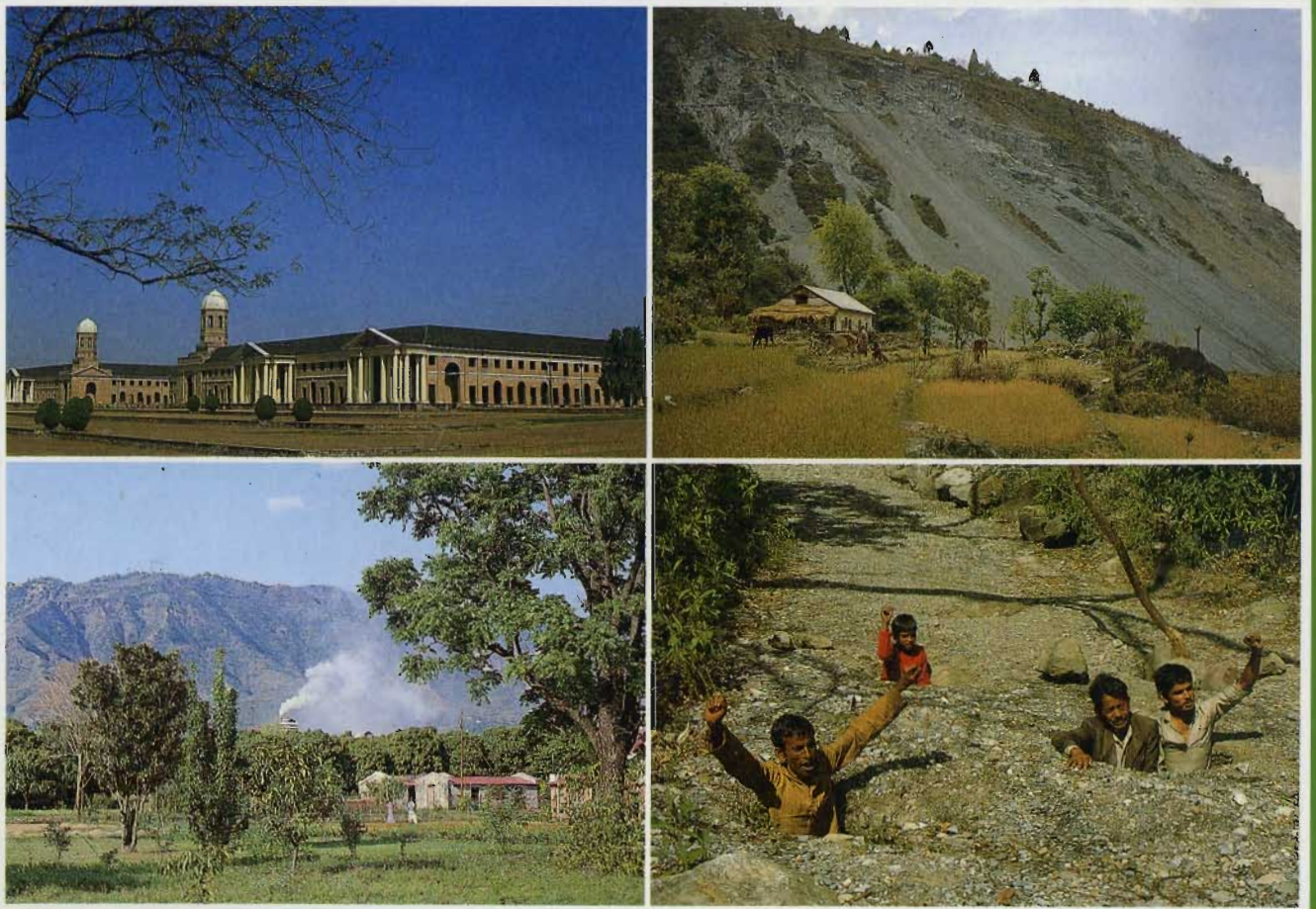


# NATURAL RESOURCE MANAGEMENT IN THE MOUNTAIN ENVIRONMENT

Experiences from the Doon Valley, India



Jayanta Bandyopadhyay

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Cover photographs: Dr. J. Bandyopadhyay (Clockwise from top right)

1. Hillslope heavily damaged by environmentally destructive limestone quarrying in Doon Valley.
2. Volunteers of the non-violent Chipko movement protesting against environmental destruction from quarrying by resisting the movement of trucks to one of the quarries in Doon Valley.
3. Accumulation of air-pollution within the Doon Valley from a limestone based industry.
4. Panoramic View of Forest Research Institute in Dehradun.

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# Table of Contents

## Acknowledgements

## Foreword

	Page
<b>I. Introduction</b>	<b>1</b>
<i>Conceptual Framework for Natural Resource Management in Mountain Environments</i>	1
<i>Objectives of the Case Study on Doon Valley</i>	3
<b>II. Doon Valley</b>	<b>7</b>
<i>Geography of the Doon Valley</i>	7
<i>Economic History</i>	10
<b>III. Management Of Forests And Wildlife</b>	<b>17</b>
<i>Institutional Encouragement of Deforestation</i>	17
<i>Management of Reserved Forests</i>	19
<i>Emergence of Conflicts over Forest Resources</i>	20
<i>Lessons from Afforestation Activities</i>	25
<i>Challenges in the Management of Forests</i>	26
<b>IV. Management Of Water Resources</b>	<b>29</b>
<i>Resource Management in a Historical Perspective</i>	29
<i>The Crisis of Urban Water Supply</i>	30
<i>Challenges in the Management of Water Resources</i>	31
<b>V. Management Of Surface Quarrying</b>	<b>35</b>
<i>The Growth of the Quarry Economy</i>	35
<i>Problems of Environmental Impact Monitoring</i>	36
<i>From Ecosystems Research to Public Interest Litigation</i>	39
<i>Challenges in the Management of Surface Quarrying</i>	40

<b>VI. Management Of Urban-industrial Growth</b>	43
<i>Stages of Urban-Industrial Growth</i>	44
<i>Industrial Pollution in the Valley</i>	45
<i>Emerging Conflicts Over Land in the Doon Valley</i>	47

<b>VII. Towards Integrated Environmental Management In Doon Valley</b>	49
<i>The Growth - Conservation - Equity Debate</i>	50
<i>Possible Agenda for Integrated Environmental Management</i>	51
<i>Generation of Information on Environmental Parameters</i>	52
<i>Research on Institutional Characteristics and Innovations</i>	53
<i>Realistic Projection for the Future</i>	54

<b>References</b>	55
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**Plates**

**List of Tables**

1. <i>Population and Municipal Income at Dehradun and Mussoorie (1885-1905).</i>	12
2. <i>Area Irrigation by Classes and Revenue Income from the Canals.</i>	12
3. <i>Extraction of Forest Produce in Dehradun (in m<sup>3</sup>).</i>	21
4. <i>Number of Offences in Doon Valley Forests by Range, Type, and Year.</i>	24
5. <i>Projected Water Requirements and Shortfall in Dehradun Urban Area.</i>	31
6. <i>Extraction of Limestone in Dehradun Tehsil during 1977-82 (in Metric Tons).</i>	36
7. <i>Decennial Population Growth Rate in Dehradun</i>	43
8. <i>The number of Industrial Units Established in the Doon Valley in the 1980s.</i>	44
9. <i>Maximum Permissible Pollutants in Ambient Air Quality (microgram/m<sup>3</sup>).</i>	45
10. <i>Results of Ambient Air Monitoring in Doon Valley (microgram/m<sup>3</sup>).</i>	46

**List of Figures**

1. <i>Water Drainage System.</i>	6
2. <i>Schematic Cross-section at right angles to the Doon Valley and the movement of monsoon clouds (based on Munn et. al., 1986).</i>	8
3. <i>Population of Dehradun Municipality Tehsil and District in the Current Century</i>	14
4. <i>Existing Hierarchy of Settlements in Doon Valley.</i>	15
5. <i>Forest Map of Dehradun Drawn in 1887.</i>	16
6. <i>Study of Forest Cover Change between 1972 and 1982.</i>	22
7. <i>Rajaji National Park : Nibble Effect by Firewood Cutting and Grazing by Village Cattle.</i>	28

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## Foreword

Urbanization has become a major force in the process of economic development and environmental management across the Hindu Kush-Himalayas and particularly so in the lower altitudes of the mountain ranges. The rapid growth of urban centres throughout the Himalayan foothills has made urban planning a necessary element of mountain environmental management. Such towns initially emerged as trading points between the hills and the plains, and eventually small and medium scale industries were established in and around them, acting as catalysts for further economic expansion.

The issues and challenges of urban growth in mountain areas are broadly similar whether it is in the Kathmandu Valley of Nepal, the Thimpu Valley of Bhutan or the Doon Valley of India. As centres for economic growth these urban areas not only provide major economic opportunities in off-farm employment for the hill people, but are also instrumental in the transformation of traditional farming production systems. At the same time their economic force is also a source of concern for the fragile resources of the hills. One of the major challenges in integrated mountain development is to find the right balance between the economic potentials and environmental pressures of urban growth in mountain areas.

The study on "Natural Resource Management in the Mountain Environment - Experiences from the Doon Valley, India" was prepared by Dr. J. Bandyopadhyay in the framework of ICIMOD's programme on Mountain Environmental Management. It is also one of a series of papers presented at the ICIMOD/UNESCO (MAB) Symposium on Mountain Environmental Management that was held from 12th to 16th April, 1989 in Kathmandu. Through this series, ICIMOD is examining the wide ranging diversity of ecosystems and influencing factors with the objective of determining appropriate development strategies.

The Doon Valley is without question an appropriate choice for the review and analysis of the challenges posed by urbanisation in mountain areas and of the responses by Government and the general public to these challenges. Apart from having a well-recorded history of economic and social development and natural resource management, covering a time span of almost two centuries, the Doon Valley has been one of the leading growth areas in terms of employment in primary, secondary, and tertiary sectors and, resulting therefrom, overall population growth and urbanisation. This has had not only positive results but also important negative consequences such as degradation of land resources, shortages of water supplies, air and water pollution and urban slum development. These, in turn, have led to responses and counter-responses in terms of mass protest action by affected population groups, litigation in courts at local and at the highest levels, and the passing of laws and regulations to remedy short-comings and improve resource management and urban planning. All these actions and counteractions as well as the underlying causes are skillfully reviewed and analysed by Dr. J. Bandyopadhyay who, in addition, has drawn up a future agenda for the integrated environmental management of the Doon Valley. Seen against this background, the findings and recommendations of the study in their applicability go far beyond the geographical confines of the Doon Valley and become relevant to similarly placed urban areas of the entire Hindu Kush-Himalayan Region.

E. F. Tacke  
Director