

A Spatio-Temporal Study on Urbanization in the Darjeeling Himalaya: A Demographic Perspective

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Abstract: *In this paper an attempt has been made to identify the nature and present scenario of urbanization and their constraints to economic development and future prospect. Urbanization is usually thought to be a consequence of the growth of large scale industries, expansion of administrations, development of transport and communication and growth of trading activities. As a process, urbanization has not been deeply involved in the economic emancipation of this hill region, but there is no denying the fact that acting as major nodes, they have always taken a leading role in its economic reorganization. The current paper is based on the analysis of secondary data from Census of India (1981-2011) and other Government publications and some observation in the area. These throw light on the vice-versa relationship of the urbanization in this Himalayan region and its impact on development. The study revealed that the Darjeeling Himalaya experience the fluctuation of urban growth in compare to rural areas due to demographic factor. The population is increasing tremendously and as a result the urban problems are mounting over the local authority especially in town areas where the infrastructure facility is limited. Demographic planning for the region must include both population limitation and migration control, through a combination of socio-economic incentives and legal controls. Hence the urban centres of this region need to be controlled and directed in a sustainable path.*

Keywords: *Unbanization, Development, Population, Urban centres, Decadal growth*

I. Introduction

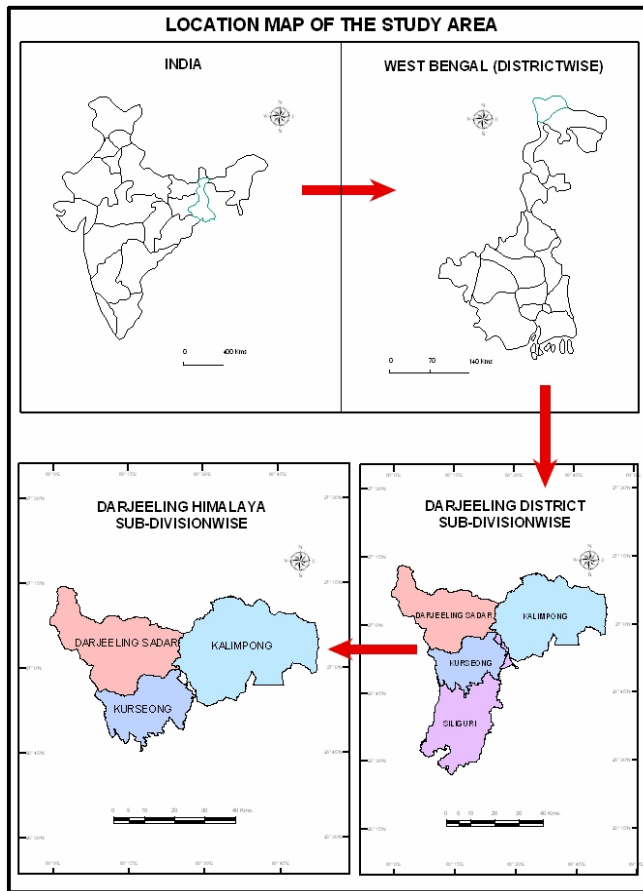
All the countries are developing at different rates and from differing historical levels of achievement. Such development with a view to meeting the socio-economic needs implies that man must use nature in the process of development. Urbanization as a process has brought about gradual changes in the society and its economy. As a process, urbanization has not been the result of a surplus economy as is usually the case in any sedentary community; it has been, so to say, imposed upon the region at a time when urbanization was not a marketable idea for the milieu. But once it was impregnated, the process came to be established later on through its own force, which it could easily find in the environment and use it to its advantage. It is not that the life-style has changed altogether; the economy in the remote areas is still the same as it has been since the settlements started, but the areas enjoying accessibility to urban centres have already adopted a different character, as profoundly manifest in their day-to-day life. The growing change coming in the wake of urbanization could not leave the hill ecosystem unscathed; it became subject to human interference in a great many ways, often amounting to needless attacks on the normal processes and disrupting its normal functioning.

II. Delineation of the Region

The Darjeeling Himalaya comprising of the three hill sub-divisions (Darjeeling Sadar, Kurseong and Kalimpong) is one of the least economically developed regions of West Bengal. Darjeeling is the northernmost district of the frontiers state of West Bengal, extending between 26°27'10" to 27°13'05" North latitudes and 87°59'30" to 88°53'00" East longitudes, at an altitude of 2134 mts. The Darjeeling Himalaya consist of eight Community Development Blocks or C.D. Blocks which include 112 Gram Panchayat, 311 inhabited villages and 31 uninhabited villages as per 2011 census. The total population of the study area during 2011 is 875,703 persons, of which 440,257 are male and 435,446 are female.

Darjeeling Himalaya consists of a portion of the overlying hills of the lower Himalayas and stretch of territory lying along the base of the hills known as the Terai. The people of Darjeeling Himalaya have a unique significance in the sense that it has persons comprising many social and linguistic groups. Historic development influenced by geo-political forces has given rise to an ethnic composition and typical of a transactional zone in the Darjeeling Himalaya. A mountain terrain with its varied geologic, physiographic, climatic and other environmental conditions offers a wonderful geographical area, for the study in detail. This is more so in mountainous areas like Darjeeling Himalaya, inhabited by simple societies where environment articulates to a great extent to determine the socio-economic aspects. There are four towns in the study area are Darjeeling,

Kamlipong, Kurseong and Mirik. Darjeeling is the largest town and Mirik is the smallest one in terms of area and population.

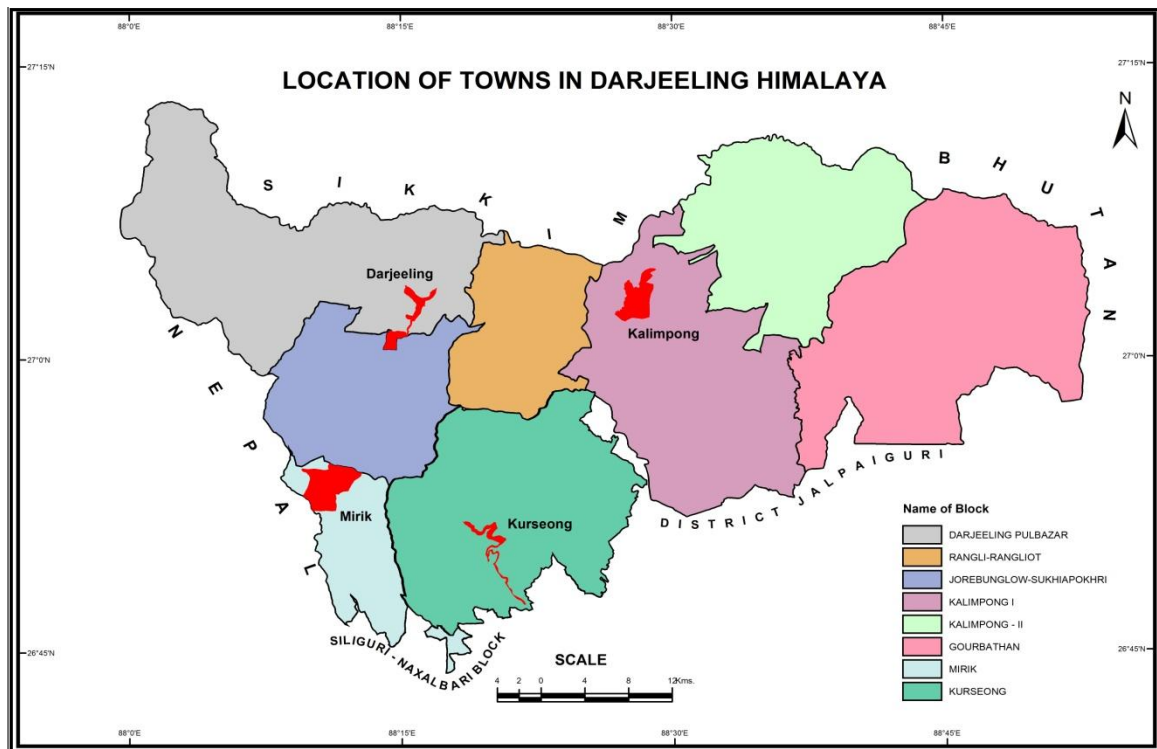


III. Aims and Objectives

The area chosen for study has been delineated as cultural region where the elements in the landscape are closely interrelated. The urbanization in the Darjeeling Himalaya has a unique significance in the sense that it has persons coming from many social and linguistic groups. Historic development influenced by geo-political forces has given rise to an ethnic composition and typical of a transactional zone in the Darjeeling Himalaya.

The present study primarily aims at the following objectives:-

- (i) to study the population growth and decadal change (town-wise & block-wise) in of the region from 1981-2011
- (ii) to correlate the growth of urban population with socio-economic aspects
- (iii) to identify the constraints of economic development due to urbanization, and
- (iv) the ultimate aim is to find out an integrated approach in developmental programmes so that, the regional disparities can be narrowed down and a more realistic socio-economic development of the urban areas of this land locked region may be feasible in the near future.



IV. Database & Methodology

The data for the present analysis have been obtained from the secondary sources like, District Census Handbook, part- XIII A & B of 1981, 1991, 2001 & 2011 data from CD Rom. The areal extents of each administrative unit have been calculated in percentage change in the urban population size for 1981-91, 1991-2001 & 2001-2011 by the following formula:

$$\text{Percentage Decadal Change} = \frac{P_2 - P_1}{P_1} \times 100$$

Where,

P₁ = population of earlier census year

P₂ = population of later census year

To assess the change in concentration of urban population in the Darjeeling Himalaya, standard deviation method as a statistical technique is used. All the variables have been grouped into different categories on the basis of standard score and hatched according to the ranges in which they fall. For calculating the urban population for Block-wise analysis, the municipal town's population has been included within the respective administrative block for studying the actual figure of urban growth.

V. Historical Background

When Darjeeling was acquired by the British as a potential summer resort, it was practically uninhabited. The process of development it into a 'hill-station' commenced around 1835. Over the next 15 years, the town had grown sufficiently for the authorities to consider it reasonable to set up a municipality to look after the provision of civic amenities. Darjeeling Municipality was thus set up in 1850 when population of the town was around 10 thousand. Population in the township now exceeds more than one lakh and its pressures already exceed urban carrying-capacity.

The beginning of urbanization, therefore, had an innocuous look and it had no pretension of starting on a big scale. The present site of Darjeeling became the first choice for the establishment of a town at a time when urban development was too uncommon a feature to be found until one came down to the plains. Urbanization having its original seat at Darjeeling had its influence felt in the surrounding region and this, coupled with the introduction of the tea industry, took an active role in the colonization of the region.

The development of Darjeeling as a health resort and a frontier station as well as the progress of tea industry could not take place without the development of a transportation system. The construction of roads began, and by 1840 a road between Pankhabari on the foothills and Darjeeling was completed. Between 1849 and 1852, the old military road linking Pankhabari with Kurseong, Dow Hill, Ghoom and Darjeeling was completed. The construction of another road, i.e. Darjeeling Hill Cart Road was completed in 1865. The roads providing direct access into the hill areas made way for the encroachment of settlements and the rate of development was further accelerated by subsequent improvement in the transportation system in the following years when, in 1881, the railway line was extended upto Darjeeling providing uninterrupted traffic between the hills and the plains.

VI. Present Phase of Urbanization

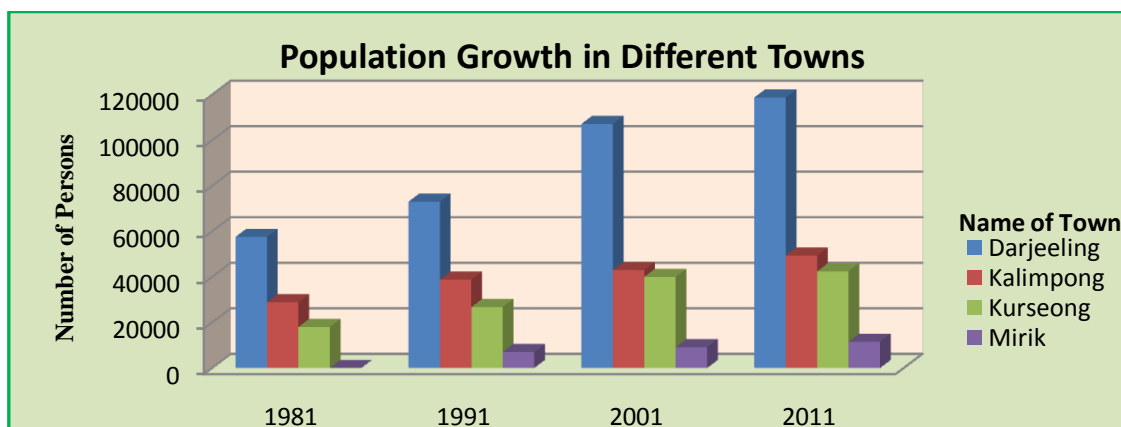
Darjeeling, Kalimpong, Kurseong and Mirik are the four important hill towns and urban centres of Darjeeling Himalaya. These accommodated 25.37% of the total population of the region in 2011. The process of urbanization is slow, but its unimpeded ingress cannot be ignored in view of the overall changes it has already wrought on the natural environment of the region concerned.

It is observed from the Table 1 that in 1981 nearly 55% of the urban population in Darjeeling Himalayan region used to live in Darjeeling town and the corresponding proportion of the urban population in Kalimpong was 28%, and Kurseong 17%. In 1991, 50% of urban population lived in Darjeeling town, 27% in Kalimpong, 18% in Kurseong and 5% in Mirik town. The table further shows that during 2001, Darjeeling had the highest proportion of urban population of about 54% followed by Kalimpong with 21.5%, Kurseong 20%, and Mirik 4.5% respectively. It appears surprising to note further that, while spread of urbanization has never been a strong or particular phenomenon of colonization of the hill areas, the four towns situated at wide intervals from each other have remained quite small in size with an undecisive as well as slow rate of growth. During 2011 census, Darjeeling town records about 53.5% of urban population followed by Kalimpong with 22.2% and Kurseong with 19.1%. Mirik Town during the same census period barely records only 5.1% which is the smallest town of the region.

Table: 1 Growth of Urban Population in Municipal Towns (1981-2011)
(Persons in Number)

Year	Name of the Municipal Town				Total Urban Population
	Darjeeling	Kalimpong	Kurseong	Mirik	
1981	57603	28885	18008	-	104496
1991	73062	38832	26758	7022	145674
2001	107197	42998	40019	9141	199355
2011	118805	49403	42446	11513	222167

Source: Census of India, 1981, 1991, 2001 & 2011



As indicated earlier, the emergence of Darjeeling as a town took place in answer to particular needs of the colonial administration, but this could not be a repetitive process conducive to large-scale urban development. Secondly, the roads and railways geared mainly to the service of the tea industry proved much less effective in giving rise to large nodes taking urban forms. Thirdly, improved access coupled with the upliftment of the regional economy through the introduction of the tea industry, replacement of shifting cultivation by improved methods of agriculture dealing with a greater variety of crops, better management of forests giving a much higher return, etc. failed to generate a force necessary for bringing urban centres into existence. To be more precise, urban functions are selective in their location and therefore such locations should have a strong, definable base for their operation. In other words, the development and subsequent growth of an urban centre is directly dependent on its location from where it can serve its surrounding area. The service-need must remain clearly defined without which the urban centre will never emerge. In the region under study, the tea industry being more or less a self-sufficient unit wherever it functions does not necessarily depend on any urban centre for the services it requires. Agriculture and forestry, however, present a different case. Increased activities in these fields could not take place in a concentrated manner due to difficult terrain. As such, the higher needs of population engaged in those activities were not of a sufficient volume in any locality, demanding urban services; instead, small nodes in the form of market centres served the purpose adequately. In fact, what one finds in the hill region of Darjeeling is a number of market centres, like Bijanbari, Sukhiapokhri, Mirik, Rangli-Rangliot, Pedong, Jorebunglow, Takdah, Sonada etc., which have developed in response to the fulfillment of requirements of the rural settlements.

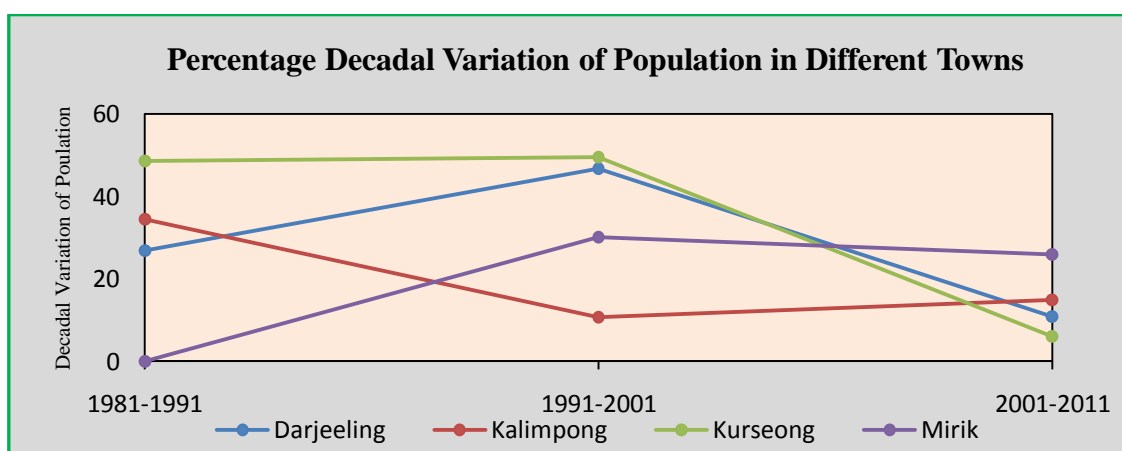
Besides, there is another factor having a demoralizing role in the development of larger nodes. The products of Darjeeling hills maintain a gravity-flow: the market places acting as nodes for the collection and distribution of their individual command areas, transport the materials out by roads, all of which finally funnel through Siliguri to distant plains in the south. This outward movement of goods, etc. by roads has a tendency not to stop till the plain at Siliguri is reached for which reason this may very well be considered as a downward flow. Places large enough to arrest this united flow at any point and having the power of consumption, have not emerged so far for generating urban development. It is true that the mountainous terrain. Adverse to population concentration, is quite incapable of large-scale development or activity. Yet, any serious attempt at proper and better utilization of local products without sending them elsewhere could, possibly, have different results. What emerges from all the available facts pieced together is that urban development has never been encouraged in the hill region of Darjeeling District. Products, whether obtained from the fields or forests, are palmed off mostly in the primary or raw forms and the present infrastructural facilities offered by the existing super-rural centres are far from adequate to make better use of them. The ultimate result has been a low-living, an extremely hard-going life for the inhabitants, and a frittering of energy in work that does not pay in the long run.

Urbanization has, thus, remained absolutely confined to four centres with characteristic elements clearly identifiable in each case, which differ distinctively from their counterparts in the plains. The most striking features about them is their size of the towns, the largest of which is Darjeeling containing 1,18,805 inhabitants (2011), which happens to have the oldest Municipality, formed as far back as 1850. Kalimpong, the second largest town of the hill region with 49,403 inhabitants in 2011, had its Municipality formed in 1945. Kurseong, with 42,446 inhabitants in 2011 is another old town, having its Municipality formed in 1979. Mirik being the smallest in the team with barely 11,513 inhabitants is the new Municipal town formed only in 2001, but it was a Notified Area only during 1991. The rate of growth of these four towns is formed to have been far from steady as well as slow and declining trends.

Table: 2
Percentage Decadal Variation of Municipal Towns

Name of Town	1981-1991	1991-2001	2001-2011
Darjeeling	26.84	46.72	10.82
Kalimpong	34.44	10.73	14.9
Kurseong	48.6	49.6	6.06
Mirik	0	30.18	25.94

Source: Computed by author from Census of India, 1981, 1991, 2001 & 2011



The growth of population in the study region, considered for the present study since 1981. From the decade 1981-2011 population growth rate found gradual fluctuation in almost all the towns. Darjeeling, Kalimpong, Kurseong & Mirik are the four important hill towns not only in Darjeeling District but also in the state of West Bengal. Though Darjeeling is the district headquarter, its growth is very slow and fluctuating and during 1981-91 the decadal growth rate has recorded 26.84% and slightly increase to 46.72% in 1991-2011 but drastically decrease to 10.82% during 2001-2011 (Table: 2). The highest decadal change was experience by Kurseong town with 48.6% and 49.6% during 1981-1991 and 1991-2001 respectively, but again drastically decrease to 6.6% during 2001-2011. Kalimpong on the other has recorded 34.44% during 1981-1991 and thereafter there is decline in decadal change with 10.73% during 1991-2011 and 14.9% in 2001-2011. Mirik which got the status of town only in 2001 has recorded the decadal change of population with 30.18% in 1991-2001 and 25.94% in 2001-2011.

In fact, the state of urbanization may appear to be of a discouraging nature. But looking at the picture from another angle one gets a better view of the actual situation. Such as, in considering the size as well as the growth of the towns our attention is restricted to the municipal area of the towns, which, however, has remained unaltered for decades. Thus, the facts are partial and cannot convey a real idea about the development and progress of urbanization, which has not remained confined to the municipal limits of the towns. As a matter of fact, sprawl of urban activities is found in each case, in different degrees though, but it has been included into the folds of the municipalities for obvious administrative reasons. This is clearly discernible in the case of all the four towns where residence and business houses, roads, communication line, etc. stretch in all directions for considerable distance from the town and together form a complete mesh, producing a similar atmosphere of urban crowding.

The progress of urbanization is best viewed in the strip of land following the Hill Cart Road from Sonada to Darjeeling which appears today almost as a continuous stretch of habitation with modern buildings gradually moving up and down the slopes having small breaks here and there and studded with denser clusters of constructions in between. This is also the case of with Kurseong where urban development has followed the main road from some miles on both sides while in the town itself it has taken up almost the entire slope of the ridge. In Kalimpong and Mirik, the lateral spread is quite conspicuous and is likely to thicken further with time.

Activities in other spheres mainly include administration and education. Darjeeling is the headquarters of the District of its namesake whereas Kalimpong and Kurseong are the sub-divisional headquarters, each containing different public as well as private organizations engaged in keeping law and order of the respective area under their jurisdiction on the one hand, and making strides in developmental programmes. Mirik on the other hand is newly formed town and an important tourist spot. As administrative centres they have little to offer to the countryside and thus remain almost isolated from the general milieu. The field which each of these towns has however, excelled many others in the country is industry, which needs special emphasis. This hill region may not be suitable for heavy industry but there is vast scope to develop small-scale and cottage industries.

VII. Block-wise Growth of Urban Population

The higher growth rate in urban population in comparison to rural population is due to its accessibility and number of facilities that are available in the urban centres which encourages the people to migrate in these areas. Nearly 27% of the total populations were living in the urban areas in 2001. The map shows the change in growth rate of urban population with sex break-up at C.D. Block level in Darjeeling Himalaya during 1981-91, 1991-2001, and 2001-2011 respectively. Some of the C.D. Blocks of Darjeeling Himalaya have no urban agglomeration, the number of which varies from different Census periods as provided in the table 3.

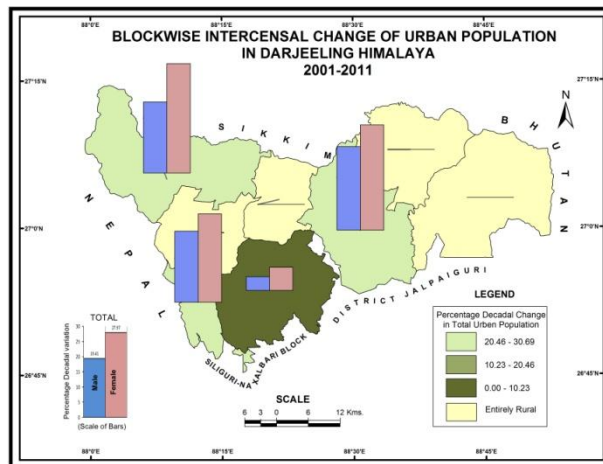
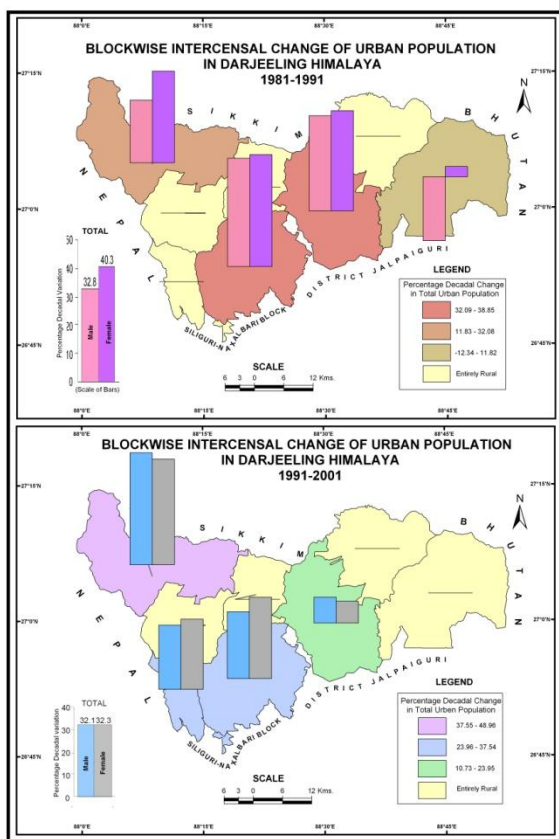
Table: 3 Blockwise Decadal Change of Urban Population in Darjeeling Himalaya (1981-2011)

Sl. No:	Name of C.D. Block	Percentage Decadal Variation 1981-1991			Percentage Decadal Variation 1991-2001			Percentage Decadal Variation 2001-2011		
		Person	Male	Female	Person	Male	Female	Person	Male	Female
1	Darjeeling-Pulbazar*	+26.84	+22.08	+32.35	+48.96	+50.33	+47.49	+29.18	+23.20	+35.71
2	Rangli Rangliot	-	-	-	-	-	-	-	-	-
3	Jorebunglow-Sukhiapokhri	-	-	-	-	-	-	-	-	-
4	Kalimpong-I*	+34.44	+33.56	+35.37	+10.73	+11.63	+9.77	+30.69	+27.27	+34.36
5	Kalimpong-II	-	-	-	-	-	-	-	-	-
6	Gorubathan	-12.34	-22.52	+3.64	-	-	-	-	-	-
7	Mirik*	-	-	-	+30.18	+28.84	+31.57	+25.95	+23.14	+28.81
8	Kurseong*	+38.85	+38.22	+39.53	+33.11	+29.97	+36.52	+5.98	+4.48	+7.52
Total		+36.35	+32.82	+40.34	+32.22	+32.13	+32.32	+23.54	+19.41	+27.97

Source: Collected & Computed from Census of India, 1981, 1991, 2001 & 2011
* including town population for showing overall urban change

Table 3 and the following figure explains the percentage of decadal growth rate of population of Darjeeling Himalaya by Block-wise during the censuses 1981-2011. The urban blocks where there experienced as general increase in growth rate till 2001 includes Darjeeling Pulbazar, Mirik and Kurseong. Kalimpong-I is the only block where the trend in growth rate has been decreased during 1981-2001. But since 2001 the growth rate has been declined almost in all blocks except Kalimpong-I. The table reveals that the highest change in growth rate was marked by Kurseong block with 38.85 per cent (38.22% male & 39.53% female) during 1981-91, which was above the overall growth rate (36.35%) in the region. The table further reveals the growth rate of 26.84 per cent (22.08% male & 32.35% female) in Darjeeling Pulbazar and 34.44 per cent (33.56% male & 35.37% female) in Kalimpong-I during 1981-91. There was a negative change in growth rate of urban population in Gorubathan with -12.34 per cent of which -22.52 per cent were male and 3.64 per cent were female during the same decade. The sex-wise growth rate supports that there was a decrease in male population but increase in female population which has been the result of out-migration of male population causing the negative growth rate in Gorubathan block during 1981-91.

But during the decade 1991-2001, the urban growth rate has reached to the maximum level in Darjeeling Pulbazar with 48.96 per cent of which 50.33% male and 47.49% female. Kalimpong-I experienced the lowest growth rate of 10.73 per cent including 11.63% male and 9.77 % female. Mirik and Kurseong on the other hand have the growth rate of 30.18 per cent (28.84% male & 31.57% female) and 33.11 per cent (29.97% male & 36.52% female) during this decade (1991-2001).



The data reveals that Kalimpong-I block has recorded highest percentage of decadal growth rate of population with 30.69% (27.27% male & 34.36% female) during the decade 1981-1991 followed by Darjeeling-Pulbazar with 29.18% (23.20 male & 35.71% female) and Mirik with 25.95% (23.14% male & 28.81% female), whereas the Kurseong, has recorded lowest percentage of decadal growth rate with 5.98% (4.48% male & 7.52% female) which shows a drastic decline in the decadal growth rate of population in compare to the preceding decades.

It is found from the analysis that Darjeeling Pulbazar has the higher growth rate of urban population during 1991-2001 and Garubathan has recorded the negative growth rate during 1981-1991 while comparing the overall three decades. Development of Darjeeling and Mirik as a tourist spot for its favourable climatic conditions attracted more people from rural areas to render their services. Population growth rate kept increasing as well in some rural units with more agricultural areas being brought under cultivation. Along with this expansion, the region witnessed the development of small-scale industries i.e. arts and crafts, dairy products and sericulture. All these activities led to high in-migration from other areas especially Rangli-Rangliot, thereby showing a higher growth rate in other blocks during 2001-2011.

VIII. Constraints to Economic Development

The main constraints of urbanization in the region are acute shortage of power, inadequate water supply, inefficient transport network, tremendous congestion, inadequate sanitation facilities and sewage disposal. Besides, the natural calamities like landslides, often affect large parts of these hilly towns due to deforestation and unplanned construction of buildings. Though urbanization of this entire hilly region has been of a restricted nature but it has a great impact on the life of the local inhabitants.

The large floating population associated with tourism brings a tremendous load to bear on water-resources, atmosphere, vegetation and human settlements. For water supply, the Darjeeling town depends almost entirely on the Senchal lakes which lack capacity to provide even the volumetric water requirements of the local population. Thus the influx of seasonal tourists raises the problem to crisis dimensions. The increased population associated with tourism also produces a growing volume of garbage and sewage, the disposal of which is fast becoming an area of major concern. Tourism also brings increased transportation activity and traffic, creating the new problem of environmental pollution.

The destruction of vegetation has reached such a scale that today not a single tree of the original stands are found in or around Darjeeling or Kurseong; in fact, all the slopes of the hills for miles together are empty of any vegetation and the pines that adorn the landscape in scattered bunches were planted by the Europeans in the mid-nineteenth century. The forests have vanished in the wake of meeting growing demands of charcoal and timber for home-hearths and construction.

The tendency of urbanization, i.e. migration from rural areas to urban areas for seeking employment is also growing in the hill region of Darjeeling District. Population increase of this high order creates tremendous planning difficulties in anticipating the future infrastructural and economic needs of the people of Darjeeling Hills. While physical and social infrastructure has grown, its capacity has been exceeded by the rate at which

urban population has grown. As a result, the planning outreach to the regional population has declined in per capita terms. Thus rapid increase in population will increase multidimensional problems of people in social and economic fronts.

IX. Future Prospect

The urbanscape of the towns of Darjeeling Himalaya has deteriorated tremendously in the last few decades due to increase in population and unplanned growth. The future of Darjeeling Himalaya does not look to be optimistic. The basic condition is the reforestation of the mountain slopes and reconstruction of more natural and delayed circulation of water.

A few suggestions may be put forward as regards to the future planning of these urban areas:-

- Arrangements should be made to monitor and evaluate the effects of any major development.
- The necessity and importance of soil conservation measured in agricultural and other lands is very important.
- Tea garden area and production are both to be enhanced but these should not be at the cost of forests.
- Deforestation is to be checked; otherwise the rainfall of the area will be disturbed.
- Greater attention needs to be devoted to the provision of amenities at medium-sized settlements so that these can counterweight the demographic pull of the larger towns.
- Attention also needs to be devoted to improving the productivity of local human resources so that these can effectively serve the new human resource demands created by development.
- Equity should be maintain during urban development, with more infrastructure and other incentives being provided at urban centres located within fringe areas that are backward at present.
- Planning of infrastructure will have to be reoriented around the functional hierarchy of towns and other settlements, with due regard to the economic roles played by these settlements vis-a-vis their feeder areas.
- Existing Municipal facilities for the residents should be ungraded and use in a proper way with planned manner

X. Summary & Conclusion

In the urbanised areas of Darjeeling Himalaya, construction of many multi-story buildings with deep seated foundations is being carried out at present. But in such conditions, when the loading of slopes built of joined bedrock is high, the passing of slope equilibrium is very probable as well as dangerous, especially during the earthquakes combined with extreme rains. Similar disturbances of slope equilibrium were observed along roads, where walls and terraces were constructed.

The population in township areas is increasing at an alarming rate but the civic and infrastructural facilities were designed to cater to the needs of a limited population. Tourism also brings increased transportation activity and traffic, creating the new problem of environmental pollution. Increased human activity on the creation of more tourist facilities has a crucial impact on the fragile ecology of the hills because of the destruction of natural vegetation. Unplanned expansion of tourist accommodations, resorts and shopping areas constantly displace the local population and consequently lead to a sense curtailment of housing amenities.

Fragmentation in holdings is caused due to the pressure of the rising numbers, ignorance, taboos, the rural-urban divide, exodus to towns causing socio-economic problems including housing, mushrooming of slums, overstretched municipal facilities and the like. Holistic planning exercises should evolve from out of the grassroots necessities of people, involving social, economic, political and environmental issues all having direct impact on quality of life. Community-basing these exercises ensure people's participation at every planning stage, and incorporate as an alternative solution, the idea of development through unity at community level.

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