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SITE ANALYSIS OF HILL TOWNS

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ABSTRACT : As an exercise in regional urban geography, this paper presents a site analysis of towns in the hill state of Himachal Pradesh. The peculiarities of considerations involved in selection of sites during the various historical periods, relationship between site and functions, impact of site on morphology and relevance of this site analysis to planning of hill towns have been investigated.

Practically all the towns that emerged during the pre-British period occupied valley or gap sites. Towns which originated during the British period were generally located on hill-tops or spurs. In the case of post-Independence towns, economic rather than physical attributes of sizes were more crucial.

Accessibility, local topography and water availability were dominant in the site selection of valley and gap towns. Climate, scenic beauty and defence were the main virtues of hill-top and spur towns. The impact of the site was greater on morphology than on functions of towns. Social relief conformed to physical relief on all the hill top, spur and gap towns. The social lay-out of valley towns conformed to that of any small feudal city in India. Notably building use planning was found more meaningful than land use planning in hill-top towns.

As a cultural artifact, hill towns make a bold appearance on the dominantly physical landscape of the hilly and mountainous regions. These towns are scattered over the whole India; their greatest number lies in the south but relatively the larger ones are located along the Himalayan front (Spencer and Thomas 1948). Altitude, terrain, micro-climate, scenic beauty, accessibility, personal interest of the founders, political constraints, strategic importance, plural societies and reputation of a locality have been identified as the chief determinants of the locational pattern of hill-stations in India (Mitchell 1973). Religion and technology available can be listed as additional factors. The purpose of the present paper is to conduct a comprehensive site analysis, in the light of the observations made above, of all the towns in the Indian state of Himacha Pradesh located in the western Himalayas. Its specific objectives are to (i) identify the nature of sites of various towns, (ii) distinguish the peculiarity of considerations involved in selecion of urban sites during the pre-British, British and post-Independence periods of Indian history, (iii) discern the relationship between the site and functions of towns, (iv) examine the impact of site conditions on town morphology, and (v) explore the relevance of site analysis to planning of hill towns. A brief review of urbanisation in Himachal Pradesh may precede the discussion on the points raised above.

Urbanisation in Himachal Pradesh

Himachal Pradesh is one of the least urbanised states of India. Hardly 6.99 per cent. of its total population (241,890 out of 3,460,434) was recorded as urban in 1971; the all India figure was 19.90 per cent. The low degree of urbanisation in the state was attributed to predominatly subsistence agricultural economy, meagre industrial development and lack of transport facilities, resulting in isolation of vast areas.

Urban population was scattered in 35 towns, mostly small in size. Simla, the state capital, was the largest with a population of 55,368. Sundarnagar, a construction town with a population of 21,304 came next. All other towns had a population of below 20,000 each. Population was less than 5,000 in twenty-two towns.

Frequency of towns was greater in the southeastern part of the state, adjoining the Punjab-Haryana plain and in the Kangra valley, agriculturally the most productive part of Himachal Pradesh. Most of the towns were characteristically located on the roads penetrating from the erstwhile British administered areas than in the former princely states. All of them were below 2500 metres in altitude.

Services (more specifically administrative), some market functions and tourism defined the basic economy of many towns. More than a half of them were either district or tahsil headquarters. Industrial component of population was small and that too was confined to a few district headquarters. Interaction between towns and their rural environs was weak, except in the case of valley towns. Equally feeble was the relationship among various towns. Many of them had stronger functional links with places outside the state. A tendency towards a greater mutual interaction was unmistakably developing.

Classification of Towns by Site Conditions

Site stands for the ground on which a settlement is spread over. Certain physical features have been favoured, for varying reasons, for siting of settlements. Towns in Himachal Pradesh, as in any areas, were found occupying sites of varied nature. On the basis of the physical attributes of their sites, these towns could be classified into four categories as given in Figure 1.

Among 35 towns, 19 were sited in valleys, 10 on hill-tops, 4 in gaps and the remaining 2 on spurs (Table I). Practically all the valley towns were positioned on river terraces. Hill-top towns ranged in altitude from 2000 to 2500 metres while the gap and spur towns were in the altitude range of 1000 to 2000 metres.

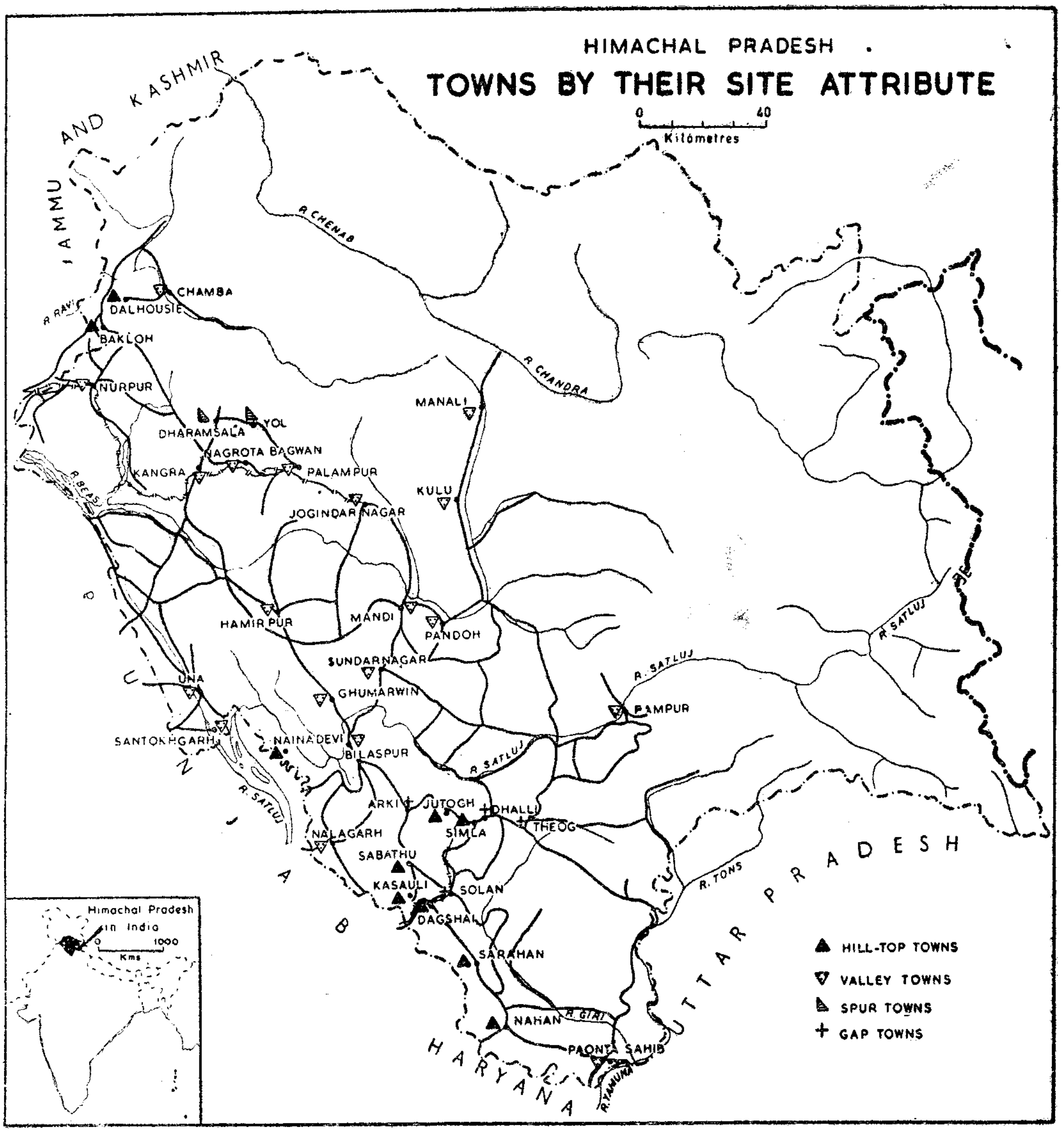
Population size of towns found some association with their site. Valley towns were comparatively large, spur towns of medium size and hill-top and medium size and hill-top and gap towns small. Simla was a glaring exception. This hill-top town enjoyed primacy because of its status as the state capital and a tourist centre of international repute.

Valley sites were the most suited for siting of urban settlements. Their main advantages were centrality in relation to surrounding area, adequacy of space for physical expansion, easy accessibility to water and convenience of laying out transport and utility networks. The river provided natural defence in the past. An occasional problem was flooding. Such sites also involved some loss of fertile agricultural land, so scarce in hilly and mountainous regions.

By comparison, hill-top sites had the merits of a healthy climate, scenic beauty, strategic position and free drainage Their demerits were virtual absence of flat land, lack of local water-supply and inconvenience in intra-town mobility.

Transitional between the valley floors and hill-tops spur sites enjoyed the benefits of natural defence, panoramic landscape and moderate climate. They involved only a limited loss of agricultural land. Such sites, however, had restricted accessibility from their environs. Intra-site mobility was also difficult. Landslides were quite common and space for expansion was scarce.

FIGURE 1


HIMACHAL PRADESH
TOWNS BY THEIR SITE ATTRIBUTE
0 40
Kilometres
JAMMU AND KASHMIR
PUNJAB
HARYANA
UTTAR PRADESH
R. CHENAB
R. CHANDRA
R. RAVI
R. BEAS
R. SATLUJ
R. TONS
R. GIRI
R. YAMUNA
CHAMBA
DALHOUSIE
BAKLOH
NURPUR
DHARAMSALA
YOL
NAGROTA BAGWAN
KANGRA
PALAMPUR
MANALI
KULU
JOGINDAR NAGAR
HAMIRPUR
MANDI
PANDOH
SUNDARNAGAR
UNA
GHUMARWIN
RAMPUR
SANTOKHGARH
NAINA DEVI
BILASPUR
ARKI
JUTOGH
DHALLI
SIMLA
THEOG
NALAGARH
SABATHU
KASAULI
SOLAN
DAGSHAI
SARAHAN
NAHAN
PAONTA SAHIB
HILL-TOP TOWNS
VALLEY TOWNS
SPUR TOWNS
GAP TOWNS
Himachal Pradesh in India
0 1000
Kms

Tabie I

Himachal Pradesh

Classification of Towns by Site and their Related Characteristics

Serial number	Name of the town	Population in 1971	Dominant function		Period of evolution as a central place or service centre
			Original	Present	
A	**Valley Towns**				
1	Sundarnagar	21,304	Administration	Construction	Pre-British
2	Mandi	16,849	Administration	Administration	Pre-British
3	Chamba	11,814	Administration	Administration	Pre-British
4	Kulu	8,958	Administration	Administration	Pre-British
5	Bilaspur	7,037	Administration	Administration	Pre-British
6	Una	6,328	Religion	Administration	Pre-British
7	Pandoh	6,048	Construction	Construction	Post-Independence
8	Kangra	5,999	Administration	Administration	Pre-British
9	Nurpur	4,251	Administration	Administration	Pre-British
10	Santokhgarh	4,010	Trade	Trade	British
11	Jogindernagar	4,004	Transport	Trade	British
12	Paonta Sahib	3,692	Religion	Administration	Pre-British
13	Nalagarh	3,671	Administration	Administration	Pre-British
14	Hamirpur	3,671	Administration	Administration	Pre-British
15	Nagrota Bagwan	2,922	Trade	Trade	Pre-British
16	Rampur	2,623	Administration	Administration	Pre-British
17	Palampur	2,539	Administration	Administration	Pre-British
18	Ghumarwin	1,967	Trade	Administration	British
19	Manali	1,800	Tourism	Tourism	Post-Independence

Serial number	Name of the town	Population in 1971	Dominant function		Period of evolution as a central place or service centre
			Original	Present	
B	**Spur Towns**				
20	Dharamsala	10,939	Defence	Administration	British
21	Yol	7,992	Defence	Defence	British
C	**Hill-top Towns**				
22	Simla	55,368	Administration	Administration	British
23	Nahan	16,017	Administration	Administration	Pre–British
24	Dalhousie	5,123	Tourism	Tourism	British
25	Kasauli	3,757	Defence	Defence	British
26	Sabathu	2,884	Defence	Defence	British
27	Dagshai	2,161	Defence	Defence	British
28	Bakloh	1,907	Defence	Defence	British
29	Jutogh	1,891	Defence	Defence	British
30	Sarahan	1,006	Administration	Administration	British
31	Nainadevi	494	Religon	Religion	Pre–British
D	**Gap Towns**				
32	Solan	10,120	Administration	Administration	Pre–British
33	Theog	1,378	Trade	Trade	Pre–British
34	Arki	1,352	Administration	Administration	Pre–British
35	Dhalli	664	Trade	Trade	Post–Independence

Gap sites, by their very nature, enjoyed nodality. The convergence of routes in the gaps made them favoured transit points. Water-supply was no problem. Physical expansion was, however, difficult since gaps generally provided limited sites and these too were not from hanging walls.

The different town sites, thus, possessed comparative advantages and disadvantages. The choice of a particular site was dictated, among other things, by the original function it was supposed to perform, technology available with the founders of the town and merits of the locale in a wider regional context.

History and Town Sites

The above observations were amply validated by a historical survey of forces behind selection of town sites. During the pre-British period (before 1815 when the British made their first entry into the region on the eve of the Anglo-Nepalese war), considerations of effective administrative control over the acquired territory, defence against invasion from outside, central position and regular water-supply were paramount. Towns like Mandi, Chamba, Kulu, Bilaspur and Rampur, (evolved during this period) occupied valley sites, conveniently accessible to environs and simultaneously enjoying a state of natural defence. Nahan was the only notable exception in being a hill-top town of this period. A strategic location, pleasant climate and presence of natural ponds were the main factors behind the choice of its site.

Town sites during the British period 1815-1947) were typically associated with hill-tops and spurs. Hill-top towns like Simla, Dalhousie, Kasauli, Dagshai and Jutogh as well as the spur towns of Dharamsala and Yol were the product of this time. The British were keen on sites offering a healthy climate, panoramic view and strategic location. Hill-tops answered these requirements the best. Matters of local water-supply and problems relating to journey to hill-tops could be taken care of since the new founders of towns were equipped with relatively superior technology.

Economic considerations dominated during the post-Independence period beginning in 1947. New urban sites included the power-generation points, like Sundarnagar and Pandoh. Manali was developed as a tourist resort to commercialise the natural beauty of its site. Dhalli grew into a market place by virtue of nodal position of its site.

There was evidently a contrast in site characteristics of towns that originated during the pre-British period and those which emerged during the British period. While the former were distinguished by their valley sites, the latter were prominently located on hill-tops or spurs. By comparison, economic rather than physical attributes of sites became crucial in the case of post-Independence towns.

Town Sites and Functions

Irrespective of their origin during the pre-British or the British period, many of the towns in Himachal Pradesh emerged for administration. They were either the capitals of erstwhile princely states or headquarters of districts and tahsils in the former British territory. Hence administrative towns predominated both in the valleys and on the hill-tops. In their case, relationship between the site and function was missing. Other towns, however, displayed a discernible pattern. Practically all the cantonment, tourist and temple towns were sited on the hill-tops and spurs. The valley and gap towns were marked by more pronounced development of trade as one of their functions.

Town Sites and Morphology

Far more than functions, morphology of towns bore an imprint of their sites. Although all hill-towns were linear in form yet they showed significant differences in their internal lay-out, intensity of development, building heights, skyline view, segre-

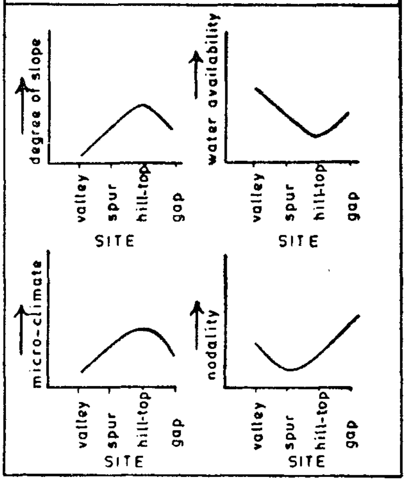
FIGURE 2

COMPARATIVE ANALYSIS OF DIFFERENT SITES

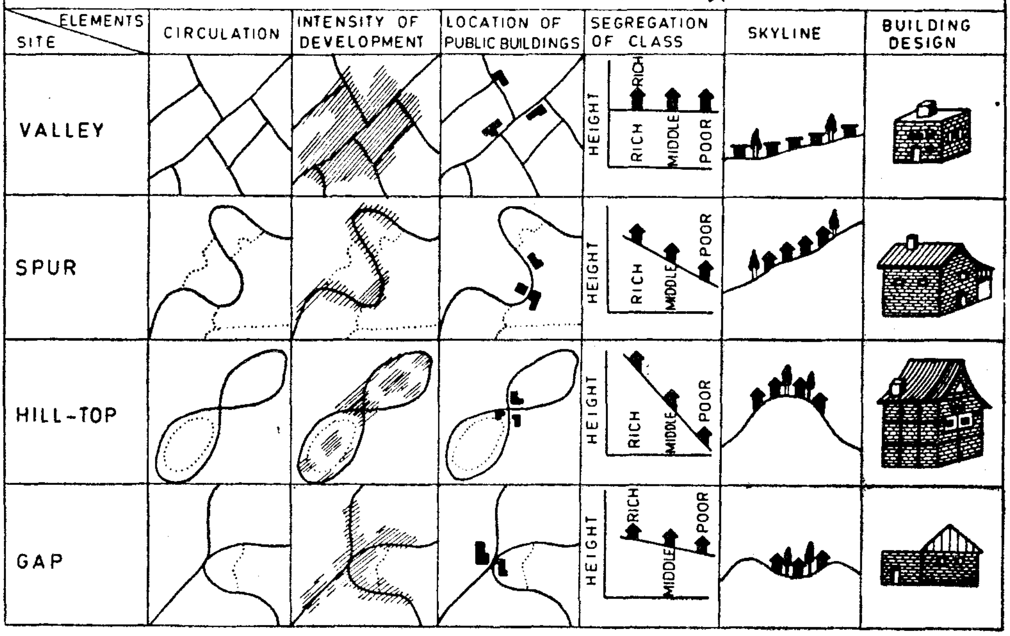
Determinants of site selection

SITE	DETERMINANTS IN ORDER OF IMPORTANCE		
VALLEY	accessibility	natural resources	defence
SPUR	defence	scenic beauty	climate
HILL-TOP	climate	scenic beauty	defence
GAP	nodality	transit position	water

Some physical aspects of sites



Impact of site on functional morphology of towns



gation of people by socio-economic status and circulation patterns (Figure 2). These differences were meaningfully related to site conditions.

In conformity with their linear shape, the hill towns had their principal commercial lanes or *bazars* stretched along the main spinal road running through the middle. Residences adjoined them at the back as well as on the first floor. Public and semi-public buildings occupied relatively higher parts of the sites. Friction of space was acute on all types of sites although valley sites were comparatively in a more comfortable position in regard to location of land uses, including residences, shops and open spaces.

Intensity of development did not differ significantly on various types of sites. The intensity was the greatest on the main terrace in case of the valley towns and was the highest on the sunny slopes in towns on other types of sites. Vertical expansion was more pronounced in the hill-top, spur and gap towns while horizontal spread was more typical of the valley towns. Accordingly the nature of skyline differed with the site of a town.

Residential segregation by socio-economic status was a common feature of all towns. Social relief conformed to physical relief in hill-top, spur and gap towns where the high class residences were distributed on the higher, sunny slopes while the low class residences were concentrated on lower slopes. The residential pattern of the valley towns was in line with that of any typical Indian town. High class residences were more frequent in the proximity of the palace or in the vicinity of the main commercial lane and low class residences predominated on the periphery.

Differences in circulation patterns of towns on varying sites were the most glaring. Valley towns had generally straight roads and grid-iron circulation network. Spur towns usually had only one spinal road. Hill-top towns allowed a circulation in the form of rounds encircling the main ridge. Gap towns were marked by a radial or linear circulation pattern. Tortuosity index of the road network increased as one moved from the valley to hill-top towns. Hence the land use systems, intensity of development and circulation patterns of town faithfully represented the relief of their sites.

In brief, the factors of climate, scenic beauty and defence were dominant in site selection of hill-top and spur towns while those of accessibility, level topography and water availability were the main virtues of sites occupied by valley and gap towns. Practically all the towns that emerged during the pre-British period had valley or gap sites while those of the British period origin were generally located on hill-tops or spurs. The impact of site was greater on morphology than on functions of towns. All hill towns had a linear form but they showed remarkable differences in their lay-out, intensity of development, building heights, skyline view, circulation patterns and segregation patterns and segregation of people by socio-economic status.

Planning Implications

Two basic issues in the context of hill towns are: how to improve their habitation quality through renewal and development ? and how to enhance their functional vitality through input of new activities ?

Considerations of site planning are involved in solution of the first problem. Despite their small size, hill towns are getting overcrowded in terms of building use. Lack of space is their major handicap. This scarcity is acture in respect of land for new offices, bus stations and playgrounds.

As such finding of additional space and adjustment with local relief are the two primary concerns of town planning in a hilly and mountainous region. Areas liable to sinking or subsidence are to be avoided. Factors of micro-climate, especially local insolation, direction and speed of wind, and amount and intensity of rainfall are to be borne in mind. Sunny slopes deserve priority in development. Land use systems, circulation network and facility patterns are to be adjusted with all the physical elements mentioned above. Recreational areas on the top, residential areas along the sunny slopes, commercial lane along the middle contour, primary activities, like dairying, at the foot and industry on flat parts of the site would be one of the possible designs for hill towns. Nonetheless building use planning will always be more relevant than land use planning in hill-top towns. The need to conserve forests and other points of scenic beauty within and around the urban sites needs no emphasis.

Answers to the second problem lie in intensification and commercialization of agriculture (especially in the field of horticulture) in rural tracts around the towns, in stimulation of urban-rural interaction through new road links, in establishment of small scale industries based on local raw materials and in harnessing of the tourism potential of each town. These new activities will partly take care of the growing unemployment among the young in these places.

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