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CHAPTER 2

The Fragile Himalayas: Desperate for Love, Understanding and Empathy

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ABSTRACT

The Himalayas have fascinated people from the time immemorial. Their lure has drawn in yogis, spiritualists, scientists, adventurers, and lay people of all hues and dispensation; the deep psychic thrall that these mountain ranges cast over such diverse groups of people speak of their abiding appeal. To some the Himalayas appear immutable, static, eternal, reverential, but to some others they are dynamic, changeable, evolving, fragile and transient. Each perception of the mighty Himalayas has a truth and logic of its own, merits attention, and sharpens our understanding of the ecology, beauty, mystery and love for this captivating natural wonder. The Himalayas have been in a state of flux and it is perceptible not only in the shape, magnitude and features of the glaciers, flora, fauna, and rocks, but also in the lives of the people inhabiting these rugged terrains. These mountains have been facing threat to their beauty, grandeur, ecology, economy, demography – to almost every aspect of their physical existence – partly due to the inexplicable natural forces, and partly due to the uncontrolled human activities and interference. Over the years its ecology and its environment have been seriously compromised by unplanned, unregulated, unsustainable, misguided developmental activities – be it the construction of roads, residential, recreational or tourism-related projects, hydropower projects, the natural formation of glacial lakes, the construction of large dams, etc. The threats are too serious to be treated lightly, and nothing short of a comprehensive and far-sighted approach, supported by the scientific knowledge of the geography and geology of the region, native wisdom, empathy, sociological concerns, long-term perspective, economic realities, and sharp reduction in human interference can possibly save the Himalayas from further degradation.

Keywords: Himalayas, ecology, geography, fragility, sustainability

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The complex geometry of a mountain cannot be properly understood without taking into account its various features, such as its lush green valleys, steep inclines, and its relation to the nearby mountain ranges. The Himalaya form a series of arcs that stretch from Baltistan in the west to Arunachal in the east. Spanning a distance of roughly 2500 kms in length, between 150 and 350 kms in breadth, and rising to a height of almost 9000 metres above sea level, the Himalaya present a spectacular, terrifying and breathtakingly beautiful mountain range. As the youngest, highest and most active continental mountain chain, the Himalayas constitute an imposing crescent-shaped mountain range, with a prominent southward convexity, extending from the south of the Indus Valley beyond Nanga Parbat in the west to Namcha Barwa in the east. The Karakoram mountains are generally considered separate from the Himalayas.

The birth and gestation of the Himalaya, as conceived in folklore, mythology, religion and science, is a fascinating story. Believed to be conceived beneath the surface of the Tethys Sea, the first contractions leading to their formation started around a hundred million years ago. A deep trough known as geosyncline, which was formed as the super continent Pangaea started to cool and break apart due to tectonic forces some 200 million years ago, was filled with the waters of the Tethys Sea and debris and sediment deposited by the fast-flowing rivers over a period of a few million years. When the Indian subcontinent collided with the rest of Asia some 50 million years ago, three major thrusts leading to geological realignments took place. The Indo-Australian tectonic plate – containing the continent of Australia, the Indian subcontinent, and surrounding ocean – was pushed northward by the convection currents generated in the inner mantle. For millions of years, this movement continued towards the Eurasian plate. As India approached Asia, around 40 million years ago, the Tethys Sea began to shrink and its seabed slowly pushed upwards. The Tethys Sea disappeared completely around 20 million years ago and sediments rising from its seabed formed a massive mountain fold known as the Himalayas. When India and Tibetan Plateau collided, the relatively light sedimentary and metamorphic rock that makes up the subcontinent of India pushed against Tibet. The Eurasian plate was partly crumpled and buckled up above the Indian plate but due to their low density/high buoyancy neither continental plate could be subducted. This caused the continental crust to thicken due to folding and faulting by compressional forces pushing up the

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Himalaya and the Tibetan Plateau. The Himalaya lie bracketed by the Indus Valley on the one side and the Tsang Po or Brahmaputra Valley on the other.

The Himalaya may appear a mere pile of rocks, stones and snow, totally impersonal, but they tell stories of life and its myriad forms. It is both in the form of humans and animals living in those inaccessible regions and in the form of rock art that may be considered the field guides to the Himalayan wildlife. The way the formation of the Himalayas lies imprinted in the rocks, the petroglyphs chronicle the story of the Stone Age hunters, their arrival and existential struggle on these precipitous heights. Each part of the Himalaya has a unique environment, but Ladakh stands out in its uniqueness. It is home to vast barren spaces, frozen lakes, desolate ridges, and maddening silence that may have haunted the first inhabitants of this space, and which remains largely undisturbed even now. D.N. Wadia, considered the father of Indian geology, felt that geology was not a field to be studied by specialists alone; it should instead be enjoyed by everyone because it offers a rational and scientific explanation of the earth's formation. For him studying the mountains was a joyful activity as therein lay geological time compressed into ridgelines and riverbeds, which were like chapters in a book, narrating its history.

The mountains appear to be divine, eternal, rugged and immutable, but they are rather fragile and changeable, though the pace at which they undergo change is too slow to be noticed even in a few hundred years. Not only do they represent the 'weaker belts of the earth's crust' and are susceptible to seismic activities, there are some less violent activities that work silently, eroding and weakening the mountains that look impervious to change. In their attempt to understand the Himalaya, the scientists were often puzzled to see many inconsistencies in their calculations. It came to light in 1906 that the earth's polarity had reversed around 800,000 years ago. These inconsistencies could be understood and explained when the scientists realized that different generations of rocks had retained their original orientation, thereby proving that these mountains are not as static as they appear to be. These ranges are formed of parts that moved from different parts of the globe and belong to different epochs, and they have failed to shed their magnetic memory, forming in the process the great mountain range that is constantly changing and evolving.

Like all the natural objects, the Himalayas are subject to change, on account of natural forces like erosion, seismic upheaval, but the impact of human activities has far exceeded the gradual

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natural changes over a million years. Humans have been living in the hills for generations, but it is only in the recent times that the devastating impact of their interactions with the hills has begun to be get manifested. Terrace farming, use of rocks and other material sourced from the mountains have traditionally been used to build retaining walls, temples, homes, courtyards, water trough for cattle, idols of deities, etc. In recent times, the mad rush for development has thrown the mountains into turmoil. Rapid and haphazard industrialization, installation of power generation units on unwieldy dams, indiscriminate mining, widening of existing roads and construction of new ones, building hotels and other structures for recreation, and construction of homes without taking into consideration the topography of the area tend to destabilize the rock strata, leading to soil erosion, landslides, loss of green cover, formation of glacial lakes, drying up of rivulets and other water bodies. The much-hyped hydroelectric power projects have had their fair share of negatives, such as high level of sediments discharge, cost of human displacement, sudden and catastrophic floods, danger of damage to these structures due to seismic activities, decrease in discharge in the rivers as they move though the plains.

The world is facing the dangers of climate change, and its disastrous consequences for the various life forms on the planet. The Himalaya are not immune to this. The rising temperatures will have direct bearing on the sea level, which in turn will inundate many coastal towns and cities. Though the rising waters of the sea can hardly threaten life in any form on the high mountains, yet the increased incidence of cloudburst, lightening, flash floods, scant snowfall point to what lies ahead in store. The industrialization in the last 200 years has been a major contributor to the climate change, and the impact of human activities on the planet is being felt in greater severity on the mountains. Though the Himalaya are often referred to as the ‘Third Pole’ because they have a colossal accumulation of snow and ice, yet their latitudinal position, which they share with some of the warmest and driest places on Earth, make them more vulnerable to climate change. There are dire predictions that in times to come glaciers would gradually recede and finally disappear, leaving the mountains only a vast expanse of dry and dusty rock and rubble. The Himalayan weather has experienced fluctuations through history; paleobotanic studies, vegetable profiles, and fossil evidence suggest it no uncertain terms, but these were primarily natural, and less of a concern, but current weather patterns are quite worrying because they appear to be induced by human consumption and resultant wastefulness, not only in and around the mountains, but also in faraway lands. Catastrophic

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cloudbursts in Ladakh in 2010, cloudburst and resulting flood in the temple town of Kedarnath in 2013, which caused huge loss of life and property, and the most recent landslide that ravaged the Rishi Ganga Hydro Power Plant in February 2021, are a telling reminder of the mindless development. World's leading experts in geo hazard mitigation and dam safety believe that this tragedy caused by a landslide or an avalanche or a glacial lake outburst was entirely foreseeable and could have been mitigated by better civil engineering design and hazard assessment.

The Himalaya have been part of the spiritual, religious and political consciousness of the Indians for generations. Even in the *Rig Veda* there are references to various mountains, which comprise the Himalaya. In ancient texts the Himalayas are referred to as Himavat or Himavant. In one Vedic sloka, it is described as:

यस्येमे **हिमवन्तो** महित्वा यस्य समुद्रं रसया सहाहुः |
यस्येमाः परदिशो यस्य बाहू कस्मै देवाय हविषाविधेम

His, through his might, are these snow-covered mountains, and men call sea and Rasā his possession: His arms are these, his are these heavenly regions. What God shall we adore with our oblation?

In literature too the Himalaya have found repeated mention. The first verse of Kalidasa's great work *Kumarasambhava*, has a beautiful blend of reality, poetry, imagination and myth while referring to the Himalaya:

Far in the north, Himalaya lifting high
His towery summits till they cleave the sky,
Spans the wide land from east to the western sea,
Lord of the Hills, instinct with Deity.

This is how Emily Dickinson describes the Himalaya:

The Himmaleh was known to stoop
Unto the Daisy low –
Transported with Compassion
That such a Doll should grow

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Where Tent by Tent – Her Universe

Hung out its Flags of Snow –

Countless seekers of truth, salvation, and the eternal mystery of life, have travelled and meditated on these precipitous heights. An encounter with mountains is invariably overwhelming; most get taken in by their physical enormity and majestic presence; but their serenity and mystical aura can be felt and absorbed only by those who are able to look beyond the physical, still their mind, and dull their senses. For people who fall into this category, the Himalaya have life-enhancing and other-worldly charm.

The Himalaya are one of the most impressive natural formations on the planet; they have been the lifeline of millions of people, providing an incessant supply of abundant water into the form of rivers that crisscross not only the north-Indian planes but also a number of contiguous countries. Although there has been running feud among people, politicians and experts with differing viewpoints about climate change and its impact on the oceans, plains and the mountains, yet it is becoming increasingly clear that the telltale signs cannot be overlooked as of no consequence. There is every possibility that if things continue as they are at the moment, the mountains and all those places and people, who are dependent on them in some way, will stare at a catastrophic situation. People with a spiritual bent of mind have often found solace in the desolation of the remote mountains, and they too feel pained to see how the aura, beauty and enormous life-giving powers of the Himalaya are coming apart. Unless we make collective efforts, sensitize ourselves and our younger generations about the importance of this great natural wonder, and show immense respect and love for the Himalaya, the source of water, energy, spiritual solace, mystery, and awe will be lost to us forever. No single group of people can be blamed for the current crisis brewing in the mountains; even those who revere the mountains cannot be absolved of their advertent or inadvertent contribution to the criticality of the situation. For instance, the adventurers, who apparently value this wonder, leave tons of waste during their expeditions to these far-off locations. And why should after all so many travellers be allowed in a particular season to explore various peaks, more especially, Mount Everest when we know that human presence decisively spoils the serenity and purity of these places? Why should human greed be allowed to get pre-eminence, ignoring the needs and logic of nature? The Himalaya are crying for attention; our love and empathy, coupled with a scientific

understanding of their geography and geology can possibly save them from turning into barren, unappealing, dusty, crumbling structures.

Notes

1. Stephen Alter, *Wild Himalaya* (New Delhi: Aleph Book Company, 2019). This book has been widely consulted for understanding the geology and geography of the Himalaya.

2. Lines quoted from the *Kumarasambhava* are from the English translation of the epic poem by Ralph T. H. Griffith.