SRI VENKATESWARA INTERNSHIP PROGRAM

FOR RESEARCH IN ACADEMICS

(SRI-VIPRA)

Project Report of 2022: SVP-2226

"Socio- Economic status of family in relation to natural resource use pattern in central Himalayas"

IQAC

Sri Venkateswara College

University of Delhi

Dhaula Kuan, New Delhi -110021

Name of Mentor: Dr Abhisehk Chandra **Name of Department:** Environmental Sciences **Designation**: Assistant Professor	

SRIVIPRA PROJECT 2022

Title :Socio- Economic status of family in relation to natural resource use pattern in central Himalayas

List of students under the SRIVIPRA Project

S.No	Name of the student	Course	Photo
1	Bhavna	B.Sc. Life sciences	
2	Gargi	B.Sc. Life sciences	
3	Priyansh Preet	B.Sc. Life Sciences	
4	Khushi	B.Sc. Life sciences	

Srivastava

Signature of Mentor

Certificate

This is to certify that the aforementioned students from Sri Venkateswara College have participated in the summer project SVP-2226 titled “Socio- Economic status of family in relation to natural resource use pattern in central Himalayas”.The participants have carried out the research project work under my guidance and supervision from 21st June 2022 to 25th September 2022. The work carried out is original and carried out in an online mode.

Signature of Mentor

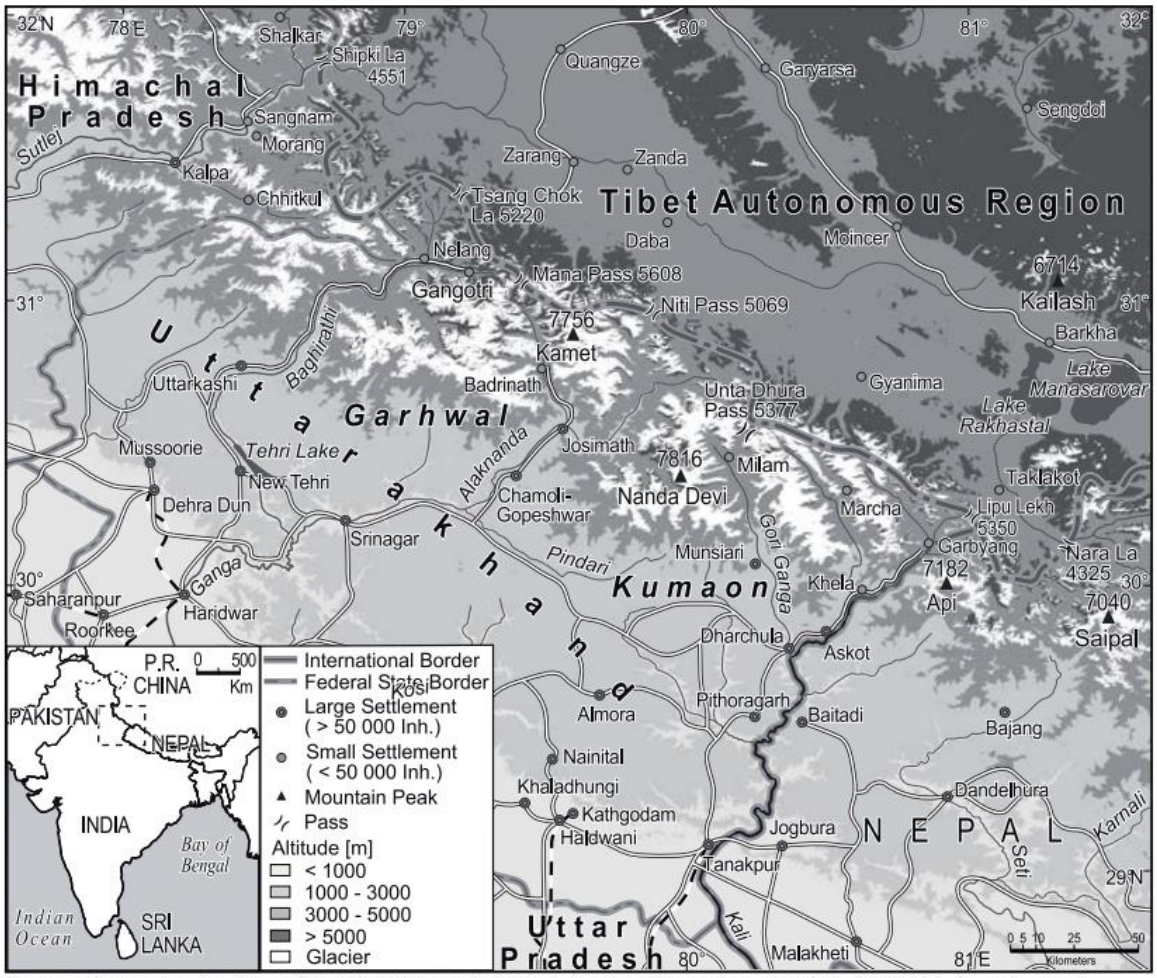
Acknowledgements

We would like to use this opportunity to express our sincere gratitude to Sri Venkateswara College for providing us with this opportunity to do research and hone our scientific abilities. We are incredibly appreciative to Dr. Abhishek Chandra, our outstanding mentor and advisor, for his essential advice throughout the project. We owe a debt of gratitude to each and every researcher, scientist, and professor whose research papers and review articles we used as a resource for our project. We really appreciate the efforts of everyone connected to SRI VIPRA. We are grateful to be a part of the study team and promise to keep working hard and enthusiastically.

CONTENTS

INTRODUCTION

Himalaya in Sanskrit words ‘Hima’ (snow) and ‘Alaya’ (abode), meaning ‘Abode of Snow’. Its great mountain system of Asia, and possess the highest mountains in the world. The forests of Central Himalayas are biodiversity hotspots and source of many ecosystem goods and services for the entire country.It has great ecological value also forms a barrier between Tibetan Plateau and the alluvial plains of the Indian subcontinent. It is source of the freshwater. The Himalaya, are geologically young, geotectonically active and the world’s largest mountain chain, which span a wide variety of climates. The Socio-economic evaluations are fundamental to understand the scenarios and requirement of appropriate local and regional policy interventions that are desired to fit to the location specific requirements and dynamic patterns, coupled with the intrinsic ecosystems changes.



Sources: Comprehensive Atlas of the World (Eleventh Edition). London: Times; Generalni Stab 1:200 000; Georeferenced SRTM-Data; Landsat-Data

Draft and Cartography: M. Gerwin, M. Nüsser, N. Harm

Fig. 1 The Central Himalayas of Uttarakhand, Northern India

STUDY AREA:

Central himalaya

METHODOLOGY:

The study of review papers and perspective based on literature reviews

Work pattern of central himalayas people and natural resources consumption

Land use systems have predominantly been interpreted in the context of local adaptation strategies within given spatial distribution and economic appraisal of natural resources. Thus , its especially true for peripheral mountain areas, where both land use and livelihood security primarily depend on subsistence farming, animal husbandry, and forest utilization.off -farm income opportunities have increased in almost every part of the South Asian high mountain rim comprising the Hindu Kush, Karakorum and Himalayas, agro-pastoral land use still constitutes the economic backbone of mountain communities.Traditional communities of people, whose livelihood is closely related to a narrow base of locally available natural resources. A survey was conducted in 1991–94 of two villages inhabited by Bhotiya tribal people in Dharchula block of Uttar Pradesh, India. Medicinal herbs (14 abundant species, with *Partitella ramitchadalis* accounting for >50% by weight) constitute 12–13% of total income to the villages. The harvest is done by children during August to October, around summer settlements (up to 4100 m altitude) to which the villagers annually migrate. Fifteen cooperatives with a 1992 membership of 7009 herb collectors and salespeople exist in the Dharchula block, and marketing is through two specialist government agencies. A better understanding of land use change in both production patterns and livelihood strategies strongly depends on the integration of socioeconomic developments, cultural values, external infl uences, and the territorial dimensions of land tenure.The traditional system of agro-pastoral resource utilisation of the Bhotiyas comprised pasturing, crop cultivation and forest use. This system of agro-pastoral resource utilisation is, however, subject to constant change, similar to other regions of the Central Himalayas.due to the closure of markets for grain in Tibet, crop-farming in high altitude settlements is no longer profitable. During prosperous phases of trade crop-farming was conducted extensively and dominated by the growth of barley and buckwheat that were often irrigated due to the more arid conditions Cultivation appears to represent a viable option for the resource, and thus for the income of the traditional peoples who still

depend on it.The seasonally and spatially highly diversified ‘combined mountain agriculture’ still plays a vital role for a large number of households in Kumaon. Land use patterns and livelihood strategies shall be differentiated not only as for environmental issues, but according to such factors as ethnic and socio-cultural affiliation and territorial rights of resource access. A better understanding of the diversity, complexity, and dynamics of regional land use systems requires identifying and evaluating the historical dimension of human-environmental interaction. Changing land use structures and functions reflect the supra-regional political and socioeconomic developments. Land use change, however, has evolved rather slowly and gradually. For instance, with regard to common property regimes and community based institutions, colonial and postcolonial forms of intervention are clearly visible in present day land use patterns and mountain livelihoods.

Women collecting the medicinal herbs

The case of the Bhotiyas demonstrates their flexible response to changing political, economical and socio-cultural constellations in the borderlands of Kumaon. This includes the tangled relationship between strategies of agrarian subsistence production and nonagricultural employment. After the abandonment of the Trans-Himalayan trade, the upper valley sections have been transformed from transit corridors to new peripheries. This functional change has

been reflected in reduced land use intensity accompanied by new income options such as collection and cultivation of medicinal and aromatic plants. The administrative and economic centres exhibit a heterogeneous mix of livelihoods, institutions and resource use strategies. New forms of income such as mountain tourism or shop-keeping have arisen, accompanied by combined mountain agriculture in the vicinity of the permanent settlements. The latest development of trade relations, however, is characterised by the re-opening of the Lipu Lekh Pass in the northeastern corner of Kumaon.

One of the ongoing trend now to make women educated about the agro-ecotechnologies for the betterment , growth of the families in the central himalayas

Educating rural women in agro-ecotechnologies to better their standard of living

Women in Central Himalaya have always played a significant role in managing and operating most household and agricultural activities. A total of 15 on-site and capacity building/skill development programmes were conducted in three different ecological zones, training 635 women farmers. The overall goal was to induce the women farmers to adopt simple agro-ecotechnologies as viable options for enhancing their livelihoods. Hill women are the backbone of the hill/mountain\r societies in the Himalaya, but they face a range of socioeconomic and environmental problems. They represent more than 50% of the population living in the hills, but are often excluded from involvement in many social and cultural activities. This has led to a need for cost-effective, simple agroeco technological interventions to provide viable alternatives for improving livelihoods and food security. The notion of women's empowerment, which has.received much attention since the 1990s, is gradually.being integrated with that of participation, advanced so.vociferously by many in the late 1970s and 1980s. What is needed are corrective measures and strategies for women's development.

Some 13 agro-ecotechnologies have been successfully introduced,designed or demonstrated based on science and technology. Women participants were selected from three blocks (one each in the Rudraprayag, Chamoliand Their districts of the Garhwal region).A team of scientists from the G.B. Pant Institute of Himalayan Environment and Development (GBPIHED) worked with women in the Garhwal region of India to build capacity in hill-based agro eco technologies. Using participatory approaches, women's groups were able to understand how their social and individual behaviours could affect their livelihoods.

Women's groups were able to understand how their social and individual behaviours could affect their livelihoods. They analysed livelihood- and conservation-related problems to find appropriate solutions locally. This approach was found to be successful in helping and empowering women to adopt more productive, eco-friendly technologies. The knowledge, skills, enthusiasm and values of the women user groups are key factors in stimulating their interest in, appreciation of and implementation of rural technologies. A number of other factors must also be taken into consideration, including the nature of the resource base and the capacity of the local institutions.

The capacity building programme seeks to empower women so that they are able to move forward in decision making in local governance. Over time, while they were conducting their training, the experts themselves sharpened their skills and were able to convert field problems into learning opportunities. The monitoring and evaluation systems developed were sufficiently diverse and flexible to be applied in any geographical and climatic environment. Building women's capacity to make choices that improve their livelihoods requires addressing their organisational and knowledge gaps, as well as opening new channels of information and knowledge. This is particularly important in the Himalayan region, where local women have very limited access to modern facilities or opportunity to secure external help.

Mountainous state of Uttarakhand has no development policies specifically directed at mountain agriculture. This means that the suffering of the mountain communities is gradually increasing and their standard of living is declining. Policy institutions need to be more responsive to the specific needs of mountain environments and agriculture.GBPIHED is one of the few organisations in the Indian Himalaya that is involved in testing, upgrading, validating and demonstrating agro-ecotechnologies. It aims to strengthen the relationships between women farmers, extension workers, NGOs and R&D institutions.

Conclusion:

In spite of the various factors of transformation, the seasonally and spatially highly diversified ‘combined mountain agriculture’ still plays a vital role for a large number of households in central himalayan .Land use patterns and livelihood strategies shall be differentiated not only as for environmental issues, but according to such factors as ethnic and socio-cultural affiliation and territorial rights of resource access. A better understanding of the diversity, complexity, and dynamics of regional land use systems requires identifying and

evaluating the historical dimension of human-environmental interaction. Changing land use structures and functions reflect the supra-regional political and socioeconomic developments. Land use change, however, has evolved rather slowly and gradually. Poor people are dependent largely on forest produce therefore sustainable human and environment interaction is important as it is the best way to reduce ecosystem services and to diminish the stress of over exploitation. cultivation appears to represent a viable option for the traditional people for the resource, and thus for the income of the traditional peoples who still depend on it.

Also there is an urgent need to promote an integrated conservation approach ecosystem service, including assessment. Stakeholders etc. Demands of life supporting biomass and exploitation of other forest resources are closely associated with local socio-economics.

Democratic and accountable governance, awareness and knowledge, organisation and institutional capacity can further enhance the sustainable practices.Forests in Central Himalayas have been severely exploited in the last few decades for various essential and subsistence demands of locals as well as other larger demands for development in the country.

Himalayan region known for its diversity is today under threat both locally and globally including non-sustainable resource harvesting practices, upcoming mega- hydropower projects, unscientific tourist practices etc.These forests appear to be limitless sources of provisioning, regulating, and supporting and cultural ecosystem services.It is vital to address dependence and requirements improving socio-economics of locals that leads to sustainable utilisation of forest resources. Dynamics of social and economical set up driving change in forest resource use is imperative to identify opportunities for adaptive and sustainable forest management.

REFERENCES

Anon. (1981) Census of India. Primary census abstract, part XIII-B. District Pithoragarh. Government of India: 414 pp.Google Scholar

Anon. (1992) Forest (Conservation) Act, 1980. Rules and Guidelines (as amended on 25 October 1992). Ministry of Environment and Forests, Government of India, New Delhi, India: 37 pp.Google Scholar

Anon. (1993) Forests of Himachal Pradesh, 1993. Department of Forest Farming and Conservation, Shimla, India: 50 pp.Google Scholar

Ashish, M. (1993) Decentralised management of natural resources in the UP Hills. Economic and Political Weekly 27: 1793–6.Google Scholar

Atkinson, E.T. (1989) The Himalayan Gazetteer, (Reprinted) Vol. III, Part I. Delhi: Cosmo Publication: 400 pp.Google Scholar

Bhandari, J.S. (1981) Structure and change among the borderland communities of Kumaon Himalaya. In: The Himalaya: Aspects of Change, ed. Lall, J.S. & Moddie, A.D., pp. 204–16. New Delhi: Oxford University Press.Google Scholar
CBD (2012a) Aichi biodiversity targets. https://www.cbd.int/sp/targets/. Accessed 20 Jan 2017
Census (2001) http://www.censusindia.gov.in/Census_Data_2001/Census_Data_Online.html. Accessed on 2 Jan 2017Champion HG, Seth SK (1968) A revised survey of the forest type of India. Manager of Publications, Government of India, New Delhi
Census (2011) http://censusindia.gov.in/2011-common/censusdataonline.html. Accessed on 2 Jan 2017
Chandra A., Gupta, Y., dinakaran J., Raina N., Hanif M., Meena A., Rao KS., 2023, Climate Change and Biodiversity in the Himalayas: Trends and Perception Editor T. Pullaiah,Biodiversity Hotspot of the Himalayas, Hard ISBN: 9781774914588
Chapin III FS, Sala OE, Huber-Sannwald E (eds) (2001) Global Biodiversity in a changing environment. Scenarios for the 21st Century. Springer, New York
Chapin III FS, Zavaleta ES, Eviner VT, Naylor R, Vitousek PM, Reynolds HL, Hooper DU, Lavorel S, Sala OE, Hobbie SE, Mack MC, Diaz S (2000) Consequences of changing biodiversity. Nature 405:234–242
CHEA (2009) Kyoto: think global, act local project. Central Himalayan Environment Association, Nainital
Dhyani S, Dhyani D (2016) Significance of provisioning ecosystem services from moist temperate forest ecosystems: lessons from upper Kedarnath valley, Garhwal, India. Energy Ecol Environ 1(02):109–121
Dhyani S, Maikhuri RK, Dhyani D (2011) Energy budget of fodder harvesting pattern along the altitudinal gradient in Garhwal Himalaya, India. J Biomass Bioenergy 35(5):1823–1832
Dhyani S, Maikhuri RK, Dhyani D (2013) Utility of fodder banks for reducing women's drudgery and anthropogenic pressure from forests of Western Himalaya. Natl Acad Sci Lett 36(4):453–460
Diaz S, Demissew S, Carabias J et al (2015) The IPBES conceptual framework—connecting nature and people. Curr Opin Environ Sustain 14:1–16 (2015). http://doi.org/10.1016/j.cosust.2014.11.002. Accessed 20 Jan 2017
Farnsworth, N.R., Akerele, O. & Bingel, A.S. (1985) Medicinal plants in therapy. Bulletin of the World Health Organization 63: 965–81.Google ScholarPubMed
Farooquee, N.A. (1994) Transhumance in the central Himalaya: a study of its impact on the environment. (Ph.D. thesis H.N.B. Garhwal University, Srinagar, India): 190 pp.Google Scholar
Farooquee, N.A., Samal, P.K. & Saxena, K.G. (1994) Adaptation, culture and sustainability in a high Himalayan society: case of Bhotiyas. Man and Life 20(3 & 4): 201–8.Google Scholar
FSI (Forest Survey of India) (2003) State of Forest Report, 2015. Forest Survey of India, Ministry of Environment, Forests and Climate Change. Dehradun, India
FSI (Forest Survey of India) (2007) State of Forest Report, 2015. Forest Survey of India, Ministry of Environment, Forests and Climate Change. Dehradun, India
FSI (Forest Survey of India) (2009) State of Forest Report, 2015. Forest Survey of India, Ministry of Environment, Forests and Climate Change. Dehradun, India
FSI (Forest Survey of India) (2013) State of Forest Report, 2015. Forest Survey of India, Ministry of Environment, Forests and Climate Change. Dehradun, India
FSI (Forest Survey of India) (2015) State of Forest Report, 2015. Forest Survey of India, Ministry of Environment, Forests and Climate Change. Dehradun, India
Gadgil, M. (1987) Diversity: cultural and biological. Trends in Ecology and Evolution 2: 369–73.CrossRefGoogle Scholar
Gadgil, M. (1991) Restoring India's forest wealth. Natural Resources 27: 12–20.Google Scholar
Garbyal SS, Aggarwal KK, Babu CR (2004) Impact of Cordyceps sinensis in the rural economy of interior villages of Dharchula sub-division of Kumaon Himalayas and its implications in the society. Indian J Knowl 3:182–186
GBPIHED ENVIS (2015) Forest statistics data 2015–16. http://gbpihedenvis.nic.in/Forest_Data.html. Accessed on 2 Jan 2017
Government of India (2008) National Biodiversity Action Plan, Ministry of Environment and Forests
Gow, D.D. (1988) Development anthropology: in quest of a practical vision. Development Anthropology Network 6: 13–17.Google Scholar
Haberl H, Erb KH, Plutzar C, Fischer-Kowalski M, Krausmann F (2007) Human appropriation of net primary production (HANPP) as indicator for pressures on biodiversity. In: Hak T, Moldan B, Dahl AL (eds) Sustainability indicators. A scientific assessment. SCOPE. Island Press, Washington, DC, pp 271–288
Hall P, Bawa K (1993) Methods to assess the impact of extraction of non-timber tropical forest products on plant populations. Econ Botany 47:234–247
Horowitz, M.M. (1988) Anthropology and new development agenda. Development Anthropology Network 6: 1–4.Google Scholar

https://www.researchgate.net/publication/268740781 Outlook on AGRICULTURE Vol 40, No 3, 2011, pp 229–236 doi: 10.5367/oa.2011.0052
Hughes AC (2017) Understanding the drivers of Southeast Asian biodiversity loss. Ecosphere 8(1):e01624. https://doi.org/10.1002/ecs2.1624
Ingham, B. & Kalam, A.K.M. (1992) Decentralization and development: theory and evidence from Bangladesh. Public Administration and Development 12: 372–85.CrossRefGoogle Scholar
IPCC (2014) Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp
IUCN (2001) IUCN red list categories and criteria version 3.1, Prepared by the IUCN Survival Commission. IUCN, Gland, Switzerland
Jodha NS (2001) Global environmental changes and economic globalization: old and new resources of risks in mountain areas. ICIMOD Newsl 40:11–12
Kumar B (2009) Lichen resource use pattern and its socioeconomic status in temperate region of Garhwal Himalaya, India. Nat Sci 7(2):101–106
Kumar B, Upreti DK (2008) An account of lichens of fallen twigs of three Quercus species in Chopta forest of Garhwal Himalaya, India. Ann Forestry 16(1):92–98
Maikhuri RK, Rao KS (2005) Developing eco-tourism for Nanda Devi biosphere reserve (A world heritage site) strategies and action plan. Brochure. Kosi, Almora: G.B. Pant Institute of Himalayan Environment and Development, 17p
McNeely, J.A., Miller, K.R., Reid, W.V., Mittermeier, R.A. & Werner, T.B. (1990) Conserving the World's biological diversity. IUCN, WRI, CI, WWF-US & World Bank, Gland, Switzerland: 193 pp.Google Scholar
Misra S (2008) Tracking the Lichen. Detale http://cseindia.org/userfiles/Detale1.pdf. Accessed on 5 Jan 2017
Misra S (2009) Impact of natural and man-made disturbances on vegetation structure and diversity in Guptakashi Range of Kedarnath Forest division, Uttarakhand. Ph.D. Thesis Forest Research Institute University, Dehradun, p 150
Misra S, Maikhuri RK, Dhyani D, Rao KS (2009) Assessment of traditional rights, local interferences and natural resource management issues in Garhwal part of Indian Himalayan Region. Int J Sustain Dev World Ecol 16(6):404–416
Misra S, Maikhuri RK, Kala CP, Rao KS, Saxena KG (2008) Wild leafy vegetables: a study of their subsistence dietetic support to the inhabitants of Nanda Devi Biosphere Reserve, India. J Ethnobiol Ethnomed, 18–32
Moench, M. (1989) Forest degradation and the structure of mass utilization in a Himalayan foothill village. Environmental Conservation 16(2): 137–46.CrossRefGoogle Scholar
Nautiyal, M.C. (in press) Cultivation of medicinal plants and biosphere reserve management in alpine zone. In: Conservation and Management of Biological Resources in Himalaya, ed. Saxena, K.G.. New Delhi: Oxford & IBH Publication Ltd.Google Scholar
Negi CS (2006) Morels (Morchella spp.) in Kumaun Himalaya. Nat Prod Rad 5(4):306–310
Pandeya H, Yadava AK (2016) Forest consumption pattern in relation to socio-economic arrangement of people in Western Ramganga Watershed in Central Himalaya, India, Uttarakhand. Int J Recent Sci Res 7(1):8267–8275
Pant, S.D. (1935) The Social Economy of the Himalaya. London: George Allen and Unwin: 264 pp.Google Scholar
Place F, Keijiro O (2000) Population pressure, land tenure and tree resource management in Uganda. Land Econ 76(2):233–251
Prasad P, Chauhan K, Kandari LS, Maikhuri RK, Purohit A, Bhatt RP, Rao KS (2002) Morchella esculenta: need for scientific intervention for its cultivation in Central Himalaya. Curr Sci 82:1098–1122
Raipa, R.S. (1974) Shauka Simavarti Janjati (in Hindi). Dharchula, India: R.A. Brothers: 304 pp.Google Scholar
Rao, K.S. & Saxena, K.G. (1994) Sustainable development and rehabilitation of degraded village lands in Himalaya. Himvikas Publication No. 8. Bishen Singh Mahendra Pal Singh, Dehradun, India: 287 pp.Google Scholar
Saxena, N.C. (1995) Towards sustainable forestry in the UP hills. Centre for Sustainable Development, Lai Bahadur Shastri National Academy of Administration, Mussouri, India: 79 pp.Google Scholar
Shah NC (1997) Lichens of economic importance from the hills of Uttar Pradesh, India. J Herbs Spices Med Plant 5:69–76.
Sharma S (2004) Trade of Cordyceps sinensis from high altitudes of the Indian Himalaya: conservation and biotechnological priorities. Curr Sci 86:1614–1619
Singh RD, Gumber S, Tewari P, Singh SP (2016) Nature of forest fires in Uttarakhand: frequency, size and seasonal patterns in relation to pre-monsoonal Environment. Curr Sci 111(2):398–403

Singh SK, Rawat GS (2000) Morel mushroom industry in India. Plant Talk 21:36–37
Singh, V.P. & Singh, J.S. (1989) Man and forests: a case from the dry tropics of India. Environmental Conservation 16(2): 129–36.CrossRefGoogle Scholar
Tittensor DP, Walpole M, Hill SLL, Boyce DG, Britten GL, Burgess ND (2014) A mid-term analysis of progress towards international biodiversity targets. Science. https://doi.org/10.1126/science.1257484 (Assessed on 20 Jan 2017)
Upreti DK, Divakar PK, Nayaka S (2005) Econ Bot 59:269. https://doi.org/10.1663/0013-0001(2005)059[0269:CAEUOL]2.0.CO;2
Uttarakhand State Forest Department (2016) Uttarakhand Forest Statistics 2014–15. Dehradun India, p 196
Ved DK, Kinhal GA, Ravikumar K, Prabhakaran V, Ghate U, Vijaya SR, Indresha JH (2003) Conservation assessment and management prioritisation for the medicinal plants of Himachal Pradesh, Jammu & Kashmir and Uttaranchal. Foundation for Revitalisation of Local Health Traditions, Bangalore, India
Vir, D. & Manral, M. (1990) Tribal Women Changing Spectrum in India. New Delhi: Classical Publishing Co.: 195 pp.Google Scholar
WII ENVIS (2016) Annual progress report of ENVIS Centre on 'Wildlife and Protected Areas', Wildlife Institute of India, Dehradun 2016–17. http://gbpihedenvis.nic.in/. Assessed on 2 Jan 2017
Wilson, A. (1983) Who is destroying India's forests. The Ecologist 13: 100–1.Google Scholar
Zhou, S. (1993) Cultivation of Ammomum villosum in tropical forests. Forest Ecology and Management 60: 157–62.CrossRefGoogle Scholar