CHAPTER - 1

PHYSICAL AND CULTURAL SETTINGS

For the proper planning of transport network, the study of physical conditions and natural environment becomes necessary. The foregoing analysis presents the physical setting of the region.

A. SPATIAL RELATIONSHIPS:

Spatial relations of a region are concerned with the study of its location in relation to other regions, its astronomical position, area, shape and size. All these aspects affect the growth, development and prosperity of a region in many ways.

GEOMETRICAL POSITION:

The region lies in the central part of India and the Southern part of Uttar Pradesh. It is situated between the Gangetic Plain in the north and the Vindhyan high lands in the south; Baghelkhand in the east and the Gwalior and Malwa regions in the north-west. Astronomically, the U.P. Bundelkhand extends from 24°5' N to 26°30' N latitudes and from
78°10' E to 81° 30' E longitudes (Fig.1.1)

SHAPE & AREA:

The region appears like a triangle with its three appices of Jalaun, Banda and Lalitpur. It encompasses an area of about 29.4 thousand Sq. Kms. and population of about 54.4 lacs (1981), consisting of five districts of Jhansi, Jalaun, Hamirpur, Banda and Lalitpur (table 1.1).

Over the years its geographical location had gotten an unique strategic importance. In the days of political upheaval (12 cent. A.D. to 17 cent. A.D.), it was known as the, "Gate way of South India". Because all the main routes to Deccan Plateau from the Gangetic Plain passed through the region¹. Owing to transportation inaccessibility in the past all the invaders and indigenous rulers were anxious to capture such strategic part of land.

BOUNDARIES:

Historically² and culturally Bundelkhand by and large coincides with its physiographic entity.
TABLE - 1.1
AREA AT A GLANCE

<table>
<thead>
<tr>
<th>SL. NO.</th>
<th>NAME OF DISTRICT</th>
<th>TOTAL GEOGRAPHICAL AREA (Km²)</th>
<th>TOTAL POPULATION 1981</th>
<th>DENSITY PER KM²</th>
<th>DENSITY ROAD MILAGE</th>
<th>DENSITY RAIL MILAGE</th>
<th>TOTAL POPULATION 1991</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jhansi</td>
<td>5027</td>
<td>1133002</td>
<td>1448</td>
<td>6625</td>
<td></td>
<td>1426751</td>
</tr>
<tr>
<td>2</td>
<td>Jalaun</td>
<td>4549</td>
<td>987432</td>
<td>1299</td>
<td>12041</td>
<td></td>
<td>1217021</td>
</tr>
<tr>
<td>3</td>
<td>Hamirpur</td>
<td>7192</td>
<td>1194114</td>
<td>1490</td>
<td>7703</td>
<td></td>
<td>1465401</td>
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<tr>
<td>4</td>
<td>Banda</td>
<td>7645</td>
<td>1536349</td>
<td>1288</td>
<td>2681</td>
<td></td>
<td>1851014</td>
</tr>
<tr>
<td>5</td>
<td>Lalitpur</td>
<td>5042</td>
<td>587290</td>
<td>1067</td>
<td>7830</td>
<td></td>
<td>748997</td>
</tr>
</tbody>
</table>

REGION: 29455  5438187  1331  7962  6709184

Based on Regional Census of Jhansi, 1981.

According to Cunningham the Bundelkhand region was lying South of the Yamuna extending from the Betwa in the West, to the temple of Vindhyavasini-Devi (Vindhyachal) near Mirzapur in the east. Similarly Spate designated its boundaries as the Southern upland consisting of the Vindhyan rocky zone and Gneissic Bundelkhand.

With the above view an attempt has

* The data to be used are provisional derived from The Regional Statistics Department, Jhansi.
been made to define the area of study mainly on the basis of geomorphic homogeneity, structural unity and climatic uniformity which comprise the basis of cultural unity. It follows the natural guide-lines which distinguish it from the adjacent areas in geological structure and physiographic make-up. In the north the Yamuna coincides from north-west to south-east and in the west and north-west its boundary is marked by the Betwa. Incidentally, the Chandela Empire never extended beyond this line. In the South Lalitpur Plateau demarcates the boundary line of the region and further, in the south east skirts of the region runs along the Bundelkhand upland or Vindhyachal ranges separating the region from the Baghelkhand.

Beside these delimitations, politically, the region lies under the Uttar Pradesh State, consisting of five Southern districts i.e. Jhansi, Jalaun, Hamirpur, Banda and Lalitpur.

B. GEOLOGY:

The geographical surroundings of the study region contributes their share in geological structure of the area in many ways. The nature
and characteristics of the rocks display an important role in determining the human activities, the social characteristics, type of farming, settlement-patterns and transportational as well as communicational activities. Hard rocky zone of the area has hampered the growth and development of resources and these are not available for human progress. In the boulder and quartz reef areas where the deep and intensive agriculture is impossible, the people are engaged in quarrying, mining and other allied activities.

The geology of Bundelkhand Region (U.P.) (Vide fig. 1.2B) depicts the following four geological systems.

1. THE ARCHAEOAN SYSTEM: Bundelkhand granites and Gneisses.

2. THE TRANSITIONAL SYSTEM: The Bijawar Series.

3. THE VINDHYAN SYSTEM: Kaimure Series.

4. RECENT DEPOSITS: Trans - Yamuna - Alluvial-Plain.
1. **THE ARCHAEOAN SYSTEM:**

The Archaean System of Bundelkhand belongs to the group of oldest rocks of the earth's crust, which is one of the three areal groups of Archaean rocks in India. According to Jhingaran the Bundelkhand region is 1300 million years old. Saxena believes in the granitic orography of the Bundelkhand and explains that it was formed in the process of 'replacement' of non-igneous matter crystal by crystal, by hydro-thermal effects and not by magmatic replacement and called them 'black-xenoliths holds a complete sequence of granitisation which endures his views. Jhingaran, however, remarks that it is easy to solve this enigma, if we accept the granites of Bundelkhand as having been formed in both the manners.

A Geological survey of Betwa and Ken river basins reveals the texture and composition of particles of granites which differ from other varieties. Pink feldsparic coarse grained varieties are dominant but grey varieties are also seen in the basins.

Although the granites and gneisses are utilized in multiple purposes according to
desired needs anywhere, but the main use of these is made in paving roads and completing the railways. Because, in the absence of these stone-pieces (Gitti) roads and rail routes can not be constructed.

2. TRANSITIONAL SYSTEM:

The transitional system named as the 'Bijawar System', was formed between Aravalli and Vindhyan periods and is lying in the Bijawar tahsil of Chhatarpur district. This sediment exists on the granites and under the lower Vindhyan beds.

Although, the thickness of Bijawar System nowhere is 70 to 216 metres, yet the percentage of iron-ore is high, and, therefore, from very beginning was exploited by Bundela Chiefs\(^1\). Bundelas used it during times of war, in making the war-carriages or weapons.

3. THE VINDHYAN SYSTEM:

In Algonkian age, about 600 to 700 million years ago, there was an ancient geosyncline, called the 'Vindhyan sea\(^2\)', which was filled with the deposits of ancient Aravalli ranges. The present evidence of fluviomarine deposits indicates the remoteness of geological time.
The two powerful forces had reacted in the formation of this system - one tectonic movement came from west and second isostatic adjustment from South\textsuperscript{13}.

The Kaimur series is not a aloof part of Vindhyan system and is constituted by 'relict structure' due to the sculpturing of a basin of sedimentary rocks in which a series of hard sandstones has played an important part\textsuperscript{14}.

The region is surrounded by this series (Kaimur) except in the north. It covers a little Southern portion of Lalitpur plateau and middle part of Bijawar series.

The importance of this system or series is obvious. Because the gems and the Vindhyan Sandstones have been used in the construction of historic monuments\textsuperscript{15}. Historical places attract the people and contribute a lion's share in regional economy. Tourism and transportational facilities have good prospects.

4. **THE RECENT DEPOSITS**

The northern sector of the region, which was a 'Geosyncline' of the Vindhyan sea is filled up with the sediments carried by the northern and southern streams. The thickness
of the deposits in north is deeper than in the southern part of the region. Undoubtedly, the Trans-Yamuna alluvial plain is very fertile which is considered as a predominantly agricultural part of the region.

C. **SURFACE CONFIGURATION:**

**GENERAL SHAPE:**

The topography of the region is rude and undulating in character what Spate has remarked as 'Senile Topography'. It passes through the recent alluvium and low lands in the north (66%) on the one hand and Vindhyan upland in the south on the other (29 percent upland and 5 percent of hilly area).

U.P. Bundelkhand is very often divided into two physiographic units - the upland and, the lowland. This classification is rather convenient and apparent. But, a detailed study of U.P. Bundelkhand discloses as many as three physiographic units which are categorized in fig. 1.2C.

(1) The Bundelkhand upland

(2) The Transitional Belt, and
(1) **THE BUNDELKHAND UPLAND :**

It covers most of the Southern part of Hamirpur, Banda and the whole of the Jhansi district. It can be further sub-divided into two sub-divisions as Vindhyan hill ranges and Banda (Chitrakut) Plateau running from east to west. The Vindhyan hill ranges start from the Bhalwali village and continues upto Bodha. The local elevation of the ranges does not exceeds 610 metres above the sea level. It is a broad undulating land ranging from 150 - 350 metres. The Vindhyan scarps are the conspicuous features locally known as 'Ghatis'. These ranges are narrow flat topped hills but their breadth increases on Lalitpur plateau by about 32 kms with the average height of 503 metres. In the north, it is marked by numerous isolated hills such as Imalia, Malmal Golakoṭ and Bari Pahar. Wadia, remarked that "they are more prominences left standing while surrounding parts have disappeared in the prolonged denudation which these regions have undergone."

In brief, its sub-divisions are as below : -
(i) Bundelkhand Gneissic Plateau,
(ii) Vindhyan Hills, and
(iii) Banda Plateau.

(1) **BUNDELKHAND GNEISSIC PLATEAU**:

It spreads over the Jhansi district. The formation consists of massive granite and quartz reefs. Owing to the intermediary position between the plain in the north and upland in the south; the Bundelkhand gneissic area takes both type of characteristics. The basic types of dolerite and isolated groups of granite and half buried hornblende often criss-cross the country. They run in parallel direction from south-west to north-east. All the tributaries and 'nalas' of the Betwa system follow the same rocky slope. The landscape is characterised by large chunks of waste lands and hilly and undulating surface.

This gneissic plateau bars the economy because the red soil, carrying less capacity of cropping and low water-table. This part is well accessible by the roads.

(ii) **VINDHYAN HILLS**:

These hills stretch over the Mahroni
tahsil and a very little part of the Lalitpur tahsil in Lalitpur district. It is covered with stunted trees and forest consisting mostly of the gneissic rocks and is interspersed with short narrow and low ridges running parallel to drainage in Lalitpur. Its gneissic topography forms a resistance for road network in the region and, therefore, of that tract the economy is less sturdy than the other.

(iii) **BANDA PLATEAU**:

It spreads over the southern part of Banda district. In this tract poor and backward economy is the main reason of the criminal activities. Its rugged surface, interrupted land and mis-use and exploitation of the rocky parts are responsible for such activities in the region. There are short narrow and low ridges tending to form clusters in Banda plateau.

The highland is clothed with deciduous forests and is rich in fauna. Economically, it is an agricultural and poor region. Only in small shallow patches agriculture is being practised and economy of the people is partly supported by the live-stock and forest products. In the midst of the jungles people are engaged in cutting
timber, in plucking the Tendu leaves and in collecting the minor forest products. Near the hills and hillocks people are busy in quarrying-works. Here, the means of communication and transportation lack and are responsible for the under development of the region.

(2) THE TRANSITIONAL BELT:

It covers the intervening area between the Trans Yamuna Plain in the north and the granitic land in the south. That is demarcated by the 250 and 300 metre contour line in the north and south respectively. Its average elevation is more than 274 metre above the sea level. It consists of the Moth, Garautha, North of Mau and Purpur and Charkhari and South part of Mahoba and Rath Tahsils. Further East, major portions of Karwi and Mau tahsils come along the belt.

The western part of the tract is more eroded than the eastern part. The local hills are often dotted over the region mainly in Charkhari and Mahoba tahsils. Comparatively, the western part is more fertile because of the transported soils and canal irrigation than the eastern Part.
(3) **THE BUNDELKHAND LOW LAND:**

The Trans-Yamuna plain is a sub-part of the broad Ganga-Yamuna plain, which can be sub-divided into the following parts:

(a) The Yamuna Ravine Belt,
(b) The Jalaun Plain,
(c) The Hamirpur Plain, and
(d) The Banda Plain.

The ravine belt is composed of 'Kankar' and clothed with the thinnest vegetal cover. The area is badly dissected and eroded by enumerable torrents. These high knolls are the result of gully erosion, locally known as 'Jar','Bihad', Khar 'Karar', etc. Having the less fertility of the soil and low water-table its agricultural prospects are limited. The means of transport are very poor in this part of region.

The ravines of Pahuj, Sindh, Betwa, Chambal and Yamuna, are still defamed for dacoity problem.

Such dangerous and cancerous activities can be ended if the truly efficient modes of transport and communication are extended in the
region.

The Jalaun plain is considerably important for agricultural activities. The rail and road transportation also contribute a lion's share in its development. The transport facilities display an important role in the economy of the Jalaun plain.

The Hamirpur plain is endowed with black soil on which dry farming is performed. The Rath tract of the plain mostly depends upon Dhasan Canal for its irrigation. Here wheat and gram are the main Rabi crops, grown popularly. The plain is lacking in the sufficient rail and road networks for the future development.

The Banda plain consists of Banda, Baberu and Naraini tahsil. It is one of the dominant agriculture regions of U.P. Bundelkhand. In this tract, rails and roads are main transport-arteries.

In brief, surface configuration or upland-lowland, peneplain, plain and rugged land
cummulatively influence to the type and category of transport-arteries.

D. DRAINAGE:

The perennial streams of the region follow the general slope of the land from south-west to north-east direction and constitute a natural drainage pattern of the region (fig. 1.3A). All the tributaries of the Yamuna river originates from the upper Vindhyan region and follow the slope. Their courses are marked with gorges and cascades when they cross the sandstone formation. Owing to the character of rocks dendritic pattern is developed in the region. Certain points of Play fair's law are reflected in the study of regional drainage. Firstly, the valleys adopt the size of the streams according to their own size. Secondly, the stream junctions are in accordance with the level and thirdly, the valleys are carved by the streams flowing in them due to the rapid run-off.

WATER-TABLE:

According to nature of the terrain the depth of water-table varies from 6 to 25 metres from one place to another. In areas of irrigated
land, it is higher than in other parts due to the high percentage of humidity. The less porosity and high percentage of evaporation in the crystalline rocks at Patha area of Banda district and Lalitpur plateau has kept the water table deeper than in plain areas. It has an underground movement of water and creates springs at Lalitpur and Karwi areas in the region which have their own economic and scenic importance.

SURFACE WATER-BODIES;

The hard topography commands the surface water and does not permit it to sink underground quickly. The tanks, lakes and reservoirs render great service to the socio-economic life of the region. On the Southern upland numerous water-bodies, created by men, are established. The low land is well known from wells and canal nets. The region is much obliged to the Chandelas
dynasty for the several public water-works.

THE RIVER SYSTEM:

The perennial rivers are great sources of surface-water. Fig. 1.3A shows that the region is drained by the Yamuna system of rivers, and the main tributaries of the system are the Betwa, Dhasan, Ken, Sindh and Pahuj. They swell up in the rainy season and quickly subside into narrow deep streams. The number of seasonal torrents criss-cross the land and make the surface rough and undulating. Floods often bring a destruction to the life and property of the region.

The catchment area of the main streams is as followed:

<table>
<thead>
<tr>
<th>THE YAMUNA SYSTEM</th>
<th>AREA IN SQ.KMS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) The River Yamuna</td>
<td>9650</td>
</tr>
<tr>
<td>(b) The River Betwa</td>
<td>21222</td>
</tr>
<tr>
<td>(c) The River Ken &amp; Dhasan</td>
<td>14667</td>
</tr>
<tr>
<td>(d) The River Sindh and Pahuj</td>
<td>9318</td>
</tr>
<tr>
<td></td>
<td><strong>54857</strong></td>
</tr>
</tbody>
</table>

**Source:** The report of the Zonal Office, Bridge Corporation, Jhansi.
(a) **THE YAMUNA:**

After flowing about 720 kms from the place of origin the river enters the region near Jagammsnipur (Jalaun) where five Vindhyan streams pour their water in it. The Yamuna is the only river which originates from the Yamunotri 13 kms. from Kurseli (Kasoli)\(^{21}\). So far its value is conserved, it is insignificant for the region because its right bank stands just like a straight highwall (20 to 60 metres) which do not permit successive penetration. However, it covers an area of 696 Kms. from Agra to Mau (Banda), which has historical\(^{22}\) importance. It is a largest and navigable stream of the region (fig. 1.3 C ).

(b) **THE BETWA:**

It arises from the Vindhyas near Kumri (Bhopal). After flowing 48 kms. in the south, it constitutes the inter-provincial boundary between U.P. and M.P. On the upland of Bundelkhand the Betwa flows through the deep rocky beds. Near Deogarh fort it makes a magnificent gorge and cliffs. It scores innumerable ravines, flowing onward through the beating banks. It some places stream fringes strip off alluvial land between
the river and the cliffs. Mata-Tila, Dukwan and Parichha dams are the beautiful gifts of the same which are the source of Betwa canals. Economically, the Betwa is important among all the regional streams inspite of rocky basements. It occupies largest catchment area of 21,222 kms. in the region. The Dhasan is an important tributary of the Betwa and water is drained to the Dhasan canals.

(c) **THE KEN**

The Ken touches the region in Naraini Tahsil of Banda District. In the upper course it flows through the undulating hilly tracts. It is perennial but not navigable due to rocky beds. The Ken becomes a beneficial river to Banda district which supplies sufficient water to the region through the Ken canals. Right Banks are steep and scratched with ravines while the left banks are gentle and marked with alluvial deposits. Extensive alluvial plains which are called 'Tari' and 'Kachhar', lower and upper beds respectively, are highly fertile. In rainy season it causes floods and affects the lives.

The Chandrawal is a large affluent
of the Ken. Other main tributaries are Shiym, Kel, Bichui and Gawain.

(d) \textbf{T}HE SINDH AND PAHUJ:

The eastern slope of the Aravalli range is the source of Sindh. When it marches further Nun, parvati, Chachhond, "nalas" pour their water; therefore, its volume goes to high. It meets to Yamuna near Jagammanpur.

The Pahuj is another tributary of Yamuna which flows through the undulating course in upper part, but through plains in the lower part. The Pahuj river is a beautiful gift, which commands a large area for irrigation.

In the eastern part the Bagain and the Paisuni are the main streams of Bundelkhand. Mythologically the Paisuni or the Mandakini is a holy river due to Ram's stay on its banks during his exile.

In Brief, all the regional streams have local significance. The Yamuna is only all weather navigable and having great importance in water transport.
(e) **CLIMATE**

Climate is one of the dominant factors which affect the development of transport-network as well as regional economy. Due to its location in the sub-tropical belt, the region experiences the monsoon climate. With all its rhythms, vagaries and extremes, it affects every detail of lives. The year may be divided into four successive sessions. These are -

(i) **THE WINTER SEASON** (December to mid-March),

(ii) **THE SUMMER SEASON** (Mid-March to Mid-June)

(iii) **THE RAINY SEASON** (Mid-June to Mid-Sept.) and

(iv) **THE AUTUMN SEASON** (Mid September to Mid-Dec).

(i) **THE WINTER SEASON**:

This season commences after the transition season that comes after the full recession of the South-West monsoon. The winter season occurs from mid-December when temperatures and relative humidity fall considerably. In this cool and bright period it rains occasionally from Western disturbances specially in January and February. January is the coldest month of the year when the average minimum temperature ranges from 8.9°C on the Southern upland to 4.4°C in the
plain near Jalaun. Nights are frequently chilly in late winter and frosts occur when cold wave sweeps the region from the west or north-west. The climatic chart of Jhansi (Fig. 1.4B) shows that the temperature ranges from 10°C to 12°C in January and February. Besides the winter rains though little in quantity, are much beneficial to the Rabi crops. The cold climatic conditions are suitable for the physical and mental activities of the human beings.

(ii) **SUMMER SEASON** :

From mid-March onwards both day and night temperatures begin to rise progressively and increase in May to 42.6°C. The sun rays become scorching. In this intense heat and driest period the hot and strong winds locally known as 'Loo' blow afternoon overall the region. The nights become cooler than the days particularly in the late hours. This season ends about middle of June. The region specially Banda district records high temperature every year which obstructs local activities.

(iii) **THE RAINY SEASON** :

This season starts from mid-June when the summer monsoon abruptly bursts, because
15th June is regarded as the normal date. During this season the relative humidity generally exceeds 70%. The winds strengthen slightly and are mainly Westerly or South-Westerly and above 90% of the annual rainfall comes in this season. In Jhansi the mean annual humidity is 56% (1984) (Fig. 1.4B). The movement of people and goods are retarded during the rainy season.

(iv) **AUTUMN-SEASON**

It is a short period between rainy and cold season which occurs from mid September to mid December. The temperature in the month of October remains like September (32.2°C), but after October it decreases rapidly. The average relative humidity is generally between 50% to 65%.

**DISTRIBUTION OF RAINFALL**

Fig. 1.4A shows that the distribution of annual rainfall is uneven, ranging from less than 80 cms. in the north-west to more than 100 cms. in the east and south-east. The region around Mehroni-Narhat (Lalitpur) in the Southern upland records 112.1 cms. of the maximum annual rainfall, while the north-west
of Jalaun gets only 74.07 cms. The rainfall in the region in general increases from the northwest towards the south east. The critical isohyete of 100 cms. encloses some area of Southern upland. The isohyete of 80 cms. passes through the northwest of Jalaun plain and marks like dry zone.

**VARIABILITY OF RAINFALL:**

There is high variation in summer and winter rainfall in the region. Fig. 1.4C shows that during winter season the north west part of the region records the rainfall of over 5 cms while the south west and west record below 3 cms. As one passes towards north-west from south-east, variability of rainfall increases. The rainy season continues from mid June to mid September. Fluctuations of monsoon are well experienced in this part of region. Some times it starts prior and ends earlier. The increase in seasonal rainfall and the associated decrease in the variability of the rainfall from west to east are experienced in the both the regional stations as :

<table>
<thead>
<tr>
<th>STATIONS</th>
<th>SEASONAL RAINFALL</th>
<th>SEASONAL VARIABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jhansi</td>
<td>33.72 Cms.</td>
<td>44.6%</td>
</tr>
<tr>
<td>Banda</td>
<td>96.95 Cms.</td>
<td>36.0%</td>
</tr>
</tbody>
</table>

*Source: Director, Regional Meteorological, Centre, New Delhi.*
The annual variation of rainfall is not acute, but there have been recorded scanty rainfall during last few years. In a year there are 42 rainy days on an average. The regional economy and transportations are adversely affected during rainy season. Heavy rainfall breaches rails and roads and floods agricultural areas. The accessibility of areas decreases.

(f) **SOIL:**

Soil is one of the most valuable resources. It is the upper layer of rock formations caused by the various factors of denudation.

Broadly speaking the soils of Jhansi Division can be divided into three main groups (Fig. 1.4E) as under:

(i) Upland soils (Patha),

(ii) Lowland soils Sub classified as

(a) Black soils (Mar & Kabar),

(b) Red and yellow soils (Rankar),

(c) Alluvial soils (Parua).

(iii) Riverine soils (Tari and Kachhar).
(i) **THE UPLAND SOILS:**

This type of soil stretches over both the areas of Vindhyan Plateau. These soils are termed as 'Patha' soils in eastern part of Banda district. The gravelly soils cover the Karwi, Mau and east-western part of Naraini tahsil.

In the same manner mountainous soils also, cover the South Lalitpur and Talbehat tahsils. These soils vary in texture and depth according to the gradient of ground. The soil is reddish and brown in colour. The texture is not suitable for agriculture, but it is generally more suitable for pastural economy.

(ii) **THE LOWLAND SOILS:**

(a) **THE BLACK-SOIL:**

It is developed mostly over Jalaun, Northern Hamirpur, Banda plains, Southern upland of Mahroni, Lalitpur, Moth and Garautha tahsils of the region. It is regarded as "an immediate product of the decomposition of gneiss." It bears a resemblance to the black cotton soil of central India. The sub-classes of this soil are known as 'Kabar' and 'Mar' respectively. The 'Kabar' soil is a coarse grained loam in
texture, mature in profile and dark grey to black in colour which has a high clayey element (20 to 50 per cent), the coarse sand and soluble salt being low, lime being about one per cent throughout and magnesia even less. It is very productive under careful management but even a slight diversion from the agricultural time table renders it unsuitable for cultivation. It is not subject to erosion and the areas where it occurs and is well drained.

Mar soil is clayey in texture, mature in profile and black in colour and 'Kankar' beds are found here and there. The percentage of clay in it is high (varying between 40 and 50 per cent) but that of coarse sand and soluble salts is low as is also the case with lime and magnesia.

(b) **RED AND YELLOW SOILS:**

This soil covers an area around black soil of Jhansi, Jalaun and Hamirpur districts of the region. According to the texture and colour it is further sub-divided into three groups - loam brownish, redish-brown and grey-brown. The lime content is less than one per cent while magnesia is even less than that of salt.
The areas covered by such soils are much productive. These soils are subject to hazards of erosion. The soil-conservation practices that are useful in affected areas are making the bunds, the farming on terraces and contour tillage. The profile is mature with 'Kankar' beds also at places. The clay content is medium (being between 13 and 45 per cent). Drainage is not a serious problem. The storing of water is useful. Irrigation is a pressing pre-requisite for the successful agricultural development of the areas where this type of soil occurs.

(c) **ALLUVIAL SOIL**:

The loamy grey, clayey yellow and alluvial soils fall under the same category. Within the reason a strip of alluvial soil exists in the Western part of tahsil Lalitpur adjoining Madhya Pradesh. A tract of insignificant clayey yellow soil occurs in the northern most part of the district Jhansi, forming the boundary between it and the district of Jalaun. The loamy grey soil stretches over the small part of Lalitpur and Talbehat tahsils (Lalitpur) North-West Banda and South Baberu tahsils (Banda).,
The alluvial soils of the plains have undergone but little pedogenic evolution since their deposition by river agency. They are still largely immature and have not developed any characteristic soil profile, or differentiation into zones. So the general minor variation in density, colour, texture, porosity and moisture content of its various forms become common. 'Bangar' and 'Khar' are other popular divisions of the alluvial soils. The former lies on the surface while the latter a few feet below the ground.

(iii) THE RIVERINE SOIL:

In general the ravinous or 'Ghar' soil is found in scattered places along the rivers of the region, such as the Yamuna, Betwa, Dhasan, Ken and Pahuj. The tahsils of Kalpi, Hamirpur, Jalaun, Banda and Baberu, represent this soil. The soil requires reclamation and lacking for economically viable cultivation.

The soils of the U.P. Bundelkhand have their direct bearing on the agro-based economy of the region. That is why the quality of soil has affected the density and distribution of population as well as the construction
of rails and roads for the transportation of agricultural products of the region. The areas of hard and thin soils and plains of alluvial soils have provided a fair opportunity for the development of transport network in the region. The plateau areas have facilitated the road construction due to easier availability of construction materials.

(g) **NATURAL VEGETATION**

The vegetal cover includes all the trees, plants, bushes and grasses which are naturally grown without any planning. It is the product of physiographic, climatic, edaphic and biotic conditions of the land scape, therefore, it varies according to environmental balance from humid to semi-arid regions. The Trans-Yamuna Tract shares both the dry deciduous as well as thorny forests.

Banda and Lalitpur districts possess more than 65% of the total forest area in the region. Jhansi, Hamirpur and Jalaun share only 34% of the total forest cover. The plateau areas of Lalitpur, Talbehat, Mehroni, Mau and Karwi tahsils are densely forested and Banda, Maudaha and
Baberu tahsils are the least forested in the region.

**FOREST ASSOCIATION:**

On the basis of plant-communities regional forest can be classified into three groups as below:

(a) **TEAK (TECTONA GRANDIS)**

Teak is the most significant tree of dry deciduous forests which grows on the high escarpments of Vindhyan land in the areas from 400 to 500 metres high above sea level. The teak are mainly confined in Lalitpur and Karwi tahsils. It is estimated that there are about 2000 teak-trees in this division. On the priority basis teak plantation is mounting on the region.

(b) **MISCELLANEOUS FORESTS**

Mixed deciduous forests occupy the lowlands between teak forests above and ravine areas below which carry diversified plant species. In the eastern part of the region where rainfall is sufficient, the forests are less dry.

Among other miscellaneous trees which grow in the plains are Mahua, Pipal, Dhak,
Mango, Neem, Bargad, Gular, Jamun, Amla, Imli and Kaitha. Mahuwa is useful specie which is found in large quantity in the region. It is used in many ways as timber, firewood, oil and liquor.

(c) SCRUB FORESTS:

The scrubs are found abundantly in semi arid and low waste land along the streams which penetrate into the region. The rugged topography of the ravine areas easily allow the growth of Karonda, Karil, Babul, Reonja Dhak etc.

The important trees of commercial and industrial value are Mahuwa, Babul, Shisam, Teak, Charcoal, Khair and Bamboos which are transported according to the regional demands.

THE ADMINISTRATIVE CLASSIFICATION OF FORESTS

The Jhansi Divison covers 10.1% of the total forested area of U.P. On the basis of administrative set-up the regional forests can be categorised into three main types -

1. RESERVED FORESTS:

Under this it comes 70.98 per cent
and geographical area of the total vegetal cover. These are property of the Government. The percentage of reserved forest is high in Lalitpur (7.69%) and Banda (32.56%) districts and low in Jalaun (13.43%) and Hamirpur (4.0%).

2. **PROTECTED FORESTS**:

Under this category the trees belong to the government but land is owned by the people. The licence is issued to cut the trees and graze the cattle. Only Jhansi district gets the advantage (.89%) for such forests in the region.

3. **UNCLASSIFIED OR OPEN FORESTS**:

These forests are occupied by the big land-holders. Economically these are less significant. Jhansi Division is much important for open forests. The percentage is high in Hamirpur, Jalaun, Banda, Lalitpur and Jhansi districts as table reveals: -
TABLE 1.3
ADMINISTRATIVE CLASSIFICATION OF FORESTS (%)

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>RESERVED</th>
<th>PROTECTED</th>
<th>UNCLASSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jalaun</td>
<td>13.43</td>
<td>..</td>
<td>86.57</td>
</tr>
<tr>
<td>Jhansi &amp; Lalitpur</td>
<td>47.69</td>
<td>0.89</td>
<td>51.42</td>
</tr>
<tr>
<td>Hamirpur</td>
<td>4.00</td>
<td>..</td>
<td>36.00</td>
</tr>
<tr>
<td>Banda</td>
<td>32.56</td>
<td>..</td>
<td>67.44</td>
</tr>
</tbody>
</table>

Source: Deputy Chief Conservator of Forests, Planning, U.P. Lucknow.

Banda has the largest total forest area of 77781.00 Hectares in the region. The Lalitpur, Garautha, Rath and Mau tahsils have the 9.15% area under forest while the Banda, Baberu and Naraini below 1% (fig. 1.4D).

In brief, although the region belongs a diversity in distribution and area under forest; but forests provide a high value of timber, tendu leaves, bamboo, grasses and other minor products e.g. herbs, tannery materials, gum, katha, resin, lac, honey and other fruits and flowers such as Mahua, Amla, Bahera, Tendu etc. are utilized
as raw materials in various small cottage industries.

These are exported from the regional forests to the neighbouring areas in a large amount. Naturally these forest-products attract the means of transportation to be developed in those areas for proper and economical exploitation of this valuable resource.

With the above description physical features reprinted on the cultural set-up of the region.

**CULTURAL SETTING**

It comprises a salient study of agriculture, live-stock, industry and population, which most affect the economy of the region. These are as below:

**AGRICULTURE:**

Agriculture, the back-bone of economy of Jhansi Division, is the most important sector of its economy. In 1981 this sector employed nearly 78.45% of the working force of Jhansi Division. The region is agriculturally under-developed because of traditional and rudimentary forms of cultivation oriented mainly to the production
of cereals. Some of the causes of its backwardness may be attributed to the unfavourable physical conditions also such as the hilly terrain of the South, poor quality of soils being the mixture of red and black varieties, inadequacy of rainfall and irrigational facilities, the serious problem of soil erosion in the ravine areas of Betwa, Ken and Pahuj rivers, the saline and alkaline soils prevailing here and the water logging which will really become very acute in future*.

After independence the agriculture of the region performed, because some important steps such as irrigational facilities, conservation of soils, utilization of culturable waste and fallow land and mechanism had done respectively.

The salient features of agriculture of the region can be taken into being as below:

(a) The regional agriculture is carried out mostly on traditional system.

(b) Mixed and dry cultivation is generally in practice.

(c) The double cropped and irrigated area

is gradually increasing.

(d) Industrial crops are insignificant in the agriculture calendar.

(e) Size of holding an important phenomenon of the regional agriculture is small.

(f) The use of high yielding varieties, chemical fertilizers and mechanization is increasing.

(g) Bonded labour is still in vogue. Chaityuwa labours still migrate from one district to another during the harvesting season.

GENERAL LAND USE PATTERN:

Bundelkhand is mainly depend on the agriculture economy; as its about 70% population depends on agriculture for its livelihood. Fig. 1.5A depicts the land-use pattern of the region. The net sown area ranges from 27.23% in Talbehat tahsil to 81.93%, in Konch followed by Maudaha (80.34%) and Banda (79.32%) Tahsils. Likewise culturable waste land ranges from .86% in Konch to 31.99% in Talbehat. Current fallow land is the maximum in Baberu (24.04%) followed by Mahoba
(13.89%) and Kulpahar (12.66%). So far as land not available for cultivation is concerned Jhansi stands first (11.79%) followed by Karwi (9.11%) and Naraini (6.72%) tahsils. Only 0.21% of Baberu and 0.65% of Naraini are covered with forests while Karwi and Mehroni tahsils have 26.28% and 15.27% of their areas under forests respectively.

The coefficient of variability of net cropped area is high in Lalitpur (17.7%) and low in Hamirpur (.4%) (Fig. 1.5B).

The region as a whole covers 62.74% under net area sown, 9.09% under current fallow land, 8.71% under cultivable waste land, 4.37% under land not available for cultivation and 8.11% under forest of its area (fig. 1.5A).

CROPPING PATTERN :

Fig. 1.5A exhibits that Baberu and Naraini have the highest double cropped area of 38.15% and 34.39% in the east, while Orai and Mahoba have 1.5% and 1.79% in the west respectively. It is mainly because of the irrigational facilities provided in those areas. These areas have more than 42.13% of their cultivated land under irrigation. The coefficient of variability
of double cropped area is 20.53% in Hamirpur and 56% in district Jhansi (Fig. 1.5C).

**MAIN CROPS:**

There are three seasonal crops in the region. They are called as Kharif, Rabi and Zaid. The main crops of the region are wheat, paddy, gram, millets, barley, pulses (Arhar, Moong, Mansoor, Urd, Mooth). Oilseeds, tobacco, fruits and vegetables. Pulses and oilseeds are generally produced as mixed crops. About 96% of the cultivated land is devoted to food-crops and the rest to non-food crops.

The wheat, gram, pulses and millets are more important crops of the region. Fig. 1.6A shows that wheat is produced in Jhansi (42.88%) of net sown, Lalitpur (41.08%) and Naraini (36.53%), gram in Maudaha (29.51%), Garautha (29.12%) and Hamirpur (28.88%), Pulses in Konch (49.43%), Orai (41.35%) and Kalpi (38.24%), Millets in Talbehat (22.01%), Mau-ranipur (21.25%) and Mehroni (20.91%) and oil-seeds in Charkhari (6.33%) Mehroni (6.02%) and Orai 5.88%.

The intensity of crops ranges from 105.43% in district Hamirpur to over 127.39%
and in Lalitpur (fig. 1.6C). This is mainly because of facility of irrigation. In Jhansi Division a composite system of irrigation has been adopted, because no single system can serve the objective. Government canals, private canals, tube wells, ordinary wells, reservoirs, lakes, tanks, etc., are the main source of irrigation (fig. 1.6B). The total irrigated area with this composite system in 1984-85 was 389084 Hectares (21.25%) in the net cropped area, while it was 8.90% to the total geographical area. Jalaun district had 19.77% of its total area under irrigation, followed by Jhansi district 18.10% Banda, Lalitpur, and Hamirpur districts had 17.01%, 15.80% and 12.81% irrigated areas respectively. In the region Hamirpur and Jalaun are popular in tube-well irrigation while Jhansi and Lalitpur in 'Rahat' and pumping-sets.

THE LIVE-STOCK:

Being the back-bone of regional economy, livestock contributes a lion's share in agricultural and transportational development. Now 70% agriculture depends on animals in rural areas. Fig. 1.7A shows that cattle are more than the other animals and co-operate to the agricultural economy of the region.
The highest density of 45 live-stock per sq. km. is found in district Banda, while lowest in Jalaun (20 live-stock) (Fig. 1.7C). The milching structure of 27 live-stock as percent of total live stock is also high in Banda than the other districts (Fig. 1.7B). The transport structure of life-stock per 1000 persons shows the highest number in Mau tahsil (560 live-stock) while Banda tahsil represents the least number (58 live-stock).

**ANIMAL PRODUCTS:**

The animal products are the supplementary source of regional economy. Hides and skins, milk, bones, wool and bristles are main animal products. It is estimated that about 549 lakh pieces of hides and 5.72 lakh pieces of skins are available annually. For the supply of hides and skins Jalaun district comes first 1.59 lakh), (1.65 lakh) and Jhansi district produces 1.46 lakh and 0.52 lakh hides and skins respectively. Banda and Hamirpur districts comparatively supply low quantity.

**INDUSTRY**

The Bundelkhand is industrially, a
backward region; although it has surplus agricultural products as well as rich in raw materials. It is mainly owing to lack of the government encouragement, the investment of capital and enterprise on the one hand and raw materials and mineral wealth, know-how and paucity of skilled labour on the other. Both the increasing population and limited mineral wealth does not allow the establishment of large scale and heavy industries. Therefore, the problem of employment goes up high. Only small scale and cottage industries appear to be the main industrial sector, which can give employment to the thousands of persons.

INDUSTRIAL DEVELOPMENT AT A GLANCE

The early history of Jhansi Division is very much obscure due to the lack of authentic sources. In the beginning of the eighteenth century, the region was well known for the excellent cloth made by hand. During mid-19th century, in about 1844, Colonel Sleeman noticed that fine woolen carpets were produced in the Jhansi region. In 1909 brassware were manufactured at Mau in Jhansi district and axe heads and coarse blankets were made in Talbehat in Lalitpur district.
Jalaun district had four cotton ginning factories, two of which were located at Kalpi and worked there for a considerable period of time. In 1901, a large cotton ginning mill was established by Messrs Baijnath Juggilal of Kanpur at Ait in tahsil Orai. In Hamirpur district coarse cloth was made by some Mohammedan weavers mainly of Mahoba. In Banda town in around 1909 cooking utensils of copper and bell metal and various articles of gold and silver for household or ornamental purposes were manufactured. In Karwi sub-division there were a number of stone-quarries.

In this region railways were introduced in 1883 and a construction of rail tracts were completed by 1989. It encouraged people for employment. During the pre-independence period and past independence period, an industrial growth was stagnant. But the first industrial policy resolution, 1948, 1956, 1977 and five year plans approved the development of cottage and small scale industries for the advancement of the national economy.

CLASSIFICATION OF INDUSTRY:

The industry of the region can be
divided into three main groups; large scale
small scale and cottage industries.

(1) **LARGE SCALE INDUSTRIES**:

Under this category the region has
two important concerns, the Central Railway
Mechanical Carriage and Wagon Work Shop, Jhansi
and the Central Railway Transportation carriage
and Wagon Workshop, Jhansi. But there are 43
industries which are registered under Factory
Act 1948. The Baidyanath Ayurveda Bhavan (Private)
Ltd. (Jhansi), Bharat Heavy Electrical Ltd. (Khalar-
Jhansi), Aluminium (Jhansi), hand made paper
(Kalpi), Mini-Sugar (jalaun district,) Hume-pipe
(Karari) are the main industries, which clustered
in western and mid eastern as well as north part
of the region. These industries use power and
give employment to the people.

**DISTRIBUTIONAL PATTERN**:

The quantitative distributional pattern
of industries varies in the region. The highly
concentrated industries lie around few big centres
like Jhansi, Mauanipur, Lalitpur, Jalaun and
Banda etc. The following table gives the distribution
of Industries on district level: -
<table>
<thead>
<tr>
<th>SL. NO.</th>
<th>DISTRICT</th>
<th>NO. OF INDUSTRIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Jhansi</td>
<td>32</td>
</tr>
<tr>
<td>2.</td>
<td>Jalaun</td>
<td>04</td>
</tr>
<tr>
<td>3.</td>
<td>Hamirpur</td>
<td>01</td>
</tr>
<tr>
<td>4.</td>
<td>Banda</td>
<td>04</td>
</tr>
<tr>
<td>5.</td>
<td>Lalitpur</td>
<td>02</td>
</tr>
</tbody>
</table>

**REGION:** 43

Source: Office of the Joint Director of Industries, Jhansi Division, Jhansi.

From the above table it is obvious that Jhansi district possesses more than 74% of the industries of the region. So far as their nature is concerned of the 43 Industries 11 belong to general and engineering rolling milling stone granite and emery stone crushing and polishing involves 08 followed by rice-mills, 24. There are 03 printing industries while Ayurvedic medicine industries account for 02. In addition, there are 2 handmade paper industries, 2 ice industries, two
hume-pipe industries, one cotton textiles, one bone crushing mill, one mini Sugar-mill, one cycle-tube, one mineral based industry and the 03 others. These industries give an employment for 18449 persons. Engineering industry developed in Western part of region more than at Khailar and Jhansi. Stone granites milling industries are established at Erich and Jhansi. Among other industries, Vaidyanath Ayurved Bhavan (Private), Ltd., is the main industrial Unit established in 1948 in Jhansi. In this industry care is taken to see that the principles and methods enjoined by the science of 'Ayurved' are followed. The hand-made paper industry well developed at Kalpi (Jalaun) having ample raw material from its surroundings and in north and south. Rice mills have developed at Atarra (Banda) due to easy availability of paddy. For industrial purpose, there is a thermal powr station was opened at Jhansi ; for self sufficiency in electric powr in 1913 which co-operates to the industrial functioning.

(ii) SMALL SCALE INDUSTRY:
The small scale industries include food - product and beverages, leather, rubber, chemical, wood and wood product, textile and textile product,
metal product, transport product, paper printing, electric/machinery parts and miscellaneous etc., which can be manufactured in small-workshop and may run with small capital of more than 10 lakh rupees. These industries are scattered in varying proportion in the region and their establishment has been primarily requires the availability of raw-materials and skilled labour. Amongst them wood or forest-based industries are widely scattered throughout the region (Fig. 1.8A), their number is very high in Lalitpur (114 units), while it is less in Hamirpur (43 units) district. After wood industry the textile and agro-based or food-product industries come in succession. In food product Banda district accounts for the largest number of 93 units than the others, while Lalitpur in textile (114 units) stands first in the region.

COTTAGE INDUSTRIES:

These are house-hold industries and widely distributed in the region. They are situated near the dwelling of the workers. These are generally manned by the members of the owners 'families'. Some industries are specialized at important places such as hand-loom cloth at Mauranipur and Ranipur (Jhansi), Bidi-making at Manikpur
(Banda), wood-toys at Chitrakut and leather working at Kabrai and Sumerpur. Cottage industries have won a traditional fame for their artistic and well designed products. There were about 14000 persons engaged in cottage Industries. The growth of cottage industries happened in Jhansi and Lalitpur more and in Hamirpur low (fig. 1.8C). On the account of industrial working structure, Lalitpur, Jhansi, Mauanipur tahsils have above 5 per cent industrial workers to the total workers, while Mau, Banda, Maudaha, Jalaun and Mahroni have 2-3 percent (fig. 1.8B).

Although some registancive factors such as more efficient organisation of large and small scale industries, cheapness of machine made goods, lack of patronage and assistance and orientation of public demands towards the standardized goods etc., have been responsible for the decay of many cottage industries, yet they are so deep rooted in the economic fabric of the region that many of them have established to maintain themselves, while some are steadily improving. In brief, these industries are regarded as back-bone of rural people and play an important role in rural development.
POPULATION DISTRIBUTION:

Among all the geographical elements three main e.g. transport, population and settlements co-efficiently intertwined and blended features, have the core-power of all geographical sciences. But population or a man as a producer and consumer of goods is a very important factor of any economic process. Trewartha remarks "Man being the creator of cultural landscape carved out on the natural resource formost, naturally takes the supreme position of the apex of the trial of the elemental grouping of the science of Geography while two base points are occupied by the physical and cultural geography". The region is no more densely peopled, having of more than 184 persons per square kilometre on an average and with very little urbanism of 19.89%. It presents a very serious population-problem, particularly placing it against almost purely agricultural economy or its age-old fashion. Fig 1.9A shows the general distribution and urban agglomeration of population in 1981. It does not clear purely an intensity of population distribution except Jalaun and Banda plains, but it opens that Jhansi and Orai are highly urbanised. In 1991, the total
Areas of Very High Density (over 280 persons/km²).

(i) AREAS OF LOWEST DENSITY (BELOW 120 PERSONS/KM²):
The district Lalitpur and tahsil Charkhari (Hamirpur) in general carry the lowest density of population in the region. The forested and hilly land is accounted for such sparsely population-distribution.

(ii) AREAS OF LOW DENSITY (120-160 PERSONS/KM²):
It covers an area of Karwi, Mau (Banda), Maudaha (Hamirpur) and Garautha (Jhansi) tahsils and ranges with low population density in the north and comparatively higher population density towards the South.

(iii) AREAS OF MODERATE DENSITY (160-200 PERSONS/KM²):
This category is interspersed on Kalpi (Jalaun), Moth (Jhansi) and Hamirpur in the north, Mahoba and Kulpahar (Hamirpur) tahsils in the south. The occurrence of this density is attributed to the distribution of land fertile and plained
in the north and barren Vindhyan Table land in the South where more less area is under cultivation.

(iv) **AREAS OF MODERATELY HIGH DENSITY (200-240 PERSONS/KM²):**

The land of Banda, Baberu and Naraini tahsils, in the east and Konch, Orai and Mauranipur in the north-west falls in this group. This category covers comparatively greater areas than any other single category because of fertile soil and developed agricultural economy.

(v) **AREAS OF HIGH DENSITY (240-280 PERSONS/KM²):**

It covers the area of Jalaun tahsil in the north of Jalaun plain, skirted along the river Yamuna. Owing to certain inherent qualities of the area, well irrigated extensive fertile land, developed means of transportation and various other physical and cultural features, the density is high.

(vi) **AREAS OF VERY HIGH DENSITY (OVER 280 PERSONS/KM²):**

Jhansi and Rath tahsils fall under this
category of density. These are greatest patches of highest density, being having their better developed agricultural, industrial, commercial and transport sectors.

TRENDS OF POPULATION GROWTH

Before the advent of Aryans, the region was populated by tribes like Kols, Bhils and Gonds. Though it can not be easily estimated about the exact period of Aryans when they came to this region, but is believed that they migrated to this part of country in later Vedic period. During Chandel's regime, the region witnessed peace and prosperity. But in later periods it was mostly disturbed. Passage of time and during the British period its population increased rapidly, due to the improvements in various facilities. Some important natural and cultural factors like rugged terrain, unfavourable seasons, infertile soils, diseases, transportation, economic conditions etc., are responsible for the growth and distribution of population in the region.

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Increase in Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901</td>
<td></td>
</tr>
<tr>
<td>1981</td>
<td></td>
</tr>
</tbody>
</table>

In 1901, the total population of the
population of the region was 6,709,184.

**Density of Population:**

The concept of density of population or the relationship between the people and the land which is generally calculated directly arithmetically, represents the real pressure of population upon the resource-base. In drawing up such a map a considerable degree of subjective judgement and informed interpretation are taken carefully. This is characterised in various parts of the region.

The region can be divided into six categories on the basis of population density as under (Fig. 1.9c).

(i) Areas of lowest density (below 120 persons/Km$^2$).
(ii) Areas of low density (120-160 persons/Km$^2$)
(iii) Areas of Moderate Density (160-200 persons/Km$^2$).
(iv) Areas of Moderately High Density (200-240 persons/Km$^2$).
(v) Areas of High Density (240-280 persons/Km$^2$) and
region was 21,06,085 which increased to 54,38,187 in 1981, showing a rise of 158.21%. The net increase of population was highest in Jhansi (207.68%), followed by Hamirpur (160.41%) Jalaun 147.02%), Banda (143.45%) and Lalitpur (136.34%) districts.

Table 1.5 regards that the growth-trend, after an initial decline in the first two decades (1901-1921). Further it showed a jump population during the next two decades (1921-41). But during the succeeding two decades (1941-1951) a trend of decline was marked again, mainly because of natural diseases and famines. In the previous decade (1961-1971), the trend of growth again indicated a rapid rise. Between 1971-1981, the percentage increase was lowest (20.84%) in Hamirpur and highest (34.4%) in Lalitpur districts, while the average for the State is 25.49%.
TABLE - 1.5

GROWTH OF POPULATION OF JHANSI REGION FROM 1901-1981

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Jalaun</td>
<td>1.26</td>
<td>0.16</td>
<td>5.07</td>
<td>21.34</td>
<td>7.37</td>
<td>19.48</td>
<td>22.66</td>
<td>21.40</td>
</tr>
<tr>
<td>5. Lalitpur</td>
<td>13.41</td>
<td>-17.54</td>
<td>17.32</td>
<td>12.76</td>
<td>2.17</td>
<td>18.72</td>
<td>17.13</td>
<td>34.40</td>
</tr>
</tbody>
</table>


Source: District Census Hand Book (U.P.) 1981.

The structure of population also affects the working strength of economy of the region. Only 20% population of the region is urbanised. The highest per cent of urban population (37.96%) is in district Jhansi, having 53.54% of males to the total population (fig. 1.9B). Banda district can be accounted as a low urbanised and 53.63% males live to the total population.

LITERACY:

Literacy of population is one of the most important factors in the overall development
of a region. Jhansi division being a backward region has a very low percentage of literate population. In 1981 the highest percentage of literacy is in Jhansi tahsil (43.95%) following by Orai (42.49%), Konch (37.45%) and Jalaun (36.12%) tahsils. The lowest percentage of literacy is found in Talbehat (17.80%) followed by Mehroni (17.87%), Baberu (20.04%) and Mau (20.34%) tahsils.

WORKING STRUCTURE OF POPULATION:

Fig. 1.10A gives a matter of different type of working population in various sectors of the region. Inset Fig. 1.10B shows that the percentage of transport-workers to total workers of population is high in Jhansi (60.29%), followed by Orai (30.62%) and low in Kulpahar, followed by Baberu, Naraini and Mehroni (below 10%) tahsils. It means that of such areas, having low percentage of transport workers the development is handicapped. Fig. 1.10B pictures that the percentage of non-workers ranges in Jalaun and Jhansi (above 70%) tahsils and low in Kalpi (below 50%). The category of 50-60 per cent existed in Mau and Lalitpur tahsils. The percentage of working force depends upon the sufficiency of resources, favourable climatic conditions and other facilities. Non-workers ban the regional development. Both inset
figures (1.10C,D) depict the another type of working population. One points out the rural occupational structure of population in terms of per cent of cultivators to total workers. The highest percentage of cultivators is in Mehroni (79.30%), followed by Talbehat (73.24%) and Kalpi (72.25%) tahsil, and low in Jhansi (as below 30%) tahsil. Another indicates that the percentage of agricultural labourers is high in Maudaha (30.55%), followed by Baberu (29.42%), Rath (28.81%) and Mahoba (28.12%) tahsils and low in Jhansi and Lalitpur districts and Konch tahsil. In brief, the working structure of Man power moulds and infrastructure of the development.

Obviously the nature, organisation and growth-trends of both physical and cultural settings cumulatively effect to the evolution of transport as dealt with ahead.

nnnnnnnnn
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