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CHAPTER VIII

TECHNOLOGICAL DEVELOPMENT AND CULTURAL CHANCE

Man is, par excellence, a dominant factor in sharing and nourishing the culture. Every human society has its own culture. That is why members of a society have practices different from members of other society in so many important aspects. Culture is the cumulation of all the practices and behaviours that are naturally performed by the members of a society. Generally, the changes in social values and behaviours are the root causes responsible for changes in culture. Social values especially influence the cultural and technological development, subject to the diffusion of knowledge and contact of people of different cultures. In short, cultural changes are caused due to the happenings which change the existing circumstances for new ones to be adopted. The main purpose of this chapter is to explain the cultural elements, process and factors of changes in the context of study area.

Concept of Culture:

Every human society has its own way of life that is explained in form of 'Culture'. Developed equality and government policies laces the people in cultural unity on the basis of language, ideals, individual behaviour, mode of life and technology etc. According to Taylor
"Culture is that complex whole which includes knowledge, belief, art, morals, law, custom and other capabilities and habits acquired by man as a member of society." It is clear that culture is not gift of nature but of social discipline. Defining culture, Ralf Piddington has remarked the culture of people may be defined as the sum of total of the material and intellectual equipment whereby they satisfy their biological and social needs and adopt themselves of their environment. According to Hoebel "Culture is the sum total of integrated learned behaviour patterns which are characteristic of the members of a society and which are, therefore, not result of biological inheritance." In the words of Herkovits "Culture is manmade part of environment."

It may be concluded from the foregoing discussions that culture is an aggregate of material elements (machines, implements, furnitures, radio, watch, television, houses, temples, aero-planes, medicines etc.) and non material elements (belief, religion, customs, art, literature etc.). It is a matrix of perception from which can be apprehended the human world.

Pattern of Cultural Change:

It is the fundamental characteristic of culture that it is variable with time and space inspite of its rigid nature. The study area has passed through the processes
of different cultural changes in long duration of many ups and downs. These processes have been much active after Independence due to development of new technology and inventions and rapid changes in social, political and economic institutions. In the study region, rapid changes have occurred in cultural values as well as ideals with the development of transport and communication, modern education, westernisation and urbanisation. In this way, cultural changes are exhibited in two major forms in the region as follows :-

(i) Material forms as technology, water management, electrification, industries and transport which are the carriers of the socio-economic and cultural changes and

(ii) Non-material forms which include values, ideals, beliefs, customs, traditions, religion as well as psychology and thinking.

**Technological Development** :

Technology is the systematic knowledge by which the use of implements and machines is possible in the society. It represents the active adjustment of man with nature and exploitation of resources from which man earns his bread and also expresses his social relations and the resultant mental views generated from those relations. Many changes are witnessed in view, traditional modes of
life etc. with the technological developments. It is the technology which has much influenced the human relations in the modern complex society. In the context of above technological processes, the study of agricultural mechanisation, water management, electrification, industrialization and transportation have been made on the basis of their existing distributional pattern and developmental processes.

Agricultural Mechanisation:

The study area is backward region and agriculture is performed on traditional pattern. The new inventions have less impact on the operation activity of the region. However, people are forwarding towards mechanised agriculture. They are now using winnowing fans, thrashers and iron-ploughs instead of old wooden ploughs and Bakhar. The distribution of agricultural implements in sampled villages is given in table 8.1.

The field survey reveals that the existing use of new agricultural implements is not satisfactory in the region, the production of food grains increased due to use of some implements, high yielding varieties of seeds, chemical fertilizers etc. The table (8.2) reveals that the number of ploughs, bullock-carts and crusher machines increased 9.24, 65.57 and 57.4 percent respectively.
<table>
<thead>
<tr>
<th>Villages</th>
<th>Bullock carts</th>
<th>Iron plough</th>
<th>Fodder Machine</th>
<th>Tractor</th>
<th>Thresher</th>
<th>Pumping set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sultanpur</td>
<td>49</td>
<td>10</td>
<td>42</td>
<td>10</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Padari</td>
<td>22</td>
<td>12</td>
<td>41</td>
<td>26</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Banhoura</td>
<td>64</td>
<td>7</td>
<td>76</td>
<td>3</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Kuthondh</td>
<td>66</td>
<td>25</td>
<td>89</td>
<td>16</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Rehunia</td>
<td>57</td>
<td>30</td>
<td>66</td>
<td>-</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>Patori</td>
<td>5</td>
<td>-</td>
<td>21</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tarhati</td>
<td>42</td>
<td>29</td>
<td>23</td>
<td>3</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>Kalinjar</td>
<td>71</td>
<td>121</td>
<td>88</td>
<td>4</td>
<td>5</td>
<td>34</td>
</tr>
<tr>
<td>Ballan</td>
<td>52</td>
<td>8</td>
<td>50</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Khadaini</td>
<td>85</td>
<td>10</td>
<td>95</td>
<td>5</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Buchia</td>
<td>57</td>
<td>13</td>
<td>20</td>
<td>9</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>Mirchowra</td>
<td>59</td>
<td>-</td>
<td>12</td>
<td>4</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Chhayan</td>
<td>106</td>
<td>11</td>
<td>105</td>
<td>8</td>
<td>19</td>
<td>24</td>
</tr>
<tr>
<td>Pura Kalan</td>
<td>20</td>
<td>7</td>
<td>36</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Ruruwa</td>
<td>27</td>
<td>7</td>
<td>40</td>
<td>2</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Bachhondha</td>
<td>30</td>
<td>12</td>
<td>41</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Kalwara Khurd</td>
<td>39</td>
<td>20</td>
<td>35</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Chakatuhi</td>
<td>40</td>
<td>10</td>
<td>29</td>
<td>-</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Upari</td>
<td>50</td>
<td>12</td>
<td>38</td>
<td>1</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Chandpura</td>
<td>45</td>
<td>-</td>
<td>49</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Karondi</td>
<td>986</td>
<td>344</td>
<td>996</td>
<td>99</td>
<td>65</td>
<td>188</td>
</tr>
</tbody>
</table>

Table 8.1: Distribution of Agricultural implements in Sampled villages.
in the Region between 1960 and 1983.

Table 8.2: Distribution of Agricultural Implements in The Region (1960-83).

<table>
<thead>
<tr>
<th>Agricultural Implements</th>
<th>1960</th>
<th>1983</th>
<th>Percentage increase (+) and decrease (-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plough</td>
<td>444,888</td>
<td>485,974</td>
<td>9.24</td>
</tr>
<tr>
<td>Bullock-cart</td>
<td>207,638</td>
<td>343,783</td>
<td>65.57</td>
</tr>
<tr>
<td>Crusher Machine</td>
<td>1744</td>
<td>2744</td>
<td>57.4</td>
</tr>
<tr>
<td>Tractor</td>
<td>313</td>
<td>1,1628</td>
<td>Unexpected increase</td>
</tr>
<tr>
<td>Diesel Irrigation Engine</td>
<td>158</td>
<td>2199</td>
<td>Unexpected increase</td>
</tr>
<tr>
<td>Electric Irrigation Engine</td>
<td>11</td>
<td>254</td>
<td>Unexpected increase</td>
</tr>
<tr>
<td>Speller</td>
<td>5083</td>
<td>2215</td>
<td>56.42</td>
</tr>
<tr>
<td>Harrow or Cultivator</td>
<td>N.A.</td>
<td>28,044</td>
<td></td>
</tr>
<tr>
<td>Thrashing Machine</td>
<td>762</td>
<td>2820</td>
<td>Unexpected increase</td>
</tr>
<tr>
<td>Sprayer</td>
<td>N.A.</td>
<td>312</td>
<td>-</td>
</tr>
<tr>
<td>Drilling Machine</td>
<td>141</td>
<td>139,866</td>
<td>Unexpected increase</td>
</tr>
</tbody>
</table>

Whereas beyond hope increase is noticed in the number of tractors, diesel and electric irrigation engines and some other modern agricultural equipments. The number of Speller decreased (-56.42%) due to impact of mechanisation in oil processing.
Management of Water Resources:

Water resource management plays an important role in the Socio-economic and cultural changes and spatial organisation of a region. Due to being agriculture as a main base of economy in the study region, it is much needed. In the earliest, tanks and ponds were constructed by the Chandela and Bundela Kings for irrigational purpose. The present Kiratsagar and Maansagar tanks of Mahoba bear testimony to such early efforts. After Independence, our national government started several irrigation projects in the region (Fig. 8.1A). The prominent among them are the following:-

Matatila Project:

This is multipurpose project for irrigation and power. It is located at a distance of 4.8 kms from Basai Railway station in the south-west and 6.4 Kms from Talbehat in the north-west. On the right bank of Betwa in Lalitpur tahsil, dam was constructed between the two rocky district. Its construction was started in 1952 and was completed in 1967. The length of this dam is 6436 meters with a height of 24.6 meters. The dam impounds 40,000 million cubic feet of water and irrigates an additional area of 165,000 hectares of U.P. and M.P. There are two canal systems viz Bhandar canal system and Gursarai canal
system. The total cultivable area under command of this project is 99548 acres. Its total cost has been estimated about 12 crores of rupees. The installed hydel capacity of the project is 30 M.V.

**Dhukwan Dam:**

It is situated in Jhansi tahsil at a distance of 9.6 Kms south-west of Babina railway station across the river Betwa. It was constructed during the British period in the years 1905-1909 at the cost of Rs.23.98 Lakh. The dam is 17.61 metres high and 1827.69 metres in length and its canals serve an area of 21415.76 Km².

**Parichha Dam:**

It is the oldest dam of the study area constructed across Betwa river and situated on Jhansi-Kanpur road at a distance of 25.6 kms in the east of Jhansi. It was constructed during the period 1881-1886. It commands the catchment area of 50379 Km² with a gross capacity of 3245 million cubic feet of water. The length of dam is 8.529 metres with the height of 17 metres.

Matatila, Dhukwan and Parichha all the three dams are in one form link of reservoirs. Parichha is the irrigational dam while Matatila and Dhukwan are the feeding reservoirs. Parichha is situated down stream of these three dams, therefore, network of canals are taken out from this dam.
Pahari Dam:

It lies across the river Dhasan in Mahrauni tahsil at a distance of 16 kms from Mauvanipur-Mowgaon road. It was constructed during 1901-12 and has a catchment area of 7865 kms². The length of the dam is 9274 metres with the height of 17 metres. It was constructed at the cost of Rs.8.64 Lakh.

Lahchura Dam:

It is situated across river Dhasan in Mauvanipur tahsil at a distance of 11.2 kms from Harpalpur railway station and was constructed during 1906-10. The catchment area is 84.21 kms² and the height of dam is 18 metres. It was constructed at the cost of Rs.7.02 Lakh.

Lahchura is an irrigational dam while Pahari dam is feeding reservoir because Dhasan canal system is taken out from Lahchura which has a coverage of 431900 acres of irrigated land.

Rajghat-Dhurwara Projects:

They are multipurpose projects being constructed at a distance of 48 kms and 19 kms respectively on upstream side of Matatila across the river Betwa. Construction of these dams will provide production against floods. Irrigation potential of two canals, to be taken off from Rajghat reservoir, will be roughly 150,000 acres.
They will be multipurpose projects with 8 centres of total 25 megawatt power generating capacity. The capital investment of the project is estimated to be Rs.55.79 Lakh.

Minor Projects:

Govindsager Dam:

It has been constructed on the Shahzad river at a distance of 4.8 kms from Lalitpur town and irrigates an area of 24000 hectares in Lalitpur and Jhansi districts. Its storage capacity is 3420 million cubic feet. The length of its right canal system is 187.21 kms and that of its left canal system is 16 kms. It was constructed at a cost of Rs.54.10 Lakh.

Kabarai Dam:

This project has been launched in Hamirpur district near Mahoba town. It stores 400 million cubic feet of water for the irrigation of 2000 hectares of land around Mahoba.

Arjun Dam:

It is situated on the Arjun river, a tributary of the Betwa, about 2.4 kms south-west of Charkhari town in Hamirpur district. Its storage capacity is 2250 million cubic feet of water. It provides water to the area of 10800 hectares in the district.
Saparar Dam:

It is constructed at 11.2 kms south of Mauranipur town across river Saparar, a tributary of Betwa. Its storage capacity is 2800 million cubic feet of water. It irrigates an area of 16000 hectares in Jhansi and Hamirpur districts. The total length of its canal system is 114.4 kms. Its cost of construction was Rs. 96.17 Lakh.

A number of minor irrigation schemes have been proposed for Hamirpur district like Maudaha dam, Segzon dam, Tikari dam, Borima dam, Urmil dam, Chandrawal dam, Sahjan pump canal scheme having irrigational capacity of 9.0, 4.0, 4.0, 4.5, 2.5, 4.0 and 1.40 kms² respectively and for Banda district Augasi pump canal scheme (111.9km²) Chillimal lift canal scheme (17.5 Km²) and Chilla lift irrigation scheme (13.3 Km²) have been launched.

Important Canal System:

The Betwa Canal System:

The canal was constructed on the left bank of the Betwa river from parichha dam in 1887. The canal runs parallel to the Jhansi-Kampur road for about 19 kms and near Pulia village it bifurcates in the Hamirpur branch and the Kuthonoh branch. Jalaun district avails greater benefit from Betwa canal than Jhansi district because
it passes through the area of Mar and Kabar soils which do not require much irrigation.

For the successful functioning of the Betwa canal, Parichha dam was supplemented by Dhukwan dam for storage of water for use of Betwa canal. The reservoir, no doubt, increased the discharging capacity of canals from 300 to 600 cusec. At present the whole system of Betwa canal irrigates about 5 lakh hectares of land in the region.

The Ken Canal System:

Bariapur was selected for the site of the Ken canal head works. Its capacity is 426 million cubic feet of water. This barrage is capable of discharging 2000 cusecs. Ken canal irrigates 27 lakh hectares of land of Banda District. But the supply of water by this barrage was inadequate, therefore, another huge reservoir has been constructed near Gangu village in Chhatarpur district. Its capacity is 15000 million cubic feet. Main channel of Ken canals runs paralleled to the right bank of river. Further it bifurcates into two main branches - Banda and Atarra canals, most of the trans ken area is irrigated by these canals.

The Dhasan Canal System:

It is the third system of canal irrigation east of Mauranipur. Lahchuraghat on Dhasan river is the site
of dam. The water-shed area between rivers Dhasan and Birma is 2.7 hectares which is under command of Dhasan canal system. It irrigates about 147200 hectares of land in Hamirpur district.

The Pahuj Canal:

This is another canal system in Jhansi district. It comprises a reservoir on the river Pahuj and the channels have been taken out from it. Pahuj dam not only allows adequate storage of water to feed canals but also ensures supply to the Garhmanu reservoir. The catchment area of dam is 192 kms, and storage capacity is about 796 million C.ft. The command area by the whole system including Garhmanu reservoir is 14777 hectares out of which 5400 hectares is irrigated for the Rabi crops.

Besides these, wells, Rahats, Government and personal tube wells, pumping sets and Bandhis are also the sources of irrigation in the region. Length of canals (Fig.8.1B) and number of others sources of irrigation are as follows:

<table>
<thead>
<tr>
<th>(1) Length of canals in Kms</th>
<th>.. 5046</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) No. of Government tube-wells</td>
<td>.. 987</td>
</tr>
<tr>
<td>(3) No. of personal tube-wells</td>
<td>.. 3110</td>
</tr>
<tr>
<td>(4) No. of Pumping sets</td>
<td>.. 36239</td>
</tr>
<tr>
<td>(5) No. of wells</td>
<td>.. 85946</td>
</tr>
<tr>
<td>(6) No. of Rahats</td>
<td>.. 32345</td>
</tr>
<tr>
<td>(7) No. of Bandhis</td>
<td>.. 278541</td>
</tr>
</tbody>
</table>
Electrification:

People of the region are now aware of the growing importance of electric-power because of its easy availability. Since there is no other sources of power like Petroleum and coal in the region, electricity has much contributed to economic development and cultural change of the region. Matatila multipurpose project with installed capacity of 30 M.W., is a chief source of hydro-electric power in this region. Besides this, U.P. State electric grid, Rihand dam and Panki thermal power stations of Kampur district are another sources that make to get electricity supply in the region.

Distribution of Hydro-electric Power in the Region:

There are three main transmission lines in the region, i.e. 33 K.V., 66 K.V. and 132 K.V. (Fig. 8.2A). The transmission line of 33 K.V. runs all over the region. The transmission line of 66 K.V. runs from Matatila power station to Jhansi, Mauranipur, Mahoba and Banda and the second line of the same capacity joins the power station Lalitpur. The transmission line of 132 K.V. runs from Dhukwan power generating station to Panki thermal power station, passing through Jhansi, Moth, Ait and Orai. Overall 40 power generating sub-stations are existing in the region. The region has been divided into two power supply divisions i.e.
Banda division and Jhansi division. Banda division consists of Banda and Hamirpur districts and Jhansi division includes the districts of Lalitpur, Jhansi and Jalaun.

The industrial sector accounts for highest (36.59%) power consumption whereas agriculture domestic, commercial and other sectors share 28.17%, 17.21%, 1.37% and 16.65% of total electric consumption respectively.

Rural electrification is a positive step towards reducing the gap between urban and rural economic development. With the impetus of rural electrification, 32.07 percent villages have been electrified in the region. The percentage of tahsil-wise rural electrified villages have been given in table 8.3 and map (Fig 8.2B).

Table 8.3: Electrification of villages in the Region (1983).

<table>
<thead>
<tr>
<th>Tahsil/Region</th>
<th>% of electrified villages</th>
<th>Tahsil/Region</th>
<th>% of electrified villages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moth</td>
<td>21.68</td>
<td>Mahoba</td>
<td>30.84</td>
</tr>
<tr>
<td>Garauthá</td>
<td>21.05</td>
<td>Jalaun</td>
<td>37.30</td>
</tr>
<tr>
<td>Mauranipur</td>
<td>30.36</td>
<td>Konch</td>
<td>30.24</td>
</tr>
<tr>
<td>Jhansi</td>
<td>23.03</td>
<td>Orai</td>
<td>55.73</td>
</tr>
<tr>
<td>Talbehat</td>
<td>18.28</td>
<td>Kalpi</td>
<td>61.00</td>
</tr>
<tr>
<td>Lalitpur</td>
<td>22.34</td>
<td>Banda</td>
<td>71.78</td>
</tr>
<tr>
<td>Mahrauni</td>
<td>16.32</td>
<td>Baberu</td>
<td>29.71</td>
</tr>
<tr>
<td>Hamirpur</td>
<td>69.59</td>
<td>Naraini</td>
<td>29.65</td>
</tr>
<tr>
<td>Rath</td>
<td>22.28</td>
<td>Karwi</td>
<td>39.67</td>
</tr>
<tr>
<td>Kulpahar</td>
<td>16.45</td>
<td>Mau</td>
<td>16.76</td>
</tr>
<tr>
<td>Charkhadi</td>
<td>11.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maudaha</td>
<td>30.12</td>
<td>Region</td>
<td>32.07</td>
</tr>
</tbody>
</table>
Industrialization:

Industrialization has an important place in the process of economic development and socio-cultural change because it determines the human power and prosperity as well as resource use in different sectors. It includes those economic activities which are directly related with the utilization of available resources on the earth to cater the human needs. All those external and internal forces which have helped the process of change, have also paved the way of urbanisation and industrialization. Industrialization does not mean that there should be use of big and complicated machinery and urbanisation does not mean that majority of persons live together in small areas. Both require specific social relation as well as a broad views and both are opposed to the traditional social system.

The changes which occur in population structure and distribution are also co-relative factors of economic development and socio-cultural change. Factories, services and other profitable economic activities are localised more and more in some specific areas. Rural Population also migrates to that areas, with the result, the population mobilization is increased and existing spatial organisation takes new form which becomes the main factor of socio-cultural change.
Although the regional economy is based on agriculture, the agro-based industries could not develop in the region due to various reasons. It may be remarked that 3.59% persons are engaged in household industry, manufacturing, repairing etc., while the corresponding figures for the state and country are 7.28% and 9.46% respectively.

**Historical Development**

The early industrialization of the region is very much obscure due to the lack of authentic accounts. Hence, no clear picture of its industrial development in the ancient period can be traced out. However, some vague idea can be made from the valuable treasure of Vedic literature and certain important works of the later periods.

During the reigns of Mauryas, Guptas, Gonds, Gujar, Pratihars, Chandelas, and Bundelas, various traditional industries were flourishing in the region. In the Mughal period, the artisans were employed to the several types of manufacturing, with the change of superemacy into the hands of the Britishers, authentic records of the developments in the field of manufacturing can be easily found. The Britishers conducted the land measurements and industrial surveys for the development of the economy of different parts of India including the study region.
In the beginning of 18th century, the region was famous for the excellent cloths made by hand. The designs made on certain kinds of cloths were also praiseworthy. Kustas (nomadi artisans) came to this region from the Gwalior State and were patronised here by the Maratha rules. They produced very fine cloths from the yarns of 150 cpunts. During the mid-19th century, in about 1844, Colonial Sleeman noticed that fine woolen carpets were produced in the Jhansi. In 1863, cloth valued Rs.6,80,000^10 was exported from the region to distant places of the country. Copper, iron-ore and sandstone were mined and used in the making of weapons, implements, utensils, buildings etc. In about 1874, iron was extracted from soft haematite ores which were melted in fifty-three furnaces in the region. Pig iron was exported from this region to Saugor (M.P.). Copper was available only in small quantity. The stone quarries of the region supplied the dressed stones for the Chandela masonry works.

In about 1909, brass-wares were manufactured at Mau in Jhansi district and artistic articles (with incised patterns) were made of brass and bell metal in Mandaura. Axe-hands and coarse blankets were made in Talbehat in Lalitpur district. Curtains and Sandles of Pig skin were also manufactured at a certain places. In those days, the manufacture and dyeing of cloths were very famous in Jalaun district. The main centres of cloths
dyeing in this district were Kotra and Saiyadnagar (Tahsil Orai near Betwa river). Coarse cotton cloth (Gazi) and floor cloth for local use were made and printed in Banda town. 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 Kampur at Ait in tahsil Orai. Its plant cost was Rs.1,25,000. In the busy season, its output averaged about 187 quintals daily. Another town where a similar factory was set-up, was Konch. The cotton trade, inspite of many difficulties, had become a stable industry of the district. In 1901, coarsed cloth was made for local use by Koriis throughout the district.

In Hamirpur district coarse cloth was made by some Muslim weavers mainly of Mahoba. At Gauhara, a village few miles north of Kulpahar, several hundred persons were employed in moulding bowls and other vessels out of soft soap-stone found in the hills closed by. Idol carving and the manufactures of small brass animals were carried on by a few families of goldsmiths at Srinagar, a village located south of Mahoba. There was a big cotton ginning mill in this district at Kulpahar which was owned by a Parsi firm, and another small one was located at Mahoba. Kuchhachha village of Pargana Rath was a noted cloth dyeing
centre. There was a school of art at Charkhari where models of wood and brass work were designed and weaving was also taught.

In Banda town in around 1901, cooking utensils of copper and bell metal (called locally as 'Phul') and various articles of gold and silver for household or ornamental purposes were manufactured. At several places in Banda district, coarse blankets, cotton cloth and 'Tat' as well as rope and twine of inferior quality were also made. In some villages of the district adjoining the hills such as Rauli Kalyanpur, Gonda, stones were chewn and fashioned into mill-stone. In Karwi subdivision, there were a number of stone quarries. In Karwi town there was a small production of silk embroidered and velvet saddle cloth. The best known local industry of the district was the cutting and polishing of stones. In Banda city, there were some fair Lapidaries one of which secured a bronze medal at Delhi exhibition. They cut and polished agates, Jaspars, mass stones, water stones, amethysts etc. The value of the finished articles depended more on the labour and skill than on the actual cost of the materials.
From the above facts, it can be said that the region was developed in traditional industrial activities of various types. But during the British regime, the traditional art and craft of manufacturing began to decline with the introduction of railways (1883-89) in the region. Foreign manufactured goods flooded the regional markets and gave a setback to the traditional crafts. A large number of weavers and other artisans were thrown out of the employment and several units had to be closed down. But the Second World War led to a securing of goods and a consequent rise in their prices, a condition which favoured the expansion of new industries. After Independence, our national government intended to develop a national economy through the development of agriculture and industry. The policy of industrial development was framed and five years plans were made on a planned way for the growth of industrial activities. As a result, new industries were developed and impetus was given to some existed already.

Though the region has abundant agricultural resources, bountiful reserves of mineral resources and enormous forest wealth, the lack of enterprises, technological assistance, underdeveloped means of transport, paucity of skilled labour have led to the region industrially backward. The existing industrial establishments are the only at small and household levels based on local
raw materials and the traditional pattern and the produced goods are for the local use with few exceptions.

**Distribution of Industries:**

The industries are classified on the basis of raw materials used. There are following types of industries existing in the study region (Fig. 8.3):

1. **Agro-based industries,**
2. **Live-stock based industries,**
3. **Forest-based industries,**
4. **Mineral-based industries,**
5. **Metal-based industries,**
6. **Chemical-based industries,**
7. **Miscellaneous industries.**

1. **Agro-based Industries:**

Paddy, wheat, gram, pulses, oil-seeds, sugarcane and various other crops provide sufficient raw materials for the agro-based industries. There are 269 units of agro-based industries in the region registered by the State Directorate of Industries of U.P. (Table 8.4) out of them, 193 units are located in urban areas and the remaining in rural areas. Banda district has a highest number of units of agro-based industries in the region. It has 107, out of which 35 are located in Karwi, 34 in
Naraini, 21 in Banda, 10 in Mau and 7 in Baberu tahsils. Banda district is followed by Jhansi district with industrial units of 67, out of which 31 are located in Jhansi, 16 in Garautha, 12 in Moth and 8 in Mauvaripur tahsils. Jalaun district has 43 units, out of which 20 are located in Orai, 12 in Jalaun, 6 in Kalpi and 5 in Konch tahsils. In Hamirpur district, there are 42 units, out of which 10 are located in Mahoba, 9 in Charkhari, 7 in Hamirpur, 6 in Rath, 5 in Maudaha and 5 in Kulpahar tahsils. Lalitpur district, due to its large hilly terrain and rugged forested areas, is backward in the development of agro-based industries. There are only 21 industrial units in the district, out of which 12 are located in Lalitpur, 5 in Talbehat and 4 in Mahrauni tahsils.

The main industries under agro-based group in the region are rice mills, rice bran oil mills, flour mills, dal mills, edible oil mills, non-edible oil mills, bakery works, gur and khandisari works, cotton textiles etc. The important centres associated with these industries are Banda, Atarra, Khurhand, Baberu, Chitrakut dham, Rath, Orai, Lalitpur, Jhansi, Mauvaripur, Kalpi etc.

2. **Live-stock Based Industries**

The role of animal is specially significant in the context of agriculture and industry. The sufficient live-
stock resources are available in the study region which provide hides and skins, milk, bones, wool and eggs for industrial development. In study region, there are 358 industrial units based on live-stock resources. 213 units are in the urban areas and 145 in rural areas. These industries are leather tanning, footwear, woolen and other allied activities.

In Jhansi district 55 units are existing. There are 26 units in Jhansi, 14 in Mauranipur, 10 in Muth and 5 in Garautha tahsils. 167 units are working in Banda district, out of which 54 are in Karwi, 37 in Naraini, 35 in Banda, 25 in Baberu and 16 in Mau tahsils. In Hamirpur district 69 units are functioning, out of which 16 are in Hamirpur, 15 in Charkhari, 14 in Mahoba, 9 each in Maudaha and Kulpahar and 6 in Rath tahsils. 45 units are in Jalaun district out of which there are 20 in Orai, 11 in Kalpi, 9 in Jalaun and 5 in Konch tahsils. In Lalitpur district, only 22 units are working out of which there are 10 in Lalitpur and 6 in each Talbehat and Mahrauni tahsils.

The important centres are Kalpi, Sumerpur, Mahoba, Kabarai, Atarra, Karwi, Mauranipur, Lalitpur and Jhansi.

3. **Forest-Based Industries**

Forest resources are found in adequate quantity in the region. The total number of industrial units based on
Table 8.4 : Industrial Units in the Region (1983).

<table>
<thead>
<tr>
<th>Taluks/Region</th>
<th>Agro-based</th>
<th>Livestock-based</th>
<th>Forest-Mineral-based</th>
<th>Metal-based</th>
<th>Chemical-based</th>
<th>Miscellaneous Industries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moth</td>
<td>12</td>
<td>10</td>
<td>14</td>
<td>2</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Garauntha</td>
<td>6</td>
<td>5</td>
<td>8</td>
<td>5</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Muraunipur</td>
<td>8</td>
<td>14</td>
<td>12</td>
<td>2</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Jhansi</td>
<td>31</td>
<td>26</td>
<td>28</td>
<td>41</td>
<td>113</td>
<td>40</td>
</tr>
<tr>
<td>Talbehat</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Lalitpur</td>
<td>12</td>
<td>10</td>
<td>9</td>
<td>3</td>
<td>21</td>
<td>7</td>
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<tr>
<td>Mahrauni</td>
<td>4</td>
<td>6</td>
<td>7</td>
<td>1</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Hamirpur</td>
<td>7</td>
<td>16</td>
<td>43</td>
<td>3</td>
<td>12</td>
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<td>Rath</td>
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<td>10</td>
<td>1</td>
<td>8</td>
<td>5</td>
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<td>Kulpahar</td>
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<td>9</td>
<td>5</td>
<td>-</td>
<td>3</td>
<td>2</td>
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<tr>
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<td>9</td>
<td>15</td>
<td>11</td>
<td>-</td>
<td>3</td>
<td>4</td>
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<td>9</td>
<td>6</td>
<td>-</td>
<td>5</td>
<td>4</td>
</tr>
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<td>14</td>
<td>20</td>
<td>6</td>
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<td>11</td>
<td>9</td>
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<td>2</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Konch</td>
<td>5</td>
<td>5</td>
<td>4</td>
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<td>6</td>
<td>2</td>
</tr>
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<td>Orai</td>
<td>20</td>
<td>20</td>
<td>10</td>
<td>2</td>
<td>54</td>
<td>20</td>
</tr>
<tr>
<td>Kalpi</td>
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<td>6</td>
<td>4</td>
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<td>1</td>
</tr>
<tr>
<td><strong>Region</strong></td>
<td><strong>269</strong></td>
<td><strong>358</strong></td>
<td><strong>386</strong></td>
<td><strong>98</strong></td>
<td><strong>341</strong></td>
<td><strong>177</strong></td>
</tr>
</tbody>
</table>
forest products as their raw materials, is 386 in the region, 
out of which 227 are located in urban areas and the rest 
in rural areas. Banda district has the greatest number of 
forest-based industrial units. It has 176 units in all. 
Out of which there are 46 in Banda, 40 in Karwi, 37 in 
Baberu, 33 in Naraini and 20 in Mau tahsils. Hamirpur 
follows Banda district with a total number of 95 units 
of forest-based industries, out of which 43 are in Hamirpur, 
20 in Mahoba, 11 in Charkhari, 10 in Rath, 6 in Maudaha 
and 5 in Kulpahar tahsils. Jhansi district has the third 
place as it has only 62 forest-based industrial units. 
Jhansi, Moth, Mauranipur and Garautha tahsils of this 
district have 28, 14, 12 and 8 units respectively. In 
Jalnaun district there are 29 units, out of which 10 are in 
Orai, 9 in Jalaun, 6 in Kalpi, and 4 in Konch tahsils. 
Lalitpur district has the minimum number of forest-based 
industrial units. It has 24 units in all, out of which 9 
are in Lalitpur, 8 in Talbehat and 7 in Mahauni tahsils. 
Manufacturing of wooden toys, card-board, Kattha, wooden 
furniture, saw mills, carpentry, house-hold articles 
and biri-making are important in this group. The main 
centres of these industries are Mahoba, Charkhari, Kulpahar, 
Mauranipur, Jhansi, Lalitpur, Mahauni, Manikpur, 
Chitrakutdham, Moth and Banda. Chitrakutdham is popularly 
known for the manufacture of wooden toys.
4. **Mineral-Based Industries**:

The region stands second in mineral deposits after Himalayan region in Uttar Pradesh. But the mineral-based industries are in a small number. Minerals are exported to other industrial centres such as Naini, Firozabad, Aligarh, and Mirzapur. In the study area, there are only 98 registered units, 82 are in urban and 16 in rural areas. Stone crushing or grit industry, stone cutting and polishing, cement Jali and pipe making industry, claypot, lime and surkhi, building stone and other stone works come under this group. These industries are mainly concentrated in Jhansi and Banda districts. There are 50 units in Jhansi district, out of which 41 units are in Jhansi, 5 in Garautha, 2 in Moth and 2 in Mauranipur tahsils. In Banda district, there are 25 units, 15 in urban and 10 in rural areas. There are 14 units in Banda, 9 in Karwi and 2 in Naraini tahsils. There are 10 units in Hamirpur district, 9 in Jalaun district and 4 in Lalitpur district. The main centres of these industries are Karwi, Manikpur, Lalitpur, Naraini, Bhaunri, Jhansi, Bharatkup, Mahoba, Kabrai, Orai, Baruwa Sagar and Sheorampur.

5. **Metal-Based Industries**:

Metal is the back-bone of modern machine civilization. It is the universal substance which is used freely in manufacturing of various machines, agricultural implements,
sewing machines, steel furnitures, aluminium works, radio repairing and electrical goods manufacturing, engineering, manufacturing of steel boxes and attachies, automobile repairings, cycle manufacturing and repairing works, diesel engine repairing works, brass wares, iron-sheet manufacturing etc. come under this group. In the study region there are 341 industrial units. In Jhansi district, there are 126 units; 113 in Jhansi, 5 in Garauntha, 5 in Mau rani pur and 3 in Moth tahsils. District Jalaun contains 80 units; 54 in Orai, 13 in Jalaun, 7 in Kalpi and 6 in Konch tahsils. 68 units are in Hamirpur district out of which 37 are in Mahoba, 12 in Hamirpur, 8 in Rath, 5 in Maudaha, 3 in Charkhari and 3 in Kulpahar tahsils. There are 40 units in Banda district, out of which 25 are in Banda, 8 in Naraini 6 in Karwi and one in Mau tahsils.

The most remarkable feature is that there is complete absence of large scale units under this industry group. However, in the public sector, there are two large scale units of central railway at Jhansi: they are central mechanical railway transportation carriage and wagon workshop repairing department employing about 3000 and 200 persons respectively.

6. **Chemical-Based Industries** :

Chemical-based industries are gaining importance in this age due to increasing demand of chemical made articles.
The development of chemical industries is a sort of second industrial revolution in the industrial world after iron and steel. Many industries like Ayurvedic Medicines, Laundry soap manufacturing, Plastic industry, optical manufacturing, cloth printing, candle manufacturing, Indigo and colour industry, hair oil and cosmetics etc. are included under this group. There are 177 registered industrial units in the region. Jhansi district records 54 units, out of which 40 are in Jhansi, 7 in Moth, 4 in Mauranipur and 3 in Garautha tahsils.

44 Units are in Hamirpur district out of which 18 are in Mahoba, 11 in Hamirpur, 5 in Rath, 4 in Charkhari, 4 in Maudaha and 2 in Kulpahar tahsils. The Jalaun district has third place in this industry which has 39 units - 20 in Orai, 12 in Jalaun, 5 in Kalpi and 2 in Konch tahsils. In Banda district there are 28 units out of which 16 are in Banda, 6 in Karwi, 5 in Naraini and one in Maupur tahsils. The district Lalitpur has only 12 units out of which 7 are in Lalitpur, 3 in Mahrauni and 2 in Talbehat tahsils. The main centres are Jhansi, Lalitpur, Hamirpur, Banda, Mahoba, Atarra, Karwi, Manikpur, Orai etc.

7. Miscellaneous Industries:

In this group, Ice Cream and Ice industry, Atisbaji industry, Dastkari, ready-made cloths, cycle seat manufacturing, printing press and book binding etc. have
been considered. There are 196 units, out of which 165 are in urban and 31 in rural areas. In Jhansi district, there are 41 units, 47 in Hamirpur, 41 in Jalaun, 39 in Banda and 18 in Lalitpur districts. Tahsilwise distribution has been shown in table (8.4). Banda, Jhansi, Orai, Atarra, Mahoba are the main centres of these industries.

It is clear from foregoing discussion that the region has better prospects for industrial development owing to the availability of natural and agricultural resources. The proper exploitation of these resources is required to achieve the high level of industrialisation which, in turn, will accelerate the pace of urbanisation as well as cultural change in the region.

Transport and Communication:

The availability of transport facilities plays important role in the socio-economic and cultural development of a region. The system of transport network functions in the same way as the circulation system of blood in human body. That is why, the adjustment of transport system has great importance in balanced economic development of a region\textsuperscript{14}. Indeed, the cultural development is stimulated by transportation. People of different social status as well as regions, gain opportunity to come in contact with each other by travelling in trains and buses. Inspite of all other oppositions, persons believing on conventional
social values and traditions, are also much influenced by the people of different cultural environment. Due to innovation of Radio-transistors sets, the people of remote villages are introduced with new political, economic and technological developments around the world. Although with the development of communication, transport has not been compulsory for the exchange of views yet today also, effective means of communication depend on transportation. Therefore, in the context of the interpretation of socio-economic and cultural development as well as in the determination of future development of the region, the study of transport and communication is necessary.

**Evolution of Transport**:

The history of transport in the study region is as old as the emergence of man in the area. First of all, man himself acted as the means of transport in his hunting stage. He used animals for this purpose in pastoral stage and invented, later on, the modern means of transportation. The transport history of the region can be divided in the following periods:

1. **Ancient Period**:

   The vedic literature does not refer to any regional route of importance. The Ramayan of Valmiki mentions
one route of regional importance - Ayodhya to Valmiki hermitage situated at Lalapur hill\textsuperscript{17} of Karwi tahsil in Banda district.

The Mauryan, the Gupta, and the Chandel dynasties helped the growth of monastery towns and highways. The Mauryas took keen interest in the maintenance and construction of roads. The two small inscriptions of Gupta character found in Kalinjar prove to the development of roads in Bundelkhand. The Chinese traveller Huen Tsang mentions this tract of country as Chichito with the capital of Khajuraho now in Chhatarpur\textsuperscript{18} and informs that there were roads from Chichito to Khajuraho. The roads were meant especially for military purposes. Besides land, water transport was also remarkable. The significant navigable channels were the Yamuna, Ken, Betwa, Sindh and Pahuj. After the downfall of Guptas, due to Huna invasions in the 5th and 6th centuries, very small principalities developed in central India with the enthronement of Harsh Bardhan in 606 A.D. The transport of the region was renewed. After his death, several chieftains rose to power in different areas of the region. They gave protection to handicraft and commerce, so that they flourished well and small towns and trade centres came into existence. Magasthenese, the Greek traveller, describes that camels, horses, asses were used by the
common folk and wealthy men used elephants. The conveyance which ranked most in honour was chariot. The camel ranked third\(^{19}\).

(ii) **Medieval Period**:

This was the period of political ups and downs. With the beginning of 13 century, the kings of Delhi Sultanate turned their aims to the south. Rechard states - "The routes followed by Mughals, Marathas and Britishers are first through the Ganga valley, second from Agra to Delhi and Allahabad towards Gujrat across Malwa and third diagonally across the peninsula towards Madras\(^{20}\). Their armies traversed to Deccan passing through Jhansi district. The pass from Jhansi was the easiest to cross the Vindhyan ranges. Madampura located at the south of Lalitpur district was the site of the pass. Narhat pass, twelve miles west from the aforesaid pass, was another significant pass. Ibn Batuta (1342)\(^{21}\), describing his journey from Delhi to Daultabad passing possibly through one of these passes, mentioned that the road sides were shadowed with green trees and travellers' inns existed at intervals.

In the later half of the 13th century, the transport in the region was revived and the roads were developed to suppress the rebellions of Gwalior and Dholpur. Shershaḥ (1540-45), in his very short regime, constructed roads in
his military campaign. Akbar (1555-1605 A.D.) divided his vast empire into different administrative units which were interlinked with roads, but the roads were unmetalled and unbridged. Traffic was practically at stand still during the hot weather when fodder and water were difficult to get, that is why, we find an English merchant at Surat complaining that there were hot and four wet months during which time there is no travelling and therefore unfit for commerce. The comparative peace and economic prosperity of Akbar's reign existed up to the 17th century when several towns were founded and several became industrial and marketing places.

With the decline of Mughal empire, several principalities of Bundelas and Marathas appeared in the region. In 1737, the western part of Bundelkhand passed into the hands of Marathas. After 1772, Jhansi which existed since the days of Jahangir, developed into a large town under Marathas. In the 17th and 18th centuries, the main land routes were defined. But the roads were not smoothy running. Mr. Erskine, the first Collector of Bundelkhand (1806-1807) wrote "The roads throughout Banda district are generally in so bad condition as almost entirely to exclude the use of wheeled carriage." Even the natural water high-way of the Yamuna was little used. Kalpi, the chief market on the Yamuna, had fallen
into decay, and its merchants preferred to send their goods
down country by Cawnpore instead of by the way of Yamuna,
being deterred from the use of insecurity from plunder²⁵.

Modern Period:

With the dominance of the British empire, the economic
and commercial life of the State as well as of the region
got momentum. By 1803, the East India Company captured
the entire State and the development of transport started
but the emphasis was laid on large river like Yamuna and
Kalpi was chosen as market place. In 1854-55 P.W.D. was
organised in all the provinces to look after the roads
and thus some important roads were constructed. In 1854,
a metalled road was constructed through Jhansi, Moth and
Kalpi linking Kanpur railway station with this region.
Other important roads transversed from Jhansi to Nowgaon,
Nowgaon to Banda via Mahoba, Jhansi to Saugor, Kanpur
to Banda, Jhansi to Gwalior and Jhansi to Shivpuri.
Later on they were linked with the small service centres
of the region. To suppress the mutiny of 1857, the road
development became a burning question before the East
India company. So, the company took keen interest in the
construction of metalled roads and railways. After the
suggestion of the Indian Road Development Committee (1927),
Transport Advisory Committee (1934) and Nagpur (1943),
road development programmes were launched strictly.
The history of railway in the study area goes back to the year 1885 when the Indian Midland Railway Company was formed, which constructed the Jhansi-Manikpur section of Railways. The Great Indian Peninsula Railway linked Itarsi, Kanpur and Agra with Jhansi between 1885 and 1887.

After Independence, an integrated programme of road development began since 1951 with the commencement of the first five year plan. Under five year plans, several roads were constructed and under the crash programme, several link and feeder roads were completed. But even then, there is a need for road development so that the villages may be linked with main roads for promotion of regional trade and commerce.

Existing Pattern of Transport:

It has been considered under the following two heads:

(i) Roads,

(ii) Railways.

(i) Roads:

The road network of the region consists of various categories of roads such as national highways, State highways and local roads. There are only two national highways Nos. 25 and 26 and four State highways Nos. 13, 17, 21, and 44 and various other local roads which pass
through the region and link it with Madhya Pradesh. The significant characteristic of the road system is that most of the inter-regional roads run parallel to the railway lines (Fig. 8.4). The details of the metalled roads have been given in table (8.5). An overall picture of accessibility reveals that most of the area of study region is not easily accessible to the roads. It is remarkable to note that 17.87% villages of study region lie on the roads, 22.41% fall within 3 Km from the roads and 59.72% fall at the distance more than 3 Kms from the roads. The road length in terms of area and population is insufficient. The length of metalled roads per 1000 Km$^2$ is 139.19 Kms in the region. The road length in terms of area is 208.97 Km in Orai tahsil followed by Maurnaipur (190.82 km), Banda (182.54), Jhansi (178.15), Jalaun (167.35), Konch (162.98), Hamirpur (159.46), Kalpi (151.47) and Moth (151.06). In the remaining tahsils it ranges from 117.22 kms to 143.62 kms. The road length per lakh population is more in the region (76.55 km) than that of the State (40.30 km). This is mainly due to the fact that region is sparsely populated in comparison to other areas of the State. The region occupies 10% of the total State area whereas only 4.97 percent of State population inhabits it.

Roads influence economic, political, social and cultural interaction. To achieve the proper area
<table>
<thead>
<tr>
<th>Tahsils/Region</th>
<th>Length of metalled roads in Kms.</th>
<th>Length of metalled roads per 100 Km²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moth</td>
<td>184</td>
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<tr>
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<td>Mahrauni</td>
<td>154</td>
<td>108.83</td>
</tr>
<tr>
<td>Hamirpur</td>
<td>166.8</td>
<td>159.46</td>
</tr>
<tr>
<td>Rath</td>
<td>193.0</td>
<td>120.55</td>
</tr>
<tr>
<td>Kulpahar</td>
<td>87.70</td>
<td>82.89</td>
</tr>
<tr>
<td>Charkhari</td>
<td>77.3</td>
<td>85.23</td>
</tr>
<tr>
<td>Maudaha</td>
<td>240.6</td>
<td>155.63</td>
</tr>
<tr>
<td>Mahoba</td>
<td>124.2</td>
<td>137.39</td>
</tr>
<tr>
<td>Jalaun</td>
<td>224.82</td>
<td>167.35</td>
</tr>
<tr>
<td>Konch</td>
<td>172.30</td>
<td>162.98</td>
</tr>
<tr>
<td>Orai</td>
<td>197.58</td>
<td>208.97</td>
</tr>
<tr>
<td>Kalpi</td>
<td>193.25</td>
<td>151.47</td>
</tr>
<tr>
<td>Banda</td>
<td>300.36</td>
<td>182.54</td>
</tr>
<tr>
<td>Baberu</td>
<td>191.18</td>
<td>120.22</td>
</tr>
<tr>
<td>Naraini</td>
<td>206.54</td>
<td>143.62</td>
</tr>
<tr>
<td>Karwi</td>
<td>275.22</td>
<td>117.22</td>
</tr>
<tr>
<td>Mau</td>
<td>130.00</td>
<td>125.48</td>
</tr>
<tr>
<td><strong>Region</strong></td>
<td><strong>4162.85</strong></td>
<td><strong>139.19</strong></td>
</tr>
</tbody>
</table>

*Source: Compiled from Statistical Bulletins of Districts, 1983.*
development, it is essential to link small service centres and towns with big towns by all weather roads. In the region, the facts are otherwise. Many potential service centres are linked with big towns by link roads, most of which are not motorable throughout the year. Local roads are not well paved. Unbridged rivers and nals make the situation worse. There are many areas especially in Banda, Hamirpur and Lalitpur districts which create a big void on transport map of the region. All these factors have made the region less developed economically.

(ii) **Railways**:

The length of railway lines is 735 kms in the region. Kanpur-Jhansi-Lalitpur and Allahabad-Jhansi sections are the two important branches of central railways running in this region. The former serves the western part of the region passing through Kalpi, Orai, Jhansi, Talbehat and Lalitpur and the latter serves the southern part passing through Manikpur, Banda, Mahoba and Mauanipur. The other sections of central railway passing through the region are Gwalior-Jhansi, Kanpur-Banda and Allahabad-Satna. Although the area served by these rail lines is small, their linkage relationship is significant as the former links the region with Agra and Delhi and the latter with eastern Uttar Pradesh and Central Madhya Pradesh. The length
of railways per 10.0 Km$^2$ is very low in the region (24.52 Kms.). The districtwise distribution of railway lines in the study area has been shown in table (8.6).

<table>
<thead>
<tr>
<th>District/Region</th>
<th>Length in Kms.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jhansi</td>
<td>195</td>
</tr>
<tr>
<td>Lalitpur</td>
<td>75</td>
</tr>
<tr>
<td>Hamirpur</td>
<td>222</td>
</tr>
<tr>
<td>Jalaun</td>
<td>155</td>
</tr>
<tr>
<td>Banda</td>
<td>88</td>
</tr>
<tr>
<td>Region</td>
<td>735</td>
</tr>
</tbody>
</table>

Accessibility:

Accessibility means the ease of contact with relatively little friction and less wastage of time$^{27}$. Accessibility by transport routes affects the whole gaymuc of society. It is usually experienced that the areas without easy access to transport routes are socially backward. In fact, no place is inaccessible but the degree of accessibility may differ from place to place according to the density of roads. The greater the density, the higher is the accessibility.

There are two types of accessibility one is physical
and the other is relative accessibility. Here the former one is dealt with. Taking the travelling time and distance factors, the distance of 8 Kms from the transport routes is considered here as accessible distance as a man can easily cover this distance to avail transport facility. Since there are no airways and waterways in the study region, the roads and railways carry much functional importance for the economy of the region. Therefore physical accessibility of roads and railways has been calculated and dealt with separately.

**Accessibility by Roads:**

To exhibit the accessibility by roads, isodromes of 4 Kms, 8 Kms and above 8 Kms have been drawn along the roads (Fig. 8.5). The areas lying beyond 8 Kms from the roads are regarded as inaccessible and vice-versa. The impact of surface terrain is witnessed on the degree of accessibility. Most of inaccessible areas are found in south-east and south-west parts of the region due to the Vindhyan upland. Accessibility by roads has been calculated as accessible area to the percent of total area on tahsil level (Table 8.7). The table reveals that 86.47% of total area of the region is accessible by roads. On the tahsil level, the largest area accessible by roads is recorded by Charkhari tahsil (98.88%) followed by Kalpi (97.34%), Baberu (97.49%), Konch (96.83%), Naraini (96.83%), Banda (95.55%), Maudaha (94.96%), Jhansi (94.18),
<table>
<thead>
<tr>
<th>Tahsils/Region</th>
<th>Accessible (Below 8 Kms)</th>
<th>Inaccessible (Above 8 Kms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moth</td>
<td>88.92</td>
<td>11.08</td>
</tr>
<tr>
<td>Garaouta</td>
<td>75.45</td>
<td>24.55</td>
</tr>
<tr>
<td>Mauranipur</td>
<td>75.08</td>
<td>24.92</td>
</tr>
<tr>
<td>Jhansi</td>
<td>94.18</td>
<td>5.82</td>
</tr>
<tr>
<td>Talbehat</td>
<td>91.70</td>
<td>8.30</td>
</tr>
<tr>
<td>Lalitpur</td>
<td>82.61</td>
<td>17.39</td>
</tr>
<tr>
<td>Mahrauni</td>
<td>89.46</td>
<td>10.54</td>
</tr>
<tr>
<td>Hemirpur</td>
<td>93.45</td>
<td>6.55</td>
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<tr>
<td>Rath</td>
<td>91.66</td>
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<td>Kulpahar</td>
<td>58.10</td>
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<tr>
<td>Mahoba</td>
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<td>11.73</td>
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<tr>
<td>Jalaun</td>
<td>90.61</td>
<td>9.39</td>
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<td>Konch</td>
<td>96.83</td>
<td>3.17</td>
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<tr>
<td>Orai</td>
<td>81.85</td>
<td>18.15</td>
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<td>Kalpi</td>
<td>97.34</td>
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<td>Banda</td>
<td>95.55</td>
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<td>Baberu</td>
<td>97.14</td>
<td>2.86</td>
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<tr>
<td>Naraini</td>
<td>96.83</td>
<td>3.17</td>
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<tr>
<td>Karwi</td>
<td>55.78</td>
<td>44.22</td>
</tr>
<tr>
<td>Mau</td>
<td>58.10</td>
<td>41.90</td>
</tr>
</tbody>
</table>

Region: 86.47  13.53
Hamirpur (93.45%), Talbehat (91.70%), Rath (91.66%) and Mau (91.53%) tahsils. It is so mainly because pentagonal pattern of road network is found in these tahsils. Maunhi, Garaura, Orai, Lalitpur, Mahoba, Moth and Mahrauni are the tahsils where between 70 to 90 percent of the area is accessible. Karwi and Kulpehar tahsils of the region account 55.78 and 58.10 percent respectively. Least accessibility in these areas is due to much hilly terrain.

Accessibility by Rail:

In the study region, the rail network is insufficient. There are some tahsils like Mahrauni, Jalaun, Baberu, Garaura, which are far away from the railway tracks. Hence, the analysis of rail network has not been made on the tahsil level in the present study. For measuring the degree of rail accessibility, the isodroms of 4 and 8Kms and above 8 kms have been drawn from each station of the region. (Fig. 8.6). It is to be remarked that only 29.23% area of the study region is accessible by railways. The highest accessibility is found in Jhansi district (39.62%) followed by Jalaun (32.30%) Hamirpur (27.68%), Banda (25.83%) and Lalitpur (23.96) districts. For the quick and efficient effectiveness of rail transport, the construction of new railway lines is necessary.

Post and Telegraph:

In 1845, first mail service was started at Jhansi
city which was managed by the local authorities. In 1864, the local management was transferred to the postal department. There was also a mail route between Jhansi and Banda centres. The Britishers established regular postal services between Jhansi and Kanpur. Postman were attached to each office for the delivery of letters which replaced the old system of delivery by Chaukidars and gate-keepers.

In 1907, there were 147 postal branches in the study region, which increased to 979 in 1983 with 1126 Post-offices. In the last decade the telegraphic and telephonic facilities have rapidly increased to meet the requirements of population. The postal services are available in most of the large villages but the telegraphic and telephonic services are mostly concentrated in service centres and towns. A large number of rural and urban centres still lag far behind as regards such communication lines. Now the swift postal delivery services are practised by mail buses and mail trains. Due to increasing availability of transport as well as connectivity of rural areas to the urban centres and town headquarters, rapid changes in socio-economic and cultural activities have been noticed in the region. Increasing movement of numerous students and other people to the urban areas for their purposes like education recreation, services and daily wages etc. indicates the cultural change. Its impact may be clearly noticed in
the surveyed villages. The study in nearest suburban/urban centres has become easy for the boys and girls of the villages like Khaūjaini, Padari, Sultānpūra, Chhayan which are situated near the centres, whereas inconveniences of transport have been main factors for the less progress of education in the interior villages like Patori, Bamhaura, Kalwara Khurd, Bachhondha etc.

It is evident from the study of the villages that before twenty years only rich persons had radio, transistor, cycle, watch, but now these haves are common. Nine hundred and twenty transistor-sets have been found in 2426 families of surveyed villages. What to say about T.V. and Vedio, these are still regarded as luxurious requirements in most of the families. On an average, one transistor-set per 2.64 families is found in the study area. Sultānpūra, Padari, Ballan, Mirchwara and others are the villages where people have much interest to the news through newspapers, but inspite of communicational and educational development, people are still impelled from the feeling of illiteracy and traditions.

Other Cultural Features:

Field survey reveals that people are being familiar with the new innovations and technological processes. Modern institutions of economic development have brought significant changes in the life of the people. With these changes, people are adopting new habits as well
as new methods. In this context, four changeable elements: education, fashion, habits of eating and drinking and marriage customs have been discussed here:-

Education:

The actual aim of education is to develop the personality, to create the character of the children and to make them dedicated to the nation with honesty. The field study of the villages indicates that at present many facilities have been provided for the education of women, backward, scheduled castes and scheduled tribes. Informal training of hereditary occupation has been traditionally given to the boys in most of families, but now-a-days these types of trainings are given less importance because traditional occupations are losing their significance.

It is known from the study of villages that only 27.22 percent people are literates, whereas before twenty years their percentage was 6.96. It is clear that educational progress was much less at that time. Before Independence, the children of high castes and rich families received education but they could not attain higher education due to lack of educational facilities. Among the literates, 29.86% were Kshatriyas, 25.70% Brahmins, 20.56% Karmis and 23.86% were other castes. But now the
the boys of all castes are receiving higher education with the facilities of education to the all.

It is also revealed from the field study that the literate scheduled castes persons are only 5.23 percent. Among these, 68.28% are primary, 20.40% Junior and High School, 7.72% Intermediate, 1.94% graduate and 1.66% Post-graduate. Among the literates of scheduled castes, 98.24 percent are males and 1.76% females. It is also found that traditional family occupation is decreasing due to progress of education.

Fashion:

There is a remarkable change in the dresses of rural people due to increasing education and economic standard as well as cultural contact with urban centres. Generally the dress of the male was 'Dhoti', 'Kurta' and 'Safi' (Small turban) and females dress was 'Dhoti' or 'Saree' and 'Jhulla' or 'Blouse' before, but now farmers have also began to put on cloths of modern fashion. The western fashion have replaced the traditional dress. Cotton fabrics is replaced by terricot, terin and polyster cloths. Pant, bushirts, well-bottom etc. are the lovely dresses of educated young men. The ladies are paying keen interest to wear dark coloured and printed sarees and the men are feeling eminence to wear
fine-coloured bushirts and shirts. Other items of daily
uses like long tape shoes, high heel chappals and shoes
have been modish in men and women both. Although the
tendency of new fashion is much increasing in educated,
rural prosperous and urban people, the people, who are
passing through low standard of living in the rural areas,
have been adopting their traditional dresses. Some efforts
have been made by low castes to rise their low status.
The backward and lower castes are doing such efforts by
adding 'Surname' of higher castes with their names as well
as wearing 'Yagopavit'. In the list of daily needs,
many significant items are being included. Uses of silver
aluminium, German silver, steel pots are increasing due
to less price in poor, rich, rural and urban families.
The use of cooking gas in urban areas and Gobargas in
rural areas is being popular to make food.

Nature of Eating and Drinking:

The habits of eating and drinking have undergone
changes due to increasing social and economic standard
of living. Although Ghee, Milk, Butter etc. are not
available in much quantity as was in past, the habits
of eating and drinking Kachori, Pakori, Tea and Coffee
is increasing. It is known from the study of the villages
that the prohibiting rules of eating and drinking are
existing but they are losing their strictness. Generally
villagers follow them, but urban people do not. For example the members of high, medium and low castes express their impotency in taking food at the "Thali" of lower castes. Whereas, this is not practised at hotels or restaurants. There is no question about the caste of cook and waiter there. Even if he knows, there is no objection to him. Brahmin caste and lower castes are becoming non-vegetarian and vegetarian respectively. The remarkable change which has been noticed, is the disobey of old traditions. Oftenly, ladies took food after elders of the family in the past. This custom is still practised in the high and medium castes of rural areas. Howsoever this is not materialized in the educated and low caste families. It is noteworthy that wife and husband together take food at the same table in the hotels in urban areas, whereas this is rare in rural areas.

Marriage Customs:

Many types of matrimonial, cultural and other socio-economic gives and takes in various religions and caste-groups have been performed in the region. Marriage custom is one of them. Multi form of cultural traditions regarding marriage are present in the study region. For example, the Kshatriya castes always try to marry their
daughters in the west direction today also. It is the only testimony of that cultural tradition which is impelled from the feeling of high and low due to Rajput migration from west to east. But westernisation, urbanisation, education, social dynamism, industrialisation etc. are the main factors that have changed the traditional matrimonial customs. Marriagable age is legally increased but childhood marriage is still accustomed in lower and scheduled castes. Old marriage traditions have gone under a lot of changes. Now-a-days dowry system is dominating the process of marriage settlement in higher and middle castes. In olden days, it was the responsibility of the parents or elders to settle the marriage of girls and boys but now most of boys, specially in educated families, desire to have a short interview with the girls to be married with him before the elders and finalise the matter. Court marriages and matrimonial pages of newspapers and magazines also indicate the changes in marriage system.

It may be concluded from above discussion that a number of social and cultural changes have been noticed in the region due to impact of westernisation, sanskritization, urbanisation and industrialization, availability of transport and communication, electricity supply, circulation of newspapers, family planning, use of fertilizers and seeds, irrigation facilities, innovation of agricultural
implements etc. Although the traditional base of social system is present, some relaxations are being noticed in social restrictions, prohibitions, social values and other customs.
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...
CHAPTER IX

CONCLUSIONS AND CULTURAL REGIONS

A. CONCLUSIONS:

Bundelkhand region of Uttar Pradesh (24°11' N - 26°27' N Lat. and 78°10' E - 81°34' E Long.), covering an area of 29636 Km² inhabited by 54.38 Lakh persons (1981), consists of four geological formations - (i) Archaean (ii) transitional, (iii) Vindhyan and (iv) Alluvial deposits. Topographically, the study region can be divided into two parts - (i) Upland Bundelkhand in south, (ii) Low land Bundelkhand in north. Mainly the Yamuna river and its tributaries, representing dendritic drainage pattern, flow in the region from South-West to North-east. Sub-humid type of climate is found. May and June are the hottest months and December and January are the coldest months of year. Mostly rainfall is experienced in the month of August (37.95 cms). Forests cover 8.10% area of total geographical area. The abundancy of forest is found in the southern part while in the north these are negligible due to agricultural dominance. The Mahua, Teak, Tendu, Saina, Sej, Dhaw, Dhak are the main plants. The mar, kabar, parua and Rakar soils are found. Among these, the mar soil bears much fertility. The problem of soil erosion is also serious in the region. Though efforts are being made under five year plans to check it, there is a great need of intensive planning as well as cautiousness for preserving the soil fertility.
In prehistoric times, the study area was occupied by the primitive tribes and 'hand-axe culture' was developed. First glimpse of Aryan was noticed in 900 B.C. Since then it had been passed through the hands of many dynasties like Nand, Maurya, Sunga, Kushan, Gupta, Pratihar as well as Chandela till the end of 13th century. Though various socio-economic activities were evolved during purview period, the reign of Chandelas (9th-13th Century A.D.) enjoyed much peace and prosperity. After the downfall of Chandelas, the Muslims as well as Mughal emperors came in power but not fully. They badly affected the socio-economic culture. However the reign of Akbar was much favourable. In the beginning of 17th and 18th centuries, the Bundelas and Marathas rose to power. The Bundelas built many tanks, forts and places. With the arrival of Britishers (in the beginning of 19th Century), various public utility services like rail and roadways, schools, hospitals, police stations were provided although they exploited the economy. After Independence under the rule of our national government, multisided development programmes were launched to develop the region for the betterment of the inhabitants.

Human settlement started with the arrival of Aryan. Before this, primitive tribes like Kols, Bhils, Gonds, Sahariyas etc. led unsettled life. Later on, region was colonised by Nandas, Mauryas, Sungas, Kushans, Guptas,
Pratihars, Chandelas, Muslims and Mughals, Bundelas, Marathas and Britishers. In ancient and even in medieval periods, location of human settlements were bound with religious and defensive points but political disturbances did not favour the proper evolution of settlements. However they grew and decayed according to prevailing conditions. At present, the settlements are developing in their normal course. The variability of physio-cultural environs resulted in small medium, high and very high size of villages with respective percentages of 46.21, 46.60, 6.49 and 0.70. The spacing of villages ranges from 2 to 2.6 kms. The per village area ranges from 3 to 10 km² and the population from 582 to 1537 persons. Inverse relationship among spacing, size and density of villages is found. The distribution of rural settlements represent uniform pattern from randomness. The compact rural settlements are mainly confined in the north-west, central as well as eastern parts and the dispersed are oftenly associated with undulating surface. The nomenclature of villages are closely associated with the elements of physio-cultural environment.

As regards urban settlements, religious and natural places acted as nuclei of urban growth in the past. Deogarh, Kalinjar and Chitrakutdham are the examples. The Guptas heralded new epoch in the urban history. After them,
Chandelas developed many towns such as Rohilnagar, Rasaken, Kalinjar, Dudhi, Madanpur, Mahoba etc. The Muslim rulers also developed many towns such as Trich, Maudaha, Rath, Rajapur, Banda, Kalpi, Ranipur, Jhansi, Mau Ranipur, Chitrawkutdham etc. with the arrival of the Brisihers, real urban growth occurred and at present time under five year plans, new towns are being developed. With the changing cultural phenomenon, the number of towns as well as the number of towns in different size-classes has also fluctuated. The number of towns was 29 in 1901 and 1911, 31 in 1921, 29 in 1931, 28 in 1941, 35 in 1951, 20 in 1961, 24 in 1971 and 49 in 1981. The degree of urbanisation has also been changing. It was 11.01 in 1901, 12.88 in 1941 and 19.88 in 1981.

In the past, region was sparsely populated but under the Chandelas it became prosperous and the population increased. In the Muslims reign, population fluctuated due to wars and rise of feudalism. During the British rule and after Independence, the population expanded by and large. The systematic enumeration of population began in 1901 when it was 21.06 Lakh persons increasing upto 54.38 Lakh persons in 1981. The trend of population change shows that before 1921 it had increased and decreased due to droughts and epidemics but after 1921, it always continued to increase. Uneven distribution of population
is noticed. The northern parts are densely populated in comparison to the southern part. The percentages of rural and urban population are 80.12 and 19.88 respectively. The percentage of working force is 30.73 out of which 88.02% are males and 11.98% females workers. The most of workers (78.24%) are engaged in agricultural activities while 3.59 percent are in industrial sector and the remaining in other activities. The discussion of age-structure shows the high proportion of young population which is the result of high birth rate. The study area is Hindu (83.76%) dominated due to rulers of Hindu kings from the past. Muslims share 6.2 percent only. The percentage of literates to total population is 28.69. The percentages of male literates to total males and female literates to total females are 41.52 and 17.31 respectively. Population estimation shows continuously increasing trend upto 75.75 Lakh persons in 2001. The continuous increasing population may create several problems. Therefore, there is a great need of social awakening as well as industrial and agricultural developments.

The categories of land-uses: Net area sown, land not available for agriculture, cultivable waste, fallow land, forest and uncultivable land occupy 62.03, 10.28, 9.98, 8.92, 8.10 and 1.69 percent of total area respectively. The history of irrigation started from the Chandela period
but the quantum of irrigated land is still small as 21.34% of total net sown area is irrigated. Canals, wells and tanks are the main sources of irrigation which cover 75.73, 23.96 and 0.40 percent of total irrigated area. The north-west and north-east portions of the area are irrigated by canals and tube-wells whereas the southern is irrigated by tanks and wells. Rabi, Kharif and Zaid crops occupy 66.19, 33.50 and 0.31% of total cropped area. The major crops are wheat, paddy, Bajra, Barley, Gram, pulses etc. High diversification of crops is found in upland whereas low diversification in low land Bundelkhand. The total number of crop combination regions comprising of three to six crops are 18 out of which 9, 5, 2 and 2 fall in three, four, five and six crop combinations. The discussion represents that agriculture is generally traditional and rudimentary. Dry farming is significant feature, size of holding is small and system of double crop is slowly dawning.

The study of crop productivity vis-a-vis population is made to understand the level of population nourishment as well as living condition of the people in the region. High productivity is found in Konch, Jalaun, Kalpi, Orai, Rath and Maudaha tahsils due to plain surface, adequate supply of water as well as mar and kaba soils. Medium crop productivity is noted in Mahoba, Baberu, Charkhari, Karwi, Jhansi, Banda, Moth, Hamirpur, Mauerapur and
Lalitpur tahsil and in the remaining tahsils low productivity is found. Excluding six tahsils: Mauanipuri, Jhansi, Talbehat, Banda, Karwi and Mau, all the remaining tahsils of the region experience surplus of calories when compared with the standard of 2000 calories per head per day. Discussion, thus, highlights, that about 3/4 percent population of the region is passing through under-nutrition and mal-nutrition. The personal observations unfold that poor families have larger expenditure on food, particularly on cereals and pulses than another nutritious diet. Even rich families seldom think to improve their diet through milk and milk products. Mostly common diet of people is constituted of rice, chapati, pulses and often vegetables. Mostly Muslims and scheduled caste people are non-vegetarian but their budget seldom permits them to purchase meat, fish, or eggs.

Social structure is an organisation of human groups and institutions. Changes in society occur due to geographical, economic psychological, political and cultural factors. Varna and Ajman system, Purusharth, Joint family, Satya, Ahimsa, Kindness, forgiveness etc. are the traditional social values. Caste system, Ajman system, family structure and occupational structure as prevailed in the region reveal the traditionalism in the social set-up. The empirical study of 2426 families of twenty sampled villages highlights
that Chamar, Kurmi, Kshatriya, Brahmin, Kachhi, Potter, Ahir and Gupta families share 14.34, 12.08, 12.04, 9.52, 8.86, 4.16, 3.59 and 3.50 percent of total population respectively and the remaining castes are in negligible proportion.

Kshatriya, Kurmi, Brahmin and Kachhi are economically the dominating families which occupy 25.20, 23.62, 13.98 and 7.23 percent of cultivated land respectively. The percentages of families in high, medium and low income groups are noted as 57.50, 29.43, and 13.07 respectively. The percentage of literacy is 29.43 which is found mostly in Kayastha, Kshatriya, Brahmin, and Gupta castes due to well economic condition. The most of families are engaged in agriculture (74.64%), while 33.42% are in labouring, 26.64% in traditional occupation, 8.65% in services and 3.83% in other activities. The percentages of nuclear and joint families are 75.23 and 24.77 respectively. The high percentage of nuclear families is found in Chamar, Dhobi, Kori, Khatik, Kachhi, Potter, Ahir etc., whereas it is low in Kurmi, Kshatriya, Brahmin and Kayastha families.

The feeling of caste is increasing day by day. Abatements, however, in traditional practices like drinking, feeding, and other behavioural activities have been noticed. Providing food on their pots to low caste people, sitting on the same cot may be cited as examples. Jajmani system and inter-caste relations are being disintegrated and occupational
mobility among castes has also been noticed. The feeling of individuality weakened the family structure by which the percentage of nuclear families increased from 68.94 to 75.23 in the last twenty years whereas the percentage of joint families decreased from 31.06 to 24.77. The caste and village Panchayats are losing their importance. They have significance for low and backward castes only. The conclusions drawn from the study of villages reveal that though traditional social values are present today also, modernisation, new development programmes, educational progress, increasing income sources etc. have brought out changes in social structure. But the rate of change is very slow due to mass illiteracy, mass poverty and traditionalism.

Culture is an aggregation of all the practices and behaviours of man. Due to new technology and new innovations some changes in culture occurred from time to time. These are exhibited in two forms (i) Material (agricultural mechanisation, electrification, water management, industrialization, transportation etc.), (ii) non-material (Beliefs, ideals, customs, traditions, religion etc). Though agriculture is performed in traditional ways today also, people are forwarding towards mechanised agriculture by using winnowing fans thrashers, iron ploughs etc. with the impetus of rural electrification as 32.07 percent
villages have been electrified in the region. The development of various arts and crafts were noticed in the region from the reign of Mauryas, Guptas, Gujar Pratihar and Chandelas. With the change of supremacy in the hands of Britishers the traditional arts and crafts began to decline and various types of items like woolen carpets, weapons, implements, utensils, coarse blankets, idols, embroidered silk etc. were produced. Since Independence, new industries are being established. As regards transport, land as well as water routes both were developed in the past. With the arrival of the Britishers, metalled and unmetalled roads were constructed. The suggestion of the Indian Road Development Committee (1927), Transport Advisory Committee (1934) and Nagpur Plan (1943) laid emphasis on transport to develop. At present, there are two national highways Nos. 25 and 26, four state highways 13, 17, 21 and 44 and other local roads which serve the region. The length of metalled roads per 1000 Km² and per Lakh population is 139.19 Kms and 75.55 Kms respectively. The length of railways is 735 Kms. The accessibility by roads and railways is 86.84% and 29.23% respectively. As a means of communication, Post and Telegraph were firstly developed in 1885 in Jhansi city. In 1907, there were only 147 postal branches which increased to 970 in 1983 with 1126 sub-offices. The postal services are available in most of large villages whereas telegraphic services are in service centres and towns. Apart from it, transistor, newspaper and television are also plying their role as means of communication. Besides
these changes in material elements, changes in non-material elements like fashion, habits of drinking and fooding, marriages etc. have been also observed. It can be, thus, safely said that technology and new innovations have brought out so many cultural changes in the region. But the varying environment has created spatial disparities in cultural development of the region.

E. CULTURAL REGIONS:

The delimitation of cultural regions involves the regionalisation of the region into sub-regions on the basis of cultural activities. The need of regionalisation arises from spatial diversities which result from varied types of factors like resource endowment, socio-economic structure, infra-structure and politics. In Indian context, regional diversities are deep rooted. The Britishers favoured some specific locations and developed them accordingly. After Independence at the beginning of planning period, locations of development have not been scientifically considered, to a great extent due to political interference. All these factors led the country to the marked diversities in socio-economic development. In the present days of balanced regional development, efforts are being made to minimise and remove the spatial diversities. The regionalisation of a region, therefore, carries much importance for planning purpose.

Methodology of Regionalisation: A Brief Review:

The history of regionalisation studies in India is
very recent. The early regional studies were mostly based on physical factors. The social and economic factors attracted little attention before fifties. The food problem during fifties invited the delimitation of agricultural regions. Hanseng presented the Agricultural regions of India\(^1\). Sen Gupta and Sdasyuk while discussing economic regions of India, laid much stress on the elements of agricultural regionalisation\(^2\). During sixties, regional studies based on resources appeared in geographic literature. The works of Learmonth and Bhat\(^3\), Learmonth\(^4\) and Prakash Rao and Bhat\(^5\) are the examples. More recently, Sharma presented a voluminous work on agricultural regionalisation\(^6\). In 1962, planning commission emphasised the regionalisation based on a number of socio-economic indicators. In 1964, planning commission published an important work on resource development regions\(^7\). However scientific methodology of regionalisation was marginal in these studies\(^8\). In 1961, Mitra determined socio-economic levels of the districts and divided the country into seven major regions, twenty four small regions and sixty four micro regions\(^9\). Nath\(^10\), Pal\(^11\), Singh\(^12\), Lahiri and Kundu\(^13\), Mukherjee\(^14\) followed the same lines in their regional schemes. Presently, the studies, dealing with regionalisation at various territorial levels, are based on several socio-economic and demographic indicators with the application of elaborate statistical methods. The studies made by Sundaram\(^15\), Sharma and Katiyar\(^16\).
Suvar\textsuperscript{17}, Parmar\textsuperscript{18}, Pathak et al.\textsuperscript{19} etc. may be cited as examples.

\textbf{Method Used in the Study:}

Regionalisation must be based on such indicators that may serve the purpose in hand. The purpose of this exercise is to divide the study region into sub-regions of homogeneous cultural development. Hence the following 22 indicators depicting the present regional structure have been selected:

1. Net area sown as percent of total area.
2. Area sown more than once as percent of net area sown.
3. Percent of irrigated land to net area sown.
4. Consumption of chemical fertilizers per hectare of net sown area.
5. Number of tractors per 100 hectares of net sown area.
7. Percentage of workers to total population.
8. Percentage of Industrial workers to total workers.
9. Percentage of other workers to total workers.
10. Percentage of female workers to total workers.
11. Percentage of literates to total populations.
12. Percentage of male literates to total males.
13. Percentage of female literates to total females.
14. Availability of calories per head per day.
15. Road length per 100 Km$^2$.
16. Road length per 1000,00 population.
17. Road accessibility : percentage of accessible area to total area.
18. Post offices per 100 Km$^2$.
19. Post offices per 1000,00 population.
20. Percentage of electrified villages to total villages.
21. Degree of urbanization.
22. Number of Industrial units per 1000,00 population.

It is to be noted here that the above list is not exhaustive one. However it will serve our purpose.

The next step is to construct the indices of the units so that each unit can be compared with others and the disparities may be measured. For this purpose actual values of the indicators of each unit have been divided by their respective means and the results have been added horizontally to construct the composite index (Appendix VI).

Thus if $\bar{x}_a, \bar{x}_b, \bar{x}_c \ldots \bar{x}_n$ are the arithmetic means for $x_a, x_b, x_c \ldots x_n$ indicators ($n=22$), the composite index for a unit ($x_i$) is calculated as follows:

$$x_i = \frac{x_a}{\bar{x}_a} + \frac{x_b}{\bar{x}_b} + \frac{x_c}{\bar{x}_c} \ldots \frac{x_n}{\bar{x}_n}$$

The composite index has been calculated for all the tahsils (table 9.1).
Table 9.1: Composite indices of Cultural Development.

<table>
<thead>
<tr>
<th>Tahsils</th>
<th>Composite Indices</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Jhansi</td>
<td>32.54</td>
</tr>
<tr>
<td>2. Orai</td>
<td>29.49</td>
</tr>
<tr>
<td>3. Konch</td>
<td>26.06</td>
</tr>
<tr>
<td>4. Jalaun</td>
<td>25.34</td>
</tr>
<tr>
<td>5. Banda</td>
<td>24.31</td>
</tr>
<tr>
<td>6. Naraini</td>
<td>23.81</td>
</tr>
<tr>
<td>7. Kalpi</td>
<td>23.41</td>
</tr>
<tr>
<td>8. Mauanipur</td>
<td>22.82</td>
</tr>
<tr>
<td>9. Rath</td>
<td>22.45</td>
</tr>
<tr>
<td>10. Moth</td>
<td>22.06</td>
</tr>
<tr>
<td>11. Hamirpur</td>
<td>21.06</td>
</tr>
<tr>
<td>12. Lalitpur</td>
<td>21.96</td>
</tr>
<tr>
<td>13. Mahoba</td>
<td>21.52</td>
</tr>
<tr>
<td>14. Talbehat</td>
<td>21.23</td>
</tr>
<tr>
<td>15. Charkhari</td>
<td>20.89</td>
</tr>
<tr>
<td>16. Baberu</td>
<td>19.80</td>
</tr>
<tr>
<td>17. Garautha</td>
<td>19.76</td>
</tr>
<tr>
<td>18. Maudaha</td>
<td>19.75</td>
</tr>
<tr>
<td>19. Mau</td>
<td>18.36</td>
</tr>
<tr>
<td>20. Karwi</td>
<td>17.69</td>
</tr>
<tr>
<td>21. Kulphar</td>
<td>16.05</td>
</tr>
<tr>
<td>22. Mahrauni</td>
<td>15.52</td>
</tr>
</tbody>
</table>
The tahsils of the region are arranged according to descending order of composite indices and on the basis of natural breaks in the array, the study region has been divided into five sub-regions (Table 9.2) and Fig. (9.1A & 9.1B).

Table 9.2 : Levels of Cultural Development

<table>
<thead>
<tr>
<th>Levels</th>
<th>No. of Tahsils</th>
<th>Name of Tahsils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very high</td>
<td>1</td>
<td>Jhansi</td>
</tr>
<tr>
<td>High</td>
<td>1</td>
<td>Orai</td>
</tr>
<tr>
<td>Medium</td>
<td>2</td>
<td>Konch and Jalaun</td>
</tr>
<tr>
<td>Low</td>
<td>10</td>
<td>Banda, Naraini, Kalpi, Mauanipur, Rath, Moth, Hamirpur, Lalitpur, Mahoba and Talbehat. Charkhari, Baberu, Garautha, Maudaha, Mau, Karwi, Kulpahar and Mahrauni</td>
</tr>
</tbody>
</table>

I & II. Area of Very High and High Development :

Situated in the extreme western part of the region
in Jhansi tahsil is area of very high cultural development. Although the tahsil is agriculturally backward, Urban agglomeration has played a great part in bringing out the state of very high development in the tahsil. The figures of the indicators - 3, 4, 6, 8, 9, 11, 12, 13, 15, 17, 21, and 22 are above regional mean.

Orai tahsil, in the central north-west is the area of high development due to high figures of the indicators - 1, 4, 5, 6, 9, 11, 12, to 16, 20, 21 and 22.

III. Areas of Medium Development

Adjoining the area of high development in the extreme north-west is the area of medium cultural development comprising the tahsils of Khinch and Jalaun. Although the average scores obtained by the area of this category with respect to the indicators - 1, 4, 5, 14, 17, 18 and 19 are higher than those of the areas of categories mentioned above, the low average scores of the indicators - 8, 9, to 13, 15, 21 and 22 have caused medium level of development in these areas.

IV. Areas of Low Development

These areas are scattered in the region. The tahsils of Banda, Naraini, Kalpi, Mauranipur, Rath, Moth, Hamirpur, Lalitpur, Mahoba and Talbehat fall under this category.
No exact generalisation can be made about the cause of low development in these areas. However the cause for low development can be ascribed to the indicators - 4, 5, 6, 9, 10, 11, 13 and 21. The average score obtained by this category with respect to the above indicators is quite low.

V. Areas of Very Low Development:

The tahsils of Karwi, Mau and Baberu in the north-east, Maudaha, Charkhari, Kulpahar, and Garautha in central and South-central land mahrauni in extreme south-west part of the region fall under this category. A number of factors are responsible for very low development in these areas. The average scores obtained by the areas of this category with respect to the indicators 2, 3 to 6, 8, 9, 12, 13, 15, 17, 18, 20, 21 and 22 are very low due to which the state of very low development is noticed in these areas.
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