original settlement of populations that one finds today: Indo-Nepalese castes in the valley;

⁶ Prior to the *panchayat* system, it was under the jurisdiction of *mukhiyā*.

⁷ A *pāthi* = 8 *mana* = 4.55 litres.

Limbu, mid-way up the slope; immigrants of Tibetan dialects on the ridges. This fight for land has led to an acceleration of the deep transformation process in the farming landscape and, more generally, of the entire technical milieu".⁸

In the past, the Botan village mainly consisted of high-altitude cowsheds (*goth ghar*) where the Sinjals (inhabitants of Hat Sinja, a locality situated three hours' walk away) kept their cattle during the summer.⁹ The Matwali Chetris from Hat Sinja (where only the Thakuris, Brahmans and occupational caste groups live today) were gradually driven back towards Botan by the Thakuris; and the cowsheds were turned into a permanent village. Demographic growth in the village also led to the expansion of the village. Two high altitude cowsheds belonging to Botals – Jiya two hours walk from Botan, and Gwati Kholan one hour walk – were also turned into permanent hamlets. Botan was previously part of Hat Sinja Pancayat (today Kanaka Sundari VDC); it gained its independence only in 1978-1979 and became Malika Botan VDC. This separation caused the Botals to lose a good part of their forests that they formerly exploited collectively; and they passed under the tutelage of Hat Sinja village. Now, access to these forests is limited to the Botals. Owing to the custom (*riti thiti*), which consists in offering a sheep to the goddess Kanaka Sundari of Hat Sinja during the Dasain festival. The Botals who live or own fields along the boundary with Hat Sinja can exploit their forest, especially for fodder and dry pine needles. However, they must abide by the Sinjals' regulation regarding the dates for collecting pine needles and the fodder harvest.

The separation of Botan from the former administrative unit of Hat Sinja Pancayat, demographic growth, the loss of cultivated land on the *lekh*, and the loss of forests due to the establishment of Rara National Park, and the extension of cultivated land have largely contributed to severe deforestation on the edge of the village; it was facilitated by the fact that the land registration in the region was established very late.

⁸ SAGANT, 1976: 4-5.

⁹ Moreover, the Jacauri Thakuris from Hat Sinja still offer two jugs of milk to Mahadeu (divinity) of Botan village, at the the full moon festival in July-August (*sāun*), as a reminder of this traditional exploitation of land. In this region, herds are taken to high-altitude pastures for a period of two months in the summer. On arrival of the cattle at the *goth*, the shepherd makes an offering of milk to the divinity of the pasture –often Mahadeu– so that the divinity protects the herds during their stay.

Government intervention and drastic measures to preserve forests from 1950 to 1976

After 1950, the Nepalese government took several measures to protect the environment, among which was the nationalisation of the forests. The first law regarding this matter was promulgated in 1957. It was motivated more by the desire of the democratic government¹⁰ to put an end to the feudal system practised by the Rana regime over a hundred years than by any concern for resource management. Furthermore, forest owners received no compensation upon nationalisation.¹¹ It was followed by two other laws in 1961 and 1967 on the protection of the forest;¹² the latter law has forbidden all forest exploitation and has given judicial power to the District Forest Officer who can from now on heavily penalise any illegal exploitation.¹³ Despite the restrictions imposed by this law, it has contributed to deforestation rather than to nature preservation.

By way of an anecdote, one may add that locally in the Jumla district towards 1969-1970 the government distributed apple seedlings to local inhabitants in order to contribute to reforestation, and so that villagers could have some additional income. For lack of a market for apples, this initiative did not meet with any success.¹⁴

After the nationalisation of forests, the government's second major step in environmental protection was to establish national parks. In 1973, a law¹⁵ was promulgated regarding the creation of national parks. In the same year the Chitwan Royal National Park was set up; it was followed by the Rara, Langtang and Sagarmatha National Parks in 1976. Since then, eight other national parks, four animal reserves, two protected regions and a hunting reserve have been set up. In all, the national parks and reserves cover 20,968 km² of the 147,181 km² of total surface area.¹⁶ The army provides forest wardens to ensure the protection of the forest against incursion by villagers inside the parks' perimeter.

¹⁰ See Chapter XII, "Discourse and Law: Resource Management and Environmental Policies since 1950" (B. Ripert, I. Sacareau, T. Boisseaux, S. Tawa Lama).

¹¹ GRANER, 1997.

¹² *Ibid.*

¹³ EAGLE, 1994.

¹⁴ BISHOP, 1978: 21.

¹⁵ National Parks and Wildlife Conservation Act, 2029 VS.

¹⁶ STEVENS, 1997a: 65.

The national park idea drew its inspiration from the Yellowstone model in the United States, where the first national park in the world was established in 1872. The Nepalese Government followed the same principles in 1973, banning all forest exploitation and human dwelling inside the parks and reserves in order to develop tourism. This law was modified in 1979 for the recognition of the rights of indigenous people over the national parks.¹⁷ Unfortunately it was enforced too late for those people living inside the Rara and Chitwan National Parks, who were evicted with disastrous consequences. Indeed, the perimeter of these Parks covers the areas exploited by populations, and their creation provoked heavy losses, not only for those who lived inside the parks, but also for those who still live on their periphery. The Rara National Park is surrounded by eleven VDCs, including Malika Botan VDC.

Consequences of the creation of the Rara National Park

In order to develop tourism in the park, any exploitation within the park was forbidden at its very conception – a ban that has become the main bone of contention between bordering villages and the park's administration. The number of tourists visiting Rara National Park has nevertheless remained negligible in comparison with that of other national parks, where it is a thousand times higher. During my stays in Jumla (between 1997-1998), about fifty tourists visited the Park. According to the daily newspaper *The Kathmandu Post* (2000), 124 tourists visited Rara Park in 1988, 106 in 1989 and 14 over the first two months of 2000. If the economic benefit of tourism has gone practically unnoticed by the local population, there have, on the other hand, been many negative consequences for the inhabitants of villages on the periphery.

Reduction in livestock

The most important pastures for the village lie within the Park's perimeter and access to them was barred from the very beginning. Furthermore, high-altitude pastures where herds went from mid-July to mid-October are also located within the National Park, and access to them has been limited to two months per year. The cattle consequently return to the village earlier in mid-September. The pastures that the Botals have at their disposal are henceforth

¹⁷ "To reside in the park and to cultivate food crops, to graze domestic animals, and to cut fuel and gather dried leaves for their own use in such areas as shall be set aside for that purpose by the Warden" (STEVENS, 1997a: 68).

not sufficient to feed all their animals over the two summer months during which the village forests cannot be exploited except for firewood. Consequently, the pressure on pastures near the village is significant and the harvested fodder is not sufficient to feed herds throughout the winter. The Botals have thus compensated for this loss by providing straw, a crop residue that is considered to be of inferior quality.

After a number of village protests, the government conceded a brief opening of the Park for inhabitants from bordering villages. With the purchase of a permit issued by the Park administration, animals are allowed inside the Park to graze a few months in summer. However, they are not allowed to spend the night within the perimeter of the Park, which limits its usage. To obtain an entrance permit, a sum has to be paid to the Park Office. It varies according to the category of animal: 2 rupees per month for a cow and 20 *paisā* per month for a goat or a sheep. Moreover, this authorisation is not given systematically. The decision to open the Park is taken at a two-day meeting which takes place once a year in *baisākh* (April-May) between the Park's director, political representatives of the VDCs, primary school teachers and villagers. The problems that the latter face are discussed and the park administration attempts to provide satisfactory solutions. In summer 1998, the meeting with the Park director met with failure; at the time I left the village, the future of cattle was uncertain as the park remained closed

The creation of the Park thus led most villagers to sell part of their sheep and goats. To compensate for the financial loss caused by reducing the size of their herds, after the agricultural work in November, the Botals are now obliged to leave for a seasonal migration in Nepalganj and India where they peddle goods; they return in February to begin their agricultural work.

Degradation of forest resources

When the Rara National Park was created, villagers lost their fields on the *lekh* (*lekhāli bhūwā*) for the benefit of the Park. To compensate for this loss, they simply cleared the forests closer to the village to turn them into fields. It provoked massive deforestation on the village periphery. The total ban on forest exploitation within the Park therefore accentuated the deterioration of other forests belonging to village. The Botals use not only firewood, but also enormous amounts of timber, because houses are rebuilt every twenty to thirty years, while storage bins for grain (*khāt*) and most tools are made of wood. Since the creation of the Rara National Park, iron is used more and more to make tools, including the ploughshare because the wood that was

previously used to make this tool is only found inside the Park. This adaptation is restrictive, as iron is not available in the region and has to be brought from Nepalganj. In addition, villagers continue to prefer oak-wood ploughshares; they believe that the oxen can pull them more easily than those made of iron. However, oak wood is unfortunately found within the Park's perimeter, and the Botals can only use pine wood from their own forests, which is of inferior quality and does not last as long.

The consequences of this deforestation are not limited to the shortage of wood; it also has other repercussions on villagers' lives. For some years, beekeeping has drastically declined; in the past the village was known for its beehives, and these represented a sound financial guarantee for the villagers. Medicinal plants, such as *Nardostachys jatamansi* (*jatāmansi*), *Orchis stracheyi* (*hatt jadi*), *Rheum emodi* wall (*padama chalna/ padamachal*), *Orchis latifolia* linn (*panch aungule*) etc., have become more difficult to find, or it is forbidden to harvest them; erstwhile they were a source of income.

Another consequence of the degradation of village forests is the shortage of dry pine needles, which are indispensable for producing fertiliser. Due to the ban on collecting needles within the National Park, the quantity of pine needles harvested today is not sufficient and villagers have started to collect *bhay* (foliage which is not used as fodder), it is gathered during the months of August-September (*bhadau*) over a two-week period.

By dint of persuasion and negotiation, the National Park's administration has decided to open the forest for a fortnight once a year for collecting dry pine needles. As if this restricted authorisation is not enough, the entrance to the park is monitored by the army and if, for one reason or another, the soldiers are discontent with the villagers, despite permission granted by the Park administration, they can bar women from entering the forest on the day dry pine needles are collected, as collective punishment.

Recent management of forests outside the park

After the creation of the National Park, measures regarding forests which do not lie within the Park's perimeter have also been taken.

Government Forests

After the nationalisation of forests under the *Pancayat* regime, the forests in the region were managed by the district. As the forest continued to

deteriorate, the government promulgated a law in 1978 on the creation of *Pancayat Ban* (*pancayat* forests). It allows the *Pancayat* to make a request to the District Forest Office to transfer the government forests which are located within their territory under the *pancāyat* protectorate.¹⁸ And this was exactly what Hat Sinja *Pancayat* did. A few years later, to manage the forests more effectively in the Sinja Valley, the central district office in Jumla opened a sub-district Forest Office in Narakot village, located five hours' walk from Botan along the river Sinja. Villagers could obtain a permit from the Narakot officer to fell trees needed to build a house for the sum of 900 rupees. Although the permit was only for 50 cubic feet (i.e. about 16.5m³) of timber, villagers cut much more, since carpenters use axes instead of saws; however, the office displayed leniency in exchange for a bribe. Unfortunately, Botan was unable to benefit from all government interventions on the protection of forests, because the village only started to manage its own territory as of 1978-1979. Since it was separated from Hat Sinja, its forests have been directly managed by the Central Office in Jumla district.

Community Forest

Moreover, in 1993, the government promulgated another law aimed at better management of the forests situated outside the Park's protected perimeter.¹⁹ This law divided the forests into six different categories: Government forests, protected forests, community forests, leasehold forests, religious forests and private forests.²⁰ As regards community forest, the law recognised the users' rights to manage and to protect them. Despite this recognition, the government remained the soul owner and could reclaim a community forest if the conditions laid down were not respected.²¹

In this context, in 1993-1994, the government returned one of their forests to the Botals, *Salle pāṭā* situated south-west of the village. A forest committee (*ban samiti*) was formed to protect the community forest (*sā mudāik ban*); however, it remained under the control of the District Forest Office. The committee was made up of eleven members, four of whom were women who, in reality, hardly attended any meetings. Since the creation of the community forest, any exploitation within the forest was forbidden, except for collecting pine needles once a year, collecting firewood and cutting timber for building houses.

¹⁸ GRANER, 1997.

¹⁹ *The Forest Act of 1993*.

²⁰ GRANER, 1997, p. 51.

²¹ HOBLEY and MALLA, 1996, 88-89.

Although the forest committee's function is to manage the community forest, it in fact monitors all the forests belonging to the village and tries to apply community forest rules to all the other forests in order to ensure better protection. The main provisions taken by the committee are as follows:

- Since the creation of the community forest, any exploitation has been forbidden, save collecting needles and cutting timber with a permit. The committee's first job is to keep the forest under surveillance to stamp out any fraud. If timber for construction is taken without having first obtained a permit, it is confiscated and the thieves are punished. If it is a first-time offence, the thief is fined 100 rupees, the second time he has to pay 200 rupees and the third time he is referred to the District Forest Office in Jumla Bazar. Upon his return to the village, he has to plant twenty-five seedlings in the forest.
- As for firewood, dry wood can be collected. However, it is forbidden to fell green trees though branches may be cut up to a height of two metres from the ground. The price is calculated according to the weight. If firewood is collected outside authorised periods, it is confiscated and the culprits are reprimanded; if it is a first-time offence, the fine amounts to 25 rupees, the second time 50 rupees and the third time 100 rupees.
- The committee decides the dates for collecting the dry pine needles and charges 25 *paisā* per load.
- Finally, the committee sells a permit to fell trees for construction of a house. Fifty cubic feet are allowed per house for the price of 1,500 rupees. Trees can be felled to rebuild houses destroyed by natural disasters without paying the cost of a permit.

The provision was made that after five years the District Forest Office would re-examine the status of the Botan community forest. If it had been properly protected and if it had also generated an income, the Forest Office would hand over the village's second forest to the community.

However, despite the willingness on the part of the government and the local population to protect the forest, there is a discrepancy between the rules and its application. Even though the rules stipulate that only dead wood can be collected and that green branches can only be cut up to two metres from the ground, it is not easy to carry out a spot check. Often those who cut green wood do it out of sight of others, and some prepare a load of wood in advance with a few dry branches here and there. So far no-one has been

penalised. Despite the decision to charge one rupee per load of wood and 25 *paisā* per load of fodder to increase the VDC's income, this measure has never been enforced in the village. In fact, the government only promulgated the law on the community forest, but it did not provide any comprehensive instructions on how it should be managed.²² Villagers have therefore drafted their own rules, which are not always applicable in reality.

Furthermore, the role of the government regarding the community forest is rather ambiguous. While it clearly encourages protection of the forest, it also requires the VDC to generate income from the community forest. Therefore, to make money, the VDC has to sell permits for timber to build houses. So that villagers buy permits from the Forest Committee (*ban samiti*) rather than from the District Forest Office, the Forest Committee sells them at 1,500 rupees for 50 cubic feet, whereas a permit normally costs 2,800 rupees for the same volume at the District Forest Office. The price difference encourages villagers to buy their permit from their own Forest Committee, which also means that more trees from the community forest are felled. Moreover, 50 cubic feet is not enough to build a house, this requires 200. Members of the *ban samiti* are aware that villagers buy a permit for 50 cubic feet, though they in fact cut 200, and yet they turn a blind eye.

*
* * *

Although forest degradation throughout Nepal is often attributed to villagers who unscrupulously use natural resources and to the demographic explosion that the country has undergone since 1950,²³ the example of Botan shows that these reasons alone cannot explain the rise in deforestation around the village. Deforestation has also been caused by government intervention in the protection of the environment, which has not taken into account the needs of villagers and their rights over their natural resources.

Owing to the knowledge of their milieu and their capacity to adopt new resources, the Botals continue to exploit their territory, despite the changes brought about by deforestation and preservation of the environment. However, the creation of the National Park has consequently caused environmental degradation on its periphery and a reduction in livestock, that has led these shepherds to turn to peddling goods and to their impoverishment.

²² GRANER, 1997, 53.

²³ *Ibid.*, p. 52.

CHAPTER XIV

Resource Management and Changes in Landscapes within the Annapurna Conservation Area Project The Example of Modi Khola

Isabelle Sacareau

In Nepal there are more and more protected areas, which now cover 17 per cent of the country. Some of them often correspond to densely populated places, where the presence of tourists has considerably influenced resource management and landscapes. This is the case with the conservation area, created in 1986 in the Annapurna range. Its inhabitants traditionally live off agro-pastoral activities although they have recourse to paid temporary work outside their villages. On top of this there is the caravanning trade as practised by the Thakalis and the Manangis, along with merchandising in the British and Indian armies, which mostly involved the Gurungs and the Magars. Like many other mountain regions in Nepal, the districts in the range have experienced a strong demographic increase, emigration to the Tarai and large-scale changes in the crop system since the 1950s, whilst parallel to this the tourist trade has been bringing in new sources of income.

The Annapurna Range quickly became the first trekking region in Nepal, with 49,316 visitors in 1996, 12,000 of which reached base camp. The mark left by tourists on the landscapes and their place in the mountain economy are nothing new and have been the subject of much debate concerning their role in the degradation of the natural milieu and in the loss of cultural identities. On the other hand, integrating the range into the perimeter of the protected zone is much more recent, and this gives it a different status compared to that of previously established national parks in Nepal. Indeed, the creation of the Annapurna Conservation Area Project (ACAP) in 1986, for the first time in the country, was the mark of a willingness to experiment with "sustainable development" based on participatory management of natural resources and on the protection of the

environment by local societies. This is the biggest protected area in Nepal: an exceptional biological wealth (1,226 recorded plant species and 336 recorded animal species) is concentrated over a surface area of 7,600 km², with a population of 120,000 inhabitants spread over 55 Village Development Committees (VDCs).

It is therefore in a new constitutional context¹ that we must analyse the dynamics of local society and changes in the landscape. In this respect the Modi Khola Valley provides good ground for observation: indeed, for the Ghandrung-Mohoriya mountainside, we have Bernard Pignède's doctoral dissertation written at the end of the 1950s² and especially a further account of the situation by Alan MacFarlane at the beginning of the 1990s.³ These help us to grasp the changes occurring in the mountainside over a period of forty years. Secondly, it was in this valley that the ACAP policy was experimented for the first time. The principles that guided the creation of the conservation area are based on a pessimistic interpretation of the changes affecting the region. The action led by ACAP in the Modi Khola is presented as the concrete application on a local scale of international discourse on environmental protection, which must be compared with the changes in agro-pastoral landscapes in the long term and with the dynamics introduced by the tourist trade on this protected territory.

State of the situation in the Modi Khola on the eve of the creation of ACAP

Organisation of landscapes and peopling on the Ghandrung-Mohoriya mountainside

The Ghandrung-Mohoriya mountainside, belted between 1,000 and 3,000 m in altitude, is situated on the right bank of the Modi Khola, a river roughly oriented north-south, which takes its source on the southern flank of the Annapurna. The villages, of Gurung population, are situated between 1,500 and 2,000 m in altitude on a long slope cultivated in terraces up to an elevation of 2,300 m. Above that, the forest occupies space as far as the ridge. It can also be found below 1,500 m, hanging onto the rock face, which overhangs Modi Khola.

¹ Since the implementation of conservation areas in the Annapurna and Makalu-Barun range, new areas have been the subject of study in the Manaslu and Dhaulagiri range.

² PIGNÈDE, 1966.

³ PIGNÈDE *et al.*, 1993.

The uphill section of the valley is occupied by the Ghandrung VDC. Housing 4,748 inhabitants, this large village, perched at an altitude of 2,000 m, is the highest and the largest permanent settlement in Modi Khola. Its territory stretches to the wide high-altitude meadows of Machhapuchhare and the Annapurna, traditionally devoted to rearing bovine and ovine, where no permanent settlement existed prior to the arrival of the tourist trade.

Ghandrung is made up of a loose gathering of homesteads, separated into two parts: the older, situated in the north, is perched on a bench which dominates the floor of the Modi Khola Valley, below the footpath which leads to Ghorepani. The more recent part is to be found in the south, on slightly higher ground, at the top of the mountainside which dominates Kimche. Below and between these two quarters there are groups of lower and poorer houses occupied by service castes.

Downhill, the mountainside that rises to a tree-covered crest the highest point of which reaches 3,100 m, includes the Dangsing-Mohoriya VDC which counts 3,533 inhabitants. It is made up of two wards: the older is Dangsing which at an altitude of 1,500 m occupies a spur oriented south-west dominating the Modi Khola and Bhurungdi Khola confluence above Birethanti. The second ward, made up of the village of Mohoriya, is situated at almost the same altitude (1,600 m) and is about two hours' walk from Dangsing in direction of Ghandrung. It includes 150 houses mostly Gurung, which are scattered here and there along the main path. In addition to these, there are the two houses of Kami and Damai, set a little aside from the village, and that of some Bahun-Chetri families who live at the foot of the mountainside on the *khet*.

Situated at the bottom of Dangsing, Birethanti forms another VDC which stands at the entrance to the valley: located at the Modi Khola and Bhurungdi Khola confluence, this village populated by Gurungs and Magars was formerly a trading place for Thakali merchants from Kali Gandaki who led their convoys of Jomosom mules to Pokhara over the Ghorepani pass. The latter marks the limit with the Sikha VDC which occupies the mountainside on the left bank of the Kali Gandaki straight above the Bhurung-Tatopani VDC located at the bottom of the valley.

There is great unity in the old architecture of the villages in the Valley: the vast houses generally built longwise are bordered at the front by large-tiled courtyards surrounded by low, well maintained, small walls. They are arranged two by two according to the contour line along the main paths, or

are organised into groups around two or three courtyards forming a central space (this is the case with the old village of Ghandrung). The stone walls are whitewashed or covered in ochre halfway up and are decorated with carved wooden openwork. The houses all have a wooden veranda and sometimes a balcony on the upper floor. A stall for buffaloes adjoins the house. The roofs are made of flat paving stones. Thatched roofs, which were quite popular in the 1950s, are tending to disappear: they still cover some modest houses occupied by service castes. A few houses are covered in corrugated metal roofs, especially in Ghandrung.

The Gurungs have marked the large mountainsides of the Modi Khola with their agro-pastoral activities. Land at the bottom of the valley and on the first slopes bear rice-growing terraces. Above this irrigated land, the greatest part of the mountainside is occupied by dry land: *pakh-moro* (*pākho*, Nep.). Here maize, millet, wheat, potatoes, barley and buckwheat are grown. In Mohoriya, dry terraces are surrounded by a system of small stone walls intended to protect the field from cattle. Trees and curtains of scrub have taken over the most abrupt slopes. The centre of the territory is made up of a vast stretch of stoniness covered in poor vegetation where all sources of drinking water, locally called *kyu-wadhu*, can be found.

The topographic map to a scale of 1/100,000⁴ highlights the differences in forest cover over the mountainside: there is more cover on the Ghandrung VDC, where everywhere it juxtaposes terraced crops, than above Mohoriya and the Kimche hamlet, where there appear to be many uncultivated spaces. The forest is situated about two hours' walk from these two villages. As for high-altitude pastures, situated on the Machhapuchhare and Annapurna flanks uphill from the valley, they belong to Ghandrung territory, but are used by all livestock breeders in the region.

The economic activities in the valley are traditionally farming and cattle breeding, on top of which there is merchandising. Up until recent years, the latter enabled the Gurungs to complete their farming resources and to invest for retirement in the purchase of land and the building of a village house.

⁴ Annapurna, 1/100,000, in colour, Nepal-Kraftenwerk der Arbeitsgemeinschaft für vergleichende Hochgebirgsforschung, no. 9, Munich, 1993. Verification on the field between 1989 and 1991.

Already perceptible changes in structures of the territory at the end of the 1980s

The Ghandrung-Mohoriya mountainside was studied for the first time by Bernard Pignède in 1958. Ghandrung was then a cattle-breeding village, whereas Mohoriya was mostly farming oriented. In the latter village, ovine and caprine herds, which amounted to 500 heads in 1860, only included 200 a century later. Similarly, the number of cows had already gone from 300 to 213 heads of cattle in the space of one century. At the beginning of the 1960s, one was therefore far from the important place still held today by cattle breeding in Gurung high-altitude villages like those of the Ghorka district for instance. At the end of the 1950s, Pignède attributed the cultivation of new land to the detriment of the forest on the Mohoriya mountainside to demographic pressure:⁵ indeed, recent terraces occupy the first abrupt slopes above paddy fields, on mediocre but irrigable soils thanks to water from torrents which stream down the slope. This movement seems to have carried on till the end of the 1960s: about twelve *ropani* of paddy fields were cultivated while villagers at the time envisaged the possibility of converting another five *ropani* into paddy fields.

Nevertheless, the situation comes over as being very different in 1990, a date at which Macfarlane carried out research in the village: no new land has been cleared, but even so he notes a significant drop in the cultivated surface.⁶ Many terraces were abandoned to scrub (*banja*) and to trees. It was the least profitable crops (barley, buckwheat), the least fertile land where millet grew, or the least well-exposed land planted with potatoes that regressed between 1960 and 1975. Wasteland had been converted into hay meadows, into passages for animals or has been afforested.

At the same time, cattle breeding continued its pattern of change as started at the time of research led by Pignède. The number of sheep and goats remained stable at two hundred heads of cattle, mainly belonging to cattle-breeding families from Dangsing, with Mohoriya only having kept its goats. These were driven by children and adolescents on to the *pākhā*, abandoned terraces or steep uncultivable grassy slopes. There were only about fifty cows in Mohoriya. However, over all the VDC there were still herds of sheep, the biggest of which numbered as many as three hundred heads. They belonged to a small number of families from Ulleri and Sabed,

⁵ PIGNÈDE, 1966.

⁶ PIGNÈDE *et al.*, 1993.

uphill on the mountainside, as well as from Ghandrung. Animals grazed in summer at an altitude of around 3,700 m, not far from the Machhapuchhare base camp.

However, in Ghandrung, as in Mohoriya, each house had at least one buffalo. Plough animals and buffaloes were kept in stalls where they were fed maize tops, cut grass and leaves from fodder trees. The latter were planted close to houses, near the stalls adjoining them, giving the whole of the mountainside a particularly leafy appearance.

These changes in the cultivated landscape were accompanied by changes in the size and the structure of the population. These were firstly observed in the landscape by a decrease in the number of houses: in Mohoriya, thirty-nine houses, mapped out in 1958, had disappeared and three were empty. Sixteen new houses had been built, most of them in the Kami quarter, not in the main village, but along the path that runs down to the river and into the paddy fields, where they were occupied by non-Gurung populations. In Ghandrung, it is noted that there were some abandoned houses. In this village, however, new buildings for tourists, hotels and lodges were growing in number.

Figures recorded in Mohoriya in 1990 by MacFarlane, allowed buildings in the landscape to be demonstrated demographically, in the geographical limits of the figures provided by Pignède: the total population, including men living outside the village but whose families had settled in Mohoriya, amounted to 328 persons in 1990. Compared to the 1958 figures, the population appears to have decreased by 33 per cent. Even more so, the proportion of Gurungs compared to service castes had withered away: 67 per cent of the 1990 population was Gurung versus 85 per cent in 1958.

Parallel to this decline, the Modi Khola Valley largely opened up to the tourist trade in the 1970s.

A valley long open to the tourist trade but to varying degrees

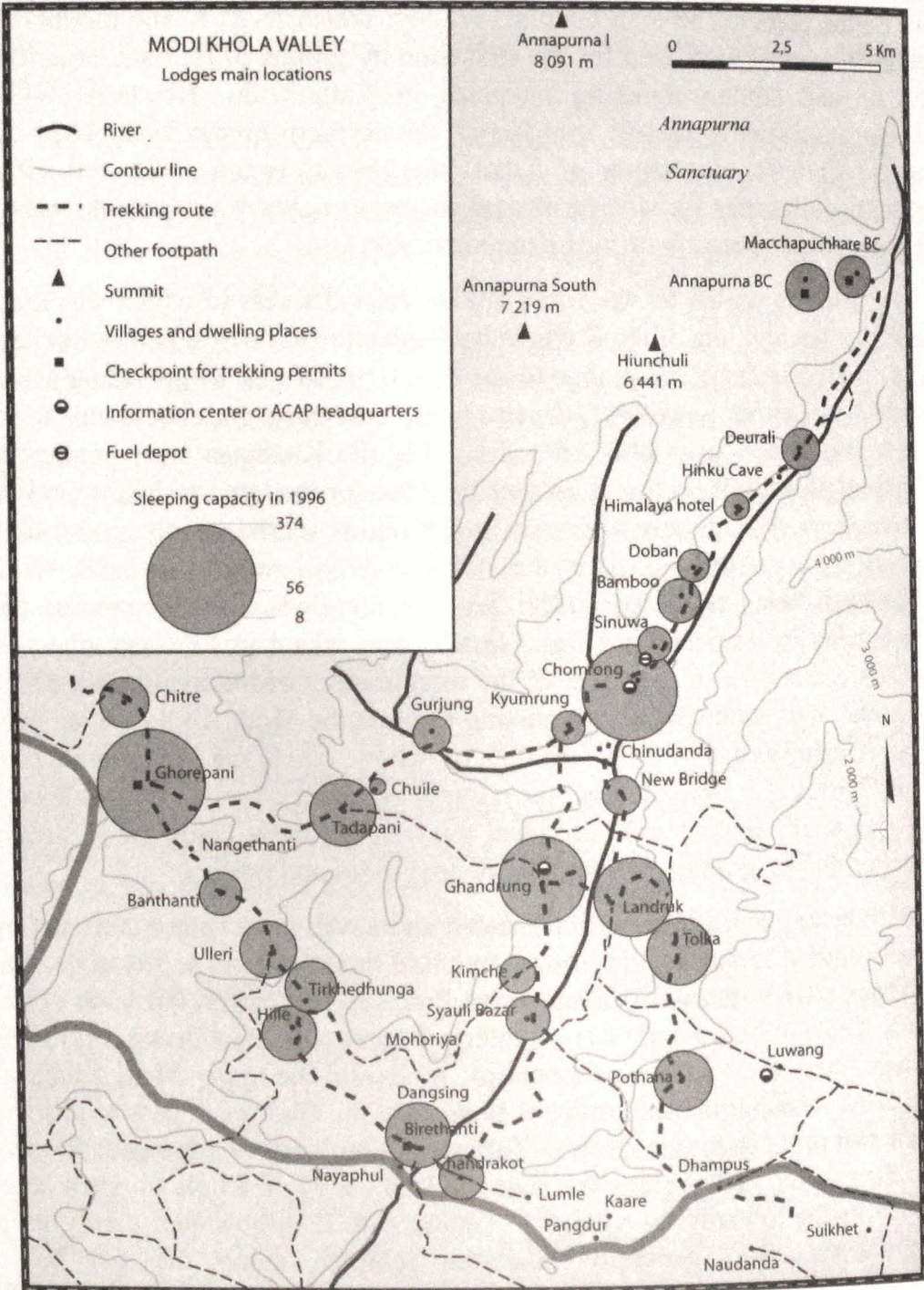
The opening of the Annapurna range to the tourist trade came about from 1964 onwards. Prior to this date, only the English mountaineer, Tilman, had visited the region in 1949,⁷ as well as the French expedition to the Annapurna led by Maurice Herzog in 1950. International acclaim of the first successful ascent of an "8,000" made the Annapurna one of the top places to

⁷ TILMAN, 1952.

be on the planet. The Kali Gandaki Valley, which leads to the mountain's base camp, was then used for the first time by groups of tourists, organised by up and coming trekking agencies in Kathmandu. However, whilst foreigners started venturing into Nepal, the northern border was closed due to the Chinese occupation of Tibet in 1959. Between 1972 and 1975, military authorities forbade foreigners access to upper Kali Gandaki, which had become a refuge for armed Khampa rebels.

Tourists settled for the Modi Khola Valley, access to which was made easier by the building of the Kathmandu-Pokhara road in 1972. From Pokhara, this offered a suitable alternative to the Kali Gandaki trek by providing access to the "Annapurna sanctuary", the site of the base camp for expeditions to the south face. Yet it was only after disarming the Khampas and opening the Thorong pass to hikers that it became possible for the latter to hike round the whole range. The number of visitors to the region soared rapidly, going from several thousand individuals in the 1970s to 37,902 tourists in 1988. While ACAP was being set up from 1986 onwards, there was a constant increase in the number of tourists though at a lesser pace, which in 1996 cumulated at 49,319 visitors, i.e. 60 per cent of the total number of trekkers in Nepal. Of this total, the number of hikers passing through the Modi Khola Valley each year is estimated at 25,000, 12,000 of whom reach the Annapurna base camp. Visits, concentrated over the autumn and winter period, are made both by groups of campers and individual tourists, the latter being far greater in number, and in addition to whom there are guides and porters.

The tourist trade, however, has left an uneven mark on the surrounding space, limited to the trekking route: this traditionally starts at Shyangja near Pokhara, passes through Dhampus and Pothana, to join the left bank of the Modi Khola at Tolka and to cross the river level with Ghandrung. From this village, there are two possible options: to ascend the upper Modi Khola as far as the Annapurna base camp, or to go over the Ghorepani pass to join the route that leads to Jomosom from Tatopani. A well laid-out footpath follows the floor of the valley along the right bank of the Modi Khola to reach level with Kimche towards the village of Ghandrung. It is, however, hardly used by tourists, who generally take the footpath along the left bank. Consequently, Dangsing and Mohoriya, though situated some hours' walk from Ghandrung and Birethanti, do not see any foreigners and have no contact with the tourist trade. On the other hand, this has profoundly modified the face and structure of villages through which hikers travel (Figure 50).



Annales de géographie (no. 605, 1999).

Figure 50
Distribution of lodges in the Modi Khola

Conception: Isabelle Sacreux / Réalisation: Pascal BRUNETTO 1998 - CITEFLUSH ULR

The first visitors found lodgings with inhabitants whenever they did not camp with their porters. However, faced with the growing number of visitors, villagers very rapidly set about on their own initiative building dormitories adjoining their houses or by converting the floor above, followed by lodges and guesthouses in separate buildings. Today the path leading to the "Annapurna sanctuary" is lined with 235 lodges which can cater for a total of nearly 3,200 tourists.

Most of these are set up in the heart of villages on the trekking route, but they have also gained on forests and high-altitude meadows: The Chhomrong, Bamboo Hotel, the Annapurna base camp. They have all been built recently and are only occupied during the tourist season. Some settlements have, however, turned into permanent villages, such as at the Ghorepani-Deurali pass, which provides access to the Pun Hill outlook.⁸ Up until the 1970s, the site was used as pastureland by villagers from Khibang and only contained one house used as a resting place for travelling merchants who used the Pokhara-Jomosom itinerary. Between 1963 and 1985, five lodges were built on the pass right in the middle of the forest, followed by another fifteen from 1986 onwards. Today, this unit represents a built-up area of three hundred and twenty permanent inhabitants, with a capacity for lodging up to eight hundred tourists during the high season.

In Modi Khola proper, Ghandrung, which benefits from its strategic situation as the major crossroads for circuits in the region, boasts more than a hundred lodges. They are scattered over three well-distinct quarters, next to the ancient heart of the village, which has kept its traditional aspect.

Changes linked to the arrival of tourists can also be seen at the entrance to the Modi Khola Valley in the village of Birethanti. Thanks to the Pokhara-Baglung route, the latter has become one of the gateways to the "Annapurna tour" and to the Annapurna sanctuary circuit. Most hotels built since 1985 have been set up here and there near the bridge. The main street is lined with houses in the traditional style of architecture, many of which have a shop on the ground floor or were converted in the 1970s to take in tourists.

It is in this context of rapid transformations that the Modi Khola was chosen in 1986 to become the experimental ground for a new environmental management policy sanctioned by the 1996 law on protected areas, in the framework of the Annapurna Conservation Area Project.

⁸ "Pun Hill" means "hill of the Pun Magar". The latter control all Ghorepani's tourist activity.

Creation of ACAP, a new response to the "Himalayan crisis" scenario

Reasons behind creating ACAP: criticism of the ways of protecting national parks and the case against the tourist trade

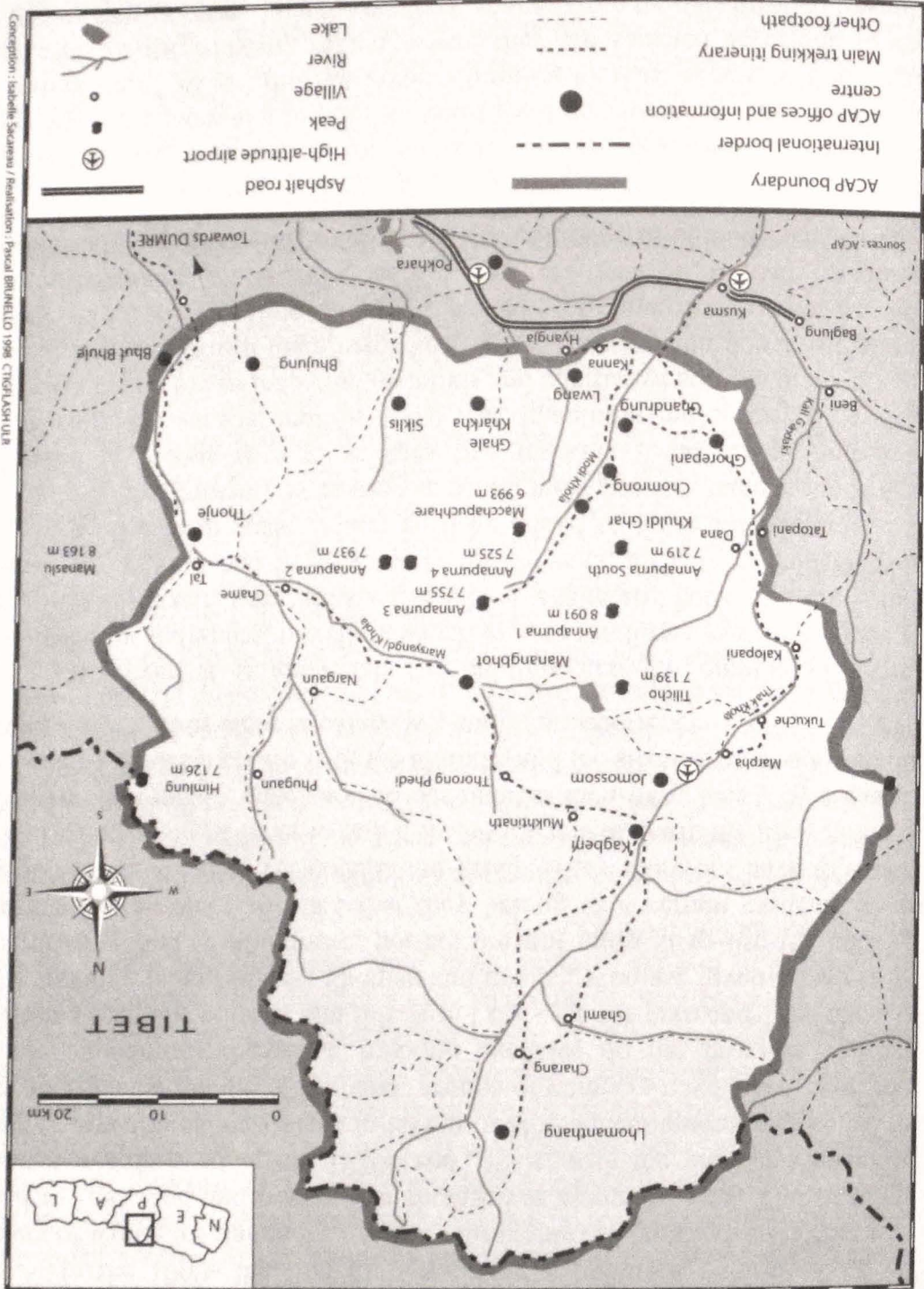
The growth of the tourist trade in the 1970s brought the issue of environmental and landscape degradation to the forefront, especially as certain authors noted an additional crisis concerning traditional agro-pastoral systems. Nevertheless, contrary to the Everest or Langtang region, the Annapurna range had not been involved in the creation of a national park, whereas it was by far the area most visited by tourists.

The ideological context changed in 1986. The setting up of the first conservation area in Nepal (Figure 51) in the Annapurna range was in keeping with a period when the ways of managing national parks were challenged. Criticism was made of local societies' lack of involvement and the perverse effects of a purely conservationist management of resources.⁹ Emphasis was laid on the need to take into account local populations' interests and to get them to participate more actively in protecting their environment. As for the rest, justification for creating conservation areas had hardly changed: it was still seen as a response to the Himalayan ecological crisis scenario, on top of which there was the case against the tourist trade for degrading the environment and perverting local cultures.¹⁰

Indeed, ACAP's objectives were to preserve the environment from the real or supposed threat of demographic pressure and an increased flow of tourists in the region. In particular, a cry of alarm was raised regarding increased deforestation, which was believed to be caused by wood fires for campers and their porters as well as the use of trees as timber for building lodges or as a source of energy for heating and cooking. The tourist trade was further accused of introducing new forms of pollution by leaving litter on footpaths and of being a factor in the disintegration of socio-economic structures.

⁹ See Chapter XII, "Discourse and Law: Resource Management and Environmental Policies since 1950" (B. Ripert, I. Sacareau, T. Boisseaux, S. Tawa Lama).

¹⁰ "Increase in the population and their growing needs, trekking tourism and over-grazing of pasture and forests were the main factors responsible for the environmental and socio-economic problems. These problems had led to deforestation, erosion and landslide, litter pollution, aberration in the local cultural values, poverty and socio-economic inequality." (ACAP, 1996).



© Annales de géographie (no. 605, 1999).

Figure 51

Annapurna range and ACAP boundary

Conception: Isabelle Sarramea / Realisation: Pascal BRUNETTO 1998 CHIGLASH ULR

In the 1960s the first high-mountain expeditions were indeed great users of wood, insofar as they sometimes employed hundreds of porters who had to find food and heating for themselves along the way. The situation, however, improved in the 1970s and 1980s, with the gradual abandon of heavy expeditions for ascents in favour of alpine techniques which called for smaller teams. On the other hand, groups of campers have taken over from these expeditions: Nepalese trekking agencies do not provide food and lodging for their porters, and this is not the case for permanent members of the trekking team (guides, Sherpas and cooks), who are given a budget for purchasing fuel. Furthermore, porters are not allowed to use the cooking team's stoves, since the fact that they belong to a certain caste or ethnic group forces them to eat outside the group. They therefore have to collect dead wood along paths or to buy it from villagers to warm themselves and to prepare their meals, which sometimes reduces their basic salary by a quarter or a third. Prices increase with the altitude, and the stealing of wood from the reserves of houses close to camps is a common occurrence.

However, it is above all the building and the running of lodges reserved for individual travellers which expose the forest to strong pressure: the building itself, furniture such as tables, chairs and beds, as well as fuel used for cooking and heating water for showers, all call for considerable takings on a local scale, which is to be added to those for peasants' use. However, this pressure is exerted in a relatively precise manner, since it is limited to forests next to villages that trekking routes cross, and it is concentrated over four months of the year, in autumn and in spring. Besides, the increasing use of industrial materials and alternative sources of energy by those who can afford them helps keep wood consumption down. Situations may vary greatly in time and space, according to how rich villages are, but also depending on whether or not they are near to a road providing reasonably-priced routing of other sources of energy or of modern materials.

While pointing a finger at the tourist trade for its main role in environmental degradation, the authorities nevertheless seek to reap in the profits it produces and to use it to boost local development. That is why the setting up of ACAP did not involve limiting tourists' access to the range, except for the Mustang region, where they are selected according to the money they possess.¹¹ On the contrary, money from tourists must go towards

¹¹ Entry into the region is only authorised for groups of tourists under close supervision of an approved trekking agency and of a liaison officer belonging to the police or army, who is supposed to ensure that the regulations are respected. They have to pay 700 USD per week

financing environmental protection and development operations inside the area. This is how entrance to the protected area became subject to a fee. Several check posts were established at the start of trekking itineraries. Whereas in the past tourists only paid for their trekking permit, this has been replaced by a fee of 1,000 NPR, directly collected by the ACAP check posts, no longer by the immigration department, as was the case when conservation areas were first created. In 1996 this fee represented more than one million dollars. Parallel to this, ACAP distributes a brochure, the Minimum Impact Code, aimed at tourists to make them more aware of their impact on the environment and on local society.

ACAP's first mission is to preserve natural resources and in particular the forest. Protection operations are based on a precise zonation of the territory into five categories of differently managed space: *Wilderness areas* include all the high-altitude spaces which are strictly protected from any human activity. *Biotic/anthropological zones* are isolated and sparsely populated regions (Mustang, Nar-Phu in the upper valley of Manang), which receive special protection and are limited in the number of tourists. *Special management zones* concern recently populated spaces, starting less than a century ago and characterised by remarkable landscapes, the protection of which is considered to be a priority: this is the case of Ghorepani and the Annapurna base camp region, but also outside the scope of our research, of the Thorong pass, Lake Tilicho and the Chame forest in the Manang district. *Protected forest/Seasonal grazing zones* involve pastures and forests situated above cultivated areas: they are subject to the selective use of resources. Finally, *Intensive management zones* are made up of all spaces intensely marked by human activities, where ACAP privileges the populations' surroundings and their participation in resource management.

The principle measures taken in the zones inhabited and exploited by local populations essentially concern bans on hunting and on choosing protected species, but also turning certain forests into exclosures, the control of wood cutting and collecting forest products in authorised zones. On top of this there is the development of tree plantations using nurseries, as well as the promotion of alternative sources of energy. In the most touristic villages, ACAP encourages the collection and disposal of refuse. Conservation does not only apply to nature, but also to cultural heritage: renovation of religious structures, organisation of folklore festivals.

and per person for a trekking permit of a limited validity of a fortnight, in addition to the ACAP entry fee.

ACAP's second mission is to promote rural development, in order to fight against poverty and to improve sanitary conditions in villages. Up to the present day, any undertakings have above all focused on creating or maintaining basic infrastructures (bridges and paths, drinking water supplies, building of public and private toilets). In addition to this, in certain sectors (Lwang, Siklis, Bhujung) there are programmes concerning agroforestry and the introduction of trade cultures based on model farms.

Training courses are also provided to the owners of tourist set-ups in order to enhance the quality of the services offered and to ensure coordination between the lodges: in particular regarding the uniformity in room and meal prices that are fixed annually within each VDC, whatever the hotel rating.¹² ACAP chose to standardise tariffs to avoid tourists from rushing to the cheapest lodges and to force hoteliers to bring up their establishment to a standard level of comfort. There is therefore no competition as far as prices are concerned, but on the services offered, the location and quality of equipment.

Lastly, ACAP also strives to raise villagers' standard of literacy, while developing programmes on learning about conservation. This last point is deemed to be the key to the project's long-term success: it aims at making local populations aware of the need to protect nature. It also aims at turning them into guardians of their natural resources, especially against poachers.

Structures set up to control populations

The participation of populations in the management of their environment implied the setting up of local action and decision-making institutions of the federative sort on top of traditional administrative structures. With this in mind, the conservation area was divided into several sectors (Ghandrung, Lwang, Siklis, Ghalekarka, Bhujung, Manang, Jomosom and Lo Manthang), each with its own office headed by a conservation officer. A Conservation Area Management Committee (CAMC) was created in each VDC. It is made up of the chairman of the VDC, of nine members chosen by the inhabitants, with one representative from each ward and five members chosen by the conservation officer who has to ensure that women, so-called "backward" (service caste) communities and social workers are equitably represented.

¹² In 1996, they amount to 80 NPR for a room, 30 NPR for a place in a dormitory, 20 NPR for a pitch on a campsite and 75 NPR for cooking costs for groups that camp on terraces next to hotels. These tariffs vary with altitude so that villages furthest away from sources of imported food supplies are not penalised.

The CAMC has to establish and put forward to the head of the conservation area a five-year development plan for protecting the natural milieu, developing communities and natural resources in the area. It is in charge of granting a permit in exchange for a fee for hunting, fishing, grazing, cutting wood and using natural resources. Fees for harvesting forest products are fixed by the committee and approved by the conservation officer, but the sums of money collected belong to ACAP and are deposited in its name, on condition that it allocates the necessary amounts to each committee for implementing the annual programmes. Generally speaking, ACAP finances materials, plants for the nurseries or outside expertise not available on the spot, while the inhabitants provide the manpower and materials found locally.

The CAMC has the power to create subcommittees (per ward or per line of work), but it may be disbanded by the conservation officer if it does not respect its attributions. Thus inhabitants created conservation and development committees (CDC) and various committees to manage lodges, electrification, fuel depots or medical posts at ACAP's instigation. The latter rely on these committees to decide on the development and conservation programmes to be undertaken. In Ghandrung, for example, it is the hotelier committee which is in charge of burning hotel waste products, placing rubbish bins along the path and sending the bottles to Pokhara for recycling, after tourists have taken refreshment there.

Women represent a privileged "target group", since they are considered to be fundamentally crucial to the success of development activities (Boisseaux, 1998). They are regularly given specific training (literacy, hygiene, craft or trade activities linked to the tourist trade, etc.). In Modi Kola, women's committees (*āmātoli*) are in charge of replanting trees and of managing the nurseries. They collect money themselves by organising dance shows in order to build up their own funds which they then use for replanting trees, buildings, repairing and maintaining footpaths and temples, or for organising village cleaning days. This system comes in addition to the rotary credit that Gurung women traditionally practise. Each ward has its committee, made up of one female representative from each house, which meets once a month. Lastly, to ensure contact between the area managers and the government, a liaison officer is appointed by the Park and Wildlife Conservation Office. Aided by assistants, he has authority to record and prosecute offenders who do not respect the rules.

From now on populations are firmly guided and see themselves subjected to new constraints in managing their resources, all in exchange for development and living condition improvement programmes. How does the forest stand in this new context and how does the environment conservation pattern link up with the tourist dynamic initiated by local society in Modi Khola?

Application of the ACAP policy and local practices in Modi Khola

The main changes introduced by ACAP in the valley essentially concern controlling access to the forest, afforestation with the development of tree nurseries and the development of alternative sources of energy.

The first nurseries were set up in 1990 using plants supplied by the Lumle horticultural centre with the help of the British. Since 1992, ACAP has taken over in encouraging the creation of nurseries for timber on uncultivable *pākhā* areas. Plants from nurseries are provided free of charge to villagers, whether it be for private or community plantations. The latter are surrounded by small stone walls or barbed wire to protect them from cattle. In the Ghandrung sector, 226,905 private trees have been replanted, as well as 98,527 on community land between 1986 and 1996.¹³ In Mohoriya, afforestation areas essentially concern a place named Dharapani Pakha in the *Kyu-Wadhu* area. The trees are reserved for timber and fodder. Private fodder trees are also planted around houses and fields surrounding the village and more rarely in fields furthest away or else on abandoned crop terraces.

Nevertheless, the forest remains an important resource for timber and firewood. That is why from now on forest takings are strictly controlled by ACAP, which pays wardens to ensure a daily watch over the forest and to make sure that regulations are respected (made into an enclosure or access subject to authorisation by the committees). In Ghorepani, for instance, cutting timber is totally forbidden throughout the forest. Villagers have to make do with gathering trees damaged by natural phenomena (lightning, snow, landslides) or else find supplies in the neighbouring VDC of Sikha outside ACAP's limits.¹⁴ In Ghandrung, villagers express their need for timber in terms of the number of trees and of the type of species to be felled, according to the size of their house or of their lodge. Cutting two or three big

¹³ The most common species are alder, bamboo, magnolia, teak, ficus and pine.

¹⁴ BOURDET, 1999.

trees is generally enough for the frame, the rooms, the windows and the doors, as well as for furnishing it with tables and beds. Authorisation to cut timber is subjected to paying a fee to CAMC, the sum of which varies according to the species and the distance from the village: the cheapest species are those that are furthest from the village or the most abundant. The nearest, and therefore the most likely to be cut, are offered at dissuasive tariffs. It is for this reason that certain species of hard wood, used to make doors and windows, like the magnolia, are the most expensive (500 NPR for a big tree) and it is very difficult to obtain authorisation to cut them.

Needs linked to cooking food and to heating in winter must now be covered exclusively by the gathering of dead wood. This is done once a year in winter (November-December) on the basis of two *doko bhari*¹⁵ per day and per person. However, it is often necessary to fetch it from further and further away, two or three hours' walk from there, as everyone gathers it at the same time nearest the villages.

In the past, the lowest castes and the poorest peasants collected this dead wood to sell it at 60-70 NPR per *doko bhari* to lodges. Today they are deprived of this source of income due to the restrictions set up by ACAP and to the lodges' more and more systematic use of alternative sources of energy.

ACAP indeed encourages the use of gas or fuel canisters. Gas canisters are expensive (500 NPR), but one alone is enough for the needs of a dozen persons over a three-week period. Fuel canisters are also available in depots situated in Ghandrung, as well as in Chhomrong, on the way to the Annapurna sanctuary. Others have been set up in Nayaphul, Tirkhedhunga and Ghorepani.

The use of alternative resources has not, however, spread to the whole of the conservation area. Villages that do not live off the tourist trade since they are off the trekking routes do not have recourse to these depots. Those that are situated around the Annapurna experience very unequal situations. In Kali Gandaki, for example, 80 per cent of lodges still use wood, even if its consumption has dropped by half over the last ten years,¹⁶ and only one out of every six lodges has recourse exclusively to alternative sources of

¹⁵ A *doko bhari* is a full basket, a load of about 30 kg of wood on average. Therefore it serves as a measuring unit for villagers.

¹⁶ BOURDET, 1999.

energy.¹⁷ The latter are still expensive, especially when transport costs have to be added to their price (from 15 to 30 NPR the litre of fuel, including transport). Not all lodges can afford them and even less so can the populations who do not reap the benefits of the tourist trade.

Modi Khola is looked at as being an up-and-coming model in this field and it seems difficult today to accuse the tourist trade of forest degradation, if ever this has been the case. Indeed, before the creation of ACAP, a lodge's daily consumption of wood for cooking and heating was estimated at two or three *doko dhari*, i.e. 75 to 90 kg per day. This consumption drops to around half a *doko* per day during the low season, i.e. 15 kg,¹⁸ which is equal to almost the consumption of a house not catering for tourists or, if so, very few at a time. Taking the highest calculation basis, one can try to estimate the lodges' current consumption of wood in Ghandrung approximately and compare it to that of other dwellings in the village in 1991. At that time a lodge would consume 16.5 tonnes of fuel during the high season and 2.8 tonnes during the low season, i.e. an annual total of 19.3 tonnes. A simple house, on the basis of 15 kg per day, would only use 5.4 tonnes per year. There is indeed a considerable difference between the two. However, if one were to look at it from the whole V.D.C. perspective, this time taking into account the yearly consumption of all lodges in the village, and to compare it to that of all the houses not catering for tourists, there is the reverse situation: the 111 lodges in Ghandrung use 2,113 tonnes of wood per year, versus 4,938 tonnes for the other 902 houses. While it is obvious that consumption linked to the needs of tourists adds to that of villagers, it nevertheless remains inferior, even with a doubling of the population as a result of the flow of tourists during the high season. This strongly puts into perspective the role reserved for the tourist trade in deforestation. If one considers that the number of lodges built in Ghandrung prior to 1986 was much less than today, one is forced to admit that the pressure of the tourist trade on the forest has been largely exaggerated, even before the ACAP's action considerably helped to reduce the number of takings from the forest. Today, lodges in Ghandrungno no longer use wood for cooking, but keep it for

¹⁷ The village of Jomosom leads in this field; there wood consumption varies from 15 to 18 kg depending on the season and that of fuel from 2 to 8 litres thanks to the fuel supplies provided by the high-altitude airport. Ghorepani, which nevertheless has a fuel depot and the same number of lodges, only uses a little more than 3 litres in the high season and 45 kg of wood. As for Ghasa, the village furthest away from supplies, about half a dozen lodges there use 51 kg of wood and just over 3 litres of fuel per day over the high season.

¹⁸ BOURDET, 1999.

heating dwellings in winter, hence a period when there are few tourists. During the high season, showers for tourists are heated by solar panels and lighting is supplied by a small hydroelectric power station. As for groups of campers, they can now only venture into the conservation areas if they have their own supply of fuel. Only their porters continue to depend on local resources. Nevertheless, a simple social measure, such as forcing trekking agencies to cater for their needs, would enable this problem to be solved more effectively than having to resort to a whole battery of strictly environmental rules.

Despite the restrictions and checks, peasants often ignore bans on hunting and especially on wood gathering when they have no access to other sources of energy. Hotels are still being put up, even in zones which are not *a priori* suitable for building. The participation in forestry committees of men heavily involved in tourist activities no doubt helps to apply the regulations. About fifteen years ago, villagers in Ghandrung illegally built lodges in the forest sector belonging to the State, in the localities of Bantanti and Tadapani on the path that leads to Ghorepani. The authorities turned a blind eye to this infringement. Today, however, the owners are required to pay a kind of compensatory rent to ACAP. On the other hand, in Ghorepani, three lodges which had been built between 1969 and 1986 at the top of Pun Hill, had to be moved in 1989 under dual pressure from ACAP, which wanted to protect the site, and hotel owners on the pass who claimed that there was unfair competition.

Furthermore, restrictions concerning the use of wood have had considerable effects on village architecture: even if the oldest lodges are still large stone buildings splayed out lengthways, covered in roofs made of flat paving stones with a wooden veranda and gallery on the upper floor, the most recent hotels often offer three or four floors with concrete terraces. The comfort of lodges is gradually improving, as there has been a shift from simply lodging with the inhabitants to proper tourist accommodation. The largest establishments are capable of catering for 60 persons.¹⁹ From now on concrete, breeze blocks and corrugated metal sheets replace traditional materials exploited locally; windows are getting bigger and they are sometimes converted into bay windows when the restaurant offers a panoramic view of the mountains. The richest owners of lodges who are capable of purchasing and routing modern materials are finally the ones who

¹⁹ In the Annapurna sanctuary, ACAP has forced lodge owners to limit the number of beds to 15 per establishment.

best take part in preserving forest resources. However, while these new types of building are more economical as far as the forest is concerned, they make a strong visual impact on the landscape. Tourists are already complaining that the beauty of local architecture is more and more spoiled by buildings identical to those in the modern suburbs of the Nepalese capital. Here one is faced with a new contradiction between preserving natural resources and conserving a certain landscape as perceived by Western aesthetic standards.

This contradiction is not the only one. When one examines the changes that have occurred on the Ghandrung-Mohoriya mountainside, one notices that they hardly coincide with the Himalayan crisis catastrophe scenario which justified creating protected areas. ACAP was set up in a valley formerly developed by rural societies. Here landscapes are the fruit of developments which have seen variations over time and considerable mutations over the last thirty years, developments which are much more complex than those foretold by the theory of the Himalayan environmental crisis. Which landscapes are to be conserved: those from the beginning of the century or today's landscapes?

Different patterns at work in the exploitation of resources and landscape changes

Migratory patterns and transformations of agro-sylvo-pastoral systems or when one cannot see the tree for the forest

According to the Himalayan crisis theory, the upshot of the populations' increased needs in terms of fuel and new land, not forgetting tourists' needs, would be the destruction of the forest and greater erosion leading to a drop in agricultural yields and in the impoverishment of populations reduced to emigrating to the Tarai or the towns. However, this scenario has not come about, and if it had, it would not have been during the recent generally incriminated period, nor for the reasons usually put forward.

The description of the mountainside at two different dates, 1958 and 1990, has previously shown us that there was indeed a movement to conquer new land in order to cope with the rise in population. This started before the 1950s and slowed down towards the end of the 1960s. Over the decades that followed, one notes a relative decline in the population, an abandon of the least profitable land and trees taking over wasteland. In the 1980s, there was only one serious landslide over the whole Mohoriya mountainside.²⁰ Harvest

²⁰ MACFARLANE, in PIGNÉDE *et al.*, 1993.

losses due to erosion were estimated at only 80 *muri* of paddy fields and 100 *muri* of maize, which is not enough to explain that the cultivated space has decreased and populations have left. The forest's retreat cannot be put down to demographic pressure, as the heads of ACAP like to make out. Lastly, the tendency of land to dwindle, which started shortly after Pignède's visit, is not a result of deforestation. Its cause should be sought in market forces, changes in work costs and emigration.

The competition from the Tarai's farming production first fragilised the mountain economy. The ratio is too low between harvest value and the amount of work needed on crops, especially on the poorest land, a situation which appears to be common to most villages situated near Pokhara market. There are even greater constraints with regard to cattle breeding, which clearly appears less profitable than crop farming. The very rich have understood this and no longer keep large herds as before. They do not even have any plough oxen, but they hire them from the poorest families when need be. Transhumant breeding is only maintained in villages that benefit from easy access to mountain pastures and in houses that can rely on sufficient family manpower to drive the herds.

Moreover, the recorded drop in population, which limits manpower availability, is not here the one and only result of demographic pressure on land, but rather due to opportunities of earning a better income by work or investment outside the village. In the past large numbers of Gurungs from Dangsing-Mohoriya enrolled in the British Army. The property market was then very attractive in the village as, at the time, soldiers invested in land thanks to their pay and their pensions. In the 1950s, army pensioners returned to their village to build a house and lent their savings to poor villagers and to bazaar merchants. This relatively easy source of credit dried up completely: first of all army recruitments gradually came to an end. Next, most of the rich Gurungs have retired to India or to Nepalese towns where they invest their money in property, in their children's schooling or in a business. Any income left over is put into a bank account. Parallel to this, the price of land stagnates in the village, since money from outside is no longer invested in the purchase of land, whereas the price of property in Pokhara has considerably increased and enables profitable investments.²¹ Many former

²¹ The value of building land in Pokhara multiplied by one hundred between the 1970s and the 1990s. For those who have got money, investing in Pokhara brings in ten times more than investing in the village.

soldiers have ended up selling the houses they had had built in the village for their retirement, or have left them to their brothers and parents. Their land is now cultivated on a sharecropping basis by families of mercenaries from the Indian army –which does not offer as attractive pay and pension benefits as the British Army– or by Bahun-Chetri and the service castes, so much so that the latter now outnumber all the others in the village. Due to low work productivity, this sharecropping solution, greatly on the increase since the 1980s, is only likely to attract those who have no other choice for survival. One is therefore dealing with a rural exodus of the "rich" due to the headway made by the market economy. This seems to be one of the main reasons for the evolution of agro-pastoral systems. Not only does this have nothing to do with an ecological and social crisis, but on top of that it lightens pressure on land and provides relative improvement in living conditions for the poorest by allowing them access to land, even though it is only through the barely advantageous intermediary of sharecropping.

Finally, if the forest retreated in the past, the situation has now levelled out: indeed, pressure on fodder resources in forests, which often goes hand in hand with the passage of transhumant livestock to its fettered stalling, has been compensated for by planting trees. This has incited peasants to be less dependent on forest resources: former cultivated terraces which were previously abandoned are today used as tree nurseries or fodder reserves. This movement, which started before the creation of ACAP –the new forestry committees were only set up in Ghandrung-Mohoriya in 1990– is currently boosted by its policy towards afforestation and the creation of nurseries. ACAP thus contributes to reinforcing the change occurring in the Modi Khola landscapes, which started just before its creation by the transformation of agro-pastoral systems: the long mountainsides arranged into dry or irrigated terraces of crops, the forest rising above them as observed in the 1960s, is gradually being supplanted by a green landscape. The tree planted close to villages, along paths and on the *pakha* hold an essential place.²² The catastrophic forecasts concerning deforestation and its consequences for the survival of populations no longer seems to be of current interest here, one of the main factors of change having been recourse to migrations outside the valley.

²² See also on the subject work by GILMOUR (1988), SMADJA (1995) and Frame 19 for Ladakh.

Frame 19

Tree Planting in Ladakh*Pascale Dollfus****"No longer a moon land"***

Created in 1980, the Leh Forest Division, a government office, has set for itself some ambitious objectives: to cover as many surfaces as possible with tree species; to fill the gap between the offer and demand for firewood and timber, which is still today mainly imported from Kashmir; to protect the rare areas covered in natural copses; to limit erosion; to improve the microclimate of the region and to put a stop to desertic conditions in this extremely cold desert.

From subsidised rice to "beam planting"

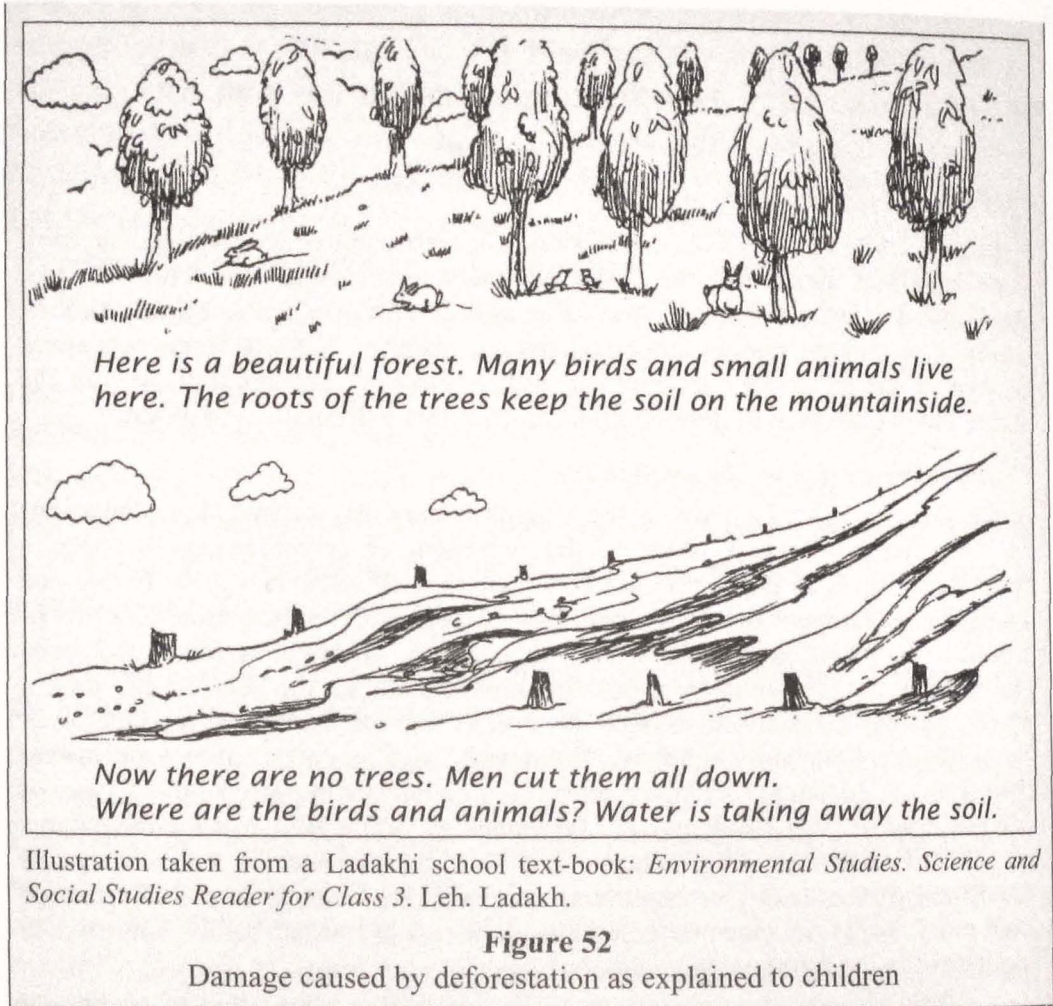
In the absence of an increase in the irrigation network, private tree plantations have become a necessity, much to the detriment of cereal crops. In order to convince villagers to plant trees on plots where their ancestors grew barley and wheat, the government finances plantations of poplar and willow trees at a rate of 5 rupees per plant. In certain cases, in addition, it offers a fence and even protection of the plantation by appointing a watchman for the year. In this way, it encourages the Ladakhis to reduce their consumption and their production of barley and local wheat by supplying them with large quantities of rice and wheat flour from the Punjab at subsidised rates (the Leh district imported 4,994 tonnes of rice and flour in 1989-1990, and 13,000 tonnes in 1997-1998). For the inhabitants of Leh and its surrounding villages –who, to compensate for the shortage of family manpower, resort to employing day workers– eating imported rice and flour today works out cheaper than eating homemade roasted barley flour, which has long been the farmers' staple diet in Ladakh.

Planting trees also appears to be an interesting alternative to traditional agriculture and livestock farming activities. Not only does it allow them to make ready money thanks to the subsidies that are granted and, later, to sell beams and lattices for a good price in Leh –where every year new buildings spring up: dwellings, shops, restaurants and hotels– but it has the advantage of not needing to be guarded or attended on a daily basis.

Table 7. Plantations 1956-1997

| Land Ownership | Area in Hectares | Number of Plants |
|-------------------------|-------------------------|-------------------------|
| Forest Department | 3,377 | 10,545,897 |
| Private Land | 521 | 1,355,490 |
| Sand Dune Stabilisation | 528 | 1,373,000 |
| Total | 4,426 | 13,274,000 |

Source: Mohammed DEEN DAROKHAN, 1999, "The Development of Ecological Agriculture in Ladakh and Strategies for Sustainable Development", p. 78-91, in van BEEK, BERTELSEN and PETERSEN (eds.), *Ladakh: Culture, History and Development between Himalaya and Karakoram*, Aarhus, Aarhus University Press.



When an external resource, the tourist industry, has a part in changing the territory

The gradual abandon of transhumant livestock in favour of farming that focuses on the best land and on cattle breeding in stalls as along with the expansion of sharecropping, can be observed throughout villages on the mountainside, though in a slightly different context for the most touristic villages. The owners of lodges are for the most part former Gurung mercenary soldiers from the British and, to a lesser extent, Indian Army, who were able to invest their pay and pensions in the tourist industry. Today in Ghandrung, 10 per cent of the population lives exclusively off the tourist trade. Income made from trekking, exactly like that from merchandising, has also led lodge owners to turn away from agro-pastoral activities, yet have helped maintain populations there. The tourist industry offers profitable

investment in the village for retired soldiers who then live off tourist activities and off land they rent out to others. The profits drawn from tourist activities are reinvested in modernising and extending their establishments or are used to finance their children's secondary or higher education. There is not much point in former mercenaries leaving a village like Ghandrung, insofar as the flow of tourists has prompted the implementation of new equipment: fountains and water supply pipes, electricity, television and the telephone. The village school is well equipped thanks to donations from tourists, the number of shops has increased and they offer up-to-date consumer goods for which, only ten years ago, one would have had to walk to Pokhara to find them.

The produce from land that lodge owners keep has, however, become insufficient for the food needs of a large-size establishment. The traditional *dal-bhat* served to the first visitors has consequently been replaced by food mainly imported from Pokhara. Indeed, the improvement in the road network enables lodge owners to have supplies for their inns brought from the town, which is only a day's walk or one and a half hour's bus ride away from Ghandrung. Only a small proportion of fresh products are supplied locally. These are made up of a surplus of maize, potatoes and rice. In addition to this, there are vegetables from the vegetable patch and sometimes milk from the family cow-buffalo, though powdered milk bought in from outside is preferred.²³

Proximity with the Pokhara-Baglung road and lodges in Modi Khola have incidentally stimulated the commercial role of Birethanti, which benefits from its focal position between the valley and the latest trends in exchange favoured by the asphalted road: goods that come from Pokhara by lorry are loaded onto the back of mules at Nayaphul bazaar where the number of shops along the path leading to Birethanti has soared. Convoys of mules used by owners in the region are now tending to take over from transport on men's backs. The old bridge has been rebuilt in steel in order to cope with the increase in traffic and to guarantee a safe passage to pack animals and human beings.

²³ In the upper Kali Gandaki, Jomosom has become a market for farming surplus from the villages of Syang and especially Marpha. Apple orchards planted in the 1970s supply lodges with fresh fruit or brandy from distilleries not all of whose production can be sold off in Pokhara or Kathmandu due to the cost of transport and its irregularity.

Modi Khola thus follows the example of Kali Gandaki, where the transport of foodstuffs for tourists has supplanted the old salt trade. The Thakalis and Magars, with their herds of mules, ensure the routing of rice, oil, salt, flour and lentils to villages in the valley from Beni or Pokhara, but they are increasingly called upon to transport bottled drinks and produce sold to tourists in lodges. Nearly 85 per cent of goods meant for lodges are transported in this way: the tariffs applied are competitive compared to transport on men's backs, especially if porters are employed during the monsoon period.²⁴ An inhabitant of Jomosom or Marpha pays a muleteer about 10 NPR per kilo of transported goods, an inhabitant of Ghorepani 6 NPR and an inhabitant of Tatopani 4 NPR, whereas a porter's salary varies between 12 and 16 NPR per kilo transported. Aeroplanes are practically only used in villages close to the Jomosom high-altitude airport: 28 per cent of the goods reserved for lodges are routed by aeroplane and then redistributed by mule to other villages; the cost of air freight varies between 20 and 55 NPR per kilo, to which one has to add the cost of mule transport.

Moreover, the tourist trade has upset the traditional migratory flows by seasonally attracting new populations due to the new job market provided by these lodges: the manpower used for building them, as well as that employed during the season, is for the most part recruited outside the valley among poor peasants from districts to the south and east of the range. 436 persons are employed here every year either seasonally or permanently. A more and more money-based economy is gradually taking over from old methods of farming. It is less and less dependent on local resources, with or without ACAP, as the example of Tatopani illustrates.

Local societies caught between different patterns

If the structure of the conservation area is probably not solely responsible for any positive changes occurring in the zone, it seems more effective, however, than that of national parks, at least regarding its aim to involve local populations in order to avoid conflicts. It has to be said that everything is done so that, despite a certain reticence, the latter accept a policy often without grasping the its ins and outs. Research led by Thierry Boisseaux in 1998 shows that what villagers remember of ACAP are the bans and restrictions. Though they agree that the positive outcome is help in afforestation, the heads of villages consider that ACAP has not introduced

²⁴ Transport on men's backs represents a little less than 8 per cent of transport in the Kali Gandaki. (BOURDET, 1999).

any truly new ideas in terms of environmental protection and that measures had already been taken prior to its creation by the inhabitants themselves. Few underline the development mission that ACAP is supposed to lead. The true economic force is the tourist trade, and this has not waited for a protected area to be set up to bear fruit. It is not surprising that lodge owners, who regularly acquire numerous elective functions within the VDCs and the different management committees introduced by ACAP, are the best advocate of its policy. Enriched by the tourist trade, more open to foreign influences, they have understood that their interest lies in participating in the new decision-making bodies, even if it means using them for their own gains. However, some consider that the ACAP entrance fee is too high and fear it might curb visits by tourists.

Frame 20

Changes in a Touristic Village, Tatopani, at the Gates of the ACAP

Sophie Bourdet

Situated at the junction between the Ghorepani and Beni footpaths on the right bank of the Kali Gandaki, Tatopani is the only touristic village in the region which does not fall within the ACAP protection perimeter. On a valley floor between forest-covered mountainsides which are extremely prone to landslides, the village has little farming land and was used for a long time as a stage in the caravanning trade.

As soon as tourism arrived in the region, it took over from this commercial activity to become the villagers' prime occupation. Indeed since 1963 Tatopani has become a sought-after stage for trekkers on the Annapurna tour. Its springs of hot water (*tāto pāni*), visited by hippies in the 1970s, have met with great success among hikers. One can bathe there at a price of 50 NPR. The baths are run by the VDCs and cleaned regularly during the tourist season. Today the road between Pokhara and Beni that was opened in 1996, offers the facilities of a tourist centre for those not wishing to go on a trek. The eight lodges and the two camping grounds in Tatopani can cater for 350 beds which are practically all occupied in the high season: thus in October-November, the population of the village more than triples. With the advent of tourism, four shops have sprung up. The owners of three of them are originally from Pokhara, Kathmandu and Beni. Having settled in Tatopani with purely business aims in mind, they purchase and convey goods themselves from urban markets: 15 % of foodstuff is sold to tourists, the rest (basic products) to the local population. There are also two silversmiths in the village – living proof of the craft activity made possible by its trade and tourist development – a launderette and a foreign exchange office – an annex of one of the main banks in Pokhara – as well as three other tourist shops which are only open in the high season. Although the Thakalis and the Pun Magars run most lodges, their main concern is to ensure that

all the inhabitants of the village benefit from the positive repercussions from tourism: peasants, who are few in number since only three farming families live there, reserve 70 per cent of their production for the lodges which stock up exclusively at these farms.

This trend towards tourism that ensures the village's economic development has not, however, prevented the inhabitants of Tatopani from becoming aware, long before the ACAP was set up, of the fragility of their natural environment. The population is greatly involved in the preservation and management of forest resources. The VDC has therefore taken measures to regulate and control tree felling in forests. These measures have also affected building materials used for houses and lodges: thanks to Beni's proximity with the Pokhara-Baglung road, the use of cement and corrugated iron has become widespread, as well as that of substitute energies for heating and cooking. A ready supply is available at a low cost compared to other villages in the valley: therefore a litre of kerosene which is worth 30 NPR in Jomosom, works out at only 18 NPR for the inhabitants of Tatopani. Most lodges have for a long time been using gas- or kerosene-operated stoves instead of wood for cooking, as well as solar panels to heat showers, even during the low season. Wood is only used for making bread and cakes in the high season. Three out of eight lodges use kerosene as their only source of energy: their consumption is 4.7 litres on average during the high season and 1.5 litres the rest of the year. All the others use gas only, with their average consumption ranging between a bottle of gas every ten days in the high season to a bottle every fifteen to twenty days during the low season.

Tatopani's tourist development and the policy for preserving and managing the village's resources therefore owe nothing to the ACAP. The village headman, whose freedom of action is not hampered by any outside authority, now envisages developing activities such as rafting, paragliding and mountain biking as well as capitalizing on the sources of hot water. One can understand in these circumstances why he is very wary of the idea of the VDC being included within the perimeter of a new conservation area, which is currently being examined for the Dhaulagiri range.

On the other hand, populations living off the trekking routes complain, often rightly so, that ACAP's efforts above all focus on the most touristy villages which require less aid, whilst they undergo bans with little compensation, despite development programmes provided for in the texts. Progress remains strongly centred on villages with a trekking route passing through them: that is why inhabitants of Dangsing-Mohoriya do not seem to be concerned by the economy in place in Ghandrung. No villager works in the lodges or on building them, no trade is carried out with villages that trekkers use as a resting place. Nevertheless, villagers from Mohoriya are not

unaware of the changes made among their close neighbours: Ghandrung is perceived as being a "pretty" village because it has electricity, the telephone and television and all the inhabitants speak Nepali. This comes up all the time in villagers' chatter: progress is education, especially mastering the national language, which is vital in their relations with the authorities' representatives, well before an improvement in material conditions, sanitary equipment or the preservation of their natural resources. They envy those from Ghandrung, because the flow of tourists has given rise to new equipment and an improvement in living conditions that they would like to benefit from in turn. This attitude is also observed in other unprotected spaces: in Salme (Nuwakot district)²⁵ for instance, or in Gurung villages situated at the foot of Manaslu, peasants, who have learnt of the wealth of touristic villages in the Annapurna from trekking guides and porters, hope to see a conservation area set up in their region. For them, it is above all synonymous with the arrival of tourists, even if they do not always take kindly to the rules and regulations that it imposes.

Leading discourse has, however, succeeded in making a large part of the population believe that their ignorance and their practices were the cause of the degradation of natural resources and that they had to learn to protect their environment. Villagers nonetheless hardly seem capable of truly evaluating the state of these resources. Yet the idea that environmental conservation is a condition for the influx of tourists has gained ground in their minds. Therefore when one asks them if it would be necessary to protect nature in the absence of tourists, most of them find the question ludicrous.²⁶ Some resort to very general arguments highlighting the production of oxygen by forests or their ecological responsibilities for future generations, but it is very rare to hear about the threat of resources for their immediate needs disappearing (*ibid.*).

Others, following the ACAP authorities' recommendations in this matter, insist on the need to maintain traditions, particularly concerning their clothes, to please tourists, whereas the young generations dress in Western-style clothing (*ibid.*), which is a classic contradiction between conser-

²⁵ See Chapter XII ("Discourses and Laws: Resource Management and Environmental Policies since 1950", B. Ripert, I. Sacareau, T. Boisseaux, S. Tawa Lama) and XV ("Parcelling of Land, Privatisation along with Collective Management of Space and Resources on the Salme Mountainside", B. Ripert).

²⁶ BOISSEAUX, 1998.

vationist ideology and the real dynamics of society. A contradiction which is even more obvious given the recent creation of a Gurung culture museum in Ghandrung by the women's committee through impetus from ACAP: the exhibits are still used in any house in the village, apart from a few pieces of jewellery and clothing. The creation of this museum may be interpreted as a sign of the modernisation of a village which has fully entered the tourist economy and knows how to use its cultural tradition for commercial purposes. However, another hypothesis may be put forwards: in Europe, the emergence of "folklore" as displayed to the first tourists, often accompanied the construction of Nation-States. By making a museum piece of a culture which is still alive in the name of conserving traditions and tourists' supposed expectations, does one not risk sending the Gurung culture back to a set and therefore inoffensive time in the past, at the very time when the Nepalisation of society is gaining ground and when identity reactions are starting to emerge within hill-dwelling minorities? At the same time, whilst the tourist trade is regularly accused of contributing to the loss of cultural values, how incongruous it is to note that it is in Ghandrung, not in Dangsing or Mohoriya, that the last lama in the valley lives, on whom all the Gurungs from Modi Khola call to celebrate their traditional end of mourning ritual.

For the time being, local populations put up with ACAP's new institutional context without challenging it. However, in the long run, the question has to be asked regarding ACAP's durability and contradictions that could rise between the dynamics of developing territories brought about by the tourist trade and "sustainable development" supporters' conservationist principles. The latter consider that only the regulated practice of trekking can ensure that any tourist trade respects the environment. Thus if ACAP's action is to go on and if incomes ensured by the tourist trade are to extend to larger layers of society, the local economy could for the most part do without the forest. Should the drastic measures taken over the last fifteen years be maintained in the same way? Besides, experience proves that the tourist industry only lasts if it is capable of adapting to changes in tourist practices, by renewing the forms it takes. For the time being, even if it is hard to imagine what might replace trekking, the increasing availability of valleys and improvement in accommodation conditions help envisage retaining tourists for longer in one place in the future whereas nowadays they only pass on by. Excursions or practising sporting activities from a fixed place of stay would, in this perspective, be a possibility, as shown by the Tatopani

example (see Frame 20). However, unless it undergoes reconsideration, current ACAP regulations risk not being adequately relevant to developments of this type. Indeed it would undoubtedly suppose deeper mutations of territories and the definition of new ways of managing the environment. Nevertheless, ascribing the same single activity in its present form to a space in a "sustainable manner" is to condemn it in the more or less long term, since it is not certain that the trekking trend will last forever. Alternate resources or at least an adaptation of existing structures would have to be devised to satisfy changes in the tourist demand and in villagers' needs.

*

* *

The creation of ACAP marks the shift from a policy which was foisted on populations from above, without taking them into account, to a so-called participatory policy, supposedly meeting their needs and implemented, thanks to their permanent involvement. However, this policy remains largely foreign to villagers who have never been consulted prior to establishing protected areas and are only invited to ratify and take over ideas from elsewhere for their own account. As Thierry Boisseaux (1998) emphasises, it is less a case of condemning a policy that can only be judged by its long-term results than one of pondering the rhetoric associated with it: even though the measures taken do endeavour to be compatible with local interests, they still stem from an outside public authority that takes decisions in the name of national or international interest and often has them applied based on more ideological rather than scientific arguments.

With or without ACAP, peasant societies have proved their capacity to adapt, whether it be to alter their crop systems when need be, or to organise tourist accommodation. They are perfectly capable of looking for additional income outside their territory and of investing it back home when the opportunity arises. Peasants' economic strategies are not limited to the mountainside they cultivate. They stretch to spaces of their temporary migrations on a national and even international scale, and to non-agricultural incomes, whether they be the fruit of peasant emigration or the arrival of tourists on their territory. Here it is at odds with conservationist patterns which only envisage problems of subsistence in a linear and Malthusian relation between population and resources. This is in well-defined spaces, where, by the way, foreigner visitors are feared. For the time being ACAP

has only accompanied pre-existing dynamics, without however reducing inequalities between touristy villages and those which are not. One of the region's future concerns will lie in its capacity to leave a certain flexibility to local initiatives and to support them, in order to meet the legitimate needs of the populations to access new resources capable of significantly improving their living conditions.

CHAPTER XV

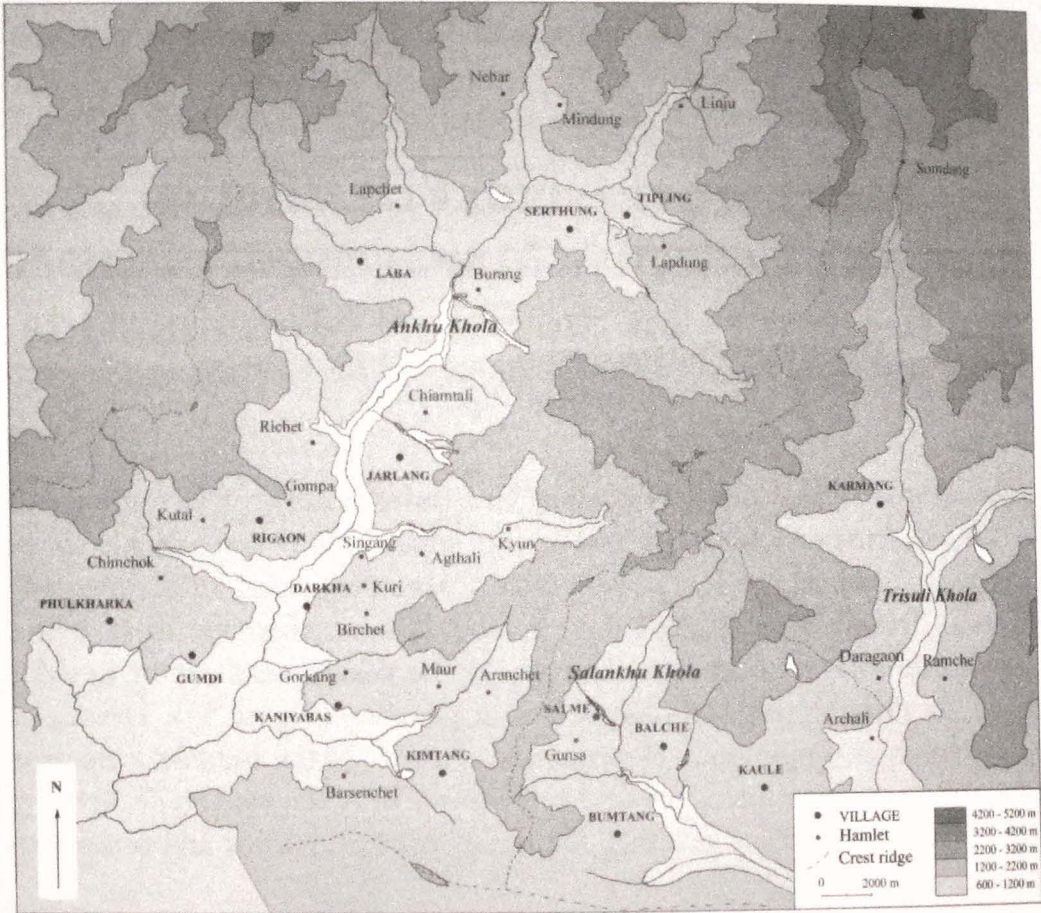
Parcelling of Land, Privatisation along with Collective Management of Space and Resources on the Salme Mountainside

Blandine Ripert

Although it is located only about sixty kilometres northwest of Kathmandu, the Trisuli-Ankhu Khola interfluvium is nevertheless considered to be somewhat of an enclave. It is largely cut off from the central authorities, who supervise it only to a limited degree, and it is situated far from tourist circuits. For villagers from Salankhu Khola, the nearest road can be found at Trisuli, for those from Ankhu Khola it is at Dhading (Figure 53). The region is not, however, impervious to economic change. Many outside influences exist and are disseminated by the circulation of villagers, NGO activists, Nepalese public services, schools, the radio, political parties and sometimes missionaries.

Many innovations in the realm of agriculture have, over the last two decades, improved family productivity while altering the landscape. I will take the example of the Salme mountainside, for which we have data recorded at a fifteen-year interval. I show what the recent transformations in the mountainside have been whilst putting them into a longer timescale perspective. Along with agricultural improvements, which are tending towards parcelling and privatising space, a new management of common resources has been implemented, aiming at protecting the forest and privatising access to fodder. I show how this management has been developed and what influences have structured its application.

Among the Tamang population, this management is not unanimously approved. Conflicts are frequent and reveal the emergence of a new political power, that of the educated youth. This new generation is seeking to apply the knowledge acquired at school to the management of common resources and, in this way, is attempting a better integration into Nepalese society.



Source: Topographic map 1997, Survey Department of HMG of Nepal.

Figure 53
Valleys of Ankhukhola and Salankhukhola
B. Ripert

History of land use on the mountainside

In order to understand the changes observed today, a few words need to be said about the history of land use on the mountainside.¹ Its first well-known inhabitants, semi-permanent at least, are believed to be the Dimdung clan of the Tamangs, who settled there in the XVIIth century. In the mid-XVIIIth century, the Blenden clan of the Tamangs were granted the right to exploit

¹ No archives exist to provide us with information on the history of the Salme mountainside, and written texts in the hands of *mukhiyā* (head of the village) descendants are few and give rare indications. However, research carried out in the 1980s on the mountainside (TOFFIN, MEYER, JEST and GARINE, 1986) have allowed certain historical elements to be reconstituted from legends, oral traditions and memories of the eldest villagers.

and administer the Salme territory by the King of Nepal as a reward for services rendered. Later on, the Gyeldang clan of the Ghales, are believed to have arrived from Ankhu Khola. The Hindu blacksmiths caste, the Kami of the Asar Pati lineage, have been settled for only five or six generations in the village of Salme, already a grouped settlement.

It would appear that up until the XVIIIth century, the Tamangs practised itinerant cattle and sheep herding on high-altitude pastures in the Ganesh Himal range and in the forest. This cattle breeding was carried out along with slash-and-burn farming with barley as the dominant crop.² This practice is thought to have disappeared when the population, under greater demographic pressure, established permanent settlements. Cattle breeding then started to give way to farming, a phenomenon which continues to this day.

In the XIXth century, under the Newar and Indo-Nepalese influence, new techniques and new cultures appeared. The introduction of the swing plough (towards 1900) on the mountainside and of new crop varieties transformed the way in which space was occupied.³ New land situated at lower altitudes than those of slash-and-burn provided a more favourable climate for growing maize and finger millet. This land was shaped into seats and terraces hugging the contour lines. Over the last one and half centuries, this shift of the centre of farming activities has provoked a down-slope movement of the settlement, which gathered in Thulogaon (1,850 m), today the administrative centre of Salme. Over the century, farming became the main activity for villagers and claimed extensive stretches of land. The animals' main function became the production of organic manure. The use of the *gora* (tg.), a mobile shelter for cattle and herdsmen, which was moved about over the mountainside according to the farming calendar, was a relic of the itinerant and pastoral era in Tamang history.

At the turn of the XXth century, farming followed a biennial rotation of three crops, maize-wheat-finger millet. Single crops of wheat or barley were grown at the top of the mountainside. The lower limit of these high-altitude monocultures would have been much lower than today, closer to the dwellings. The forest was also very near the village.

² Slash-and-burn farming accompanying deforestation is attested by Joëlle SMADJA (1986, p. 73) who, using soil analyses on the mountainside, has shown that charcoal horizons appeared in soil profiles, buried at variable depths. For all that, the date of this slash-and-burn has not been fixed.

³ JAUBERT, 1981.

The first mention of paddy fields appears in a royal ordinance dated 1895 regarding the taxing of irrigated areas.⁴ Since then, the number of paddy fields at the bottom of the mountainside has continually increased. This was true especially between the 1930s and the 1960s, closely paralleling population growth. By 1980 paddy fields covered a total surface area of 63 hectares, representing 16 % of the cultivated area.⁵ Thus the mountainside has been slowly divided into three crop belts, known as *khet*, *pākho* and *lekh*. These three belts corresponded, respectively, to paddy fields flooded during the monsoon (1,100-1,700 m); to non-irrigated spring and summer crops, i.e. the annual maize-finger millet sequence (1,700-2,000 m); and to winter crops, single crops of wheat or barley (2,000-2,400 m). A break in gradient between these belts allows for an easy identification of their presence in the landscape. Further up, crops give way to forests and pastures.

Cultivated areas continued to increase until the 1980s, when agronomists from the "Programme versant"⁶ were still recording cleared ground on Salme territory. When it became difficult to extend the cultivated territory, steps were taken to boost production. The most notable boost in production started on the southern part of the mountainside, in a sector called *pākho*, where, except for a few places, the biennial maize-wheat-finger millet rotation became an annual sequence of maize-finger millet. This gradually spread to the northern part of the mountainside, when the Rana government herds, which had enjoyed exclusive grazing rights there, were dispersed in 1950 after the former's fall from power. At the beginning of the 1980s a small area of paddy fields was subjected to intensive production, owing to the introduction of species of early-growth wheat which yielded a second crop at the bottom of the mountainside. Transformations therefore took place in fits and starts, and did not affect the whole of cultivated land in a uniform manner. Indeed, certain terraces even today either undergo biennial rotation or only bear one yield of rice per year. They are the vestiges on the landscape of the different stages of agricultural changes.

At the beginning of the 1980s, some researchers from the "Programme versant"⁷ diagnosed a crisis situation. The natural environment was being overexploited under strong demographic pressure, land was becoming

⁴ BLAMONT (1983, p. 538) finds a later date for the introduction of rice on the Kimtang mountainside, adjacent to the Salme one.

⁵ COLINET, 1984.

⁶ "Mountainside Programme". See DOBREMEZ, 1986.

⁷ Especially BERGERET and PETIT, 1986.

exhausted, forest boundaries were retreating and the population appeared to be lapsing into "a process of increasing impoverishment". There was little hope of seeing a favourable outcome to a system described as unchanging. These pessimistic conclusions coincided with the alarmist discourse at the time about the well-known "environmental degradation of the Himalayas". In the space of fifteen years however, new transformations have taken place, altering the organisation of the mountainside and the management of common resources including the forest, and consequently the landscape. These have shown that the agro-sylvo-pastoral system was not rigid and that it could adapt to new constraints, as new problems cropped up.

Recent transformations on the mountainside, 1980-1995

Neither the comparison of aerial photographs from the 1970-1980s with more recent ones, nor the observation of Salme mountainside gives the impression of any upheaval over recent years. The forest is still there, as well as the sacred woods, at about the same distance from the village. Only the landslide has visibly been reactivated, cutting the mountainside physically in two.

More detailed on-site examination, however, shows that there has been a tendency for habitations to be scattered, houses have increased in size and have even doubled with the addition of an extra storey in the urban fashion. Wooden shingle roofs have often been replaced by corrugated steel or by hammered metal drums. The number of fixed shelters has greatly increased and some stone or wooden enclosures have cropped up around cultivated plots of land. With the introduction of high-altitude rice, slightly sloped dry terraces for winter crops have been turned into level paddy fields. On the edge of cultivated land, some fallow plots bear witness to the fact that the furthest terraces have been abandoned.

Though these changes in the landscape appear to be modest on a mountainside scale, they are nonetheless significant. They reveal profound transformations in the organisation of activities, in the village economy and in the management of common resources.

Farming innovations

Between 1980 and 1995, numerous changes occurred on the mountainside and in the region. It was not a matter of a "farming revolution", but of improvements that have allowed villagers, by altering their mountainside land use, to solve the problems they encountered.

The most outstanding (but not the only) innovation is the introduction of high-altitude red rice. This rice can be grown at an altitude greater than the previously-used classic rice (up to 2,100 instead of 1,700 m), an important advantage, as the lowest part of the mountainside cannot produce enough rice to meet the Tamangs' new requirements. Indeed, *khet* surfaces in the lower part of the slope have become insufficient, not only because paddy fields have been swept away by the numerous landslides in this sector, but also because the desire to eat more rice, a socially approved foodstuff, has increased.

In 1995, after heavy terracing work,⁸ almost one third of *lekh* terraces (i.e. the upper crop belt) was converted into paddy fields. At present, red rice farming is being extended to the *pākho* sector. It is grown on the few plots of land which were still cultivated using the old biennial rotation (maize-wheat-finger millet), but also sometimes on those reserved for the annual maize-finger millet sequence. There is thus a very blurred distinction between the *lekh* and *pākho* zones, since these zones no longer correspond to a specific crop belt, as was the case in the 1980s.

It is difficult to specify whether this new rice is an improved variety, i.e. originating from agronomic research laboratories. As far as villagers are concerned, it is local, having spread through the region from a village in the Ankhu Khola called Kuri, situated uphill from Salme. Improved varieties follow quite a different circuit when they spread, going from the plains to the mountains, from the lower to the higher slopes of the valleys, whereas red rice spread from higher to lower slopes, after having been introduced by a Tamang migrant returning from the Annapurna region, not from Trisuli bazaar. However, according to agronomists from the Kumaltar Agronomic Centre, located in the Kathmandu Valley, it is highly likely, given its characteristics, that this rice is the result of a cross between a local variety and an improved variety.

This red-rice innovation has been accompanied by the introduction of improved high-yield varieties of other rices, of wheat, maize and finger millet. A new early-growth wheat can, for instance, be sown after harvesting the red rice at the top of the mountainside, which leads to a clear step up in crop rotations.

⁸ Old dry terraces bearing winter crops were slightly sloping to allow water to evacuate. Paddy fields, on the contrary, have to be perfectly flat and bordered by a small dyke in order to retain water while rice is growing.

For several years now, chemical fertilisers have been used systematically by villagers. The average farmer today buys 50 kg of fertiliser per year at Trisuli market with the wealthiest ones buying up to 100 kg. Some villagers have planted fruit trees in an attempt to cash in on products which can be sold on the market, despite its being so far away. Fodder trees appear along the edge of terraces in order to feed the animals which are kept more and more often in stalls. In some villages in Ankhu Khola, petrol-run machines are appearing, replacing the water mill, the manual press, the manual saw or the lever-operated pounder to hull rice.

These different innovations remind one of the famous "green revolution" in Southern Asia, but without the technical and financial aid that accompanied it. Here, the means are much more limited and changes spread slowly due to the lack of roads. More often than not, it is villagers themselves, and seldom development agents, who have introduced new seeds, new techniques and new tools.

Some innovators have generally copied what they have seen lower down, such as while on the way to the market, to the capital or during migrations. They adopt only those new practices that have a direct import on problems they face on their mountainside.

New organisation of the mountainside

These innovations have occasioned the re-structuring of land, which takes the form of land exchanges. Activities are recentred round the family unit, dwellings tend to become scattered and the mountainside undergoes a new compartmentalisation process.

** Spatial redistribution round the family unit*

By comparing my data with that of the "Programme versant", I have established that an increase in rotations occurred on the best land, accompanied by a neglect of the terraces furthest from the place of residence or more exposed to damage by predators. If, in the 1980s, villagers continued to clear certain parts of forests in order to extend their cultivated space, these distant terraces today have generally been abandoned. On the other hand, vegetable cultivation on high pastureland has developed around fixed shelters.

The introduction of high-altitude red rice, of "early" wheat and wheat grown at the bottom of the mountainside has allowed a reorganisation of activities on the slope. Certain villagers give priority to their fields at the top

or alternatively to those at the bottom, since they can now grow rice and wheat in both these sectors. They sometimes sell the fields they no longer cultivate, or exchange them for better-situated land; more often than not, they leave them fallow for long periods, or even abandon them totally.

This reconsolidation of farming activities has been accompanied by a scattering of dwellings which are being built closer to the main work place. This dispersal follows a gradual down-slope shift of settlement, as already attested in the history of the peopling process, but it also re-establishes the balance between the south and the north of the mountainside, the latter being reclaimed, sometimes even at an altitude greater than that of the central village. Denis Blamont⁹ observed the same phenomenon on the Kimtang mountainside, next door to Salme. Crop practices took on a more intensive character from the 1950s onwards and the dwellings spread out in the 1980s. Yet it seemed to him that, because of the lack of fertiliser, yields were not increasing in a satisfactory manner, contrary to what I have observed in Salme over recent years.

** Partitioning of the mountainside*

Consolidating activities and land around a new dwelling has resulted in a clearer division between the top and the bottom of the mountainside, and between the north and the south, on either side of the landslide (*pahiro*). This physically splits the mountainside into two and makes it particularly difficult to cross. Villagers who have decided to concentrate their activities at high altitude and in the north, because of the introduction of red rice, tend to leave the central village situated south of the landslide, to settle on the other side, despite its being colder. As the number of inhabitants increased beyond the *pahiro*, a school was built in 1996 for those children who could not cross the torrent during the monsoon period.

Hence, a mountainside that was exploited collectively over three belts by the whole population grouped within a central village sees itself compartmentalised into four sectors more and more independent from each other, thus limiting travel and the transportation of crops (Figure 54).

On a smaller scale, there is also a partition and even a privatisation of space, notably in the household. The former single room on the first floor is sometimes divided into bedrooms separated by wooden partitions, in which a

⁹ BLAMONT, 1983, p. 545.

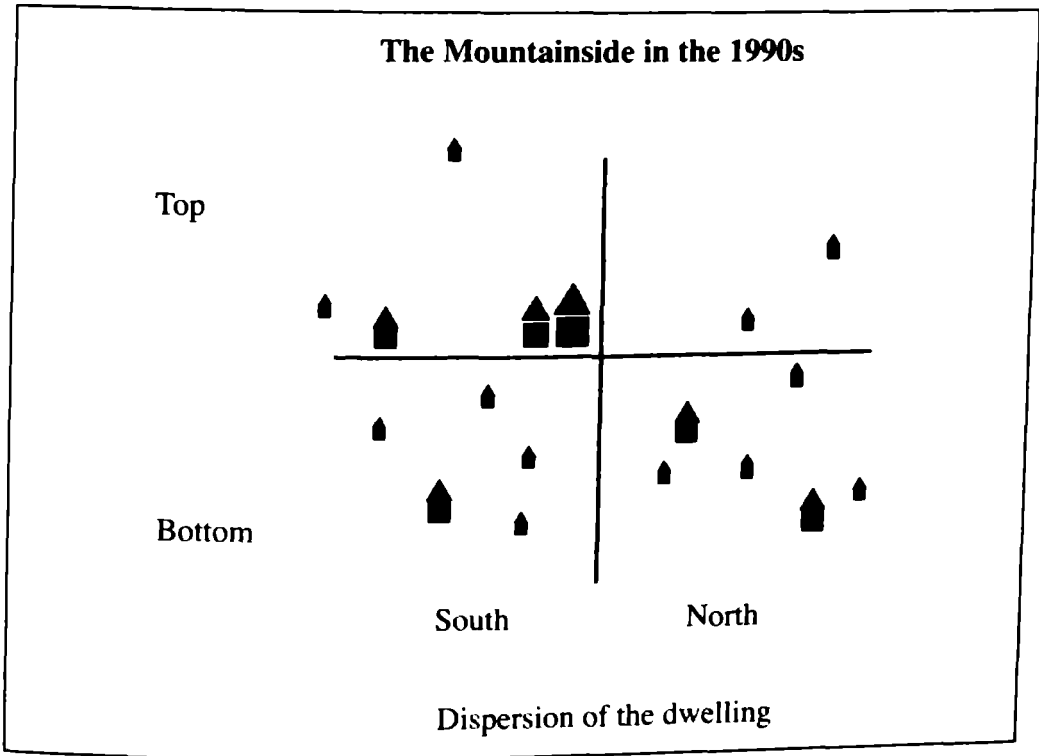
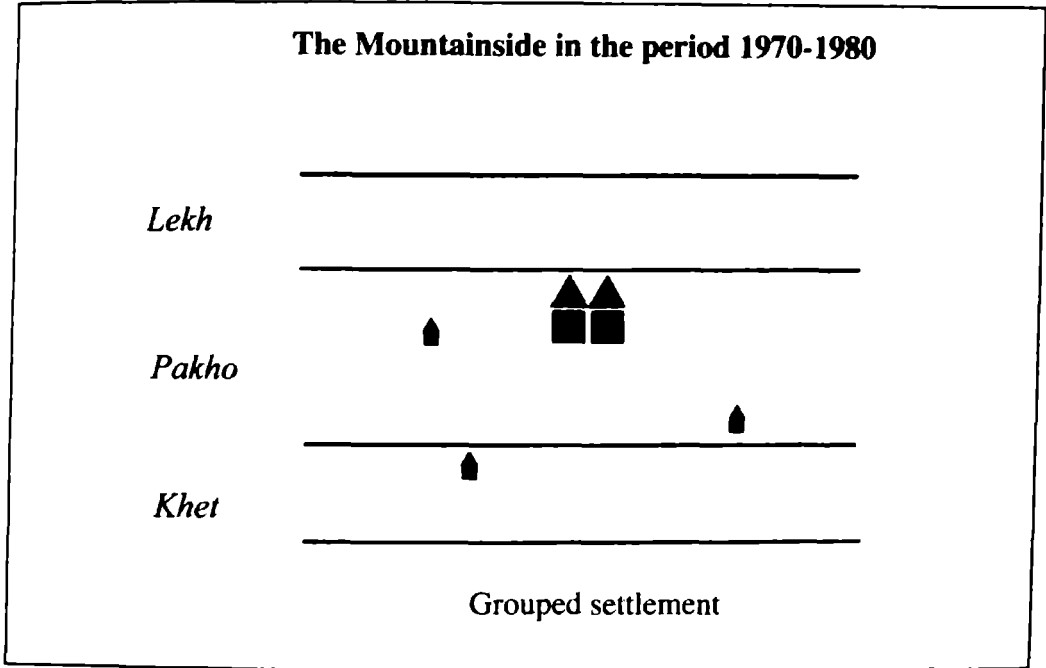


Figure 54
Distribution of dwellings over the Salme mountainside, 1970-1980 and 1990
B. Ripert

bed and personal belongings mark an individual appropriation of space. Animals, some of which were once integrated into the household space, are kept in shelters provided for them. Hens, occasionally cattle or bees, for instance, have their own shelters in new buildings, outside the house.¹⁰ Today, if possible, houses are no longer adjoined but separate, whereas in the 1980s old communal terraces under verandas were already divided by small stone walls, individualising the space at the entrances.

Food self-sufficiency achieved

What can be understood from these different innovations and the changes they have provoked? The most important benefit has without a doubt been the noticeable increase in farming production. Using the follow-up from twenty farmsteads over a ten-year interval,¹¹ one may observe that cereal production has doubled. Rice harvests have undergone the greatest increase, having multiplied by three, followed by maize, which has multiplied by two, finger millet, by a third; wheat and especially barley, however, have suffered a decrease. These two cereals were above all used to bridge the gap in spring while waiting for the maize harvest and are no longer really necessary since self-sufficiency has now been achieved.¹² Indeed, it is now no longer necessary for villagers to buy cereals during part of the year; they produce sufficient amounts to feed themselves as a result of the boost in yields and the resulting rise in production. This is corroborated by the follow-up of these twenty farmsteads and numerous interviews carried out among other villagers. This improvement is transforming the family economy in a context which promises more exchanges with the outside.

New management of common resources

While farming innovations have brought about improvements in the economic situation, the major problem now encountered by most families concerns fodder for feeding cattle. Access to common resources is becoming a big enough issue for the population to set up a new form of management.

¹⁰ The dynamics of partitioning space on this scale is more visible in the Ankhu Khola Valley, in the west, but it is beginning to also be perceptible in Salme.

¹¹ This comparison is based on field surveys carried out in 1984 at the time of the "Programme versant" by agronomists Bernadette and Jean-Philippe Risoud (PIERRET-RISOUD, 1985) and on those carried out by the author in 1995 and which focus on the 1994 harvests.

¹² But wheat and barley are still necessary in small quantities for making little round cakes used for certain rituals, and *chang*, local beer.

Parallel to this, the influx of money from the growing number of migrants enables a diversification of the materials previously drawn from common resources. Wooden shingle roofs, for instance, have been replaced by corrugated metal sheets or by hammered metal drums in Salankhu Khola, and thatched roofs by slate roofs in Ankhu Khola. This diversification somewhat lightens the pressure on the natural environment¹³ and at the same time forces each family to invest rather large sums of money.

Terraces cleared of their harvest were generally used as common grazing land up until the end of the 1980s. However, in order to intensify the number of crops according to the various calendars, new rules came into effect tending to restrict common grazing land and the movement of cattle over the mountainside. Similarly, the forest that was freely accessed has become an enclosure over recent years. It is now difficult to feed cattle, which is nevertheless still necessary for organically enriching the soil and for ploughing.

Privatisation of access to fodder

Parallel to the dispersion of the settlement and to the consolidation of activities, there has been a reduction in the use of mobile shelters, *gora* in Tamang, in favour of fixed shelters, *brang* (tg.). By keeping animals in fixed stables, more manure is produced close to the terraces requiring it. The number of *brang* on the mountainside has grown, with each family now having two or three of them distributed according to plot locations.

In the 1980s, it was customary to leave straw standing from the finger millet and wheat harvests. After the harvest, herds were released onto common grazing land to feed off the straw left there and to enrich the land with their dung. Today, this straw is cut during harvesting. Wheat straw is used to build the roofs of the new fixed shelters,¹⁴ while straw from finger millet, which is longer owing to the introduction of a new improved variety, is used as fodder for animals kept in these shelters. Furthermore, since rotations have been intensified, crops monopolise terraces for longer periods over the year. This therefore deprives cattle of pastureland. Fertilising the *lekh* using grazing animals, for example, is no longer possible from August to September due to the presence of red rice. The straw from red rice is much

¹³ See also on this subject, J. SMADJA, 1995.

¹⁴ In 1999 however, we observed several fixed shelters covered in corrugated metal and others in plastic sheeting.

appreciated however: excellent as forage, it is sold at a good price within the village, but also in neighbouring villages, which do not always have enough. The quality of this straw has no doubt played an important role in the spread of red rice.¹⁵

Hence, common grazing has become a rare practice. Since the end of the 1980s, the owner of a field would plant a pole topped with a bunch of leaves to indicate that he wanted to keep the grass or the straw in his field for his own use. The presence of the pole prohibited anyone from cutting this grass.¹⁶ Ever since, the private use of fields has been bolstered by the recent ban on common grazing land, a decision taken at a village meeting by the members of the "Village Development Committee".¹⁷ The heads of the VDC have also banned the free cutting of grass: from now on; grass can only be cut in one's own fields. If an individual does not intend to use the grass from his fields, he may exchange it for clarified butter or for manure.¹⁸

The ban on common grazing land is also applied in other villages in Ankhu Khola. In Ri, cattle even wear a muzzle when moving over the mountainside to prevent damage to crops or fodder. The phasing out of common grazing has permitted the spread of new crops with no risk of damage by passing cattle. The traditionally communal access to fodder has thus been privatised. The increased privatisation of land, also manifested by stone or wooden enclosures cropping up around plots of land, is further accentuated by the planting of trees for private use between terraces. These trees, generally used for forage, assure private access to fodder, independent of collective resources.¹⁹ There are far more tree plantations however and, it would seem, older ones in lower and middle Ankhu Khola than in Salme. This difference has already been observed elsewhere in Nepal between low and middle mountains.²⁰

¹⁵ On this issue regarding the importance of rice straw, see SMADJA's article, 1995.

¹⁶ The use of this pole is similar to the one traditionally planted on common grazing land to indicate that a villager wishes to keep the place as a mobile shelter for his animals.

¹⁷ Villagers have difficulty in actually respecting this new rule. Conflicts are a common occurrence, but if animals unfortunately destroy part of the harvest, the individual's rights supersede community rights and the owner of the animals is asked to pay a fine.

¹⁸ It is interesting to note that this exchange is made with two products derived from cattle. Thus, a farmer who no longer owns any animals and therefore no longer has any use for the fodder provided by his fields, can obtain the products he needs thanks to his fodder.

¹⁹ See GILMOUR, 1988, on this subject for examples in the low mountains of Nepal.

²⁰ SMADJA, 1995.

Protection of the forest

In Salme, under the Panchayat regime, there was no specific village organisation to legislate in matters regarding the forest. The District Forest Office (DFO) was supposed to manage forests, but in practice, with no one to keep watch, there was free access to them. In the 1980s, certain researchers from the "Programme versant"²¹ noted severe degradation of the forest and a growing distance between the forest and the village, to such an extent that, according to them, there was a drop in work productivity. It appears that some villagers have attempted to restrict access, but this has not actually been respected.

In 1991, when a youth club (referred to as such by villagers) was created on the initiative of "young educated people"²² in the village, one of its priorities was to prohibit the cutting of trees close to hamlets, where the forest had deteriorated the most. Five young people were appointed to keep watch over these forests. In 1993, DFO forestry workers on a visit to Salme warmly welcomed this local initiative and structured it in the form of a "forestry committee" (*ban samiti*, Nep.) as found elsewhere in the country. The forestry workers asked for elections to be organised in the village to appoint the heads of this committee, while stipulating that only literate persons could stand as candidates so that they could correspond in writing with the DFO.²³

Young people's power was officially reinforced and now came into competition with that of elected heads of the "Village Development Committee". Thanks to its being registered with the DFO, the forestry committee took on the attributes of a bureaucracy which young educated persons could use in order to reinforce their position as a new elite.²⁴

²¹ Especially WIART, 1983.

²² By "young educated people", we mean the first age group that went through school in any number and which reached adulthood in the 1990s. They can read and write and therefore hold certain power over others, even if most of them did not necessarily follow the school syllabus as far as the school certificate (SLC). The term "educated" does not mean that they are scholars or that they do any serious reading, but they are impregnated with a national culture thanks to their schooling and they have assimilated shared ideas and values, especially in environmental matters.

²³ This intervention by forestry workers corresponds to the simple application of new national laws regarding community forest management, greeted today as a success (BOISSEAUX, 1998).

²⁴ Such as ink stamps with the committee's logo, headed paper, customised stamps for the president, the secretary, the treasurer, etc.

**New regulations*

The communal forest (*samudaiyak ban*), i.e. the one relatively near the village, is now protected. It is forbidden to fell trees, to cut branches of green wood or to put cattle out to graze there. The gathering of dead wood and of leaves is still tolerated.²⁵ When a family needs tree trunks to build a house, for instance, or to make a swing plough, it must ask the committee permission to cut them down and must pay a certain amount of money according to the quantity required. Trees for this purpose must be cut in the State forest, i.e. the furthest away, on the mountain ridges. This distance accordingly reduces the number of trees that can be transported. Fines are applicable according to the offences committed; part of the money thus collected is sent to the DFO, and part is retained by the local treasurer for the committee's needs.

In 1996, conflicts between different groups in the village led to the disbanding of the forestry committee for the mountainside and to its division into as many forestry committees as there are forest sectors to be guarded and protected on the mountainside. These new committees are managed by villagers living close to the forests concerned. Since 1996, some have been consolidated. In 1999, four committees managed the forests in the four sectors, north, south, top and bottom, as previously mentioned. Hence, forest management has also developed towards a compartmentalisation of the mountainside.

Differences with regard to local practices have emerged between these new committees, revealing a differentiation in the mountainside's forest management. For example, villagers of Thulogaon had never shown any interest in forest management and ended up forming their committee only three years later than the others; they do not keep watch over their forest and do not come to meetings. On the other hand, inhabitants of Ghalegaon, among whom there are many young educated people, were the first to form a village committee, and they apply their rules to the letter. As for villagers in Gunsá, they regularly consult shamans from their hamlet, which explains their cutting of a large number of green branches in their forest for religious purposes, a practice which the educated youth condemn. They also make great use of tree leaves which they mix with manure to make what they call

²⁵ This was only achieved after a long debate within the forestry committee, to find out if it should be forbidden or made payable. In the end, according to the latest enquiry in 1999, gathering dead wood and leaves is still authorised and free of charge.

compost, a practice rarely used over the rest of the mountainside. In Hop, at the bottom of the mountainside, numerous fodder trees have been planted around the terraces, hence a very limited use of the forest which is in any case much further away. Today, therefore, the forest is managed by forestry committees, which are relatively independent of each other,²⁶ while practices are adapted to individual dwelling places and are reflected in the specific use of the forest.²⁷

One can observe the same phenomenon in neighbouring Ankhu Khola, on the slopes of Ri for example, where the village forestry committee was divided into nine independent committees corresponding to the nine mountainside wards, each having a nearby forest for which it is responsible. Here again is a compartmentalisation within a single mountainside and a parcelling out, in terms of space, of community practices.

**Written regulations*

At the DFO's request, the young educated people drafted regulations by which the village forestry committee(s) would be recognised by the district's administrative structure. It was a tall order for these young people, who had to render a good enough text to obtain backing from the administration. Due to a lack of clear instructions from the DFO, the regulations were partly copied from those of a neighbouring village, Barsenchet. The text is long, organised into chapters and sub-chapters, and is extremely administrative in its content, attributing great importance to the bureaucratic procedure. Prohibitions are imprecise and contradictory; they do not take into account natural resources or local needs.²⁸ On the other hand, it defines the functions and duties of members according to their hierarchal position. The regulations therefore seem to be more an instrument of political power than any real implementation of forestry regulations, so much so that, as regards certain items, they contradict oral prohibitions laid down by the same committees.

²⁶ If the increase in the number of forestry committees has the advantage of limiting the conflicts linked to various practices, according to young people, it also leads to filling out the number of people able to follow a training course with the DFO and to receiving more tree and plant seeds for any eventual nurseries.

²⁷ Enquiries rapidly carried out by trainee agronomists in Salme, in 1996, confirm that different forestry practices are identifiable according to the location of villagers on the mountainside (AMIOT *et al.*, 1996).

²⁸ Thierry Boisseaux observed the same phenomenon in the Annapurna region (BOISSEAUX, 1998).

Various influences on forestry matters

If, in the end, written regulations tell us little about what is actually authorised or not with regard to the forest, they do provide information on the various influences that interfere with its management. Ideas propagated at school figure strongly here and are reflected in the actions undertaken by the younger generation. Village discourses also keep us informed of outside influences. It may therefore be noted that the information given out by the DFO, by the Forestry Commission (*ban bibhag*) or by the Ministry for Forests, whether it be over the radio, via advertising hoardings (Figure 55) or training courses, was quite often heard and taken into consideration locally.

First of all, one realises that the structure of written village regulations exactly reproduces that of an appendix to the 1995 regulations, pursuant to the 1993 forestry law concerning the constitution of user groups.²⁹ Villagers know nothing of this law, even though it was made public one way or another in the region, since traces of it can be found here.

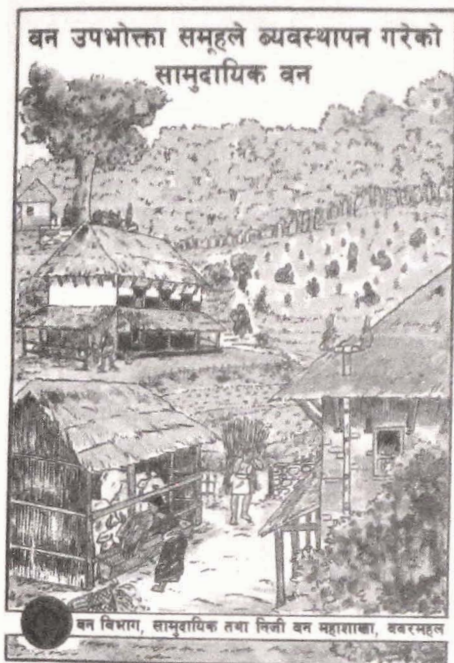
With regard to the actual content of the text itself, villagers have declared their wish to "manage, turn to good account and protect the forest", which corresponds to the new government incentives. The many economic terms ("forest production", "forest income", "profit", etc.) show that forest administrators' discourse, and thereby the State,³⁰ which present the forest as an economic resource to be managed, have not fallen on deaf ears.

Regulations stipulate that while forest resources have to be utilised, the forest also ensures soil conservation, an idea widely disseminated via training courses proposed by the Forestry Commission. Great fuss is made about forest fires, though these are a very rare occurrence in Salme due to the high degree of humidity on the mountainside and the fact that large grassy surfaces are not burnt prior to the rainy season, as might be the case elsewhere.³¹ Here again, the influence comes from outside: the government operates vast campaigns against forest fires, especially via regular spots on

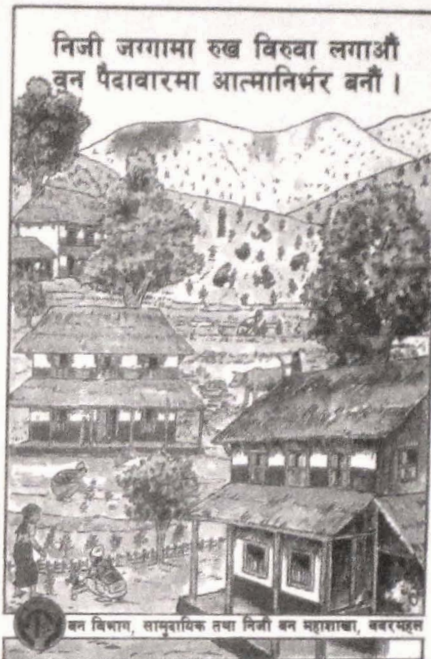
²⁹ See the 1995 (2051 VS) application decrees of the 1993 forestry law (*ban niyamābali*), Ministry for Forests and Soil Conservation, HMGN/USAID, appendix 11, which proposes a seventeen-chapter plan to be included in the user-group rules. Fifteen of these chapters are identical to those in the Salme rules.

³⁰ See Chapter XII, "Discourses and Laws: Resource Management and Environmental Policies since 1950" (B. Ripert, I. Sacareau, T. Boisseaux, S. Tawa Lama).

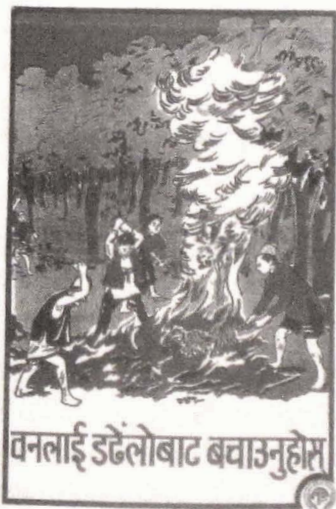
³¹ However, in the spring of 1999, several fires exceptionally destroyed a sizeable part of the forest in the region as a consequence of a seven-months drought.



"The community forest management by the user group."



"Let us plant tree nurseries in our private fields and no longer rely on the forest thanks to our own production."



"Let us protect the forest from fire."



First prize in a poster competition, pupil in class 8.
"The tree gives us peace of mind."

Figure 55

Hoardings aimed at public awareness of the issues, as displayed by the Forestry Commission

the radio and hoardings (Figure 55). Villagers from Salme have taken note of this information and included it in their concerns.

School is the second source of inspiration regarding the environment and its management in Salme as well as in other villages of the Trisuli-Ankhu Khola interfluvium (Figure 56). Present in most villages in the region, it is where an education common to the whole of Nepal can be provided. I have previously shown³² what new importance has been accorded in school textbooks, since the 1990s, to the environment and especially to its management. So, of all the knowledge youngsters have acquired at school, what is certainly most adapted to the context of a mountainside such as Salme are the environmental issues. They can be applied here to improving the village environment by better hygiene and to managing common resources differently, especially the forest, which is strongly encouraged in the education they receive.

Young educated people's commitment to forestry committees and, from a wider perspective, to village political affairs reveals a new assumption of power, which is expressed in environmental issues, and more specifically, forest management. However, they are still poorly represented in the VDC administration.

Emergence of political power among young educated people

Up to now, forms of traditional authority have been based on clan organisation and on chiefdoms recruited from the founding ancestor's lineage group in the locality. Salme was thus administered by the heads of the local clan segment (*mukhiya*), who were backed by the central power.³³ This administrative power was abolished in 1951, to be replaced by the "panchayat system", then transformed during the democratisation process in 1990. Despite these administrative reforms, the former heads of the clan segment retained their community power by being elected by the population at the village assembly.

On the other hand, the predominant authority within families, but also beyond them, has always been that of the elders, most young people owing them great respect, which is a common feature of social relations in Nepal.

³² See Frame 18 in Chapter XII.

³³ TOFFIN, MEYER, JEST and GARINE, 1986, p. 90.

A new legitimacy based on a good command of the written language

Since Tamang is not a written language and most villagers who speak Nepali have learnt it during work migration as a second language, rare are those who know how to write. The younger generations, educated at school, hold a new authority which is based on their command of writing and of Nepali. With the majority of people illiterate, this command fascinates and helps the younger generation to exert a certain domination over the population. It is observable, for instance, at evening classes organised for those wanting to learn to read and write by young people with the help of UNESCO, where their position upsets the traditional hierarchy: it is now young people who teach their elders. Similarly, in villages recently converted to Christianity in Ankhu Khola, it is young people who become "pastors", as they are the only ones to know how to read the Bible narratives to older villagers. There again, their influence is further confirmed.

This authority comes to the fore in political matters. According to new implicit standards, it is now of prime importance to know how to read, write and speak Nepali in order to stand as candidate at an election, which excludes the illiterate from holding any power. Many villages in lower Ankhu Khola have been administered for several years now by young educated people, a situation which greatly contrasts with the previous decade. Many youth clubs (with the status of local NGOs) and forestry committees are the work of young people who have been through schooling and who can now compete with the established power, while using the voting system promulgated by democratisation.

Nepalisation and the desire for integration

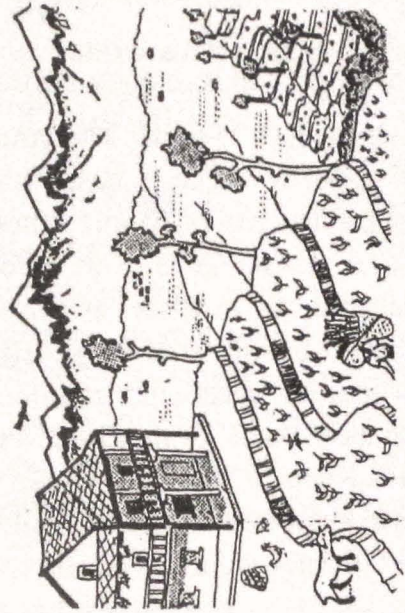
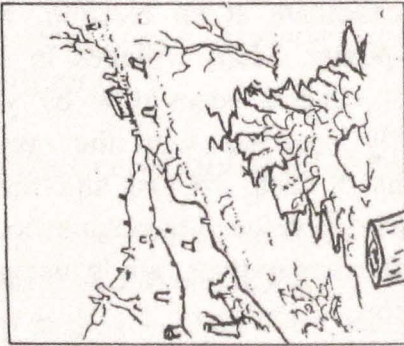
Young educated people are characterised by a distancing from the patterns of the Tamang identity of their kinsmen whom they now consider archaic. They are seeking to reproduce new urban lifestyles but, at the same time, they have a feeling of being marginalized by Nepalese society at large.

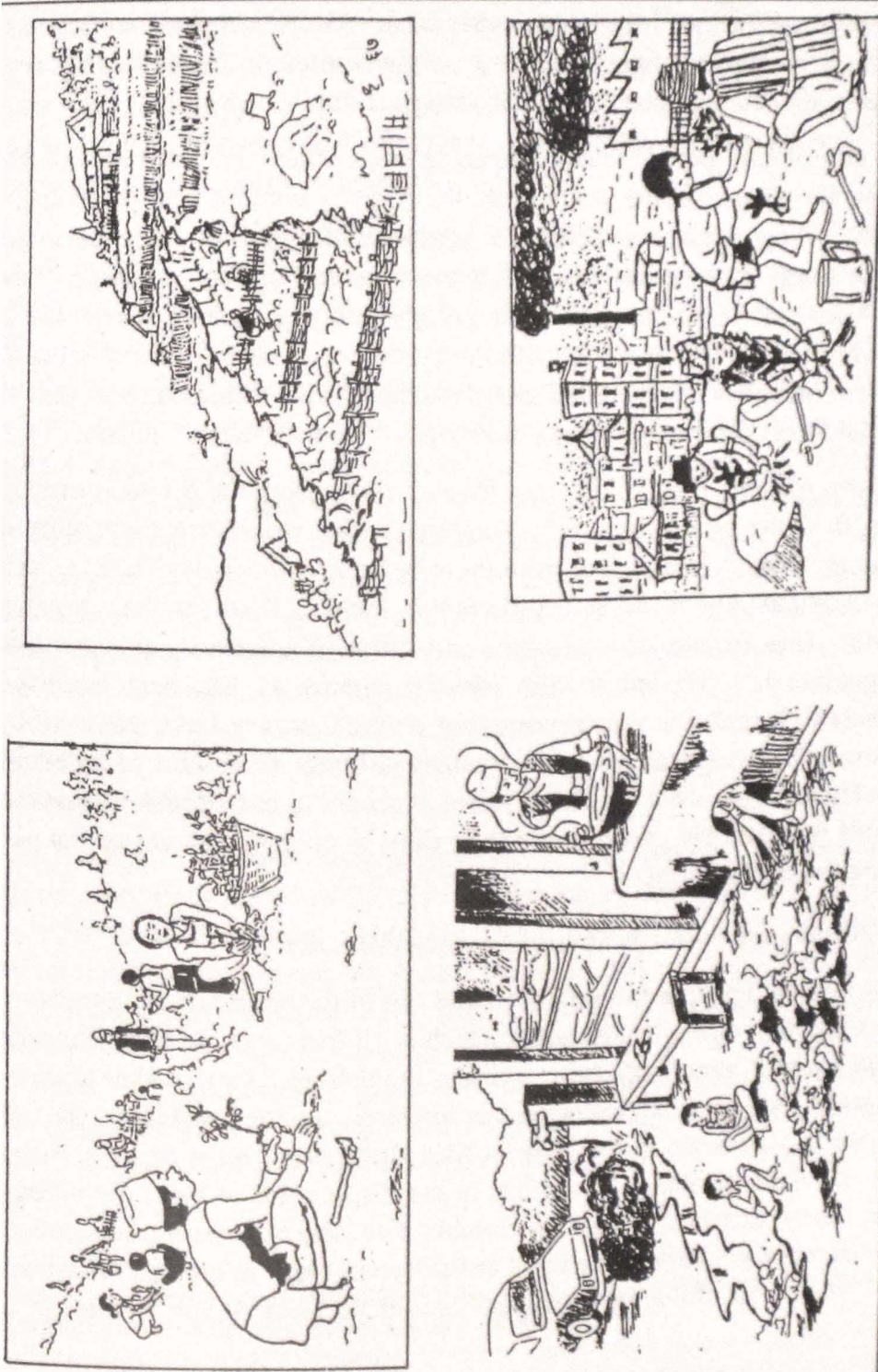
Young people who have pursued their studies beyond primary level have had to leave their villages to go down to the towns, where most secondary schools are centred: in Trisuli, Dhading, Kathmandu, or even Janakpur in the Tarai for young people from Ri. Whenever they return to their families, they are not only marked by a national culture imparted by

अहिले



पहिले





Illustrations from primary school textbooks.

Figure 56

Deforestation and pollution: ills and remedies

their school education,³⁴ they have also acquired urban behaviour patterns and references. For example, they now refuse to plough the land or to carry loads, work which they consider demeaning.

These young people speak Nepali to each other; they also impose the language at meetings at the youth club, the forestry committee or any village assembly. They dress according to Kathmandu fashions; they listen to Nepalese songs on the radio which they learn instead of Tamang songs. They have a vague desire to develop their village with the idea of standardising their society and its environment in order to erase Tamang cultural identifiers, which are considered to be outdated. The architecture of newly-built houses, for instance, respects the shape of "Newar urban" houses.

Nevertheless, they suffer from their distance from the decision-making centres, from the lack of road infrastructures which would link them more to the country's development, and from there being no electricity. They feel that district administrations do not sufficiently include them in their training activities. This feeling of exclusion, and often of inferiority compared to townspeople, has not led to any identity claims as has been observed elsewhere in Nepal over recent years, but on the contrary expresses itself by a desire to be integrated in a society that is larger than their mere ethnic group. By applying what they have learnt at school to environmental matters, they feel that they are carrying out their duty as citizens and are taking part in Nepalese civil society.

Implementation of new concepts in environmental matters

Young educated people from Salme stand out from the rest of the population by a conception of the environment which is all their own. In their discourse and in certain items of their written regulations, they make a direct association between deforestation and erosion causing landslides, as they have learnt at school. In this respect they differ from most of their elders, many of whom attributed landslides to the displeasure of local divinities,³⁵ while others ascribed them to inevitable fate. Such differing conceptions give rise to very diverse patterns of behaviour in order to counter landslides. Some years ago, religious specialists would perform rituals to attempt to

³⁴ On this subject see the work carried out by ONTA, 1996.

³⁵ See Chapter VI "A Reading of the Salme Tamang's Territory [...]" (J. Smadja).

prevent the main landslide from worsening any further.³⁶ Lamas joined the two banks together with a string, and small shrines were built on the unstable part of the landslide. Others consider it impossible to stop a landslide at all by any action whatsoever. Conversely, young educated people, recommend planting trees and building gabions.³⁷

Trees are highly valued by the younger generation, who attribute all sorts of qualities to them: they contribute to the existence of pure water, birds (which are highly appreciated by the Tamangs) and wild animals; they retain the soil with their roots, they supply useful resources such as fodder, timber, etc. This high regard is sometimes pushed to the level of fantasy when information has not been properly assimilated or it has been altered. A young man in Salme, very influential as he is considered to be the most learned, announces that each man will need 500 trees to breathe and live properly, thanks to the 500 kg of oxygen that each would give off. The degradation of the forest on the Salme mountainside greatly worries him, since the reduced ratio of trees per person might then "make the temperature rise dangerously, reduce the local percentage of oxygen and contribute to the imminent explosion of the planet" (sic). This same young man has planted trees around his house to allow oxygen to pervade his family environment more quickly than if it came from the forest –which is now too far away– and so avoid "suffocation".

Young educated people caricature the typical Tamang as an unrestrained tree-cutter unable to stop behaving in this way due to his distant past as a land clearer, when he was forced to settle on wooded mountainsides. Migrations to Assam as a pit sawyer would have further reinforced this character trait. This negative image is illustrated by the use of the Nepali term *jangali*, "coming down from the forest", to describe an ignorant Tamang. They thus agree with the accusations made against the hill-dwelling peasantry concerning the degradation of Himalayan milieus,³⁸ which can be found in school textbooks. They contrast the Tamang with the

³⁶ Ben CAMPBELL (1998, p. 126) also confirms that the intervention of religious experts, among the Tamangs from the neighbouring district of Rasuwa, is needed to calm those divinities likely to cause catastrophes such as landslides.

³⁷ On the Ri mountainside for example, in Ankhu Kholā, where there is a particularly large number of young educated people, the slightest sign of a landslide is in fact countered by the planting of trees and the building of gabions, financed by subsidiaries which they demand from the district administration.

³⁸ See Chapter XII and the Introduction.

Hindu high-cast peasant of the plains who would plant trees in order to harvest the good fruit which the Tamang would be too boorish to know what to do with. This different conception of the tree, a caricature in the minds of the young educated persons, is illustrated on the Ri mountainside by the story of a Chetri family who had planted many fruit, fodder or decorative trees around its fields. When they moved away and sold their fields, the new owners, all Tamangs, felled these trees, much to the dismay of the educated youth, whose radical preconceptions were strengthened.

Air, earth or water pollution is an obsession with some young people that is often taken up in the forestry regulations as a problem, not because it concerns Salme, but in all likelihood because it is practically omnipresent in school textbooks. Here again, the main solution chosen is the planting of trees, especially in uncultivated sectors, as indicated in the written regulations. However, this decision clashes with pastoral practices of shepherds who are seeing the space they have to graze their animals dwindle.

Consequently young people have been moving closer to the "conservationist" view of natural park management and they often refer to it.³⁹ For this purpose, they have attempted, for instance, to ban hunting in Salme and to confiscate rifles for this purpose. Older villagers have difficulty accepting this type of intervention and conflicts have become a frequent occurrence amongst them. The young strongly regret that their mountainside does not come within the boundaries of a park and they seem to be unaware of the various conflicts that exist elsewhere on these issues. In their view, this would be the best means of preserving a verdant forest abundant in wild animals, including the tiger,⁴⁰ the national symbol, and especially of attracting large numbers of tourists, largely absent in the Trisuli-Ankhu Khola interfluvium. The elders, on the contrary, are afraid of the damage that a tiger could conceivably cause, as they do not particularly consider it to be a national symbol, a matter of no particular concern to them. There is therefore no unanimous approval of forest protection among villagers, especially amongst elders and women. The former consider that it is not necessary to restrict access to the forest, since they have always been able to use it as such. As for the women, they are most directly concerned by forest protection, as it is they who have the daily duty of fetching wood and fodder.

³⁹ See Chapter XII.

⁴⁰ G. TOFFIN (1985) however certifies that the tiger has today died out in this region. However it still lives on in the Tamangs' imagination.

Through their practices they have often acquired great knowledge of tree species and medicinal plants.⁴¹ At Salme, however, they are poorly informed or sensitized as to the protection of the forests, with some not even aware of the existence of regulations concerning the mountainside. Indeed, rare are those women who have been able to go to school. Few understand Nepali and can thus attend village meetings, particularly those of the forestry committee. They have not been included in making the new regulations, much to the regret of the DFO foresters, who have in recent years attempted to reinforce the role of women in village forest management, as is done in conservation areas and in international programmes, in which their role is highly valued.

These differences echo very distinct conceptions of the world. Young educated people claim to distinguish what is human (*mānaba*, Nep.) from nature (*prakrti*, Nep.). This dichotomy between nature and society is opposed to the Tamang conception of self, as not radically distinct from the species of the natural world.⁴² Divergent religious conceptions also breed disagreement over the religious use of trees or branches. The young, whose school education has secularised beliefs, oppose the natural to the artificial, i.e. humankind's material and mental constructs, among which evil spirits and divinities are also counted. They thus reproach their elders for religious practices soaked in superstition and they would like to reduce (or charge for) the number of tree trunks used in religious rituals, especially at second funerals (*grale*, tg.).

The generation gap is widening as far as environmental management issues are concerned, revealing radically opposed conceptions and expressing itself in conflicts which limit the reach of forestry committees. The heads of the VDC, belonging to a generation older than the heads of forestry committees, are the first to ignore the new rule regarding the forest or hunting, most likely in order to lessen the authority of the young educated people. So even though a system of fines has been set up, it is very difficult to prove an offence and even more so to apply a sanction. Young people's power therefore has certain limits, as they ultimately lack the means of enforcing applicable bans, if part of the population refuses to heed them. Moreover, even though writing fascinates the villagers, it is still not the unique source of law. The flagrant discrepancy between written forestry

⁴¹ See SAUL, 1994.

⁴² CAMPBELL, 1998.

regulations and villagers' practices shows the limits of a new means of legislating used by young people in forestry matters.

*

* *

Our observations on the Salme mountainside show the capacity of the Tamangs to adapt to new constraints when problems crop up. Since 1990, the population has implemented a series of farming transformations that have led to a clear improvement in production, by using techniques or outside input they have been able to adapt to their situation. The spatial organisation of the mountainside has thus been altered and aims at a parcelling out and privatisation of space, while guiding principles have been established to ensure the collective management of forests.

In setting these changes in the wider historical context of Tamang land use, I would emphasise that these changes follow other, older, adaptations and have often erased their traces from the landscape. So, the divisions in space observed in 1985 by researchers in their attempt to define sectors and to describe the mountainside's agricultural organisation, are no longer valid fifteen years later.

Despite the tergiversation of public authorities, the new laws on forest protection are applied locally, re-appropriated and more or less adapted by villagers, however without a technical analysis of resources or an evaluation of the population's needs entering into this new management.

The different influences identified do not affect the population in a homogeneous manner and divergences in the understanding of the environment arise between generations. Consequently, the types of intervention in the environment differ, provoking internal village conflicts. As is often the case, mastering new concepts is a fine tool for attempting to conquer power, and the young educated generation are applying themselves to this.

The landscape is marked by the different issues involved, but it is often still difficult to grasp the transformation phases which succeed each other and often rub out previous marks or, on the other hand, become slowly apparent over time.

CHAPTER XVI

The Balamis, Nepalese Woodcutters Deprived of Forest

Gérard Toffin

Recent research on the Kathmandu Valley has shown that there is a very clear relationship between the geography of the urban population of this zone and the religious hierarchy existing within it. Newar castes are therefore scattered over former Malla capitals according to their position in the hierarchical system and their higher or lesser degree of purity. The Brahmins and Chathariya patrician families are located around the royal palace –the focal point in the classic Newar city. Untouchables are driven back to the city limits, near cremation sites. As for low-status or middle-status castes, they live in the intermediary space, more or less near the palace.¹ At least such was the traditional system, for over the last forty years or so part of the Newar population from the urban centres has moved further out to the Ring Road, completed in the early 1980s. The wealthiest people have had villas of the Western or Indian bungalow type built in these less populated areas, separated from each other by a garden and equipped with all modern facilities. A residential area in a contemporary style has thus sprung up around old urban centres.

I would like to deal with another link, which is just as crucial but has so far been less highlighted. The one between the geography of ethnic groups and the ethnography of the Newar population. This involves groups, such as the Paharis (Pahi), the Putuvars (Dvim), the Balamis, the Teulas, the Gvas, and perhaps also the Svangumis from Pyangaon, who mainly live on the edge of the Kathmandu Valley. Each of these small-size groups include several thousand individuals, sometimes fewer. They all speak Newari or dialects related to Newari. They stand out, however, from the Newars in the Valley by their occupations associated with the forest or to the wilderness, as well as by their own distinct cultural features and important dialectal differences compared to the Newari of Kathmandu or Bhaktapur.

¹ See for example PRADHAN, 1986, and GELLNER, 1992.

Do these groups represent an old Newar or proto-Newar tribal stock that was gradually driven out to the edges of the Valley by new waves of immigrants? Would it be possible to uncover traces of an eventual archaic social organisation?² Are they populations of different ethnic origins who gradually became Newarised from contact with the inhabitants of the Kathmandu Valley while preserving certain characteristics?³ Otherwise, are we dealing here with mixed populations, resulting from inter-caste or interethnic marriages with neighbouring groups such as the Tamangs? My research tends to demonstrate that in these three explanations, whatever the case, each harbours part of the truth and that in the course of history they have sometimes been combined to produce the present situation. The Svangumis, for instance, who, according to their myth of origin, come from the mixed union between a Newar king and a Tamang woman, have a social structure too close to that of Newar farmers (Jyapu) to be seen only as the result of a late Newarisation process.⁴

Geographically at least, for a long time these groups have served and still serve today as intermediaries between the Kathmandu basin (1,350 m in altitude), the centre of Newar civilisation, with its rich paddy land and its very old urban centres, and neighbouring wooded stretches. More accurately, they used to sell products from the forest or neighbouring low mountains and hills to urban populations (Figure 57). Thus the Paharis are primarily basket makers. They also sell wood in Patan and in the bazaars in the Lalitpur district. Not so long ago the Svangumis used to make boxes for measuring grain using the bark of certain bamboos cut on the Mahabharat slopes. They traded them throughout the Valley. The Putuvars sell red clay extracted from the quarry behind the Svayambhunath hill, to plaster the floors and walls of houses at certain festivals in the ritual calendar (Dasain and Tihar in particular). They also trade birds, wild berries and wood. The Teulas are specialised in making and marketing flattened rice (Nep.: *ciurā*), but they also sell yeast (which contains certain plants from the forest) to urban populations. As for the Balamis, who are the focus here, they were formerly

² Gopal Singh NEPALI writes for example: "These two ethnic groups [Dwins and Balamis] along with the Pahari [...] suggest a substratum over which the present racial and cultural superstructure of the Newars has been built up" (1965, p. 175).

³ Without putting forward any proof, D.R. REGMI (1966, p. 754-755) writes: "The Balamis and Duins who have settled on the western suburb of the city of Kathmandu were the former Kahar castes from the North Indian Gangetic plains." The Kahar Indians, as we know, are traditionally *palki* palanquin carriers.

⁴ TOFFIN, 1992, p. 190.

woodcutters, even though, as we shall see, they had other activities. All these groups also –for the most part, it must be said today– live off farming.

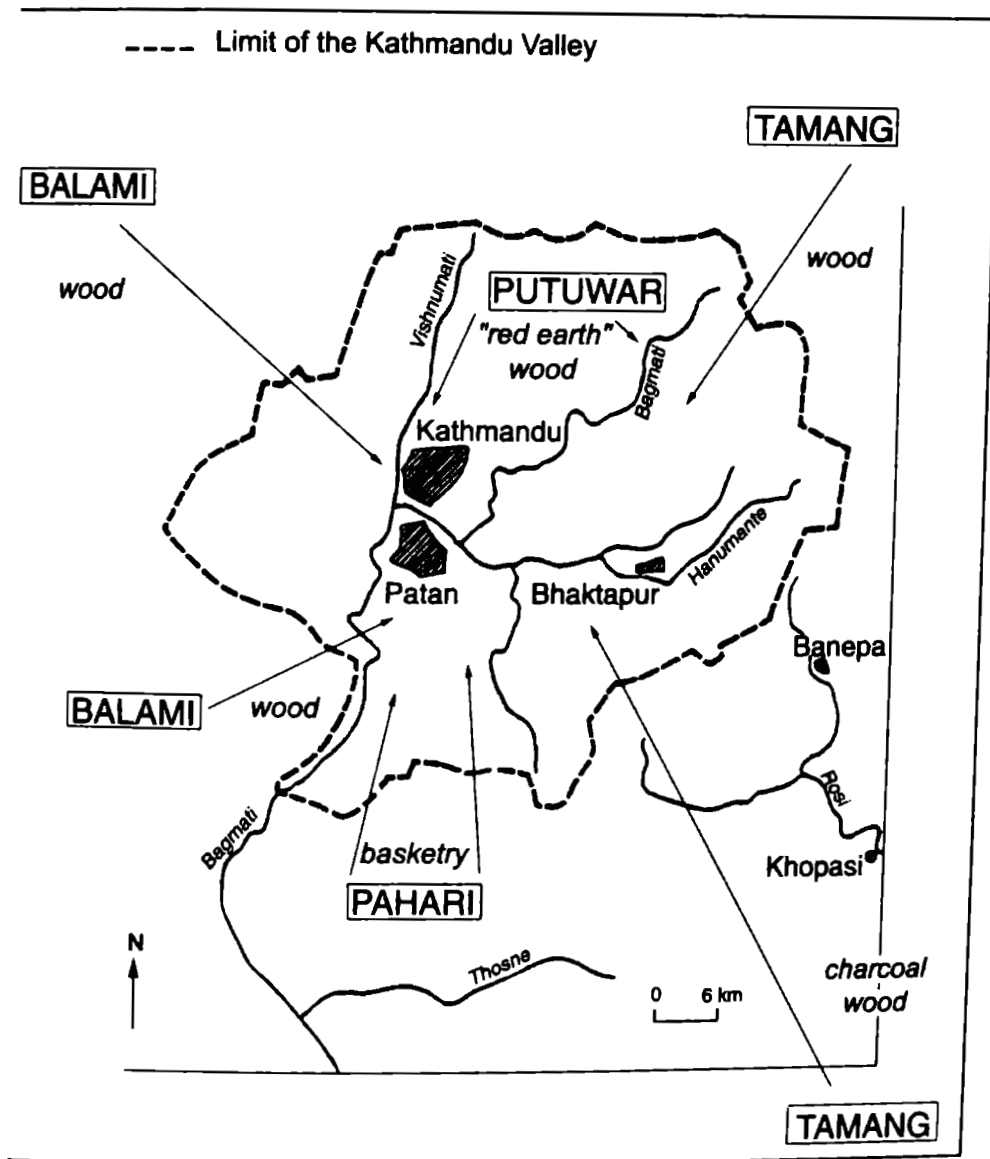


Figure 57
Wood supplies and products from the forest Kathmandu Valley
G. Toffin

The Balamis are located in the north-west, west and the south-west of the Kathmandu basin (Figure 58). Schematically speaking, three sectors may

be identified: that of Rani Ban in the north-west (villages of Kagatigaon,⁵ Dandagaon, Latabu, the market town of Balaju, Rani ban and Sita Paila); the Chitlang-Palung sector to the west (villages of Chitlang, Palung, Markhu, Hompudol, Kubugaon, Kulikhani) and of Thankot (Thankot, Tikanpur and Baligaon), in the Valley; the Pharping sector, to the south-west (Pharping, Thasigaon, Phulcok, Hundu, Sokhel-Pikhel). Nearly everywhere the Balamis live in localities with a mixed population (Bahuns, Chetris, various Newar castes), inside which they are grouped into quarters or hamlets. In Kagatigaon, on the other hand –a village of some 400 households situated in the Nuwakot district, below Kakani, i.e. outside the Valley itself– the Balamis form the overwhelming majority of the population. To my knowledge, it is the only large purely Balami locality along with another village not far from Chitlang (Makwanpur district); that of Hompudol. In 1981, I estimated the total population of this group to be 2,800 persons.⁶ If one applies the rate of increase for the Nepalese population to this figure, twenty years later one has to double it.

The Newars consider the Balamis to be members of their ethnic community, even if they situate them on the fringe of their society. As for the Balamis, they show a certain reticence in being considered purely and simple Newar. As we shall see further on, they share the same culture and the same principles of social organisation as the latter. Yet they have the feeling that they form a special group. This feeling is strengthened by the peculiar features of their dialect (closer however to Newari than to that of the Pahari) and by their geographic marginality compared to the Kathmandu Valley. Furthermore, their houses and their lifestyle are more typical of hill groups, the Tamangs and the Indo-Nepalese, than the Newars (the kitchen, for instance, is often on the ground floor, not in the attic). Moreover, like the Paharis, the Balamis do not have any ritual functions which must be performed towards Newar high-status castes. Consequently they find themselves outside the actual system of Newar castes.⁷

⁵ In Kagatigaon I was told of the existence of another Balami village (of about forty houses) situated more to the west, south of the Dhading district. This village is said to be called Sanagaon.

⁶ TOFFIN, 1981, p. 65.

⁷ Like the Putuvars (Dvim), the Balamis use Vajracarya Newar Buddhist priests to celebrate the purification ritual (*ghasu*) seven days after funerals and use Hindu priests, most often Indo-Nepalese Brahmans, to make offerings (*śrāddha*), which take place forty-five days after death.

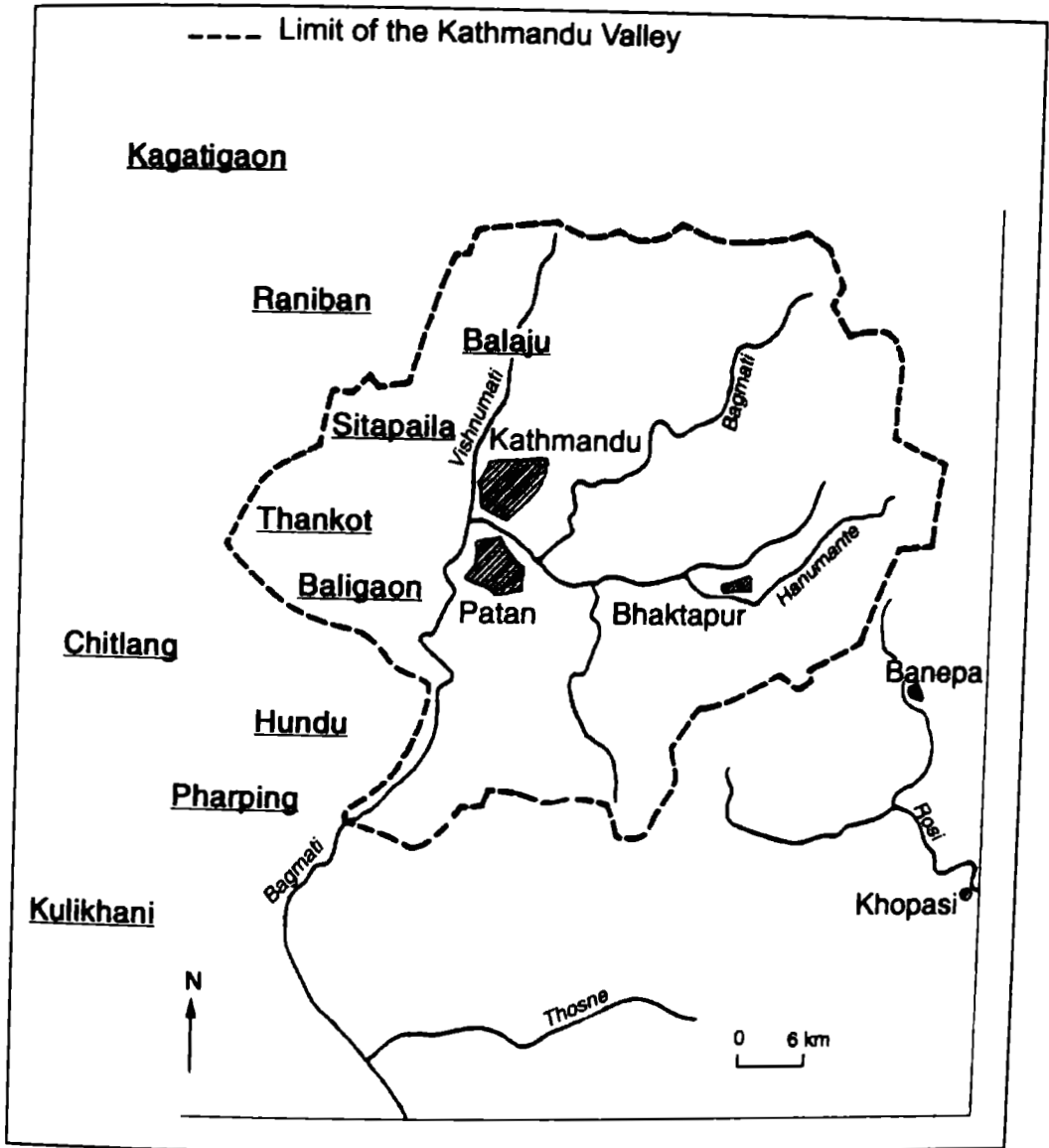


Figure 58
Main Balamis villages (underlined)
G. Toffin

The origins of the Balamis are the most obscure. This group does not have any clear and detailed myth to describe their ancestors and explain their current distribution. In Kagatigaon, the following story is told – a distorted version of a well-known legend about Prithivi Narayan and the Divinity Gorakhnath:

When he was still a child, Prithivi Narayan Shah killed one of his playmates. His father was very angry. He decided to have his son killed. But Prithivi

Narayan succeeded in fleeing. He found refuge with the Malla king in Bhaktapur in the Kathmandu Valley and established a *mit* (ritual friend) relationship with him. He remained there for two years, then returned to Gorkha. There, he went to hide in the temple of Gorakhnath. The god asked him what he wished to do in the future. Prithivi Narayan answered that he wanted to become king. Gorakhnath then spat in his hands and asked Prithivi Narayan to swallow his spittle. Disgusted, Prithivi Narayan only took a little in his mouth. This is why, it is said, Prithivi Narayan became the sovereign of only one small valley. Much later, Prithivi Narayan managed to conquer this valley, the Kathmandu Valley, which he coveted so much. During this conquest, he was helped by the military guard of his *rājguru*, the *guru ko paltan*. He asked the band which accompanied this guard to play the *dhimay* drum and the *bhusyāh* cymbals in front of the Malla capitals. The music was so loud that the Malla kings were afraid: "The armies of the Gorkha King are quite large," they thought. And they capitulated. While this was going on, a quarrel blew up within the Malla palace in Bhaktapur. Part of the royal family fled to Balaju, in the west of the Valley, with their tutelary goddess Mahalaksmi. A child was born at this site. He was called Balami, after the name of the locality. This is the ancestor of the Balamis. A little later, he founded the village of Kagatigaon.

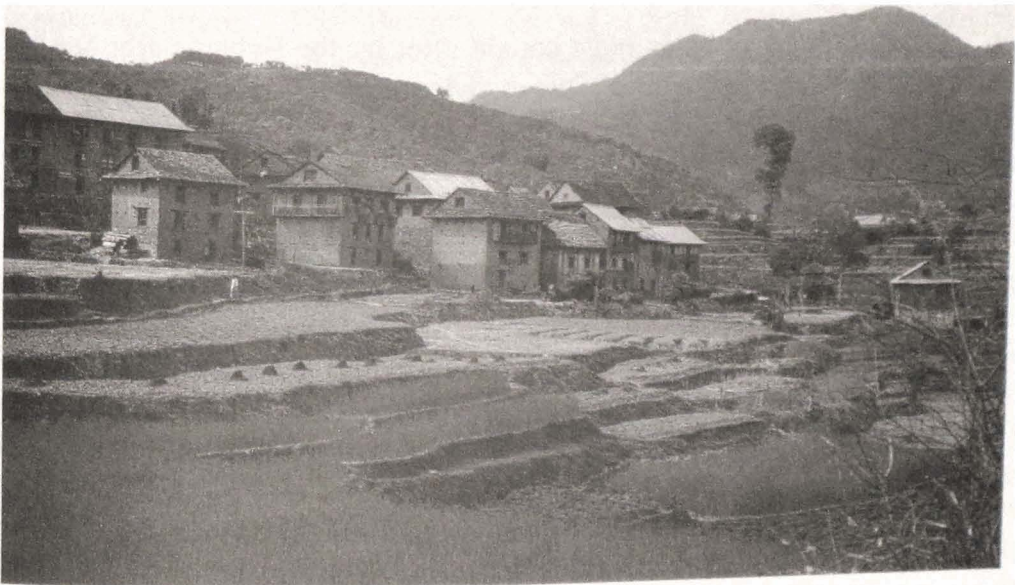
Other myths, gathered here and there, are much sketchier. They speak of a war in the Kathmandu Valley. At the time of an attack, the Balamis' ancestors were supposedly taken by surprise while eating their rice. They fled and dropped the sacred thread which high-caste people used to hang from their ear at mealtimes. Another mentions a Malla king who asked their ancestor to choose between a dish of highly-spiced buffalo meat and a dish of salted goat. The Balamis chose the buffalo dish. The king consequently withdrew their sacred thread. Like the first legend, both these tales put forward a royal origin, a debasement to a lower rank and, in two out of three cases, a link with the conquest of the Kathmandu Valley by Prithivi Narayan Shah. Significantly enough, these elements can be partly or fully found among groups such as the Paharis and the Putuvars, closely connected to the Balamis.⁸

The etymology of "Balami" is also obscure. It may bring to mind the name of a place, perhaps Balaju, figuring in the quoted legend as a centre of the origin of this ethnic group and around which Balami villagers always

⁸ A. HÖFER (1979, p. 142) quotes a legal document from the XIXth century, prior to the 1854 Muluki Ain, which groups together the Balamis and the Paharis. As for CHATTOPADHAYA (1923, p. 540-543), he asserts that the Balamis were part of the Khusah weavers and stucco-workers. In M. LECOMTE-TILOUINE's book devoted to the Magars from Darling (1993), it can be observed that one of the four original clans is called Balami.

settle. It might also recall the Sanskrit word *bala*, "strong, robust", which would hint at one of the supposed features of the members of this group, associated with their job as woodcutters. Besides, this last etymology is explicitly given by several informants: the name *balā-mi* was given by a Malla king from Bhaktapur to recognise the great strength they had demonstrated on the temple's building site.⁹

The Balamis mainly live off agriculture. They are small farmers whose principal resources are derived from growing finger millet, maize, wheat, rice, rape and various vegetables, as for most Nepalese peasants from neighbouring mountains and hills (Photograph 49). There is very little irrigated land for flooded rice. In Kagatigaon, this only represents 30 per cent of crops. Land is mostly *pākho*, that is non-irrigated. A combination of maize and mustard or maize and finger millet is grown here. Poultry and buffalo are also raised. Pigs are often forbidden in villages.



(G. Toffin, April 2000)

Photograph 49

Balami village of Hompudol near Chitlang (Makwanpur district),
on the valley floor made into paddy fields

⁹ A more whimsical etymology, found in Chitlang, is to be noted. Balami supposedly came from *hā-lā*, "half-way", in memory of a woman from this group who gave birth on her way home, half-way between her house and her fields.

However, apart from this ancient activity, the Balamis were, as has been said, traditionally woodcutters. Up to the 1970s, most of them cut and gathered wood in the neighbouring forests to sell at bazaars. At the time, urban populations in the Valley did most of their cooking over a wood fire and they had to go to the market to get their fuel supplies. The wooded areas exploited by the Balamis were all located close to their villages. For the villages closest to Kathmandu, there are the forests of Rani Ban, of Nagarjung Ban and of Mata Tirtha Ban. They have all been State or royal palace property for a long time now. They are surrounded by walls and guarded by forest wardens (*ban pāle*), as well as by the army. It appears that although there was relatively free access to them at the beginning of the century, this was more restricted in the 1970s, whereas it has become more flexible again today. Today, dead wood can be gathered two days a week and green wood ten days over a period of six months, in exchange for a tax of twenty-five rupees per load of wood. Arrangements are possible, so it seems. "You need to be on good terms with the forest wardens", I was told. Cases of theft, which is severely punished by the authorities, were reported to me.

The three tree varieties most sought after by the Balamis are: *Schima wallichii*, *Alnus nepalensis* and *Castanopsis indica*. The men are the ones who gather, cut and chop up the wood. There has never been any system of mutual aid, as there is for work in the field. Everything was done on a family basis. In the past, sandals made of woven straw were worn in the forest. Nowadays, flip-flops or training shoes are worn. Their main tool is the axe (*pā*, New.), made by the Kami blacksmiths. As for women, they go and sell their loads in town. In Kagatigaon, they rise at about 4-5 o'clock in the morning, leave on an empty stomach in the night and reach Balaju after three hours' walk. The wood is attached using ropes and carried as such on their backs using the frontal strap that is customary in Nepalese mountains and hills (Photograph 50). The load (40 to 45 kg) is sold for 80 to 150 rupees. The women return to the village towards midday, then take their first meal of the day. Much more wood is sold in winter, when one is free of work in the fields, than during the rainy season when farming activities are in full swing. The feasts of Dasain and Tihar, during which large quantities of food are cooked, are peak periods.

However, the Balamis were not the only ones to supply the urban centres of the Kathmandu Valley with wood. The Putuvars of Halcok in the north, the Paharis in the south, the Tamangs in the east and west also sold

large quantities in the Valley. It should also be noted that the Balamis have never made charcoal, an activity that the Tamangs living in the surrounding areas specialise in. Like firewood, this product was essential to urban populations. Surprisingly, the Balamis do not seem to have hunted much in the past either, even though today they still revere Sikari deuta, the god of hunting.

Today, many Balamis have given up their wood-cutting activity. Firewood has gradually been replaced by kerosene, then by liquefied petroleum gas. The demand has fallen. Timber has become increasingly rare. An adequate supply of wood is no longer available to satisfy the needs of the Kathmandu Valley, where the population has quadrupled since 1960. Only the Balamis of Kagatigaon and of Rani Ban still sell wood on a relatively large scale. In the first of these villages, and especially during winter, most families still convey about fifteen loads per month to Balaju. Other Balamis have stopped this completely.

Porterage formerly represented another important activity for this population group. The Balamis carried goods along the Bhimpedi-Kathmandu road, on the old footpath from the Valley of Nepal to India. They also served as coolies on the direct route crossing Mount Chandragiri and Thankot, as well as on another road further east through Pharping. Their localisation in these two areas should be viewed in relation to this activity.¹⁰ The obligations that the Balamis held towards the State during the Rana period are no doubt related to these ancient occupations. Thus they carried from Kulikhani (or Kulekhani) to Thankot chains and other equipment for the ceremonial elephants which were brought to Kathmandu and then, when they were no longer needed, back down to the Tarai reserves. They had to provide the necessary fodder for these pachyderms and to carry official mail. Sometimes, they even had to ensure the transport of luggage accompanying prison convoys. In exchange, Balami peasants did not pay any land tax on their non-irrigated *pākho* land.

¹⁰ Porterage along this route dropped drastically following the commissioning of a ropeway for conveying goods from Dhumsing to Kisipidi, under the reign of Chandra Shamsher Rana, towards 1925, with the help of English engineers.



(G. Toffin, April 2000)

Photograph 50

Balami woman from Hompudol carrying firewood for sale

Today these duties¹¹ have ceased to exist. The Balamis, he use the old footpath that leads to India. During a survey car Chitlang in 1976, several cases of temporary winter migr reported to me. The local Balamis at the time spent Decembe

¹¹ These duties were called *jhārā-beti*. Some informants also reported the maintain the road that went from Chitlang to Markhu.

further to the south, in the Tarai, or even on the other side of the border in the Indian state of Bihar. In these hot regions they bought mustard, tobacco leaves, rice, maize, various leguminous plants which they sold again at a higher price in the Kathmandu Valley. Some opened temporary shops near Chitwan and set up business. Others were employed as masons and carpenters in the north and in the south. This is still the case today. In 1999, a *dakahmi* mason or a *sikahmi* carpenter earned 100 rupees¹² per day, plus food. The Balamis obviously do not have enough land, or at least enough good land, to meet their needs fully. They resort to additional activities, which is what they have always done.

What position do the Balamis occupy in the traditional Nepalese caste system? Local Indo-Nepalese, Bahuns and Chetris, place them at a level approximately equal to that of the Tamangs; a pure caste of tribal origin and of rather low status. In the Newar caste hierarchy, the Balamis come below Jyapu farmers, on the same level as Gathu gardeners, the Putuvar palanquin carriers, the Vyanjankar (Tepay) farmers and the Desari, the Tandukar (Khusah) weavers or the Nau barbers. However, they are considered to be of a higher status than the Saymi oil pressers, the Citrakar painters, and the impure castes with whom water is not shared, *la cale majyapu pi* in Newari.

The Balamis accept eating rice cooked by the Jyapus, but they refuse it when cooked by the castes with whom they are grouped hierarchically. They even maintain that the Putuvars eat rice cooked by them. The latter, however, claim the opposite. Purification rituals, such as shaving their heads and eyebrows after pollution (at funerals, for example), are in all instances carried out by Nau barbers, as is the case with high and middle Newar castes. This is an important criterion in the hierarchic system.¹³ On the other hand, the child's umbilical cord is cut at birth by a member of the family, not by a member of the barber or butcher castes.¹⁴ Thus, Balamis act as Putuvars.

¹² About 1.5 euros.

¹³ TOFFIN, 1984.

¹⁴ The umbilical cord is then buried with the placenta by a woman from the household or a neighbour who helped with the delivery. This same person then lights a stick of incense at this place for four days to avoid any evil influences affecting the newborn.

Frame 21

The Balamis' Social Organisation*Gérard Toffin*

Their social organisation is not basically different from that of other Newars. The patrilineage is called *kavā* or *phuki* or else *thar*. It does not go back very far genealogically, and is strictly exogamous. Distant agnates are called *tāpāh phuki*, close agnates *syah phuki*. The former only mourn for a few days following the death of one of their members; the latter, 45 days. Once a year, the group meets to worship its lineage divinity. Digu dyah. This god is generally represented by a diadem or another ornament in the shape of a crown decorated with petals or with spirals. The *dyah pujā* worship is rarely followed by a feast. Patrilineal kin-groups frequently differ from each other according to the category or the type of offerings made to the god Digu dyah: non-vegetarian or vegetarian, *madi* bread or curd, chicken, goat or duck meat, etc.

Contrary to the general custom among the Newars (but not among Jyapu farmers), each of these lineages has a name. Here is the list that I collected in Pharping and Hundu: Takhechemli, Yochemi, Vothumi, Tagomi, Itapu, Svagumi, Silami. In Palung, the list was as follows: Takhechemi, Lamomi, Naycabumi, Nuichemi, Nasuchemi, Pitichemi, Kotchemi, Tahachemi, Tharsumi, Khvamchemi, Dichemi, Gvachemi. The word *chē* appearing in several of these names in Newari means "house"; *mi* indicates "people". These units are often localised in space: a hamlet, a grouping, a line of houses. Elsewhere, there was so much intermixing that the housing units do not (or no longer) correspond to groups of the same descent. Only the memory of an ancestral house, *kul chē*, remains.

In Kagatigaon, the Balami population is divided into two groups: the Takhamis (or Votamis) and the Kvakhamis (or Chvasamis). These expressions mean: "people from above" and "people from below", but they do not correspond, or no longer correspond, to a division of the territory into two halves, high and low, as can be found in Newar localities. These two groups mainly form exogamous units that exchange women. It is "like *gotra*", someone told me. The Takhamis and Kvakhamis do not have any religious life as such and they do not have their own specific faith. The only difference, put forth by all informants, consists in the fact that the former make their funerary offerings on the seven days following the death of one of their members in front of a Ganesh temple, whereas the latter present theirs to the spirits of the crossroads (*chvāsa*), dangerous beings responsible for diseases and various disorders. There is apparently no hierarchy between the two units, in spite of the etymology of their names. This morphological structure is to be related to the same dualistic elements that exist among the Paharis.

Marriage in the agnatic line is no longer prohibited once the memory of a kinship tie fades away. Cross-cousin marriage is forbidden as it is everywhere among the Newars, but one finds unions with cross-relatives of the third or the fourth level generation, following the example of the Svagumis of Pyangaon. Like everywhere in Nepal, agnatic and matrilineal relations are very strong. The maternal uncle, *pāju*, has many ritual obligations towards his sister's son. He must, for example, cut his hair for the tonsure ritual (*bhusa khāygu*, Nep.: *chewar*), which every young boy undergoes between the ages of five and nine.

In theory, the Balamis marry among themselves. This is still the rule in Kagatigaon, the largest village in the group, quite isolated in comparison to neighbouring settlements. In this locality, marriages are concluded primarily between Balamis from the same village. Some women come from Chitlang or Pharping, but no girl from Kagatigaon marries outside the village. In Baligaon, where I also carried out research on this aspect, one finds a great number of unions with the Balamis of nearby villages and other more distant localities. Elsewhere, there is a very large number of intercaste marriages, with the Newars, the Indo-Nepalese, as well as with the Tamangs. Balami women in particular often marry outside their caste. The children resulting from such unions are called Lava, "mixed-blood" or Nagarkoti. The Balamis regard them as lower rank and avoid marrying them. On this subject, it is worth mentioning the expression *Sāno Balāmi*, which literally means "Small Balami" (or *Gāma*, a word derived from *gā*, village). It has a very pejorative connotation, and is used to indicate groups of families of mixed blood. These groups, which are also called Nagarkoti, mainly live in Sita Paila, in Mata Tirtha, in Sokhel-Pikhel, near Dakhinkali and in the Chitlang area. They are heavily influenced by the Indo-Nepalese culture. Some have even forgotten how to speak Newari.

1. TOFFIN, 1981, p. 50.

2. TOFFIN, 1984.

3. *Nagarkoti* is a term commonly used on the borderlands of the Kathmandu Valley to denote intercaste unions between Newars and Tamangs. It is by this name that the Newars wanting to be enlisted in the army during the Rana period (it was forbidden using their own name) enrolled. For more information on the Nagarkotis and on their relationship with the Paharis, see TOFFIN, 1981, p. 46.

4. In Pharping, I recorded Barmu Lavas, Bare Lavas, Tama Lavas and Sem Lavas, according to the father's Newari caste name.

As far as religion is concerned, Mahalaksmi is the great goddess, the main deity of the Balamis. This goddess plays a central role among all members of the group. She is particularly significant in Kagatigaon, Chitlang, Pharping and in Baligaon. Her cult has remarkable common elements, which highlight the unity of the Balami group despite its relative geographical dispersion. Among these elements, let us mention: the existence of dances

during which Mahalaksmi is incarnated by a masked dancer in the midst of other divine beings, the date of the full moon of Kartik (October-November) to perform these dances and organise the village festival; the goddess' village-form as opposed to her forest-form (sometimes more accurately called Ban Devi, as among other forest specialists such as the Pahari basket-makers), which is less appeased; the central role of the religious association assigned to the goddess Mahalaksmi in the social organisation.

Mahalaksmi holds a central place in the social organisation of all the Balami villages concerned. The most striking example is that of Pharping, where I conducted research in 1976 and 2000. In this market town situated south-west of the Kathmandu Valley, the Mahalaksmi *guthi*, which as in Kagatigaon, unites all the Balamis in the locality, includes about sixty members. Seven of them preside over rituals. What is significant is that these persons come from the seven lineages making up the local Balami community: Takhechemi, Yvachemi, Vothumi, Tagomi, Itapu, Svangumi and Silami. They are in charge of the fourteen annual feasts of the *guthi*. They also sing and play music during the sacred dances, performed each year at the time of the full moon of Kartik (October-November). As a rule, seven masked divinities take part: Ganesh, Kali, Mahalaksmi, Kumari, Indrayani, Varahi and Bhairav.¹⁵ They also come from these seven lineages. It seems that in the end the final line-up is decided on by the dance master (*pyākhā guru*), who incarnates the goddess Mahalaksmi and must always be a member of the Takhechemi lineage. This lineage indeed has clear precedence over the six others, especially in religious matters. The function of master of the dance is theoretically hereditary and is transmitted through the paternal line.

Still in Pharping, other divine beings, such as Cundyah (or Mahaconi),¹⁶ Nasahdyah and Barha Kanya, take part in the dances once

¹⁵ These seven divinities correspond to the seven stones of the *pīth* temple of Mahalaksmi, located outside Pharping locality, in a westerly direction. These raw stones are aligned facing eastwards and framed by two stone lions. Three other gods are also represented in dances: Ganga, Parvati and Nahadyah, but the men who incarnate them do not wear masks; their faces are simply painted. Let us point out that the dance troupe also includes two *khyāh* and one *kavā* (skeleton).

¹⁶ Cundevi (or Cundyah) is a divinity linked to cattle breeding and to the protection of animals. Her influence is quite widespread in the south of the Kathmandu Valley. A large temple to this goddess is situated in Chunikhel, along the Bagmati, not far from Bungamati. She is revered both by the Newars and the Indo-Nepalese. Offerings of chickens and kid

every twelve years. On this occasion, the liturgical duties are shared among the seven basic kinship unites. What stands out here is the extent to which these sacred dances are organised along kinship lines. It is obvious that they are deeply anchored in society.¹⁷

What is most striking for the observer is the tangible lack of development since the 1970s in areas inhabited by the Balamis. During the same period, the urban centres of the Valley have considerably developed, they have become more modern, their population has been increasingly exposed to Western influence and to the globalisation of exchanges. On the whole, it has benefited from these changes. However, Balami villages located on the periphery remain quite backward. In a locality like Kagatigaon, access to the nearby Trisuli-Kathmandu asphalt road is still extremely difficult during the monsoon: one has to walk along paths broken up by landslides and gullied by rain. The female population has so far had little schooling, and among the male population, only three young boys have passed the SLC diploma, corresponding to our School Certificate. Equally striking is the scarcity of jobs; they all involve menial work: "peons", servants, etc. One has the feeling that these regions have completely kept out of the way of development and that their inhabitants are cut off from all the country's financial and power networks. It is obvious that progressively abandoning cutting and selling wood, an activity which has not really been replaced, has worsened an already difficult situation. More generally, the increase in the disparities between the Kathmandu Valley and its surroundings, (one might say: with a large part of the country) is undoubtedly one of the most serious problems that Nepal faces today.

It is interesting to note that an association, the Balami Samuha, was created in 1996 on the initiative of several young people. It is currently run by a villager from Phulcok, a hamlet not far from Pharping. This association sets out to defend the group's culture and improve living conditions for its members. This initiative, which is part of the identity movements that have

goats are made to her. The worship period stretches from the month of November to the month of April. People preferably go to the temple on a Tuesday or a Saturday.

¹⁷ According to a tradition reported in 1976, the Balamis from Chitlang and from Pharping formerly had close links. At one time they are even said to have been *dāju-kijā* (elder brother-younger brother) and they revered the same Mahalaksmi, half-way between the two localities, via the footpath in the south, close to a river actually known by the name Mahalaksmi. A quarrel broke out between the two villages. The Balamis from Pharping took the joint statue of Mahalaksmi. Those from Chitlang had to replace it with a stone.

developed practically everywhere among minority groups after a return to a parliamentary regime in 1990, aims at reinforcing the group's identity. This has perhaps been to the detriment of the traditional bonding with the Newar community.

CHAPTER XVII

A Bocage Landscape Masyam and the Hamlet of Kolang¹

Tristan Bruslé, Monique Fort, Joëlle Smadja

In December 1922, after crossing the Curiya, leaving the Tarai behind him, Major William Brook Northey reached one of the Masyam² crests, south of Tansen (Palpa district). He later wrote:

From here, a magnificent view is obtained of the Palpa country, the home of many of the Magars, a tribe which forms so important a part of the Gurkhas enlisted in our Gurkha regiments. The hand camera I had with me was unfortunately quite insufficient to reproduce satisfactorily the panorama that was unfolded before me, a scene made more interesting by the fact that no European, certainly of modern tie, had ever witnessed it before.³

Recounting this trip in another book, he emphasised:

No European had ever set foot in the Palpa country, save perhaps an occasional Jesuit missionary in the dim past.⁴

Indeed, when Majors Northey and Morris, then Recruiting Officers for the Gurkha Regiments in Nepal, received authorisation to go to Masyam, in December 1922 and 1932 for the former, and in 1931 then in December 1932 for the latter, they discovered completely unknown areas, which, along with some data collected on trips to the east of the country, allowed them to write the first general work providing information about Nepal.⁵

¹ Certain passages of this text have already been published in SMADJA, 1999 and 2001.

² Masyam is also spelt "Massiang" in the texts quoted.

³ BRUCE and NORTHEY, 1925, p. 296.

⁴ NORTHEY and MORRIS, 1974, p. 203.

⁵ MORRIS 1985 [1933], MORRIS 1934. "Owing to the fact that Nepal is closed to European travellers, it has not been possible for us to give a detailed description of the interior of the country. His Highness did, however, as a special favour, very kindly permit us to visit certain portions of the country on the eastern and western borders, and from these journeys we were enabled to gain a good general idea of what the rest of the country is like" (NORTHEY and MORRIS, 1974, p. VIII). "Some years after my first visit to Kathmandu I was asked by the Government of India to write a handbook about Gurkhas. By this time I had got to know the Maharaja well and I wrote and told him that I could not do this job properly

Thanks to the stays made by these two officers, we have at our disposal a series of photographs archived at the Iconography Department of the Royal Geographical Society in London. These make up one of the rare eye-witness accounts of the landscapes in the region and also of Nepal at the beginning of the century. Since they provide precious information on the history of land use, they have guided our choice of the Masyam V.D.C.⁶ for research which, for several reasons, meets the objectives of our programme:

- These photographs have helped us to evaluate the evolution of forests, gulying, agrarian forms and to provide substantial elements to the discussion on environmental degradation.

- They interest us all the more so because they concern a region characterised today by a bocage landscape associated with sloping fields that has so far hardly been studied. They help us to buttress hypotheses on this type of landscape that up to now were only the subject of enquiries led in villages among the most elderly.⁷

- Finally the Masyam V.D.C. provides an opportunity to carry out a study on an administrative unit scale, made up of independent hamlets, but also on that of a watershed, organised around the Bhaiskatta Kholā and its tributaries.

Our research, conducted in different disciplines,⁸ now enables us to present our first results.

A Mahabharat transit village in the rich province of Palpa

South of the Annapurna, including slopes from the low mountains and the Mahabharat, as well as the two largest alluvial basins (*phāṭ*) in the region, on

without seeing for myself what the interior of the country was like. To my surprise he replied that he had given orders for me to be allowed to go to Massiang. This is a high ridge beyond the Tarai, and although it is no more than twenty or thirty miles inside Nepal it affords a glimpse of a large part of the western part of the country. By coincidence I ended my journey in 1961 along this very track and it will therefore be more appropriately described later in this book. But at the time no other European had been allowed to see even this little of the interior" (MORRIS, 1963, p. 30).

⁶ V.D.C. is the abbreviation for Village Development Committee and in Nepali *ga.bi.sa.* for *gāū bikās samiti*. It is a sub-unit of a district, roughly equivalent to a municipality.

⁷ SMADJA, 1993, 1995.

⁸ So far this has included: Tristan Bruslé (Master in geography), Marie Lecomte-Tilouine and Philippe Ramirez (anthropology), Anne Bernard, David Bourdin, Jean-Baptiste Leclercq, Anne-Claire Degail, Guillaume Furry (agronomy degree), Monique Fort and Joëlle Smadja (geography), Christelle Georges (PhD student in ecology).

the rivers Kuru and Tinau, the Palpa province has long been a major centre of power in Central Nepal (Figure 59). Peopled prior to the XVth century by Tibeto-Burmans, Gurungs and especially Magars who still today represent the majority, it was conquered and governed by Indo-Nepalese petty kings from the XVth century to the foundation of the Nepalese State at the end of the XVIIIth century.⁹ It then belonged to the confederation of *caubisī*, the twenty-four small Hindu kingdoms in the centre and east of Nepal. In the course of the centuries, numerous mines have been exploited, especially copper mines for making coins and, since the XIXth century, Gurkha soldiers have been recruited in large numbers.

Their garrison headquarters are at Tansen, the administrative centre today in the Palpa district (whose size is smaller than the former eponymous province). It is also an important trade centre on the much used route between India and Northern Nepal. Up until 1968, it was accessible by the footpath, used by Morris and Northey, which passed through Hatiya Bazaar in Masyam, located south-west of Tansen. Since then, trade has been ensured by the Siddhartha Rajmarga road that crosses the valley floor and links Tansen to Butwal, in the Tarai.

Masyam, located on the Mahabharat slopes, remains known and described by villagers from the neighbouring districts of Syangja, Kaski and Tanahun as "the place where beautiful landscapes can be seen". One of the etymologies put forward the idea that the word "Masyam" refers to a much more negative image of the place: travellers carrying salt from Butwal or returning from abroad caught malaria when crossing the Tarai. Consequently many died on arrival in Masyam, which would then have been considered a place of death, *masānghāt*. For this reason, it was supposed to be called Masan, Maseng then Masyang and finally Masyam today. Another version has "Masyam" derive from the word *masyang*, a kind of lentil, also called *jhilange*, which is grown there in large quantities.¹⁰ Today as one of the Palpa V.D.C.s, Masyam occupies the Bhaiskatta Khola watershed covering a surface of 28 km²; the ridges rise above 1,500 m and the valley floors lie at about 800 m in altitude. Of the nine wards¹¹ or hamlets that make it up

⁹ On the history of the peopling of this region, see RAMIREZ, 2000.

¹⁰ According to SHRESTHA, 1985.

¹¹ The wards, administrative districts in the V.D.C., always nine in number, possibly correspond to hamlets. But each hamlet does not automatically make up a ward. For example, the clearly differentiated hamlet of Bel Danda is an integral part of the Kolang ward.

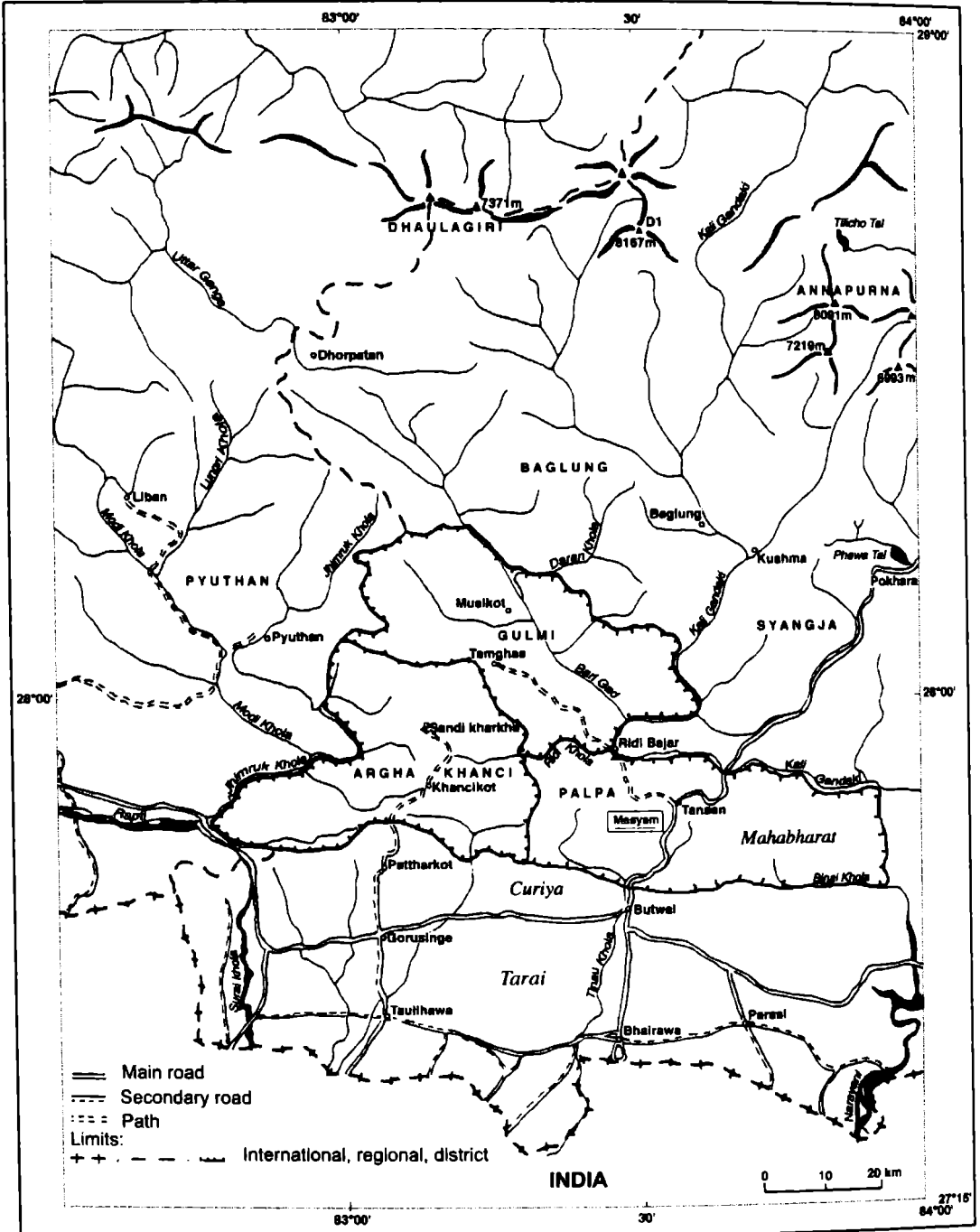


Figure 59
 Location of Masyam
J. Smadja

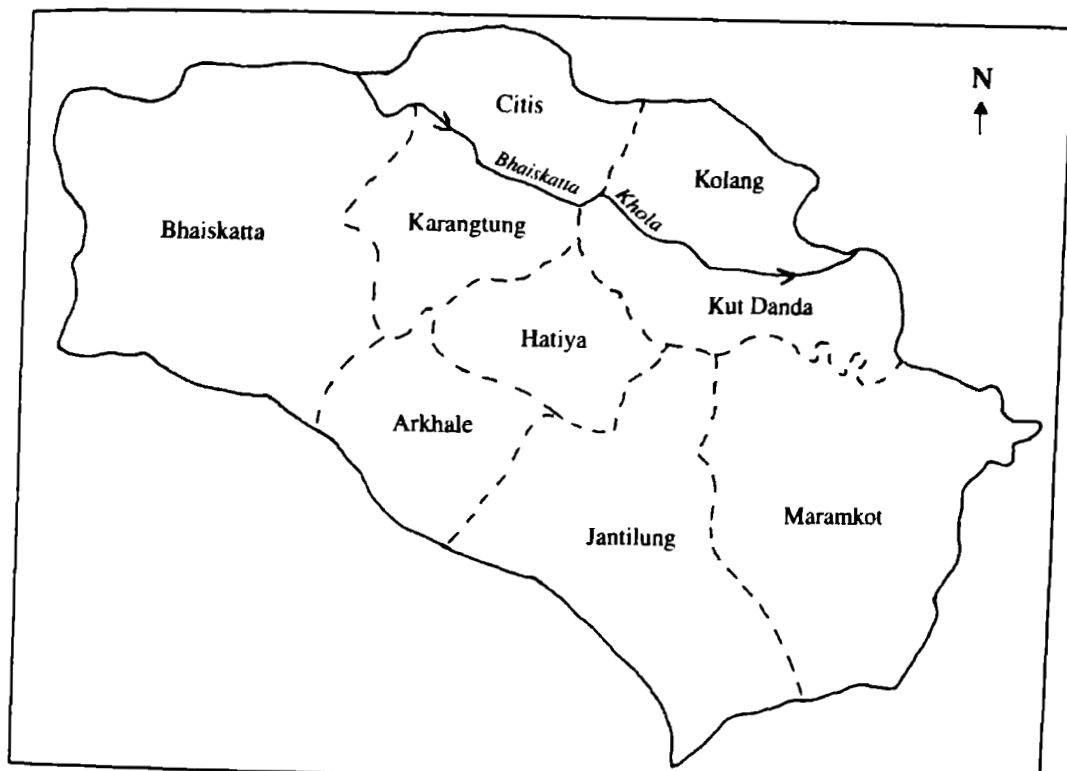


Figure 60
The nine wards of Masyam
J. Smadja

(Figure 60), two are situated on the left bank of the Baiskatta Khola (Kolang and Citis) and seven on the right bank (Hatiya, the main one, Kut Danda, Arkhale, Maramkot, Bhaiskatta, Karangtung and Jantilung).

Settlement in this region apparently came late. During the reign of Mukunda Sen in Palpa, in the XVIth century, the hamlet of Kolang is believed to have been only a garden producing flowers for royal ceremonies. In 1804, according to the report by a Nepalese informant working for the British Army, the route leading from Masyam to Tansen "ran through forests of *sāl* trees, and there were no villages on the way, but many huts and small patches of cultivation, and everywhere an abundance of excellent water".¹² A few lines further on, in the same text, "the mountainous and woody nature of the district of Palpa" is mentioned. Thus Masyam only began to be cleared on a large scale and colonised in the middle of the XIXth century.¹³

¹² Scott in *Military History of Nepal*, 1983 [1824], t. 1, p. 34.

¹³ The most complete family genealogy of the Aslami Magar, the majority group in Kolang, takes into account eight generations (of twenty years or so) settled in Kolang (Lecomte-Tilouine, personal communication).

In 1997, the total population of Masyam was 5,392 and population density was 193 inhabitants per square kilometre. Density is approximately the same for all the Palpa district and for the neighbouring districts of Gulmi and Argha Khanci –among the highest in the country. When related to the cultivated square kilometre, it exceeds a thousand inhabitants. The few demographic surveys undertaken at Kolang suggest that the population has quadrupled between the beginning of the century and the present day. Groups of houses, in which the inhabitants belong to the same lineage, form quarters (*tol*). These are scattered over the mountainsides and recorded in the toponymy (Figure 61). The *tol* are non-administrative sub-units of wards. The Magars are present in all the wards and make up about 65 per cent of the total population of the V.D.C.. They are practically the only group in Maramkot and Jantilung, where Magar is still spoken; they remain the vast majority in Arkhale, Karangtung, Kolang and Citis, where Magar has not been spoken for two generations, but are fewer in Hatiya, Kut Danda and Bhaiskatta where the Indo Nepalese such as Bahuns, Chetris, Kamis, Sarkis and Damais dominate. The degree of wealth or poverty of the wards bears some relation to the make-up of the population. The number of persons per farm is on average 7.4 for the V.D.C., but it is 10.12 and 9.34 for the Maramkot and Jantilung wards in the south-east. In these wards children receive little schooling, drinking water is scarce and the people's poor state of health as well as housing disrepair sharply contrast with the situation in much more flourishing wards such as those with predominantly Indo-Nepalese inhabitants. In these, the number of persons per farm is only 5.4, as well as in predominantly Magar –but much more "Nepalised"– wards, such as Kolang.

Major Morris and Northey's photographs were taken from Hatiya at the end of a rainy stay.¹⁴ They show us the hamlets of Citis and Kolang –the reason for which their study was given priority in the Masyam V.D.C.– the spur of Sundanda in the Thelga V.D.C. and, east of the river Hulandi Khola, the hill with the rounded crest of the village of Dumre. The wooded summits of Bharkesh and Chaurthok emerge to the north-east. When in 1961, Morris again passed through Masyam, he noted: "This was the very place in which I

¹⁴ "Unfortunately, it was quite early in the morning –a few minutes after dawn to be exact– when a clear view was finally obtained, and even then only for a very few minutes. Hence, although the snows themselves stood out clearly in the early morning sun, the hills in the foreground and middle distance were in deep shadow, thereby making it impossible to obtain a photograph in which both the snows and the rest of the landscape could be clearly seen" (NORTHEY, 1937, p. 191).

had camped some thirty years or so before, and it seemed in no way to have changed."¹⁵ Comparison of the 1932 photographs with those taken in 1997 (Photographs 51 and 52, Figure 62) might, at a first glance, lead us to draw the same conclusion, i.e. changes as a whole are moderate. Nevertheless, some new features have appeared in the landscape: the road, Siddhartha Rajmarga, which from 1968 onwards linked Butwal to Pokhara, schools that have become widespread in the country since the 1960s, as well as the growing number of trees in the fields leading to a truly bocage landscape. These show that there have been important transformations in the lifestyle of the population.

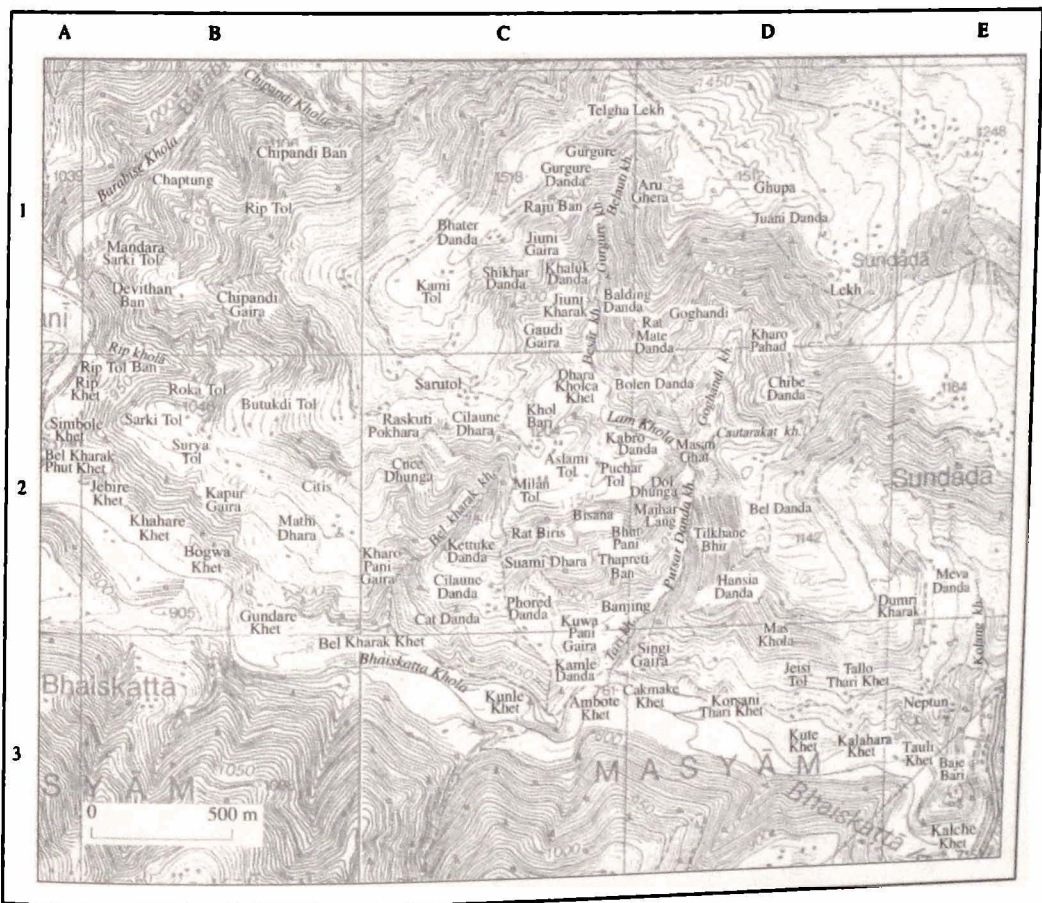
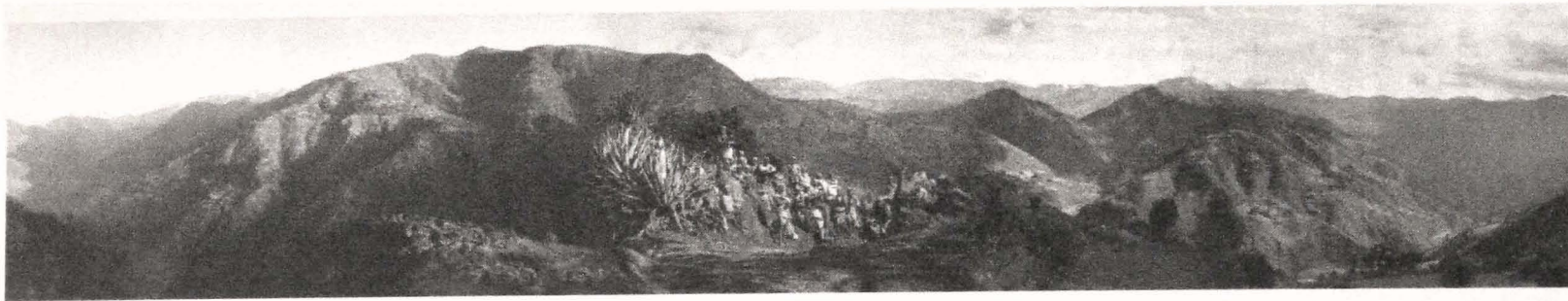


Figure 61
Maps of Citis, Kolang and Bel Danda toponyms
J. Smadja

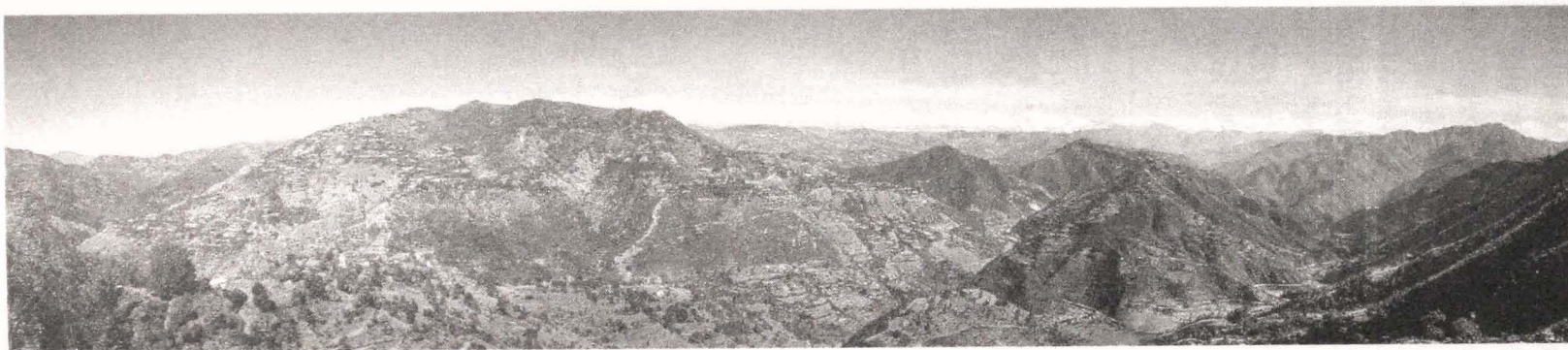
¹⁵ MORRIS, 1963, p. 175.



(Morris and Northey, 1932) © Royal Geographical Society

Photograph 51

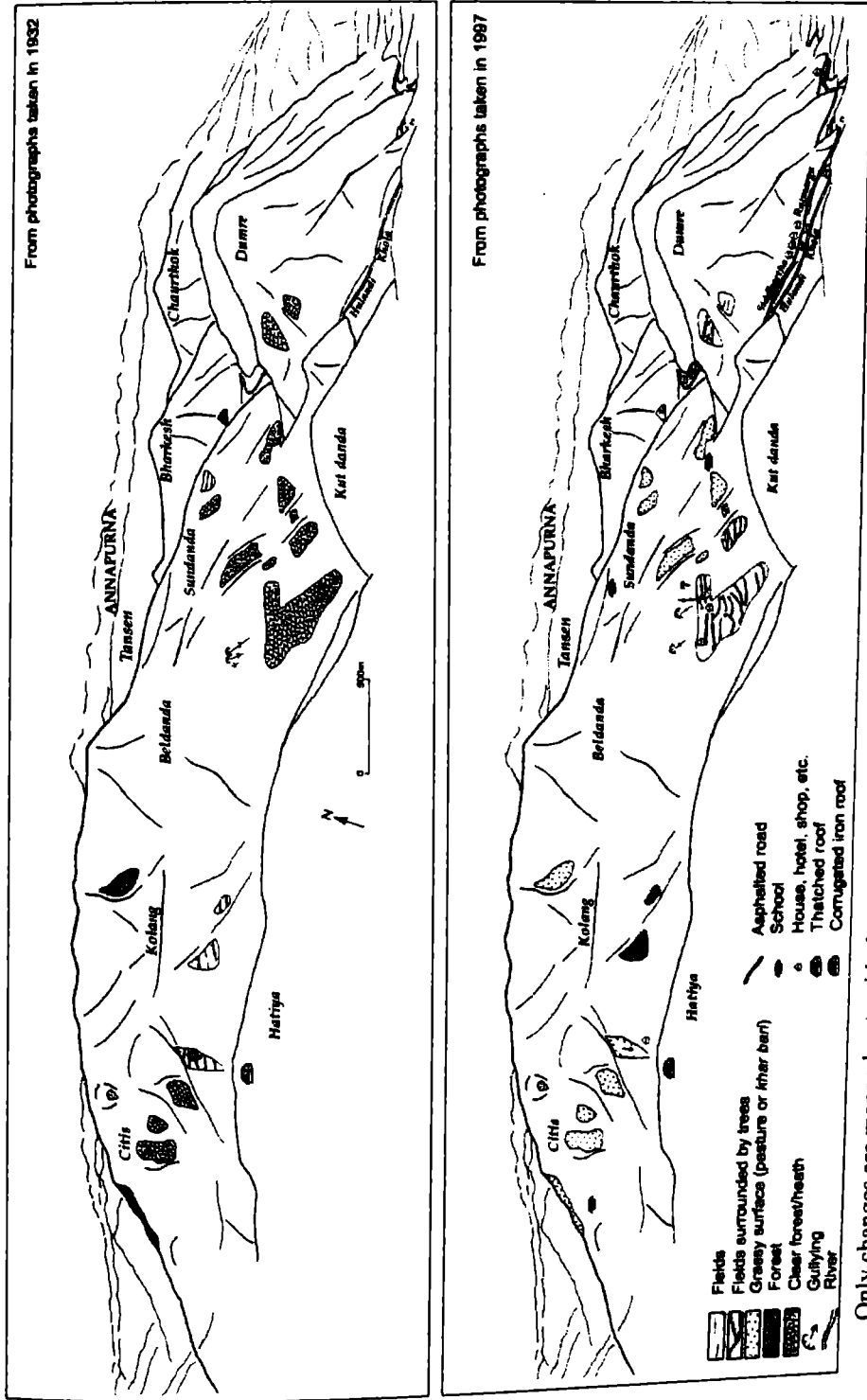
Citis, Kolang, Sundanda, Dumre, as seen from Hatiya (Masyam) in 1932



(J. Smadja)

Photograph 52

Citis, Kolang, Sundanda, Dumre, as seen from Hatiya (Masyam) in 1997



Only changes are mapped out, with the exception of the bocage, which is now generalised in sectors of non-irrigated crops.

Figure 62
Changes in the landscape in the villages south of Tansen, 1932-1997
J. Smadja

An unstable environment under control

Masyam is characterised by a subtropical monsoon climate. At 1,000 m in altitude,¹⁶ average annual temperatures are 19 °C, with a minimum winter temperature of 12.5 °C in January and a maximum of 23.4 °C in June. In March-April, when temperatures rise and when there is a marked contrast between the upper range and the plain, the sector suffers strong if not violent winds, like the tornado in 1983 that blew down the pine trees in the Balding Danda and Rat Mate Danda forests in the Kolang hamlet. Rainfall is an average 1,650 mm per year, but it varies greatly from one year to the next: the maximum recorded is 2,220 mm in 1959, the minimum 1,211 mm in 1964, with 80 to 90 per cent of rain falling during the monsoon, between June and September. There is consequently a very marked dry season, with a hydric deficit over five months in the year (Figure 63). On the other hand, during the monsoon, the abundance of rain can have disastrous consequences, particularly on the *bagar khet*, paddy fields set up in the bed of the Bhaiskatta Khola, that are regularly swept away by flooding (Photograph 53). Rainfall can also be very violent, greater than 100 mm in 24 hours. On 7th September 1959, for example, 409.2 mm of rain was recorded in Tansen; on 29th September 1981, 288 mm. The impact of the rains is noticeable on this jagged Mahabharat relief, especially since, with its east-westerly orientation, it is one of the first obstacles that the monsoon flow from the south-east comes up against.

The mountainsides are also rendered unstable by the geodynamic activity of the Himalayan Range that, in the Mahabharat as in the whole of the country, is expressed by recurrent seismicity with an average of four to five microseisms per week¹⁷ and several earthquakes greater than 5 on the Richter scale every century (in 1934, 1954 and 1966 for those last felt in Palpa). The Mahabharat is also one of the sectors in the range where there is the greatest uplift rate, with an average of almost one centimetre per year.¹⁸ This forces rivers to cut more deeply down their valleys in order to maintain their junction with the Ganges network. Yet, contrary to that of the Curiya more to the south, the Mahabharat terrain offers considerable resistance to erosion, a resistance reinforced by its almost vertical structural pattern that

¹⁶ The climatic data presented in this text are those from the Tansen weather station located at 1,067 m in altitude, a few kilometres from Masyam. They only cover full years since 1957, the date at which the first recordings were made.

¹⁷ According to data from the Kathmandu Laboratory of Seismology.

¹⁸ BILHAM *et al.*, 1997.

favours the development and maintenance of steeper and steeper slopes towards the foot of the mountainsides.

On closer inspection, however, these nuances are what make the Masyam sector original, notably the presence of sedimentary ground of a very diverse nature (limestone, schist and sandstone), vigorously and tightly folded (Figure 64): their vertical outcrop creates a relief where slopes and benches alternate; there are sorts of suspended balconies above the steep, mostly wooded, flanks of the valley. These benches, underlain by resistant rock such as dolomite limestone and, to a lesser extent, sandstone, offer particularly suitable sites for villages and crops (case of Kolang, Bel Danda, Citis, and others).

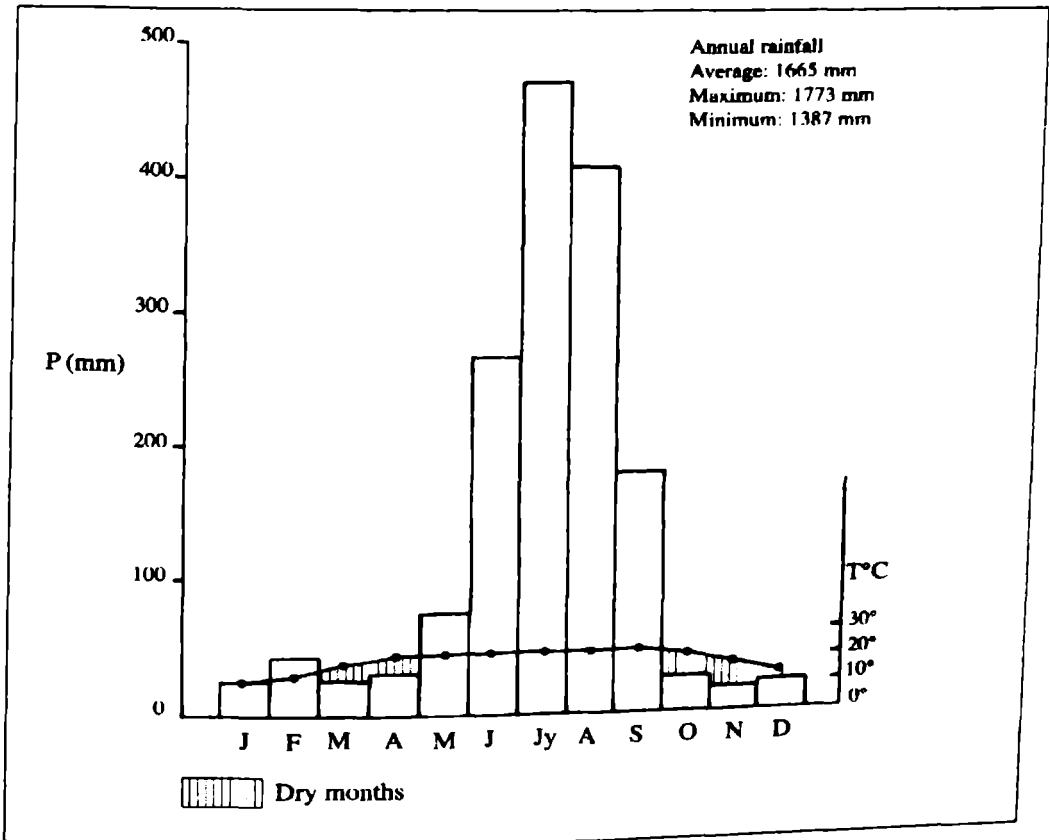


Figure 63

Ombrothermal diagram of Tansen (Palpa district). Altitude: 1,067 m

J. Smadja

In a context of permanent incision by rivers, the contrasted monsoon climate on the one hand and the steepness of the slopes along with their instability maintained by earthquakes on the other, therefore favour the erosion activity. Without always proving dramatic, it is no less real, though in many respects and in the short term, it appears under control. Topography is a good reflection of how the relief in this region changes.



(J. Smadja, December 1997)

Photograph 53

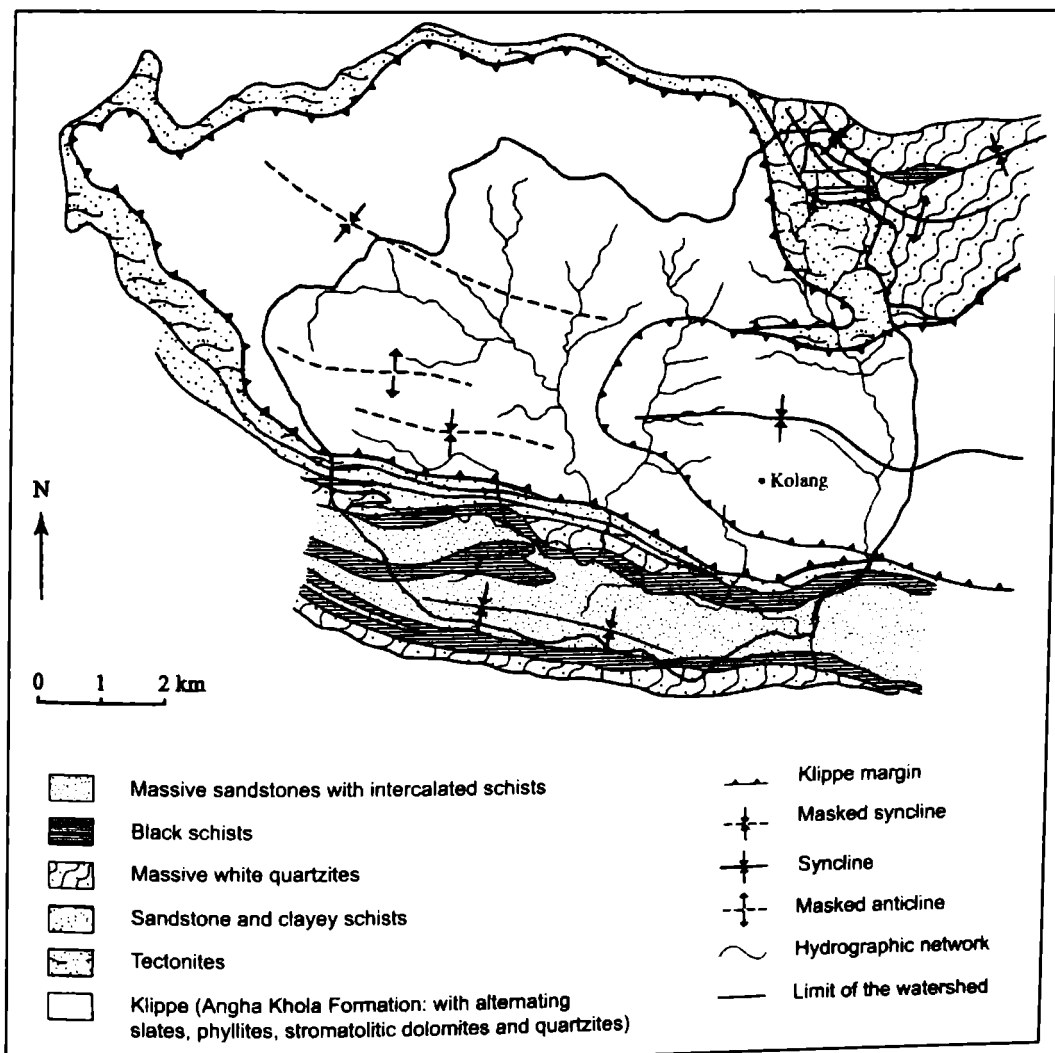
Bed of the Bhaiskatta Khola: alluvionary flood paddy fields (*bagar khet*), regularly swept away by floods

Convex and massive crests at the top of the mountainsides¹⁹ are interrupted by deep gullies where running water concentrates,²⁰ then stretch out below into narrow valleys with an irregular profile, furrowing the foot of steep slopes on the valley floor. This is the case of Tari Khola, where one can observe rocky beds and waterfalls. This succession of forms illustrates two important phenomena. First, the predominant runoff process that will favour the occurrence of other erosion processes, such as landslides. Second,

¹⁹ For example, the Kolang ridge, from Lekh to Aslami Tol. through Telgha Lekh, Bhatar Danda, Kami Tol and Saru Tol.

²⁰ Like the one that separates Kolang from Bel Danda.

concerning the pathway of rain water that has fallen on the mountainside, there is a major contrast between the sectors where water is dispersed (convex crests) and only acts very superficially on the soil and other sectors where running water tends to converge (gullies) and to acquire increased erosive power, likely to render whole portions of the mountainside unstable. On a scale of several millennia, these processes are never ending and correspond to an "instantaneous" adjustment of forms to the conditions created by the combined action of the climate and tectonics.



Source: simplified from SAKAI, 1983.

Figure 64
Simplified geological map of the Masyam watershed
M. Fort

On a human generation scale, sectors of currently very active erosion can be distinguished from others that are stabilised and colonised by vegetation. For example, the funnel shape and the deep thalweg of the Goghandi Khola separating Kolang from Bel Danda must have been caused by major gullying that happened about two centuries ago: apparently relatively stabilised if one is to judge from the forest cover, the flanks of this funnel have local superficial debris slides, prolonged by erosion scars showing that this stability phase is in fact only a temporary respite in a context of permanent erosion. Other observations lead to the same conclusions. Comparison of photographs (Figure 62, Photographs 51, 52, 54, 55, 56, 57) show that, in the forest south of Bel Danda, fresh marks of erosion, of which there were few in 1932 (Photograph 56), have increased. In the locality of Tallo Thari Khet, for instance, new debris slides have appeared in a field taken from the forest and covered in debris from this gully erosion (Photograph 57). In cultivating land below this undoubtedly fragile though forested land, villagers take the risk of losing their harvest. Yet so far, only minor damage has been caused by erosion. More spectacular are the large recent gullies-debris slide-debris flows which leave a deep mark on the current landscape (Figure 65, Photographs 52 and 55), such as those found at Suami Dhara (south of Aslami Tol) and at Raskuti Pokhara (north-west of Citis) and that are a threat to cultivated land. None of these existed in 1932 (Photograph 51). At the time, the locality of Suami Dhara was occupied by several tree groves, and fields had been set out. Since then, gullying that villagers date back to the beginning of 1972, has carried away all the fields and most of the trees. Despite forbidding access to the surrounding *sāl* (*Shorea robusta*) forest, this area has changed rapidly, as the bedrock is made of deeply weathered schists and offers little resistance to runoff water. As for the gullying in Raskuti Pokhara that occurred in 1962, it reactivated an old erosion scar –a deep gully similarly cut through superficially weathered schists– in a sector that seems to have never been cultivated. This may indicate the natural fragility of this slope.

Many more examples could be presented here. The geomorphological map (Figure 65) indicates the current, active forms of erosion and shows how these develop within "older" forms, thus suggesting the permanence and ubiquity of erosion in this region. In contrast, the distribution of villages and fields (Figure 66) gives quite a true picture of where the most stable sectors are to be found: ridges and spurs of convex mountainsides as well as intermediary benches not yet attacked by erosion.



(W.B. Northey) © Royal Geographical Society

Photograph 54

Citis photographed in December 1922



(J. Smadja)

Photograph 55

Citis photographed in December 1997



(W.B. Northey)

© Royal Geographical Society

Photograph 56

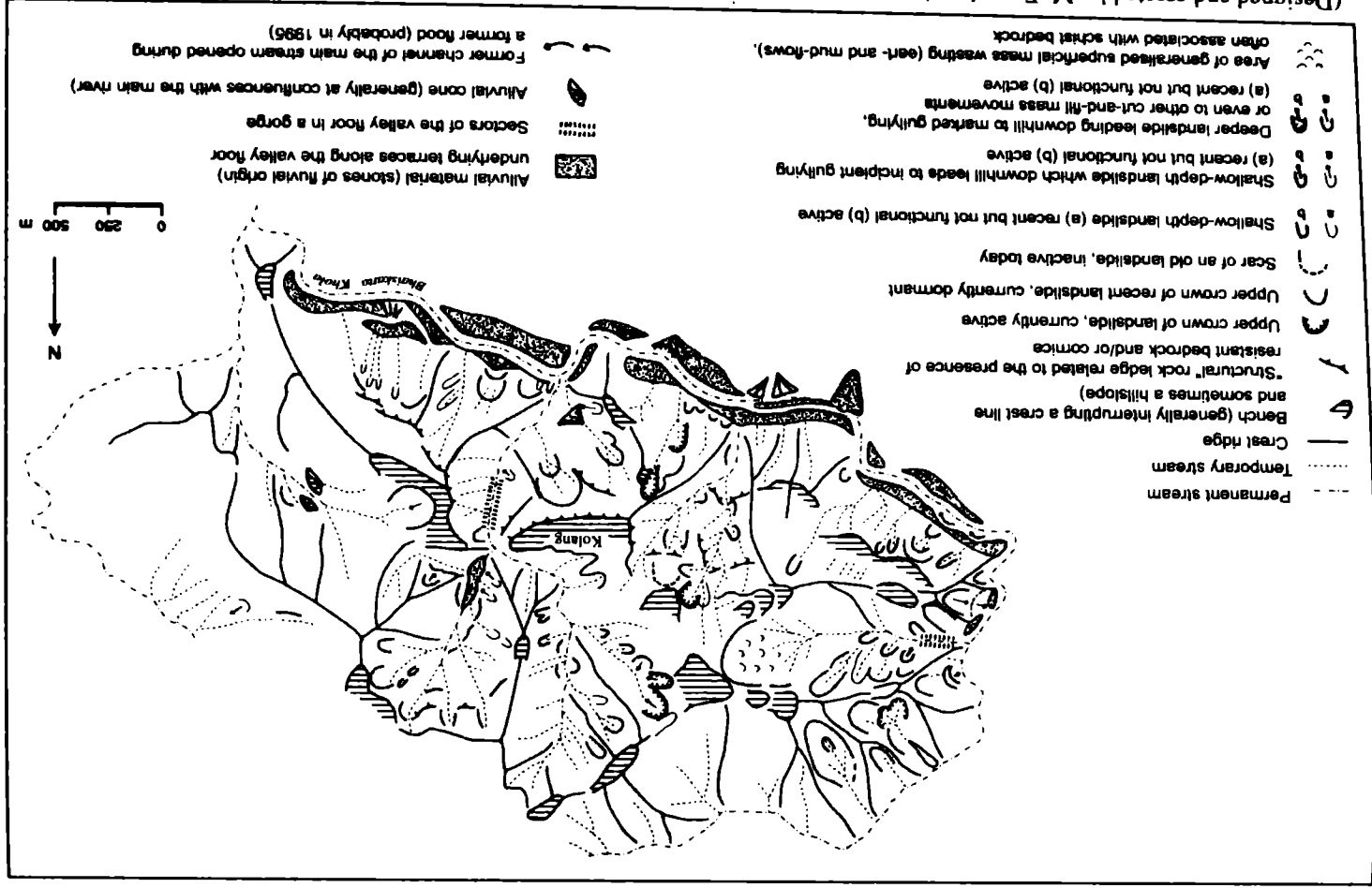
Sundanda photographed in December 1932



(J. Smadja)

Photograph 57

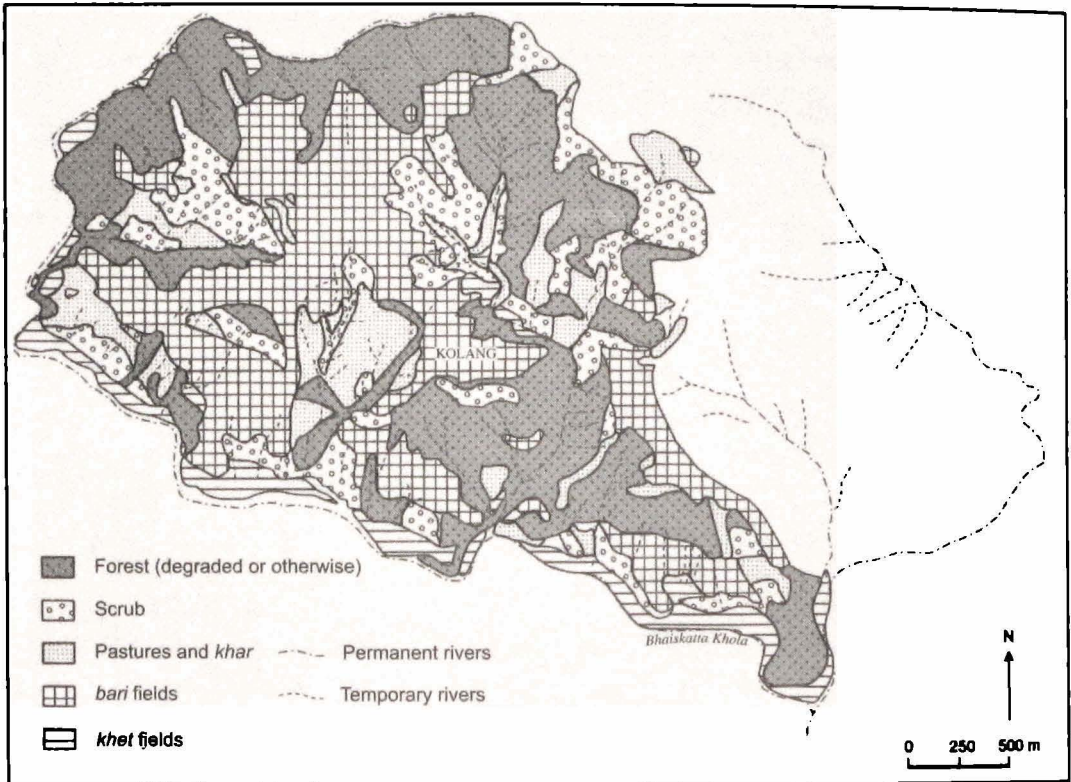
Sundanda photographed in December 1997



(Designed and created by M. Fort, drawing M. Dagan)

Figure 65

Dynamic geomorphologic map of Citis, Kolang and Sundanda



(Designed and created by M. Fort and J. Smadja, drawing M. Dagan)

Figure 66

Map of land occupation in Citis, Kolang and Sundanda

The sector is fragile and the population is aware of this. The complex mosaic of landscapes, which as a whole has been preserved between the beginning and the close of the XXth century even if there have been some changes, corroborates this fact. Any extension of cultivated land could only occur to the detriment of an already precarious equilibrium that, up to the present time, seems to be under control. As a matter of fact, paradoxically, the villagers do not think that there are any erosion problems in Masyam.

An overall unchanged structure of landscapes for almost a century

The photographs used in the diachronic comparison represent southerly-exposed mountainsides that, at the beginning of the century, like today, offer a mosaic of cultivated land on plane surfaces and on crests with somewhat convex slopes, as well as more or less dense woods and forests on steeper slopes. It is all "scattered" by ragged terrain where bedrock is outcropping,

terrain that is reserved for pastures or Gramineae meadows. Generally speaking, in the region, southerly-exposed mountainsides are rarely cultivated due to their extreme dryness, their very steep slope, but also to the "dipping" of geological layers, in the opposite direction to the slope (counter-dip) that favours water infiltration. In our case study, the situation nevertheless appears to present slightly fewer constraints, thanks to the benches that are of limestone, stable and fertile as well as to some spurs with convex crests that are well watered and have allowed the land to be cultivated. However, less than half the total surface area is cultivated (Figure 66). This explains the extremely high population densities per cultivated square kilometre. It seems that every area that could be cultivated without causing any damage has been so from the very moment the territory became occupied, since there appears to be no change in the overall structure of landscapes despite the population increase from 1922-32 and 1997.

It does not seem that Gramineae meadows or pastures were converted into cultivated fields. Forest areas were already residual and sparse at the beginning of the century. Since then, scraps of forest have further disappeared to make room for non-irrigated fields, as in the lower part of Bel Danda²¹ at Jeisi and Tallo Thari Khet (colonised more recently than the surrounding hamlets), or for pastures, as at Citis and under the Sun Danda spur. However, there has been no massive deforestation, but rather secondary phenomena. Fields cultivated at the beginning of the century have also been abandoned: in Sun Danda, sloping fields cultivated in 1922 have turned back into heath land; downhill from Aslami Tol, at Phored Danda and Cilaune Danda, the forest has taken over fields that were cultivated in 1932. The forests on the hills of Barkesh and Chaurthok, the upper part of which are sacred woods, do not seem to have changed except for the lower third of the Barkesh mountainside. As for forest degradation east of Kolang, this is due to the tornado in 1983 as previously mentioned. Today most forests are protected, they regenerate spontaneously and, except in the event of major natural phenomena, they should not undergo any important changes in the years to come.

²¹ If one considers that there has not supposedly been any new clearing of land since the land register was drawn up in 1975, these fields were therefore created between 1933 and 1975. Thus, the setting up of the land register has not put a stop to any eventual inadvertent clearing of land, as the comparison of the photographs proves that at least since 1933 further clearing of land was already limited.

Landscape units

The local terminology used to designate landscape units mainly comes from Nepali.²² In the upper part of the mountainside, the *lekh* prevails: a "cold" high-altitude land, occupied by pastures or residual forests. Thin woods and forests are called *ban* and the wood from planted trees *bricheropan ban*. The name of some pastures (*kharāk*, equivalent to *kharkā*) is no doubt inherited from periods when the forest occupied the mountainside, as *kharkā* are generally pastures in the middle of the forest in which a permanent shelter is built. Today this is no longer the case for Masyam *kharāk* that are located in woods in the cultivated sector. Other pastures located on steep slopes in the cultivated sector and overexploited, are called *gaucaran*. The *kamle*, a Magar term, are also pastures covered in short grass. The *kharen* or *khar bāri* are hay meadows on sloping land on which Gramineae generally grow. These are used for the roofs of houses or for the herds' fodder. Moreover, on some common plots of such land tests are carried out on fodder species and it is more and more often the case that trees are planted here.

In the cultivated area, the shape of *khet*, irrigated paddy fields, is quite distinct from that of *bāri*, non-irrigated fields. They both have a detailed nomenclature. *Khet* set out on the banks of the river are called *kholā khet*. Those situated on the main riverbed and regularly carried away by floods, are called *bagar khet* or *baguvā khet*. Though ephemeral, this fertile land is much sought after. The *gairi khet*, small deeply embanked paddy fields, may suffer from the shade, but are less threatened by floods. The *thāri khet* are mountainside paddy fields: their irrigation directly depends on water from a torrent, not from a feeder canal. Their main problem may be their water supply. Generally speaking, three crops are grown per year on *khet*: rice (*dhān*), wheat (*gahū*), maize (*makai*) and some vegetables. Non-irrigated plants are grown on *bāri*, such as maize, finger millet (*kodo*), wheat, sweet buckwheat (*miṭho phāpar*), mustard (*tori*), Indian rape (*sarsiū*), ginger (*aduvā*), curcuma (*besār*), tubers (*pindālu*), beans (*simi*), coriander (*dhaniyā*) and lentils (*jhilaṅge*).

In the area, *bāri* are usually large sloping plots of land; they are called *bhirālo bāri*. They contrast with fine ribbon-like terraced fields, a traditional image of Nepal's cultivated mountainsides. These terraced fields are called, when actually present in the region (which is rare) *gara bāri* or *gara sudar*

²² More accurate definitions can be found in Chapter I, "Geographic Units and Landscapes in Nepal. Local Terminologies" (J. Smadja).

"the benefit of terraces". Except for this distinction regarding the shape of fields, *bāri* also have different names depending on their use in time. Thus when the forest is cleared for the first time in order to be cultivated, the sector is initially called *khoriyā*. The following year, when this *khoriyā* is cultivated, it is called *lohase bāri*. Once the field has been abandoned, it is called *prati bāri* (abandoned land).

The permanence of sloping fields and the formation of a bocage landscape

The sloping field landscape is typical of Palpa, Gulmi (in its southern part), Argha Khanci, Pyuthan and Salyan districts. Where mentioned in literature, sloping fields are generally considered to be secondary, or as a four-to-five year intermediary stage between clearing the land and its definitive transformation into terraces. However, comparison of the photographs reveals that after more than sixty years sloping fields are still of the same shape. This corroborates the hypothesis that as soon as land is cultivated it is utilised on the slope without actually building terraces.²³ Furthermore, isolated sloping fields in the middle of forests, such as those located on the Dumre mountainside in 1997, are not, as may have been thought at first sight, recently cleared land. They already existed at the beginning of the XXth century, all of which reminds us to be wary of over-hasty judgements.

In the years 1920-1930, these sloping fields were demarcated by a small earth bank (*dhik*, that corresponds to what in France is called a "*rideau*" [curtain]), made up of a few trees, bushes and grasses that all roughly outlined a bocage landscape. Trees in fields perhaps already illustrated the scarcity of wood in an area where forests had been intensely exploited during the XIXth century. Today the real bocage formed since then is typical of this region (Photograph 58). Indeed, landscape structure on the mountainside has changed very little over sixty years –the forest has slightly receded– however an important modification has occurred in cultivated areas: there are many more trees around fields, so much so that in places they hide the houses and crops. Thus, many areas seem more wooded today than at the beginning of the century, except for paddy fields that are still treeless.²⁴

²³ SMADJA, 1993 and 1995.

²⁴ Their roots would suffer from the irrigation water and the shade provided by their foliage would particularly hinder growth of the rice. For more details on the spatial distribution of trees in fields, see GILMOUR, 1988; CARTER, 1992; SMADJA, 1995.

The role of private trees in the interweaving of agriculture and animal husbandry

The denser network of hedges is the visible sign of a major change in agrarian systems in the Masyam V.D.C.. We may be able to understand this bocage landscape by studying the one in the Kolang hamlet, where private trees are at the heart of the farming economy. The system is based on an interweaving of agriculture and animal husbandry typical of Nepal's middle and low mountains and is similar to that of the "southern" type as recorded in the typology established by P. Bergeret (1986): "Cropping systems are intensive, herds are kept in stalls, the forest has disappeared and fodder trees are dotted over cultivated terraces." Regarding the case at hand, the forest has not necessarily disappeared; it may simply be strictly protected. Trees in fields are not only allotted to fodder, but also to firewood and timber. They outline a very organised bocage landscape which is hardly present in the Trisuli sector that P. Bergeret used as an example for his work.



(T. Bruslé, 1996)

Photograph 58
Sloping fields surrounded by hedgerows, Kolang

Agriculture in Kolang is mainly subsistence farming based on cereal growing. In the whole of the hamlet, *bāri* represent 47 per cent of the farmed surface, *khar bāri* 30 per cent and *khet* 23 per cent. The average surface of the forty-two farmsteads that were the subject of our research, is 1.21 ha (24.24 *ropani*). However, land is not equally distributed. The smallest farmstead measures 0.3 ha and the biggest 3 ha. Kamis, Indo-Nepalese low-status craftsmen, occupy the poorest land at the top of the mountainside at Kami Tol. On the other hand, Magars from Aslami Tol own the best land on a vast bench and on the floor of the Bhaiskatta Khola valley. They have 92 per cent of the *kholā khet* of the Kolang hamlet.

Animal husbandry meets three basic needs in Nepal's middle and low mountains. It provides the necessary traction force and manure for agriculture as well as milk and meat products for human consumption. Since the mid-1980s, the number of herds has decreased by about 20 per cent, particularly among bovine. In 1996, 1.7 oxen, 2 cows, 1.7 buffaloes, 4 goats and 1.4 pigs were recorded on average for every farm. The average number of animals per farm is 12.6 in Aslami Tol, 9.8 in Saru Tol, 8 in Jiuni Kharak and 5.8 in Kami Tol. Even if there are no caprine or porcine on certain farms, there are always at least two large animals, buffalo, ox or cow, which is the very smallest acceptable number of animals for producing fertiliser.

The number of animals depends on fodder resources and, as most forests have been made into exclosures, it closely relies on private trees. Indeed, the latter on average provide 45 per cent of the total annual fodder, versus 33 per cent for grasses and 22 per cent for straw from rice, wheat, mustard, finger millet and buckwheat crops as well as maize stalks. Thus the inhabitants of Kami Tol, who have few private trees, have recorded a very severe drop of about 35 per cent in their goat population.

Certain animals graze every day on authorised common land, though foddering is mainly carried out in stalls in the morning and evening. According to inhabitants of Kolang, the best feed for cattle should combine the same quantity of dry fodder (*sukheko*) and green fodder (*hariyo*) every day. In reality it is quite a different story. Indeed, from November to June-July, feed is made up of partly dry crop residues (mainly rice and wheat straw) and partly leaf fodder (*dāleghās*). However from June-July to October, on most farms, animals are only fed grass fodder (*bhuighās*) growing on the talus between *bāri* or in the *khar bāri*.

Among the forty-two farmsteads studied, most have encountered difficulties in obtaining fodder supplies. Only eight farms have sufficient quantities all year round. Over all, the most critical period is at the end of the dry season, from March to May, when there are no leaves on the trees, when they no longer grow back, when crop residues run out and when there is little grass. While many farmers take leaf fodder from their own land, others, such as those from Kami Tol, only stock up in forests. Farmers owning few private trees spread leaf foddering over time in order to avoid providing a feed based solely on dry fodder. Some take fodder illegally from the forests to save their own fodder for the most difficult months, even if it means "underfeeding" the animals over a certain period of time. Stone (1980) already confirmed this fact by recording that in the Palpa district 75 per cent of farmers tap accessible forest resources.

Eighty percent of the time, leaf fodder comes from trees surrounding *bāri* that are generally situated close to houses. The remainder comes from *khar bāri* and from the forest. From November to June-July, trees are pruned daily, preferably once, but a maximum of twice a year (Table 8).

Private fodder trees have therefore become one of the essential cogs in animal husbandry and in the whole of the agrarian system. Hence, despite forbidden access to forests and the limited availability of manpower, the growing number of private fodder trees and permanent stalling gradually seems to allow the number of animals per farm to be maintained and, consequently, the *bāri* to be kept fertile.

Furthermore, in the past only wood chosen for its calorific properties was burnt, yet over the last ten years or so, 90 per cent of firewood comes from branches and twigs gathered after leaf fodder has been eaten with no consideration for their species or value. After drying they are burnt. Finally, all timber comes from private trees. This can only be understood when taken in relation to the restrictions on collecting wood and timber that have been in force since the nationalisation of forests in 1957; however these were only really respected after 1991, when any felling in collective forests became strictly forbidden and punished by a hefty fine.

These observations regarding a few mountainsides confirm the overall Nepalese situation, where since the 1980s there has been a growing number of trees in cultivated sectors. Their fodder, timber and fuel production replaces what in the past came from trees in the forest. Morris and Northey's photographs show that this process had already begun in the Tansen region

in the 1920s. The number of private trees per farm in Kolang, 425 on average with some farmers having more than 800, is proof of the now crucial role that trees play in the region's rural economy. Whereas in Europe bocages have been abandoned or preserved for heritage purposes, the one in this region is fully expanding and is for a large part the result of a wood shortage.²⁵

A complex mosaic of plots and earth banks

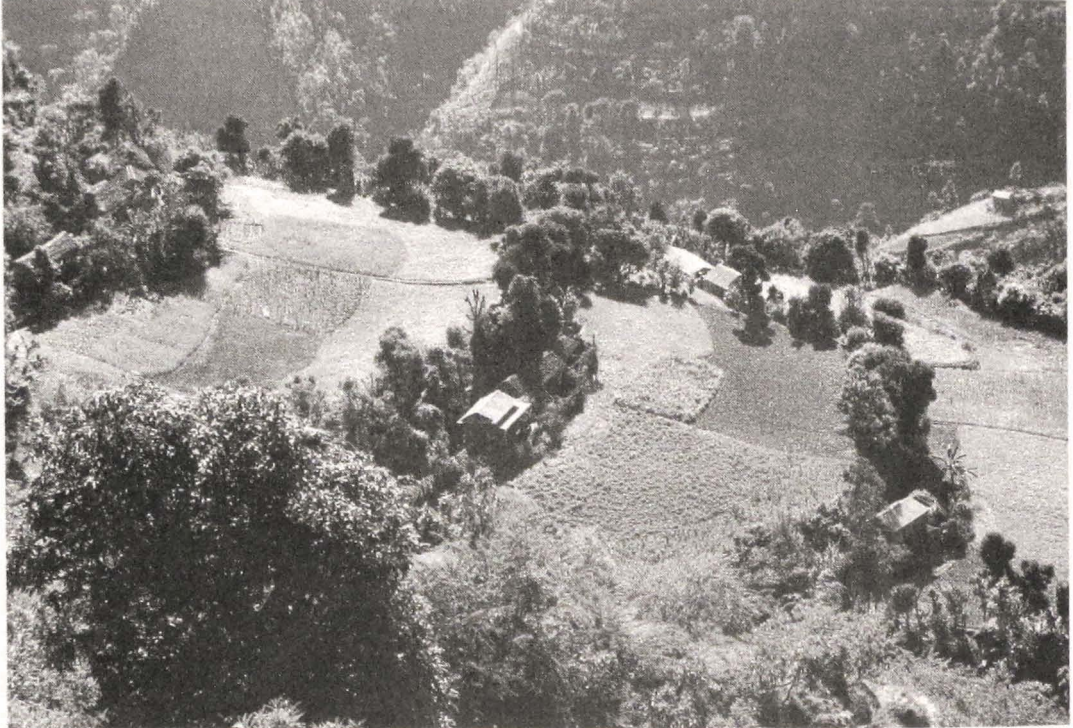
Trees, carefully selected according to their use and their pruning calendar, show great diversity. In addition to trees providing timber and firewood (Table 8), more than 50 species of fodder trees per farm have been recorded. Their distribution varies according to whether they occupy *khar bāri* or earth banks around *bāri*.

Hay meadows (*khar bāri*) are often planted with trees that are used almost exclusively for timber with the exception of some fodder trees that grow spontaneously. The main trees on the *khar bāri* are *sāl* (*Shorea robusta*), *sallā* (*Pinus roxburghii*), *cilaune* (*Schima wallichii*), whose leaves are used for animal litter during the monsoon, *khalluk* (*Myrsine semiserrata*), *ciuri* (*Bassia butyraceaea*), whose seeds are cooked and pressed to produce cooking oil, *khanyu* (*Ficus semicordata*). Shrubs also grow there and provide firewood and a kind of fodder that animals do not particularly care for. Managing *khar bāri* implies taking into account different needs, since a balance has to be found between the need for thatch for roofs, grass fodder for herds and timber for future houses.

On the *dhik* surrounding the *bāri*, half of the trees are represented by eight species that offer the best fodder (Photograph 59): *dabdabe* (*Garuga pinnata*), *kutmero* (*Litsea polyantha*), *khanyu* (*Ficus semicordata*), *phasro* (*Grewia tiliaefolia*), *kabro* (*Ficus lacor*), *kimbu* (*Morus alba*), *berule* (*Ficus clavata*), *badahar* (*Artocarpus lacucha*). The *dabdabe*, *kabro* and *kimbu* are layered; the *kutmero*, *khanyu* and *phasro* grow spontaneously and are replanted. These two methods, that have been practised for a long time, ensure high rates of survival, around 80 per cent, compared to the poor chance of survival for species imported from government nurseries (from 30 to 40 per cent). All the other trees on the earth bank grow back naturally. Peasants then select them depending on their future needs. Fodder species are

²⁵ On this subject see the different pieces of work on the Champsaur bocage in the Hautes-Alpes (France), in MOREL and ROVÉRA (ed.), 1996, and in MARTIN, 1999.

preserved, whereas bushes or trees of no particular use are eliminated. The only ban on cutting leaf fodder involves the sacred pair, *banyan-pipal* (*Ficus benghalensis-Ficus religiosa*), when they have been planted as a *cautārā*, "resting place". However, if a *banyan* or a *pipal* grows on a talus without having been planted, its branches can be pruned.



On a same plot, one can find mustard, Indian rape, sweet buckwheat, ginger, curcuma, tubers, beans, coriander (photograph J. Smadja, November 1997).

Photograph 59

Diversity of trees making up the mesh of the bocage and diversity of crops

On *bāri*, trees and crops compete for light and water, with some villagers considering that "if no trees are planted, there is less fodder; if trees are planted, harvests are poorer". The main effects of shade on crops are characterised by the difficulties plants have in growing; they do not grow or grow slowly, they do not ripen or ripen late²⁶ (Photograph 60). Added to these difficulties, the sloping topography of the plots favours migration of the fertilising elements towards the bottom of the fields. The ripening of

²⁶ In France, BARLOY and CHEROUVRIER (1976) have shown that the growth of maize was delayed at the edge of the hedgerow, though on the contrary accelerated over the rest of the plot as a result of the climatic benefits the hedgerow provides (temperature, windbreak effect, evapotranspiration).

plants varies from one to two weeks between the middle of the field and its perimeter. Crops most sensitive to shade are, in decreasing order, maize, wheat, mustard, buckwheat and finger millet. Trees considered to give most shade and need most water are the *phasro*, *khanyu* and *dhannu bans* (*Bambusa sp.*). However, most villagers have adopted practices leading them to conclude that trees are not a real constraint to growing crops. Indeed, they explain that crops are sensitive to shade in cold periods, from October to February, but that at the height of the plants' growing season, trees are pruned, the sun is generous, even during the monsoon when it is at its zenith and therefore there is sufficient sunshine and water supply. Moreover, the dates for sowing, the type of crop achieved and the spreading of fertiliser differ from one place to another over plots of land, so that, in the same field and at the same time, up to eight different crops can be found: mustard, Indian rape, sweet buckwheat, ginger, curcuma, tubers, beans and coriander (Photograph 59). Similarly, the choice of species of trees compatible with food production has been accomplished over a long period of time and is a practice closely linked to the village's agricultural history. The trees found today on the earth banks are not those that were spared when land was cleared a long time ago, as the photographs from the beginning of the century prove. Therefore, selection of trees and crops over time and space allows villagers to overcome any possible disadvantages of this cohabitation.

These adjustments to the environment,²⁷ chosen by villagers themselves (cultivating in a sloping field, planting trees around fields), formed a remarkable colourful mosaic on a plot scale in the landscape in December 1997. Morris and Northey, who travelled in the region during the same season, make no mention of such diversity in their brief written descriptions.²⁸ Neither is it discernible in their photographs. There was probably less crop variety at the beginning of the XXth century, as confirmed by farmer surveys, and the variety observed today is no doubt linked to the presence of trees around the fields.

²⁷ But also to new socio-economic deals that we shall examine further on.

²⁸ "They are many mango topes in the locality, and oranges and lemons are also said to be plentiful. Otherwise, generally speaking, the soil is rather poor in this part of the country, and save in the sheltered valleys of the Kali river, very little rice is grown. Round Massiang and save in the sheltered valleys of the Kali river, very little rice is grown. Round Massiang itself, some four thousand feet or so above sea level, they grow chiefly Indian corn, wheat, buckwheat and barley" (NORTHEY, 1937, p. 189).



(J. Smadja, November 1997)

Photograph 60

Shade produced by trees over cultivated plots of land

Villagers' vision of their milieux in Kolang and Citis

Even though shade produced by trees is no real constraint as regards the field, shade and sun are parameters taken into account by the population, since they are described in the toponymy (Table 13 in appendix) and used to qualify types of land. In the westerly and north-westerly exposed part of Citis, several place names indicate a sector in the shade (*rip*): Rip Tol, Rip Tol Ban, Rip Khet. Shade, in this case, is evidently a constraint. Besides,

land here is not cultivated much, whereas nearby, as soon as the mountainside is exposed to the south, the toponymy indicates a sunny neighbourhood: Surya Tol, where the slopes have been cultivated at least since the beginning of the century. However, on the very sunny ridge at the Kolang summit, it is the cold character due to altitude (1,500 m) that is emphasised by the place name Shikhar Danda.

Place names referring to ridges (*dāḍā*) and to gullies (*gairā*) are frequently to be found, as they illustrate the rugged aspect of mountainsides; several names indicate unstable places: Singi Gaira, "Collapsing Gully", Balding Danda, "Residual Ridge"; Baguva Khet, "Inundated Paddy Fields". The availability of water plays a major role in land use and hydronyms report the presence of water at Goghandi, water which gurgles at Gurgure, the marshland at Kalahara Khet or at Tari Khola, spring water at Kuwa Pani Gaira. On the other hand, dry land, with a steep slope, unable to retain water, is mentioned at Kharo Pani Gaira and at Kharo Pahad.

These particularities of the milieux also stand out in the way villagers qualify their soil (Frame 22). They characterise it according to its colour – associated with its fertility and how much manure and water it needs– its texture and its structure (compactness, porosity, stoniness, capacity or incapacity to retain water) and its behaviour with regards ploughing. They distinguish *ciso māto*, good wet earth on which crops are "green", so they say, grow well and "do not dry up", from *khare māto* or, worse still, from *cokhare māto*, extremely dry earth, of a sandy texture, very porous, which hardly retains water and is considered to be of poor quality. If water is particularly necessary for farming in this sector with its long dry season, too much water, in particular during the monsoon, leads to considerable erosion on sloping plots of land. Soils are then qualified as *umlane māto*, *umlane* meaning "to boil": earth erodes and is dragged with the manure down to the foot of the slope. They further distinguish cold earth (*shikhar*) from warm earth (*garmi*), which they associate with notions of being fit for growing crops and producing good yields, and finally sunny earth (*rāpilo*), where "the sun is burning hot", from shaded earth (*rip*). This sunshine is a godsend for crops, especially in sectors with gullies where trees and cereals grow, but it may become a problem if there is too much of it on compact earth that hardens, or on steep eroded slopes with porous ground. This last type of earth is therefore said to be *khare māto* or *khare phusro māto*, with a greyish shade of colour being one of its characteristics. On the other hand, in permanently shaded sectors of Rip Tol, the earth and crops suffer due to the

lack of sunshine. One can understand why earth is often characterised in terms of shade or sun, humidity or drought, cold or hot, these three oppositions not being equal to each other. Wheat is particularly sensitive to these pedo-climatic variations. It needs good earth (*ciso māto*), i.e. sufficiently wet earth. That is the reason why it is not planted everywhere, not on porous and particularly dry earth, nor every year depending on pluviometric conditions.

Frame 22

Pedologic Vocabulary Used in Kolang

Joëlle Smadja

| | |
|---------------------------|---|
| <i>māto</i> | soil, earth |
| <i>cāmro kasilo māto</i> | compact, dry, very hard soil, difficult to till |
| <i>cāmro māto</i> | compact soil |
| <i>chiure para māto</i> | stony ground (<i>chiure</i> : mixed stones 2-3 cm) |
| <i>ciplo māto</i> | damp, slippery, sticky, slimy earth (low infiltration capacity) |
| <i>ciso māto</i> | fresh damp soil, good soil, crops do not dry out |
| <i>cokhare māto</i> | very rough, very rocky and permeable soil; dries up at once after a rain shower |
| <i>dhuṅge dhuṅgā māto</i> | moderately rocky soil |
| <i>dhuṅge māto</i> | rocky soil |
| <i>gambhīr māto</i> | deep soil, "serious", the best |
| <i>garmi māto</i> | "warm" earth producing good yields |
| <i>gogreto māto</i> | very rocky, dry, poor quality soil; little cultivated |
| <i>garuṅgo cāmro māto</i> | black, greenish, very sticky, clayey, compact soil (gley) |
| <i>garuṅgo māto</i> | heavy soil, difficult to till |
| <i>kālo māto</i> | black soil generally considered to be good soil |
| <i>kamero</i> | white earth |
| <i>kasilo māto</i> | hard soil when it is dry, compact |
| <i>khare māto</i> | dry soil with a mixture of stones and sand; brought by landslides, with negative connotations, not very fertile, poor soil; often associated with <i>phusro māto</i> (greyish soil) |
| <i>khasro māto</i> | sandy, light, soil, easy to till but dry |
| <i>lesailo māto</i> | sticky, clayey soil |
| <i>mālilo kālo māto</i> | good black soil, fertile |
| <i>mālilo māto</i> | fertile soil |

| | |
|---------------------------|--|
| <i>masina māto</i> | soil containing small stones |
| <i>pahenlo māto</i> | yellowish soil (brown soil) |
| <i>pahenlo dhani māto</i> | yellow ochre soil of the colour of rice (<i>dhan</i>); used for coating houses |
| <i>phusro māto</i> | soil of a dull faded greyish colour (said of soils that are dry and pulverulent) |
| <i>rapilo māto</i> | very sunny ground, whether an asset or a constraint |
| <i>rāto māto</i> | red soil of variable quality |
| <i>rip māto</i> | shaded soil producing poor yields |
| <i>seto kamero māto</i> | white soil for coating houses (<i>ghar lipneko lagi</i>) |
| <i>shikhar māto</i> | "cold" earth producing poor yields |
| <i>thuol māto</i> | very compact, clayey and damp soil |
| <i>umlane māto</i> | soil that slips, becomes gullied, washed out, loses its manure; characteristic of sloped fields (<i>umlane</i> means "to boil") |

Very fine development of environments as illustrated by the study on soils in the Kolang ward

On closer examination in the Kolang ward along a transect from Kami Tol to Bhaiskatta Khola (Figure 61), and by using chemical analyses as well as locally used terminologies and the way land is used, the study of soils illustrates a very finely tuned adjustment of farming activities to the main features of the milieux mentioned above²⁹ (Table 9).

The types of soil partly reflect the variety of geological terrains previously mentioned: on limestone benches, soils are on the whole less acid than those that have developed on steeply sloped schistose terrains. However, other parameters are involved in their development. Plane irrigated paddy fields trap fine particles and nutriments that increase the soil's pH level. Sloping fields and the "rejuvenation" of the surface soil as a result of this, ensure constant regeneration of the useful stock of mineral elements for plants. This compensates for their being dragged down the slope by percolation water and therefore by a limitation on the acidification of soils. Furthermore, natural draining of these sloping fields is indispensable when growing tubers to avoid the seeds from rotting. Moreover, the enrichment of cultivated land improves its fertility. Fertility is achieved in various ways.

²⁹ See also on this subject the work of SHAH (1995) in the Jhikhu Khola and that of MÜLLER-BÖKER (1991) in Gorkha.

Table 9
Study of Soils in Kolang Ward
M. Fort and J. Smadja

| | Samples taken at | Altitude in m | pH | CO % | N % | C/N | Sand % | Silt % | Clay % | Textures according to USDA triangle | Textures according to INRA triangle | Observations | Qualification in local terms |
|---|------------------|---------------|-----|------|-------|-------|--------|--------|--------|-------------------------------------|-------------------------------------|--|---|
| 1 | Kami Tol | 1,450 | 4.7 | 1.64 | 0.114 | 14.39 | 26 | 40 | 34 | Clayey-silty | Clayey-silty | Top of the mountainside, ridge . <i>bāri</i> , red earth on greenish then purplish schists. Maize, buckwheat, mustard crops. Possibly some wheat, but yields are poor. Fertiliser: <i>asuro</i> leaves. Difficult to plough | <i>rapilo, rāto, kasilo, umlane māto</i> |
| 2 | Kami Tol | 1,448 | 5 | 2.30 | 0.171 | 13.45 | 42 | 34 | 24 | Silty | Silty-clayey | Lower part of the same field. Red soil | <i>rapilo, rāto, kasilo, umlane māto</i> |
| 3 | Shikhar Danda | 1,405 | 5.5 | 1.25 | 0.057 | 21.93 | 24 | 36 | 40 | Clayey-silty | Clayey-silty | On convex ridge. Pasture meadow. Red soil on altered schists | <i>rapilo, rāto, kasilo, umlane māto</i> |
| 4 | Shikhar Danda | 1,355 | 5.7 | 0.93 | 0.082 | 11.34 | 34 | 42 | 24 | Silty | Silty-clayey | Red soil. Field of buckwheat and mustard. Stonier ground | <i>rapilo, rāto, kasilo, umlane māto</i> |
| 5 | Saru Tol | 1,335 | 5.5 | 0.70 | 0.145 | 4.83 | 38 | 47 | 25 | Silty | Silty-clayey | Top of a sloping field (22°). Field of Indian rape. mustard. maize. buckwheat. wheat. Brownish-yellow soil, many stones, easy to plough. Good soil but manure slides downwards due to the slope. | <i>pahenlo māto, ciso māto, umlane māto</i> |
| 6 | Saru Tol | 1,305 | 5 | 0.93 | 0.133 | 6.99 | 38 | 35 | 27 | Silty | Silty-clayey | Bottom of the same field | <i>pahenlo māto, ciso māto, umlane māto</i> |
| 7 | Saru Tol | 1,222 | 5.8 | | 0.183 | x | 66 | 25 | 9 | Sandy-silty | Sandy (silty sand) | Wheat has been sown (not always the case each year). Before there was maize, finger millet and lentils. Brown stony soil. Easy to plough | <i>ḍunge rāto māto, chiure para māto</i> |
| 8 | Saru Tol | 1,210 | 5.5 | 2.02 | 0.158 | 12.78 | 48 | 33 | 19 | Silty | Sandy-silty | Same field 12 m further down | <i>ḍunge khare rāto māto</i> |
| 9 | Milan Tol | 1,150 | 6 | 1.40 | 0.139 | 10.07 | 27 | 40 | 33 | Clayey-silty | Clayey-silty | Field on a bench. Crops: rape ; before: maize, finger millet, buckwheat, wheat. Very good red soil, heavy, difficult to plough, calls for a lot of manure. | <i>ciso māto</i> |

| | | | | | | | | | | | | | |
|----|--------------|-------|-----|------|-------|-------|----|----|----|--------------|--------------|---|--|
| 10 | Raskuti | 1,200 | 6 | 1.61 | 0.133 | 12.11 | 34 | 40 | 26 | Silty | Silty-clayey | Field of buckwheat. Brown yellow colour, not very stony | <i>pahenlo māto</i> |
| 11 | Bel Danda | 1,075 | 5.9 | 0.08 | 0.025 | 3.20 | 30 | 54 | 16 | Silts | Silty-clayey | Yellow ochre soil containing small stones. Poor soil which needs a lot of manure if one wants to cultivate it. Used to coat the walls of houses. | <i>pahenlo dhani māto</i> (<i>dhani</i> : colour of dhan, rice) |
| 12 | Kabro Danda | 1,100 | 7.3 | 0.47 | 0.082 | 5.73 | 44 | 42 | 14 | Silty | Silty | <i>thari khet</i> . Very good soil which bears 3 crops a year: rice, wheat, maize and vegetables. Good yields. Easy to plough. A few stones. Only calls for a little manure. | <i>gambhīr, pahenlo, ciso māto</i> |
| 13 | Kabro Danda | 1,065 | 7.3 | 1.25 | 0.133 | 9.40 | 50 | 34 | 16 | Silty | Sandy-silty | <i>thari khet</i> further down, nearer the river. Some stones, very sticky, easy to plough. Benefits from fertilising elements that have slipped down the slope. | <i>gambhīr māto, đunge đunga, lesailo</i> |
| 14 | Banjing | 870 | 5.9 | 2.26 | 0.139 | 16.26 | 61 | 24 | 15 | Sandy-silty | Sandy-clayey | At the top of a sloping field (25°). Brown soil, very stony, very permeable, extremely dry. Crops: maize, buckwheat, mustard. Finger millet if enough rain. Too dry for wheat. These soils only need a little fertiliser. | <i>khare sukhā kālo māto, cokhare māto</i> |
| 15 | Banjing | 850 | 6.5 | 2.20 | 0.164 | 13.41 | 63 | 26 | 11 | Sandy-silty | Silty sand | Same field 50 m further down | <i>khare sukhā kālo māto, cokhare māto</i> |
| 16 | Singi Gaira | 820 | 7 | 1.48 | 0.183 | 8.09 | 40 | 36 | 24 | Silty | Silty-clayey | <i>thari khet</i> . Black fertile soil with some small stones. Does not need animal fertiliser, only <i>asuro</i> leaves. Easy to plough. 3 crops a year. Good yields | <i>mālılo kālo māto</i> |
| 17 | Cakmake Khet | 790 | 6.5 | 1.47 | 0.127 | 11.57 | 36 | 30 | 34 | Clayey-silty | Clayey-silty | <i>kholā khet</i> . Heavy soil, compact, sticky, difficult to plough, black, greenish: gley. If urea is added the soil is even more compact. 3 crops a year. Good yields | <i>garuṅgo, lesailo, cāmro, kālo, māto</i> |

The soil analyses were carried out by the Soil Science Division, Nepal Agricultural Research Council in Kathmandu. Samples were taken between 15 and 20 cm deep.

The most widely used fertiliser (*mal*) is of animal origin. Generally speaking, cow and buffalo dung is spread over the nearest fields, and goat droppings, which are lighter and easier to carry, are employed over the fields furthest away. The latter has a fertilising capacity that lasts longer than that of other animals' excrements. The fertiliser is also of vegetal origin with the spreading of *katus* (*Castanopsis indica*) leaves in ginger plantations and *asuro* (*Adhatoda vasica*) leaves in rice nurseries, paddy fields and also in non-irrigated fields. *Asuro* has the advantage of being both a very good fertiliser and an insect repellent; it therefore protects crops.³⁰ *Jhilange* (lentil) crop residues also make an excellent nitrogenous fertiliser for plants growing after lentils in the same field. This is why chemical fertilisers are hardly used, as villagers believe that these destroy soils. They have noted that if they spread urea, soils are even more compact, compactness being one of the constraints for soils in this region.

Frame 23

Various Facts about Soils

Monique Fort and Joëlle Smadja

At the top of the mountainside, in Kami Tol and in Shikhar Danda (Table 9), between 1,450 and 1,350 m (samples 1 to 4), red soil (*rāto māto*), developed on greenish and purplish schist, of a clayey-silty to silty texture, is qualified by villagers as *thulo māto* (heavy soils), or as *garuṅgo māto* (sticky soils), difficult to plough, or else as *cāmro māto* (compact soils). It is particularly hard when dry and it is then called *kasilo māto*. Ploughing can only be done after rainfall. To guarantee good yields, they have to be ploughed twice for wheat and at least three times for maize. This is acid, washed out, unsaturated soil, with a pH of between 4.7 and 5.7. It requires a lot of manure. The organic matter is badly decomposed, as shown by the rate of mineralisation C/N (carbon over nitrogen) that is generally greater than 12. For sloping fields, the situation is a little better in the lower part of the plot: the pH increases slightly; there is more organic matter and it is better decomposed; the soil is a little less acidic and a slightly more fertile. This type of soil erodes easily and villagers talk of *umlane māto*. When the slope is nil (sample 4), the pH rises and the soil, which is less acidic, is on the whole of better quality (C/N = 11.34). Throughout this high part of the Kolang ward, although the sun "beats down" (*tapilo*), contributing to the ambient drought, the land, due to altitude, is considered to be "cold" (*shikhar*), and consequently not as good for crops as the "warm" land (*garmi*) at the lower part of the mountainside. Wheat is

³⁰ Personal communication from Dr Prabakar B. Shah (ICIMOD).

rarely planted and only two rotations per year are carried out: maize-finger millet then buckwheat. Maize, planted later than over the rest of the mountainside, in March-April-May, after the first spring rains, takes longer to ripen. From November to March, this land belonging to the Kamis, the most underprivileged group in the Kolang ward, is not generally cultivated. The soil throughout is therefore considered to be poor and erodes easily due to the slope, barely fertile, dry and cold. This requires a lot of manure, though the Kamis are those with the fewest heads of cattle.

In Saru Tol, between 1,340 and 1,200 m (sample 5 to 8), the soil, of a silty to sandy-silty texture, is stonier and consequently less compact. It is not as difficult to till and calls for less ploughing. It is called *pahenlo māto*, for brown soil, *umlane māto* and *khare māto* for soil on an easily-eroding slope, or else *dhuṅge rāto māto* and *chiure rāto māto* for red soil which is sandy or contains a great deal of gravel. The pH is a little higher, though still acid, and it fluctuates between 5 and 5.8. Here wheat farming depends on the rainfall, humidity content and on the fertility of the land. When wheat is not cultivated, it leaves room for maize, buckwheat, mustard and lentils. Villagers consider the soil to be "all right".

At around 1,200 m, the land of Milan Tol (sample 9) is regarded as being "warm" (*garmi*) and of good quality, with a C/N ratio of 10, though difficult to work, since it is clayey-silty to silty and compact: this red soil is called *garuṅgo rāto māto*. It requires a lot of manure, but the moderately acid pH is higher: around 6. It benefits both from the fertilising elements that have slipped down the slope and are blocked on the bench, and from the limestone parent rock. In Raskuti (sample 10), that is not situated on a bench, the clear brown soil, less compact, of a silty texture and not quite as stony, is easier to plough. The rate of mineralisation of organic matter is good here: close to 12.

However, at the same altitude, the soil that has developed on eroded and dry slopes and on rough colluvium, as in Bel Danda, is considered to be very poor. This is *khare phusro māto*. Sample 11 corresponds to a yellow ochre soil (*pahenlo dhani māto*), silty, very poor, with practically no organic matter, and producing mediocre yields. This type of earth is used above all for coating houses.

On the other hand, in Kabro Danda (1,100-1,065 m), on wetter sloping ground bordering the river, where *thāri khet* (samples 12 and 13) are set up, the best soil on the mountainside is to be found. It is silty to sandy-silty, contains some stones (*dhuṅge dhuṅgā*), is easy to plough and its pH is neutral: 7.3. It requires little fertiliser, as it benefits from what accumulates at the foot of the slope along with the supply of nutrients from irrigation water trapped on the perfectly plane surfaces of the terraces. Crops, of which there are three a year, grow particularly well here, especially since the soil is "warm" (*garmi*) and "damp" (*ciso*). This earns it the exceptional quality of *gambhīr māto*, which means "deep soil", "serious"... "*Gambhīr mātoma tin kethi āuchan*" (Three crops per

year can be produced in the deep soil), so the villagers say. If one refers to the scale of fertility of tropical soil in irrigated areas, as established by Dabin (*Memento de l'agronome*, 1974), according to the pH and to the total nitrogen content (N‰), sample 12 would be very fertile (N‰ = 0.82) and 13 exceptionally fertile (N‰ = 1.33). Villagers consider that there is no problem of shade on these *thāri khet*—even though they are often set up in deep thalwegs— as the soil is damp, the weather is warm and there is enough sunshine. Contrary to the ridge, here sunshine (*rāpilo*) is considered to be a great bonus.

Steeply sloping (25 per cent) *bāri* land situated below 900 m, in the area surrounding Banjing (samples 14 and 15) is sandy-silty and extremely dry. Easy to plough and of a moderate to low acid pH, between 5.9 and 6.5, this black land (*kālo māṭo*) could be of good quality if it were not so permeable. Villagers qualify it as *khare suka kālo māṭo* and as *cokare māṭo* to convey its stoniness and permeability. They report that even if it rains in the morning, in the afternoon the soil has already soaked up the water and is very dry. Consequently cropping is limited to maize, buckwheat and mustard, and sometimes even to one of the three. Wheat and finger millet, when planted, do not grow very well.

The *thāri khet* located downhill from Banjing, in Singi Gaira, at 820 m (sample 16), with a good supply of water, on the other hand, have very good "black" soil, sandy-silty, easy to plough, of a pH of 7, requiring little manure; only *asuro* leaves are spread over them. These fields bear three crops a year. With a total nitrogen content of 1.83‰, the fertility of this soil is considered to be exceptional according to Dabin's scale. It is qualified as *malilo kālo māṭo* (fertile black soil).

Finally, the *kholā khet* soil at the foot of the mountainside, on the edge of the Bhaiskatta Khola in Cakmake Khet (sample 17), is compact (*cāmro*), difficult to plough, of a sticky texture (*lesailo*), hydromorphic. Villagers say that if urea is added, it is even more compact. That is why, time permitting, only *asuro* leaves are spread over it and possibly animal manure (especially from goats). Since it benefits from a good water supply, it produces three crops a year and yields are good. With a pH of 6.5 and a total nitrogen content of 1.27‰, according to Dabin's scale, its fertility is considered to be very good. This greeny black, clayey, very sticky soil similar to gley (waterlogged soil) is called *garuṅgo cāmro māṭo*.

The adjustment to conditions in different milieux, on variable scales, is therefore extremely elaborate. The changes that have occurred in society since the beginning of the century have simply further reinforced the features of an already complex mosaic, consequently showing constant adaptation of these rural communities to the different internal or external constraints encountered over the course of time.

Recent accentuation of collective practices and of the individualisation of farms

Like everywhere in Nepal, demographic growth, progress in educating the younger generations, the gradual shift to a market economy and the political changes over recent years have deeply influenced changes in Masyam village society. In particular, the awareness of problems linked to overgrazing and forest degradation has been favoured by back-up structures that have found good channels through farmers who are aware of environmental issues.

The Masyam hamlets have set up development committees that play a decisive role in protecting public spaces and, more marginally, in promoting fodder trees. Thus, the Milan Tol Bikas Sumitee (MBS) was created in 1988 at Milan Tol in the Kolang ward, thanks to the impetus of the Community Health and Development Programme NGO under the patronage of the Tansen Mission Hospital. The MBS fixes rules for accessing forests and pastures and runs a programme on collective plantations. In 1988, in the framework of this programme, 300 plants of fodder trees were planted and fodder grasses –*Stylosanthes guyanensis* and *Molasses*– were sowed on *khar bāri*. In 1997, most of the trees had died, but the grass fodder was still harvested about three times a year.

In Aslami Tol, since 1996, forests have been reopened to grazing and to collecting fodder, after having been closed to any form of exploitation for five years. As for the Saru Tol development committee, it does not propose any help in planting fodder trees, but it has instituted guard duty around the Raju Ban forest at Besar Kholā, where only grazing is authorised.

Parallel to this, the Forest Office promotes growing private fodder trees by providing plants of numerous fodder species free of charge: *ipilipil* (*Diverxipholia*), *koiralo* (*Bauhinia variegata*), *badahar* (*Artocarpus lacucha*) or *bakaino* (*Melia azedarach*). Fruit tree plants are sold at 10 rupees a piece: *suntala* (*Citrus reticulata* Blanco), *aru* (*Prunus persica* Linn.), *litchi* (*Litchi chinensis* Sonn.), *kagati* (*Citrus aurantifolia*), *amilo* (*Rumex parpego*). These services are diversely appreciated by villagers who make the reproach that there is not a very wide choice of varieties. Moreover, the periods for planting trees correspond to an intense work period, so villagers have little time to go to the nursery.³¹

³¹ SHRESTHA and SURVAL, 1993.

For several years now therefore, a double-sided change is taking shape in the Masyam hamlets. The growing use of private trees around fields and permanent stalling contribute to farms withdrawing into themselves and to a certain individualisation regarding their management. At the same time, community dynamics, represented by development or mutual help committees, is a sign of considerable cooperation between farmers.

The effects caused by the Siddhartha Rajmarga

Up until 1968, the portage of goods on men or mules' backs over the long distance between Butwal and Baglung, was an important economic activity in the region. It appears that at the beginning of the century, portage mobilised 75 per cent of the active population for almost a fortnight a month and for up to twenty-five days during the monsoon (according to Bernard 1997). It therefore competed with agriculture and animal husbandry.³² After 1968, the creation of a bus service on the Siddhartha Rajmarga, the new road linking Butwal to Pokhara, led to its disappearance. Hence inhabitants of the region mostly turned to their land to try to increase their income from their farmsteads. This resulted in an intensification and diversification of farming, the surplus of which, thanks to the road, could be sold on Butwal market. The spice trade, and in particular ginger and curcuma, has developed. Winter wheat has been cultivated more systematically. Fallow periods are now shorter. These changes have been accompanied by the suppression of common grazing ground that was still in practice in certain sectors.³³ Trees (especially fodder trees), growing on the edge of fields, were therefore able to regenerate more easily. The network of hedges has become denser and fodder crops in the *khar bāri* have grown in number. This tendency has become still more accentuated since 1992 with the establishment of milk collection that could scarcely be envisaged without road transport. Milk is stored in a refrigeration centre along the road in Biurtung, then transported by lorry to Butwal. This innovation has led to an increase in the number of animals (buffaloes and cows) on farms producing milk and to the planting of more and more fodder trees to feed them.

³² As a result of this, is the shortage of manpower for cultivating the land the reason why fields are left sloping and not shaped into terraces? This is a possibility, though it cannot be proven in the present state of research.

³³ Up until about 1975, common grazing land was still practised on the *bāri*, in Aslami Tol, after harvesting mustard and buckwheat in the month of February.

Finally, over the last ten years, a category of particularly innovative farmers specialised in market gardening has sprung up, and they have abandoned buckwheat and finger millet crops in favour of cash crops sold on Butwal market. Since 1994 they have used hose pipes that they connect to fountains or to torrents to irrigate crops.³⁴ These are generally the same farmers who have launched both the arboriculturist and milk collection business.

The effects of schooling and demographic growth

The population has increased fourfold since the beginning of the century. This increase, linked to progress in health care, seems to have been soaked up in varying ways and at several levels in the Masyam area.

Widespread access to schooling since the 1960s has deprived farm work of a young work force that was in charge, among other things, of looking after and feeding the herds. The increase in fodder trees near farms and keeping animals in stalls has partly resolved this problem, as children still cut the fodder necessary for the animals before and after school, staying close to home. Nevertheless, education poses the problem of keeping young people on farms, which require a large work force to secure the balance of these unstable environments. In this context, emigration is no doubt more to be feared than strong demographic pressure.

Demographic growth and the attraction of modern lifestyles have given rise to greater needs in monetary resources that are illustrated, among other things, by new forms of population movements. Seasonal migrations associated with portage, trade or farm work activities have partly been compensated by administrative jobs in nearby urban centres (Tansen, Butwal). Employee-peasants remain in contact with their land. These seasonal migrations also tend to be replaced by migrations over longer periods (several years), with unskilled jobs in India or in other countries, especially in the Persian Gulf. Statistics from the Masyam V.D.C. show that in 60 per cent of families at least one person migrates on a temporary basis in order to find work abroad. The few permanent migrations mentioned are those of wealthy peasants attracted to a life they consider to be more comfortable in the city or in a bazaar, where they run a hotel, a restaurant or a shop. They then sell their land and homes.

³⁴ BOURDIN and LECLERCQ, 1999.

Current landscapes bear the mark of these socio-economic mutations and of these new population mobilities. Indeed, on the one hand, the types of crop grown appear to be good indicators of the farms' economic level: buckwheat still marks out poor land, whereas market gardening and paddy fields are a sign of wealth. On the other hand, settlements may be seen to be getting denser and more spread out. It is hard to assess the exact number of new houses built in the hamlets since 1932, because they are mostly hidden by bocage hedges. Conversely, it is easy to count the number of new buildings that have appeared in the lower part of the mountainsides as the floor of the valley, totally inhabited in the past (villagers cultivated land there during the day and went back up to their homes at night), benefited from a malaria eradication programme coordinated by WHO from 1952 onwards. Finally, since 1968, the Siddhartha Rajmarga that crosses the Hulandi Khola Valley, has ended up attracting a good number of migrants. They came from the nearby mountains to settle in these road-villages that they created out of nothing, like the Dumre bazaar, where 50 per cent of the population is originally from Masyam. This phenomenon of populations migrating along the fringe of major routes reflects a general movement throughout the country.

*

* *

A comparison of the photographs taken by Morris and Northey with those taken in 1997 proves that there have been no major upheavals in the landscape south of Tansen since the beginning of the century. However, the landscape has become more complex: the mosaic has become more marked, subdivided into a multitude of sub-units on each farm. Some people talk of "sustainable" development or of a way of turning land to good use. Villagers in this region have probably found a balance in the controlled change and in diversity, a diversity that is expressed at different scales of analysis: the mountainside, the plot of land, the hedge.

Masyam was already widely cultivated at the beginning of the century. Sloping fields, up to now considered as ephemeral or marginal, have turned out to be perennial and represent the norm in this region. The beginning of bocage use in the 1930s already undoubtedly met the population's needs in terms of tree resources. It only became denser to cope with the protection of forests or with the limitation of the work force that resulted from, among other things, the schooling of children. The school and the road, in facilitating the dissemination of new ideas, have been among the driving

forces for change. Over the last decades the responsibility for these changes has fallen to village committees. This has given rise to a better devised and more controlled management of natural resources.

Thus, despite demographic growth, current changes themselves do not cause environmental damage. On the contrary, they seem to contribute to a greater stability of the mountainside, thanks to the strict protection of forests, to a denser network of hedges and to a very rational and effective management of the different potentialities offered by the milieu. The results of this study fall in line with those of Virgo and Subba (1994) who demonstrated certain stability in land use between 1978 and 1990 in Dhankuta district (Eastern Nepal) –despite a 19 per cent population increase– as well as considerable internal exchanges between different categories of land. They also tie up with the conclusions based on work by Gilmour and Nurse (1991) who established the positive role of planting trees in the cultivated sector, along with those of Fox (1993), whose publication bears the revealing title of "Forest resources in a Nepali village in 1980 and 1990: the positive influence of population growth".

In Masyam, changes are made by combining secular experience with respect for natural balances. As we have seen, however, situations vary from one hamlet to another and within the same ward. Changes take place and, as happens elsewhere in the world, leaves part of the population behind on the fringe of society, the case here being that of the Kamis from Kolang or the Magars from Maramkot or Jantilung. That is why, more than on environmental problems, already preoccupying most of the population, any future considerations should concentrate on problems associated with social ties and cohesion. How does one ensure that measures taken to protect the environment do not even further marginalize certain population groups?

Conclusion

Joëlle Smadja

Throughout this book we have attempted to go beyond preconceived ideas by examining fieldwork and historical data regarding populations' relationship to their environment. We have crosschecked different viewpoints and have tried to provide a few explanatory clues that will perhaps give another reading of the landscapes in this region of the world, with the sole ambition of reducing the uncertainty that weighs on our knowledge of the Himalayas. This approach should also provide innovating and detailed contributions to environmental considerations regarding problems of the Himalayas-Ganges plain as a whole and of deforestation in general. We therefore hope to demonstrate that work carried out in "marginal zones" is by no means marginal work. The complexity of our approach and of the results we obtained goes to show, and we hope that the reader will understand this, that we have not presented a summary of plain facts here, but a network of exploratory paths and itineraries. Nevertheless, we can learn from this multiplicity and diversity of contributions.

Religious symbolism and pragmatism in relationships to milieux

In Nepalese society secularism is emerging through new literate generations, while small groups of converts to Christianity no longer see any relationship between human beings, nature and the divine. Nevertheless, for most Himalayan populations, the territory is still partly controlled by gods and the sacred is manifested at different levels of daily life. This may influence space and land use, agriculture and resource management, as evidenced by the myths, accounts, rituals, festivals, as well as comments regarding place names given throughout this book. The introduction of maize, for example, was subject to consent by the king and religious authorities, and most often land is still cultivated only by respecting certain rituals in an attempt to get men and the gods to live in harmony. The importance attributed to water may be noted in the large number of examples studied –springs have always been protected by administrative decrees or by populations– and particularly to *nāg* (or *lu*), snake-divinities of the aquatic milieu that can provoke

"natural" catastrophes and play a fundamental role in land use and resource management. These divinities are one of the symbols that remind us of the instability of the mountain range in daily occupations. The data relevant to the knowledge villagers have of their milieu, how they perceive it, appropriate it and manage it, show that everyone – the Ladakhis, the Nepalese from various confessions – has their own notions to varying degrees and on varying scales. However, a certain number of identical terms are shared to describe and name milieux. Furthermore, in all the cases given, what is built, inhabited and cultivated is reassuring, whereas the forest and what is not inhabited are feared. The symbolism of these places is utilised by certain groups to establish their legitimacy, for example when building a temple or a community clinic. Moreover, the extremely detailed inventory of resources as seen through toponymy, the very fine nomenclature of types of land and the care taken with crops – facts that are borne out both in XIXth-century texts and in present-day surveys – show populations' interest in their everyday environment and the intimate knowledge they have of it. When all is said and done, these are very banal findings, since they provide them with their daily food.

Any intervention on these territories must therefore take into account their symbolic and religious dimensions as well as the very intimate knowledge populations have of them.

Landscapes artificialised long ago

Landscapes have been artificialised for a long time now in the Himalayas, where irrigation and its laborious implementation appeared at the same time as the swing plough for tilling the land. The introduction of various cereals over time has progressively modified rural landscapes. First, rice farming, when irrigated, caused considerable changes to milieux. Later maize farming no doubt coincided with a large-scale clearing of mountainsides. More recently, potato farming has been revolutionising production methods. In Nepal, priority has been given to growing rice, from its very introduction and for centuries afterwards. For a long time it remained one of the driving forces behind changes in landscapes since each terrace or plane surface had to be devoted to it: "If a house is built on a terrace, move the house, dig a canal, set up a field and cultivate it."¹ Besides, most ancient legislation

¹ NARAHARINATH, 2009 VS, p. 13 in Chapter X, "The Nepalese State and the Transformation of Landscapes [...]" (P. Ramirez).

regarding forest protection is mainly about protecting paddy fields. From the Licchavi period (300-879) to the end of the XIXth century, clearing land and building canals were encouraged *via* tax exemptions, providing that there was no threat to crops or any risk of springs drying up. These preoccupations with agricultural development and environmental protection, as witnessed by numerous texts, are therefore no recent phenomenon, even if they most often only satisfy the economic interests of various governments. Though irrigable valley floors and the bottom of mountainsides or benches have long been arranged for rice growing, a shift from a landscape of cultivated clearings to one of large slopes reserved for non-irrigated farming seems to have only occurred in the mountains at the beginning of the XXth century. Whatever the case, clearing land has been encouraged over the centuries. An inverse process emerged only much later, after 1950, and especially after the establishment of the cadastre in 1970-1980, when the clearing of new land was strictly controlled and even forbidden in the mountains.

Forest management: attempts at state control

It appears that prior to their nationalisation in 1957, forests were managed by village committees that took into account the state of resources and the needs of populations, with the State only intervening to arbitrate inevitable abuses or conflicts of usage. Between 1957 and 1982, at a critical period that saw the opening up of the country and a surge in demographic growth, forests were managed by the State, which had re-established the former "*panchayat* system"; a State that did not have the means to apply its policies and whose representatives were little appreciated by the people. It was a failure. There was a shift from a policy of managing milieux to a conservation policy that notably led to the creation of natural parks, to forests being completely protected and at the same time to an impoverishment of certain groups of the population as well as to a degradation of resources in numerous sectors. Since 1987 and especially since the forestry law of 1993, non-government forests have been successfully managed by village committees, as recognised by the international community. However, if their financial products are managed by local development organisations, the State still has landed control over the whole of the country's wooded territory, with the exception of some private land that has recently been replanted with trees. The recent (2000) Nepalese government bill that aims at regaining control of community forests and of their revenues is a cause for concern. In

March 2001, for the first time in the history of Nepal, 12,000 villagers from all districts of the country gathered in the streets of Kathmandu to demonstrate against this bill that, if enforced, is considered to guarantee disastrous consequences.²

The tree as a panacea

For decades, during which access to forests was restricted or forbidden, the tree took on special relevance. The importance given to it is analysed in this book from different angles: in the toponymy, in historical texts where bans on cutting trees (for religious, then economic purposes) and the name of protected species are mentioned as well as, of course, in all studies on recent changes, especially the one on the bocage landscape. As a producer of fodder, timber and firewood, the tree, one of the first energy sources in Nepal, has been a main preoccupation for centuries. It has always been considered a resource, and also as an element to stabilise the milieu, protecting springs and therefore paddy fields. However, this dual function, constantly reasserted in the texts, has acquired its full value ever since the "useful" tree, individualised and dissociated from the forest, has occupied cultivated sectors, sometimes making up a bocage network. From Ladakh to Nepal, from the ACAP boundary to Salme or to Palpa district, carefully selected trees are planted or preserved in cultivated sectors, close to dwellings, in order to provide for the populations' needs. These measures illustrate, in an exemplary manner, local initiatives in matters of "sustainable development" or, more simply, of a well-thought-out management of natural resources. The tree therefore goes from having public status to private status. It modifies the dynamics of the mountainside and represents new capital in the medium or long term. Since the tree is located near homes, less time is needed to access it. This compensates for the reduction in manpower consecutive to, among other things, children's schooling. The alarmist discourse on the drop in work productivity associated with the decline in forests must therefore be reconsidered. At a time when European bocage landscapes have mostly disappeared, not without causing negative effects, or are possibly protected as a heritage,³ in some regions the Nepalese are setting up remarkable bocages enabling them to solve a large number of

² See the Nepali Times, 16 March 2001.

³ On this subject see the different pieces of work on the Champsaur bocage in the Hautes-Alpes (France), in MOREL and ROVÉRA (ed.), 1996, and in MARTIN, 1999.

problems they face. After centuries of setting up paddy fields, tree planting – especially in the form of a bocage – is a new form of Nepalese landscape artificialisation.

Change, a constant

Planting trees accompanies other changes which, even though they are more discrete in landscapes, nonetheless play an important role as far as societies are concerned. This is the case with common land reductions in Nepal as in Ladakh (that often goes hand in hand with planting private trees). It is also the case with a much greater differentiation and privatisation of space (that does not exclude an important community organisation as in Salme and in Masyam), with the diversification in certain sectors of cash crops to limit risks (despite a general tendency to reduce subsistence-crop varieties) and with changes in the allotment of land. Generally speaking, nothing is permanent, everything changes, and the fact that in Nepal, as in Ladakh, allocation of land is never mentioned in the toponymy is another reminder of this. Certain spaces are therefore constantly being redefined: fields at altitude converted into irrigated paddy fields; hay meadows used in different manners according to needs; forests with a status varying regularly over time; pasturelands in sectors where the number of herds is now very limited; fallow land with an ambivalent meaning. Their meaning is all the more ambivalent since, as reported within the ACAP boundary or in Masyam, permanent migrations often involve wealthy peasants who turn to the tourist trade and abandon their land, leaving the poorest to carry on as farmers.⁴ Whether it be a shortage of fertiliser to cultivate it, the choice of giving it up for more profitable land, or of abandoning it for more lucrative activities other than farming, fallow land cannot be accounted for by simple facts. Its presence itself may, in certain cases, challenge notions of pressure on land.

Development and exclusion

A major problem – in addition to the exclusion of populations from natural parks – is highlighted in different texts. Indeed, several examples underline that low castes now find themselves deprived of their traditional activities

⁴ More or less lengthy temporary migrations follow multiple patterns and concern both the wealthy and the poor. Moreover, in this book we have not addressed the large-scale population movements and abandonment of land due to the People's War in Nepal, since these changes are too recent and have not yet been studied.

and of income that in the past came from the forest. This is the case of the Balami wood-cutters, but also that of the Kami blacksmiths from Lachok, in the Kaski district, where the Forestry Department from now on forbids making charcoal. Within the ACAP boundary as well, certain measures to protect the environment that led to the use of alternative sources of energy have left the most impoverished by the roadside –poor peasants who gather dead wood in the forest and sell it– and contribute to reinforcing their vulnerability. The case of the Kamis from Masyam who, for lack of enough land to plant trees around it, are excluded from the modernisation process further illustrate the situation. The importation from India or China of manufactured products, so far made by castes of craftsmen, only worsens matters. Disparities are therefore on the increase between those who benefit from a certain kind of progress, from "development", and the others. There was a time when poor populations were marginal but were still part of a system that relied on complementing each other and on mutual help. Nowadays, very often, marginality is synonymous with exclusion. This is no doubt one of the main problems that need to be studied in Nepal in the years to come.

Social actors far-removed from local knowledge

These contributions also go to show that knowledge of the milieu is the prerogative of elders, not of young literate people or of government officials who nevertheless legislate in matters of the environment. Therefore those who express most concern today about the environment, about managing it, are those who are the furthest from it.⁵ Those newly involved in managing milieux rely on global knowledge, acquired at school or on the radio, which comes from remarks made on a planetary scale and that often bears no relation to the reality. It is a fact that any ensuing discourse and laws will deal with a global and generalised scale, while the situations are of great complexity and diversity: hence, the frequent discrepancies between the decision taken and the results obtained.

Protection of milieux and/or protection of men?

Finally, it emerges from this book that populations in the Himalayan Mountains of Nepal and of Ladakh have integrated the constraints of a particularly difficult natural milieu in their cultural references and practices.

⁵ See GRENAND, 1998.

Out of it they have made a living environment where any adjustments are permanent and very diverse, and where societies adapt to the changes they themselves create. The assets and constraints of milieux are illustrated in the landscapes by a mosaic reflecting very subtle nuances in land use. It seems, in fact, that observers over the last decades have portrayed as a crisis what these populations have always considered to be resource management in unstable milieux. It turns out that the ongoing problems of rural societies in the Himalayan Mountains are not so much problems of deforestation or erosion –most of which have often long been overseen by village communities⁶– as those of the most underprivileged populations. They are more and more marginalized by the recent changes in this region of the world, notably by measures taken in matters of environmental protection. The extent of forests in certain regions of Nepal, especially in the west, for example, where they are already abundant, leaves one perplexed when one thinks of the need to increase food production and of the shortage of cultivable land for the poorest. More than environmental protection, what is at stake here is the equal distribution of resources and their sound management, without which any attempt at "sustainable development" peeping through here and there will merely remain idle fancy. It may be that in the years to come, uninformed observers marvel at the Himalayan landscapes that might conjure up a picture of perfect harmony, with luxuriant (because protected) forests and remarkable bocages. However, unless adequate measures are taken from now until then, these landscapes will conceal the exclusion of certain population groups in favour of this development, and this should make us wary of appearances once again.

⁶ If one excludes major catastrophes, such as landslides burying whole villages during the monsoon or the bursting of natural or man-made dams [see Chapter III, "Some Elements Structuring the Himalayan Mountains" (O. Dollfus, M. Fort)], which villagers cannot help but endure. In the second case they stem from disastrous national or international policies and raise the problem of high population density in sectors particularly at risk, but then the environmental issues are not the same and neither are the answers (see SMADJA, 1995).

ANNEXES

Table 10

Toponyms from the Salme Mountainside (recorded in 1982-1996)

J. Smadja

Names in Tamang are not followed by an abbreviation, those in Tibetan by T and those in Nepali by N.

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|-------------------|------------|---------------------------------------|--|--|
| Ambu Chyet | 1820 D3 | Bench of <i>Bauhinia</i> | <i>ambu</i> , in N <i>koiralo</i> : <i>Bauhinia variegata</i> (Cesalpiniaceae). Fodder product. The fruit is rarely eaten. Medicinal plant: antidote against snake bites and used after child birth or against stomach ache | |
| Babu Nen | 2250 B2 | Resting Place of the Father | <i>bābu</i> (N): father | |
| Bakai Tso | 2830 B8 | Summit of the Forest | <i>tso</i> , from T: <i>rtse</i> : summit | Place for offerings (eggs, milk, money) to Mahadev |
| Baktung Pang | 2300 B2 | Ground Noise Meadow | When one walks in this meadow, noise comes from the ground | |
| Bal Gyung | 1660 D4 | Fountain of Strength | <i>gyung</i> : fountain, term used by the Tamangs of Balche and of Kimtang. <i>bal</i> (N): strength | |
| Balden Sepa | 1500 D4 | Death of Balden | Balden: man from Balche | In the past, Dolchen Gombo, lama, made <i>pūja</i> to appease the <i>nāg</i> and stop the <i>pahiro</i> |
| Bamen Gora | 2010 C4 | Stable of the Brahmans | <i>gora</i> : mobile "stable- house", may also include pastureland | At the time of the Rana, the place was a pasture for grazing herds and belonged to priests from Nuwakot temples. Two <i>mane</i> |
| Bamo Gang | 1890 C4 | Ridge of the Couple | <i>bamo</i> (T): couple. <i>gang</i> , from T <i>sgang</i> : ridge | Bhume <i>than</i> : Bhume cult place |
| Bamo Gyab | 1910 C4 | On the Other Side of the Couple | | Bhume <i>than</i> . Devi, Mahadeo. Thulo Gaon children's cemetery |
| Bandare Kharka | 2860 C9 | Pastures of Monkeys | <i>bandare</i> (N): langur (<i>Presbytis entellus</i>). <i>kharkhā</i> (N): high-altitude pastures | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|-----------------|----------|---|--|--|
| Bangchet Kharka | 2345 E10 | Pastures of Lamellated Oaks | <i>bangchet</i> , in N <i>phalant</i> : <i>Quercus lamellosa</i> (Fagaceae). Used for fodder, wood for coal, cooking, swing ploughs. Currently one of the best (especially small ones) for the swing plough and yoke, replaces <i>Solshing</i> | |
| Bar Lha | 2150 C3 | Powerful Divinity | This is a mesophyllous forest of <i>Quercus lanata</i> | Divinity: Sri Kanne Mahadeo. Sacred wood |
| Bar Lha Gang | 2140 C3 | Ridge of the Powerful Divinity | | Sacred wood |
| Barlap U | 2450 B5 | Shelter under Rock of <i>Eriobotrya</i> | <i>barlap</i> , in N <i>birtshure</i> : <i>Eriobotrya elliptica</i> (Rosaceae). Small tree only growing where there is rock and no soil. Gives fodder | |
| Bashet Kharka | 2560 B5 | Pastures of Small Stones | | |
| Belele | 3000 B9 | Fly (?) | | |
| Bena Mlang | 2280 B3 | Black Oak | <i>bena mlang</i> , in N <i>khasru</i> : <i>Quercus semecarpifolia</i> (Fagaceae). Considered to be one of the best trees for fodder, firewood, fixed shelters and bridges. Its wood is too hard to be used as timber | Mahadev: Sri Candra (associated with the moon, Surje is associated with the sun, both are epithets of Mahadev) |
| Bic Rang | 1450 E4 | Sharing in the Middle | <i>bīc</i> (N): middle. <i>rang</i> : to share. Between Nadang and Salankhu khola | Oldest paddy fields on the mountainside |
| Bic Rang Bra | 1400 E4 | Precipice of Sharing in the Middle | <i>bra</i> , from T <i>brag</i> : precipice, rock face | |
| Biuru Gang | 2000 C5 | Ridge of Wild Cherry trees | <i>biuru</i> , in N <i>paīyū</i> : <i>Prunus cerasoides</i> (Rosaceae). Provides fodder and wood for mobile shelters, mills and coal. In 1996, the wood is used for frames | |
| Biuru Gara Gu | 1750 D5 | The Wild Cherry Trees on the Inside Corner of the Terrace | | <i>kali nāg</i> . Mahadev |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|-----------------|--------------|---|---|--|
| Biuru Potso | 2000 C1 | Rock of Wild Cherry Trees | | |
| Biuru U | 2230 B5 | Shelter under Rock of Wild Cherry Trees | | |
| Blen Gyung | 1750 D5 | Fountain of the Blendens (?) | | Oldest paddy fields on the mountainside |
| Blenden Pang | 2120 C5 | Meadow of the Blendens | | Former site of the Blenden clan |
| Blenshing Chyet | 2020 D7 | Bench of <i>Gonostegia</i> | <i>blenshing</i> , in N dhar: <i>Gonostegia hirta</i> (Urticaceae). Provides fodder product. Roots used for shampoo, wood shaped into receptacles, bark crushed for yeast | |
| Boldo | 2480 B5 | Divine Word | | Pleasant place on the mountainside. Mahadev: Tsesung Jyomo (for inhabitants of Ghale Gaon), one of the great gods of the mountainside. If he is angered, he brings down hailstone and rain |
| Boldo Gang | 2440 B4 | Ridge of Divine Word | | Mahadev: Tsesung Jyomo |
| Boldo Gang | 1700 D5 | Ridge of Divine Word | | A <i>mane</i> was built to fight against the <i>pahiro</i> , but was carried away. <i>māi nāg</i> |
| Boldo Gombo | 2530 B5 | Temple of Divine Word | | <i>ser-tho</i> (to protect against hailstone), officiating priest: Wala Lama. Mahadev: Tsesung Jyomo |
| Borke Nen | 1830 C3 | Resting Place of Small Bamboos | <i>borke</i> : a variety of small bamboo. Of no use. Very vigorous plant which villagers remove as soon as they find it | |
| Bra Gra | 2800 C9 | Above the Precipice | | Divinity: Duda Sri Mahadev. <i>kali nāg</i> |
| Bramding | 1890 D6/7 | Bramding | ? | <i>kali nāg</i> . If trees are cut in this sector, the <i>nāg</i> causes herds to fall from the rock face |
| Bramding Shyong | C7 | Bramding Torrent | | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|-------------------|--------------|-------------------------------------|---|--|
| Bramji Gang | 1550 E3 | Ridge of <i>Dichrocephala</i> | <i>bramji</i> , in N <i>martsa</i> : <i>Dichrocephala integrifolia</i> (Compositae). One of the yeast ingredients used to make beer | Oldest paddy fields on the mountainside |
| Brashyong | 1430 E3 | Bituminous Rocks | <i>brashyong</i> , in N <i>silajit</i> : bitumen. Used in medicinal compounds | |
| Brashyong Bra | 1400 E3 | Precipice of Bituminous Rocks | | |
| Bretsa Gombo | 1280 E3 | Temple of the Fault | Place where the Nadang shyong, now diverted, formerly passed | Account by a malevolent <i>nāg</i> expelled from the mountainside |
| Bu Gyung | 1830 D5 | Fountain of the Paddy Field | | <i>nāg</i> |
| Bu Mang Ka (?) | 1400 E3 | Ask for the Paddy Field(?) | | |
| Budre Gang | 1800 C2/3 | Ridge of Heathland | | |
| Budre Pangkra | 2280 B3 | High Grasses of Heathland | | |
| Cautar | 1450 E4 | Resting Place | <i>cautar</i> , from N <i>cautara</i> : resting place | |
| Cha Pang | 2000 D2 | Meadow of the Hand | <i>cha</i> , from T <i>phyag</i> : hand | |
| Chamkang | 2300 E2 | Retreat | from T <i>mTshams Khang</i> : retreat | Meditation place |
| Charlang | 2760 B7 | Echo | | |
| Charlang Dung | 2750 B7 | "Bottom" of the Echo | | |
| Charlang Tso | 2780 B7 | "Summit" of the Echo | | |
| Chatangje Bra | 1645 D4 | Precipice of <i>Machilus</i> | <i>chatangje</i> , in N <i>katche kaulo</i> : <i>Machilus</i> sp. (Lauraceae). Good fodder. Before there were big trees used for frames. Only small ones are left | Mahadev |
| Cheche Bra | 1580 D5 | Precipice of Cheche | He is said to have committed suicide by throwing himself off the rock face | |
| Chelele Shyong | D4 | Torrent of the Trickle of Water | | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|------------------|-------------|--|---|--|
| Chembe Kharka | 2280 D8 | Pastures of <i>Michelia</i> | <i>chembe</i> , in N <i>cāp</i> : <i>Michelia champaca</i> (Magnoliaceae). Used for fodder and for building houses and mills. Best species for the frame. Was abundant, but none left since 1986 | |
| Chen Kung | 1920 D6 | Leopard's Lair | <i>chen</i> , from T <i>shan</i> : small leopard | |
| Chen Kung Chume | 1830 D5 | Source of the Leopard's Lair | <i>chume</i> , from T <i>chu mgo</i> : source | <i>kali nāg</i> |
| Chendi Rungba | 1500 E2 | Bush of <i>Artemisia</i> | <i>chendi</i> , in N <i>tite pāī</i> : <i>Artemisia japonica</i> (Compositae). Fragrant plant for offerings, used for worship of the territory's divinities. Also used as medicinal plant against leech bites | |
| Chengso Ble | 2010 C3 | Gentle Slope of <i>Gaultheria</i> | <i>chengso</i> , in N <i>perere</i> : <i>Gaultheria fragantis-sima</i> (Ericaceae). Produces good edible fruit and fodder. The leaves are used to cure headaches | |
| Chengso Bu | 1630 D5 | Paddy Field of <i>Gaultheria</i> | | |
| Chengso Pakha | 2040 C3 | Abandoned Land of <i>Gaultheria</i> | <i>pākhā</i> (N): abandoned land | |
| Cho Barmo | 2070 C6 | Barmo on the Edge (of the terrace) (?) | <i>cho</i> , from N <i>cheu</i> : terrace edge, opposite of <i>gu</i> | One of the former sites of the Titung clan |
| Chume Bu | 1430 E4 | Paddy Field of the Source | | Cremation site for inhabitants of Hop |
| Chupren Pakha | 2100 C3 | Damp Abandoned Land | Water and fodder can be found for animals | |
| Chuta Chyet | 2130 C6/7 | Bench of the Mill | | First Titung site. <i>kali nāg</i> |
| Chuta Gang | 2100 C6 | Ridge of the Mill | | |
| Chyam Sepa Kendo | 3300 D10/11 | Steep Climb of Dried-up-Urine | Arduous climb, difficult (<i>kendo</i> : steep), especially with heavy loads, during which the body is emptied of its water (<i>chyam</i> : urine. <i>sepa</i> : finished) | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|--------------------|----------------|--|--|---|
| Chyam Sepa Me | 3260 D10/11 | Under the Dried-up-Urine | | |
| Chyam Sepa Tso | 3350 D10/11 | Summit of the Dried-up-Urine | | |
| Dab Chyet | 2750 B8 | Bench of the Shovel | | |
| Dal Dhunga | 3170 C9 | Split Boulder | | |
| Damlang Chyet | 1770 D4 | Bench of the Black Whirlpool | <i>damlang</i> : in spring, insects emerge from the earth and form a black whirlpool | |
| Dang Chyet | 3310 D10 | Hunting Bench | From where one hunts animals | First site for the Gyeldang Ghales. Mahadev Sri Kanne. Cremation site for villagers from Jaishi Khor (in Salme) |
| Dang Chyet Changpa | 3230 C10 | Small Hunting Bench | From where one hunts animals | |
| Dang Chyet Kharka | 3270 D10 | Hunting Pastures | From where one hunts animals | Mahadev |
| Dhi Tso | 2230 E9 | Top of the Landslide | | |
| Dhoka Dhunga | 2130 D1 | Stone Door | | <i>kani</i> : sacred protecting door. <i>mane</i> |
| Dingchet | 2060 D6 | Meeting Place | | Former Dimdung site |
| Domshing Kharka | 2490 B6 | Pastures of <i>Lyonia</i> | <i>domshing</i> , in <i>N angeri</i> : <i>Lyonia ovalifolia</i> (Ericaceae). Used for: firewood, charcoal, building mobile and fixed shelters, mills, gates. Its young leaves are poisonous for cattle | |
| Dongle | 2620 B8 | Clump of (different) Trees | | Mahadev: Sri Kanne |
| Dongle Chume | 2620 C8 | Source of the Clump of (different) Trees | | |
| Dowa Bolwa | 2400 B4 | the Wild Boar (wallows) in the Mud | | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|--------------------|--------------|--|--|--|
| Drang Chyet | 1830 D5 | Bench of the Wind | A cool breeze blows here | |
| Drang Chyet Nen | 1830 D5 | Resting Place of the Bench of the Wind | A cool breeze blows here | |
| Drupcyo Shyong | B6 | Lustral Water Torrent | <i>drupcyo</i> , from T <i>sgrub-chu</i> : lustral water | Drupcyo Wadi Bomo: feminine divinity who protects the lustral water fountain |
| Dumshing Kung | 1676 C2 | Porcupine's Den | <i>dumshing</i> (N). Meat much appreciated, spines used by shamans in exorcism rites | |
| Dumshing Nen | 1980 C4 | Resting Place of the Porcupine's Den | | |
| Dung Dung Gang | 2280 D8 | Noise in the Mountain | <i>dung dung</i> : onomatopoeia: noise | |
| Dungma Sa | 2140 D8 | Land of the Sacred Pole | <i>dungma</i> (N) = <i>pasam</i> : the Bompo's sacred pole. <i>sa</i> (T): land | |
| Dursa Potso | 2330 B4 | Cremation Boulder | from T <i>dur-sa</i> : cremation site | Blendens' cremation site |
| Dzigang Gu | 2550 C8 | Bottom Corner | <i>dzigang</i> : bottom; behind the fireplace | |
| Dzigang Guna Pakha | 2000 E2 | Abandoned Land of Bottom Corner | <i>guna</i> : corner | |
| Dzingma | 1980 C4 | the Argument | From T <i>'dzing mo</i> : argument, words | |
| Dzong | 2170 C6 | Fortress | From T <i>rdzong</i> : fortress | First Titung settlement |
| Dzong Nen | 2220 C7 | Resting Place of the Fortress | | <i>kali nāg</i> |
| Dzong Sa | 1870 D6 | Land of the Fortress | | Mahadev |
| Dzor Mane | 2010 C4 | Two Stupas | | <i>mane</i> |
| Gang Den Bra | 2140 C1/2 | Precipice of the Seat of the Ridge God | <i>den</i> : seat of a god, from T <i>gdan</i> : cushion, throne | |
| Gang Mrang | 1750 D4 | Slash-and-burn of the Ridge | | |
| Gar Chyet | 2130 C6 | Bench of the Mud | <i>gar</i> , in N <i>dhap</i> : mud, silt | Former site of the Dimdung clan |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|-----------------------------------|--------------|-----------------------------|--|--|
| Gar Gang | 1890 C4 | Ridge of the Mud | Where one sinks into the mud | Sacred grove. Bhume <i>than</i> for inhabitants of Yarsa. God: Lha Wangbo, one of the many names of the <i>shibda-neda</i> ; it is said to rule over the rain; cocks must be offered to him as a sacrifice |
| Gar Potso | 2140 C6 | Boulder of the Mud | | |
| Gar Shyong Gang | 1950 C6 | Ridge of the Muddy Torrent | | |
| Gar Shyong Gu | 1960 D6 | Corner of the Muddy Torrent | | <i>kali nāg</i> |
| Gartibisang | 1800 C/D2 | ? | | |
| Ghale Gaon | 1820 D4 | Village of the Ghales | | Site where the Gyeldang Ghales settled |
| Giangshing Nen | 2100 E9 | Resting Place of Alders | <i>giangshing</i> , in <i>N utis</i> : <i>Alnus nepalensis</i> (Betulaceae). Wood used for fuel, for building floors in houses, mills and bridges. Was used in the past for the frame of shingle-roofed houses | |
| Gol Potso | 2040 D3 | Boulder of Charcoal | <i>gol</i> (N). Charcoal is made here | |
| Gombo Chyet (ou Petangtang Gombo) | 2100 C5 | Bench of the Temple | Temple where the wife of the lama broke her loom | Former temple of the Blenden clan, built by Tarching Gyamtso. Cremation site for inhabitants of Thulo Gaon, Boldo Gang, Pangling and Dzong Sa |
| Gonga Banjyang | 2930 F12 | Tribute Pass | <i>gonga</i> : price, tribute, tax. <i>banjyang</i> (N): pass. Pass where one pays the tribute | Villagers from Salme and Balche fought here and there over the pass to take possession of pastures |
| Gonkang Chyet | 2400 B6 | Bench of the Thigh | <i>gonkang</i> : thigh | |
| Gumbar | 1680 D4 | Very Glum | <i>gum</i> : sulk, pout, glum. <i>bar</i> : a lot, increase | |
| Gunsa | 1820 D3 | Winter Dwelling | From T <i>dgun-sa</i> : winter dwelling. As opposed to Yarsa (from T <i>dbyar-sa</i> : summer dwelling) | Bhume <i>than</i> : Lha Wangbo |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|-----------------|-------------|---|--|--|
| Gunsa Chyet | 1720 D3 | Bench of Winter Dwelling | | |
| Gunsa Mane Gang | 1830 D3 | Winter Dwelling Stupa Ridge | | |
| Gyalkap | 2300 B6 | Palace | from T <i>rgyal</i> : king | Place where the first Blenden to arrive on the slope, lama Cheku Dorje, stayed. Cremation site for the dead from Thulo Gaon |
| Gyalkap Kharka | 2890 B7 | Pastures of the Palace | | <i>mane</i> |
| Gyap Ki Bu | 1500 E3 | Paddy Field of the Water from the Other Side | | |
| Gyap Ki Mrang | 1480 E3 | Slash-and-burn of the Water from the Other Side | | |
| Gye Chyet | 1630 D3 | Bench of the Lake | | <i>nāg</i> |
| Gyentso Wang | 1880 C5 | Red Earth Hole | | Bhume <i>than</i> . Divinity: Lha Wangbo. Main place of cult to Bhume for inhabitants of Thulo Gaon, Boldo Gang, Pangling. Cocks are offered to the divinity as a sacrifice |
| Gyu Luba | 2200 B5 | Wet Cave of the Sheep | <i>luba</i> : cave in which there is water during the monsoon. <i>gyu</i> : sheep | God of the <i>pahiro</i> : Shyelkar Jyomo. Feminin divinity supposed to reside in whitish rock. Villagers offer her milk and hen eggs, and build <i>mane</i> . The lamas and <i>lambu</i> make prayers to limit gullying |
| Gyu Tsova | 3290 C10 | Shadow for Sheep | <i>tsova</i> : rest in the shade (of the rocks and <i>ningalo</i> : small bamboo) | |
| Hang Kang Tala | 2650 B6 | Pass of the Break | <i>hang kang</i> : hole, passage, break. <i>tala</i> : pass, gap, valley | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|---------------|----------|--|--|---|
| Hongale Tala | 2370 B4 | Top Gap | <i>hongale</i> : beautiful view, place where one has a good view by simply lifting one's head | |
| Hop | 1575 D4 | Dry Basin | | Mahadev. Bhume <i>than</i> for inhabitants of Hop |
| Jarku Sepa | 1700 E6 | Killed Vulture | <i>jarku</i> , from T <i>bya rgod</i> : vulture, <i>Gyps himalayensis</i> | Oldest paddy fields on the mountainside. Mahadev: Sri Candra (divinity ruling over the moon) |
| Jyajung Gombo | 2590 D9 | Temple of the Red Monkeys | <i>yyajung</i> : red monkey | Ruins of a temple, meditation cave, former site of the Titung clan (first occupants of the mountainside) |
| Kag Chyet | 1580 D4 | Bench of <i>Bombax</i> | <i>kag</i> , in N <i>simal</i> : <i>Bombax malabaricum</i> (Bombaceae) | Sacred tree, shelters divinities |
| Kal Sepa | 1970 C5 | End of the Wild Arums | <i>kal</i> , in N <i>sarpa makai</i> : <i>Arisaema</i> (Araceae): wild arum. Shrub that children cut as it is easy to prune with a <i>kukri</i> . The tubers are not eaten in Salme | The legend goes that at this place an evil, very restless, <i>nāg</i> created the <i>pahiro</i> . The lamas prayed for it to be sent elsewhere. It now resides at Kha Chet where it has dug a small river which has done nothing but worsen the <i>pahiro</i> |
| Kalang Dung | 1500 D3 | At the Bottom of <i>Choerospondias</i> | <i>kalang</i> , in N <i>lapsi</i> : <i>Choerospondias axillaris</i> Roxb. (Anacardiaceae). Produces bitter-tasting fruit eaten in Oct-Nov. Some people make condiments out of it | |
| Kalang Tsang | 1630 D4 | Nest of <i>Choerospondias</i> | <i>tsang</i> from T <i>tshang</i> : nest | |
| Kalda Potso | 2490 C7 | Boulder of the Fir | <i>kalda</i> , in N <i>gobre salla</i> or <i>talis patra</i> : <i>Abies spectabilis</i> (Pinaceae). The most commonly used species for the frame of houses, shingles, fixed shelters | Devi/Mahadev for villagers from Thulo Gaon |
| Kale Chyet | 2190 C3 | Bench of the Peach Trees | <i>kale</i> , in N <i>aru</i> : <i>Persica vulgaris</i> (Rosaceae): peach tree. Some people plant these | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|--------------------|--------------|------------------------------------|--|--|
| Kam Ble | 1860 D3 | Gentle Slope of the Chin | | Cemetery for Ghale children from Gunsā |
| Kampa Long | 1680 D2/3 | Bitter Heathland | <i>kampa</i> : bitter. <i>long</i> : heathland | |
| Kandrang | 1530 D4 | Stony (ground) | Very rocky place where there are only stones | |
| Kangral | 3780 D13 | Ruin | Abandoned shelter | |
| Karpa Shyong | D9 | Dried up Torrent in Winter | Intermittent stream | |
| Karpa Shyong | C5 | Dried up Torrent in Winter | Intermittent stream | |
| Karsang Sepa | 1860 D5 | Death of Karsang | | <i>nāg</i> |
| Karsang Sepa Dhara | 1890 D5/6 | Fountain of the Death of Karsang | | |
| Kato Ble | 2010 C3 | Gentle Slope of Walnut Trees | <i>kato</i> , in N <i>okhar</i> : <i>Juglans regia</i> (Juglandaceae). Fruit eaten from May to Oct. Walnut stain sold as a dye in <i>Trisuli</i> . Good timber and firewood. Only small trees are left | |
| Kato Chyet | 2270 C6 | Bench of Walnut Trees | | |
| Katre | 1930 D6 | "Hard" (Soil) | Place where the soil is very hard and compact | |
| Kha Chet | 1950 C5 | The (lama's) Word is not Enough | | Malevolent <i>nāg</i> sent away from Kal Sepa settled in Kha Chet and has started to dig a river; this was the beginning of the <i>pahiro</i> . Offerings are made to the <i>nāg</i> to stop the <i>pahiro</i> |
| Khar Mang | 1560 E3 | White Demon | <i>khar</i> (T): white | |
| Khol Gang | 1800 D3 | Ridge of Oil Press | | |
| Ki Tso | 1880 C2 | Summit of Water | | |
| Kiaba Nen | 2585 E10 | Resting Place of the Wooden Shovel | <i>kiaba</i> , in N <i>davilo</i> : wooden shovel | |
| Kiang Nen | 1700 E2 | Bench of the Resting Place | <i>kiang</i> , in N <i>phalek</i> : bench, seat to sit on | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|--------------|--------------|--------------------------------------|--|---|
| Kibut | 1690 D4 | Arrival of Water | | Mahadev |
| Kierpa Chyet | 2400 D8 | Bench of <i>Berberis</i> | <i>kierpa</i> , in <i>N cutro</i> : <i>Berberis asiatica</i> (Berberidaceae). Small thorny shrub used as firewood, to make gates and eaten by goats and sheep. Bitter-testing fruit used as condiment | |
| Kimlu Gu | 2160 C5 | Bottom of the Spring | | Feminin divinity Cyangsar Lamo. She is supposed to control the sector around springs, here that of Kimlu Gu. <i>Nāg</i> |
| Kirka Me | 1610 D3 | Under the Wet Place | | <i>nāg</i> |
| Ko Kharka | 2440 B5 | Pasture of the Hollow | <i>ko</i> (T): hollow | |
| Ko Sa | 1930 D7 | Land of the Hollow | | |
| Koltsa | 2280 B1 | Small Gully | <i>koltsa</i> (N) | |
| Kor Chyet | 2190 B/C5 | Bench of the Enclosure | | Mahadev |
| Kortung | 1540 E3 | Round | | Bhume <i>than</i> |
| Krosying Nen | 1730 D4 | Resting Place of Sumacs | <i>krosying</i> , in <i>N bhalāyo</i> : <i>Rhus succedanea</i> (Anacardiaceae). Used to make sheaths for <i>kukri</i> , the handle of the lama's drum, mobile and fixed shelters, mills; produces fodder | |
| Kuku | 2800 B9 | Cuckoo | <i>Surniculus lugubris</i> (drongo cuckoo) | |
| Kulu Nang | 2220 B5 | The Canal in the Middle of the Field | Place full of water | <i>nāg</i> |
| Kusu Gombo | 2680 B7 | Temple of Penitence | | Place of battle between Titungs and Dimdungs (origin account). First place where the Dimdungs settled. A temple for the Dimdung lamas was set up. Its ruins can still be seen |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|---------------------|--------------|---------------------------------------|--|--|
| La Mrang | 1980 C4 | Slash-and-burn of the Pass | | |
| Lama Kharka | 2490 B7 | Lama's Pastures | | |
| Lamto Kharka | 2460 B5 | Pastures of the Crossroads | | The crossroads is a malefic place where evil spirits lurk |
| Lamto Pang | 2370 B2 | Meadow of the Crossroads | | |
| Lang Lang Gang | 2430 D8 | Ridge of the Echo | | |
| Lapcheko | 2200 C6 | ? | N: <i>dabago</i> (not to receive bad words)? | <i>mane</i> |
| Latar Bra | 2200 C1 | Bushes of the Precipice | | |
| Lemba Nag Ble | 1920 D/C4 | Gentle Slope of the Inoffensive Snake | <i>lemba</i> : dumb, inoffensive or dopey, idiot | <i>lemba nāg</i> |
| Lumtang | 1560 D4 | Rosary | Place where black seeds, <i>rishta</i> , are found and are used as the eyes of certain deities for important liturgies and to make chaplets for <i>bompo</i> shamans | |
| Lumtang Pakha | 1950 D4 | Abandoned Land of the Rosary | | Ghale Gaon children's cemetery |
| Lun Lun Gu | 1950 C5 | Bottom of the Marsh | | <i>kali nāg</i> |
| Lung Martang Shyong | E2 | Nettle Torrent | <i>lung martang</i> , in N <i>sisno</i> : <i>Pilea wightii</i> (Urticaceae). Variety of nettles, young leaves eaten from mid-April to mid-June | |
| Ma Ble | 2130 B2 | Gentle Slope of Small Bamboos | <i>ma</i> , in N <i>ningalo</i> : <i>Polygonatum verticillatum</i> (Liliaceae). Leaves eaten in May-June. Used to make matting (<i>bagari</i>) and baskets carried on the back (<i>doko</i>) | |
| Ma Chyet | 1760 D3 | Bench of Small Bamboos | | |
| Ma Rere | 2050 C2 | There are Small Bamboos | | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|-----------------|--------------|---|---|--|
| Machembo | 3800 D14 | End of the Footpath | The end of the footpath, of the ascent | |
| Mahi Gara | 2330 C7/8 | Terrace of the Buffalo | | |
| Mahi Kang Kyupa | 2100 C6/7 | Buffalo's Twisted Leg | <i>kyupa</i> from T: to twist. <i>kang</i> , from T: leg. <i>mahi</i> : buffalo | |
| Mahi Kang Tso | 2300 B1 | Summit of the Buffalo's Leg | | |
| Manangten Mrang | 2200 B2 | Slash-and-burn of the Manangtens | Manangten: a Tamang clan from Kimtang. Villagers originally from Kimtang and now returned to Kimtang | |
| Mane | 1680 D3 | Stupa | Corresponds to the Tibetan <i>chorten</i> . Religious structure, receptacle for offerings | |
| Mane Chyet | 2130 C5 | Bench of the Stupa | | |
| Mang Gral | 3870 C13 | Demon Ceremony (at the end of mourning) | <i>gral</i> : ceremony at the end of the mourning period | |
| Mang Gyang Ble | 2300 B5 | Gentle Slope of the Chased Away Demon | | |
| Mangal Chyet | 1790 D6 | Bench of Good Omen | <i>mangal</i> (N): good omen | |
| Mar Muwa | 1940 D6 | Lost Gold | <i>mar</i> , in N <i>sun</i> : gold. <i>muwa</i> , in N <i>harayo</i> : lost, gone astray. Place where gold may eventually be found (where gold jewelry has been lost) | |
| Marmen Chyet | 3400 D12 | Bench of Ceremonial Butter Lamps | <i>marmen</i> , from T <i>mar-me</i> : ceremonial butter lamps. After cremation, 7 days after death, 5 butter lamps are lit next to the funeral pyre where the cadavre is to be found | |
| Marmen Tso | 3380 D11 | Summit of Ceremonial Butter Lamps | | |
| Me Bu | 1360 E3 | Under the Paddy Field | | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|----------------|-----------|---------------------------------|---|--|
| Me Chang Chang | 2100 D8 | Under the Waterfall | | |
| Mee Kharka | 2650 B8 | Pastures of Cows | | |
| Men Tso | 1900 C2 | Summit of Medicines | <i>men</i> , from T <i>sman</i> : medicines, here medicinal plants or minerals | |
| Mephra U | 2900 C10 | Shelter under Rock of Ashes | <i>mephra</i> , in N <i>kharani</i> : ash | |
| Mephra U | 2020 E8 | Shelter under Rock of Ashes | | |
| Miab Yung Nen | 2130 C5 | Resting Place of Whetstone | <i>yung</i> : stone. <i>miab yung</i> : stone on which tools are sharpened | |
| Mlut Ki Shyong | D3 | Torrent of Leech-infested Water | <i>mlut</i> : leech, <i>ki</i> : water | |
| Moje Hop | 1530 E4 | Dry Basin of Bananas | <i>moje</i> , in N <i>ker</i> : <i>Musa paradisiaca</i> L. (Musaceae): banana plant. The leaves are used for religious purposes, to hold the tormas (small figures made of flour) | |
| Molam Deva | 2300 C7 | Place for Prayer | <i>molam</i> , from T <i>sman lam</i> : prayer. <i>deva</i> (T): place for study, prayer and contemplation | One can see the cut body of a snake, turned into stone which symbolises the fight between the Titungs and Dimdungs |
| Mole Gang | 1980 D8 | Ridge of Wild Mustard | | |
| Mole Mrang | 2450 B7 | Pastures of Wild Mustard | <i>mole</i> , in N <i>kalo tori</i> : wild mustard | |
| Mra Chyet | 2550 B7 | Bench of Weeds | <i>mra</i> : weeds | |
| Mul Kharka | 2540 B/C7 | Main Pastureland | <i>mul</i> (N): main | |
| Mumshing | 2000 C6 | Tree Trunk | <i>mum</i> : tree (in Balche). <i>shing</i> : wood, trunk, tree in Salme | One of the oldest Blenden sites. <i>kali nāg</i> |
| Mumshing Nen | 2020 C5/6 | Resting Place of Tree Trunk | | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|-----------------|------------|--|---|--|
| Murpa Ble | 2830 B7 | Gentle Slope of Poisonous Shrubs | These shrubs may cause death in cattle and are more or less hallucinogenic for humans if they are eaten from mid-March to Mid-June. After that they are not poisonous. Villagers prevent animals from going there during these 3 months | |
| Nadang Shyong | E2 | Torrent of the Monal Pheasant | <i>nadang</i> , in N <i>dānphe</i> : <i>Lophophorus impejanus</i> (Himalayan monal pheasant). Nepal's national bird and king of animals for the Tamangs. Feathers used for the <i>bompo</i> 's ritual finery and head-dress | |
| Nadang U | 1580 D2 | Shelter under Rock of the Monal Pheasant | | <i>nāg</i> |
| Nag Chopa | 2220 C6 | Offering to the Snake Divinity | <i>chopa</i> , in N <i>puja</i> : offerings. <i>nāg</i> : snake divinity | <i>nāg</i> |
| Nag Kuto Chume | 2500 C8 | Spring of the Erect Snake | | |
| Nag Kuto Kharka | 2490 C8 | Pastures of the Erect Snake | | |
| Nag Kuto Potso | 2580 C8 | Rock Peak of the Erect Snake | | |
| Naga Sepa Dhi | 1600 D4 | Landslide of the Killed Pheasant | <i>naga</i> or <i>sigā</i> , in N <i>monāl</i> : <i>Taprogan satyra</i> | |
| Nal Dung | 2120 D7 | Hollow to be Stirred | <i>nal</i> : to stir (flour). <i>dung</i> : hollow, bottom | |
| Nali Grangba | 1600 D3 | Smoked Water Pipe | <i>nali</i> : water pipe. <i>grangba</i> : consumed, burnt | |
| Namun Chyet | 1730 D3 | Bench of <i>Myrica</i> | <i>namun</i> , in N <i>kāphal</i> : <i>Myrica esculenta</i> (Myricaceae). Provides fodder. Small, much appreciated fruit, eaten from March to June. When ground, the bark (<i>pima</i>) is used for fishing by poisoning the fish | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|-----------------|----------------|---|---|--|
| Neje Gang | 2340 B4 | Ridge of the First Inhabitant | <i>neje</i> (T): first occupant of a place, first coloniser | The hoof-print of the black and white cow (<i>salmo</i> in Tibetan) can be found in the rock; this cow would have given its name to the mountainside: Salmo Gang then Salme |
| Neje Gombo | 2100 C4 | Temple of the First Inhabitant | | The oldest temple on the mountainside. Divinity: Pangshyur Jyomo. Cremation site for inhabitants of Ghale Gaon. <i>kunggar</i> |
| Neje Gung | 2929 B8 | Middle of the First Inhabitant ('s mountain-side) | | |
| Neje Kharka | 2410 B3 | Pastures of the First Inhabitant | | |
| Nen Gang | 2000 D7 | Ridge of the Resting Place | | |
| Nie Mlang Gyung | 2050 C2/3 | Fountain of Black Milk | | |
| Niem Tashi | 3050 E11/12 | Reject Wishes of Well-being | <i>niem</i> : to reject. <i>tashi</i> : wishes of well-being | |
| Niu Gang Tso | 1900 C2 | Top of Melted Snow | <i>niu</i> : melted snow | |
| Nor Potso Gang | 2500 B6 | Ridge of the Silver Peak | <i>nor</i> (T): silver, money, wealth | |
| Nor Sang | 2260 B2 | Money Offering | <i>sang</i> , from T <i>bsang</i> : offering | |
| Nor Sang Bra | 1900 D2 | Corniche of the Money Offering | | |
| Nor Sang Kharka | 2000 D2 | Pastures of the Money Offering | | |
| Nu Gang | 1430 E4 | Ridge of Hornets | <i>nu</i> , in N <i>aringāl</i> : hornet | |
| Nyam Nyula | 2120 C6 | Lots of Mice | <i>nyam</i> : mouse | <i>nāg</i> |
| Ombriba Gang | 1940 C3 | Ridge of the Cairn | <i>om.briba</i> (T): cairn, pile of stones. The stones are engraved | <i>ser-tho</i> (3 stones placed on top of each other) to fight against hailstone, for villagers from Gunsa. Cremation site for the dead from Gunsa |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|---------------|-------------|-----------------------------------|--|--|
| Omgang | 2330 B2 | Blade of the Mill | Blade of a water mill on which a <i>mantra</i> has been written to ward off hailstone | Pleasant place on the mountainside. <i>ser-tho</i> to keep away hailstone |
| Ongling Chyet | 2438 B3 | Snowy Bench of Distillation Water | <i>ong</i> : hot water obtained after distilling <i>rakshi</i> (strong alcohol). <i>gling</i> : snow | |
| Paatal Sung | 2380 B4 | Entry to the Dense Forest | <i>pātal</i> (N): jungle, dense forest. <i>sung</i> : entrance, orifice | |
| Pada Gang | 2330 B2 | Ridge of Rhododendrons | <i>pada</i> , in N <i>lāli gurāns</i> : <i>Rhododendron arboreum</i> (Ericaceae). Used for firewood (burns quickly), charcoal, timber: mobile shelter, mill, gate, milk ladle (in the past). Flowers (rarely) eaten in May-June; are used to cure stomach ache | |
| Pada Gang | 1800 E2 | Ridge of Rhododendrons | | <i>māi</i> divinity, at the limit between Salme and Bumtang (<i>deorali māi</i> : divinity of the pass, of the passage): ambivalent divinity, considered to be the personification of illness and invoked to protect children; supposed to come from the Kathmandu Valley to where it must be sent back. <i>kani</i> : sacred door marking the limit between the two villages |
| Pada Gang | 3000 D10 | Ridge of Rhododendrons | | |
| Pam Parang | 1800 D4 | Cadet's Shoulder | <i>parang</i> : cadet. <i>pam</i> : shoulder | Bhume <i>than</i> for inhabitants of Ghale Gaon. Divinity Lha Wangbo |
| Pana Potso | 2190 C4 | Summit of Wild Pear Trees | <i>pana</i> , in N <i>mayal</i> : <i>Pyrus pashya</i> (Rosaceae). Provides firewood, fodder in April-May. The fruit is eaten in Oct-Nov. | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|------------------|--------------|---|---|---|
| Panda Bari | 3620 D11 | Field of the Cluster (of stones) | <i>bāri</i> (N): non-irrigated field. <i>panda</i> : a set, a group (is said of a family or of stones in a wall) | <i>singo</i> , in N <i>bayu</i> : ghost. The spirit of a man (Tsekyap) who died on this spot torments the living. Goats and cocks have to be sacrificed to prevent it from appearing |
| Pang Rengba | 2050 C4 | Long Meadow | <i>rengba</i> : long. <i>pang</i> : meadow, prairie, plant. Place where fodder grass is cut | Feared place where the dead from Ghale Gaon are buried |
| Pangkra Kharka | 2700 B8 | Pasturelands of High Grasses | | |
| Pangkyung Kharka | 2150 D1 | Pasturelands of Acid Plants (<i>Aconogum</i>) | <i>pangkyung</i> , in N <i>toshne</i> : <i>Aconogum molle</i> . <i>kyung</i> : acid. Acid plant sometimes eaten as a condiment. If a demon or a witch has cast a spell on somebody, the <i>lambu</i> fumigates the sick part of their body using the leaves | |
| Pangling | 1830 D6 | Snow in the Meadow | <i>gling</i> : snow | <i>Devī/Mahadev</i> . <i>pākḥā nāg</i> . <i>nāg</i> on abandoned land |
| Pasam Tsapa Tso | 2900 B7/8 | Summit of the Cutting of the Sacred Pole | <i>pasam</i> : shaman pole, associated with the tree of life. <i>tsapa</i> : to cut, prune | Feared place where a <i>singo</i> (ghost) called Chenchen lurks; it is said to have been killed by a tiger. Offerings have to be made: cocks, eggs, ears of corn, <i>chang</i> (beer), to prevent it from tormenting the living |
| Pelche Gombo | 2020 C4/5 | Pelche Temple | Pelche ? | Temple of the Blenden lamas. Mahakala divinity: other name for <i>khyung</i> , the Indian <i>garuda</i> , mythical bird. The <i>khyung</i> is said to be the enemy of the <i>naga</i> that rule over water and rain. <i>kunggar</i> |
| Pelche Gye | 2060 C5 | Pelche Lake (basin) | <i>gye</i> : lake, basin | |
| Peng Kyoba | 2290 C7 | Frog Hunt | <i>peng</i> , in N <i>pāhā</i> : frogs. Eaten in Aug-Sept. Used to cure syphilis | <i>nāg</i> |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|-----------------|-------------|--|--|--|
| Pholto Gang | 1800 D4 | Ridge of the Predator | <i>pholto</i> : to grab, catch in its claws (before devouring it) | Mahadev |
| Pi Kli Potso | 1920 C3 | Boulder of Slag | <i>pi</i> : metal. <i>kli</i> : slag | |
| Polang Chyet | 2700 B8 | Bench of Wild Raspberries | <i>polang</i> , in N <i>aīselo</i> : <i>Rubus ellipticus</i> (Rosaceae). Berries eaten in May-June. Branches used for gates, mills, as fodder | |
| Poldo Chemba | 3360 E11 | Balls of Flour | <i>poldo</i> : ball of flour. <i>chemba</i> : to make gruel with flour and water | |
| Pongche Tso | 3100 D10 | Summit of Rhubarb | <i>pongche</i> , in N <i>padamchāl</i> : <i>Rheum emodi</i> Wal. (Polygonaceae). The root is used as medicine; it is sold in Trisuli | |
| Popo Long | 2050 D1 | Many Ears of Corn | <i>long</i> : many. <i>popo</i> : ear of corn | |
| Poshiang Kharka | 2100 C1 | Pastures of <i>Leucosceptum</i> | <i>poshiang</i> , in N <i>naram pati</i> : <i>Leucosceptum canum</i> (Labiatae). Fodder tree | |
| Pra Bar | 2700 D10 | Fencing Made of <i>Pieris formosa</i> | <i>bār</i> (N): fence. <i>pra</i> in N <i>balu</i> : <i>Pieris formosa</i> (Ericaceae). Leaves poisonous for cattle | |
| Puchu Mrang | 2080 C5 | Slash-and-burn of Thorny Bushes (brambles) | <i>puchu</i> or <i>puju</i> : thorns | |
| Pulum | 3230 C10 | Enormous Boulder | From T <i>pholong</i> | |
| Punki Bra | 1980 D7 | Rock Face of <i>Pouzolia</i> | <i>punki</i> : <i>Pouzolia viminea</i> (Urticaceae). Provides fodder. Used as yeast for flat cereal cakes. Fibre used to weave clothes and, twisted, to make ropes | Mahadev Sri Surje. God associated with the sun |
| Rup Chyet | 3660 D13 | Bench of Convergence | <i>rup</i> : meeting, and: it narrows, it ends | |
| Sa Chu | 2040 C5 | Water from the Earth | <i>sa</i> (T): earth. <i>chu</i> (T): water | <i>kali nāg</i> |
| Sa Nen | 1930 C5 | Resting Place of Earth | Due to gullying, there is no vegetation and the earth shows through the surface | Place where cocks are sacrificed to fight against the <i>pahiro</i> (gullying) which has destroyed fields. Bhume <i>than</i> |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|----------------|--------------|---|--|---|
| Sa Nen Chume | 1900 C/D5 | Source of the Resting Place of Earth | <i>chume</i> (T): source, small source | <i>lemba nāg</i> : an inoffensive (or dopey) snake |
| Salankhu Khola | E7 | Salankhu River | | |
| Salimo Nen | 1750 D4 | Resting Place of High Grasses | <i>salimo</i> (N): <i>Carex decora boot</i> (Cyperaceae), corresponds to <i>khar</i> (N). Gramineae used as fodder and to cover thatch roofs, which needs to be changed every year | |
| Salimo Potso | 3165 D10 | Rocky Peak of High Grasses | | |
| Saljung Bra | 3100 B8 | Rock Face of Saljung | Saljung: name of a divinity | The divinities from Saljung and Sundung are supposed to consult each other. It is said that the villagers of Kimtang wanted to cut trees in this sector, so the divinities produced an enormous hail storm over their village |
| Salme | 1800 D4 | Salme | Village of Salme. In Tamang: <i>Sangam</i> . In Tibetan: <i>Salmo gang</i> : the mountain of the black and white cow. Name given to the mountain-side by the first Tibetan to arrive there who had seen one of these cows (<i>Salmo</i>) grazing | <i>lu, nāg</i> and Devi/Mahadeo |
| Sangam | 1850 D4 | Salme | | |
| Sangle | 1560 D3 | Finger Millet Straws | | <i>kali nāg</i> |
| Saptang | 1700 D6 | Confluence | Confluence between the Salankhu Khola and the Bramding Shyong | |
| Sem Tso U | 2530 E10 | Shelter under Rock of the Pleasant Summit | <i>sem</i> : content, happy. Comes from T <i>sems</i> : thought, spirit | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|---------------|--------------|---|--|---|
| Ser Gang | 1860 D5 | Golden Ridge | <i>ser</i> (T): gold, in Tamang: ray of sunshine | Fearful place, Thulo Gaon children's cemetery (less than ten years old). The spirits of these dead children, <i>bhut</i> (demons), are very harmful. Mahadev in the fields: Sri Candra (moon). <i>Kani</i> , stone door decorated with religious motifs |
| Ser Gang Nen | 1800 D4/5 | Resting Place of Golden Ridge | | Mahadev: Sri Candra |
| Serkyem Tamba | 2100 C6 | Offer of Golden Beverage | <i>serkyem</i> , from T <i>gser sKyem</i> : golden beverage. Place where the master of ceremonies offers a golden beverage | Place of ritual |
| Shia Dzong | 2160 B7 | Fortress of the Meat | <i>shia</i> (T): meat. <i>dzong</i> (T): fortress | |
| Shia Rang Bra | 2350 C8 | Escarpment of the Share of Meat | <i>rang</i> : distribute, share | |
| Shing Mrang | 2350 B6 | Slash-and-burn of Freshly Cleared Ground | <i>mrang</i> : slash and burn. <i>shing</i> : freshly cleared ground, wood or tree | |
| Shing Nen | 2500 E10 | Resting Place of Freshly Cleared Ground | | |
| Shing Nen | 2350 B1 | Resting Place of Freshly Cleared Ground | | |
| Shing Nen Tso | 2310 B1 | Summit of the Resting Place of Freshly Cleared Ground | | |
| Shiru Bita | 2310 B5 | Slope of Short Grasses | <i>shiru</i> : short grass (fodder for bovideae). <i>bita</i> : slope | |
| Shol Mrang | 2400 B6 | Slash-and-burn of Footprints | <i>shol</i> : footprint, track | Mahadev: Shyelkar Jyomo, divinity that resides in whitish rock |
| Shyel Bum | 2170 C4 | Large Crystal Boulder | <i>shyel</i> , from T <i>shel</i> : quartz, crystal. <i>bum</i> : large boulder | Cremation site for the Ghale |
| Sing Lha | 4049 C13 | Naked (or Moving) Heights | <i>sing sing</i> : "everything moves, like an earthquake", or <i>sing sing</i> (T): naked, with no vegetation | The nicest place on the mountainside during the monsoon. Beautiful view. Mahadev, benevolent gods. <i>kunggar. mane</i> |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|----------------|--------------|-----------------------------------|---|---|
| Solshing Gang | 2250 B/C4 | Ridge of the Ring-cup Oaks | <i>solshing</i> , in N <i>phalānt</i> : <i>Quercus glauca</i> (Fagaceae). Provides fodder, firewood and timber: frame, mobile shelter. One of the best for the swing plough and the beam. In the past only this was used and swing ploughs lasted twice as long | Cremation site for the Ghales from Wadi Ble. Unlucky place |
| Sora | 2250 B5 | 16? | 16? Used for "it all"? | |
| Sundung | 3100 A8 | Sundung | The god Sundung | Main divinity on the mountainside, common to all clans. Communicates with the goddess Saljung. Pleasant place on the mountainside. <i>kunggar</i> |
| Sundur Chyet | 2200 C6 | Bench of Grasses (<i>Carex</i>) | <i>sundur</i> : <i>Carex atrofusca schkuhr</i> (Cyperaceae) | Cremation site for villagers from Thulo Gaon and burial place for very young children. Fearful place |
| Sur Kiap | 2180 C7 | Behind the Rocky Edge | <i>sur</i> : rocky edge. <i>kiap</i> : behind | |
| Sur Kiap Potso | 2180 C7 | Peak Behind the Rocky Edge | | |
| Sur Ku | 1860 D5 | Nine Rocky Edges | <i>ku</i> , from T <i>dgu</i> : nine. Number which is a mark of multiplicity (refers to the nine gods who created the world) | The Dimdung from Kusu Gombo settled here, then second settlement for the Gyelden Ghale. <i>nāg</i> |
| Ta Ware | 1640 D3 | Garden of the Horse | <i>ta</i> , from T <i>rta</i> : horse. <i>ware</i> : garden | |
| Taa Gang | 2020 D7 | Ridge of the Tiger | <i>taa</i> , from T <i>sTag</i> : tiger or large leopard | |
| Taa Sepa | 2200 C7 | Killed Tiger | | |
| Tagleba | 2610 E10 | Cutting the Plank | | |
| Tagora Chyet | 1650 D3 | Bench of the Gate | <i>tagora</i> (N): barrier, closing. gate | |
| Tagpa Chyet | 2230 B2/3 | Bench of Birches | <i>tagpa</i> , in N <i>sauer</i> : <i>Betula alnoides</i> (Betulaceae). Provides fodder from April to June, timber for frames, for building mills and firewood. Medicinal plant, is used to make a potion | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|------------------|--------------|---|---|---|
| Tagpa Gang | 2400 B6 | Ridge of Birches | | |
| Tala Gang | 2080 C3 | Ridge of the Gap | Place where one rests | Mahadev. <i>kunggar. mane</i> |
| Tanga U | 1640 D5/6 | Shelter under Rock of Grasses (<i>Ageratum</i>) | <i>tanga</i> , in N <i>ajaganda</i> : <i>Ageratum conyzoides</i> (Compositae). Fodder plant. The leaves have healing properties. Grows in paddy fields when there is water | Oldest paddy fields on the mountainside |
| Tangle Chyet Bra | 2800 B7 | Precipice of the Bench of Wild Buckwheat | <i>tangle</i> , in N <i>ban phāpar</i> : <i>Fagopyrum dibotrys</i> (Polygonaceae). Only eaten by animals | |
| Taprang Sepa | 1880 D5 | Killed Crow | <i>taprang</i> , in N <i>kāg</i> : Cornix | <i>kali nāg</i> . Bhume than |
| Tar Shyong | D5 | White Torrent | <i>tar</i> : white | |
| Tenga Chyet | 2750 B8 | Bench of the Rowan Trees | <i>tenga</i> , in N <i>khārāne</i> : <i>Sorbus cuspidata</i> (Rosaceae). Produces a little fodder from May to August, fruit eaten in Oct-Nov., firewood | |
| Tengar Chyet | 2120 C5 | Bench of <i>Hemiphragma</i> | <i>tengar</i> : <i>Hemiphragma heterophyllum</i> (Scrophularineae). Self-propagating plant growing in wheat and barley fields. The young leaves are eaten by villagers in May-June. Good fodder for animals | One of the former sites of settlement on the mountainside. Ruins of a Dimdung temple. Fearful place, cemetery |
| Tengar Chyet Gu | 2140 C5 | Back of the Bench of <i>Hemiphragma</i> | | |
| Tengote Pang | 2410 B6 | Meadow of (?) | Tengote: ? | |
| Tengshing Chyet | 2180 B2 | Bench of Chestnut Trees | <i>tengshing</i> , in N <i>katus</i> : <i>Castanopsis tribuloides</i> (Fagaceae). Produces a fodder of very good quality all year round, very good timber for frames (used to build mills), charcoal. Wood used to make the shaman's pole. A branch is used for the <i>lambu</i> ritual. Abundant species | |
| Tengshing Gang | 2140 C5 | Ridge of Chestnut Trees | | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|-----------------|-----------|---------------------------------------|--|--|
| Thangshing Tsam | 1830 D6 | Pinewood Bridge | <i>thangshing</i> , in N <i>sallā</i> : <i>Pinus roxburghii</i> . In the 1980 was only used for mills; now for the frame of houses. Also used for making ladders and bridges. | <i>nāg</i> |
| Tharnu Gang | 2450 B7 | Ridge of <i>Euphorbia</i> | <i>tharnu</i> , in N, <i>sihundi</i> : <i>Euphorbia royleana</i> Briss. (Euphorbiaceae). The latex is toxic for man and cattle | God: Indra devi/Mahadeo. Sacred wood, trees cannot be cut |
| Thulo Gaon | 1850 D4/5 | Large Village | | Dimdung temple |
| Timra U | 1850 D2 | Shelter under Rock of Bovine Ticks | <i>timra</i> , in N <i>kirna</i> : bovine ticks | |
| Timra U | 1900 D8 | Shelter under Rock of Bovine Ticks | | |
| Towam Shiwa | 2400 B4 | Dead Bear | <i>towam</i> (T): bear. <i>shiwa</i> (T): to die | |
| Tsakar Koltsa | 2250 C1 | Gully of <i>Michelia</i> | <i>tsakar</i> , in N <i>tsakpar</i> : <i>Michelia doltsopa</i> (Magnoliaceae). There have not been any since the 1960s. Only very small ones can be seen in some places. It was very good wood for frames. Produces fodder | |
| Tsakar U | 2290 B6 | Shelter under Rock of <i>Michelia</i> | | Source of the Tar Shyong (torrent on the banks of which the <i>pahiro</i> develops). A <i>mane</i> was built to fight against the <i>pahiro</i> ; it is the only one still in place. Meditation cave |
| Tsam Tsapa | 2350 B3 | Squaring of the Bridge | <i>tsam</i> : bridge. <i>tsapa</i> : squaring | |
| Tsherma | 2760 B8 | Thorny Plants (<i>Zizyphus</i>) | <i>tsher-ma</i> (T), in N <i>hade bayar</i> : <i>Zizyphus incurva</i> (Rhamnaceae). Thorny plant used as fodder and for firewood. <i>tsher/tsher kha</i> in Tibetan also means sadness, melancholy, nostalgia | Analogy between the <i>tsher-ma</i> plant and <i>tsher</i> : sad, melancholic. Place considered to be sad, always shrouded in mist |
| Tsherma Wadi | 2650 B8 | Fountain of Thorny Plants | | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|--------------|--------------|---|---|---|
| Tsona | 2185 C4 | Black Lake | <i>tsona</i> : from T <i>mtsho</i> : lake and <i>nag-po</i> , black | |
| Tsona Pang | 2160 C4 | Meadow of the Black Lake | | Historic meeting place for the Dimdungs |
| U Ble | 1650 D3 | Gentle Slope of the Shelter under Rock | | |
| U Chen | 2450 D1 | Leopard of the Shelter under Rock | | Mahadev |
| U Tar | 1530 D5 | White Shelter under Rock | <i>tar</i> : white | Oldest paddy fields on the mountainside |
| U Tar Me | 1500 E5 | Below the White Shelter under Rock | | |
| Urmo Dzong | 1750 D2 | Fortress of the Yellow Pheasant | <i>urmo</i> , in N <i>kālij</i> : <i>Lophura leucomelana</i> | |
| Wadi | 1620 D4 | the Fountain | | |
| Wadi Ble | 1880 C4 | Gentle Slope of the Fountain | | <i>nāg</i> . Bhume <i>than</i> . Sacred wood |
| Wadi Nen | 1600 D/E4 | Resting Place of the Fountain | | |
| Wambi Chyet | 2000 E2 | Bench of Small Bamboos | <i>wambi</i> : bitter-tasting small bamboo. Used for flutes; few are left | |
| Warpadi Gang | 2390 B7 | Ridge of <i>Edgeworthia</i> | <i>warpadi</i> , in N <i>pāthe shiāolā</i> : <i>Edgeworthia gardneri</i> (Thymeleaceae). Shrubs whose fibres are used to make ropes | |
| Ya Gang | 2080 C5 | the Bank | Lit.: the crest of the bank (of the torrent) | A <i>mane</i> was built to fight against the <i>pahiro</i> , but it was carried away by monsoon rains |
| Yarsa | 2850 E11 | Summer Dwelling | from T <i>dbyar sa</i> | |
| Yarsa Kharka | 2350 D8 | Pastures of Summer Dwelling | | <i>mane</i> . Prayer pole |
| Yarsa U | 2860 E11 | Shelter under Rock of the Summer Dwelling | | |

| Toponym | Location | Translation | Comment, scientific terms, usages | Presence of divinities, of religious buildings. Religious, historical comments |
|--------------|--------------|-----------------------------|---|--|
| Ye Bra | 2000 C1 | Rock Face of Wild Bees | <i>ye</i> , in <i>N ban mauri</i> : wild bees. The honey is considered to be a very good remedy for all ills, both in men and animals (epidemics, colds...) | |
| Ye Bra Potso | 2000 C1/2 | Peak of Wild Bees Rock Face | | |
| Ye Tso | 1970 C5 | Summit of Wild Bees | | |
| Yumpa Nen | 1890 D3 | Resting Place of Stone | <i>yumpa</i> : stone | |
| Yung Kapkap | 2980 A7 | Pile of Boulders | Pile of boulders difficult to get over | Pleasant place on the mountainside. Gods: Dutchungjung invoked to keep away hail storms. <i>ser-tho</i> . Officiating lama: Dorje Lama |
| Yung Kiaba | 2180 C6 | Erected Stones | Place where large stones are erected | |

Some data on the flora were collected by WIART (1983); some data on the fauna were collected by TOFFIN (1985).

Table 11

Place Names on Sabu Territory

V. Labbal

Place names in the non-cultivated land area

Valleys

| Transliteration | Translation | Comment |
|----------------------------|---|---|
| <i>ba tshwa can</i> | Provided with Soda | Presence of salt crusts |
| <i>bhe da shi sa</i> | Place [where] the Wandering Musician Died | A musician is said to have died in this valley after having lost his way |
| <i>chu mig can gong ma</i> | The Upper One Provided with a Spring | Presence of a spring |
| <i>chu mig can yog ma</i> | The Lower One Provided with a Spring | Presence of a spring |
| <i>gug lung</i> | Elbow-shaped Valley | Valley in the shape of an elbow |
| <i>hab gdang</i> | The Voracious One | Wide open valley. <i>hab</i> : mouthful; <i>gdang byes</i> : to open (eyes and mouth) |
| <i>lung mo che</i> | Large Valley | |
| <i>lung smyon</i> | Mad Valley | Dangerous valley because of the mudslides that form there when it rains |
| <i>ra bkra shis</i> | Auspicious Enclosure | A villager is said to have seen a monastery here in a dream |
| <i>rgya lung</i> | Wide Valley | |
| <i>rta mkhar</i> | Horse's Fort | No explanation given as to the origin of this name |
| <i>shal lung</i> | Scree Valley | |
| <i>spe'u lung pa</i> | Valley of the Turret | The English are said to have planted a flag here |

Mountains and passes

| Transliteration | Translation | Comment |
|------------------------|---------------------------------------|---|
| <i>brag 'chag</i> | Broken Rock | Mountain covered in granite boulders |
| <i>bye ma ri</i> | Sandy Mountain | Presence of scatterings of sand on the flanks of the mountain |
| <i>Digar la mgo</i> | The Top (lit. head) of the Digar Pass | Pass leading to Digar village |
| <i>gnam'i ka</i> | Pillar of the Sky | The highest mountain in the Sabu landscape |
| <i>jo dar la</i> | Chodar pass | Presence, near the pass, of the altar dedicated to God Chodar |

| Transliteration | Translation | Comment |
|----------------------------------|---------------------------|---|
| <i>khor ban ni bye ma ri</i> | Korban's Sandy Mountain | Side of The Sandy Mountain, overlooking Korban's summer residence |
| <i>kong ka bser bu</i> | Cold Open Pass | Presence of a breach at the summit of the mountain |
| <i>kong ka nag po</i> | Black Open Pass | Presence of a dark area at the summit of the pass |
| <i>la ser mo</i> | Yellow Pass | Pass where the soil is ochre-coloured |
| <i>lcags gzer mo</i> | Iron Nails | Large boulder with pieces of iron stuck in it |
| <i>lha 'dre ri</i> | Ghost Mountain | Mountain haunted by a ghost |
| <i>mon ni bye ma ri</i> | Musicians' Sandy Mountain | Side of The Sandy Mountain, overlooking the musicians' house |
| <i>pho long kha leb</i> | Boulder-Lid | Boulder in the shape of a lid |
| <i>phug chen mo</i> | Big Cave | Moraine |
| <i>rdo a ta ram shin taram ?</i> | ? | A rock face; The etymology is unknown |
| <i>sa phud 'ba 'bo</i> | Sabu Cavern | |

Barren plains

| Transliteration | Translation | Comment |
|------------------------|------------------------------|--|
| <i>rdza rog</i> | Clay-Slate Rocky Ground | |
| <i>rta shi sa</i> | Place [where] the Horse Died | Many animals are said to have got lost and died in this arid space |
| <i>thang sing sing</i> | Cleared Plain | <i>sing sing</i> : naked, "empty" of any vegetation |

Grassy wetlands

| Transliteration | Translation | Comment |
|-------------------------|-----------------------|---|
| <i>spang chen mo</i> | Large Grassy Wetlands | |
| <i>spang la gong ma</i> | Upper Grassy Bench | <i>la</i> : pass. Here, the term designates a bench. The grammatical construction and the meaning of the toponym however pose a problem |
| <i>spang la yog ma</i> | Lower Grassy Bench | Ditto |

Enclosures and shepherds' huts

| Transliteration | Translation | Comment |
|-------------------------|---------------------------------------|---------------------------------------|
| <i>chu mig gi pu lu</i> | Shepherds' Huts [near] the Spring | Presence of a spring |
| <i>kyog gi pu lu</i> | Shepherds' Huts [at] the Bend | Huts situated in a bend in the valley |
| <i>rta mkhar pu lu</i> | Shepherds' Huts of the Horse's Castle | Huts situated in the Stamkar valley |
| <i>sdings si pu lu</i> | Shepherds' Huts in the Flat Basin | Huts situated in a small depression |

Bodies of water

| Transliteration | Translation | Comment |
|-------------------------------|--|---|
| <i>chu tshan</i> | Hot/Medicinal Water | Medicinal spring |
| <i>'dag can</i> | Provided with Clay [Canal] | |
| <i>gong yur</i> | Upper Canal | One of the two main Minyag canals; the one more uphill |
| <i>grog chung</i> | Small Gully | Particularly wide canal |
| <i>gsar mo</i> | New [Reservoir] | Reservoir which supplies a more recent area in the oasis than that of Yulgok |
| <i>gsum rags</i> | Three Dams | |
| <i>khang gsar</i> | New House [Canal] | Name of a house |
| <i>khang gsar yog ma</i> | New House Lower [Canal] | Canal situated just below the previous one |
| <i>lcang dmar po</i> | Red Willows [Canal] | Also the name of a house situated nearby, around which land is irrigated thanks to the canal |
| <i>ma yur</i> | Main Canal | |
| <i>mchod rten bu ga</i> | Opening of the Stupa | No explanation |
| <i>mchod rten chen yur ba</i> | Great Stupa Canal | Presence of a large stupa nearby |
| <i>mgo bcag</i> | Broken Head [Canal] | Name of a house |
| <i>mi nyag rdung</i> | Minyag Mound [Canal] | The head of this canal is situated near Minyag mound |
| <i>rdzing lo</i> | The Reservoir | |
| <i>rdzing lo yur ba</i> | Zinglo [Reservoir] Canal | Canal supplied by the Zinglo reservoir |
| <i>rdzing rul</i> | Rotten [water] Reservoir | Reservoir of stagnant water |
| <i>rka chen mo</i> | Great Water Deviation | Portion of a canal where the water from two different reservoirs mingle, before creating two new branches |
| <i>sa gsar</i> | New Land [Canal] | Canal watering land that was colonised late |
| <i>sa phud grog po</i> | Sabu Torrent | Name of the torrent |
| <i>sgang zur</i> | Corner of the Hill [Canal] | Topographic indication as to the place where the head of the canal can be found |
| <i>spang khul</i> | At the Bottom of the Grassy Wetlands [Reservoir] | Reservoir situated at the bottom of the meadow of the same name |
| <i>spe'u gong ma</i> | Upper Turret [Canal] | Space irrigated by this canal faces the Valley of the turret |
| <i>spe'u yog ma</i> | Lower Turret [Canal] | Ditto |
| <i>'thags mkhan yur ba</i> | Weaver Canal | Weaver: name of a house |
| <i>yog yur</i> | Lower Canal | One of the two main Minyag canals; the one more downhill |
| <i>yul gog</i> | Ruined Village [Reservoir] | Reservoir situated on the site of the former village in the valley |

Place names in the cultivated land area

Fields

| Transliteration | Translation | Comment |
|--------------------------|---|---|
| <i>gnyis gru</i> | Two Corners | Allusion to the shape of the field |
| <i>grog po'i grwa gu</i> | Small Field [in the vicinity] of the Stream | Allusion to the field's location |
| <i>jo rtags brgyad</i> | Lord Targye | Name of former owner |
| <i>lha mo zhing</i> | Female Medium's Field | Mention of former owner |
| <i>'ol ol'i grwa gu</i> | Small Field [in the vicinity] of Lucerne | Allusion to the position of the field |
| <i>phyed 'chad</i> | Divided into Two | Field divided into two plots, belonging to two different landowners |
| <i>rdza</i> | Rocky Ground | Very stony field. The name comes from <i>rdza rog</i> , stony ground, not from <i>rdza</i> , clay |
| <i>spang bcag</i> | Broken Grassy Wetlands | Field taken over from a former grassy land |
| <i>tshogs rtse</i> | Top of an Offering Cake | Presence in the past of a stone erected in the shape of an offering |
| <i>zhing ring</i> | Long Field | Allusion to the shape of the field |
| <i>zur gsum</i> | The Triangle | Allusion to the shape of the field |

Localities and village sectors

| Transliteration | Translation | Comment |
|-------------------------|-----------------------------------|---|
| <i>a phyi yum</i> | Grandmother | This locality was formerly a ornament garden for the Queen Gyal Khatun |
| <i>glang rtse mo</i> | Ox's Summit | Historic location of the first fort in the valley. No explanation as to the name |
| <i>klungs</i> | Cultivated Land Area | The oldest cultivated space, empty of any dwelling and situated in the heart of the valley |
| <i>la rtsa'i rdzing</i> | Reservoir at the Foot of the Pass | Basin at the foot of the Digar pass, where there was talk of launching a project to dig out a reservoir |
| <i>ltag rta sgo</i> | Horses' Gate at the Top | Two large boulders, situated here and there in the valley, mark the arrival in the Sabu oasis from upper-altitude pastures. <i>rta sgo</i> : gate on the approach to a fort where horsemen dismount |
| <i>mgon po ldebs</i> | Mountainside [with] the Protector | The face of the Protector Mahakala is said to be visible in the folds of the rock |

| Transliteration | Translation | Comment |
|---------------------------|----------------------|---|
| <i>mi nyag</i> | Minyag | Name of a region in the east of Tibet where one of the families of notables in the oasis who founded the village is said to have originated. Designates the oldest inhabited site in the valley |
| <i>mkhar gog</i> | Ruined Fort | Ruins of an ancient fort which overlooks the Sabu quarter |
| <i>phu</i> | Uphill of the Valley | Topographic indication |
| <i>rdzong</i> | Fortress | Presence of the ruins of a "fortress" |
| <i>rdzong ba grong ba</i> | Fortress-house | Ruins situated on the Darchak mountain, overlooking the Dzung quarter in the oasis. They have given their name to this quarter |
| <i>sa phud</i> | Offering of Land | Allusion to the healing of a Ladakhi king by a lama, who would have received land in the oasis as a present |
| <i>yog ngos</i> | Lower Side | Allusion to the location of the quarter compared to the oldest inhabited and cultivated space in the valley |

Table 12

Place names on Hemis-shukpa-chan territory

P. Dollfus

Valleys and Bassins

| Transliteration | Translation | Comment |
|-------------------------------------|--|--|
| <i>da ra ba ra</i> | ? | Onomatopoeia? |
| <i>gsum 'dzoms</i> | At the Confluence of the Three | Place where three (<i>gsum</i>) valleys meet (' <i>dzoms</i>). Several valleys bear this name |
| <i>khra sang lung mo che</i> | Large Valley [giving] <i>khra sang</i> | A plant grows in this large valley (<i>lung mo che</i>) and it gives young animals mouth ulcers; this illness is called <i>khra sang</i> |
| <i>lung ka / lung kha / lung ga</i> | Valley | Valley known for being a <i>btsan lam</i> , i.e. a path (<i>lam</i>) taken by the <i>btsan</i> , red backless demons |
| <i>lung ldum</i> | Small Valley | <i>ldum/stum</i> : small |
| <i>lung pa chen mo</i> | Large Valley | <i>lung</i> : valley; <i>chen mo</i> : large |
| <i>pi li dig dig</i> | <i>Stipa</i> Basin | <i>dig dig</i> equivalent to <i>ding ding</i> ; <i>pi li</i> : thick green grass (<i>Stipa trichoides</i>) |
| <i>rgyab phag</i> | The One Hidden Behind | See <i>rgyab phag la</i> , "Pass of the [Valley] Hidden Behind" in the table on passes |
| <i>sa ri lung</i> | Valley of Sari (?) | |
| <i>se lung tse</i> | Wild Rose Valley | <i>se ba</i> : <i>Rosa sp.</i> |
| <i>shag ma sding</i> | Gravelly Basin | <i>shag</i> : stone, gravel; <i>sding</i> : basin |
| <i>shug pa</i> | Junipers | |
| <i>skam lung</i> | Dry Valley | <i>skam po</i> : dry |
| <i>sog bi gling</i> | Sogbi Garden | <i>sog bi</i> : hard sharp-edged grass. <i>gling</i> : garden, island |
| <i>za lung</i> | Food Valley | The valley shelters a large population of wild edible plants (<i>za tshod</i>) |

Summits and Mountains

| Transliteration | Translation | Comment |
|--------------------------|--------------------------|--|
| * <i>kar ta yog ma</i> | Lower Karta | No etymology given |
| * <i>kar ta gong ma</i> | Higher Karta | No etymology given |
| <i>bag ma dang ya to</i> | Bride and Maid | Allusion to the shape of the mountains |
| <i>be do shi sa</i> | Place [Where] Calves Die | At the beginning of summer, this mountain casts a large shadow over pastures situated at the bottom and turns them into cold places where calves (<i>be do</i>) die (<i>shi</i>) |

| Transliteration | Translation | Comment |
|-----------------------------|---------------------------------|--|
| <i>brag dkar</i> | White Rock | |
| <i>brag dmar</i> | Red Rock | In this red granite face there is a hermitage <i>brag dmar dgon pa</i> run by one of the two monks posted in the village |
| <i>brag mthon po</i> | High Rock | <i>brag</i> : rock, boulder; <i>mthon po</i> : high, loft |
| <i>'brang rgyas can</i> | Like a 'brang rgyas | Mountain in the shape of 'brang rgyas, offering made out of barley flour |
| <i>bye ma bde mo</i> | Sandy [but] Pretty | |
| <i>bye ma ring mo</i> | Long and Sandy | <i>bye ma</i> : sandy; <i>ring mo</i> : long |
| <i>bye thang</i> | Sandy Plain | |
| <i>chab rkyan can</i> | Like a Jug for Beer | A mountain shaped like the copper pot in which this drink is served |
| <i>cong cong rtse</i> | Jagged Summit | <i>cong cong</i> : toothless; <i>rtse</i> : summit |
| <i>dpal ldan 'dzom ba</i> | Paldan Zomba | Name of a divinity. At the summit of this mountain there is a stupa and prayer flags |
| <i>g.ya dmar</i> | Red Schist | |
| <i>gnam gling</i> | Island [in] the Sky | It is so high that it touches the sky |
| <i>grib chen mo</i> | Big Shadow | In summer, this mountain throws a large shadow over pastures at the bottom |
| <i>gzar mo</i> | The Peaked One | Sharp like the tip of a well-sharpened knife |
| <i>jhan da (U.) btag sa</i> | Place [Where] the Flag was Tied | The flag in question (<i>jhan da</i> in Urdu) is a trigonometric reference planted "a long time ago" at the summit of this mountain |
| <i>kha can</i> | Snow-covered | <i>kha</i> : snow |
| <i>khyi sbal</i> | Cushions on Dogs' Paws | The ridge is covered in stains of soft lichen like the cushions on dogs' paws (<i>khyi sbal</i>) |
| <i>la ltag pa</i> | Above the Pass | Mountain situated above (<i>ltag</i>) a pass (<i>la</i>) |
| <i>mgo khad</i> | Head Trap [for Goats] | Mountain with a hole through it where goats get their head (<i>mgo</i>) caught (<i>khad byes</i> : to be stuck) |
| <i>nyi ma log sa</i> | The Sun Returning Place | Allusion to the summer solstice. This mountain is used as a sun marker (<i>nyi tho</i>) to determine the timing of agriculture |
| <i>phrang sna</i> | Nose of the Defile | Name of a rock face |
| <i>rdza dkar po</i> | White Clay | <i>rdza</i> : clay; <i>dkar po</i> : white |
| <i>rgad mo tshil khur</i> | Fat-wrapped Old Woman | The mountain resembles an old woman (<i>rgad mo</i>), shrunken and wrapped in fat (lit. "fat carrier" <i>tshil khur</i>) |

| Transliteration | Translation | Comment |
|--|---|---|
| <i>rgyal po ri rtsa / rgyal po ri rtsa</i> | Fodder from the King's Mountain / Foot of the King's Mountain | Mountain where in the past the king's herds grazed. Two interpretations are possible; <i>ri rtsa</i> : grass from the mountains or <i>ri rtsa</i> : foot of the mountain |
| <i>rgyun chen mo gong ma</i> | Big Upper Chain | The mountain of this name "stretches, flows like a river" |
| <i>rgyun chen mo 'og ma</i> | Big Lower Chain | <i>id.</i> but for the mountain located under 'og ma |
| <i>ri chung se</i> | Small Mountain | <i>Ri</i> : mountain; <i>chung se</i> : small |
| <i>ri mgo che</i> | Big Summit | <i>ri mgo</i> : summit; <i>che, chen mo</i> : large |
| <i>rmogs ri</i> | Mist Mountain | Its summit is often draped in mist (<i>rmogs</i>). |
| <i>sa dmar ri bkugs</i> | Red Earth Bent Mountain | This mountain of red (<i>dmar po</i>) earth (<i>sa</i>) leans forwards (<i>bkugs</i>) slightly. |
| <i>shag sgang</i> | Stony Ridge | <i>shag</i> : gravel, small stones |
| <i>shal ma rdza mgo</i> | Detritus and Clay Summit | <i>shal ma, shal sa</i> : mass of fallen earth; <i>rdza, rdza sa</i> : clayey soil; <i>mgo</i> : head, summit |
| <i>shel'i gangs ri</i> | Glacier of Crystal | It is the only one to be covered in snow all year round and it supplies the village with water |
| <i>shi ong</i> | With "shiyong" | <i>shi ong</i> : grass growing at the foot of the so-called mountain |
| <i>smang ra ri rtsa</i> | Moustache [like] Mountain Foot | The folded geological layers which form the foot of the mountain (<i>ri rtsa</i>) look like moustaches (<i>sma ra, smang ra</i>) |
| <i>sngan grong ri rtse</i> | ? | ? |
| <i>spang po che rong zur</i> | At the Corner of the Gorge of the Large Meadow | The translation given does not respect the usual grammatical order |
| <i>sred gzhung</i> | Amidst Honeysuckles, <i>Lonicera</i> sp. | <i>sred pa</i> : red-flowered Caprifoliaceae (<i>Lonicera spinosa</i>), picked for fuel |
| <i>ston thod/ ston grog</i> | Buddha's Turban or Buddha's Belly | This mountain, long ago a place for circumambulation, especially for women wanting a child, looks to some like the master's headdress <i>Ston pa</i> . To others, it is likened to a stomach dispensing fertility |
| <i>sul</i> | Furrows | <i>sul</i> or <i>rol</i> : furrows. Allusion to folds in the rock |
| <i>thal ri</i> | Dusty Mountain | <i>thal</i> : dust or ashes |
| <i>tho yor rug rug</i> | At the Numerous Cairns | <i>tho yor</i> : cairn; <i>rug rug</i> : numerous; <i>rug byes</i> : gather, unite |
| <i>tshims bi tho yor</i> | Cairn-horse Manure | <i>the gor, tho yor</i> : pile of stones; <i>tshims bi</i> : horse manure |
| <i>zheng can phra mo</i> | Wide [then] Narrow | The mountain is not wedged in between others: it opens out (<i>zheng</i>), but is slender, thin (<i>phra mo</i>) |

Passes

| Transliteration | Translation | Comment |
|-------------------------------|--|--|
| <i>brag dmar kong ka</i> | Red Rock Open Pass | |
| <i>bye ma'i la</i> | Sandy Pass | |
| <i>dingul mdog kong ka</i> | Silver-coloured Open Pass | |
| <i>khug ru kong ka</i> | Nose-ring Open Pass | <i>khug ru, khu ru</i> : nose ring for <i>mdzo</i> |
| <i>kong ka sing sing</i> | Cleared Open Pass | <i>sing sing</i> : naked, with no vegetation |
| <i>kong nyag</i> | Flattened Open Pass | <i>nyag nyag</i> : "when one lies flat to slip between two blocks of rock very close to each other" |
| <i>ku ngu la</i> | ? | Pass leading to the Ridzong monastery |
| <i>phur gon kong ka</i> | Pigeons' Open Pass | Pigeons (<i>phur gon, phug ron</i>) often fly above this breach |
| <i>ra la mgo / ra lam mgo</i> | Top of Goat Pass /Goats' Path | Refers to the pass (<i>la mgo</i>) or the highest part of the path (<i>lam mgo</i>) used daily by the herds of goats (<i>ra</i>) |
| <i>rgyab phag la</i> | Pass of the [Valley] Hidden Behind | <i>rgyab</i> : behind, in the back; <i>phag ma</i> : something hidden |
| <i>rong mthil la</i> | Pass [towards] the Bottom of the Gorge | Pass which leads to a narrow barren inhabited valley, where demons, <i>'dre</i> and <i>btsan</i> , lurk (cf. 103) |
| <i>tsher ma can la</i> | Pass with Thorn Bush | <i>tsher ma</i> : thorny bush |

Barren plains

| Transliteration | Translation | Comment |
|--------------------------|--------------------------------------|--|
| <i>bal sa'i thang</i> | Plain with Earth [for scouring] Wool | Clay (<i>sa</i> : earth) is collected in this plain; it is used to remove the grease from wool (<i>bal</i>) |
| <i>bi gu thang</i> | Plain of the Wild Kids | <i>bi gu</i> : kid goat of the wild capridae species / <i>ri gu</i> : domestic kid goat |
| <i>brag bye thang</i> | Rocky Sandy Plain | <i>brag</i> : rock, boulders; <i>bye ma</i> : sand |
| <i>dgun tshas thang</i> | Winter Garden Plain | Barren stony plain where the Ladakhi king, Jamyang Namgyal, had thought of creating a winter (<i>dgun</i>) garden (<i>tshas</i>) |
| <i>ka ra da li thang</i> | ? | ? |
| <i>thi ling thang</i> | Thi ling Plain | <i>thi ling</i> : onomatopoeia imitating the noise of small bells (<i>ling shang</i>) |
| <i>tshes ne khrang</i> | ? | Etymology is a problem, locally translated as "in the shape of a bird's beak" |
| <i>tshe pad thang</i> | <i>Ephedra gerardiana</i> Plain | <i>tshe pad</i> : <i>Ephedra gerardiana</i> ; sheep and goats feed here in winter |
| <i>bye thang</i> | Sandy Plain | |

Grassy wetlands

| Transliteration | Translation | Comment |
|-----------------------------|-------------------------------|---|
| <i>chos pa'i spang</i> | Chos pa Grassy wetlands | <i>Chos pa</i> : name of a house meaning "the devotees" |
| <i>chu mig spang po che</i> | Grassy Wetlands of the Source | This source is the one where inhabitants at the top of the village get their supply of drinking water |
| <i>shug pa'i spang</i> | Junipers' Grassy Wetlands | <i>spang</i> : Grassy wetlands; <i>shug pa</i> : juniper |

Localities

| Transliteration | Translation | Comment |
|-----------------------------|---|--|
| <i>bla ma gso sa</i> | Place [Where] the Lama Regained Consciousness | <i>gso byes</i> : to repair a house, rekindle a fire, etc. |
| 'brog | Summer Grazing | |
| <i>chu mig yog ma</i> | Lower Spring | Also name of the nearby hermitage, reserved for men wanting to meditate |
| <i>chu nu</i> | ? | |
| <i>chub chab chib</i> | Chub chab chib | Onomatopoeia imitating the noise of water as it flows between stones |
| <i>dar ka chu mig</i> | ? | Place with a spring (<i>chu mig</i>) where in the past there was a small hermitage (<i>mishams khang</i>) only a few stones of which are left |
| <i>glang to 'khyer sa</i> | Place [Where] One Leads Oxen | <i>glang to</i> : ox; <i>'khyer byes</i> : to lead |
| <i>gong ma'i sdings</i> | Upper Basin | |
| <i>jo jo sreg sa</i> | Chocho's Cremation Place | Chocho: nickname given to a woman in the village |
| <i>ka ra jom mi kyog</i> | ? | ? |
| <i>ma ni</i> | At the Prayer Walls | <i>ma ni</i> : stone walls covered in slate or stone slabs engraved with mantra |
| <i>mkhar'i zhing chen</i> | Large Field [belonging to] the Royal Palace | |
| <i>rtses sa ta'u/grwa'u</i> | Small Field-Dance Place | Place where dances and New Year shows take place; <i>grwa 'u</i> or <i>ta'u</i> : small field, corner; <i>rtses sa</i> : space for dances or shows |
| <i>shug pa</i> | Junipers | Juniper grove which has given its name to the village of Hemis-shukpa-chan |
| <i>thang po che</i> | Big Barren Plain | Large barren plain, today transformed into cultivated land area |
| <i>tsher mans sreg sa</i> | Place for Ritual Fire [near] Thorn Bush | <i>sreg sa</i> : place (<i>sa</i>) reserved for the ritual fire (<i>sreg</i>) |

Inhabited areas and village sectors

| Transliteration | Translation | Comment |
|--------------------------|--------------------------|--|
| <i>he mis chu</i> | Hemis-water | Hamlet relying on the village of Hemis-shukpa-chan and situated at the confluence of the torrent and of the Indus |
| <i>lung ngu rtse</i> | At the Top of the Valley | Name of the village sector situated the most uphill |
| <i>phun tshogs gling</i> | Sublime Land | Name of a convent of nuns |
| <i>phyi mkhar</i> | Outside the Castle | First village sector founded in Hemis-shukpa-chan below the royal palace |
| <i>rdzing lo</i> | At the Reservoir | Name of a hamlet situated downhill from the village amidst apricot orchards, mainly inhabited in the summer. <i>rdzing</i> : reservoir |
| <i>rko bcod</i> | Cut off by the Gully | Village sector; in the past, a rupture upstream of a glacial constriction isolated a part of the houses and fields from the rest of the oasis |
| <i>rong</i> | Gorge | Locality with a few summer habitats, situated on the steepest side of the valley |
| <i>rta mgo</i> | Horse's Head | This village sector is given the etymology Horse's head by villagers with no justification. It is no doubt <i>rta sgo</i> , Horses gate, a common place name in places with a royal palace (<i>mkhar</i>) and refers to the gate where horsemen dismount |

Shepherds' Huts

| Transliteration | Translation | Comment |
|-----------------|---------------------------|--|
| <i>co mo do</i> | At the "Chomodo [plants]" | Name given to the sheep pen as "Chomodo" (?) plants grow there |
| <i>mar bkag</i> | Where Butter is Kept | Villagers oppose <i>bkag</i> : to retain, to <i>sgral</i> : to flow, to free |

Bodies of water

| Transliteration | Translation | Comment |
|-----------------------|--------------------------|---|
| <i>chu mig yog ma</i> | Lower Spring | Allusion to its location; also name of the nearby hermitage, reserved for men wanting to meditate |
| <i>dar ka chu mig</i> | ? | Place with a spring (<i>chu mig</i>) where in the past there was a small hermitage (<i>mtshams Khang</i>) only a few stones of which are left |
| <i>grog po</i> | Torrent | |
| <i>gtsang po</i> | River | Refers to the Indus |
| <i>jo chu mig</i> | Spring of the Petty King | <i>jo</i> : petty king |

Fields

| Transliteration | Translation | Comment |
|------------------------|---------------------------------|---|
| <i>mi bdun can</i> | With Seven Men | This field was originally so big that seven men (<i>mi bdun</i>) had to plough it |
| <i>shang ka</i> | Flat Basin | Allusion to its location |
| <i>shang mthil</i> | At the Bottom of the Flat Basin | Allusion to its location |
| <i>wa srang</i> | At the Large Irrigation Canal | <i>wa srang</i> : large irrigation canal often reinforced with wooden trunks. |
| <i>zur gsum</i> | The Triangle | Allusion to its shape |

Tracks

| Transliteration | Translation | Comment |
|------------------------|-------------------------------------|--|
| <i>brag bye lam</i> | Footpath [Amidst] Boulders and Sand | <i>brag</i> : rock, boulders; <i>bye ma</i> : sand |
| <i>jib lam</i> | Carriage road | Lit. Road for jeeps |

Table 13**Toponyms for Hamlets in Kolang and Citis***J. Smadja*

| Toponym | Translation | Comment |
|----------------------------|---|---|
| Ambote Khet (C3) | Paddy Field of Mango Trees | <i>amba: Mangifera indica</i> (Anacardiaceae) |
| Aru Ghera (D1) | Enclosure of Peach Trees | <i>aru: Prunus persica</i> Linn. (Rosaceae) |
| Baguva Khet (B2) | Alluvionary Flood Paddy Field | |
| Baje Bari (E3) | Grandfather's Field | |
| Balding Danda (CD1) | Residual Ridge | This ridge has been completely eroded |
| Banjing (CD2) | Rest Place | |
| Barabise Khola (B1) | "Dozen Score" River | <i>barabise: dozen score</i> |
| Bel Danda (D2) | Ridge of <i>Aegle marmelos</i> | <i>bel: Aegle marmelos</i> (Rutaceae) |
| Bel Kharak Khet (BC3) | Paddy Field of <i>Aegle marmelos</i> Pastures | |
| Bel Kharak Khola (C2) | River of <i>Aegle marmelos</i> pastures | |
| Bel Kharak Phut Khet (AB2) | Divided Paddy Field of <i>Aegle marmelos</i> Pastures | |
| Belauti Khola (C1) | River of Guava Trees | Belauti: <i>Psidium guajava</i> Linn. (Myrtaceae) |
| Besar Khola (C12) | River of Curcuma | |
| Bhater Danda (C1) | Ridge of Feasts | |
| Bhut Pani (CD2) | Water of Demons | |
| Bisana (C2) | Rest Place | from <i>bisaune</i> |
| Bolen Danda (CD2) | Ridge of Bolen (?) | |
| Butukdi Tol (B2) | Quarter of Butuk (?) | |
| Cakmake Khet (D3) | Shiny Paddy Field | |
| Cat Danda (C2) | Ridge of Small Stones | <i>cat: small stones used for hunting</i> |
| Cautara Kat Khola (D2) | River of the Resting Place | |
| Chaptung (B1) | Many Trees | |
| Chibe Danda (D2) | Ridge of Black Birds | |
| Chipandi Ban (B1) | Wood of Chipandi | |
| Chipandi Gaira (B1) | Gully of Chipandi | |

| Toponym | Translation | Comment |
|-------------------------|---|--|
| Chipandi Kholca (B1) | Torrent of Chipandi | |
| Cilaune Danda (C2) | Ridge of <i>Schima wallichii</i> | <i>Shima wallichii</i> (Theaceae) |
| Citis (B2) | Citis | Citis: group of population |
| Cuce Dhunga (C2) | Pointed Stones | |
| Devithan Ban (B1) | Wood of the Devi Temple | |
| Dhara Kholca Khet (C2) | Paddy Field of the Fountain Torrent | |
| Dol Dhunga (CD2) | Round Stone | |
| Dumri Kharak (DE2) | Pasture of Wild Fruits | |
| Gaudi Gaira (C1) | Gully | |
| Ghupa (D1) | Place of Reclusion | A king resided here in the past |
| Goghandi (D1) | "There is Water" | |
| Goghandi Khola (D2) | River where "There is Water" | |
| Gundare Khet (B23) | River of the Woven Mats | |
| Gurgure (C1) | Gurgling of Water | |
| Gurgure Danda (C1) | Ridge of Gurgling Water | |
| Gurgure Khola (C1) | River of Gurgling Water | |
| Hansia Danda (D2) | Ridge of the Pruning Knife | |
| Jebire Khola Khet (B2) | Riverbank Paddy Field of Grapefruits | <i>jebire</i> , comes from <i>jyamir</i> : <i>Citrus limon</i> |
| Jeisi Tol (D3) | Quarter of Jeisis | Jeisi: Bahun clan |
| Jiuni Gaira (C1) | Gully of Jiunis | |
| Jiuni Kharak (C1) | Pastures of Jiunis | |
| Juani Danda (D1) | Ridge of Spices | A queen (Mukunda Sen's wife) died at childbirth. Today the smell of the <i>juana</i> spices that pregnant women eat still lingers |
| Kalahara Khet (D3) | Paddy Field of the Marshland | |
| Kalche Khet (E3) | Paddy Field of the Destroyed Canal | Canal destroyed by the river |
| Kami Tol (C1) | Quarter of Kamis | |
| Kamle Danda (C3) | Ridge of Short Grasses | Overgrazed place |
| Kapur Gaira (B2) | Gully of Cinnamon Trees | <i>kapur</i> : <i>Cinnamomum species</i> (Lauraceae) |
| Katahar Khola Khet (B2) | Riverbank Paddy Field of Jack-Trees | <i>katahar</i> : <i>Artocarpus integra</i> (Moraceae) |
| Kettuke Danda (C2) | Ridge of Agaves | <i>kettuke</i> : <i>Agave americana</i> Linn. (Amaryllidaceae) |

| Toponym | Translation | Comment |
|-------------------------|-------------------------------------|---|
| Khaluk Danda (C1) | Ridge of <i>Khaluk</i> | Spread <i>khaluk</i> leaves on taro fields |
| Kharo Pahad (D12) | Dry Mountain | |
| Kharo Pani Gaira (C2) | Gully Where Water Seeps Through | |
| Khol Bari (C2) | Field of the Oil Press | |
| Kolang Khola (E23) | Kolang River | |
| Korsani Thari Khet (D3) | Torrent Paddy Field of Capsicums | |
| Kunle Khet (C3) | Paddy Field of the Corner | <i>kunle</i> , from <i>kuna</i> : corner, recess |
| Kute Khet (D3) | Paddy Field under <i>Kut</i> System | <i>kut</i> : a tax land system |
| Kuwa Pani Gaira (C23) | Gully of the Spring Water | |
| Lam Khola (D2) | Long River | |
| Lekh (D1) | Highlands | |
| Majhar Lang (D2) | Middle Path | in Magar |
| Mandara Sarki Tol (B1) | Quarter of Sarki Mandaras (?) | |
| Mas Khola (D3) | River of Lentils | |
| Masan Ghat (D2) | Cremation Site | |
| Mathi Dhara (B2) | Top Fountain | |
| Meva Danda (E2) | Ridge of Papayas | <i>meva</i> : <i>Carica papaya</i> |
| Milan Tol (C2) | Quarter of Love (or of Harmony) | |
| Neptun (E3) | Neptun (?) | |
| Phored Danda (C2) | Ridge of Phored (tree?) | |
| Puchar Tol (CD2) | Quarter of Puchars | |
| Putsar Danda Khola (D2) | River of Far End Ridge | |
| Raju Ban (C1) | King's Wood | |
| Raskuti Pokhara (C2) | Raskuti Basin | Raskuti, Raskot: family |
| Rat Biris (C2) | Red Biris (tree?) | or <i>Rat Siris</i> : <i>Albizia julibrissin</i> (Leguminous plant) |
| Rat Mate Danda (D1) | Ridge of the Red Earth | |
| Rip Khola (B12) | River in the Shade | |
| Rip Khola Khet (AB2) | Riverbank Paddy Field with Shade | |
| Rip Tol (B1) | Quarter in the Shade | |
| Rip Tol Ban (B2) | Wood of the Quarter in the Shade | |
| Roka Tol (B2) | Quarter of Rokas | |

| Toponym | Translation | Comment |
|-----------------------|--------------------------------------|--|
| Sarki Tol (B2) | Quarter of Sarkis | |
| Saru Tol (C2) | Quarter of Sarus | |
| Shikhar Danda (C1) | Cold Ridge | |
| Simbole Khet (AB2) | Paddy Field of the <i>Bombax</i> | from <i>simal</i> : <i>Bombax ceiba</i> (Bombacaceae) |
| Singi Gaira (D3) | Gully of the Landslide | |
| Suami Dhara (C2) | Fountain of the <i>Ficus</i> | <i>suami</i> : <i>Ficus sp.</i> |
| Surya Tol (B2) | Quarter in the Sun | |
| Tallo Thari Khet (D3) | Torrent Paddy Field of the Bottom | |
| Tari Khola (D2) | River of the Marshland | |
| Tauli Khet (E3) | Paddy Field of the <i>Tauli</i> Rice | <i>tauli</i> : species of rice |
| Telgha Lekh (CD1) | Telgha Highlands | |
| Thapreti Ban (CD2) | Wood of Thapreti | |
| Tilkhane Bhir (D2) | Precipice of Edible Sesame | <i>til</i> : <i>Sesamum indicum</i> Linn. (Pedaliaceae) |

Glossary of the Main Nepalese Terms Mentionned in the Texts

Note: this glossary only covers part of the terms used in the book. The terms not mentioned here are in the tables or frames accompanying certain texts.

| | |
|--------------------|---|
| <i>adālat</i> | tribunal |
| <i>amāl</i> | village tribunal |
| <i>amālī</i> | magistrate named from among local notables; up till 1962, he collected taxes and administrated everyday justice |
| <i>āmātoli</i> | women's committee |
| <i>aul</i> | hot, malaria-infested lowlands |
| <i>bādo</i> | quarter (Western Nepal) |
| <i>bagaicā</i> | garden (<i>phul bāri</i> : vegetable garden) |
| <i>bagar</i> | main bed of the river, stony |
| <i>bal</i> | strength |
| <i>ban</i> | forest, wood |
| <i>ban bibhag</i> | forest department |
| <i>ban jankri</i> | half-human half-supernatural being |
| <i>ban samiti</i> | forestry committee |
| <i>bāri</i> | non-irrigated field |
| <i>bastuko mol</i> | manure |
| <i>bātābaran</i> | environment |
| <i>bāto</i> | road axis, path, track |
| <i>bekhchāp</i> | land exempt from tax |
| <i>bhuighās</i> | herbaceous fodder |
| <i>bhusyāh</i> | cymbals |
| <i>bhut</i> | evil spirit, demon |
| <i>bhuwā</i> | non-irrigated field (Western Nepal) |
| <i>birtā</i> | property, the revenue of which is definitively granted by the sovereign to an individual and his descendants |
| <i>birtāvāla</i> | beneficiary of <i>birtā</i> property |

| | |
|--------------------------|---|
| <i>bricheropan ban</i> | wood made up of planted trees |
| <i>chapyāli</i> | landholder free of tax and judge of minor offences |
| <i>ciurā</i> | flattened rice |
| <i>ḍāḍā</i> | crest ridge, summit, hill |
| <i>daleghās</i> | foliar fodder |
| Dasain | major annual Nepalese (and Indian) feast in September-October in honour of the goddess Durga |
| <i>dhākre (dhākryā)</i> | villagers, not holders of the <i>kipaṭ</i> load. They are originally foreigners, guests |
| <i>dhārni</i> | weight measurement (1.125 kg.) |
| <i>dhong</i> | main entrance to a house (Western Nepal) |
| <i>ḍhuṅgā</i> | stone, boulder |
| <i>ḍoke-boke (ḍokyā)</i> | literally he who carries the basket, may be used for the one who carries the <i>kipaṭ</i> load, the <i>kipaṭiyā</i> |
| <i>doko</i> | bamboo basket |
| <i>dun</i> | inner plains |
| <i>dwāre</i> | representative of the government whose jurisdiction exceeds the scope of the village |
| <i>dhimay</i> | drum |
| <i>gairā</i> | gully |
| <i>garam pānī</i> | hot water |
| <i>gāū</i> | village |
| <i>gāū bikas samiti</i> | village development committee (VDC) |
| <i>gauruṅg</i> | deputy village headman (<i>mukhiyā</i>) |
| <i>ghar</i> | house |
| <i>ghiu-khāni</i> | tax in cash applied to paddy fields |
| <i>gobarghās</i> | gas produced using cow dung |
| <i>gorcā, goḍecā</i> | head of <i>bhote</i> village of lower rank than the <i>mijhār</i> |
| <i>goṭh</i> | stall; also often means the shepherd's small mobile dismountable hut which follows the herd's movements. Term also used to denote the pastoral unit |
| <i>goṭhālo</i> | shepherd |

| | |
|------------------------|---|
| <i>guthī</i> | real estate devoted to a religious institution |
| <i>grhasthī</i> | head of the household |
| <i>hākim</i> | governor |
| <i>hakuwa</i> | fermented rice |
| <i>hāvā pānī</i> | day-to-day environment (the wind and rain) |
| <i>himāl</i> | high snow-capped mountain |
| <i>ijārādār</i> | holder of a concession (<i>ijārā</i>) |
| <i>jangal</i> | forest |
| <i>jāgali, jangali</i> | wild |
| <i>jāgir</i> | tenure-salary (granted to soldiers) |
| <i>jāgirdār</i> | holder of <i>jāgir</i> land |
| <i>japhatī</i> | confiscated land |
| <i>jethā-budā</i> | elderly, experienced man |
| <i>jimi-pagari</i> | master of the land, who wears the turban (the turban is the sign of power) |
| <i>jimmāwāl</i> | civil servant who collect tax on paddy fields in the mountains of Nepal |
| <i>jjulā</i> | irrigated paddy field (Western Nepal) |
| <i>kājī</i> | high-ranking civil servant |
| <i>kapardār</i> | chamberlain |
| <i>kaṭmahal</i> | forest office |
| <i>kendra</i> | centre |
| <i>khar</i> | Gramineae, especially those for roofs |
| <i>khar bāri</i> | hay meadow |
| <i>kharcari</i> | tax on pasture lands |
| <i>kharkā</i> | pasturelands |
| <i>khēt</i> | irrigated paddy field |
| <i>kholā</i> | river |
| <i>khoriyā</i> | freshly cleared ground (slash-and-burn) |
| <i>khuwā</i> | form of landed tenure; also synonym of <i>goṭh</i> in certain documents |
| <i>kilā</i> | stake |
| <i>killā</i> | marker |
| <i>kipat</i> | collective tenure which was in principle inalienable and free of tax, a tribal privilege that was above all valid among the Tibeto- Burmese in Eastern Nepal |

| | |
|------------------------------|---|
| <i>kipaṭiyā</i> | holder of <i>kipaṭ</i> land |
| <i>koṭ</i> | fort, arsenal, shelters a sanctuary to the goddess where Dasain is celebrated |
| <i>kuriyā</i> | occupant of a house set up on some-one else's land; home, tax-payer |
| <i>kṛṭ</i> | annual lump sum of taxes, payable in kind |
| <i>lekh</i> | upper part of the mountainside, highlands, summit. Eventually middle mountains |
| <i>lekhālī</i> | highlander |
| <i>madeśī</i> | lowlander |
| <i>mājhiyā</i> | equivalent to <i>thari</i> |
| <i>mānā</i> | unit of volume; eight <i>mānā</i> are worth a <i>pāthi</i> |
| <i>mānaba</i> | human |
| <i>māṭo</i> | earth, soil |
| <i>mayau-birtā</i> | tenure free of tax in perpetuity |
| <i>melā</i> | hay meadow (Western Nepal) |
| <i>mero serophero</i> | environment (lit.: what surrounds me) |
| <i>mijhār</i> | head of <i>bhote</i> village |
| <i>mit</i> | ritual friendship |
| <i>mol</i> | fertiliser |
| <i>mukhiyā</i> | village headman |
| <i>nāg</i> | snake divinity in Hindu mythology, associated with water, with the underground world |
| <i>oṭālo</i> | terrace of a house (Western Nepal) |
| <i>padherā/pādhero</i> | water point, spring |
| <i>paḍma</i> ou <i>parma</i> | collective work team |
| <i>pagari</i> | turban; the turban symbolises power |
| <i>pāgri</i> | row of terrace houses (Western Nepal) |
| <i>pahār, pahāḍ</i> | low mountains and hills (not receiving any snow) |
| <i>pahiro</i> | landslide, debris flow, gullying, mass movement |
| <i>paisā</i> | money (100 <i>paisā</i> are worth one rupee) |
| <i>pājani</i> | ceremony where civil servants are appointed, confirmed in their post or removed from office |

| | |
|----------------------|---|
| <i>pākhā</i> | abandoned land |
| <i>pākho</i> | non-irrigated field on mountainside |
| <i>pancayat</i> | counsel of notables which was in charge of managing the country's administrative structures |
| <i>pānī</i> | water |
| <i>parbat</i> | mountain, relief in general |
| <i>porso</i> | (non chemical) fertiliser (Western Nepal) |
| <i>pradeś</i> | region |
| <i>pradhān</i> | headman, particularly head of Newar village |
| <i>prakṛti</i> | nature |
| <i>prakṛtik</i> | natural |
| <i>rāj kulo</i> | royal canal |
| <i>rāi</i> | head of the village of Rai communities in the region of Middle Kirant |
| <i>raikar</i> | land on which the State collects rent |
| <i>rip</i> | shade |
| <i>riti thiti</i> | custom |
| <i>ṛṣi</i> | sage or visionary of divine status |
| <i>sadar-dewāni</i> | court of justice |
| <i>sadasya</i> | member of an assembly, counsellor |
| <i>śaligrām</i> | black stone from Khali Gandaki containing a divine shape: fossil or metallic nodule |
| <i>sāmudāik ban</i> | collective forest |
| <i>sapta</i> | seven |
| <i>shikar</i> | cold |
| <i>śilā</i> | sacred stone |
| <i>sukumbasi</i> | peasant with no land |
| <i>svarup</i> | shape |
| <i>syāulā, piral</i> | dried pine needles (Western Nepal) |
| <i>tagat</i> | energy |
| <i>tālukdār</i> | village headman (of a constituency: <i>tāluk</i>) |
| <i>thari</i> | agent of a lower rank than <i>mukhiyā</i> |
| <i>ṭhekdār</i> | person in charge whose duty is subject to contract |
| <i>ṭheki-cardam</i> | gifts exchanged at the end of a transaction |
| <i>tirtha</i> | holy place situated along a river |

| | |
|---------------------|--|
| <i>thiti bandej</i> | officially excluded from grazing |
| <i>thum</i> | subdistrict, administrative unit including several villages (which collectively celebrate Dasain ceremonies) |
| Tihar | Festival of lights which follows Dasain in October. Goddess Laxmi is worshiped |
| Tij | women's feast |
| <i>ṭol</i> | group of houses, neighbourhood |
| <i>ward</i> | administrative subunit in the village: hamlet or quarter |

Flora

| | |
|---------------------------------|-----------------------------|
| <i>aīselo</i> | <i>Rubus ellipticus</i> |
| <i>ajaganda</i> | <i>Ageratum conyzoides</i> |
| <i>angeri</i> | <i>Lyonia ovalifolia</i> |
| <i>aru</i> | <i>Persica vulgaris</i> |
| <i>asuro</i> | <i>Adhatoda vasica</i> |
| <i>badahar</i> | <i>Artocarpus lacucha</i> |
| <i>bakaino</i> | <i>Melia azedarach</i> |
| <i>ban phapar</i> | <i>Fagopyrum dibotrys</i> |
| <i>banyan</i> | <i>Ficus benghalensis</i> |
| <i>berule</i> | <i>Ficus clavata</i> |
| <i>bhalāyo</i> | <i>Rhus succedanea</i> |
| <i>birtshure</i> | <i>Eriobotrya elliptica</i> |
| <i>cāp</i> | <i>Michelia champaca</i> |
| <i>cilaune</i> | <i>Schima wallichii</i> |
| <i>ciuri</i> | <i>Bassia butyraceae</i> |
| <i>cutro</i> | <i>Berberis asiatica</i> |
| <i>dabdabe</i> | <i>Garuga pinnata</i> |
| <i>dhannu bans</i> | <i>Bambusa sp.</i> |
| <i>dhar</i> | <i>Gonostegia hirta</i> |
| <i>gobre salla, talis patra</i> | <i>Abies spectabilis</i> |
| <i>hade bayar</i> | <i>Zizyphus incurva</i> |
| <i>ipilipil</i> | <i>Diverxipholia</i> |
| <i>kabro</i> | <i>Ficus lacor</i> |
| <i>kalo tori</i> | wild mustard |

| | |
|----------------------|--|
| <i>kāphal</i> | <i>Myrica esculenta</i> |
| <i>katche kaulo</i> | <i>Machilus sp.</i> |
| <i>katus</i> | <i>Castanopsis tribuloides, indica</i> |
| <i>kerā</i> | <i>Musa paradisiaca L.</i> |
| <i>khalluk</i> | <i>Myrsine semiserrata</i> |
| <i>khanyu</i> | <i>Ficus semicordata</i> |
| <i>khārāne</i> | <i>Sorbus cuspidata</i> |
| <i>khasru</i> | <i>Quercus semecarpifolia</i> |
| <i>kimbu</i> | <i>Morus alba</i> |
| <i>koiralo</i> | <i>Bauhinia variegata</i> |
| <i>kutmero</i> | <i>Litsea polyantha</i> |
| <i>lāli gurāns</i> | <i>Rhododendron arboreum</i> |
| <i>lapsi</i> | <i>Choerospondias axillaris Roxb.</i> |
| <i>martsa</i> | <i>Dichrocephala integrifolia</i> |
| <i>mayal</i> | <i>Pyrus pashya</i> |
| <i>naram pati</i> | <i>Leucosceptum canum</i> |
| <i>ningalo</i> | <i>Polygonatum verticillatum</i> |
| <i>okhar</i> | <i>Juglans regia</i> |
| <i>padamchāl</i> | <i>Rheum emodi</i> |
| <i>paīyū</i> | <i>Prunus cerasoides</i> |
| <i>pāthe shiāolā</i> | <i>Edgeworthia gardneri</i> |
| <i>phalant</i> | <i>Quercus lamellosa</i> |
| <i>phalānt</i> | <i>Quercus glauca</i> |
| <i>phasro</i> | <i>Grewia tiliaefolia</i> |
| <i>perere</i> | <i>Gaultheria fragrantissima</i> |
| <i>pipal</i> | <i>Ficus religiosa</i> |
| <i>sāl</i> | <i>Shorea robusta</i> |
| <i>salimo</i> | <i>Carex decora boot</i> |
| <i>sallā</i> | <i>Pinus roxburghii</i> |
| <i>sauer</i> | <i>Betula alnoides</i> |
| <i>serpa makai</i> | <i>Arisaema</i> |
| <i>sihundi</i> | <i>Euphorbia royleana Briss.</i> |
| <i>simal</i> | <i>Bombax malabaricum</i> |
| <i>sisno</i> | <i>Pilea wihtii</i> |
| <i>tite pāti</i> | <i>Artemisia japonica</i> |

| | |
|----------------|--------------------------|
| <i>toshne</i> | <i>Aconogum molle</i> |
| <i>tsakpar</i> | <i>Michelia doltsopa</i> |
| <i>utis</i> | <i>Alnus nepalensis</i> |

Cultivated plants

| | |
|------------------------------------|--|
| <i>aduvā</i> | <i>Zingiber officinale</i> Rosc., ginger |
| <i>amilo</i> | <i>Citrus limon</i> (L.) or <i>Rumex parpego</i> , lemon |
| <i>aru</i> | <i>Prunus persica</i> Linn., peach |
| <i>besār</i> | <i>Curcuma domestica</i> , curcuma |
| <i>dhān</i> | <i>Oryza sativa</i> L., rice |
| <i>dhaniyā</i> | <i>Coriandrum sativum</i> , coriander |
| <i>gahat</i> | <i>Vicia sativa</i> , vesce |
| <i>gahū</i> | <i>Triticum aestivum</i> L., wheat |
| <i>jhilaṅge</i> | <i>Lens culinaris</i> , lentil |
| <i>kagati</i> | <i>Citrus aurantifolia</i> , lime |
| <i>kodo</i> | <i>Eleusine coracana</i> (L.), finger millet |
| <i>makai</i> | <i>Zea Mays</i> L., maize |
| <i>mās</i> | <i>Vigna mungo</i> (L.) Hepper, black bean |
| <i>miṭho phāpar</i> | sweet buckwheat |
| <i>litchi</i> | <i>Litchi chinensis</i> Sonn. |
| <i>phapār</i> | <i>Fagopyrum esculentum</i> Moench, buckwheat |
| <i>piṅḍālu</i> | <i>Colocasia esculenta</i> , taro |
| <i>sāmar, kāuno, junelo, cinnu</i> | <i>Panicum milaceum</i> , millet |
| <i>sarsiū</i> | <i>Brassica campestris</i> L., Indian rape |
| <i>simi</i> | <i>Phaseolus</i> sp., bean |
| <i>suntala</i> | <i>Citrus reticula</i> Blanco, mandarine |
| <i>tori</i> | <i>Brassica rapa</i> L., mustard |

Index

A

abandoned land (wasteland, fallow land), 67, 69, 79, 80, 89, 210, 238, 272, 328, 343, 345, 375, 529
Acham, 149
Agriculture (farming, farmers), 3-5, 11, 12, 23, 25, 27, 28, 32, 33, 44, 50, 58, 60, 66, 67, 85, 95, 100, 102, 109-113, 122, 133, 136, 141, 147-154, 210, 214, 219, 232, 249, 250, 257, 261, 270-272, 279-323, 326, 328, 332, 338-349, 351, 357, 361, 362, 369, 376, 379-382, 388, 404, 408, 413, 415, 422-427, 438, 439, 455-462, 469-472, 492-495, 499, 500, 503, 504, 530-533, 539, 541, 544, 547-549, 554, 557
agro-sylvo-pastoral, 52, 111, 202, 415, 454, 458, 471
Aksai Chin, 85, 319
alpine (ecological belt, milieu), 50, 53, 80, 88, 126, 202, 446
ammonite, 175, 177, 180-192
Ankhu Kholā, 128, 201, 214, 226, 228, 313, 318, 321, 467-490
Annapurna, 27, 112, 116, 122-126, 166, 385, 392, 398, 399, 406, 410, 435-463, 472, 481, 510
Argha Khanci, 3, 50, 111, 133, 514, 529
arid (barren), 91, 96, 104, 113, 132-135, 142, 149, 226, 245, 248, 250, 257, 284
Arun, 171, 321, 346
Arunachal Pradesh, 2, 140, 142, 145
Assam, 2, 37, 122, 140, 296, 489
astrologer, 254, 296, 297, 307

B

Baglung, 130, 149, 321, 443, 459, 462, 548
Bagmati, 136, 293, 346, 506
Bahadur Shah, 172, 299, 354
Bahun (see Brahman), 47, 73, 156, 157, 374, 396, 403, 437, 456
Balaju, 496, 498, 500, 501
Balami, 28, 493-507, 558
Baltistan, 254, 283, 287, 292
bamboo, 112, 222, 231, 310, 331, 360, 361, 365, 367, 450
Bangladesh, 5, 31, 389
Bardiya, 391, 407
bāri, 58, 66-70, 77-81, 111, 148, 271, 422, 528, 531-536, 544, 547, 548
Bari Gad, 60-62
barley, 50, 57, 58, 66, 67, 96, 111, 112, 125, 134, 202, 219, 241, 281-291, 299, 309, 317-322, 367, 422-426, 438, 439, 457, 469, 470, 476, 537
belt (vegetation zonation, bioclimatic zonation, altitudinal zonation), 22, 46, 47, 50, 52, 54, 57, 67, 111, 124, 140, 143, 154, 169, 209, 211, 231, 410, 423, 472
Bhageshvar, 180, 189, 190
Bhairav, 143, 338, 506
Bhaktapur, 120, 295, 297, 298, 408, 493, 498, 499
Bharpak, 112
Bhimsen, 175, 182, 183, 374
Bhote (Bhotiya), 334, 355, 357, 358, 361-367, 376
Bhume, 211, 235

Bhutan, 8, 35, 140, 142, 145, 284, 287, 317
 Bihar, 109, 116, 120, 143, 297, 318, 333, 345, 503
 Birendra, 402
 birtā, 327-329, 332, 335, 336, 343-346, 359, 375, 382
 bocage, 28, 109, 510, 515, 529, 530, 533, 536, 550, 556
 border (frontier), 32-36, 93, 105, 115, 140, 142, 145, 166, 172, 210, 228, 229, 272, 280, 281, 283, 341, 381, 383, 393, 415, 441, 503
 Brahma, 117, 170, 172
 Brahman (see Bahun), 157, 175, 181, 264, 338, 357, 359, 364
 Brahmaputra, 5, 35, 201, 256, 281, 389
 buckwheat, 25, 66, 96, 125, 282, 303, 317-322, 356, 423, 438, 439, 528, 531, 536, 537, 544, 548-550
 Buddhist (Buddhism), 24, 35, 197, 213, 233, 261, 294, 318, 351, 496
 buffer zone, 391, 407, 414
 Buri Gandaki, 112, 128, 226
 Butwal, 143, 145, 511, 515, 548, 549

C

cadastre (land register, cadastral survey), 166, 555
 Calcutta, 32
 capsicum, 298, 303, 309
 cardamom, 317
 caste, 73, 109, 163, 170, 190, 203, 265, 312, 313, 351, 357, 380, 427, 446, 448, 469, 494, 498, 503, 505
 catastrophe (natural, ecological, catastrophist), 7, 117, 454
 cattle breeding (livestock farming, animal husbandry, rearing, cattle breeder), 147, 149, 154, 156, 237, 270, 282, 320, 332, 391, 438, 439, 455, 458, 469, 506
 cave, 103, 176-179, 186, 195, 197, 225, 311
 change, 14, 16, 100, 125, 126, 202, 214, 253, 319, 351, 372, 389, 395, 413, 416, 439, 456, 467, 527, 530, 548, 550, 551
 Chetri, 47, 73, 156, 157, 264, 338, 357-364, 376, 396, 403, 437, 456, 490
 China, 2, 29, 31, 32, 279, 281, 286, 381, 558
 Chitlang, 344, 498, 501, 504, 506, 509
 Chitwan, 343, 384, 390, 391, 394, 407, 428, 429, 503
 Christian, 96, 263-274, 286, 355
 clear (to) (wood clearing, deforestation, clearing of land), 4, 34, 57, 71, 121, 162, 175, 185, 201, 209, 237, 267, 313, 327, 332, 346, 358, 361, 363, 370-377, 384, 396, 472, 473, 481, 492, 493, 497, 506, 514, 544
 committee (forest, women's, village), 3, 269, 396, 432, 433, 449, 464, 479-481, 488, 491, 547
 community clinic, 263, 266, 267, 270, 275, 554
 complexity, 3, 4, 13, 108, 194, 303, 553, 558
 conflict, 27, 31, 33, 194, 227, 319, 363, 373, 416
 confluence, 23, 73, 76, 95, 103, 111, 130, 163, 169, 172, 173, 180, 225, 226, 356, 437
 conservation area (protected area), 391, 399, 400, 406-411, 435-463, 491
 cotton, 33, 165, 298, 300, 316, 320

crisis (ecological, environmental),
6, 13, 137, 349, 387-389, 395,
416, 444, 454, 456, 470, 559
cult (see worship), 229, 268, 270,
273, 505
curcuma, 303, 528, 536, 537, 548
Curiya (see Siwalik), 45, 54, 56, 76,
109, 110, 115, 116, 119, 123,
136, 333, 509, 518

D

Damai, 157, 437
Dang, 109, 224, 236, 280, 408
Darjeeling, 143, 314, 318, 384
Dasain, 268, 272, 363, 427, 494, 500
death, 30, 73, 169, 172, 209, 213,
220, 237, 273, 285, 300, 340,
380, 496, 504, 511
degradation (of milieux, degraded),
4-9, 28, 216, 326, 333, 338, 369,
390-393, 400, 408, 416, 431, 435,
435, 444, 446, 452, 463, 471,
479, 489, 510, 527, 547, 555
democracy, 31, 379, 380, 400, 402,
403, 410, 415
demography (demographic growth,
demographic pressure), 7, 23,
141, 362, 368, 408
demon (evil, spirit), 169, 182, 403
depopulation, 342, 344
development (agricultural,
programme, sustainable, local), 2,
3, 6, 16, 17, 26, 27, 60, 66, 100,
108, 109, 120, 125-128, 136, 143,
223, 238, 300, 313, 318, 320,
323, 325, 348, 349, 376, 379-416,
435, 446-464, 473, 488, 507, 519,
541, 547-550, 555-559
Dhading, 263, 341, 467, 485, 496
Dhaulagiri, 124, 126, 127, 132,
183, 436, 462

discourse, 25, 233, 379, 387, 392,
395, 404, 405, 412, 417, 436,
463, 471, 482, 488, 556, 558
diversity (of milieux, landscapes,
populations), 1, 8, 13, 14, 22, 46,
102, 132, 139, 141, 162, 197,
220, 248, 256, 279, 319, 320,
370, 388, 408, 533, 536, 537,
550, 553, 558
divine, 24, 166, 171-197, 214, 219,
220, 262, 270-275, 307, 505, 506,
553
divinity (protecting, protector
deities, orphidian, territory,
underground, god), 167, 171,
175-177, 210-216, 225, 236, 270,
271, 292, 307, 427, 504, 506
Dolakha, 311, 313, 315, 330-332,
356, 371
Dolpo, 56, 95, 113, 123, 125, 135,
151, 408
Doti, 147, 149, 180, 182, 186, 189,
194, 311, 341
dried dung, 5, 11
dun, 54, 56, 76, 109, 149

E

earthquake, (see seism, seismicity).
104, 115-117, 184, 186, 218, 228,
285
ecology (ecological, ecological
belt), 2, 57, 326, 387, 510
English (see British), 7, 44-46, 117,
201, 325, 440, 501
environment, 1-27, 40, 64, 73, 85,
111, 126, 132, 135, 138, 164-168,
194, 200-202, 207, 257, 272, 289,
334, 339, 377, 387-389, 392-417,
428, 434, 436, 444-450, 462-464,
470, 477, 484, 488, 489, 492,
518, 537, 551, 553, 554, 558

erosion (eroded), 3-6, 9, 12, 25, 77,
109, 112, 120, 125, 137, 138,
214-219, 236, 389, 393, 404, 408,
414, 444, 454-457, 488, 518, 520,
522, 526, 539, 559
Europeans, 29, 37, 39
Everest, 34, 35, 45, 113, 384, 385,
392-394, 444
exclusion, 27, 488, 557, 559
expert, 7, 16, 238, 354, 379, 381,
385, 387, 389, 393-396, 412,
416, 489

F

fallow (land, period), 78, 97, 105,
227, 289, 298, 303, 304, 321,
351, 357-359, 362, 363, 375, 471,
474, 557
famine, 186, 285, 292, 297-300
feast (festival), 73, 268, 504
fertilisation (fertiliser), 172, 375
fertiliser, 5, 99, 289, 302, 308, 320,
424, 426, 431, 473, 4724, 531,
537, 544, 557
field (terraced, sloping), 4, 7, 8, 20,
40, 45, 56-58, 64, 67-70, 78-81,
91-95, 99, 101, 104, 105, 115,
166, 168, 193, 199, 211, 215,
235, 241, 251-253, 257, 261, 269,
283, 288, 293, 296, 302-306, 310-
320, 325, 336, 340, 347, 387,
393, 395, 399, 406-411, 416, 422,
425, 438, 452, 476, 478, 500,
522, 529, 537, 538, 544, 554
finger millet, 50, 52, 57, 58, 66, 67,
111, 212, 219, 264, 303, 316,
320, 322, 469-472, 476, 477, 499,
528, 531, 537, 544, 549
flood (flash flooding, overbank
flow, inundated), 60, 61, 78, 82,
91, 104, 108, 520
flora, 165, 219, 222, 248, 384

fodder, 3, 5, 16, 28, 70, 97, 124,
132, 134, 154, 163, 203, 220, 221,
231, 248, 249, 261, 294, 322, 355-
368, 374-377, 389, 391, 396, 408,
425, 427, 430, 431, 434, 440, 450,
456, 467, 476-478, 481, 489, 490,
501, 528-536, 547-549, 556
forest (dense, private), 5, 6, 11, 16,
24, 26, 28, 33, 47, 50, 69, 71, 73,
80, 85, 86, 106, 107, 110-112,
124-127, 132, 154, 161-164, 174,
186, 190, 194, 202, 203, 207,
209, 219, 225, 231, 236-239, 264,
267, 270-274, 293, 294, 310, 314,
320, 323, 326-339, 349, 351, 354-
359, 368-378, 383, 384, 388, 391-
396, 400, 404-410, 413-417, 424-
439, 443, 446-456, 461-464, 467-
471, 477-484, 489-495, 500, 506,
522, 527-532, 547, 554-557
forest warden (forest guard), 336,
375, 426, 428, 500
fountain, 82
fuel, 5, 11, 88, 97, 132, 248, 261,
287, 289, 291, 308, 333, 349,
392, 404, 429, 446, 449, 451,
452, 454, 500, 532

G

Ganesh (Himal), 126, 167, 226,
232, 469, 504, 506
Ganges, 5, 33, 73, 107, 108, 116,
157, 166, 281, 282, 296, 384,
389, 518, 553
garden, 70, 78, 96, 97, 105, 161,
252, 254, 273, 288, 291, 318,
319, 322, 422, 493, 513
Garhwal, 143, 312, 315
garlic, 291, 294, 303, 309
gathering, 25, 88, 169, 173, 246,
248, 268, 282, 437, 450, 451,
453, 480

geography (geographic unit, sacred, divine), 2, 141, 145, 147, 166, 197, 272, 408, 493, 510
 geomancy, 226
 Ghandrung, 112, 400, 436-443, 448-464
 Gilgit, 282, 283
 ginger, 303, 309, 528, 536, 537, 544, 548
 goddess, 37, 163, 166, 169-171, 186-190, 212, 216, 306, 427, 498, 505, 506
goth, 71, 83, 356-358, 363, 424
 Gorakhnath, 311, 497, 498
 gorge, 76, 85, 91, 103, 241
 Gorkha (Gorkhali), 29, 31, 37, 39, 186, 266, 299, 300, 305, 311, 326, 327, 332, 368, 498, 541
 Gosainkund, 126
 Gulmi, 3, 60-64, 80, 111, 145-149, 164, 173, 174, 190, 308, 311-315, 318-321, 368, 373, 514, 529
guthī, 327, 506
 Gurkha conquest, 357
 Gurung, 76, 154, 157, 191, 320, 389, 396, 436-440, 449, 458, 463, 464

H

hail, 185, 205, 206, 235
 hay meadow, 52, 57, 70, 80, 85, 148, 425, 439, 528, 557
 hedge, 68, 80, 550
 Hemis-shukpa-chan, 90, 95, 98, 99, 241-262
 herd, 27, 83, 210, 227, 356, 359, 361, 362
 Hetaura, 10, 32, 33, 109
 hill, 44-46, 53, 73, 76, 104, 110-113, 121-138, 140, 162, 172, 175, 176, 180, 181, 184, 226, 245, 263, 264, 271, 272, 283, 302,

312, 316, 328, 381, 443, 464, 489, 494, 496, 514
 Himachal Pradesh, 2, 143
himāl, 44, 46, 48, 56, 77, 164
 Himalayas, 2, 3, 9-14, 25, 29, 32, 37, 43, 44, 85, 107, 108, 112, 113, 121-127, 134-136, 139-142, 156, 157, 165, 168, 170, 185, 188, 190, 197, 199, 266, 279-283, 292, 306, 315-319, 323, 326, 335, 340, 471, 553, 554
 Hindu (Hinduism), 30, 35, 73, 109, 166, 169, 181, 182, 197, 205, 211, 213, 263-274, 326, 351, 403, 469, 490, 496, 511
 Hindustan, 32, 37, 166
 human pressure (on resources, on the milieu), 4, 141, 147-149, 335, 349
 Humla, 95, 113, 425
 hunt, 174, 210, 223, 337, 351, 361, 370, 372, 377
 hydronyms, 24, 211, 257, 539

I

ice (glacier, glacial, ice-capped), 86, 107, 112, 114, 126, 127, 135
 identity, 2, 23-25, 157, 168, 177, 188, 195, 197, 224, 228, 230, 238, 239, 403, 464, 485, 488, 507
 Ilam, 150, 321
 illness, 12, 230, 237, 252, 254, 273, 275
 India, 2, 7, 29-39, 85, 86, 100, 113, 115, 142, 145, 157, 165, 166, 176, 190, 209, 279-282, 293, 296-300, 315, 318, 333, 344, 345, 349, 380-383, 388, 390, 402, 404, 430, 455, 501, 502, 509, 511, 549, 558
 Indo-Nepalese, 12, 23, 33, 52, 73, 150, 156, 157, 163, 203, 209,

211, 228, 263, 267, 310-312, 351,
357, 359, 362, 376, 383, 426,
469, 496, 503-506, 511, 514, 531
Indus, 25, 91, 106, 134, 241, 256,
279-286, 292, 309, 319, 322, 397
innovation, 26, 28, 109, 139, 284,
348, 467, 471-473, 476, 548
international aid, 6, 379, 381, 388,
410
irrigation, 12, 58, 60, 63-66, 78, 81,
85, 91, 93, 99, 108, 111-114, 134,
135, 150, 151, 212, 214, 244,
250, 252, 283, 284, 287, 300,
302, 303, 311-314, 322, 326, 327,
330, 331, 335, 338, 343-348, 457,
528, 529, 544, 554
irrigation canal, 12, 64, 81, 99, 135,
214, 252, 284, 300, 311-314, 327,
335, 343, 346

J

jāgir, 331, 338, 339, 344, 345
Jammu, 97, 143, 399
Jang Bahadur, 31, 39, 368
Jomosom, 122, 129, 441, 443, 448,
452, 459, 460, 462
Jumla, 66, 67, 76, 310, 313, 321,
322, 332, 341, 349, 421, 422,
428, 429, 432, 433

K

Kailash, 170, 180, 261
Kali Gandaki, 125-132, 173, 175,
180, 182, 189, 437, 441, 451,
459-461
Kami, 157, 220, 365-367, 437, 440,
469, 500, 520, 531, 532, 541,
544, 558
Kargil, 85, 399
Karnali, 172, 421, 422
Kashmir, 31, 96, 97, 140, 142, 143,
279-286, 290, 291, 310, 399, 457

Kaski, 149, 334-338, 396, 511, 558
Kathmandu (Valley), 7-11, 20, 25,
28-40, 44, 67, 110, 111, 115-117,
120, 141, 143, 149, 154, 157,
161, 168, 169, 182, 189, 199,
202, 226, 229, 265, 279, 292-300,
304-322, 330, 333-351, 354, 358,
382-385, 390, 392, 413, 415, 429,
441, 459, 461, 467, 472, 485,
488, 493-509, 518, 556
Kham Magar, 185, 318
kharkā, 71, 72, 80, 232, 233, 528
khet, 58, 60-63, 66, 70, 77, 78, 80,
96, 111, 135, 211, 214, 264, 305,
311, 346, 437, 470, 472, 518,
520, 528, 531, 544
Khimti, 26, 351, 354-362, 368-370,
373-378
khoriyā, 69, 70, 79, 369-372, 529
Khotang, 150
Khumbu, 11, 112, 125, 318, 322,
368, 393, 394
king (kingdom, monarchy), 99,
117, 167, 170, 182, 184, 189,
190, 223, 226, 252, 272, 284,
286, 292-300, 307, 311, 313, 326-
328, 340, 354-362, 375, 376, 380,
384, 403, 494, 498, 499, 553
Kinnaur, 285, 289-292
kipañ, 346, 351, 355-358, 362, 364,
369, 375-378, 382
Kirant, 169, 293, 355, 357, 371
knowledge, 2, 3, 7, 8, 13-16, 19-23,
27, 29, 32, 33, 36, 40, 57, 151,
161, 166, 186, 189, 194, 200,
201, 219, 226, 238, 239, 250,
279, 283, 286, 306, 325, 326,
408, 434, 467, 484, 491, 496,
553, 554, 558
Kumaon, 34, 35, 290, 311-314,
319, 321

L

Lalitpur, 298, 494
 lama, 35, 195, 197, 205, 214, 218,
 225, 226, 270, 369, 374, 464
 Lamjung, 126, 149, 181, 305, 334,
 338
 land title (title deed), 351, 368
 land use, 8, 9, 22, 25, 32, 48, 97,
 107, 113, 148, 211, 248, 253,
 325, 468, 471, 492, 510, 539,
 551, 553, 559
 landless, 344, 396, 404
 landscape (unit of, agrarian), 1, 6,
 13, 14, 17, 22-24, 27, 28, 40, 56,
 58, 63, 64, 73, 85, 101, 102, 108,
 109, 124, 139, 152, 161-168, 176,
 177, 182-202, 205, 225, 232, 233,
 237-239, 244, 245, 251, 257, 262,
 267, 274, 275, 293, 302, 310,
 319, 320, 325, 334, 335, 340,
 351, 388, 421-423, 426, 436, 440,
 444, 454, 456, 467, 470, 471,
 492, 510, 514, 515, 522, 528-530,
 537, 542, 550, 555, 556
 landslide (mass movement, land
 movement, mass wasting, gully,
 debris slide), 5, 77, 104, 130, 408,
 444, 454, 471, 474, 489
 Langtang, 112, 392, 428, 444
 Leh, 85, 91, 92, 97, 100, 122, 134,
 241, 286, 287, 290, 291, 319,
 399, 457
 lekh, 46, 47, 50, 53, 54, 57, 67, 77,
 79, 83, 111, 164, 423, 427, 430,
 470, 472, 477, 528
 Lepcha, 314, 346
 Lhasa, 35, 199, 286, 290
 Licchavi, 30, 293, 294, 297, 311,
 555
 Likhu Khola, 47, 73, 356
 Limbu, 12, 76, 79, 156, 157, 314,
 357, 427

lineage, 64, 167, 175-178, 266, 270,
 273, 296, 359, 360, 364, 377,
 422, 469, 484, 504, 506, 514
 lodges, 361, 366, 367, 410, 450-
 453, 458-461
 lucerne (field), 96-99, 104, 322
 Lumbini, 280, 282, 311

M

Magar, 25, 76, 154, 157, 162, 167,
 178, 181, 185, 189, 209, 263,
 264, 275, 355, 443, 513, 514, 528
 Mahabharat, 44-48, 53-56, 109,
 110, 115, 116, 119, 120, 123,
 124, 135, 172, 180, 308, 314,
 320, 321, 328, 329, 336, 340,
 494, 510, 511, 518
 Mahadev, 176, 178, 183, 190
 Mahalaksmi, 498, 505, 506, 507
 Mahendra, 31, 380, 390, 399, 410
 Mahottari, 280
 maize (corn), 25, 47, 50, 52, 57, 58,
 66, 67, 70, 79, 96, 111, 125, 151,
 152, 202, 211, 219, 264, 290,
 297-300, 303, 307-309, 315-317,
 320, 322, 438, 440, 455, 459,
 469-472, 476, 499, 503, 528, 531,
 536, 537, 544, 553, 554
 Majhi (Majhiya), 187
 malaria (eradication of), 5, 8, 37,
 57, 108, 137, 165, 206, 382, 388,
 389, 511, 550
 malaria-infested (see malaria), 37,
 206
 Malla, 30, 31, 140, 297-300, 432,
 493, 498, 499
 Manang (Manangi), 113, 151, 408,
 447, 448
 mandala, 197
 Manjushri, 182, 195, 292, 293

- manpower, 12, 95, 100, 269, 271,
 341, 344, 449, 455, 457, 460,
 532, 548, 556
 manuring (manure), 52, 287, 289,
 363
 marriage, 265, 268, 269, 296, 504
 Masyam, 19, 28, 39, 40, 57, 69, 70,
 109, 133, 354, 509-514, 518-521,
 526-530, 547-551, 557, 558
 Matsyendranath, 295, 305, 307
 Matwali Chetri, 422, 427
 meadow (grassy wetlands), 80, 104,
 105, 112, 230, 262, 374, 425
 Meru (Mount), 170, 282
 migration (emigration, immigration,
 exodus), 137, 146, 341, 430, 485,
 536
 millet, 25, 50, 52, 57, 58, 66, 67,
 70, 79, 111, 125, 202, 212, 219,
 264, 281, 299, 303, 315-322, 351,
 367, 422, 438, 439, 469-472, 476,
 477, 499, 528, 531, 537, 544, 549
 miner, mine, 83, 171, 182, 330,
 332, 340, 369, 371, 376, 511
 missionary (Jesuit), 29, 96, 266,
 272, 285, 286, 292, 299, 317,
 319, 467, 509
 Modi Kholā, 27, 112, 435-443, 450,
 452, 456, 459, 460, 464
 monastery, 95, 195, 201, 261, 273,
 293, 297
 monsoon, 4, 5, 9, 12, 52, 57, 60, 63,
 71, 109-112, 122-126, 129-132,
 135-138, 163, 209, 216, 219, 232,
 237, 281, 300, 302, 308, 361,
 368, 389, 460, 470, 474, 507,
 518, 520, 533, 537, 539, 548, 559
 mountain (low, high, middle), 1-5,
 10, 13, 20, 22, 39, 43-48, 57, 73,
 77, 82, 85-91, 95, 98, 101-116,
 122-142, 149, 151, 154, 157, 163-
 165, 170, 182, 184, 187, 188, 194,
 195, 206, 207, 225, 230, 245-250,
 261, 263, 286, 287, 309, 322, 371,
 373, 381, 385, 388-393, 417, 423,
 435, 441, 446, 455, 462, 480, 554
 mountain pastures, 105, 112, 126,
 455
 mountainside (slope), 24, 47, 57,
 66, 67, 103, 107, 109, 126, 128,
 163, 164, 189, 197-216, 219, 222-
 238, 261, 264, 267, 270, 321,
 377, 378, 423, 436-440, 454, 458,
 465-484, 489-492, 521, 527-531,
 539, 544, 550, 551, 556
 Muktinath, 165, 193-197, 282
 Mukunda Sen, 180, 182, 307, 513
 Muluki Ain, 327-329, 498
 Mustang, 56, 113, 123, 135, 145,
 151, 195, 197, 279, 282, 284,
 408, 446, 447
 mustard, 181, 284, 291, 299, 303,
 309, 320, 356, 499, 503, 528,
 531, 536, 537, 544, 548
 myth, 10, 171, 181, 190, 284, 293-
 296, 307, 310, 494, 497

N

- nāg*, 176, 184, 189, 213-218, 229,
 235, 236, 270, 553
 Narayangarh, 109
 natural park (see protected area),
 490, 555, 557
 nature, 6, 7, 12, 15, 16, 20, 23-27,
 37, 40, 73, 86, 98, 108, 111, 113,
 116, 121, 132, 133, 137, 161,
 175-179, 186-188, 193, 194, 197,
 213, 220, 224, 236, 270-274, 343,
 377, 382, 387-398, 403-407, 410-
 416, 428, 447, 448, 463, 491,
 513, 519, 553

Newar, 111, 117, 157, 167, 296,
305, 307, 469, 488, 493-496, 503,
504, 508

Non Government Organisation
(NGO), 27, 399, 410, 411, 417,
467, 547

Nuwakot, 33, 37, 48, 61, 63, 68,
71-73, 193, 202, 205, 227, 311,
315, 463, 496

O

oasis, 87, 94, 99, 103, 241, 245,
250-261

Okhaldunga, 150, 408

oleaginous, 66, 291, 309

onion, 294

oronym, 24, 206, 256

P

paddy (-field, rice farming), 25, 47,
50, 57-67, 78, 80, 110, 111, 135,
210-212, 215, 271, 294, 295, 298,
303-306, 310-316, 320-322, 331,
335, 346, 351, 356, 357, 362-364,
369-377, 439, 440, 455, 470-472,
494, 499, 518, 520, 528, 529,
541, 544, 550, 555-557

Pahar, 54, 77, 109, 111, 119, 123,
164

Pahari, 494, 496, 506

pahiro, 77, 121, 128, 202, 212-219,
226-229, 234-238, 326, 474

pakho, 96, 111, 346

Pakistan, 8, 31, 121, 142

Palpa, 47, 60, 62, 67-72, 79, 80,
111, 133, 173, 180, 182, 307,
311, 321, 338, 509-514, 518, 519,
529, 532, 556

Pancayat (system, pancayat), 323,
427, 431

parbat, 44, 77

Parvati, 166, 170-172, 506

pastureland (pasture), 79, 184, 354,
358, 443, 473, 477

Patan, 39, 117, 266, 296, 304, 307,
494

path (footpath, crossroads), 33, 73,
81, 83, 170, 176, 183, 186, 194,
239, 241, 262, 267, 308, 375,
383, 437, 440, 443, 449, 453, 459

peas, 284, 291, 302

pilgrimage, 73, 165, 176, 178, 182,
185, 261, 262, 293

pine needles, 424-427, 431-433

plain, 3, 5, 8, 9, 13, 23, 32, 35, 37,
54, 56, 76, 77, 88, 91, 97-104,
107-109, 116, 127, 136, 142, 157,
164, 165, 226, 241, 245, 250,
263, 280, 293-296, 300, 328, 343,
357, 376, 384, 389-391, 518, 553

plant (medicinal), 132, 165, 431,
491

ploughing (tilling), 100, 165, 182,
203, 260, 284, 288, 293, 295,
298, 362, 477, 539, 544

Pokhara, 111, 116, 130, 177, 178,
183, 308, 337, 338, 347, 437,
441, 443, 449, 455, 459-462, 515,
522, 548

political party, 380, 402-404

poor, poverty (impoverishment),
12, 319, 382, 389, 434, 444, 448,
454, 471, 514, 555

population density, 23, 139-143,
146, 147, 292, 514, 559

potato, 25, 125, 300, 309, 317-319,
322, 422, 554

practice (agrarian, farming), 14, 100,
136, 193, 197, 232, 233, 252, 273,
281, 295, 315, 319, 348, 382, 396,
464, 469, 478-480, 537, 548

precipitation (rain), 85, 122, 123,
135

- Prithvi Narayan Shah, 170, 193, 266, 306
- property (land ownership, landed), 13, 57, 60, 64, 100, 211, 252, 331, 333, 340, 355-362, 368, 375, 376, 382, 396, 407, 425, 455, 500
- protected species, 220, 329, 391, 447, 556
- protection (environmental, forest, of the milieu, nature, preservation, protected), 6, 26-28, 58, 60, 138, 213, 215, 219, 236, 271, 273, 286, 311, 326-328, 331, 336, 339, 348, 354, 368-376, 387-400, 403-417, 426, 428, 432-436, 447, 457, 461, 490, 492, 506, 550, 551, 555, 558, 559
- Punjab, 100, 143, 291, 457
- Putuvar, 503
- Pyangaon, 493, 505
- Pyungha, 189
- Pyuthan, 59, 70, 79, 154, 311, 315, 529
- R**
- radish, 303
- Rai, 154, 157, 357
- raikar, 154, 327, 344, 375, 382
- Ram Shah, 214, 311, 313, 326, 327, 338
- Rana, 31, 39, 117, 120, 167, 227, 266, 313, 321, 327, 329, 338, 354, 367, 371, 378-380, 383, 408, 428, 470, 501, 505
- rape, 499, 528, 536, 537
- Rara (National Park), 27, 392-394, 421-430
- regulations (rules), 20, 26, 27, 271, 294, 313, 316, 325, 347, 366, 368, 372, 377, 391-396, 406, 417, 424, 426, 446, 450, 453, 463, 465, 480-482, 488-492
- religious (religion), 12, 15, 17, 20, 23-28, 35, 73, 88, 95, 102, 138, 157, 168, 172, 176, 177, 194-199, 205, 207, 220-223, 228, 233, 249, 266-274, 297, 318, 335, 396, 432, 447, 480, 488-493, 504, 506, 553-556
- resource (management), 3, 6, 13-16, 20, 25-28, 52, 132, 136, 139, 140, 148, 154, 228, 248, 257, 287, 325, 329, 331, 339, 348, 354, 378, 382-385, 399, 400, 404, 411, 416, 422, 428, 435, 447, 450, 458, 482, 553, 556, 559
- resting place, 83, 112, 164, 208, 231, 232, 372-374, 377, 443, 462, 536
- Resunga, 368
- rice (dry, rainfed), 23, 25, 47, 52, 60, 62, 78, 96, 100, 108, 111, 151, 152, 156, 165, 202, 211-214, 219, 230, 269, 271, 281, 284, 285, 290, 293-317, 321, 322, 325, 330, 331, 336, 340, 345-351, 356-358, 363, 364, 374-376, 422, 425, 438, 457-460, 470-474, 477, 478, 494, 498, 499, 503, 528-531, 537, 540, 544, 554
- risk, 6, 13, 73, 116, 214, 344, 345, 349, 384, 414, 464, 465, 478, 522, 555, 559
- rite (ritual), 185, 188, 305
- river, 23, 57, 62, 73, 82, 85-88, 91, 105, 106, 114, 128, 130, 133, 162, 163, 171, 172, 183, 185-188, 197, 230, 256, 336, 340, 346, 356-359, 369, 375, 432, 436, 440, 441, 507, 514, 528, 537, 544
- roof (roofing), 66, 180, 184

S

- Sabu, 89, 241-257, 261, 262, 399
 sacred (sacralisation, sacredness),
 73, 164, 166, 168, 172-176, 181,
 185-191, 197, 212, 220, 233, 235,
 238, 241, 261-272, 292, 293, 335,
 368, 373, 471, 498, 506, 507,
 527, 536, 553
 Sagarmatha (see Everest), 113,
 392-394, 428
 sāl (Shorea robusta), 165, 330, 332-
 334, 513, 522, 533
 Salankhu Kholā, 214, 221, 225,
 226, 467, 468, 477
 Salme, 3, 19, 24, 27, 47, 48, 58, 63,
 67, 68, 71, 72, 112, 128, 199-239,
 256, 368, 463, 467-484, 488-492,
 556, 557
 Salyan, 149, 315, 342, 529
 sanctuary, 83, 176, 177, 188-190,
 197, 334, 374, 384, 390, 441,
 443, 451, 453
 Sapta Gandaki, 168, 170, 172
 Sapta Koshi, 168, 170
 school (schooling), 26, 27, 201, 267,
 407, 408, 430, 457, 459, 467, 474,
 479, 482-485, 488-491, 515, 549,
 550, 558
 seism (seismicity, seismic, see
 earthquake), 115, 116, 120
 settler (colonisation), 318, 343-345,
 383
 shaman (shamanism), 180, 223,
 225, 274, 275
 shepherd, 83, 89, 249, 253, 254,
 427
 Sherpa, 157
 Shiva, 73, 166, 170-177, 182-188,
 359, 360
 Shorea robusta (see sāl), 165, 328,
 330, 374, 377, 522, 533, 535
 Sikkim, 34, 35, 140
 silā, 175-178, 180-182, 190
 Sindhuli, 149, 336
 Siwalik (see Curiya), 46, 54, 56,
 109, 280
 slash-and-burn, 69, 78, 79, 210,
 227, 319, 323, 332, 361, 362,
 369, 372, 376, 377, 469
 slope (steeply sloped, sloping), 10,
 24, 27, 48, 50, 53, 56, 62, 66-72,
 76-83, 93, 97, 98, 100, 103, 108,
 111, 120, 123-128, 130-133, 138,
 162, 164, 200, 202, 203, 206, 209,
 210, 214, 216, 225, 230, 232, 239,
 320, 362, 373, 375, 396, 427, 436,
 439, 469, 472, 473, 474, 522, 527,
 529, 539, 541, 544
 snow, 44, 46, 52, 71, 77, 79, 91,
 103, 112, 114, 122-129, 132, 135,
 136, 164, 195, 226, 241, 244,
 287, 399, 425, 450
 soil, 3, 5, 9-11, 25, 37, 60, 82, 91,
 93, 96, 99, 100, 104, 108, 125,
 128, 133, 141, 176, 179, 184, 193,
 211-213, 216, 218, 231, 252, 270,
 271, 274, 283, 287-289, 292, 295,
 302-304, 315, 318, 321, 326, 335,
 339, 343, 349, 368, 375, 389, 393,
 408, 469, 477, 482, 489, 521, 537,
 539-541, 544
 Solu, 318, 356-359
 space (spatial, organisation of), 1, 7,
 8, 12, 14, 24, 27, 32, 47, 57, 73,
 85, 91, 97, 108, 113, 114, 134-
 139, 149, 166, 168, 181, 193, 197,
 200, 205-210, 213, 219, 226, 232-
 241, 267, 272-275, 329, 351-354,
 369, 373, 378, 391, 399, 404, 411,
 415, 416, 423, 436-441, 446, 447,
 455, 465-476, 481, 490-493, 504,
 537, 553, 557
 spirit (malevolent, evil, see demon).
 73, 262, 274

Spiti, 285, 289, 291, 292
 spring (source), 37, 52, 64, 66, 82,
 88, 105, 114, 123, 129, 135, 202,
 211, 245, 256, 257, 262, 303,
 304, 331, 402, 446, 457, 470,
 476, 482, 539, 544
 stable (stall), 10, 83, 110, 125, 131,
 145, 188, 232, 316, 335, 376,
 439, 522, 527
 State, 6, 26, 29, 39, 142, 154, 157,
 214, 272, 313, 316, 325-331, 334,
 335, 338-348, 354-359, 368-373,
 376, 377, 380-385, 393-396, 399,
 403-407, 411, 413, 416, 417, 421,
 436, 453, 480, 482, 500, 501,
 511, 554, 555
 stream (torrent), 82, 88, 103-106,
 163, 171, 214, 241, 253, 256,
 286, 439
 stupa, 197
 sugarcane, 299, 320, 333
 Sugauli (peace treaty), 33, 36
 Sun Kosi, 355
 Sunuwar, 351, 353-356, 359, 363-
 370, 376, 377
 Surkhet, 109, 149, 345, 425
 Svangumi, 506
 Svayambhunath, 494
 swidden cultivation (slash-and-burn
 land, slash-and-burn cultivation,
 freshly cleared ground, weeding,
 forest cleared, recently cleared
 land), 66, 69, 79, 361, 362, 376
 swing plough, 67, 69, 79, 81, 99,
 220, 269, 284, 333, 356, 376,
 469, 480, 554
 Syangja, 145, 146, 149, 154, 167,
 175, 178, 189, 266, 511
 symbol (symbolic, symbolism), 88,
 220, 232, 237, 272, 308, 490

T

Tadi, 11, 37, 73
 Tamang, 76, 157, 200-203, 212,
 215, 216, 229, 239, 273, 312,
 315, 320, 322, 408, 467, 469,
 472, 477, 485, 488-494
 Tamba Kosi, 355, 356
 Tanahun, 173, 263-265, 312-334,
 511
 Tansen, 509, 511, 513, 518, 519,
 532, 547, 549, 550
 tantrist, 195, 197
 Tarai, 8-11, 13, 23, 30, 32, 37, 46,
 53, 54, 56, 76, 77, 108, 109, 116,
 136, 140, 141, 151, 157, 164,
 165, 263, 279-282, 311, 313, 316,
 321, 327-330, 333, 336, 343-345,
 382-384, 388-391, 404, 406, 415,
 417, 435, 454, 455, 485, 501,
 503, 509-511
 Tatopani, 128, 437, 441, 460-462,
 464
 taxes, 58, 96, 148, 149, 154, 285,
 293, 294, 327, 339-345, 355, 356,
 359, 362-366, 369, 375, 382, 500,
 501, 555
 tea, 321
 temperate (milieu), 109, 111, 112,
 124, 349
 temperature, 134, 165, 489, 518, 536
 temple, 73, 83, 180, 186-188, 190,
 194, 218, 225-227, 270-272, 297,
 498, 499, 504, 506, 554
 tenure, 20, 154, 306, 308, 335, 341,
 344, 346, 356, 358, 362, 375
 Terhathum, 150
 territory, 6, 9, 12, 14, 17, 23-27, 32,
 34, 47, 57, 64, 102, 107, 113,
 115, 142, 167, 168, 189-194, 199-
 202, 205-213, 219, 224-239, 257,
 261-264, 267-275, 320, 322, 327,

329, 334, 342, 345, 349, 351,
 369, 372, 377-380, 384, 390-393,
 396, 400, 405, 407, 414, 421,
 424, 432-439, 447, 458, 465, 469,
 470, 504, 527, 553, 555
 Teula, 493, 494
 Thakali, 127, 437
 Thakkhola, 115, 125
 Thakuri, 30, 156, 264, 293
 Tharu, 109, 157
 Tibet, 2, 31, 32, 35, 37, 107, 140,
 157, 165, 189, 194, 201, 252,
 254, 256, 262, 280-291, 298, 318,
 341, 356, 381, 425, 441
 Tibeto-Burmese, 50, 52, 201, 312
 Tihar, 494, 500
 toponym (place name), 17, 200, 201,
 206, 207, 221, 225, 227, 232, 244
 tourism, 6-9, 26, 27, 96, 184, 379,
 381-385, 392, 393, 398, 400, 404,
 407, 414-417, 429, 435-437, 440-
 454, 458-467, 490, 557
 transhumance, 210, 232, 282
 traveller (journey), 9, 29, 34, 37,
 39, 100, 231, 287, 291, 292, 302,
 312, 392, 446, 509, 511
 tree (fodder, fruit, sacred tree, plan-
 tation), 5, 16, 25, 64, 78, 80, 96,
 104, 106, 112, 125, 132, 137, 183,
 208, 213, 219-222, 231, 237, 238,
 271, 282, 300, 322, 326, 327, 329,
 336, 337, 349, 354, 368, 373, 377,
 437, 447, 450-457, 462, 478-481,
 489, 491, 500, 522, 547, 550, 556
 trekking, 4, 8, 9, 27, 385, 392, 393,
 435, 441, 443, 446, 447, 451,
 453, 458, 462, 464
 tribunal (court), 337, 359, 363, 366,
 367, 370, 371

Trisuli, 61, 73, 111, 181, 201, 226-
 230, 467, 472, 473, 484, 485,
 490, 507, 530
 tropical (sub) (ecological belt,
 milieu), 54, 111, 122, 132, 391,
 544
 turnip, 291

U

Udayapur, 149, 321
 Upper Range, 37, 108-112, 115,
 116, 122-126, 129, 134
 Uttar Pradesh, 143

V

Valley (see Kathmandu), 7, 9, 10,
 25, 28-33, 37, 39, 40, 44, 58, 90,
 101, 111, 116, 117, 120, 143,
 149, 157, 168, 169, 182, 189,
 196, 197, 226, 229, 246, 248-251,
 265, 279-282, 285, 286, 292-322,
 333-340, 348, 349, 382-385, 413,
 415, 432, 436, 437, 440-443, 472,
 476, 493-507, 550
 Varaha (Varahi), 18, 169, 176, 223
 vegetable (leguminous), 66, 78, 96,
 105, 252, 291, 309, 314, 318,
 319, 422, 459, 473
 view (vision, visible), 10, 15, 53,
 91, 107, 113, 124, 162, 163, 200,
 209, 237, 245, 267, 285, 309,
 312, 354, 365, 453, 490, 509, 514
 Vishnu, 18, 170, 175, 177, 223,
 300, 334

W

water, 6, 11, 13, 15, 22, 35, 50, 52,
 60-68, 73, 78, 80-83, 88, 91, 93,
 98-100, 104, 105, 108, 111, 113,
 116, 123-126, 129-132, 135, 136,
 143, 163, 165, 169-172, 183-188,

197, 202, 206, 211-216, 219, 230,
 237, 250, 254-259, 262, 270, 284-
 294, 299-306, 310-314, 321, 325,
 326, 330, 331, 336-339, 368-370,
 373, 375, 404, 408, 413, 438,
 439, 446, 448, 459-462, 472, 473,
 489, 490, 503, 513, 514, 520-522,
 527-529, 536, 539, 541, 544, 553

wheat, 50, 52, 57, 58, 66, 67, 96,
 100, 108, 111, 125, 202, 210, 219,
 281-291, 294, 298, 299, 302, 303,
 308, 309, 316, 317, 321, 322, 367,
 422, 423, 426, 438, 457, 469-477,
 499, 528, 531, 537, 544, 548

wilderness, 86, 272, 349, 351, 354,
 364, 375-377, 400, 493

wildlife, 223, 224, 283, 386, 390,
 391, 394, 408

wood (woodwork, timber,
 firewood, sacred, charcoal), 3, 9,
 11, 16, 25-28, 70, 80, 88, 96, 106,
 124, 132, 209, 220, 221, 228,
 231, 235, 239, 284, 287, 294,
 327-335, 339, 351, 360, 367-377,

383, 384, 389-396, 424, 426, 430-
 433, 444-453, 462, 480, 490, 494,
 500, 501, 507, 528, 529, 532,
 533, 558

worship (see cult), 167, 169, 176-
 180, 186, 193, 205, 222, 262,
 268-274, 294, 306, 308, 504, 506

Y

yak, 88, 113, 127, 230, 285, 359,
 393

Yamuna, 143, 174

yield, 93-97, 105, 289, 300, 307,
 309, 315, 318, 470, 472

youth, 26, 27, 108, 133, 163, 164,
 175-178, 180, 189, 201, 220, 250,
 268, 269, 295, 305, 314, 330,
 331, 356, 368, 376, 403, 463,
 479-481, 484, 485, 488-492, 505,
 507, 549, 558

Z

Zanskar, 90, 256, 282, 399

Bibliographic References

Since the texts in this book are for the most part based on a set of themes, we have chosen to present the bibliography for each chapter in order for it to be used as a tool for research, which inevitable leads to some repetitions.

The dates of books in Nepali are given in VS or in Sake, with their conversion provided in brackets, e.g. 2014 VS (1957).

Introduction

Joëlle Smadja

BECK C. and Y. LUGINBÜHL, 2001, "Sociétés et ressources renouvelables. Temps et espaces des crises environnementales", *Natures Sciences Sociétés*, vol. 9, no. 3, p. 74-78.

BERQUE A., 1990, *Médiance, de milieux en paysages*, Montpellier, Reclus.

BISHOP B. C., 1990, *Karnali Under Stress: Livelihood Strategies and Seasonal Rhythms in a Changing Nepal Himalaya*, Chicago, The University of Chicago Press.

BLANC-PAMARD C. and L. QUINTY-BOURGEOIS, 1999, "Introduction", p. 11-20, in J. BONNEMAISON, L. CAMBREZY and L. QUINTY-BOURGEOIS (eds.), *Les Territoires de l'identité. Le territoire, lien ou frontière ?*, Paris, L'Harmattan, vol. 1.

BONNEMAISON J., 1997, *Les Gens des lieux. Histoire et géosymboles d'une société enracinée : Tanna. Les fondements géographiques d'une identité. L'archipel du Vanuatu, Essai de géographie culturelle*, Paris, ORSTOM, vols. 2.

BRUNET R., R. FERRAS and H. THERY, 1992, *Les Mots de la géographie. dictionnaire critique*, Montpellier/Paris, Reclus/La Documentation française.

BYERS A., 1986, *A Geomorphic Study of Man-induced Soil Erosion in the Sagarmatha (Mt. Everest) National Park, Khumbu, Nepal*, Working Papers, Honolulu, Environment and Policy Institute, East-West Center.

- BYERS A., 1987, "An Assessment of Landscape Change in the Khumbu Region of Nepal Using Repeat Photography", *Mountain Research and Development*, vol. 7, no. 1, p. 77-81.
- CARSON B., 1985, *Erosion and Sedimentation Processes in the Nepalese Himalaya*, Kathmandu, ICIMOD, Occasional Paper, no. 1.
- CARTER E. J., 1992, "Tree Cultivation on Private Land in the Middle Hills of Nepal: Lessons of some Villagers of Dolakha District", *Mountain Research and Development*, vol. 12, no. 3, p. 241-255.
- CLAVAL P., 1999, "Qu'apporte l'approche culturelle à la géographie ?", *Géographie et Culture*, no. 31.
- CORMIER-SALEM M.-C., 1999, *Rivières du Sud : sociétés et mangroves ouest-africaines*, Paris, Éditions de l'IRD.
- DEFFONTAINES J.-P., 1998, *Les Sentiers d'un géoagronome*, Paris, Éditions Arguments.
- DEFFONTAINES J.-P. and J.-P. PROD'HOMME, 2001, *Territoires et acteurs du développement local, de nouveaux lieux de démocratie*, Paris, Éditions de l'Aube.
- DOBREMEZ J.-F., (ed.), 1986, *Les Collines du Népal central*, Paris, INRA, 2 vols.
- ECKHOLM E. P., 1975, "The Deterioration of Mountain Environments", *Science*, no. 189, p. 764-770.
- 1976, *Losing Ground*, New York, W. Norton and Co.
- FORSYTH T., 1998, "Mountain Myths Revisited: Integrating Natural and Social Environmental Science", *Mountain Research and Development*, vol. 18, no. 2, p. 107-116.
- FORT M., 1988, "La Montagne mise à nu", *Autrement*, special issue Himalayas, no. 28, p. 55-63.
- FOX J., 1993, "Forest Resources in a Nepali Village in 1980 and 1990: the Positive Influence of Population Growth", *Mountain Research and Development*, vol. 13, no. 1, p. 89-98.
- FRICKE T., 1994, *Himalayan Households: Tamang Demography and Domestic Processes*, New York, Columbia University Press.

- GABORIEAU M., 1982, "Les Fêtes, le temps et l'espace : structure du calendrier hindou dans sa version indo-népalaise", *L'Homme*, vol. 22, no. 3, p. 11-29.
- GARCIA P., 2000, "L'espace géographique et les historiens", p. 73-92, in J. LEVY and M. LUSSAULT (eds.), *Logiques de l'espace, esprit des lieux. Géographies à Cerisy*, Paris, Belin.
- GILMOUR D. A., 1988, "Not Seeing the Trees for the Forest: a Re-appraisal of the Deforestation Crisis in Two Hill Districts of Nepal", *Mountain Research and Development*, vol. 8, no. 4, p. 343-350.
- GURUNG H., 1984, *Nepal: Dimensions of Development*, Kathmandu, Sahayogi Press.
- HAMILTON B. F., 1987, "What are the Impacts of Himalayan Deforestation on the Ganges-Brahmaputra Lowlands and Delta? Assumptions and Facts", *Mountain Research and Development*, vol. 7, no. 3, p. 256-263.
- HAMILTON L. S., D. A. Gilmour and D. S. Cassells, 1997, "Montane Forests and Forestry", p. 281-311, in B. MESSERLI and J. IVES (ed.), *Mountains of the World. A global Priority. A Contribution to Chapter 13 of Agenda 21*, London, The Parthenon Publishing Group.
- HOFER T., 1993, "Himalayan Deforestation, Changing River Discharge, and Increasing Floods: Myth or Reality?", *Mountain Research and Development*, vol. 13, no. 3, p. 213-233.
- 1999, "Les Populations de l'Himalaya ne sont pas responsables des inondations au Bangladesh", p. 127, in B. MESSERLI and J. IVES (eds.), *Les Montagnes dans le monde*. Grenoble, Glénat.
- HOFFMEISTER W., 1848, *Travels in Ceylan and Continental India Including Nepal and Other Parts of the Himalayas, to the Borders of Thibet*. Edinburgh, William P. Kennedy.
- HOUDARD Y., 1993, *Agriculture dans les hautes collines du Népal Central*, Paris, INRA.
- IVES J. D., 1985, "Yulongxue Shan, Northwest Yunnan, People's Republic of China: a Geocological Expedition", *Mountain Research and Development*, vol. 5, no. 4, p. 382-385.

- IVES J. D., 1987, "Repeat Photography of Debris Flows and Agricultural Terraces in the Middle Mountains, Nepal", *Mountain Research and Development*, vol. 7, no. 1, p. 82-86.
- IVES J. D. and B. Messerli, 1989, *The Himalayan Dilemma. Reconciling Development and Conservation*, London, Routledge.
- JOLLIVET M. (ed.), 1992, *Les Passeurs de frontière ; sciences de la nature, sciences de la société*, Paris, Éditions du CNRS.
- JOLLIVET M. and A. PAVE, 1993, "L'environnement : un champ de recherche en formation", *Natures Sciences Sociétés*, vol. 1, no. 1, p. 6-20.
- KALAORA B., 1998, *Au-delà de la nature, l'environnement. L'observation sociale de l'environnement*. Paris, L'Harmattan, Coll. Environnement.
- KIENHOLZ H., G.SCHNEIDER, M. BICHSEL, M. GRUNDER and P. MOOL, 1984, "Mapping of Mountain Hazards and Slope Stability", *Mountain Research and Development*, vol. 4, no. 3, p. 247-266.
- LECOMTE-TILOUINE M., 1993, "Les Avatars de Varaha en Himalaya", *Bulletin de l'École Française d'Extrême-Orient*, vol. 80, no. 1, p. 41-74.
- LEGAY J.-M., 1999, "L'Évaluation scientifique d'objets de recherche complexes relève-t-elle d'une situation épistémologique nouvelle?" *Natures Sciences Sociétés*, vol.7, no. 2, p. 60-64.
- 2000, "Les Temps de l'environnement", p. 19-32, in M. BARRUE-PASTOR and G. BERTRAND (ed.), *Les Temps de l'Environnement*, Toulouse, Presses Universitaires du Mirail.
- LEPART J., P. MARTY and O. ROUSSER, 2000, "Les Conceptions normatives du paysage. Le cas des Grands Causses", *Natures Sciences Sociétés*, vol. 8, no. 4, p. 16-25.
- MAHAT T. B. S., D. M. GRIFFIN and K. R. SHEPHERD, 1986-1987, "Human Impact on Some Forests of the Middle Hills of Nepal", *Mountain Research and Development*, vol. 6, no. 3, p. 223-232 ; vol. 6, no. 4, p. 325-334 ; vol. 7, no. 1, p. 53-70 ; vol. 7, no. 2, p. 111-134.
- MESSERLI B. and J. IVES, 1984, "Gongga Shan (7556 m) and Yulonxue Shan (5596 m). Geocological observations in the Hengduan Mountains of Southwestern China", *Erdwissenschaftliche Forschung*, Stuttgart, Franz Steiner Verlag Wiesbaden GmbH, no. 153, p. 55-77.

- MESSERSCHMIDT D. A., 1990, "What is a Tree?", *Forests, Trees and People. Newsletter*, no. 11, December, p. 4-6.
- MICHELIN Y., 2001, "Le Paysage, un levier du développement local", p. 119-132, in J.-P. DEFFONTAINES. and J.-P. PROD'HOMME (eds.), *Territoires et acteurs du développement local, de nouveaux lieux de démocratie*, Paris, Éditions de l'Aube.
- MYERS N., 1986, "Environmental Repercussions of Deforestation in the Himalayas", *Journal World Forest Resource Management*, vol. 2, p. 63-72.
- OLDFIELD H. A., 1880, *Sketches from Nepal*, London, W. H. Allen and co. 2 vols.
- PANDAY R. K., 1995, *Development Disorders in the Himalayan Heights. Challenges and Strategies for Environment and Development. Altitude Geography*, Kathmandu, Ratna Pustak Bandar.
- RAMADE F., 1989, in *La Terre perd la Boule*, Special issue of *Libération*, June 1989, p. 32.
- RAMIREZ P., (ed.), 2000, *Resunga, The Mountain of the Horned Sage*, Kathmandu, Himal Books.
- RAVETZ J., 1992, "Connaissance utile, ignorance utile ?", p. 87-101, in J. THEYS and B. KALAORA (eds.), *La Terre outragée. Les experts sont formels !*, Paris, Éditions Autrement, Série Sciences en société, no. 1.
- REVEL J., 1996, "Micro-analyse et construction du social", p. 15-36, in J. REVEL (ed.), *Jeux d'échelles. La micro-analyse à l'expérience*, Paris, Gallimard / Le Seuil.
- ROYLE J.F., 1839, *Illustrations of the Botany and other Branches of the Natural History of the Himalayan Mountains and of the Flora of Cashemere*, London, Allen, 2 vols.
- SAGANT P., 1976, *Le Paysan limbu : sa maison et ses champs*, Paris, Mouton-EHESS.
- SLUSSER M. S., 1982, *Nepal Mandala. A Cultural Study of the Kathmandu Valley*, Princeton, Princeton University Press, vol. 1.
- SMADJA J., 1986, *Géodynamique des milieux d'un versant de mousson en moyenne montagne himalayenne. Le versant de Salmé, Népal Central*. PhD dissertation, Université Paris 1.

- SMADJA J., 1992, "Studies of Climatic and Human Impacts and their Relationship on a Mountain Slope Above Salme in the Himalayan Middle Mountains, Nepal", *Mountain Research and Development*, vol. 12, no. 1, p. 1-28.
- 2000, "Au Rythme des séismes, des saisons et des hommes, les temps de l'environnement au Népal", p. 399-411, in M. BARRUE-PASTOR and G. BERTRAND (ed.), *Les Temps de l'Environnement*, Toulouse, Presses Universitaires du Mirail.
- STENGERS I., (interview with), 2000, "Discipline et interdiscipline : la philosophe de "l'écologie des pratiques" interrogée. Interview between Isabelle Stengers and Nicole Mathieu, second part", *Natures Sciences Sociétés*, vol. 8, no. 3, p. 59-63.
- STERLING C., 1976, "Nepal", *Atlantic Monthly*, Oct., vol. 238, no. 4, p. 14-25.
- THEYS J. and B. KALAORA, 1992, "Quand la science réinvente l'environnement", p. 15-49, in J. THEYS and B. KALAORA (eds.), *La Terre outragée. Les experts sont formels !*, Paris, Éditions Autrement, Série Sciences en société, no. 1.
- THOMPSON M., 1998, "The New World Disorder: is Environmental Security the Cure?" *Mountain Research and Development*, vol. 18, no. 2, p. 117-122.
- THOMPSON M., M. WARBUTON, and T. HATLEY, 1986, *Uncertainty on a Himalayan Scale: an Institutional Theory of Environmental Perception and a Strategic Framework for the Sustainable Development of the Himalaya*, London, Milton Ash Editions.
- VAN DER LEEUW S. E., 1998, "Archaeomedes, un programme de recherches européen sur la désertification et la dégradation des sols", *Natures Sciences Sociétés*, 1998, vol. 6, no. 4, p. 53-58.
- VERDEAUX F., 1998, "Paradoxes et rationalités de la "déforestation" en Côte d'Ivoire", *Natures Sciences Sociétés*, vol. 6, no. 1, p. 26-35.
- VIRGO K. J. and K. J. SUBBA, 1994, "Land-Use Change between 1978 and 1990 in Dhankuta District, Koshi Hills, Eastern Nepal", *Mountain Research and Development*, vol. 14, no. 2, p. 159-170.

Preliminary Chapter. Snippets of Knowledge Stolen from an Impenetrable Country

Joëlle Smadja

- BOULNOIS L., 1973, *Bibliographie du Népal, Cartes du Népal*, Paris, Éditions du CNRS, vol. 3, t. 1.
- BRUCE C. G. and W. B. NORTHEY, 1925, "Nepal", *The Geographical Journal*, vol. 65, no. 4, April, p. 281-300.
- GABORIEAU M., 1978, *Le Népal et ses populations*, Paris, Éditions Complexes.
- HOFFMEISTER W., 1848, *Travels in Ceylan and Continental India Including Nepal and Other Parts of the Himalayas, to the Borders of Thibet*, Edinburgh, William P. Kennedy.
- LANDON P., 1928, *Nepal*, London, Constable and Co. LTD, vol. 1 and 2.
- MARKHAM C. R., 1893, "The Present Standpoint of Geography. Opening Address of the President", *The Geographical Journal*, no. 6, December, vol. 2, p. 481-505.
- MASON K., 1923, "Kishen Singh and the Indian Explorers", *The Geographical Journal*, no. 6, December, vol. 62, p. 429-440.
- 1956, "Great Figures of Nineteenth-Century Himalayan Exploration", *Journal of the Royal Central Asian Society*, vol. 43, nos. 3-4, p. 167-175.
- MONTGOMERIE T. G., 1868, "Montgomerie's Report of a Route Survey to Lhasa", *Journal of the Royal Geographical Society*, vol. 38, p. 129-201.
- MORRIS J., 1963, *A Winter in Nepal*, London, Rupert Hart-Davis.
- NORTHEY W. B., 1937, *The Land of the Gurkhas, or the Himalayan Kingdom of Nepal*, Cambridge, Heffer.
- NORTHEY W. B. and C. J. MORRIS, 1974 [1st ed. 1928], *The Gurkhas, their Manners, Customs and Country*, Delhi, Cosmo Publisher.
- OLDFIELD H. A., 1880, *Sketches from Nepal*, London, W. H. Allen and co. 2 vols.
- Regmi Research Collection*, unpublished, 1864 VS (1807), Microfilm E242613, Book 20, no. 41, p. 427.

- SHORE J. (Communicated by), 1790, "An Account of the Kingdom of Nepal, by Father Giuseppe, Prefect of the Roman Mission", *Asiatic Researches*, vol. 2. p. 307-322.
- TANNER H. C. B., 1891, "Our Present Knowledge of the Himalayas", *Proceedings of the Royal Geographical Society*, vol. 13, no. 7, July, p. 403-423.
- WALKER J. T., 1885, "Four Years' Journeyings through Great Tibet, by One of the Trans-Himalayan Explorers of the Survey of India", *Proceedings of the Royal Geographical Society and Monthly Record of Geography*, vol. 7, no. 2, February, p. 65-92.
- 1886a, "Notes on Mont Everest", *Proceedings of the Royal Geographical Society*, vol. 8, no. 2, February, p. 88-94.
- 1886b, "A Last Note on Mont Everest", *Proceedings of the Royal Geographical Society*, vol. 8, no. 4, April, p. 257-263.
- WHITE J., 1920, "Nepal: A Little-known Kingdom", *National Geographic Magazine*, vol. 27, no. 4, p. 245-284.
- WOOD C. (Compiled by), 1915 [1st ed. 1887], "Exploration in Tibet and Neighbouring Regions. 1879-1892", *Records of the Survey of India*, vol. 8, part. 2, p. 383-399.

Chapter I. Geographic Units and Landscapes in Nepal. Local Terminologies

Joëlle Smadja

- ABE Y., 1995, *Terres à riz en Asie. Essai de typologie*, Paris, Masson.
- DEBARBIEUX B., 1999, "Is "Mountain" a Relevant Object and/or a Good Idea ?", p. 7-9, in M. F. PRICE, T. H. MATHER and E. C. ROBERTSON (ed.), *Global Change in the Mountains*, London, Parthenon Publishing.
- GURUNG H. B., 1980, *Vignettes of Nepal*, Kathmandu, Sajha Prakashan.
- 1999, *Mountains of Asia. A regional inventory*, Kathmandu, ICIMOD.
- GURUNG H. B. and N. R. KHANAL, 1987, *Landscape processes in the Chure Range, Central Nepal*, unpub. rept. submitted to National Committee for Man and the Biosphere, Kathmandu, in J.D. IVES and B. MESSERLI,

- 1989, *Himalayan Dilemma. Reconciling development and conservation*, London, Routledge.
- GURUNG S., 1989, "Human Perception of Mountain Hazards in the Kakani-Kathmandu Area: Experiences from the Middle Mountains of Nepal", *Mountain Research and Development*, vol. 9, no. 4, p. 353-364.
- HAGEN T., 1960, *Népal : Royaume de l'Himalaya*, Berne, Kümmerly and Frey.
- IVES J. D. and B. MESSERLI, 1989, *Himalayan Dilemma. Reconciling Development and Conservation*, London, Routledge.
- JOHNSON K., E. A. OLSON and S. MANANDHAR, 1982, "Environmental Knowledge and Response to Natural Hazards in Mountainous Nepal", *Mountain Research and Development*, vol. 2, no. 2, p. 175-188.
- KHAKUREL P., 1997, *Rapport entre l'homme et son environnement dans la région de la Likhu Khola (Népal)*, CNRS internal report, Villejuif, History and future of landscapes in the Himalayas programme.
- KHANAL N., 1993, "Assessment of Land Use Changes and their Impact", p. 87-98, in *The Role of Extreme Weather Events, Mass Movements, and Land Use Changes in Increasing Natural Hazards*, Kathmandu, ICIMOD.
- KIRKPATRICK W. 1969 [1st ed. 1811], *An Account of the Kingdom of Nepaul. Being the Substance of Observations made during a Mission to that Country in the Year 1793*, Delhi, Manjusri Publishing House.
- MESSERSCHMIDT D. A., 1976, "Ecological Change and Adaptation among the Gurungs of the Nepal Himalaya", *Human Ecology*, vol. 4, no. 2, p. 167-185.
- METZ J. J., 1989, "A Framework for Classifying Subsistence Production Types of Nepal", *Human Ecology*, vol. 17, no. 2, p. 147-176.
- MILLER C. J., 1990, *Decision Making in Village Nepal*, Kathmandu, Sahayogi Press.
- Nepālā brhat śabdakoś (Dictionary of the Royal Academy of Nepal)*, 2040 VS (1983), Nepāl Rājkīya Pragyā-Pratishhān, Kathmandu.
- PARENT S., 1990, *Dictionnaire des sciences de l'environnement*, Ottawa, Éditions Broquet Inc..

- RAMSAY W. J. H., 1986, "Erosion Problems in the Nepal Himalaya - an Overview", p. 359-392, in S. C. JOSHI (ed.), *Nepal Himalaya. Geo-Ecological Perspectives*, Nainital, Himalayan Research Group.
- REGMI M. C., 1965, *Land Tenure and Taxation in Nepal*, Berkeley, University of California Press, vols. 3.
- 1971, *A Study in Nepali Economic History 1768-1846*, New Delhi, Manjusri Publishing House.
- SAGANT P., 1976, *Le Paysan Limbu, sa maison et ses champs*, Paris, Mouton-EHESS.
- SHAH P. B., 1995, "Indigenous Agricultural Land and Soil Classifications", p. 203-210, in SCHREIER *et al.* (ed.), *Challenges in Mountain Resource Management in Nepal*, Kathmandu, ICIMOD.
- SHRESTHA B. K., 1993, *A Himalayan Enclave in Transition. A Study of Change in the Western Mountains of Nepal*. Kathmandu, ICIMOD.
- Statistical Year Book of Nepal 1991*, Central Bureau of Statistics, Kathmandu.
- SMADJA J., 2000, "Landscape Diversity and Water Availability", p. 1-50, in P. RAMIREZ (ed.), *Resunga. The Mountain of the Horned Sage, Two districts in Central Nepal*, Kathmandu, Himal Books.
- TURNER R. L., 1931, *Dictionary of the Nepali Language*, London, Routledge and Kegan Paul.
- WALKER J. T., 1886, "A Last Note on Mont Everest", *Proceedings of the Royal Geographical Society*, vol. 8, no. 4, April, p. 257-263.
- ZURICH D., 1999, "Traditionnal Knowledge and Conservation as a Basis for Development in a West Nepal Village", *Mountain Research and Development*, vol. 10, no. 1, p. 23-33.
- Frame 5. Irrigation of Paddy Fields: Technical and Social Trace in the Landscape. Olivia Aubriot.*
- AUBRIOT O., 1997, "*Water*": *miroir des tension. Ethno-histoire d'un système d'irrigation dans les moyennes montagnes du Népal central*, thesis from the Université de Provence.
- SABATIER J.-L. and T. RUF, 1992, "La gestion sociale de l'eau", *Chronique Sud*, no. 8, p. 5-8.

Chapter II. Ladakhi Landscape Units

Pascale Dollfus and Valérie Labbal

- DOLLFUS P., 1989, *Lieu de neige et de genévriers*, Paris, CNRS Éditions.
- HAMID A., 1998, *Ladakhi-English-Urdu Dictionary*, Leh, Melong Publications.
- HERDICK R., 1999, "Yangthang in West Ladakh: An Analysis of the Economic and Socio-cultural Structure of a Village and Its Relation with Its Monastery", p. 195-221, in M. van BEEK, K. B. BERTELSEN and P. PEDERSEN (eds.), *Recent Research on Ladakh*, no. 8, Aarhus, Aarhus University Press.
- JÄSCHKE H. A., 1980 [1st ed. 1881], *A Tibetan Dictionary with Special Reference to the Prevailing Dialects*, Delhi, Motilal Banarsidass.
- JEST C., 1975, *Dolpo. Communautés de langue tibétaine du Népal*, Paris, Éditions du CNRS.
- LABBAL V., 2000, "Traditional Oases of Ladakh. A Case Study of Equity in Water Management", p. 163-183, in H. Kreutzmann (ed.), *Sharing Water. Irrigation and Water Management in the Hindukush-Karakoram-Himalaya*, Karachi, Oxford University Press.
- LECOMTE-TILOUINE M., 1987, "Hommes / divinités de la forêt. À travers le miroir au Népal Central", *Études Rurales*, no. 107-108, p. 55-69.
- LEVINE N., 1977, *The Nyinba, Population and Social Structure in a Polyandrous Society*, PH.D. Dissertation, University of Rochester.
- MALAMOUD C., 1976, "Village et forêt dans l'idéologie de l'Inde brahmanique", *Archives Européennes de Sociologie*, vol. 17, no. 2, p. 3-20.
- MEYER F., 1987, "Des Dieux, des montagnes et des hommes. La lecture tibétaine du paysage", *Études Rurales*, vol. 107-108, p. 107-127.
- VOHRA R., 2000, "Notes on irrigation and the legal system in Ladakh: The Buddhist 'Brog-pa'", p. 146-162, in H. Kreutzman (ed.), *Sharing Water: Irrigation and Water Management in the Hindu Kush-Karakoram-Himalaya*, Karachi, Oxford University Press.

Chapter III. Some Elements Structuring the Himalayan Mountains

Olivier Dollfus and Monique Fort

- BERTRAND G. and O. DOLLFUS, 1973, "L'Himalaya Central. Essai d'analyse écologique", *L'Espace Géographique*, no. 3, p. 224-232.
- BILHAM R., P. BODIN, and M. JACKSON, 1995, "Entertaining a Great Earthquake in Western Nepal: Historic Activity and Geodetic Test for the Development of Strain", *Journal of Nepal Geological Society*, vol. 11, special issue, p. 73-88.
- BILHAM R., K. LARSON, J. FREYMULLER, and PROJECT IDYL-HIM MEMBERS, 1997, "Indo-Asian Convergence Rates in the Nepal Himalaya", *Nature*, no. 386, p. 61-66.
- BLAMONT D., 2001, "Qu'elle était verte ma vallée : le haut Mustang (Népal) en crise", p. 43-60, in F. BART, S. MORIN, and J.N. SALOMON (eds.) : *Les Montagnes tropicales : identités, mutations, développement*, Bordeaux-Pessac, DYMSET - CRET.
- CARVER M., H. SCHREIER, G. NAKARMI and A. R. PATHAK, 1995, "Land Use Effect on Stream Suspended Sediments in the Middle Mountains of Nepal", p. 73-78, in B. T. GUY and J. BARNARD (ed.), *Mountain Hydrology, Peaks and Valleys in Research and Application*. Conference Proceedings, Canadian Society for Hydrological Sciences, Cambridge, ON.
- DELCAILLAU B., 1992, *Les Siwalik de l'Himalaya du Népal oriental. Fonctionnement et évolution d'un piémont*, Paris, Éditions du CNRS.
- DHITAL M. R., N. KHANAL and K. B. THAPA, 1993, *The Role of Extreme Weather Events, Mass Movements, and Landuse Changes in Increasing Natural Hazards*, Kathmandu, ICIMOD Report.
- DOBREMEZ J.-F., 1976, *Le Népal : Écologie et biogéographie*, Paris, Éditions du CNRS.
- DURAND-DASTES F., 1969, *Géographie des airs*, Paris, PUF, Coll. Magellan.
- FORT M., 1974, "Paysages de la Kali Gandaki", *Objets et Mondes*, vol. 14, no. 4, p. 279-290.

- FORT M., 1987a, "Sporadic Morphogenesis in a Continental Subduction Setting: an Example from the Annapurna Range, Nepal Himalaya", *Zeitschrift für Geomorphologie*, Suppl.-Bd., no. 63, p. 9-36.
- 1987b, "Geomorphic and Hazards Mapping in the Dry, Continental Himalaya: 1:50,000 maps of Mustang District, Nepal", *Mountain Research and Development*, vol. 7, no. 3, p. 222-238.
- 1997, "Développement et aléas naturels dans l'Himalaya du Népal : la crue de juillet 1993, bassin versant de la Bagmati", *Géomorphologie*, no. 1, p. 43-58.
- 2000a, "Glaciers and Mass Wasting Processes: their Influence on the Shaping of the Kali Gandaki Valley (Higher Himalaya of Nepal)", *Quaternary International*, nos. 65-66, p. 101-119.
- 2000b, "Natural Conditions and Hazards for Irrigation in the Arid Himalaya of Upper Mustang District (Nepal)", p. 239-258, in H. KREUTZMANN (ed.), *Sharing Water, Irrigation and Water Management in the Hindukush - Karakoram - Himalaya*, Karachi, Oxford University Press.
- 2001, "Des Milieux à risques en Himalaya central. Le cas du Népal", p. 43-60, in F. BART, S. MORIN and J.N. SALOMON (eds.), *Les Montagnes tropicales : identités, mutation, développement*, Bordeaux-Pessac, DYMSET - CRET.
- GURUNG H. B., 1965, *Pokhara Valley. A Field Study in Regional Geography*, Ph. D dissertation, University of Edimburg.
- JACKSON M. E., and R. BILHAM, 1994, "Constraints on Himalayan Deformation Inferred from Vertical Velocity Fields in Nepal and Tibet", *Journal of Geophysical Research*, no. 99, p. 13897-13912.
- LAVÉ J. and J.-P. AVOUAC, 2000, "Active Folding of Fluvial Terraces Across the Siwaliks Hills, Himalayas of Central Nepal", *Journal of Geophysical Research*, vol. 105, no. 3, p. 5735-5770.
- MAHAT T. B. S., D. M. GRIFFIN and K. R. SHEPHERD, 1986, "Human Impact on Some Forests in the Middle Hills of Nepal, II: Some Major Human Impacts Before 1950 on the Forest of Sindhu Palchok and Kabhre Palanchok", *Mountain Research and Development*, vol. 6, no. 4, p. 325-334.

- MOOL P. K., 1995, "Glacier Lake Outburst Floods in Nepal", *Journal of Nepal Geological Society*, no. 11, p. 273-280.
- PANDEY M. R., R. P. TANDUKHAR, J.-P. AVOUAC, J. VERGNE, and T. HÉRITIER, 1999, "Seismotectonics of the Nepal Himalaya from a Local Seismic Network", *Journal of Asian Earth Sciences*, no. 17, p. 703-712.
- SCHWEINFURTH U., 1968, *Vegetation of the Himalayas*, Heidelberg, Süd-Asien Inst.
- SMADJA J., 1992, "Studies on Climatic and Human Impacts and their Relationship on a Mountain Slope above Salme in the Himalayan Middle Mountains, Nepal", *Mountain Research and Development*, vol. 2, no. 1, p. 1-28.
- 1995, "Sur une Dégradation annoncée des milieux népalais : initiatives villageoises pour remplacer les ressources forestières", *Natures Sciences Sociétés*, vol. 3, no. 3, p. 190-204.
- 2000, "Au rythme des séismes, des saisons et des hommes : les temps de l'environnement au Népal", p. 399-411, in M. BARRUE-PASTOR and G. BERTRAND (ed.), *Les Temps de l'environnement*, Toulouse, Presses Universitaire du Mirail.
- THOURET J.C., 1983, *Géodynamique des grands versants de l'Ankhu Khola, Népal Central*, Paris, Éditions du CNRS.
- VALDIYA K.S., 1998, *Aspects of Tectonics. Focus on South-Central Asia*, New Delhi, Tata MacGraw Hill.
- VUICHARD D. and M. ZIMMERMANN, 1987, "The 1985 Catastrophic Drainage of a Moraine-Dammed Lake, Khumbu Himal, Nepal: Cause and Consequences", *Mountain Research and Development*, vol. 7, no. 2, p. 91-110.

Frame 7. Contribution to the Historical Study of Seismicity in Nepal.
Maheś Raj Pant

- CAMPBELL A., 1833, "Account of the Earthquake at Kathmandu", *Journal of the Asiatic Society of Bengal*, vol. 2, Misc. II, p. 564-567.
- PANT M. R., 1998, "Vi.saṃ. 1865 mā gaeko bhañcāloko viṣayamā" (A word about the 1808 earthquake), *Pūrṇimā*, vol. 95, p. 51-53.

RANA B. S. J. B., 1991 VS (1935), *Nepālako mahābhukampa (1990 sāla)* (The 1934 great earthquake in Nepal), Kathmandu, published by the author.

VAJRĀCĀRYA, DHANA VAJRA and MALLA, (ed. and transl.), 1985, *The Gopālarājavamśāvalī*, Nepal Research Centre Publications 9, Wiesbaden, Franz Steiner.

WRIGHT D. (ed.), 1877, *History of Nepal, Translated from the Parbatiyā by Munshī Shew Shunker Singh and Pandit Shrī Gunānand: with an Introductory Sketch of the Country and People of Nepal by the Editor*, Cambridge, Cambridge University Press.

Chapter IV. Population Densities and Resources in the Study of Nepalese Landscapes

Philippe Ramirez

BOSERUP E., 1995 [1st ed. 1965], *The Conditions of Agricultural Growth*, London, G. Allen and Unwin.

Census of India 1981: Series 7, 8, 22, 24, 1983, Uttar Pradesh, Himachal Pradesh, Sikkim, Jammu and Kashmir, Arunachal Pradesh, Indian Administrative Service.

Census of Population: Nepal 1952/54, 1958, Kathmandu, Department of Statistics.

DUBY G., 1973, *Guerriers et Paysans*, Paris, Gallimard.

KARAN P. and H. ISHII, 1996, *Nepal: A Himalayan Kingdom in Transition*, Tokyo: UN, University Press.

National census of agriculture 1981-1982, 1985, Kathmandu, Central Bureau of Statistics.

Population Census 1981, 1984, Kathmandu, Central Bureau of Statistics.

Population Census 1991, 1993, Kathmandu, Central Bureau of Statistics.

SAHLINS M., 1976, *Âge de pierre, âge d'abondance*, Paris, Gallimard.

Statistical Yearbook of Bhutan 1989, 1990, Thimphu, Royal Government of Bhutan, Central Statistical Office, Planning Commission.

Statistical Yearbook of Nepal 1991-92, 1997, Kathmandu, Central Bureau of Statistics.

Chapter V. The Nepalese Landscape: Exegesis and Appropriation of the Country

Marie Lecomte-Tilouine

- ACARYA J., 2055 VS (1998), *Śrīmanahkāmanāmāhātmyam*, Kathmandu, Manakamana Darsan Ed.
- BOUILLIER V., 1987, "Rāmro, narāmro : la perception du paysage chez les Indo-Népalais des collines du Népal central", *Études Rurales*, vol. 107-108, p. 43-53.
- CAILLOIS R., 1981 [1st ed. 1970], *L'Écriture des pierres*, Paris, Flammarion/A. Skira.
- CALISE V., 2039 VS (1982), *Dotelī lok saṃskṛti ra sāhitya* (Doti's Popular Culture and Literature), Kathmandu, Sajha Prakashan.
- CARRIN M., 1997, *Enfants de la Déesse*. Paris, CNRS Éd./Éd. de la MSH.
- DETIENNE M., 1997, "J'ai l'intention de bâtir ici un temple magnifique", *Revue de l'histoire des religions*, vol. 214, no. 1, p. 23-55.
- GUTSCHOW N. and B. KÖLVER, 1975, *Ordered Space Concepts and Functions in a Town of Nepal*, Wiesbaden, Kommissionsverlag F. Steiner GMBH.
- LECOMTE-TILOUINE M., 1987, "Hommes/divinités de la forêt : à travers le miroir au Népal central", *Études Rurales*, vol. 107-108, p. 55-69.
- 1993, "Des Dieux aux sommets", p. 153-172, in V. BOUILLIER and G. TOFFIN (ed.), *Classer les dieux?, Des panthéons en Asie du Sud*. Paris, Éd. de EHESS, *Puruṣārtha* 15.
- Mecīdekhi Mahākālī*, 2031 VS (1974), Kathmandu, Shri Panchko Sarkar, 4 vols.
- NARAHARINATH (Yogi) (ed.), 2013 VS (1956), *Himavant khaṇḍa*, (*Skandapurānamadhye*), Varanasi, Yogapracarini.
- 1880 Sake (1958), *Rudrākṣāranayamāhātmyam* (*Kausikīpradeśko itihās*), Varanasi, Yogapracarini.
- PAUDEL (ed.), 2020 VS (1963), *Bhāṣā vaṃśāvalī*, Kathmandu, Puratva bibhag, vol.1.
- Rājabhogamālā vaṃśāvalī*, 1969-1970, *Ancient Nepal*, nos. 7, 8, 9, 10, 11.

SALES A. de, 1997, "Notes sur la claustration villageoise au Népal", p. 547-564, in S. KARMAY and P. SAGANT (ed.), *Les Habitants du Toit du monde*, Nanterre, Société d'ethnologie.

SHARMA K., 1959, *Bhaicālāko savāi* (The earthquake poem), Varanasi, Sarvhitaisi Kampani.

SHARMA S.R., 2014 VS (1957), *Cainapurko ek jhalak* (A glimpse of Cainapur), Cainapur, T. Shrestha Ed.

THAPA D., 2041 VS (1984), *Lok-saṃskṛtiko gherāmā Lamjung* (Popular culture of Lamjung), Kathmandu, Sajha prakashan.

— 2050 VS (1993), *Citavan-darpan* (Mirror of Citavan), Kamaladi, Nepal Rajakiya pragya-pratisthan.

Frames 9 and 10. Landscape, Myth and Identity of a Tantrist Community. Disorder and Multiplicity of Sacred Geographies.
Nicolas Sihlé

JEST C., 1981, *Monuments du nord du Népal*, Paris, UNESCO.

MACDONALD A. W., 1979, "A Tibetan Guide to Some of the Holy Places of the Dhaulagiri-Muktinath Area of Nepal", p. 237-245, in A. K. NARAIN (ed.), *Studies in Pali and Buddhism, a Memorial Volume in Honour of Bhikkhu Jagdish Kashyap*, Delhi, B. R. Publishing House.

MEYER F., 1987, "Des Dieux, des montagnes et des hommes. La lecture tibétaine du paysage", *Études Rurales, Paysages et divinités en Himalaya*, vol. 107-108, p. 107-127.

RAMBLE C., 1995, "Gaining Ground: Representations of Territory in Bon and Tibetan Popular Tradition", *The Tibet Journal*, vol. 20, p. 83-124.

— 1996, "Patterns of Places", p. 141-153, in A.-M. BLONDEAU and E. STEINKELLNER (ed.), *Reflections of the Mountain: Essays on the History and the Social Meaning of the Mountain Cult in Tibet and the Himalaya*, Vienne, Verlag der Österreichischen Akademie der Wissenschaften.

— 1998, "The Classification of Territorial Divinities in Pagan and Buddhist Rituals of South Mustang", in H. KRASSER, M. T. MUCH, E. STEINKELLNER and H. TAUSCHER (ed.), *Tibetan Studies*, vol. 2, no. 256.

SAUL R. L., 1998, *Animated Landscapes: an Ethnography of Change in two Ethnic Tibetan Villages in Nepal*, Thesis, School of Oriental and African Studies, University of London.

SNELGROVE D. L., 1979, "Places of Pilgrimage in Thag", *Kailash*, vol. 7, no. 2.

TUCCI G., 1980 [1st ed. in German 1970], *The Religions of Tibet*. New Delhi, Allied Publishers.

Chapter VI. A Reading of the Salme Tamangs' Territory and Landscape

Joëlle Smadja

BLANC-PAMARD C., 1995, "Les Lieux du corps : l'exemple des communautés rurales des Hautes Terres Malgaches", p. 51-75, in SINGARAVELLOU (ed.), *Ethnogéographies*, Paris, L'Harmattan.

— 1999, "Les Savoirs du territoire en Imerina. (Hautes terres centrales de Madagascar)", p. 57-78, in J. BONNEMAISON, L. CAMBREZY and L. QUINTY-BOURGEOIS (eds.), *Les Territoires de l'identité. Le territoire, lien ou frontière ?*, Paris, L'Harmattan, vol. 1.

BONNEMAISON J., 1990, "L'Espace réticulé. Commentaires sur l'idéologie géographique", p. 500-510, in *Tropiques. Lieux et liens. Florilège offert à Gilles Sautter et Paul Pélissier*, Paris, ORSTOM.

— 1997, *Les Gens des lieux. Histoire et géosymboles d'une société enracinée : Tanna. Les fondements géographiques d'une identité. L'archipel du Vanuatu. Essai de géographie culturelle*, Paris, Éditions de l'ORSTOM, vols. 2.

BOUILLIER V., 1987, "Rāmro-Narāmro : la perception du paysage chez les Indo-Népalais des collines du Népal central", *Études Rurales. Paysages et divinités en Himalaya*, vol. 107-108, p. 43-53.

CAMPBELL B., in press, "Identity and Power in a Conflictual Environment", in M. LECOMTE-TILOUINE and P. DOLLFUS (ed.), *Ethnic Revival and Religious Turmoil: Identities and Representations in the Himalayas*, Delhi, Oxford University Press.

COLLIGNON B., 1996, *Les Inuit. Ce qu'ils savent du territoire*, Paris, L'Harmattan.

- DOBREMEZ J.-F., (ed.), 1986, *Les Collines du Népal Central*, Paris, INRA, 2 vols.
- GABORIEAU M., 1982, "Les Fêtes, le temps et l'espace : structure du calendrier hindou dans sa version indo-népalaise", *L'Homme*, vol. 22, no. 3, p. 11-29.
- HÖFER A., 1972, "Notes sur le culte du terroir chez les Tamang du Népal", p. 147-156, in J.-M.-C. THOMAS and L. BERNOT (ed.), *Langues et Techniques, Nature et Société. Approche ethnologique, approche naturaliste*, Paris, Klincksieck, vol. 2.
- 1981, *Tamang Ritual Texts I. Preliminary studies in the folk-religion of an ethnic minority in Nepal*, Wiesbaden, Franz Steiner Verlag.
- 1994, *A Recitation of the Tamang Shaman in Nepal*, Nepalica, Bonn, VGH Wissenschaftsverlag.
- 1997, *Tamang Ritual Texts II. Ethnographic studies in the oral tradition and folk-religion of an ethnic minority in Nepal*, Stuttgart, Franz Steiner Verlag.
- HOFFMANN O., 1995, "Les Points d'ancrage d'un territoire à la dérive", p. 201-225, in SINGARAVELLOU (ed.), *Ethnogéographies*, Paris, L'Harmattan.
- LECOMTE-TILOUINE M., 1987, "Hommes/divinités de la forêt. À travers le miroir au Népal central", *Études Rurales. Paysages et divinités en Himalaya*, vol. 107-108, p. 55-69.
- 1990, "Le Repérage dans l'espace : un aspect de la relation de l'homme à son environnement au Népal Central", p. 43-50, in J. BOURLIAUD, J.-F. DOBREMEZ and F. VIGNY (eds.), *Sociétés rurales des Andes et de l'Himalaya*, Grenoble, Éditions Versants.
- 1993, "Les Avatars de Varaha en Himalaya", *Bulletin de l'École Française d'Extrême Orient*, vol. 80, no. 1, p. 41-74.
- LOSONCZY A.-M., 1990, "La Maîtrise du multiple. Corps et espace dans le chamanisme embera du Choco (Colombie)", *L'Homme*, vol. 30, no. 2, p. 75-100.
- MALAMOUD C., 1976, "Village et forêt dans l'idéologie de l'Inde brâhmanique", *Archives Européennes de Sociologie*, vol. 17, no. 2, p. 3-20.
- MAZAUDON M., 1994, *Problèmes de comparatisme et de reconstruction dans quelques langues de la famille tibéto-birmane. Dictionnaire*

- tamang-népal-anglais-français*, Thesis for doctorat d'État, Université de la Sorbonne Nouvelle Paris 3, vol. 1.
- MEYER F., 1987, "Des Dieux, des montagnes et des hommes. La lecture tibétaine du paysage", *Études rurales. Paysages et divinités en Himalaya*, vol. 107-108, p. 107-127.
- MEYER F. and G. KOPPERT, 1983, "Anthropology of Health and Nutrition", extract from Ecology and development. Franco-Nepalese Days 27-30 November 1983, 20 p. typed, Villejuif, Centre d'Études Himalayennes.
- RAMIREZ P., 1990, "Lorsque le village n'existe pas. Échelles d'observation dans l'Himalaya indo-népalais", p. 51-54, in J. BOURLIAUD, J.-F. DOBREMEZ and F. VIGNY (eds.), *Sociétés rurales des Andes et de l'Himalaya*, Grenoble, Éditions Versants.
- REGMI J. C., 1994 (2051 VS), *Kāthmandu shāhar sāmskr̥tik adhyayan bhāg 1* (Cultural research on the town of Kathmandu, Part 1), Kathmandu, Shiva Prasad Upadhyay, Office of Nepal Antiquary.
- RICCARDI T., 1977, "The Royal Edicts of King Rama Shah of Gorkha", *Kailash*, vol. 5, no. 1, p. 29-65.
- SAGANT P., 1976, *Le Paysan Limbu : sa maison et ses champs*, Paris, Mouton-EHESS.
- SLUSSER M.S., 1982, *Nepal Mandala. A Cultural Study of the Kathmandu Valley*, Princeton, Princeton University Press, vol. 1.
- SMADJA J., 1986, *Géodynamique des milieux d'un versant de mousson en moyenne montagne himalayenne. Le versant de Salmé, Népal Central*, Thesis, Université Paris I.
- 1995, "Sur une Dégradation annoncée des milieux népalais : initiatives villageoises pour remplacer les ressources forestières", *Natures Sciences Sociétés*, vol. 3, no. 3, p. 190-204.
- STEIN R. A., 1981 [1st ed. 1962], *La Civilisation tibétaine*, Paris, l'Asiathèque, Le Sycomore.
- STEINMANN B., 1987, *Les Tamang du Népal, Usages et religion, Religion de l'usage*, Paris, Éditions Recherche sur les Civilisations.
- TOFFIN G., 1985, "Contribution à l'ethnozoologie des Tamang du massif du Ganesh Himal (Népal Central)", *Journal d'Agriculture Traditionnelle et de Botanique Appliquée*, vol. 32, p. 85-125.

- TOFFIN G., 1987a, "De la nature au surnaturel", *Études Rurales. Paysages et divinités en Himalaya*, vol. 107-108, p. 9-26.
- 1987b, "Dieux du sol et démons dans les religions himalayennes", *Études Rurales. Paysages et divinités en Himalaya*, vol. 107-108, p. 85-106.
- TOFFIN G., C. JEST and D. BLAMONT, 1986, "Les Populations de la région Ankhu Kholā - Trisuli", p. 79-118, in J.-F. DOBREMEZ (ed.), *Les Collines du Népal Central. Écosystèmes, structures sociales et systèmes agraires*, Paris, INRA vol. 1.
- TOFFIN G., F. MEYER, C. JEST and I. de GARINE, 1986, "Salmé, ethnologie et démographie d'un village tamang", p. 55-120, in J.-F. DOBREMEZ (ed.), *Les Collines du Népal Central. Écosystèmes, structures sociales et systèmes agraires*, Paris, INRA, vol. 2.
- TURNER R. L., 1931, *A Comparative and Etymological Dictionary of the Nepali Language*, London, Routledge and Kegan Paul limited.
- WIART J., 1983, *Écosystème villageois traditionnel en Himalaya népalais : la production forestière suffit-elle aux besoins de la population ?*, Dissertation, Université scientifique et médicale de Grenoble.
- WITZEL M., 1993, "Nepalese Hydronymy: Towards a History of Settlement in the Himalayas", p. 217-266, in G. TOFFIN (ed.), *Nepal, Past and Present*, Paris, CNRS Éditions.

Chapter VII. A Foray into Ladakhi Place Names

Pascale Dollfus and Valérie Labbal

- BLANC-PAMARD C., 1999, "Les Savoirs du territoire en Imerina. (Hautes terres centrales de Madagascar)", p. 57-78, in J. BONNEMAISON, L. CAMBREZY and L. QUINTY-BOURGEOIS (eds.), *Les territoires de l'identité. Le territoire, lien ou frontière ?*, Paris, L'Harmattan, vol. 1.
- DOLLFUS P., 1999, "Phu mkhar rdzong, un lieu de pèlerinage au Ladakh", *BEFEO*, vol. 86, p. 33-64.
- JÄSCHKE H. A., 1980 [1st ed. 1881], *A Tibetan English Dictionary with Special Reference to the Prevailing Dialects*, Delhi, Motilal Banarsidass.
- KHOO M., 1997, "Preliminary Remarks Concerning Solar Observations, Solar Calendars and Festivals in Ladakh and the Western Himalayas", p. 235-269, in T. DODIN and H. RÄTHER (eds.), *Recent Research on Ladakh* 7. UKAS Band 9. Ulm, Ulmer Kulturanthropologische Schriften.

Chapter VIII. Christian and Hindu Share of the Territory in the Magar Village of Pathardi

Lucile Viroulaud

BOULLIER V., 1997, *Ascètes et rois. Un monastère de Kanphata yogis au Népal*, Paris, CNRS Éditions.

CUNDY M., 1994, *Better than the Witch Doctor*, Crowborough, Monarch Publications.

DELIEGE R., 1992, "La Possession démoniaque chez les Intouchables catholiques de l'Inde du Sud", *Archives de Sciences sociales des religions*, vol. 79, p. 115-133.

GABORIEAU M., 1978, *Le Népal et ses populations*, Paris, Éditions Complexe.

—1982, "Les Fêtes, le temps et l'espace : structure du calendrier hindou dans sa version indo-népalaise", *L'Homme*, vol. 20, no. 3, p. 11-29.

— 1994, "Une Affaire d'État au Népal depuis deux siècles. La montée du prosélytisme dans le sous-continent indien", *Archives de Sciences sociales des religions*, vol. 87, p. 1-19.

GABORIEAU M. and C. CLEMENTIN-OJHA, 1994, "La Montée du prosélytisme dans le sous-continent indien", *Archives de Sciences sociales des religions*, vol. 87, p. 1-13.

HÖFER A., 1973, "A Note on Possession in South Asia", p. 159-167, in C. von FURER HAIMENDORF (ed.), *Contributions to the Anthropology of Nepal*, Proceedings of a symposium held at the School of Oriental of London, June/July 1973, Warminster, Aris and Philips LTD.

KAWAKITA J., 1974, *The Hill Magars and their Neighbours*, Tokyo, Tokai Univ. Press.

LECOMTE-TILOUINE M., 1987, "Hommes / Divinités de la forêt. À travers le miroir au Népal central", *Études Rurales. Paysages et divinités en Himalaya*, vol. 107-108, p. 55-69.

— 1993, *Les Dieux du pouvoir. Les Magar et l'hindouisme au Népal central*, Paris, CNRS Éditions.

Chapter IX. Agriculture in the Himalayas: a Historical Sketch

Pascale Dollfus, Marie Lecomte-Tilouine and Olivia Aubriot

A Gazetteer of Afghanistan and Nepal, (1st ed. 1908) 1989, Gurgaon, Vintage Books.

ABE Y., 1995, *Terres à riz en Asie. Essai de typologie*, Paris, Masson.

AGRAWAL D. P., 1982, *The Archeology of India*, London / Malmö, Curzon Press.

AMATYA S. L., 1968, "Agricultural Crops and their Distribution in Nepal", *The Himalayan Review*, special issue, p. 31-41.

"An Account of Western Nepaul", 1900, *The Calcutta review*, vol. 110, no. 209, p. 83-92.

AUBRIOT O., 1997, *Eau : miroir des tensions. Ethno-histoire d'un système d'irrigation dans les moyennes montagnes du Népal central*, Thesis from the Université de Provence.

BALLENTINE H., 1985 [1st ed. 1896], *Nepal, The Gurkha's Mysterious Land*, Delhi, Daya Publishing House.

BANERJEE M., 1985, *Sanskrit inscriptions of Nepal*, Calcutta, Sanskrit Pustak Bhandar.

BANERJEE N. R. and J. L., SHARMA 1969, "Neolithic Tools from Nepal and Sikkim", *Ancient Nepal*, vol. 9, p. 53-58.

BENJAMIN P., 1992, "Historical Basis of Irrigation in Nepal", p. 26-54, in E. OSTROM, P. BENJAMIN and G. SHIVAKOTI (ed.), *Summary Report, Institutions, Incentives, and Irrigation in Nepal*, Unpublished Document, Indiana university, vol. 1.

BLAMONT D., 1983, "Un Village de la zone sous-himalayenne : Kimtang (Népal)", *Annales de géographie*, vol. 513, p. 531-547.

BOGLE G., 1996, *Mission au Bhoutan et au Tibet*, Paris, Éditions Kimé.

BOULNOIS L., 1983, *Poudre d'or et monnaies d'argent au Tibet*, Paris, CNRS Éditions.

CAMPBELL A., 1837, "Notes on the Agriculture and Rural Economy of the Valley of Nepaul", *Transactions of the Agricultural and Horticultural Society of India*, vol. 4, p. 58-175.

- CAMPBELL A., 1855, "Notes on Eastern Thibet", *Journal of the Asiatic Society of Bengal*, vol. 24, p. 215-241.
- CHAYET A., 1994, *Art et Archéologie du Tibet*, Paris, Picard.
- CHEMJONG I. S., 1966, *History and Culture of the Kirat people*, Phidim, Tumend Hang.
- CORVINUS G., 1985, "Report on the Work Done in the Project of Quarternary and Prehistoric Studies in Nepal", *Ancient Nepal*, vol. 86-88, p. 1-6.
- 1996, "The Prehistory of Nepal: A Summary of the Results of the Last Ten Years of research", *Journal of the Nepal Research Centre*, vol. 10, p. 1-9.
- CUNNINGHAM A., 1848, "Journal of a Trip through Kulu and Lahul to the Chumereri Lake, in Ladakh, during the Months of August and September 1846", *Journal of the Asiatic Society of Bengal*, vol. 7, p. 201-230.
- CUNNINGHAM J. D., 1844, "Notes on Moorcroft's Travel in Ladakh and Gerard's Account of Koonawar, Including a General Description of the Latter district", *Journal of the Asiatic Society of Bengal*, vol. 13, no. 1, p. 172-253.
- DESIDERI I.: see FILIPPI F. de.
- DIDIER H., 1996, *Les Portugais au Tibet. Les premières relations jésuites (1624-1635)*, Paris, Éditions Chandeigne.
- DREW F., 1976 [1st ed. 1875], *The Jummoo and Kashmir Territories*, New Delhi, Cosmo Pub.
- ELLES E. R., 1986 [1884], "Report on Nepal", p. 41-48, in *Regmi Research Series*, 1986, vol. 18, no. 3.
- FILIPPI F. de, 1995 [1st ed. 1937], *An Account of Tibet. The Travels of Ippolito Desideri of Pistoia S.J. 1712-1727*, New Delhi, Asian Educational Services.
- FRANCFORT H. P., D. KLODZINSKI and G. MASCLE, 1990, "Péroglyphes Archaïques du Ladakh et du Zanskar", *Arts Asiatiques*, vol. 45, p. 5-27.
- FRANCKE A. H., 1992 [1st ed. 1914], *Antiquities of Indian Tibet*. vol. 1 (1st ed. 1914), *Personal Narrative*, vol. 2 (1st ed. 1926), *The Chronicles of Ladakh and Minor Chronicles*, New Delhi, Asian Educational Services.

- FÜRER-HAIMENDORF C. von, 1964, *The Sherpas of Nepal, Buddhist Highlanders*, London, John Murray.
- GAJUREL C. and K. VAIDYA, 1984, *Traditional Arts and Crafts of Nepal*, Ramnagar, S. Chand and Co.
- GHIMIRE V. P., 2045 VS (1988), *Pālpā rājyako itihās* (History of the Palpa kingdom), Bharatpur, Ghimire Prakāsan.
- GIRI G., 2052 VS (1995), *Pyuthān rājyako aitihāsik jhalak*. (Glimpse of the history of the Pyuthan kingdom), Pyuthan, Jilla Vikas Samiti.
- GIUSEPPE (Father), 1790, "The Kingdom of Nepal", *Asiatic Research*, vol. 2.
- HAMILTON F. B., *Some Observations on Nepal (watermark 1802)*, Manuscript MSS. Eur E. 68, London, Indian Office Library.
- HAMILTON F. B., 1971 [1st ed. 1819], *An Account of the Kingdom of Nepal and the Territories Annexed to this Dominion by the House of Gorkha*, New Delhi, Manjusri Publ. House.
- HASRAT B. J., 1970, *History of Nepal*, Hoshiarpur, Dev Datta Shastri.
- HAY W. C., 1850, "Report on the Valley of Spiti and Facts Collected with a View to a Future Revenue Settlement", *Journal of the Asiatic Society of Bengal*, vol. 19, p. 430-448.
- Hodgson Papers*, manuscript, vol. 15, London, Indian Office Library.
- HODGSON B. H., 1856, "Route of two Nepalese Embassies to Peking with Remarks on the Water-shed and Plateau of Tibet", *Journal of the Asiatic Society*, vol. 25, no. 6, p. 473-497.
- HOOKE J. D., 1987 [1st ed. 1885], *Himalayan Journals. Notes of a Naturalist in Bengal, the Sikkim and Nepal Himalayas, the Khasia Mountains, etc.*, New Delhi, Today and Tomorrow's.
- HUTTON T., 1839 and 1840, "Journal of a Trip through Kunuwar, Hungrung, and Spiti, Undertaken in the Year 1838", *Journal of the Asiatic Society of Bengal*, vol. 8, p. 901-950; vol. 9. p. 489-513 and p. 553-555.
- JARRIGE J.-F., 1985, "Le Monde indien", p. 238-247, in *Le grand atlas de l'archéologie*, Paris : Encyclopedia Universalis.
- JHA H. N., 1970, *The Licchavis (of Vaisali)*, Varanasi, Chowkhamba publication.
- JOSHI T. R., 1970, "Tharus of Rapti Valley", *Vasudha*, vol. 12, no. 3, p. 39-43.

- KAPLANIAN P., 1981, *Les Ladakhi du Cachemire, montagnards du Tibet occidental*, Paris, Hachette.
- KHAN G. H., 1835 and 1836, "Mr Moorcoft's Journey to Balkh and Bokhara. Journal of Gholaum Hyder Khan, ed. with Notes by Major Hearsey", *Asiatic Journal*, vol. 18, p. 106-109 and p. 171-182 ; vol. 19, p. 35-42 and p. 95-102.
- KIRKPATRICK W. 1969 [1st ed. 1811], *An Account of the Kingdom of Nepal. Being the Substance of Observations made during a Mission to that Country in the Year 1793*, Delhi, Manjusri Publishing House.
- LANDON P., 1928, *Nepal*, London, Constable and Co.
- LECOMTE-TILOUINE M. and C. MICHAUD, 2000, "From the Mine to the Field", p. 222-264, in RAMIREZ (ed.), *Resunga. The Mountain of the Horned Sage, Two Districts in Central Nepal*, Kathmandu, Himal Books.
- LEVI S., 1905, *Le Népal: Étude historique d'un royaume hindou*, Paris, Ernest Renoux, 2 vols.
- LOCKE J., 1973, *Rato Matsyendranath of Patan and Bungamati*, Kirtipur, Institute for Nepal and Asian Studies, Tribhuvan University.
- LONE F. A. et al., 1993, *Paleoethnobotany*, New Delhi, Oxford and IBH publ.
- MACDONALD A. W. (ed.), 1982, *Les Royaumes de l'Himalaya, histoire et civilisation: Le Ladakh, le Bhoutan, le Sikkim, le Népal*, Paris, Imprimerie nationale.
- MEIER G., 1997, "The Moravian Church's Educational Work in Lahul, Kinnaur and Ladakh 1856-1994", p. 287-308, in T. DODIN and H. RÄTHER (eds.), *Recent Research on Ladakh 7*, Ulm, Ulmer Kulturanthropologische Schriften.
- MESSERSCHMIDT D. A., 1976, "Ecological Change and Adaptation among the Gurungs of the Nepal Himalaya", *Human Ecology*, vol. 4, no. 2, p. 167-185.
- Military History of Nepal, Papers respecting the Nepaul war*, 1983 [1st ed. 1824], New Delhi, Bimla Publishing House.
- MOLNAR A., 1981, "Economic Strategies and Ecological Constraints: Case of the Kham Magar of North-West Nepal", p. 20-51, in C. VON FÜRER-

- HAIMENDORF (ed.), *Asian Highland Societies, an Anthropological Perspective*, New Delhi, Sterling publ.
- MOORCROFT W. and G. TREBECK, 1971 [1st ed. 1837], *Travels in the Himalayan Provinces of Hindustan and the Panjab in Ladakh and Kashmir; in Peshawar, Kabul, Kunduz and Bokhara (1819-1825)*, New Delhi, Sagar Publications.
- NARAHARINATH (Yogi), (ed.), 2012 VS (1955), *Itihās Prakāś. (Light of history)*, Kathmandu, Itihas Prakash Mandala.
- 2022 VS (1965), *Itihās Prakāśmā Sandhipatra sangraha (Collection of historic treaties)*, Varanasi, Kalpana Press.
- 2023 VS (1966), *Itihās Prakāś. (Light of history)*. Mrigasthali, Ed. IP Sangh, vol. 2, part. 3.
- NORTHEY W. B. and C. J. MORRIS, 1974 [1st ed. 1927], *The Gurkha: Their manners, customs and country*, Delhi, Cosmo Publ.
- OLDFIELD H. A., 1880, *Sketches from Nepal*, London, Allen and Co, 2 vols.
- OLIPHANT L., 1994 [1st ed. 1852], *A Journey to Kathmandu*, New Delhi, Asian Educational Services.
- PANT S. D., 1935, *The Social Economy of the Himalayans, Based on a Survey in the Kumaon Himalayans*, London, George Allen and Unwin.
- PATHAK S., 1996, "The Dokpa ('brog pa) in Ladakh, Remnant of the Aryans", *Ladakh Studies*, December, vol. 8, p. 24-26.
- PAUDEL N., 2020 VS, (1963), *Bhāṣā vaṃśāvalī*, Kathmandu, Puratatva Bibhag, 2 vols.
- PETECH L., 1952-1956, *I missionari Italiani nel Tibet e nel Nepal*, Rome, Libreria dello Stato, 7 vols.
- PIGNEDE B., 1966, *Les Gurungs, une population himalayenne du Népal*, Paris, Mouton-EPHE.
- PRADHAN U. P., 1990, *Property Rights and State Intervention in Hill Irrigation Systems in Nepal*, Ph.D, Cornell University.
- RAMIREZ P., 1993, *Patrons et clients: étude des relations politiques sur le site d'un ancien royaume indo-népalais, Argha (Népal central)*, Thesis from the Université de Paris 10.

- RAO S. B., 1968, *Archaeological Investigations in the Nepal Tarai: 1964*, Kathmandu, Dept. of Archaeology.
- Regmi Research Series (RRS)*, 1971, vol. 3, no. 4, no. 7, no. 9 ; 1973, vol. 5, no. 11 ; 1974, vol. 6, no. 3 ; 1976, vol. 8, no. 10 ; 1980, vol. 12, no. 2 ; 1981, vol. 13, no. 6 ; 1986, vol. 18, no. 3.
- REGMI D. R., 1965, *Medieval Nepal, vol. I: Early Medieval Period 750-1530 A.D.*, Calcutta, Firma K.L. Mukhopadhyay.
- 1966, *Medieval Nepal, vol. II: A History of the Three Kingdoms 1520 A.D. to 1768 A.D.*, Calcutta, Firma K. L. Mukhopadhyay.
- 1969, *Ancient Nepal*, Calcutta, Firma K. L. Mukhopadhyay.
- 1983, *Inscriptions of ancient Nepal*, New Delhi, Abhinav Publ. 3 vols.
- REGMI M. C., 1971, *A Study in Nepali Economic History 1768-1846*, New Delhi, Manjusri Publishing House.
- RICCARDI T., 1988, "Dumakhal: A Brief Report on the Excavations", *Contributions to Nepalese Studies*, vol. 15, no. 2, p. 115-138.
- RIJAL B. K., 1979, *Archeological remains of Kapilvastu, Lumbini and Davadaha*, Kathmandu, Educational Enterprises.
- SACHERER J. M., 1974, "Sherpas of the Rolwaling Valley: Human Adaptation to a Harsh Mountain Environment", *Objets et Mondes*, vol. 14, no. 4, p. 317-324.
- SAGANT P., 1976, *Le paysan limbu, sa maison et ses champs*, Paris, Mouton-EHESS.
- SHRESTHA T. B., 1983, "Gulmi rājyako rājanaitik itihās rakehi aprakāśit aitiḥāsik sāmagrī", (Unpublished documents on the political history of the Gulmi kingdom), *Contributions to Nepalese Studies*, vol. 11, no. 1, p. 101-114.
- SIMONS A., W. SCHÖN and S. S. SHRESTHA, 1994, "Preliminary Report on the 1992 Campaign of the Team of the Institute of Prehistory, University of Cologne", *Ancient Nepal*, vol. 136, p. 51-75.
- STUTCHBURY E., 1994, "The Making of Gonpa", p. 155-204, in G. SAMUEL *et al.* (ed.), *Tantra and Popular Religion in Tibet*, New Delhi, International Academy of Indian Culture and Aditya Prakashan.

- THAPA D., 2041 VS (1984), *Lok-samskritiko gherāmā Lamjung*. (Popular culture of Lamjung), Kathmandu, Sajha Prakashan.
- TAYLOR M., 1985, *Le Tibet. De Marco Polo à Alexandra David-Néel*, Paris, Payot.
- TOFFIN G., 1977, *Pyangaon. Une communauté néwar de la vallée de Katmandou. La vie matérielle*, Paris, CNRS Éditions.
- 1986, "Système agro-pastoral et société dans une zone montagneuse à grands versants du Népal central", *Techniques et culture*, vol. 7, p. 1-40.
- 1990, "L'usage politique du mythe au Népal. Une lecture ethno-historique du dieu Matsyendranāth", *Annales ESC*, vol. 4, p. 951-974.
- UHLIG H., 1978, "Geological Controls on High-altitude Rice Cultivation in the Himalayas and Mountain Regions of Southeast Asia", *Artic and Alpine Research*, vol.10, no. 2, p. 519-529.
- ULLAH M. I., 1826, "An Account of Lei, the Capital of Ladakh", *Asiatic Journal*, vol. 26, p. 471-474.
- VAJRACARYA A., 2024 VS (1967) [1st ed. 2014 VS (1957)], *Būgadyah nepāle haḥgu khā* (*The Story of Būgadyah's arrival in Nepal*), Kathmandu, A. Vajracarya Ed.
- VAJRACARYA D., 1973, *Licchavikālakā abhilekha* (Writings from the Licchavi era), Kirtipur, Tribhuvan University.
- 1974, "A Licchavi Inscription at Chabahil", *RRS* vol.6, no. 3, p. 55-60.
- 2031 VS (1974), *Dolakhāko aitihāsik ruparekhā*, (The major traits of the history of Dolakha), Kirtipur, Tribhuvan University.
- 2032 VS (1975) *Nuwākot aitihāsik ruparekhā* (The major traits of the history of Nuwakot), Kirtipur, Tribhuvan University.
- VAJRACARYA D. and T. B. SHRESTHA, 2037 VS (1980), *Sāhakālkā abhilekh, Pahilo bhāg* (Writings from the Shah era, first part), Kathmandu, Tribhuvan University.
- VOHRA R., 1982, "Ethnographic Notes on the Buddhist Dards of Ladakh: The Brog-pa", *Zeitschrift für Ethnologie*, vol. 107, no. 1, p. 69-94.
- WESSELS C. 1992 [1st ed. 1924], *Early Jesuit Travellers in Central Asia 1603-1721*, New Delhi, Asian Educational Services.

WILSON A., 1979 [1st ed. 1885], *The Abode of snow*, Kathmandu, Ratna Pustak Bhandar.

WRIGHT D. (ed.), 1993 [1st ed. 1877], *History of Nepal, Translated from the Parbatiya*, New Delhi, Asian Educational Services.

YOUNG L. J., 1991, "Agricultural Changes in Bhutan: Some Environmental Questions", *Geographical Journal*, vol. 157, no. 2.

Chapter X. The Nepalese State and the Transformation of Landscapes according to Administrative Documents Dating from the XVIIIth and XIXth Centuries

Philippe Ramirez

COEDÈS G., 1968 (1st French ed. 1948), *The Indianized States of Southeast Asia*, Canberra, Australian National University Press.

(*Mulukī Ain*), *Śrī 5 surendra vikram śāhdevkā śāsankālmā baneko Mulukī Ain*, [1854 National Code], 2022 VS (1965), Kathmandu, Kanun Kitab Vivastha Samiti.

NARAHARINATH (Yogi) (ed.), 2009 VS (1952), *Divya upadeś: gorkhā samrāt baḍā māhārāja śrī 5 Pṛthvī Narayaṇ ko divya upadeś (Divine advice from the great Gorkha King Prithvi Narayan Shah)*, Kathmandu, Yathalambha.

REGMI M. C., 1968, *Land Tenure and Taxation in Nepal*, Berkeley, University of California, 4.vols.

Regmi Research Series (RRS), 1970, vol. 2 ; 1974, vol. 6 ; 1978, vol. 10 ; 1980, vol. 12 ; 1981, vol. 13 ; 1982, vol. 14 ; 1983, vol. 15 ; 1984, vol. 16 ; 1985, vol. 17 ; 1986, vol. 18 ; 1987, vol. 19 ; 1988, vol. 20 ; 1989, vol. 21.

RICCARDI T., 1977, "The Royal Edicts of King Rama Shah of Gorkha", *Kailash*, vol. 5, no.. 1, p. 29-65.

WITTFOGEL K. A., 1957, *Oriental Despotism; a Comparative Study of Total Power*, New Haven, Yale University Press.

Chapter XI. The Khimti Wilderness: Regulations and Conflicts. A Legal and Historical approach

Bruno Muller

- GABORIEAU M., 1977, *Minorités musulmanes dans le royaume hindou du Népal*, Nanterre, Société d'ethnologie.
- GILMOUR D. A. and M. C. NURSE, 1991, "Farmer Initiatives in Increasing Tree Cover in Central Nepal", *Mountain Research and Development*, vol. 11, no. 4, p. 329-337.
- HAMILTON F. B., 1971 [1st ed. 1819], *An Account of the Kingdom of Nepal and the Territories Annexed to this Dominion by the House of Gorkha*, New Delhi, Manjusri Publ. House.
- HOFER T., 1993, "Himalayan Deforestation, Changing River Discharge, and Increasing Floods: Myth or Reality?", *Mountain Research and Development*, vol. 13, no. 3, p. 213-233.
- MULLER B., 1984, *Terre et paysans du Népal. Le système de production et son évolution dans un village sunuwar multi-ethnique*, Thesis, Université de Rouen.
- 1986a, *Pâtures et Forêts, chartes, ordonnances et autres documents du Népal central*, Report of a CNRS assignment, unpublished, CEH, Villejuif.
- 1986b, *La Forêt de Resunga (Gulmi). Des droits d'usage et de l'histoire : deux documents*, Report of a CNRS assignment, unpublished, CEH, Villejuif.
- REGMI M. C., 1976, *Land Ownership in Nepal*, Berkeley, University of California Press.
- 1978a, *Thatched Huts and Stucco Palaces*, New Delhi, Vikas Publishing House.
- 1978b, *Land, Tenure and Taxation in Nepal*, Kathmandu, Ratna Pustak Bhandar.
- 1988, *An Economic History of Nepal 1846-1901*, Vanarasi, Nath.

Chapter XII. Discourse and Law: Resource Management and Environmental Policies since 1950

Blandine Ripert, Isabelle Sacareau, Thierry Boisseaux and Stéphanie Tawa Lama

- ADHIKARI J., 1996, *The Beginnings of Agrarian Change, a Case Study in Central Nepal*, Kathmandu, TM Publication.
- BELBASE N., 1997, *The Implementation of International Environmental Law in Nepal*, Kathmandu, IUNC Nepal.
- BLAIKIE P., J. CAMERON and D. SEDDON, 1980, *Nepal in Crisis: Growth and Stagnation at the Periphery*, New York, Oxford University Press.
- BOISSEAUX T., 1998, *Élaboration et mise en place d'une politique de protection de la nature et rôle des ONG au Népal*, DEA Memoire, Université d'Orléans.
- BONGARTZ H. and D. R. DHAL, 1996, *Development Studies: Self-help Organizations, NGOs and Civil Society*, Kathmandu, Nepal Foundation for Advanced Studies.
- BROWER B., 1991, *Sherpa of Khumbu, People, Livestock and Landscape*, Delhi, Oxford, University Press.
- Statistical year book of Nepal*, 1997, Kathmandu, Central Bureau of Statistics.
- DEPREST F., 1997, *Enquête sur le tourisme de masse. L'écologie face au territoire*, Paris, Belin.
- FORT M., 1988, "La Montagne mise à nu", *Autrement*, special issue Himalayas, no.28, p. 55-63.
- GABORIEAU M., 1995, *Le Népal, une introduction à la connaissance du monde népalais*, Paris, Kailash.
- GOLDSTEIN M. C., J. L. ROSS and S. SCHULER, 1983, "From a Mountain-Rural to a Plains-Urban Society: Implications of the 1981 Nepal Census", *Mountain Research and Development*, vol. 3, no. 1, p. 61-64.
- GURUNG H. B., 1989, "Regional Patterns of Migration in Nepal", *Papers of the East-West Population Institute, Hawaiï East-West Center*, vol. 113, p. 125-132.

- HEINEN J. T. and P. B. YONZON, 1994, "A Review of Conservation Issues and Programmes in Nepal: from a Single Species Focus Toward Biodiversity Protection", *Mountain Research and Development*, vol. 14, no. 1, p. 61-76.
- HMG, 1993, *Nepal Environmental Policy and Action Plan*, Kathmandu, HMG/Environmental Protection Council.
- HMG/IUNC, 1988, *Building on Success: the National Conservation Strategy for Nepal*, Kathmandu, HMG/IUNC.
- HOBLEY M., J. Y. CAMPBELL and A. BHATIA, 1996, "Community Forestry in India and Nepal: Learning from Each Other", in *Mountain Natural Resources, Discussion paper Series*, MNR 96/3, Kathmandu, ICIMOD.
- HURTIG E., 1998, "The Role of Forest in National Development", *Spotlight*, July, nos. 10-16.
- IUNC, 1991, *A legislative and Institutional Framework for Environmental Management in Nepal*, Kathmandu, IUNC.
- 1996, *Working with NGOs, NGO Environmental Management Program*, Kathmandu, IUNC Nepal.
- 1998, "International Environmental Instruments in Nepal", *IUNC Newsletter*, vol. 2, no. 1, p. 4-7.
- IVES J. D., 1987, "The Theory of Himalayan Environmental Degradation: its Validity and Application Challenged by Recent Research", *Mountain Research and Development*, vol. 7, no. 3, p. 189-199.
- IVES J. D. and B. MESSERLI, 1989, *The Himalayan Dilemma. Reconciling Development and Conservation*, London and New York, United Nations University, Routledge.
- KMTNC, 1998, *Buffer Zone Policy Analysis of the Royal Chitwan National Park*, Kathmandu, KMTNC.
- KMTNC/ACAP, 1996, *A New Approach in Protected Area Management*, Kathmandu, KMTNC/ACAP.
- LUCAS P. H. C., N. D. HARDIE and R. A. C. HODDER, 1974, *Report of the New Zealand Mission on Sagarmatha (Mount Everest) National Park, Nepal*, Wellington, Ministry of Foreign Affairs.

- MAHAT T. B. S, D. M. GRIFFIN and U. P. SHEPHERD, 1986-1987, "Human Impact on Some Forests of the Middle Hills of Nepal", *Mountain Research and Development*, vol. 6, no. 3, p. 223-232 ; vol. 6, no. 4, p. 325-334 ; vol. 7, no. 1, p. 53-70 ; vol. 7, no. 2, p. 111-134.
- MARTINUSSEN J., 1993, *Local Authorities in Nepal*, Kathmandu, Local Development Training Academy.
- MÜLLER P., 1994, *Les politiques publiques*, Paris, PUF, Que sais-je ?
- MÜLLER-BÖKER U., 1991, "Knowledge and Evaluation of the Environment in the Traditional Societies of Nepal", *Mountain Research and Development*, vol. 2, no. 2, p. 101-114.
- NAYLOR R., 1970, *Columbo Plan Assignment in Nepal*, Report, New Zealand Service.
- Nepal Agriculture*, 1983, Asian Development Bank, Sector Strategy Study, vol. 2.
- NESAC, 1998, *Nepal Human Development Report 1998*, Kathmandu, Nepal South Asia Centre - United Nations Development Programme Nepal.
- ONTA P., 1996, "Ambivalence Denied: the Making of *Rastriya itihās* in Pancayat Era Textbooks", *Contribution to Nepalese Studies*, vol. 23, no. 1, p. 213-254.
- ROSE L. E., 1971, *Nepal: Strategy for Survival*, New Delhi, Oxford University Press.
- SILWAL U. K., 1995, *Population Growth and Agricultural Change in Nepal*, New Delhi, Vikas Publishing House.
- SMADJA J., 1986, *Géodynamique des milieux d'un versant de mousson en moyenne montagne himalayenne. Le versant de Salmé, Népal Central*, Thèse de doctorat. Université Paris 1.
- 1992, "Studies of Climatic and Human Impacts and their Relationship on a Mountain Slope above Salme in the Himalayan Middle Mountains, Nepal", *Mountain Research and Development*, vol.12, no. 1, p. 1-28.
- 1995, "Sur une Dégradation annoncée des milieux népalais : initiatives villageoises pour remplacer les ressources forestières", *Natures Sciences Sociétés*, vol. 3, no. 3, p. 190-204.

SMILLIE I., 1995, *The Alms Bazar: Altruism under Fire - Non-profit Organizations and International Development*, Ottawa, International Development Research Centre.

SPOTLIGHT, 1998, "Forest Utilization, a New Challenge", July, nos. 10-16.

THOMPSON M., M. WARBUTON and T. HATLEY, 1986, *Uncertainty on a Himalayan Scale: an Institutional Theory of Environmental Perception and a Strategic Framework for the Sustainable Development of the Himalaya*, London, Milton Ash Editions.

WALLACE M. B., 1986, *Forest Degradation in Nepal: Institutional Context and Policy Alternatives*, Kathmandu, Winrock Research and Planning Paper Series.

Chapter XIII. Environmental Protection Impoverishment of Men: Botan Village on the Periphery of Rara National Park

Satya Shrestha

BISHOP B. C., 1978, "The Changing Geocology of Karnali Zone, Western Nepal Himalaya: A Case of Stress", *Arctic and Alpine Research*, vol. 10, no.2, P. 531-548.

— 1990, *Karnali Under Stress: Livelihood Strategies and Seasonal Rhythms in a Changing Nepal Himalaya*, Chicago, The University of Chicago.

EAGLE S. W. R., 1994, *The Forestry Section in Nepal: A Critical Evaluation with Special Reference to Community Forestry*, Msc. Dissertation, University of Manchester.

GRANER E., 1997, *The Political Ecology of Community Forestry in Nepal*, Sarrebrück, Verlag für Entwicklungspolitik.

HOBLEY M. and Y. Malla, 1996, "Forests to Forestry. The Three Ages of Forestry in Nepal; Privatisation, Nationalisation and Populism", p. 65-92, in M. MOBLEY (ed.), *Participatory Forestry: The Process of Change in India and Nepal*, London, Rural Development Forestry Network Overseas Development Institute.

The Kathmandu Post (2000), 13 March.

SAGANT P., 1976, *Le Paysan Limbu, sa maison et ses champs*, Paris, Mouton-EHESS.

- DOBREMEZ J.-F., (ed.), 1986, *Les Collines du Népal Central*, Paris, INRA, 2 vols.
- GILMOUR D. A., 1988, "Not Seeing the Trees for the Forest: a Reappraisal of the Deforestation Crisis in Two Hill Districts of Nepal", *Mountain Research and Development*, vol. 8, no. 4, p. 343-350.
- JAUBERT R., 1981, *Analyse d'un système agraire traditionnel. Salmé au Népal, Perspectives de développement*, thesis, Dijon, INRA, SAD, ENSSAA.
- Ministry of forests and soil conservation, 1995, *Forest Act 1993 and Forest Regulation 1995*, Kathmandu, HMG/USAID.
- ONTA P., 1996, "Ambivalence Denied: the Making of *Rastriya itihās* in Panchayat Era Textbooks", *Contribution to nepalese studies*, vol. 23, no. 1, p. 213-254.
- PIERRET-RISOUD B. and J.-P. RISOUD, 1985, *Dynamiques du système agraire et développement. Le cas de Salmé au Népal*, Thesis for Doctor of engineering degree in agro-economy, ENSSAA Montpellier.
- RIPERT B., 2000, *Dynamiques spatiales et transformations de la société, l'exemple des Tamang au Népal Central*, Thesis Université Paris 7.
- SAUL R., 1994, "Indigenous Forest Knowledge: Factors Influencing its Social Distribution", p. 136-144, in M. ALLEN (ed.), *Anthropology of Nepal. Peoples, Problems and Processes*, Kathmandu, Mandala Book Point.
- SMADJA J., 1986, *Géodynamique des milieux d'un versant de mousson en moyenne montagne himalayenne. Le versant de Salmé, Népal Central*, Thesis, Université Paris 1.
- 1995, "Sur une dégradation annoncée des milieux népalais : initiatives villageoises pour remplacer les ressources forestières", *Nature Sciences Sociétés*, vol. 3, no. 3, p. 190-204.
- TOFFIN G., 1985, "Contribution à l'ethnozoologie des Tamang du massif du Ganesh Himal (Népal Central)", *Journal d'Agriculture Traditionnelle et de Botanique Appliquée*, vol. 32, p. 85-125.
- TOFFIN G., F. MEYER, C. JEST and I. de GARINE, 1986, "Salmé, ethnologie et démographie d'un village tamang", p. 55-120, in J.-F. DOBREMEZ

(ed.), *Les Collines du Népal central, écosystème et activités dans un village népalais*, Paris, INRA, vols. 2.

WIART J., 1983, *Écosystème villageois traditionnel en Himalaya népalais : la production forestière suffit-elle aux besoins de la population ?*, Thesis, Université Scientifique et Médicale de Grenoble.

Chapter XVI. The Balamis, Nepalese Woodcutters Deprived of Forest

Gérard Toffin

CHATTOPADHYAY K. P., 1923, "An Essay on the History of Newar Culture. Social Organization of the Newars", *Journal of the Asiatic Society of Bengal*, vol. 19, no. 10, p. 465-560.

GELLNER D., 1992, *Monk, Householder and Tantric Priest. Newar Buddhism and its Hierachy of Ritual*, Cambridge, Cambridge University Press.

HÖFER A., 1979, *The Caste Hierarchy and the State in Nepal. A Study of the Muluki Ain of 1854*, Innsbruck, Universitätsverlag Wagner.

LECOMTE-TILOUINE M., 1993, *Les Dieux du pouvoir. Les Magar et l'hindouisme au Népal*, Paris, Éditions du CNRS.

NEPALI G. S., 1965, *The Newars. An Ethnosociological Study of a Himalayan Community*, Bombay, United Asia Publications.

PRADHAN R., 1986, *Domestic and Cosmic Rituals among the Hindu Newars of Kathmandu*, Ph. D, Delhi, unpublished.

REGMI D. R., 1966, *Medieval Nepal*, Calcutta, Firma K. L. Mukhopadhyay.

TOFFIN G., 1981, "L'Organisation sociale des Pahari (ou Pahi), population du Centre Népal", *L'Homme*, vol. 21, no. 2, p. 38-68.

— 1984, *Société et Religion chez les Néwar du Népal*, Paris, Éditions du CNRS.

— 1992, "Un Village secret. Contrôle social et religion dans une communauté néwar du Népal", p. 161-195, in *De Village en village. Espaces communautaires et développement*, Paris-Geneva, PUF / Cahier de l'IUED.

Chapter XVII. A Bocage Landscape. Masyam and the Hamlet of Kolang

Tristan Bruslé, Monique Fort and Joëlle Smadja

BARLOY J. and A. CHEROUVRIER, 1976, "Contribution écophysiological relative au maïs : détection d'effets climatiques", p. 269-274, in *Rapport de synthèse, Les bocages : histoire, écologie, économie*, INRA, CNRS, ENSA and Université de Rennes.

BERGERET P., 1986, *Diversité des systèmes agraires et stratégies de développement, le cas du Népal*, Thesis for doctor of engineering degree, ENSA Montpellier.

BERNARD A., 1997, *Analyse-diagnostic du système agricole d'une zone de colline du centre Népal*, Memoire at the end of agronomy study, INAPG.

BILHAM R., K. LARSON, J. FREYMULLER and PROJECT IDYLMEMBERS, 1997, "GPS Measurements of Present-day Convergence Across the Nepal Himalaya", *Nature*, vol. 386, p. 61-64.

BOURDIN D. and J.B. LECLERCQ, 1999, *Analyse diagnostic de l'agriculture dans les basses montagnes du Népal*, Memoire at the end of studies, INAPG.

BRUCE C. G. and W. B. NORTHEY, 1925, "Nepal", *The Geographical Journal*, vol. 65, no. 4, April, p. 281-300.

CARTER E. J., 1992, "Tree Cultivation on Private Land in the Middle Hills of Nepal: Lessons from some Villagers of Dolakha District", *Mountain Research and Development*, vol. 12, no. 3, p. 241-255.

FOX J., 1993, "Forest Resources in a Nepali Village in 1980 and 1990: the Positive Influence of Population Growth", *Mountain Research and Development*, vol. 13, no. 1, p. 89-98.

GILMOUR D. A., 1988, "Not Seeing the Trees for the Forest: a Reappraisal of the Deforestation Crisis in Two Hill Districts of Nepal", *Mountain Research and Development*, vol. 8, no. 4, p. 343-350.

GILMOUR D. A. and M. C. NURSE, 1991, "Farmer Initiatives in Increasing Tree Cover in Central Nepal", *Mountain Research and Development*, vol. 11, no. 4, p. 329-337.

- IVES J. D. and B. MESSERLI, 1989, *The Himalayan Dilemma. Reconciling Development and Conservation*, London and New York, The United Nations University, Routledge.
- MARTIN B., 1999, *Contribution à l'étude des paysages bocagers de montagne : structure et dynamique spatiale, diversité écologique et gestion d'un patrimoine rural. L'exemple du Champsaur (Hautes Alpes, France)*, Thesis, Université Grenoble 1.
- Memento de l'agronome*, 1974, République Française, Ministère de la Coopération.
- Military History of Nepal, Papers respecting the Nepaul war*, 1983, [1st ed. 1824], New Delhi, Bimla Publishing House, vol. 1.
- MOREL A. and G. ROVERA (eds.), 1996, "Les Paysages bocagers de montagne face aux mutations socio-économiques : l'exemple du Champsaur (Hautes-Alpes)", *Les Dossiers de la Revue de Géographie Alpine*, no.16.
- MORRIS C. J., 1985 [1st ed. 1933], *The Gurkhas, an Ethnology*, Delhi, B. R. Publishing Corporation.
- 1934, "A Glimpse of Unknown Nepal", *Himalayan Journal*, vol. 6, p. 77-80.
- 1963, *A Winter in Nepal*, London, Rupert Hart-Davis.
- MÜLLER-BÖKER U., 1991, "Knowledge and Evaluation of the Environment in Traditional Societies of Nepal", *Mountain Research and Development*, vol. 11, no. 2, p. 101-114.
- NORTHEY W. B., 1937, *The Land of the Gurkhas, or the Himalayan Kingdom of Nepal*, Cambridge, Heffer.
- NORTHEY W. B. and C. J. Morris, 1974 [1st ed. 1928], *The Gurkhas, their Manners, Customs and Country*, Delhi, Cosmo Pub.
- RAMIREZ P., 2000, *De la disparition des chefs*, Paris, CNRS Éditions.
- SAKAI H., 1983, "Geology of the Tansen Group of the Lesser Himalaya in Nepal", *Memoirs of the Faculty of Science, Kyushu University, Fukuoka, Japon, Series D, Geology*, vol. 15.

- SHAH P. B., 1995, "Indigenous Agricultural Land and Soil Classifications", p. 203-210, in SCHREIR *et al.* (ed.), *Challenges in Mountain Resource Management in Nepal*, Kathmandu, ICIMOD.
- SHRESTHA R., 1985, *Population of Masyam Village Pancayat*, M.A. History, Dept. of History, Tribhuvan University.
- SHRESTHA R. K. and M. R. SURVAL, 1993, "Private Forestry: a Major Supporting Component of Community Forestry", *Banko Janakari*, vol. 4, no. 1, p. 109-112.
- SMADJA J., 1993, "Some Questions about Slope and Terraced Fields: an Interdisciplinary Issue", p. 295-309, in G. TOFFIN (ed.), *Nepal, Past and Present*, Paris, CNRS Éditions.
- 1995, "Sur une dégradation annoncée des milieux népalais : initiatives villageoises pour remplacer les ressources forestières", *Natures Sciences Sociétés*, vol. 3, no. 3, p. 190-204.
- 1999, "'A Journey Towards Palpa', 1922-1932/1997", *European Bulletin of Himalayan Research*, vol. 15-16, p. 41-49.
- 2001, "Permanences et mutations dans la région de Tansen. Népal de l'Ouest, d'après des photos de 1922-1932 et 1997", p. 83-96, in J.-F. BART, S. MORIN, J.-N. SALOMON (eds.). *Les montagnes tropicales. Identités, mutations, développement*, Pessac, DYMSET, CRET, Espaces Tropicaux, no. 16.
- STONE L., 1980, *Case Studies of 5 Villages*, Kathmandu, Tinau Watershed Project-HMG-SATA.
- VIRGO K.J. and K.J. SUBBA, 1994, "Land-use Change Between 1978 and 1990 in Dhankuta District, Koshi Hills, Eastern Nepal", *Mountain Research and Development*, vol. 14, no. 2, p. 159-170.

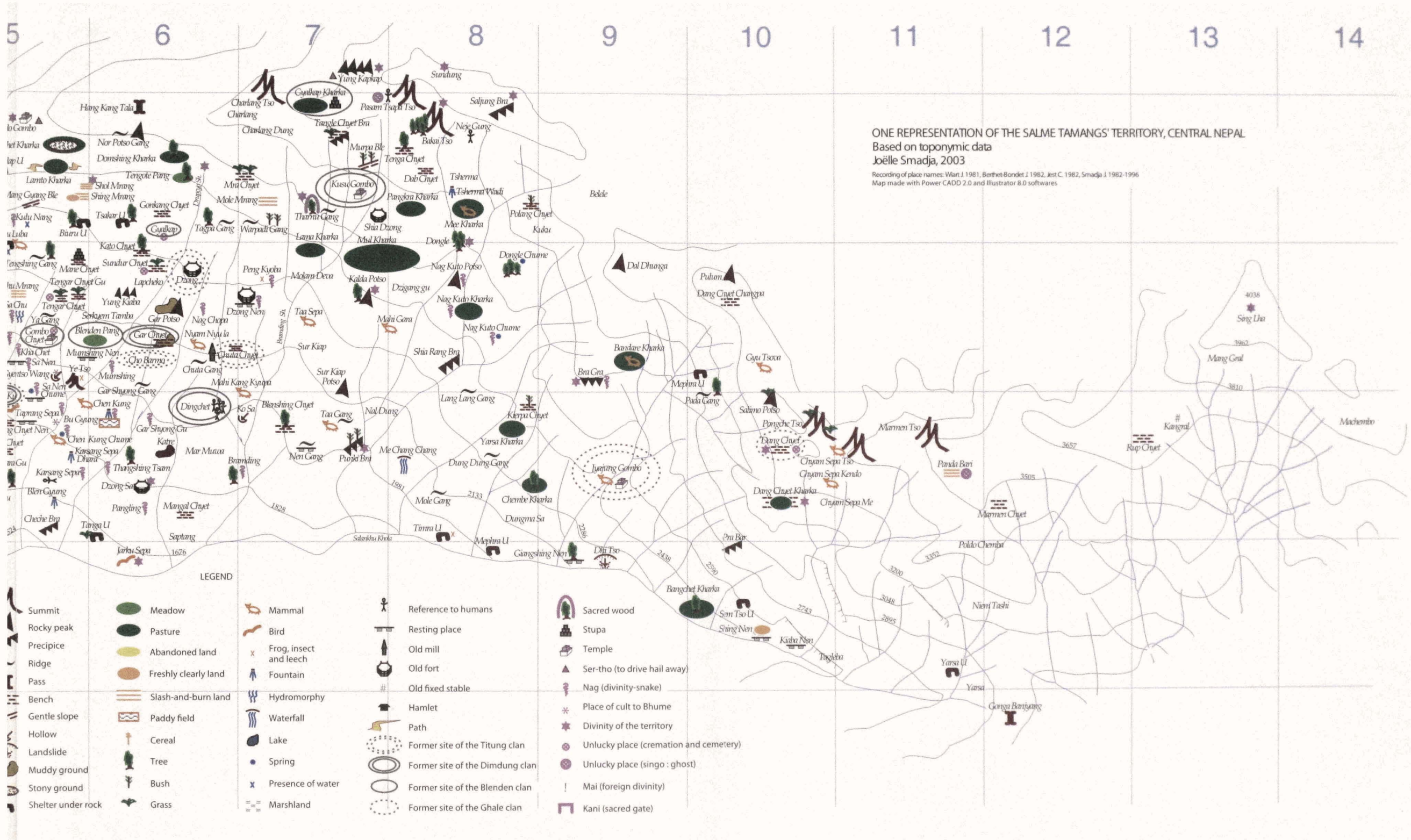
Conclusion

Joëlle Smadja

- GRENAND P. (interview with), 1998, "Les anthropologues face à la biodiversité, Entretien avec Françoise Grenand et Pierre Grenand. Propos recueillis par Catherine Aubertin avec l'aide d'Armelle Auris", *Natures Sciences Sociétés*, vol. 6, no. 2, p. 43-49.

Nepali Times. 16 March 2001, Kathmandu.

- MARTIN B., 1999, "Contribution à l'étude des paysages bocagers de montagne: structure et dynamique spatiale, diversité écologique et gestion d'un patrimoine rural. L'exemple du Champsaur (Hautes-Alpes, France)", thesis, Grenoble 1.
- MOREL A. and G. ROVERA (eds.), 1996, "Les paysages bocagers de montagne face aux mutations socio-économiques: l'exemple du Champsaur (Hautes-Alpes)", *Les Dossiers de la Revue de géographie alpine*, no. 16.
- SMADJA J., 1995, "Sur une dégradation annoncée des milieux népalais: initiatives villageoises pour remplacer les ressources forestières", *Natures Sciences Sociétés*, vol. 3, no. 3, p. 190-204.



ONE REPRESENTATION OF THE SALME TAMANGS' TERRITORY, CENTRAL NEPAL

Based on toponymic data

Joëlle Smadja, 2003

Recording of place names: Wiertz 1981, Berthet-Bondet J. 1982, Jost C. 1982, Smadja J. 1982-1996
 Map made with Power CADD 2.0 and Illustrator 8.0 softwares

LEGEND

- | | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

IN THE SAME SERIES

- *Law, Land Use and the Environment: Afro-Indian Dialogues. Enjeux fonciers et environnementaux : Dialogues afro-indiens.*

Edited by / sous la direction de Christoph Eberhard, IFP, 2008, xv, 549 p. (CSS n°13).

600 Rs (22 €)

- *Inde-France (1870-1962) : enjeux culturels.*

Samuel Berthet, IFP/CSH, 2006, viii, 676 p., 8 p. of photos, 3 folded maps. (CSS n°12).

800 Rs (29 €)

- *L'intermède français en Inde. Secousses politiques et mutations juridiques.*

David Anoussamy, IFP-L'Harmattan, 2005, 412 p. (IFP – CSS n°11; L'Harmattan – Collection Droits et Cultures).

500 Rs (18 €)

- *Microfinance Challenges: Empowerment or Disempowerment of the Poor?*

Edited by Isabelle Guérin & Jane Palier, 2005, 384 p. (CSS n°10).

450 Rs (16 €)

- *Gender Discriminations Among Young Children in Asia.*

Edited by Isabelle Attané & Jacques Véron, IFP/CEPED, 2005, 314 p. (CSS n°9).

400 Rs (15 €)

- *Aids and Maternity in India. From Public Health to Social Sciences Perspectives. Emerging Themes and Debates.*

Edited by Patrice Cohen & Suniti Solomon, 2004, 279 p. (PDSS n°8).

350 Rs (13 €)

To order, contact:

Institut Français de Pondichéry

P.B. 33,

11, St. Louis Street,

Pondicherry - 605001, INDIA

Ph: +91-413-2334168 - Fax: +91-413-2339534

E-mail: library@ifpindia.org

Web: www.ifpindia.org



READING HIMALAYAN LANDSCAPES OVER TIME

ENVIRONMENTAL PERCEPTION, KNOWLEDGE AND PRACTICE IN NEPAL AND LADAKH

In choosing to study the relationship between Himalayan societies in Nepal and Ladakh and their environment, the authors of this book propose a new interpretation of present-day landscapes, of their diversity as well as of their transformation. Natural data on the Himalayan range, demography, perceptions and representations of milieux, their history, current local examples of resource management, especially tree management, are the subject of often unprecedented investigations...

In light of this, what about preconceived ideas in terms of the environmental crisis affecting the Himalayas-Ganges Plain area, the causes generally invoked and the recommended solutions? What can be said of the predicted disasters and of the factors identified so far?

By associating various disciplines (geography, social anthropology, history, agronomy...) with the knowledge imparted by the populations studied, meticulous fieldwork, as well as archive research, this book prompts us to re-examine the catastrophist theories on the degradation of Himalayan environments by placing them in a spatial, temporal and cultural context. Thus, in these mountains, the issue seems not so much one of environmental problems linked to deforestation – which is, moreover, supposedly a recent phenomenon – as of problems of a society that, in trying to protect its environment, leaves the most underprivileged populations by the wayside. It would also appear that any intervention in these milieux needs to take into account their symbolic and religious dimension, as well as the very precise knowledge populations have of them. Finally, this work contributes to fuelling debates on major environmental changes on a planetary scale and no doubt to reformulating them.

This book was first published in French in 2003 under the title : "Histoire et devenir des paysages en Himalaya. Représentations des milieux et gestion des ressources au Népal et au Ladakh", CNRS Editions.



ISBN: 978-81-8470-170-8