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# Chapter 1

## Introduction

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### 1.1 Purpose

Mountains everywhere constitute a dominant feature of the landscape and pose a challenge to human endeavour. Since the dimension of human endeavour covered in this survey is basically economic, there is minimal treatment of mountain peaks and the exploits of alpinists. The basic approach to this enquiry is to portray mountain areas as composite entities encompassing both pedestals and pinnacles. Much of current mountain research, whether for scientific or application purposes, tends to be either too sectoral or too area specific. Even in the case of geography, a discipline supposed to study phenomena of places, the recent emphasis is on behavioural aspects without considering physical factors (Soffer 1982). Unidisciplinary investigations may enrich systematic knowledge, but their lack of areal context creates problems in terms of comparability and replicability. Hence, the rationale for a synthesis of diverse factors to produce a general systems' overview for comparative analysis. The main purpose of this study is to establish a broad spatial framework for mountain areas in the Asia-Pacific region. This has necessitated positioning their physical, cultural, and economic aspects into a holistic regional setting. Such a composite landscape is based on description of the geological structure, physiographic expres-

sion, natural environment, and human occupancy. The output is a set of regional templates of coherent spatial phenomena that facilitate the contextualisation of specialised investigation and research.

The mountains of Asia are spread over a vast area and an investigation of such dimensions needs to reconcile the hierarchy of scale. In this context, the three levels of building blocks visualised are: (1) individual ranges as micro-components, (2) their grouping as meso-regions, and (3) finally, the continent as the macro-realm. The intermediate meso-level constitutes the logical vantage point of convergence for micro-analysis and macro-synthesis. Therefore, the focus of this study is on the regional level.

The next six chapters provide a description of Asian mountain and hill ranges according to geographic grouping. There is an obvious imbalance in information about the regions owing to the lack of access to publications about areas outside the Himalayas. Moreover, there is a greater amount of literature on the Himalayas than on other areas because the region has a longer history than the other mountain regions of Asia in terms of exploration and adventure. Surfing the Internet yielded some information, but this was mainly on tourism and mountaineering rather than about



1. **What is a Mountain?** Mount Everest from the south. The highest peak in the world at 8,848m peeps over Nuptse-Lhotse ridge in Khumbu, Nepal. Strong westerly winds deflect the cumulus clouds from the highest summits. The alps in the foreground provide summer pasture for yaks.

scientific facts. As an example, the Asia-Pacific section of IUCN's 'The Regional Mountain Profiles' includes 59 mountains of Asia but, of these, 42 are ranges, 11 individual peaks, and six are given by territorial names in Indonesia (IUCN 1988). Hence, providing balanced information about different areas of this region meant pruning out materials on the Himalayas and fleshing out information on other mountain areas through map interpretation.

The survey describes over 110 mountain/hill ranges spread over 37 countries. Since demographic information and economic (statistical) indicators follow administrative/political units, it was not possible during this exercise to disaggregate these by mountain areas. The emphasis, therefore, has been on giving a qualitative account of selected salient features. Finally, mountain areas provide a refuge for relict cultures. This is apparent from the mountain glossary (Appendix I) of indigenous terms for physical features and land use which contains terms from 35 languages.

## 1.2 Definition

### *What is a Mountain?*

Literature on mountains is extensive and voluminous. Yet, there is no rigorous definition of

universal acceptance of what constitutes a mountain. Most discussions on mountains and their development merge the concept of *montaigne* (Old French, meaning a considerable height) with the concept of the old English term *hyll* (small mound), and these are not the same. Such transposition is also evident in the poetic imagery of Wilfrid Noyce (1954, p 294):

Everest: terror and love:  
No veil is upon you, no cloud  
Doubts the huge hump, mighty monument set on earth,  
Harp of the wind, snow-song and avalanche tears,  
And tinier tale of men. But men are so proud,  
Their mole-story is hill-high (see Plate 1).

According to Geoffrey Winthrop Young, a mountain is "*earth set on earth a little higher.*" Thus, it is relative and subjective—that is, whatever strikes fire in the imagination. Therefore, one person's mountain is another person's knoll (Hanson 1988, p.8). The definition provided by a classic on mountain geography (Peattie 1936, p 1) is similar:

*"A mountain, strictly speaking, is a conspicuous elevation of a small summit area. A plateau is a*

similar elevation of a larger summit area with at least one sheer side. An essential yet indefinite element in the definition of a mountain is the conspicuity. Conspicuity, like height, is a relative matter, and depends upon the evaluation or the standard by which it is measured.”

In other words, a mountain is a mountain because of the part it plays in popular imagination. Therefore, the cult of the mountain (*shugendo*) as a sacred place and poetic eulogies such as those characteristic of *Meghadut* (Kalidasa, 5<sup>th</sup> Century), *Die Alpen* (Albrecht von Haller, 1708-77), *Wilhelm Tell* (Johann Christoph Friedrich von Schiller, 1759-1805), and *Childe Harold* (George Gordon, Lord Byron 1788-1824). Mountains may be considered sacred, sublime, and beautiful. They also happen to be marginal areas for human occupancy due to their high altitude and steep gradient. Yet, the mountain is not an amorphous mass but a composite of elevation zones. This is evident from indigenous terms from the mountains of Nepal such as *pahar* (hill without snow), *lekh* (ridge with winter snow), and *himal* (range with permanent snow). These terms are indicative of socioeconomic zones with intensive land use at lower levels, extensive use at intermediate levels, and no use at upper levels.

This regional survey of a land mass as large as Asia needs objective criteria. Thus, only those ranges and plateaus that exceed 1,000 masl have been considered as mountains; and this includes high hills also. Thus, the enquiry has been confined to altitudinal zones of *hochgebirge* (glaciated) and *mittelgebirge* (non-glaciated) mountains as defined by natural science. An overview of this kind, focussing on conspicuous ranges, cannot

provide an in-depth regional analysis of a composite environment and its interaction with the adjacent lowlands. Hence, the preference given to the term mountain area instead of mountain region, as this is the appropriate terminology for the spatial aggregation.

### 1.3 Asian Context

It is estimated that some 40 million sq.km. or 27 per cent of the total land area of the world lies above 1,000 masl. The break down of this elevated land surface is as follows: 24 million sq. km. at 1,000 - 2,000 m, 10 million sq. km. at 2,000 - 3,000 m, and six million sq. km. above 3,000m (Louis 1975). Another earlier source put the total area worldwide, defined as ‘mountain type’, to be 50 million sq. km. (Trewartha et al. 1968). Accordingly, such areas account for 35 per cent of the world’s total area. The mountain types defined by elevation range were hills (0-300m), low mountains (300 - 900m), and high mountains (above 900m). Eurasia dominates all other continents in terms of low and high mountains (Table 1). Arab geographers in the Middle Ages, in their imaginative way, regarded the Eurasian landmass as a desirable woman clothed in nothing but a long chain girdle about her ample waist. This girdle was of mountains studded with snowy peaks that stretched from the Pyrenees through the Alps, Balkans, Caucasus, and Elburz to the limits of the known world in the Hindu Kush and Himalayas. Most of the mountain areas of Eurasia are concentrated in the Asian sector.

Asia is unique among the continents in that it is mountain-hearted (Ginsberg 1958, p3). The vast

(in per cent)

Table 1: Distribution of Mountain Types						
Mountain Type (Elevation range)	Africa	Austra- lia	Eurasia	North America	South America	World
High Mountains (900m +)	4	1	23	16	11	13
Low Mountains (300 - 900m)	13	12	21	10	11	14
Hills (0 - 300m)	11	12	10	18	5	8
Total	28	25	54	44	27	35
Source: Trewartha et al. 1968, p 231						

complex of mountains and plateaus around Tibet forms the core of the Asian mountain system. This heartland is bounded on the south by the Himalayan arc, on the west by the Pamir, on the north by the Tien Shan, and on the east by a complex of ranges. The mountain core acts as the hub of a colossal wheel, the spokes of which are provided by some of the greatest rivers in the world. The ranges and plateaus of mainland Asia, extending west/south-west and east/north-east for nearly 8,000 kilometres, constitute the largest mass of highlands in the world. According to a list of 121 peaks exceeding 6,100m prepared by the National Geographic Society, those ranked from the first to 66th place and above 7,000m are all from Asia. Furthermore, the Nepal section of the Central Himalayan Range alone has over 1,300 peaks and pinnacles that exceed 6,000m in elevation (Gurung and Shrestha 1994). The Pamir knot acts as the pivotal node from whence the main ranges diverge into three directions: south-east, west, and north-east. In west and central Asia, the ranges merge into vast desert expanses. To the south and east, they descend to high relief hills and also extend as the spine of island chains. The prominent ranges included in this overview are listed by region (Annexes A-F). Various aspects of the Asian mountains are described according to the following six regions: viz., 1.) South Asia, 2) West Asia, 3) Central Asia, 4.) North-East Asia, 5) South-East Asia, and 6) Australasia.

A region or sub-region, of whatever hierarchy, assumes internal cohesion and external bound-

ary. Therefore, in demarcating Asian mountains into regions, an explanation of the methodology is needed. The main bases for demarcation were conventionally recognised geographic ones such as (1) South Asia, south of the Pamir, (2) West Asia, beyond Afghanistan, (5) South-East Asia, and (6) Australasia. More problematic was recognition of the boundary between (3) Central Asia and (4) North-East Asia. An arbitrary approach was taken in this delimitation: political in the north and physiographic in the south. Thus, Mongolia was taken as the eastern extension of Central Asia in the north and ranges contiguous to the Tibetan plateau were considered to be Central Asian in the south. The other ranges of China were included in North-East Asia.

The recognition of discrete ranges within each region is based mainly on their contiguity internally and the existence of major rivers and land depressions externally. However, two exceptions should be considered. These are the sub-division of the Himalayas of South Asia into sections and the island individuality in South-East Asia. In the case of the former, recognition has been given to the conventional three sections of arid west, transitional central, and humid east (Table 2). In the latter case, each island chain is given a separate identity with the surrounding sea as their boundary. Regional treatment is in a clock-wise sweep, commencing from South Asia and ending with an outward loop towards Australasia. The sequence of regional description, therefore, is as follows: South Asia, West Asia, Central Asia, North-East Asia, South-East Asia, and Australasia.