

## A study on geography of Himalya region.

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### Abstract

The Himalayas is a mountain range found in Southeast Asia. North of the Himalayas is the Tibetan Plateau and south is the Indo-Gangetic Plain. The Himalayas form the northern border of the Indian subcontinent. This young mountain range boasts the likes of K2 and Mount Everest, the tallest mountain. The population, settlement, and economic patterns within the Himalayas have been greatly influenced by the variations in relief and climate, which impose harsh living conditions and tend to restrict population movement and communications. People living in adjacent valleys have often preserved their cultural individualities, which could have dwindled or disappeared with easier access to the outside world. People belong to four major cultures, each distinguished by characteristic socio-economic features.

**keywords:** *Geography, Himalya*

### I. Introduction

Mountains which extend over approximately 24% of the land surface of earth (UNEP-WCMC, 2002) and constitute home for nearly 12% of the world's population (Huddleston et al., 2003) are highly crucial from the view point of marginality, environmental sensitivity, climate change, constraints of terrain, geographical inaccessibility and less infrastructural development (Meybeck et al., 2001). Mountains constitute the sources of a variety of ecosystem services, including freshwater, biodiversity and soils that sustain livelihood and economy of large population both in mountains and adjoining plains. Mountain headwaters provide freshwater to approximately to half of the world population inhabiting the large river basins located far away from mountains (Viviroli et al., 2007; Urban Growth in Himalaya: Understanding the Process and Options for Sustainable Development Prakash C. TIWARI\*, Abhinav TIWARI\*\* and Bhagwati JOSHI\*\*\* \*Professor of Geography, Kumaun University, Nainital 263001, Uttarakhand, India. \*\*Department of Architecture and Planning, Maulana Azad National Institute of Technology (NIT), Bhopal, India. \*\*\*Assistant Professor of Geography, Government Post Graduate College, Rudrapur, Uttarakhand, India. E-mail: [pctiwari@yahoo.com](mailto:pctiwari@yahoo.com)\*, [toabhinavtiwari@gmail.com](mailto:toabhinavtiwari@gmail.com)\*\*, [bhawanatiwari@yahoo.com](mailto:bhawanatiwari@yahoo.com)\*\*\* Abstract During recent years, urbanization has emerged as one of the important drivers of global environmental change transforming mountain regions, particularly in developing countries where the process of urban-growth has been fast but mostly unsystematic, unplanned and unregulated. Himalaya representing tectonically alive, densely populated, and one of the most marginalized mountain regions of the world has experienced rapid urban growth during last three decades. More recently, comparatively less accessible areas have also come under the process of rapid urbanization mainly owing to improved road connectivity, publicity and marketing of new tourist sites and the resultant growth of domestic as well as international tourism; development of horticulture; economic globalization and gradual shift from primary resource development practices to secondary and tertiary sectors; and due to absence of urban land use policy. Consequently, there has been tremendous increase in size, area, number and complexity of urban settlements in the Himalaya resulting into the expansion of urban processes (i.e., expansion of urban land use in surrounding agricultural zone, forests and rural environments) as well as increase in the intensity of urban land use (i.e., increase in the density of covered area, density of building, and increase in the density of population) within the towns. On the one hand, the growing urban areas in high mountain are now serving as the centres of growth by creating

opportunities of employment, variety of socio-economic services and expansion of infrastructure; and contributing towards the development of their vast hinterland through trickle-down effect; while on the other, the sprawling urban growth in fragile mountains has disrupted the critical ecosystem services. The speedy and unplanned urbanization has perturbed the hydrological regimes of Himalayan watersheds and reduced ground water recharge, and decreased the availability of water for drinking, sanitation and crop production; depleted forests and biodiversity; increased risks of natural hazards and disasters both in urban areas as well as in their peri-urban zones; and increased vulnerability of mountain inhabitants to water, food, livelihood and health insecurity. Moreover, climate change has stressed urban ecosystems by increasing the frequency, severity and intensity of extreme weather events. As in other parts of the world, urban growth cannot be stopped or reduced in Himalaya, but it can be steered in a more sustainable manner through an integrated urban-rural land use planning. Effective land use policies need to be evolved and implemented for the protection and conservation of forests, biodiversity, water resources and agricultural land.

Key words unplanned urbanization, hydrological disruptions, natural disasters, emergence of slums, urban land use policy (FAO, 2008). The largest trans-boundary river systems of the planet have their origin in high mountains; and mountains have still the largest proportion of world's forests which not only constitute global biodiversity hot spots and the pool of genetic resources, but they also regulate and modify climatic conditions and contribute towards mitigating global warming through serving as carbon sinks (ICIMOD, 2010). Mountain agriculture and farming systems constitute the principal source of food and livelihood for about half a billion population (FAO, 2008). The indigenous people inhabiting mountain regions since time immemorial have evolved diversity of cultures that comprise traditional knowledge, resource development and environmental conservation practices, agricultural and food systems, and adaptation and coping mechanism to environmental changes (ICIMOD, 2010).

However, mountain regions have long been marginalized from the view point of their sustainable development (ICIMOD, 2012). However, we are experiencing an emergence of responsiveness of the ecological significance of mountain systems and their environmental significance for the sustainability of global community, particularly after the United Nations Conference on Sustainable Development – Rio Earth Summit in 1992 (UN, 2012). As a result, our understanding about the dilemmas of mountain ecosystems and approach to their development has undergone drastic changes, during the last two decades (ICIMOD, 2012). Currently, mountain ecosystems as well as mountain communities are particularly threatened by the ongoing processes of global environmental change, population dynamics and economic globalization and resultant exploitation of mountain resources (Borsdorf et al., 2010; Ives and Messerli, 1990). During the recent years, a variety of changes have emerged in the traditional resource use structure in mountain areas, particularly in developing and underdeveloped regions of the world mainly in response to population growth, changing global economic order, transforming political systems and rapid urban growth. As a result, mountain regions of the world are passing through a process of rapid environmental, socio-economic and cultural transformation and exploitation and depletion of their natural resources leading to ecological and socio-economic unsustainability both in upland and lowland areas (Haigh et al., 2002; Tiwari, 2000). Himalaya which represents tectonically alive, densely populated, and one of the most marginalized mountain regions of the world has experienced rapid urban growth during last three decades (Anbalagan, 1993). However, the process of urbanization has been mostly unplanned and unregulated. As a result, urbanization has emerged as one of the important drivers of environmental change transforming the Himalayan mountains (Walker, 2011). More recently, comparatively less accessible areas have also come under the process of rapid urbanization mainly owing to improved road connectivity, publicity and marketing of new tourist sites and the resultant growth of domestic as well as international tourism; development of horticulture; economic globalization and gradual shift from primary resource development practices to secondary and tertiary sectors; and due to absence of urban land use policy (Ghosh, 2007). Consequently, there has been tremendous increase in size, area, number and complexity of urban settlements in the Himalaya resulting into the expansion of urban processes (i.e., expansion of urban land use in surrounding agricultural zone, forests and rural

environments) as well as increase in the intensity of urban land use (i.e., increase in the density of covered area, density of building, and increase in the density of population) within the towns (Walker, 2011). Undoubtedly, the urbanization in Himalaya has created employment opportunities, provided a variety of socio-economic services and contributed towards the development of infrastructure which is disseminated socioeconomic growth in their vast hinterland through trickledown effect (Tiwari and Joshi, 2016). However, the sprawling and unplanned urban growth in fragile mountains has disrupted the critical ecosystem services, depleted natural resources, increased socioeconomic inequalities and increased vulnerability of both towns and their fringe areas to a variety of natural risks (Anbalagan, 1993). The speedy and unregulated urbanization has perturbed the hydrological regimes of Himalayan watersheds and reduced ground water recharge, and decreased the availability of water for drinking, sanitation and crop production; depleted forests and biodiversity; increased risks of natural hazards and disasters both in urban areas as well as in their peri-urban zones; and increased vulnerability of mountain inhabitants to water, food, livelihood and health insecurity. Moreover, climate change has stressed urban ecosystems by increasing the frequency, severity and intensity of extreme weather events in densely populated Himalayan mountains. As in other parts of the world, urban growth cannot be stopped or reduced in Himalaya, but it can be steered in a sustainable manner through an integrated urban-rural land use planning. In order to attain this, an effective urban land use policies need to be evolved and implemented for the protection and conservation of urban environment and ecosystem services and for making urban systems climate resilient (Planning Commission of India, 2014).

## Geography of the Himalayas

The Himalayas are the tallest mountain range in the world—they have long inspired stories and tales of far off lands, their clouded heights prompting the creation of myths and legends by those who live at the feet of some of the tallest and most imposing mountains in the world.

The Himalayas is a mountain range found in Southeast Asia. North of the Himalayas is the [Tibetan Plateau](#) and south is the Indo-Gangetic Plain. The Himalayas form the northern border of the Indian subcontinent.

This young mountain range boasts the likes of K2 and [Mount Everest](#), the tallest mountain.

## Where are the Himalayas?

About 1,550 miles (2,500 km) in length, the east-west mountain range spans five countries: India, Nepal, Bhutan, China (Tibet), and Pakistan.

## The Geography of the Himalaya Mountain Range

The geography of the Himalaya mountain range is impressive because the mountain range is young in terms of history, giving it striking and imposing features that have yet to be softened by the effects of time like other mountain ranges in the world.

The Himalaya range was formed by the tectonic movement of the [Indo-Australian Plate and the Eurasian Plate](#) converging along their borders deep underneath the surface of the Earth. This plate movement caused the abrupt upheaval of the [Earth's surface](#), creating the dramatic mountain range we see today.

Both the Indo-Australian and [Eurasian Plates](#) are made up of low density continental crust material which allowed them to rise into the mountain range as opposed to subducting, one above the other. One piece of evidence supporting this theory is that study of the rock material at the top of Mount Everest reveals a significant presence of marine limestone.

The Indo-Australian plate is also moving horizontally against the Tibetan plateau which also assists in the further lifting of the Himalaya range.

How Fast are the Himalayas Rising?

Current estimations state that the Himalayas are rising at a rate of about 5 millimeters per year as a result of the continued tectonic activity going on deep below. This movement also creates geologic instability in the range, leading to often devastating [earthquakes](#) affecting rural areas of India, Pakistan, Nepal and Tibet.

Zones of the Himalayas

The Himalayas can be broken up into multiple zones, each with unique and different material structures and makeups. These zones are often called the Trans-Himalaya, the Tethyan Himalaya, the Higher Himalaya, the Lesser Himalaya and the Sub-Himalaya.

A formation called the Tethys Trench that became part of the Himalaya range when the Indo-Australian and Eurasian Plates collided was made up of a blend of granite and basalt infused into weaker sedimentary layers which is now easily studied, recognized, and placed next to other parts of the Himalaya range for comparison.

THE CULTURAL PATTERN

The population, settlement, and economic patterns within the Himalayas have been greatly influenced by the variations in relief and climate, which impose harsh living conditions and tend to restrict population movement and communications. People living in adjacent valleys have often preserved their cultural individualities, which could have dwindled or disappeared with easier access to the outside world. People belong to four major cultures, each distinguished by characteristic socio-economic features.

First, the Indian and Afghan-Iranian cultures have penetrated the Himalayas from the south and west respectively. The principal features of the Indian culture such as Indo-Aryan languages, Hinduism, and settled agriculture have come from the Indo-Gangetic plains. The major features of the Afghan-Iranian culture, non-Indic Aryan languages, Islam, and both settled agriculture and pastoralism, have penetrated the Himalayas from west. Both Indian and Afghan-Iranian cultures have common links and may be termed Indo-Iranian or Aryan.

Secondly, the Tibetan and Burman (sometime called South-east Asian) cultures have encroached upon the Himalayas from the north and east respectively. The distinctive features of Tibetan culture, the Tibetan language, lamaistic Buddhism, and a combination of pastoralism and settled agriculture, come from the north. Burman cultural features-Tibeto-Burman languages, indigenous religious systems (distinct from the major religions of Hinduism, Islam and Buddhism), and shifting agriculture-have made inroads into the Himalayas from the east. Culturally, therefore, the Himalayas present a complex pattern with four major cultures encroaching upon the area from different directions. In general outline, people of Indian cultural extraction are dominant in the Sub-Himalaya and Inner Himalayan valleys from Kashmir to Nepal. To the north people of Tibetan culture inhabit the High Himalayas from Ladakh to North-eastern India. In central Nepal, in an area between 6,000-8,000 feet (in some areas up to 10,000), the Indian and Tibetan cultures have intermingled, producing a combination of Hindu and Tibetan traits. This intermediate area between Indian and Tibetan cultures in Nepal forms a distinct cultural region. Elsewhere in the Himalayas the Indian and Tibetan cultures meet each other directly without any intermediate zone. Eastern Bhutan and Assam Himalayas are inhabited by people whose culture is similar to those living in northern Burma and Yunan. People of western Kashmir have a culture similar to the inhabitants of Afghanistan and Iran.

## A SUGGESTED SYSTEM OF HIMALAYAN GEOGRAPHIC REGIONS

A comprehensive regional georgaphic analysis of the Himalaya presents several problems. Aside from serious methodological diffi- culties in dividing the Himalayas into geographical regions, the lack of detailed geographical materials relating to variations in landform, climate, land use and occupance pattern for vast areas presents problems in the investigation and presentation of a system of geographic regions based on areal differentiation of the entire content of human occupance which shows an association of inter-related natural and societal features. The physical and human geography of a large part of the Himalayas is known only in broad general outline. There are vast areas which have not yet been studied by geographers, anthropologists or other socialscientists.

In many ways the entire Himalayan area provides a fascinating field for pioneering research by geographers. The book written by Burrard and Hayden, more than three decades ago, still remains the only publish- ed study of the geography and geology of the entire Himalayan range.<sup>1</sup> Although Burrard and Hayden deserve credit for a pioneer attempt to describe the geology and geography of the world's highest mountains, nevertheless they overlooked modern concepts of regional geography and geological overthrust structure in their interpretation of Himalayan geography and geology. In recent times the geological research of Wadia, West, Auden, Gansser, Heim, Pilgrim and Hagen have yielded much geographical literature on the Himalayan landforms.<sup>2</sup> Likewise, the anthropological and sociological work of Verrier Elwin, Pant, Furer- Haimendorf and Kawakita have provided us with knowledge of the Himala- yan people and cultures in certain areas of the vast mountain system.

Since the Himalayas have played such an important role in India's history and geography, it is surprising that Indian geographers have ne- glected serious research and study of the Himalayas. The relatively small number of published research papers on the various aspects of Himalayan geography attests to their lack of interest.

In addition to the imperfect knowledge of the physical and human geography of vast areas, the attempt to divide the mountain system into geographic regions faces methodological difficulties. For instance, the Himalayan area exhibits a fine geographic variation in the pattern of human occupance from one section to another. In effect, the Himalayas contain a series of small geographic regions based on the distinctive cohesive association of features and the pattern and intensity of human occupance. If adequate geographic material were available, a comprehensive regional analysis of the minute geographic regions of the Himalayas could be made, filling an important gap in Indian geography. However, the detailed regional division and analysis on a small scale, undoubtedly a worthwhile and challenging task for the regional geographer, lies outside the scope of this short paper. Therefore a broad regional classification is adopted here.

On the basis of general spatial differentiation of associated geographic elements and braod pattern of human occupance, the Himalayas are divided into three major realms: (1) Western Himalayas, (2) Central Himalayas, (3) Eastern Himalayas. Each of these three realms possess some unifying physical and cultural traits and have certain measure of geographic homogeneity. They possess enough similarity or mutual ties to be treated as a unit. However, the degree of similarity is not great because of the large portion of the area involved in each realm which causes many important spatial details to be disregarded.

The three realms can be further divided into a hierarchy of smaller regions of lower rank and size depending on the scale or degree of gene- ralization. In Western Himalayas, where the mountains are wide, principal geographic regions are large enough to be easily identified on the scale of generalization used in this paper. In the Central and Eastern Himalayas, where the mountain mass is much narrower, it is difficult to distinguish small geographic regions within the limitations of this paper. These realms and their regional divisions are briefly described below. No attempt is made to present a comprehensive geographic analysis of each region.



**CONCLUSION**

The distinctive geographical regions of the Himalayas have been identified and described in broad outline. The system of regional division presented in this paper recognizes three major realms; each realm in turn is divided into several geographic regions depending upon general physical and cultural similarities. This paper attempts to provide a framework for further detailed regional analysis, which would undoubtedly result in refinements in the regional division of the Himalayas.

**Reference**

- [1] S. G. Burrard, H. H. Hayden and A. M. Heron, A Sketch of the Geography and Geology of the Himalaya Mountains and Tibet, Govern- ment of India, Second Edition, 1933. A ne volume on the Geology of the Himalayas by A. Gansser is scheduled for publication in early 1966 by John Wiley & Sons, New York.
- [2] 2. See the bibliographical note on the Himalayan orgeny, glaca- tion and rivers in O. H. K. Spate, India and Pakistan, New York: E. P. Duft on, 1954, pp .37-39, and in Toni Hagen, Dyhrenfurth, Furer-Haimendorf and Schneider, Mount Everest: Formation, Population and Exploration, London: Oxford University Press, 1963, p. 96.
- [3] selected publications are listed here. Verrier Elwin, A Philosophy for NEFA, Shillong: North-East Forntier Agency, 1959, and his India's North-East Forntier in the Nineteenth Century, Oxford: Oxford University Press, 1959; S.D. Part, The Social Economy of the Himalayans, London: Gorge Allen & Unwin, 1935; Christoph von Eurer-Haimendorf, Himalayan Barbary, New York: Abelard Schuman, 1956, and his The Sherpas of Nepal: Buddhist Highlanders, Berkeley: Univer- sity of California Press, 1964; Jiro Kawakita, "Ethno- Geographical Observations on the Nepal Himalaya," Scientific Results of the Japanese Expedition to Nepal Himalaya, 1952-53, Vol. 3, Peoples of Nepal Himalaya, Kyoto: Fauna & Flora Research Society 1957.
- [4] S. P. Chatterjee, Fifty Years of Science in India: Progress of Geography, Calcutta: Indian Science Congress Association, 1963. Papers on Himalayan geography published by Indian geographers are listed at various places in the bibliography.
- [5] S.C. Bose, "Morpho-ecology In and Around Pir Panjal," Geographical Review of India, Vol.23, No.4, December 1961, pp. 55-67.
- [6] 6. For further details see A. N. Raina, "Observations on Soils and Land Utilization in Kashmir Valley," The Geographical Review of India, Vol.25, No.3, September, 1963, pp.183-191; and S. C. Bose, "Occupance in Relation to Geomorphology in the Vales of Kashmir," Geographical Review of India, Vol.23, No.2, June, 1961, pp.40-48.
- [7] 7. W. E. Garrett, "Mountaintop War in Remote Ladakh," National Geographic Magazine, Vol. 123. No.5, May, 1963, pp.664-687.
- [8] 8. James Hurley, "The People of Baltistan; A Trasnsitional Culture of Central Asia," Natural History, Vol.70, No.8, October, 1961, Pp. 19-27; No.9, November, 1961, pp.56-68.
- [9] F. Loewe, "Glaciers of Nanga Parbat," Pakistan Geographical Review, Vol.16, No.1, January, 1961, pp. 19-24; B.A. Qureshi, "Nanga Parbat," Pakistan Quarterly, Vol.11, No.4, Summer 1963, pp.29-35.
- [10] Trevor Braham, "Swat and Indus Kohistan," The Alpine Journal, Vol.68, No.307, November, 1963, pp.251-261.
- [11] L. F. Rushbrook Williams, "Hunza and Nagar Yesterday and Today," Royal Central Asian Joural, Vol.51, parts 3 and, 4 July- October, 1964, pp.228-235; John Clark, "Hunza in the Himalayas : Storied Shangri-La Undergoes Scrutiny," Natural History, Vol.72, No.8, October, 1963, pp.39-41;
- [12] John Staley, "Hunza-Nagar and the Minapin Glacier," Explorer's Journal, Vol.41, No.2, June, 1963, pp. 12-18; Renee Taylor and Mulford J. Nobbs, Hunza, the Himalayan Shangri-La, El Monte, California; Whitehorn Publis- ing Co., 1962, 56 pages.

- [13] For details see S. L. Kayastha, The Himalayan Beas Basin, Varanasi : Banaras Hindu University Press, 1964, 346 pages.
- [14] 13. S. D. Misra, "Social Groups in Himachal Pradesh," Bulletin dela Societe de Geographie d'Egypte, Tome 35, 1962, pp.217-272. Maps. See also other geographic papers by Misra on this area: 'Agricultural Geography of Himachal Pradesh,' The Oriental Geographer, Vol.7, No.1, January, 1963, pp.46-58; "Population and Settlements in Himachal Pradesh," The Deccan Geographer, Vol.3, No.1, January, 1965, pp.31-42; "A Short Note on the Socio-Historical Geography of Himachal Pradesh," The National Geographical journal of India, Vol.8, Part 2, June, 1962, pp.164- 170: "Geographical Regions of Himachal Pradesh," The Deccan Geographer, Vol.1, No.2, January, 1963, pp. 125-140. 14. Y. D. Pande, "Agriculture in the Nainital Tarai and Bhabar," Geographical Rivew of India, Vol.23 No.2, June, 1961, pp.19-39. Ramesh Dutta Dikshit, "Evolution of the Duns," The India Geographer, Vol.4, No.1, August, 1959, pp.77-84. See also his Rural House Types in Dehra Dun Valley," The Deccan Geographer, Vol.3, No.1, January, 1965, pp.43-50.
- [16] Several recent papers discuss various geographic aspects of the region: S.D. Kaushic, "Human Settlement and Occupational Fconomy in Garhwal-Ghot Himalayas," Journal of the Asiatic Society, 4th Series, Vol.1, No.1, 1959 (published 1961), pp.23-34: Kaushic, "Climatic Zones and Their Related Socio-economy in the Garhwal Himalaya," Geographical Review of India, Vol.24, No. 3-4, Septeinber-December, 1962, pp.22-41; Kaushic, "Agriculture in the Himalayan Ganga Bashin," The National Geographical Journal of India, Vol.8, Part 3-4, September-December,