

Chapter 15

Planning Strategies to Improve Deteriorating Living Environment of Hill Towns: A Case of Dharamshala



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Abstract Hills are losing their true identity due to the overpowering of the world of construction. The amalgamation of the hills' local elements with nature is getting deteriorated. Hill stations are famous for their pattern of development and sustainable growth where every element responds at its best with the nature around and the geological conditions. With growing urbanization and chase in upgrading lifestyles people are forgetting the patterns of sustainable growth. Over-excavations are penetrating deep into the stability of the geological conditions thereby increasing the tendency to be unstable and unfit to reside upon [3].

Planners and architects need to understand the alarming situation of the deterioration of the living environment in hills and so must put forward the designs and policies that make the town resilient with efficiency to work sustainably [6]. In Dharamshala, the unplanned world of concrete with rapid urbanization is eating up the nature and its breathing organs, making it congested, unhygienic and worthless of living in the near future.

This chapter emphasizes on the various issues hill towns are facing along with some strategies with which we planners can regulate the development to grow sustainably.

Keywords Hill stations · Sustainability · Geological disaster · Vernacular architecture · Resilient town

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D. K. Ashish, J. de Brito (eds.), *Environmental Concerns and Remediation*,
https://doi.org/10.1007/978-3-031-05984-1_15

15.1 Introduction

Hills and mountains of himalyan region which are accesible to us are gift of nature [8]. The chapter is compiled on the basis of secondary data and primary reconnaissance survey of the case study area. Man has profoundly altered the earth's land surfaces by deforestation, crop cultivation and urbanization [1]. As per National Building Code 2005, part III, Annexure G, any area with an altitude of more than 600 m from mean sea level or any area with an average slope of 30° is classified as hilly [10]. Hills of the Himalayas are home to a diversity of medicinal resources, but the locals are rapidly clearing the forests for wood, often illegally. Also hills due to various geographical conditions are not feasible to hold equal amount of population as by plains, but the human invasion is disturbing the geological as well as geographical structure of the hills [4].

Hills that were less invaded or explored in the past due to lack of accessibility are explored the most today. The movement of people towards hill stations for traveling or settling down has increased [7]. This has no doubt increased the job opportunities for local residents but overall human invasions over the nature is deteriorating its quality and making it weak. Currently people love having modernism in their house by going along with modern construction materials and techniques but forgetting that with change in region the materials and techniques need to be changes to have better quality of environemnt along with lifestyle of people. Hill towns have become concrete jungles characterized by depleting forest/greenery, unchecked construction, barren hills covered with buildings, narrow and accident prone roads, and encroachments on roads and public areas [7, 15].

Earlier people residing in hills had their specific way of settling down with less of excavations, respecting the contours, steepness of the hills, valuing the natural drainages, avoiding the felling of trees and even trying to fit in with the nature without dominating it. But with change in time people started following the methods of the plains [5]. The same we can notice today in our case study—Dharamshala (winter capital of Himachal Pradesh). This chapter focuses on how the planners and architects can strategize the development in hill stations to improve the quality of environment in Dharamshala.

15.2 Dharamshala—The Case Study

Dharamshala, situated amidst the pine-covered spur of the most fascinating snow clad Dhauladhar, is an important regional centre. Dharamshala means shelter that is given to the travellers, refugees. as this region was devoted to provde shelter to the tibeteans therefor the whole region got its name as Dharamshala. The town was founded in the year 1849 as cantonment for troops stationed at Kangra. Dharamshala was declared as the headquarters of District Kangra in 1855. Subsequently, besides the development of offices, trades and commerce, public institutions, tourism facilities and transportation activities flourished [9].

The town was considerably damaged in the earthquakes of 1905 and 1986. Since 1960, Dharamshala is acting as the seat of Dalai Lama. The present town developed on state highway-21 retains its character of administrative-cum-tourism centre of the region. Dharamshala has an average elevation of 1457 m. The total area of Dharamshala planning area is 40.63 km², out of which the municipal council constitutes 27.60 km².

15.2.1 Demography

The total population of Dharamshala planning area was 62,279, of which the urban component contains 30,764 persons whereas rural area has 31,515 persons as per census 2011. In year 2016, the Dharamshala municipal council was upgraded to municipal corporation. The number of wards increased from 11 to 17, and the area increased from 10.63 km² to 27.60 km². According to census 2011, the population of the municipal area of Dharamshala was 30,764 in 2011 and by 2015 the population became 53,543.

15.2.2 Location (Fig. 15.1)

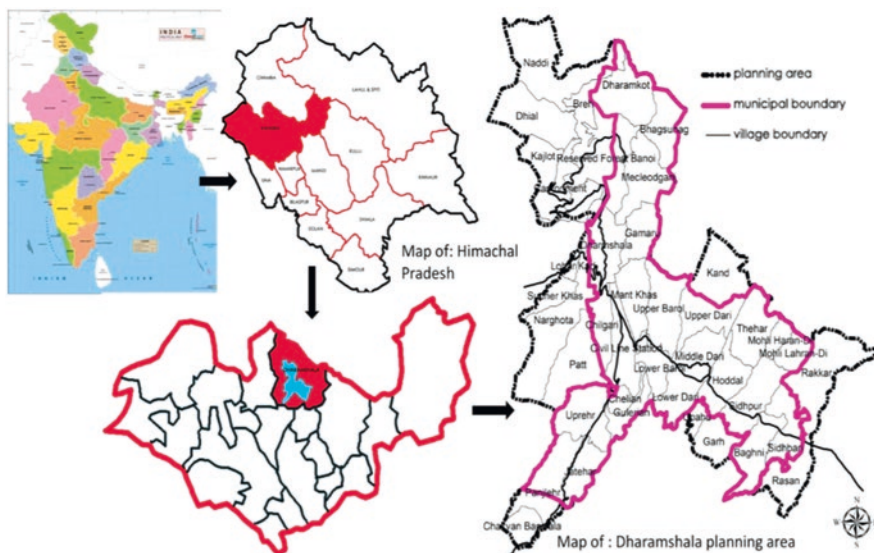


Fig. 15.1 Location of Dharamshala

15.3 Issues in Dharamshala Harming the Environment

1. *Shift from locally available material to modern construction materials.*
 2. *Ignorance towards slope stability*
 3. *Overpowering the natural drains*
 4. *Neglecting vulnerability to natural disaster*
- *Shift from Locally Available Material to Modern Construction Materials:* People today are switching towards modern construction materials just to make their building look like those in plains. But they are forgetting the importance of locally available materials like bamboo, mud bricks, stones and slates[8]. There was a reason why these were used, as locally available materials help the residents to fight and stay resilient against the various disastrous events and even stand against the harsh climate. This switch of materials is actually putting more load on infrastructures to meet the need of luxury so to fight against the harsh climatic conditions and thereby degrading our environment [14].
 - *Neglecting Vulnerability to Natural Disaster:* Hills stations are mostly located in ecologically sensitive zones. The ecological balance of the towns is affected due to high density development with multi-storied buildings and lower carrying capacities of hill towns [7]. Dharamshala is lying on a fault line and also has a few active land slide zones. This thing about Dharamshala cannot be ignored when it comes to its development. But the development that we notice today has forgotten this factor, due to which the amount of excavation has increased and the open spaces within the town have decreased [14]. The most congested and all-time tourist spots like MacleodGanj or Naddi are just on top of the fault line. And overburdening of the area of Dharamshala can be an invitation to the same amount of destruction that happened once in the 1905 earthquake, which was of 8 magnitude [13].
 - *Ignorance towards Slope Stability:* Presently due to high demand of land for construction on hills, people getting the whole patch of hill in their site chopped of and ignoring the sensitivity of the soil near by. But this can be disturbing for the fault line passing via the MC boundary of Dharamshala as shown in figure below (Fig. 15.2, 15.3) and can also activate the various sleeping landslide zones along with active ones. The top soil available in the study area are mainly the clay soil, debris clay soil with fragments of sand stones which is a young loose material and compacted alluvial soil deposits [9]. Clay soil has affinity towards water so always has the tendency to hold water in it. As clay soil can shrink and swell according to the quantity of water, it can damage the buildings over it. Within the study area, clay soil is noticed in the core heart area of the lower part (*cgwb, ministry of water resources, H.P*). Most of the planning area is covered by young debris of clay and sandstones which is loosely packed and can easily slip off during heavy rains. This type of top soil also becomes looser if excavated, especially on steep slopes [9].
 - *Overpowering the Natural Drains:* The construction in Dharamshala has grown so dense that now it has started moving towards the natural drains. This move-

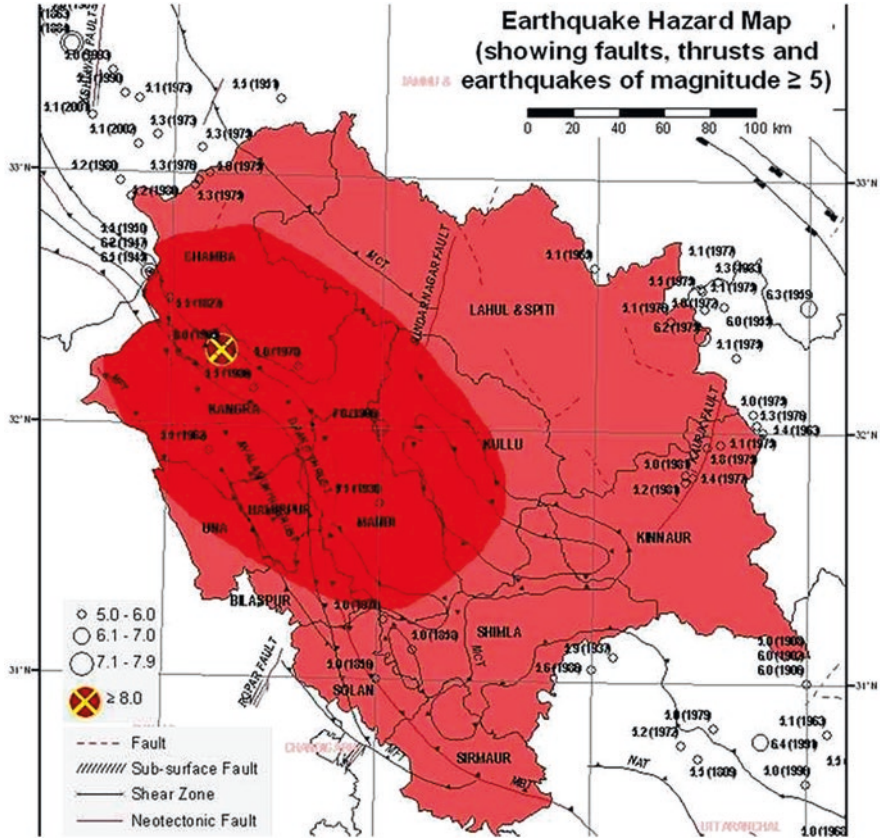


Fig. 15.2 Map showing disaster vulnerability in Himachal Pradesh. (Source: District Disaster Management Plan, Kangra)

ment of construction has squeezed the drains, and this is the reason why Dharamshala faced flash floods in the monsoons of 2021 (Figs. 15.2, 15.3, 15.4, 15.5, and 15.6).

15.4 Planning Interventions

Hill towns are facing issues while planning their development because of many reasons, and the same is the case with the city of Dharamshala. Hill towns of H.P are one of the ultimate travel destinations of India for tourists, artists, pilgrims and adventurers since time immemorial. Himachal is known as “A Destination for All Seasons and All Reasons. Himachal is also prone to natural disasters and for drastic changes in climatic conditions of its some special area and Dharamshala falls in this category.

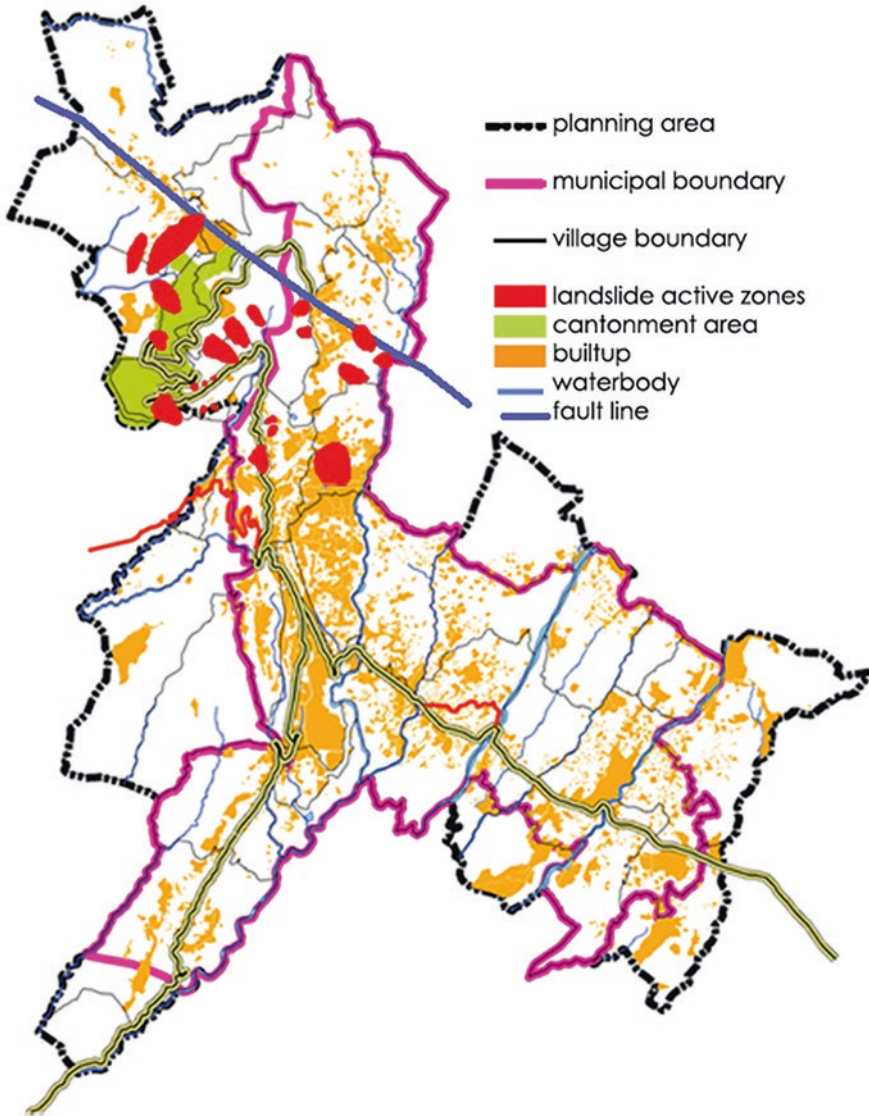


Fig. 15.3 Map showing the fault line and active landslide zones. (Source: HP State Council for Environment, Science and Technology and earthquake hazard risk assessment report-1, Himachal Pradesh state disaster management authority)

Here comes the role of an architect and a planner to guide our people to following the basic regulations before strategizing new interventions for them.

- *The Vulnerable Zones:* These zones need to be defined and marked. Strict care for the implementation of regulations needs to be taken by the planners and



Fig. 15.4 Image showing landslide in Macleod Ganj and nearby areas in 2015



Fig 15.5 Image showing over-excavation of sloppy debris which led to the fall of trees

architects. In the upcoming development plans for the city these areas need to be kept as development-free zones so that they can act like buffer during the hour of need. The existing development in such zones should not be neglected and on an urgent basis must be shifted to some safer zones.

- *Vernacular Architecture*: This is all about using locally available materials for construction [16]. Vernacularism in hilly regions always followed the rule of low



Fig. 15.6 (a, b) Showing flash floods in July 11 and 12, 2021- Dharamshala

footprint thereby keeping more open space around the house for various activities. This principle of vernacularism will help in making the city resistive. The construction techniques need to be relevant to the use of locally available vernacular materials like timber, stones or sun-baked bricks [16].

- *Encourage Local Materials:* Despite encouraging the common man to get construction done with modern materials, architects must promote the use of locally

available materials. Subsidization in terms of less service charges for the basic amenities like water and electricity can be provided to the ones who prefer local materials and construction technology. The locally available materials are cheap, easily workable and have good climatic and seismic response [16]. Adoption of locally available building materials with new construction technologies can be an option to adopt to have better climatic responsiveness, to lower the consumption of energy and safeguard the environmental from getting degraded. Vernacular practices with slight modification can help in making the hill town disaster resilient. The vernacular buildings merge well with the surroundings and have minimal impact on the environment of hilly areas [2].

- *Traditional Settlement Patterns:* Settlement patterns for hill towns are an important part for supporting the natural environment of the hill. Traditional patterns of settlement help the cities to be more resilient and robust to face the disasters. The scale of loss also reduces down due to high resistive capacity of the city. Following the traditional settlement, the scale and size of the cityscape can be regularized and amalgamation of development with nature can go well. The vernacular settlement patterns due to their materials and planning are often earthquake resistant [16].
- *Defining Natural Feature:* Preserving the natural features along with developing the hill town will always help us to direct the city towards healthy and livable space. Future land use or proposals can be added with respect to such features if notified and this will always help the authorities to preserve them. Demarcation of natural features like natural drains can avoid the encroachment above them and will always help in preserving

15.5 Conclusion

Hill towns of the fragile Himalayas are facing a newly emerged problem of mismanaged and unplanned building construction. Anthropogenic and technogenic activities in the recent past have lead to several geomorphic and environmental problems [11, 12]. This problem has become more dangerous because of the material transformation of the hill slope in the fast-growing towns. These materials that are replaced and transformed in an unscientific manner cause environmental hazard [1]. With the world evolving, everybody and everything is changing, it is important to keep up with the tides of time. However, keeping up with the modern time does not mean forgetting our past and traditions. Traditional architecture using the indigenous, vernacular materials and construction techniques not only keeps our traditions alive but also contributes to the economy and environment. Vernacular architecture is also sustainable architecture because it uses natural, easily available materials [16].

As Dharamshala, a hill town, is situated on the seismic zone with very young and loose debris so it is very important that we as planners never forget the importance

of hill architecture and planning typologies that prevails in pure hill towns and has higher capacity of resistance against the disasters.

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