## **Mountain Natural Resources**

Discussion Paper Series No. MNR 99/1

# Methods in Applied Ethnobotany Lessons from the Field

Ajaya Rastogi

### **Methods in Applied Ethnobotany**

**Lessons from the Field** 

Ajaya Rastogi

MNR Series No. 99/1

Ajaya Rastogi was a professional staff member of ICIMOD. An ethnobotanist, he has worked on nature conservation issues since 1968. He currently works in the eastern Himalayan region providing inputs to government and non-government agencies working in the area of biological diversity assessment, monitoring, and conservation.

International Centre for Integrated Mountain Development Kathmandu, Nepal

Copyright © 1999

ISSN 1024 - 7556

International Centre for Integrated Mountain Development

All rights reserved

#### Published by

International Centre for Integrated Mountain Development G.P.O. Box 3226 Kathmandu, Nepal

Typesetting at ICIMOD Publications' Unit

The views and interpretations in this paper are those of the author(s). They are not attributable to the International Centre for Integrated Mountain Development (ICIMOD) and do not imply the expression of any opinion concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontiers or boundaries.

#### **Preface**

Part of the mandate of the Mountain Natural Resources' Division of ICIMOD is to examine how people interact with their environment and the use they make of the resources it provides.

The current paper is a result of the applied ethnobotany project that began in 1995 as a joint undertaking between ICIMOD and UNESCO and implemented within the broad framework of the People and Plants' Initiative with a view to promoting institutional capabilities and improving the skills of young botanists for integrated conservation and development research.

The project held training workshops at national and subregional levels and published proceedings and synthesis reports on the use of medicinal plants and traditional resource management systems in the Hindu Kush-Himalayas.

The Mountain Natural Resources' Division is publishing the current paper in its discussion paper series in order to share the knowledge gained with those interested in ethnobotany and those who are considering its value in mountain natural resource management.

We appreciate the funds provided by UNESCO through the trust fund established by DANIDA. From MNR ICIMOD, Mr. Ajaya Rastogi, has performed an exemplary job in putting the paper together in its present form.

#### Abstract

An applied ethnobotany project was launched in July 1995 in the Hindu Kush-Himalayan region as a joint operation of UNESCO and ICIMOD (International Centre for Integrated Mountain Development). This project, which ended in September 1998, was implemented within the larger framework of the People and Plants' Initiative. The aim of the project, which had a duration of three years, was to build up capacities of and capabilities in institutions, improve the skills of young ethnobotanists, and bring ethnobotany into the mainstream in integrated conservation and development research. The programme was funded by UNESCO with trust funds provided by DANIDA. The countries involved were India, Pakistan, Bangladesh, Nepal, Bhutan, and China.

The principal activities of the programme were training workshops at national and subregional levels; publication of proceedings from these to be used as resource materials; a programme of small grants for young ethnobotanists from the region; and production of synthesis reports on methods and approaches. In addition, a synthesis report on lessons learned from the case studies on the use of medicinal plants and a synthesis report on lessons learned from case studies on traditional resource management systems in the Hindu Kush-Himalayas were also produced.

The diversity of themes and subjects; academic backgrounds and capabilities of the researchers; and the biologically, culturally, and geographically varied sites for research resulted in the use of a variety of methods. This experience has been summarised in one section of this paper. There is an overall gradual convergence in the approach to community-based research and, therefore, another section briefly describes some of the most frequently used methods in order to share information on methods of applied ethnobotany. The last section contains information on recent developments in ethical guidelines for ethnoboiological research and information on the important issue of the protection of intellectual property rights of local communities.

#### Acronyms and Abbreviations

ASOMPS Asian Symposium on Medicinal Plants, Species, and Other Natural Products

BSP Biodiversity Support Programme

**CBD** Convention on Biological Diversity circumference at breast height

**dbh** diameter at breast height

**ECOSOC** Economic and Social Council

FAO Food and Agricultural Organization of the United Nations

GATT General Agreement on Tarrifs and Trade

GIS Geographic Information System

**HHS** Household Survey **HKH** Hindu Kush-Himalayas

ICIMOD International Centre for Integrated Mountain Development International Institute for Environment and Development

IKS Indigenous Knowledge System
ILO International Labour Organization
IPR Intellectual Property Rights

ISE International Society of Ethnobiology

IVI Importance Value Index

KIS Key Informant Survey

**LSE** Landscape Elements

NEPED Nagaland Environmental Protection and Economic Development

NRM Natural Resource Management NTFP Non-timber Forest Products

PARDYP People and Resource Dynamics' Project
People's Biodiversity Registers

PBR People's Biodiversity Registers
Plant Breeders' Rights

PRA Participatory Rural Appraisal
RRA Rapid Rural Appraisal

# Contents

| Chapter 1: Introduction  |          |
|--|----------|
| Introduction   |          |
| ?/   |          |
| Chapter 2: Review of Methods Used in Case Studies                    | 5        |
| Introduction   | 5        |
| 2.1 Sustainable Management and Conservation of Medicinal             |          |
| in the Jingpo Community, Southwest Yunnan, China                     | 5        |
| 2.2 Application of Indigenous Knowledge of Fodder Trees in           |          |
| Kalikasthan, Rasuwa District, Nepal                                  | 6        |
| 2.3 Study on Ethnobotany and Conservation of Sinopodophyllum         |          |
| hexandrum, Diphyleia sinensis, and Fritillaria cirrhosa in the       |          |
| Zhongdian Tibetan Autonomous County, Yunnan, China                   | 6        |
| 2.4 Investigation of the Status of Indigenous Medicinal Plants       |          |
| and Their Conservation in the Newar Community: A Case                |          |
| of Bungamati VDC, Lalitpur, Nepal                                    | 7        |
| 2.5 Genetic Diversity, Distribution Pattern, Germination and         |          |
| Ethnobotanical Uses of Alnus nepalensis and A. nitida in             |          |
| Lumle and the Pokhara Region of Gandaki Zone, Nepal                  | 7        |
| 2.6 Community-based Case Study on Sal (Shorea robusta)               |          |
| Forest Management and Sal Seed Collection for Commercial             |          |
| Potential  | 9        |
| 2.7 Ethnobotanical Survey of Rare Medicinal Herbs in the Buffer      |          |
| Zone of the Valley of Flowers' National Park, Chamoli,               |          |
| Garhwal, India   | 9        |
| 2.8 Ethnomedicobotanical Studies of Gurung Communities in            |          |
| Bichaur Village, Lamjung, Nepal                                      | 10       |
| 2.9 Ethnobotany of Fruit Plants and Its Application for Conservation |          |
| and Community Development in Drosh Valley, Chitral, Pakista          | ın 10    |
| 2.10 The Indigenous Knowledge of the Qiang Pertaining to             |          |
| Conservation and Development of Ethno-medicinal plants,              |          |
| Maoxian County, Sichuan, China                                       |          |
| 2.11 Ethnobotany of Margalla Hills' National Park, Islamabad, Paki   | istan 11 |
| 2.12 Preliminary Studies in the Ethnobotany of the Chittagong        |          |
| Hill Tracts, Bangladesh, and Its Linkages with Biodiversity          | 12       |
| 2.13 Ethnobotanical Study of Traditional Farm Cultivation            |          |
| Practices Based on Alder Tree (Alnus nepalensis) by the Naga         |          |
| Tribes of Nagaland, India  |          |
| 2.14 Ethnobotany and Conservation of Allium hookeri Thwaites and     | d        |
| Allium wallichii J Kunth in Tengchong County, Yunnan                 |          |
| Province, China  |          |
| 2.15 Ecology and Indigenous Management of Tribal Home Garden         | ıs:      |
| A Case Study of the Marma Community in Bandarban Hill                |          |
| District, Chittagong, Bangladesh                                     | 13       |

| Preliminary Analysis of Methods Used.  |   |
|--|---|
| Summary of Methodology Used for Case St<br>Methods Used in the 15 Case Studies |   |
| Chapter 3: A Selection of Appropriat   | te Tools for                                |
| Mountain Environments  | 19  |
| 3.1 Participatory Mapping  | 20  |
| 3.2 Resource Dependence Profile  |   |
| Quantitative Characteristics   |   |
| Quadrat Method   |   |
| 3.3 Profile Diagrams   | 36  |
| 3.4 Systematic Data Collection   | 42  |
| 3.5 Statistical Data Analysis  | 45  |
| Chapter 4: Issues of Ethics and Guid   | elines for Ethnobotanical                   |
| <u> </u>   | 55 rty Rights55 or Mountain Communities56   |
| Research   | 55 rty Rights55 or Mountain Communities56   |
| Research   | 55 rty Rights55 or Mountain Communities56   |
| Research   | rty Rights55 or Mountain Communities63      |
| Research   | 55 rty Rights55 or Mountain Communities6365 |
| Research   | 55 rty Rights                               |