CHAPTER I

THE REGION

The Inter-State Chandigarh Region sprawls over an area of 2513.5 sq kms. It is made up of 1,018 villages and nine towns within its territorial limits. Chandigarh, when planned, had a peripheral zone demarcated up to a distance of five miles (8 km) on all sides from the outer boundary of land acquired for the Capital of the State. In 1963, this zone was extended to 10 miles (16 km). On 3rd November, 1976 the area delineated by the Co-ordination Committee on Regional Planning was termed as the Inter-State Chandigarh Region on the basis of the following five variables:

1. Physiography,
2. Administrative boundaries,
3. Existing level of development taking development block as a unit,
4. Potential of development, and
5. Influence zone of major urban centres.

The hilly State of Himachal Pradesh was eliminated from the region based on the first two criteria while the application of the remaining variables resulted in the outcome of the I.S.C.R. Region.

The Region includes Kharar Tehsil of Ropar district, Kalka Tehsil of Ambala district and the Union Territory of Chandigarh in full, whereas Rajpura and Fatehgarh Tehsils (Patiala District) Ropar Tehsil (Ropar District) of Punjab and Naraingarh Tehsil (Ambala District) of Haryana have been partly included in the Inter-State Chandigarh Region. It is bounded by the Siwalik hills in the north and north east, Punjab plains in the north west, west and south west and the plains of Haryana in the south and south east (Map 1.1). The region, which is in the form of a trapezium, extends from $30^\circ.22'N$ to $30^\circ.57'N$ latitude and from $76^\circ.25'E$ to $77^\circ.11'E$ longitude (Map 1.2). This stretch of land has a unique identity of its own. "It is a geographical area identified for balanced and integrated development."*1.

This area was a completely rural, backward and peripheral part of Ambala District of Punjab prior to 1951. It remained marginal, both in terms of location and attention received. Soon after 1951, Chandigarh city acquired national importance and became a centre of socio-economic developmental activities. Its importance increased with the reorganisation of Punjab State in 1966. Along with 34 villages, it gained the new status of Union Territory of Chandigarh under the control of Government of India. With its growing importance, Chandigarh remained a magnet and it attracted many people.

The result was influx from neighbouring states to the city and its surrounding villages which consequently brought about tremendous changes in the social and economic character of the region.

The present study is a geographical analysis of the impact of Chandigarh, a planned city, on the demographic aspects of its surrounding area. A brief understanding of the background is of great utility since the history of human occupancy and the mode of socio-cultural evolution are reflected in the prevalent demographic character.

HISTORY OF THE REGION.

Since this is a study of micro level region, it is essential to go a little beyond the history of the area comprising the Inter-State Chandigarh Region to keep the perspective in view. The earliest authentic information about Ambala district, of which I.S.C.R. forms a constituent, is from the itinerary of Hieun Tsiang, the Chinese traveller, who visited India in the 7th century. He mentioned a fort at Srighna *1 which he considered the seat of a flourishing kingdom that stretched from the mountains in the north-west to Ganga in the east. The country around Ambala has felt the full force of every important campaign in North India but received little attention except the appurtenance of Sirhind which according to Cunningham *2 must have been the

*1. It is the name of modern village of Sugh in Jagadhri Tehsil.

seat of Mohammedan rule during the period (1170-1526). This is evident from the ruins. In fact, it might have been a place of importance even during the reign of Mohammed Ghori\textsuperscript{1} i.e. 1526-1760. But there was no wealth to lure the invaders to the core of this region nor was there easy access to it. They left it untouched.

The interest of the local annals in the region began with the rise of the Sikh principalities in the 17th and 18th centuries when there were wars between them and the Mughals. After the downfall of the Mughals, the territory fell into the hands of a few feudal chiefs of Patiala, Nabha, Kharar and Mani Majra who kept fighting among themselves.

In 1808, Maharaja Ranjit Singh, the Sikh ruler, brought under his control the whole of Punjab region from Jamuna in the east to river Sutlej in the north. These small feudal chiefs started paying Nazrana\textsuperscript{2} to Maharaja Ranjit Singh and in return enjoyed autonomy within their territories. The feudal chiefs were concerned with their personal comforts and interests rather than the social benefit of their subjects. Hence the area at large remained backward. In 1809, a treaty was signed between the British and Maharaja Ranjit Singh to the effect that Maharaja would restrict his domain up to Sutlej river while British took

\textsuperscript{*1} Mohammed Ghori invaded India Several Times.

\textsuperscript{*2} Nazrana is a tribute paid by the feudal chiefs to the King.
charge of the protection of Cis-Sutlej (The Sutlej Jamuna divide) constituting of the I.S.C.R. In 1840, when the British annexed the State of Punjab, the district of Ambala was created as an administrative unit.

The formation of Ambala district led to various developments. Railways lines were constructed at the end of 19th and the beginning of 20th century connecting Delhi with Peshawar via Ambala, Rajpura with Bhatinda, Sirhind with Ropar and Ambala with Simla via Kalka*1. A few metalled roads were constructed. The Western Jamuna Canal and Sirhind Canal were constructed from the Jamuna and Sutlej rivers to provide irrigation facilities to the territory of Ambala district which fell outside I.S.C.R. This marked the beginning of the developmental process, but the Inter-State Chandigarh Region remained cut off from the developments on account of the dissected topography and its peripheral location in the province of Punjab. The partition of India in 1947 and selection of the Chandigarh site for the capital gave a new outlook to the region.

Today, the morphology of the tract has changed beyond recognition with the creation of Chandigarh as the common capital of Punjab and Haryana. The building of Bhakra Nangal multipurpose project, even though located outside

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the I.S.C.R., has contributed to its general prosperity by supplying electricity for tubewells, industry and rural electrification. The area, which was economically and socially backward, has witnessed remarkable changes in the socio-economic and demographic character. To understand and analyse the spatial and demographic changes of the I.S.C.R., it is necessary to study its physical and cultural resource base.

PHYSICAL ELEMENTS.

RELIEF: The most significant part of the physiography of the region is its disposition at the foothills of the Himalayas with a variety of relief features. Although the immediate environs of Chandigarh are made up of an undulating landscape, there is a considerable variation in the relative height, slope, surface material and texture within the I.S.C.R. There are three marked physical zones running from north to south (Map 1.3). They are:

1. The hilly zone;
2. The dissected undulating plain;
3. The upland plain.

1) The Hilly Zone: It is made up of the Siwalik hills which form the outermost fringe of the Himalayas. It constitutes one-third of the area of the region. It is marked by a 400 meter contour above sea level on its western
The area includes the submontane part of Kharar Tehsil, Kalka Tehsil and the north-eastern section of Naraingarh Tehsil. This tract runs for a width of 10 to 15 kilometers with the minimum and maximum altitude ranging between 400 and 1,353 meters above sea level. It consists of a series of ranges running from north-east to south-west direction. Morni hills at a height of 1,169 meters is the most important peak of this tract.

Lying in between the parallel ridges of the Siwaliks in the Kalka Tehsil is an undulating longitudinal valley called the Sirsa Dun.*1. This is an important area for agriculture and its moderate height offers a contrast to the hilly region on its two sides.

The Siwalik ranges have been interspersed by a number of hilly torrents called Chos,*2 which generally flow during the rainy season. On account of the steep gradient, they bring down water at a high velocity causing heavy erosion in the upper reaches while depositing it in the plain below. This is a thinly populated area as the soil is poor and level land is not always available. The relative lack of urbanization of this part is evident from the fact that there is only one urban centre (of Kalka - break of bulk point of the tract.}

*1. Dun is a longitudinal mountain valley in India and Pakistan.

*2. Cho is the local name for seasonal stream.
2) The dissected undulating plain lies parallel to the hilly region and is bounded by a contour of 400 meters above sea level in its upper limits and 300 meters in the lower limits. There is a profusion of seasonal streams in this stretch of land. These chos are very close to one another at their upper eastern limit and become farther apart towards the lower western edge where the gradual fall of the gradient uniting the tributaries. The development of this part of the region was considerably hampered on account of numerous chos which made means of transport and development difficult. The significance of the dissected plain is evident from the modern, multi-functional city of Chandigarh in the tract: the vantage point for the study of the demographic changes during 1951-71 within the Inter-State Chandigarh Region.

3) The flat upland plain: This zone is parallel to the dissected plain, having an elevation ranging between 274 meters to 300 meters in its western and eastern boundaries respectively. It's most distinguishing features are the gentle slope with a less dissected topography. Most of the small streams join the bigger streams in this stretch of land and become fewer in number having broader courses. This is agriculturally the most developed part of the region where the density of population is high. The
slope being imperceptible, there is a network of roads. It has fertile agricultural land with adequate irrigation facilities. The upland plain has the maximum number of urban centres.

In sum, the physiographic diversity of the region is in its turn closely associated with variations in the demographic characteristics of the Inter-State Chandigarh Region.

DRAINAGE: There are a number of seasonal streams called chos. On account of their abundance, it would not be out of place to call it "The Cho Belt". The region has no perennial stream as both perennial streams - rivers Sutlej and Jamuna run outside the northern and south eastern boundaries of the I.S.C.R. The only river system of importance is river Ghaggar and a few other seasonal streams called Chos and Nadies (Map 1.4).

The river Ghaggar rises in Sirmur district of Himachal Pradesh and after passing through the Morni hills leaves the hilly tract through the Chandigarh gorge. It then skirts the border of Kharar Tehsil for a few kilometers and crosses the district at its narrowest point to enter Patiala. In the central undulating tract, the river is joined by a number of chos as tributaries such as Chautang, Tangiri, Kaushalya, Sukhna, Landra or Patiala nadi. These gradually become sluggish streams while Ghaggar river
after passing through Ambala, Patiala and Sirsa Tehsils loses itself into the arid sandy lands of Rajasthan.

Other streams of the region are Budh Ki Nadi, Siswan Nadi, Tangri Nadi and Beghana Nadi. Markanda is a peripheral river and flows for four kilometers in the south eastern section of the region.

All these streams, except Sirsa Nadi, flow from north-east to south-west. They vary in their breadth ranging from a few meters to more than a kilometer. They are usually dry during the greater part of the year except the rainy season when, as torrents, they swell the Ghaggar, Markanda, Tangri, Sirsa and Siswan Nadies. Flash floods follow; crops and property are damaged and communications disrupted, but soon after the monsoon they dwindle again. These hilly torrents have become unmitigated pests by unloading large quantities of sand and gravel in the countryside on account of progressive denudation of the Siwalik hills. The chos have been hindering the development of transport in the region because costly bridges have to be built across them. In the 20 years since 1951, embankments have been constructed along the deeply incised river valleys and the flood prone rivers to protect the area from floods and to reclaim land for cultivation. Drainage has thus

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played a significant role in controlling the distribution of population in the various parts of the region.

CLIMATE:— The region is characterised by continental sub-humid climate because of its interior subtropical location and proximity to the hills. The weather is extreme in summer and winter except in the sub-montanous region where it is moderate. The May temperature varies from 35 to 40°C. The heat wave is unbearable. The mean January temperature ranges between 10 to 15°C with the minimum temperature, at times touching the freezing point. Frost, harmful for the winter crops, is not uncommon. There are cold waves after snowfall in the Himalayas.

The mean annual rainfall varies from 80 to 100 cms in the hilly region and 65 to 75 cms in the upland plain—the amount decreasing with distance from the hills. Three-fourths of the annual rainfall, which comes from the southwest monsoons, is concentrated in the three months of July, August and September while the rest comes in the months of December, January and February from the western depressions. The crops in the area have to depend considerably on rainfall as the development of irrigation is hampered by the dissected landscape and low water table. Hence the hilly areas with sparse population have a subsistence economy compared to the upland plain which has a well
developed irrigation system, a more intensive agricultural use of land and dense population.

NATURAL VEGETATION:

In view of the continental sub-humid climate, the region has a dry deciduous type of vegetation. The forests are localized in the Siwalik hills constituting 4.5 percent of the total land in the region. The indiscriminate cutting of trees in the Siwalik Hills and subsequent use of land for cultivation in the dissected undulating and upland plain has deprived I.S.C.R. of its natural vegetation.

The reserved forests of the region are confined to the hilly tract of Morni hills (Naraingarh Tehsil) Kolhan Dun of Kharar and Kalka Tehsils and Bar Godam, Thadugarh, Parwanun, Bir Shikargarh and Naraini of Kalka Tehsil. They have typical species of Chir Pine (Pinus roxburghii), Sal (Shorea robusta) and Chal (Conocarpus latifolia) While Morni hills have an additional species of Dhak (Butea monosperma) scattered all round. Its flowers yield a yellow dye and a gum which comes from the bark and is collected by the poor. There is great scope and need for afforesting the hilly areas for two reasons; provision of valuable timber and control of the intensity of floods and soil erosion.
The plain areas, having rainfall between 60 to 80 cms, contain subtropical evergreen species of which the commonest timber tree is Kikar (Acacia arabica). The Neem (Melia azadirachta), Jamun (Syzygium jambolana) and Shishum (Dalbergia sissoo), Mango (Mangifera indica) trees are found all over the area, particularly near the hills. Shishum (Dalbergia sissoo), Eucalyptus and Phulai (Acacia modesta) have been planted along roads and canal banks. The dearth of fire wood in the area compells the people to use cowdung as domestic fuel and at present the number of cattle is large.

SOILS: The soils owe their origin to the subareal weathering and denudation. Due to the sharp change of gradient in the foothills plains, the chos leave behind coarse sand and gravel. As the distance from the hills increases the amount of debris and the size of soil particles decreases. Towards the lower section of the dissected plain, it is fine silt and sand, further below in the upland plain it is mainly silt and clay. In the hilly eastern and north eastern region, there is a thin veneer of coarse infertile soils. Fine alluvial soils of considerable thickness can be found in the west and south-west while undulating plain has clayey loam of varying depth. These soils have several local names. In the hilly section of Naraingarh it is called Dharrar meaning hopelessly cut up by deep ravines. The piedmont section of Kharar is called Ghar whereas level clay loam is called Seoti.
and light alluvial soil is named Dakar. Hence the soils of the region are varied.

**MINERALS:** The area is lacking in minerals. Limestone of considerable significance is found in the Morni hills along the beds of hill torrents. Stones (Kankars) are plentiful along the Ghaggar river and stone crushers have been set up in quarries. Their output has been used in building up the city of Chandigarh.

In sum, the region has been facing several problems in its economic development because of the dissected landscape, undulating topography, mediocre soils, low water table, seasonal and inadequate rainfall and rapid soil erosion. The chos need to be controlled to save the soil. Suitable species of trees are being grown in the hilly region as part of the afforestation programme to curb soil erosion.

**THE PEOPLE.**

A functional region is the result of transformation of an area by man. Man's interest in his own species and his surroundings is obvious. Chandigarh is a case in point. By design, it was superimposed on a predominantly agricultural tract so as to stimulate its economy. There has been rejuvenation of the region through metalled roads and industry: the location of Punjab University and opening of a number of educational institutions, including the Post Graduate
Institute of Medical Sciences, a centre of excellence. These have ushered in an era of welfare and improved the quality of life.

According to the census of 1971, the I.S.C.R. had a population of 866,270 people of which the urban population constituted 34.42 per cent. The percentage of urban population of the region is in sharp contrast to the figures of States of Punjab and Haryana and the country as a whole: 23.73 per cent, 17.66 per cent and 19.91 per cent respectively. The average density of population in the region shot up from 145 people per square kilometer in 1951 to 345 persons per square kilometer in 1971, showing an increase of 200 persons per sq km in a span of 20 years. This differs to the pattern in the adjacent states of Punjab and Haryana where the increase in corresponding time has been by 87 persons and 101 persons per sq km respectively.

The sex ratio of 810 females per thousand males in 1971 was low as compared to Punjab and Haryana States where it was 867 and 865 respectively. The reason for the difference in the sex ratio is the magnetic pull of Chandigarh town. It being in the process of expansion, attracted predominantly male workers, resulting in lowering of the female ratio of the region.

Literacy is a good index of the prosperity of an area. The educated and literate constituted 41.55 per cent
(males 49 per cent and females 32.36 per cent) of the total population whereas that of Punjab and Haryana was 33.67 and 26.89 per cent respectively, the national average being 29.46 per cent. The extent of literacy in towns was 62.25 per cent (males 68 per cent and females 54.88 per cent) as against 30.69 per cent literates (males 38.78 per cent and females 20.89 per cent) in the villages. The literacy rate in Chandigarh city was the highest in the country, 68.30 per cent. This high rate of literacy can be attributed to the administrative cum educational functions of the city of Chandigarh and the general awareness in the minds of the people brought about by the impact of developmental processes in the region.

Primary, tertiary, and secondary activities occupied first, second, and third place/order among the work force of the region; their ratios were 44.81 per cent, 39.68 per cent and 15.49 per cent respectively. However, there is a sharp contrast in the employment pattern between rural and urban areas. The villages have 67.98 per cent in primary, 18.57 per cent in tertiary and 13.44 per cent in secondary jobs as against 4.16 per cent in primary activities, 76.73 per cent in tertiary and 19.10 per cent in secondary activities in the towns.

*1 District Census Handbook, Chandigarh, 1971, p. 26
To conclude during the period of study, there has been an increase in the density of population; a tremendous rise in the number of literates, a decline in the sex ratio and a significant shift from primary to tertiary, and secondary activities along with the urbanization of the tract. These changes have been caused by the immigration of male workers into the new towns; rehabilitation of refugees of the 1947 partition and the efficient means of communication.

**ECONOMY.**

**Agriculture:** The region has an agrarian economy with 72.24 per cent of the total area under cultivation and 19.4 per cent not available for cultivation. Despite the agricultural conditions being far from ideal (hilly terrain in the north and north-east, a large number of chos, insufficient irrigation facilities, low water table and erratic rainfall), 68 per cent of the total rural work force is engaged in agriculture. The I.S.C.R. is much inferior in fertility of soil and the quality of crops raised as compared to the adjoining Ludhiana and Hoshiarpur districts.

The percentage of area under cultivation (Map 1.5) varies in different parts of the region in accordance with the physical factors discussed in the earlier pages. It is

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Inter-State Chandigarh Region
CULTIVATED AREA AS PERCENT OF TOTAL AREA
1971

Map 1.5
(Data by individual villages)
80 per cent and above in Ropar, Fatehgarh and Rajpura tehsils. These are areas of the upland plain with flat topography, fertile soils and good irrigation facilities. Here the Sikh Jats and Saini communities are the predominant agriculturists. In the hilly section of Kharar and Kalka tehsils, the percentage of land under cultivation is very low (below 25 per cent) because of rugged infertile soils and availability of non-agricultural jobs in nearby towns. The area around Morni hills has a high percentage (above 65 per cent) under cultivation despite its rugged topography. The reason is the dependance of its inhabitants on agriculture.

There has been an increase in the cultivated area during 1951-71 due to the package programme, control of floods, government policies and awareness owing to general education of the masses. The package programme of agriculture was launched in 1963-64 in seven districts all over the country and later on taken up in one district in every state. Punjab was the first State to try and apply the package programme in a big way almost all over the state. The programme was made up of agricultural inputs (better seeds, irrigation by canals or tubewells, pesticides, bank loans or other financial assistance and extension work like demonstration on farms to show to the farmers how agricultural practices could be profitably used). Besides this, the programme provided marketing facilities for foodgrains. The result was the green revolution, the
first signs of which became evident in 1967-68.

Foodgrains like wheat, rice, maize and pulses dominate the agricultural produce though cash crops like sugarcane, potatoes and chillies are becoming more and more important. However, there are considerable intra-regional variations between the hilly and undulating area on the one hand and flat upland plain on the other. The land lying in the north-west, west and south-west of Chandigarh is fertile and has satisfactory irrigation facilities. The part of Ropar Tehsil in the I.S.C.R. has the maximum area under irrigation. In this zone, the peasantry is sturdy, hard working and enterprising and is taking full advantage of the opportunities offered by the government under the five year plans. The people are making increased use of improved seeds, implements and fertilizers and some landlords have taken to self-cultivation owing to the fear of being deprived of their land*1. In order to avoid tenants they are taking to mechanised farming, with the result that agriculture in this part of the region is intensive and yields of crops are high. On the other hand agriculture in the north, north east and east of the region, with its hilly undulating areas is at the subsistence level because of the infertile soil, lack of irrigation and poor

means of communication. The peasants here are still conservative and have not taken to new techniques. They cannot use tractors in the uneven terrain and rely on manual labour. The result of these factors is low yields.

Agriculture being the basic means of livelihood in the region, its role is controlling the distribution and growth of population is important. The rural density of population increases from north-east to south-west and west which is in close proximity to the cultivated area and its productivity. The hilly and undulating area has low distribution of population while the upland plain is thickly populated.

IRRIGATION.

The rainfall being erratic, inadequate and seasonal, irrigation is vitally necessary. However, the operation of irrigation channels depends on the nature of terrain. Unfortunately this tract is not endowed with any perennial stream though there is an abundance of seasonal streams. Even well and tubewell irrigation is not yet commonly feasible everywhere because the water table is low. The average farmer cannot afford the cost of deep tubewells. The State has, therefore, tried to help by setting up tubewells to provide irrigation. A part of the Ropar Tehsil, however, gets the benefit of irrigation from the Nohakra canal.
In 1971, 24.6 per cent of the total cultivated area of the I.S.C.R. was under irrigation as compared to Punjab and Haryana having 68.7 and 37.9 per cent respectively. The above figure shows that the region lacks adequate irrigation facilities.

Irrigation is best seen in three pockets (Map 1.6).

These areas are:

a) The north-western section of Ropar Tehsil having above 75 per cent of its land under irrigation. This is on account of flat land, fertile soils, low water table, and to cap it all, the Bhakra Canal with its Gobindgarh and Rajpura distributories and Bhanijan and Kheri minor channels. It also has well and tubewell irrigation.

b) A small patch at the tip of Chandigarh is well placed for irrigation by tubewells.

c) The pocket to the south-east of Banur where the stretch is irrigated by Banur inundation canal which has been taken out near Shatabgarh and Chhat villages close to Mubarkpur. The canal besides providing irrigation facilities also helps to control floods.

Since one third of the land of the region is hilly, 20.6 per cent of the villages do not have any source of irrigation
at all and 54 per cent of the villages have less than 15 per cent of their cultivated land under irrigation. Despite the close proximity of the region to the Bhakra Project, Bhakra Canal has benefited only the peripheral north western part of the region (Map 1.7). However, the supply of hydro electric power from the Bhakra Project has helped in the development of tubewell irrigation. In Singh's opinion, the installation of deep tubewells will further improve the situation.

LIVESTOCK.

In an agrarian economy, a pair of bullocks and one or two milch cattle are a necessity in every farmer's house for his survival. Hence bullocks, cows and buffaloes play an important role in the economy of the region. However, a buffalo is preferred to a cow because it yields more milk with a higher fat content. Dairying, poultry, and pig rearing are gaining importance in the vicinity of the new urban centres of Chandigarh and Mani Majra.

The I.S.C.R. does not have as good a breed of cattle as Karnal because grazing lands, already few, are shrinking on account of the pressure of population. However, good bulls of Haryana breed, obtained from livestock farms of Hissar are being distributed to the panchayats and the native poor breeds of cattle are being replaced by pedigree bulls. The quality of cattle is being improved by artificial

-23-

insemination centres which are introducing a new breed of cows with a high milk yield and longer lactation period. The sheep and goats are confined to hilly parts of the region where they are used to supplement family income.

A number of poultry farms have come up in the suburbs of Chandigarh to meet the increased demand for eggs and meat not only in Chandigarh but also in Delhi. Piggery has also received government encouragement though it has not picked up the same momentum as poultry. The agricultural economy of the region has thus become fairly diversified. These changes have touched even the conservative Jat Sikhs who are now beginning to sell milk, eggs and vegetables.

INDUSTRIES.

Before 1951, the Inter-State Chandigarh Region was backward and neglected with subsistence agriculture as the core of its economy. There was little industrial activity and only 12.5 per cent of the total population of 1951 (15.48 per cent in urban areas and 10.94 per cent in rural areas) was working in industries. Kharar was the only town which had some small scale industries. Towns known for their cottage industries fell outside the region: Ropar known for


*2. The percentage would appear to be quite high even though industrial activity was meagre. The reason being the practice of including dependents - wife and children in the same occupational category as the earning male. This practice of including dependents was dropped with the 1961 Census.
locks, Ambala for durries and carpets and Jagadhari for paper and sugar industries. The main reasons for lack of industries in the region till 1951 were:

1. Location of this tract at the foothills of the Himalayas;
2. Lack of means of communication;
3. Inadequacy of capital;
4. Absence of a big urban centre;
5. Government apathy to this area; and
6. Illiteracy and general backwardness of the region.

The industrial growth of the Inter-State Chandigarh Region is now quite rapid. The Punjab and Haryana Governments have given cheap land and capital in the form of long term loans to entrepreneurs. The post-partition risk and insecurity got strengthened by the Indo-Pakistan war of 1965 with regard to further investment of capital in Amritsar and Gurdaspur districts of Punjab, which are close to international frontier of Pakistan. This encouraged industries to move to Chandigarh.

Manufacturing industries in 1971 provided employment

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to 9.25 per cent (13.5 per cent in urban areas and 6.9 per cent in the rural areas) and household industries to only 2.82 per cent (0.9 per cent in urban areas and 3.9 per cent in rural areas) of the total workers of the region. (This figure of 1971 is less than that of 1951 despite industrialization because dependents are not included in the whole time occupation of the earning member).

Chandigarh's industrial complex has medium and small scale industries. A few large scale units were also set up in the public sector. The industrial complex is outside the town. The units are modern so that they "would not materially affect the planned complexion of the city". The region has industries such as cement, fertilizers, wrist watches and heavy water which are not found elsewhere in Punjab and Haryana States.

The large and medium units of the region make woollen hosiery goods, knitting machine needles, electric meters, bicycle wheels, rims and antibiotics. The small units include flour mills, rerolling mills, steel fabricators, sanitary-ware, cutlery, hardware, household electric appliances, utensils, paints and varnishes, radios and transistors and soaps and chemicals. Along the Chandigarh-Kalka highway, Hindustan

*1. Chandigarh - Fifth Five Year plan (1974-79) proposals of Chandigarh Administration Department of Finance, Chandigarh Administration p.2.
Machine Tools, a public sector enterprise, has built up a big complex and in Pinjore tractors and wrist watches are produced. Two other big units are the Rhupinder Cement Works at Surajpur and two woollen mills at Kharar. A sugar mill has been set up at Morinda and an agricultural implements factory at Kurali. Cottage industries have been overtaken by small industrial units. The result has been that the percentage of those engaged in cottage units in the region, which in 1961 were 9.04 per cent dropped to 2.82 per cent in 1971. Brick kilns, in the vicinity of the towns, provide jobs to a number of people living in the villages.

The development of industries in the region has encouraged migration of workers from the rural to urban areas. Such migration has caused spatial changes in the growth of population, sex ratio and occupational structure of both rural and urban workers. The development of industries has brought a degree of prosperity. There is still enormous scope for industrial growth in the region.

**MEANS OF TRANSPORT.**

"Road is a significant factor in the development of industry, in the expansion of trade, in the conduct of health and education programmes and in the exchange of ideas"*1. This has immediate relevance to the Inter-State

*1. Randhawa, M.S. 1974 Green Revolution in Punjab Punjab Agriculture University, Ludhiana."
Chandigarh Region. Prior to 1951, only the upland plain had a small proportion of roads and rural transport while the hilly and undulating area was very poorly connected because of its dissected topography.

The total mileage under State Highways and railways in 1971 was 2,700 km and 82 kms respectively (Map 1.7). Before Chandigarh was chosen as the site of the capital, link roads were few and far between (no statistics for the length of roads of 1951 are available). The state roads used to terminate at Ambala, Jagadhari and Ropar (all outside the domain of I.S.C.R.) except the rail and road links between Ambala and Simla via Kalka. The Ambala-Kalka road is referred to even in the District Gazetteer of 1893 when there were no bridges across the Ghaggar stream and mail was carried by elephants. The coming up of Chandigarh has been responsible for the development of a number of roads, (thus) connecting it with all the important towns of Punjab, Haryana, Himachal Pradesh, Rajasthan, Jammu & Kashmir and Delhi. A lot of expenditure has been incurred on the construction of bridges over the streams. The buses of the Chandigarh Transport Undertaking go up to Kharar, Dera Bassi, Mullanpur, Parol and Panchkula although C.T.U. is a local service. Even the villages have been connected by the link roads with district roads. There are two railway lines serving the
region; the Ambala-Kalka Northern Railway line having six stations namely - Dappar, Ghaggar, Chandigarh, Chandni Mandir, Surajpur and Kalka. The second in the western corner of the region is the Sirhind Ropar Dam Branch which has four stations i.e. Nogawan, Morinda, Kurali and Chandigarh. There are two National Highways that serve the I.S.C.R. The Chandigarh Simla Highway (N.H.22) and Chandigarh-Ropar-Manali Highway (N.H.21). Besides, the following state highways serve the region - i) Chandigarh-Patiala, ii) Chandigarh - Ludhiana, iii) Chandigarh - Shahzadpur.

Not only has there been a dense network of roadways, the frequency of buses plying on the local, inter-regional and inter-state routes has greatly increased. There is a bus plying from Chandigarh almost every minute in a different direction. This fact has greatly changed the socio-economic face of the region. In a short span of two decades it has witnessed growth in industries and commercial activities, enabling the daily commuters to come to Chandigarh from as far as Morinda, Penur, Ambala, Kurali and Kalka. This daily commuter range is, however, restricted to shorter distances towards the hilly region of east and south east. The construction of the new district and link roads has led to the opening of schools
and a sharp increase in literacy in the rural areas. Tourists come to Chandigarh from far and near. The impact of Chandigarh can be seen in the various towns of Punjab and Haryana in the architectural designs of new buildings.

**TRADE AND COMMERCE.**

Trade and commerce in this region is of recent development owing to subsistence agrarian economy until not long ago. It compares very poorly with other parts of the wider region since there was no single industry of exclusive significance. Even in 1971, 8.15 per cent of the total work force was engaged in commercial activities (16.24 per cent in urban and 3.53 per cent in rural areas). Being agro based most of the markets are good assembling centres e.g. Dera Bassi and Banur for the disposal of agricultural produce. The products are wheat, rice, cotton, oil-seeds, chillies, potatoes, gur and sugar. Most of them are sent outside the region. The commercial goods exported are wrist watches, cement, tractors, bicycles, stainless and electrical goods to other parts of the country. The region has to import the basic raw materials: oil, textiles, auto parts, leather goods and wood.

It is thus clear that a landmass, not well exploited, has overcome the hazards imposed by the hilly terrain, devastating floods, soil erosion and inadequate
irrigation factors responsible for its economic backwardness and sparse population till 1951. The creation of the new planned town of Chandigarh has transformed the landscape and accelerated the growth of agriculture and industrial productivity in the region. There have been all round changes in the socio-economic structure of the region, showing their impact on the attributes of population which will be taken up individually in the following chapters.