CHAPTER 2

GEOGRAPHICAL SETTING OF
THE STUDY AREA

➢ Physical Setting
➢ Socio-economic
➢ Urban Land Use
➢ Morphology of the City
The development of a particular city, town or a region depends upon natural, physical and socio-economic factors. Among these factors the population assumes significance in determining the future pattern of progress and development. The previous chapter noticed that state Uttar Pradesh has been accounted for 15.31 per cent of the country's child labour force in 2001 with a decadal growth of 36.73 against 12.49 per cent in 1991 and ranked first among Indian states and territories. Within the state there are specific sectors and areas in which the incidence of child labour is reported to be very high. The Aligarh city is one of them. The present chapter provides a detailed study of the area by its geographical analysis, socio-economic outlook that are responsible for incidence of child labour in Aligarh city.

2.1 Physical Setting

Geographical setting of a region is closely associated with its physical setting. Geography is a discipline that gives knowledge, understanding and skills, which helps us to develop values and attitudes for an affective life in the global village. The ultimate enquiry of geography is space. The identification of spatial linkages and spatial patterns within the city provide a basic source material both for educationalists and policy makers. In the present study the geography of the city has a direct relation with the various factors associated with child labour.

Aligarh district has acquired a unique characteristic with the fusion of historical and geographical elements. The district lies in an alluvial plain of quaternary age, made of recent unconsolidated fluvial formation, comprising sand, silt, clay and kankar (Siddiqui, 1975).

2.1.1 Location

Aligarh is one of the important town of western Uttar Pradesh, located at 27°53' N latitude and 78°4' E longitude. The Aligarh city is situated along Delhi-Kolkata railway line and Grand Trunk road about 126 kms to the south-east of New Delhi (Siddiqui, 1981) (Fig. 2.1).
2.1.2 Relief and structure

Aligarh district is located in a shallow fluvial depression between the two major rivers the Ganga and the Yamuna. The vast, fertile, alluvial plain gently slopes from north to the south and south-east. The ground elevations consist merely of slight ridges of sand. There are a variety of minor landforms in this district due to the presence of several depressions due to the fluvial action. The prominent among them is the central depression where drainage is poor resulting in the formation of jhils (lakes) in which water gets collects. These ponds lead to salt encrustations on the surface through capillary action and causing the formation of reh or sajee (carbonated soda) (Aziz, 1989).

The Aligarh city represents a shallow trough, lies in the central low lying tracts between the Aligarh drain in the west and the stream Sirsa in the east. The Aligarh city forms a part of the upper Ganga-Yamuna doab by river Ganga in the north-east and Yamuna in north-west which is a plain of remarkable fertility. The plain slops down gently from north to south and south-east. The district has elevation
of 178 metres; the highest ground elevation is 195 metres at Chandaus and the lowest 173.8 metres in the south-eastern part of the district. The surface is spotted with several depressions formed by the river valleys and natural vegetation, its elevation consists of the simply slender ridges of sand. The most prominent of them are three regular lines running from north to south. The first follows the boundary between the pargana of Tappal and Chandaus. The second may be seen along the right bank of a stream Karwan, and the third which is more uninterrupted and less defined lies a few kilometres in the east (Krishnan, 1960).

2.1.3 Drainage

The Aligarh city is not served by any stream but the district is well served by a number of streams. There are two types of rivers, the dominating rivers have their sources in snow covered mountain ranges of the Himalayas, namely, the Ganga and the Yamuna that are perennial (Fig. 2.2). Other than perennial Himalayan rivers fringing eastern and western border of Aligarh district, Kali Nadi a non-Himalayan perennial river originating from the depression in Muzaffarnagar also satiates the districts' overgrowing need of water. Nim, Chhoya, Rind, Senegar, Karwan and Patwaha are some non-perennial rivulets which assist their perennial counterparts in draining the district. The Aligarh drain flows through the central portion of the district passing through the city. This networking of water channels helps in maintaining high level of water table, a natural bounty for marginal farmers to carry on the intensive agriculture (Nevill, 1928).
Climate forms an important part of the physical environment and influences human life and its culture. It determines the life style, food, habits and shelter. Two well-marked features of climatic condition of Aligarh city are, the tropical monsoon type of climate and continentally. Thus, the seasonal rhythm is accentuated with the extremes of the temperature variation. The city is hot and dry; temperature range between 46° C to 4° C. The coldest months of the year here are in December and January, when the mean temperature ranges between 15° C and 12.2° C. The hottest months of the year are May and June when the mean temperature ranges between 32.2° C and 33.8° C. Mean annual rainfall ranges from 65 cm to 75 cm but variation of rainfall is considerable large. Mild to moderate drought are common. 87 per cent of total rainfall occurs in the months of July and August by south-west monsoon (Aziz, 1989). By the end of October rain almost ceases and winter conditions start approaching. The temperature is low during the winter season, though frosts are neither of frequent occurrence nor of high intensity. Whereas only 11 days are characterized with rains of about 15 mm, which effective to provide moisture to soil.

The climate of the city is similar to that of the Ganga-Yamuna Doab. In general the climate pattern of Aligarh may be divided into four distinct seasons (Kendrew, 1961).

1. Cold weather season (December - February)
2. Hot weather season (March - Mid June)
3. Season of general rains (Mid June - Mid September)
4. Season of retreating monsoon (Mid September - November)

All these conditions affect the agricultural fortunes and the overall economy of the area (Aligarh District Gazetteer, 1981).

2.1.5 Soils

The soils of the Aligarh are similarly the same in composition and appearance as those of the Doab. Due to the bowl shape topography with the rivers of Ganga and Yamuna flowing on the relatively high land peripheries and a central low lying tracts, therefore, Aligarh soils has two distinctive form of the alluvium.

1. The older alluvium (Bhangar)
2. The newer alluvium (Khadar)
Bhangar found in upper reaches, is a better drained and less calcrete soil, while Khadar is the low lying poorly drained alluvium soil. The soils differ very much in texture and consistency ranging from the sands through loams and silts to heavy clays that are ill drained and are some times charged with injurious accumulation of sodium salts producing a sterile deflocculated condition called usar. The south-western part of the district has to pay for being in lower sloppy portion, resulting in saline-alkaline efflorescence of medium to high pH value (Krishnan, 1960).

2.2 Socio-economic

The Aligarh city covers an area of 38.29 sq. km out of which 64.5 per cent area of the city is developed. Within the developed area 49.1 per cent is used for residential purposes, 28.1 per cent for transport, 9.4 per cent for industrial and commercial purposes, 7.1 per cent for public utility, 2.1 per cent is under parks and open spaces and only 0.4 per cent is used for recreational purposes. The city is divided into 70 wards which spread over 158 Mohallas (Census, 2001).

Like other cities of the state of U.P., Aligarh too has a district demarcation between the old and new parts. It is broadly separated by the Delhi – Kolkata railway line. The old part of the city comprises of 48 wards and the new part of the city has 22 wards. The old city presents the picture of decadence having narrow roads, old and congested houses with improper education and health facilities, with no or very few open spaces. The new part of the city is much cleaner than the old part, which comprises of Aligarh Muslim University, which spreads over thousands of hectares of land. But new residential colonies and innumerable shopping centres have sprung up making this part more congested than early times. Gradually the outskirts of the city are expanding encroaching upon rural areas and therefore slums have emerged at different parts of the city at a very fast rate.

2.2.1 Population

According to 2011 Census of India, the total population of the Aligarh city was estimated as 872,575 persons against 669,087 persons in 2001, in which males constitute 53.08 per cent and females 46.92 per cent of the total population. Aligarh has high population growth rate, as city grows by 2 per cent naturally and 4 per cent by the migrants coming from different villages.
Table: 2.1 Growth of population in Aligarh city (1971-2011)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total population</th>
<th>Males</th>
<th>Females</th>
<th>Decadal growth rate</th>
<th>Decadal increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>2,52,314</td>
<td>1,26,650</td>
<td>1,25,664</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1981</td>
<td>3,20,861</td>
<td>1,61,475</td>
<td>1,59,386</td>
<td>27.17</td>
<td>68,547</td>
</tr>
<tr>
<td>1991</td>
<td>4,80,520</td>
<td>2,57,391</td>
<td>2,31,300</td>
<td>49.76</td>
<td>1,59,659</td>
</tr>
<tr>
<td>2001</td>
<td>6,69,087</td>
<td>3,56,725</td>
<td>3,12,362</td>
<td>39.24</td>
<td>1,88,567</td>
</tr>
<tr>
<td>2011</td>
<td>8,72,575</td>
<td>4,63,123</td>
<td>4,09,452</td>
<td>30.41</td>
<td>2,03,488</td>
</tr>
</tbody>
</table>


It was seen that during the last decades the growth rate has been within the range of the 30-40 per cent. But during the decade 1981 – 1991 the population growth was 49.75 per cent while during 1991 – 2001 it was only 39.24 per cent (Table 2.1) respectively. The socio-economic compulsions have leaded the rural landless labourers to migrate to the city. The migration of the labourers has also reflected in the sex ratio which is 884 in 2011 Census against 869 in 2001 (Census, 2001 and 2011).

Table: 2.2 Population density

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hectares</td>
</tr>
<tr>
<td>Present developed land</td>
<td>2,50,000</td>
<td>171</td>
<td>1,460</td>
</tr>
<tr>
<td>Proposed developed land</td>
<td>3,35,160</td>
<td>114</td>
<td>2,940</td>
</tr>
<tr>
<td>University area</td>
<td>15,000</td>
<td>26</td>
<td>580</td>
</tr>
<tr>
<td>Total</td>
<td>6,00,160</td>
<td>121</td>
<td>4,980</td>
</tr>
</tbody>
</table>

Sources: Census of India, 2001, Office of the Nagar Nigam, Aligarh, 2009

Density of Aligarh city varies, as socio-economic condition changes. Present developed land mainly comprises old part of Aligarh city which is congested city centre. This area had very high to medium density, with very little or no green space at all. The average density of this region is 117 persons per hectares, while university area had generally flat housing and institutional area (Table 2.2). This area is beautifully landscaped, therefore, overall density of this region is quite low (26 persons/hectares). The proposed development is been done to achieve fair density of 114 persons/hectares. Planning norms for these areas are under formulation.
2.2.2 Literacy and education

Aligarh is called as the Mecca of education. It is a city of Uttar Pradesh that is held in high esteem for the educational and research purpose. The literacy level of Aligarh city according to 2011 Census was 70.36 per cent, it is lower than national average (74.04) and comparatively higher than state average (69.70) as well as district average (69.61). Women literacy is quite low in comparison to males because, women are generally confined to home and also colleges for girls are less in number (Table 2.3). But it is much better than state average of female. The literacy rate of Aligarh city was recorded at 63.9 per cent during 2001 Census. The regional variation of literacy rate in 1991 and 2001 shows that Aligarh city has much better place comparison to the district as well as state, but this literary rate nearly same in 2011. It indicates that in there are large number of rural influx towards Aligarh city.

<table>
<thead>
<tr>
<th>Region</th>
<th>1991</th>
<th>2001</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
</tr>
<tr>
<td>Aligarh city</td>
<td>60.19</td>
<td>45.02</td>
<td>53.91</td>
</tr>
<tr>
<td>Aligarh district</td>
<td>59.96</td>
<td>26.89</td>
<td>44.94</td>
</tr>
<tr>
<td>U.P.</td>
<td>54.82</td>
<td>24.37</td>
<td>40.71</td>
</tr>
<tr>
<td>India*</td>
<td>64.13</td>
<td>39.29</td>
<td>57.21</td>
</tr>
</tbody>
</table>

* In the 1991 Census, literacy rates exclude J & K where Census could not be conducted due to disturbed conditions.

Aligarh is among the most renowned education centres of Uttar Pradesh, because of the Aligarh Muslim University, which is located at the heart of the city. It is a residential academic institution having international repute and the Manglayatan University located on Iglas road, an emerging educational institution.

There are more than 40 schools, colleges and Institutions spread over across the city of national and international repute.
2.2.3 Economy

Aligarh has always been an important business centre as well as agricultural centre of Uttar Pradesh. It is famous for its lock industry and brassware industry, the processing of agricultural products and manufacturing are also important in the city. According to District Industries Centre (DIC) there would be more than 50000 lock and brassware units, in which only 1000 such units are registered. The locks produced in Aligarh city are exported all over the world and is of great demand everywhere. Aligarh city is well connected by country and other important cities of the country, therefore, it has developed into a commercial centre in an agricultural region which produces wheat, sugarcane, cotton, corn, barley and millet. In addition to lock industry, the other industries of Aligarh include flour milling, processing of raw cotton and manufacturing of butter and glass. It is also famous for its brass hardware and sculpture. At present, the city holds a number of manufacturers, exporters and supplies the brass, bronze, iron and aluminium units (Ahmad, 1996).

2.2.4 Culture

Aligarh is also famous for Annual Cultural Exhibition, popularly known as *Numaish* has come a long way since its inception in 1818, when it was called ‘Haat’. Later, it was renamed ‘Aligarh Exhibition’ and finally in 1952 it came to be known by its present name. *Numaish* is an integral part of Aligarh and its people as it not only gives an industrial platform to traders and manufacturers but also offers the residents an opportunity to have fun and frolic with the family and friends. At the time of exhibition, thousands of migrants came here and numbers of labourer including child labour are engaged in various sectors of economy. *Numaish*’s popularity is known by the fact that every year the exhibition receives approximately 60,000 to 70,000 visitors daily. There are about 60 stalls of varied industries and agricultural products along with 105 shops of handicrafts, apart from tea shops, toy shops and fast food shops, where children given their services (Ali, 2011).

2.2.5 Quality of life

Aligarh had shortfall of basic facilities like the other Indian town. Recently the problem of housing had become acute due to high rate of population growth (average household size 6 persons/house) in the city. City has poor infrastructural facilities both in-terms of quality and quantity. Because of bowl shaped topography, stagnant
pools and flooding of low-lying area is quite common, sewage and sanitation is mostly missing.

Apart from university areas and few new settlements, overall state of urban comfort is missing. Core of city (old part/areas) is densely congested having both commercial and residential use is too congested to live it. Greenery is inadequate in the city. Very less recreational areas and dense residential, commercial and industrial growth shows that the development of city is market driven. Separate township has been proposed to ease the burden on city infrastructure. High concentration of household industry in old areas has converted residential area to mixed use. The administration of the city has failed to relocate industrial sector to the site provided by the state government.

The city become insufficient in handling large volume of immigration (mostly unskilled labourers) increasing the housing demand leading to formation of slums. These migrants become the urban poor, who could not enjoy basic standard of living, therefore, the clustering of slums all over the city has resulted in an unbalanced growth.

2.3 Urban Land Use

Like other cities of India, Aligarh has a distinct demarcation between the old and new quarters. Delhi-Kolkata railway line broadly separates the old and the new parts of the city. The urban land use of Aligarh city shows that the city covers an area of about six thousand hectares of which only 67.48 per cent of the area is developed while rest of the area is undeveloped (Table 2.4). The urban land use pattern shows that there is no clear-cut demarcation between the land use patterns but the functions are mixed. The Aligarh Municipal Board was established in 1865 and the Aligarh Development Authority was formed in the year 1991. This has helped in bringing other developed areas and the municipal limits under the administrative control (Fig. 2.3).

The area which is still developed, the functional segregation has not been achieved although the process has started. Business activity has tended to segregate along busy traffic arteries and even along residential lanes. There are two educational areas. The area in the extreme north i.e. the university area and the other smaller one
extended in the east are having post graduate colleges. In most of the area industrial activity and business activity is mixed with both residential activity and business activity in various proportions. Some household industries are located in houses and piecemeal production is carried out in the houses extensively in the old/ancient and medieval parts of the city. There are exclusively residential areas, developed of late in the peripheral zones.

**Table: 2.4 Urban land use of Aligarh city 2001**

<table>
<thead>
<tr>
<th>Urban landuse 2000-2001</th>
<th>Area (in hectare)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>3625</td>
<td>77.87</td>
</tr>
<tr>
<td>Educational institutions</td>
<td>398</td>
<td>8.55</td>
</tr>
<tr>
<td>Commercial</td>
<td>186</td>
<td>4.00</td>
</tr>
<tr>
<td>Transport</td>
<td>169</td>
<td>3.60</td>
</tr>
<tr>
<td>Industrial areas</td>
<td>148</td>
<td>3.18</td>
</tr>
<tr>
<td>Recreational / govt. offices</td>
<td>86</td>
<td>1.42</td>
</tr>
<tr>
<td>Play grounds</td>
<td>27</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4654</strong></td>
<td><strong>67.48</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(b) Undeveloped land</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>2743</td>
<td>32.52</td>
</tr>
</tbody>
</table>

| Total                           | 6897              | 100.00     |

2.3.1 Industrial development

There has been rapid growth of industries in Aligarh city. The large number of industries occupies about 3.18 per cent of the total city. The city has concentration of both large and small scale industries. Among the various industries, lock industry is the largest manufacturing undertaken in the city and is famous all over the world. The industry provides employment to many people. Different types of lock are produced and they are sent to different cities and also exported to many countries, thus providing foreign exchange to the country. Besides lock industries, other industries are rolling mills, engineering industries, building fitting, electrical goods industries and chemical industries etc.
Table 2.5 Growth of industries in Aligarh city (1971-2001)

<table>
<thead>
<tr>
<th>Year</th>
<th>Small scale industries</th>
<th>Decadal growth</th>
<th>Large scale industries</th>
<th>Decadal growth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>No. of workers</td>
<td>(in per cent)</td>
<td>No.</td>
</tr>
<tr>
<td>1971</td>
<td>95</td>
<td>585</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
<td>1981</td>
<td>439</td>
<td>2851</td>
<td>362.10</td>
<td>11</td>
</tr>
<tr>
<td>1991</td>
<td>3316</td>
<td>9641</td>
<td>655.35</td>
<td>13</td>
</tr>
<tr>
<td>2001</td>
<td>5650</td>
<td>34132</td>
<td>700.38</td>
<td>34</td>
</tr>
</tbody>
</table>

Source: Compiled from Industrial Directory, DIC Aligarh.2007

Table 2.5 shows that since 1971, small scale industries have increased 60 times whereas large scale industries have increased by 4 times. Most of the industries of the small scale units like dairy, edible oil, sugar, cotton, textile, cotton ginning, glass wares, allied products, handloom and weaving, readymade garments, hosiery, confectionary, wax candles, goods, toy making, ayurvedic and unani medicines, clinical and industrial thermometers, cycles tires and tubes, leather goods, soap making, and brass wares industries etc have sprung up. Hazardous industries are situated in the heart of city. Lock industry is quite old and well established in Aligarh, but with the sprawling of city, these industries got residential right next to them. Uttar Pradesh Government provided a separated industrial township for these hazardous industries, but administration failed to move these industries out of the city.

At present this city is leading in the manufacture of simple locks used in doors, cycle locks, suitcase locks and locks used in scooters, motorcycles, cars and trucks etc. Some 0.2 million people are directly or indirectly associated with at least 5000 lock manufacturing units of Aligarh district. Out of which, 1683 lock industrial units are functioning in Aligarh city alone.
There are 7-10 large lock manufacturers, 30-35 medium and more than 1500 small manufacturers. In Aligarh city the main lock manufacturing is located in main industrial area (Fig. 2.4), while the small scale manufacturing industries are located randomly but cluster of industries are located all along the railway tract and centre of the city. In lock industries the work is divided into many sections like; polishing, filling soldering, hammering and packing. Polishing and filing appeared to be the most hazardous type of the work, 56.6 per cent workers reported of facing problem
due to polishing, 38.3 per cent by filling work and remaining 5 per cent by soldering hammering and packing. People in the lock factories are mostly engaged in polishing and fixing work and mechanical work.

Besides other hazardous work are buffing, hand press, assembling, electroplating and spray painting. They inhale dust and chemical from polishing unit, which leads to various health diseases like respiratory problems, problems related with shoulders, back, lower limbs. Besides these problems workers feel sleepy and stress.

2.3.2 Educational structure

Education is of utmost importance for the proper growth and development of the individuals. It not only shapes the life pattern and living but also helps in shaping, thinking, attitude and views of people. Aligarh city is the seat of learning and there are many schools and colleges. The Aligarh Muslim University, which was established in the year 1920, is a centrally administered university. A perusal of Table 2.6 shows that educational facilities in Aligarh city since 1971.

A marked difference can be observed between an educated and uneducated person. Education helps in understanding the various types of environmental problems. An educated person will have a better understanding of his surrounding environment and impact of environmental pollution on his own health. He is fully aware of the consequences of pollution of the environment.

Table: 2.6 Growth of educational facilities in Aligarh city (1971-2001)

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of primary schools</th>
<th>No. of junior secondary schools</th>
<th>No. of secondary matriculation</th>
<th>No. of Higher Sec.</th>
<th>No. of colleges/ Univ.</th>
<th>Total No.</th>
<th>Decadal increase/ decrease (In per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>67</td>
<td>4</td>
<td>9</td>
<td>3</td>
<td>2</td>
<td>85</td>
<td>-</td>
</tr>
<tr>
<td>1981</td>
<td>125</td>
<td>8</td>
<td>15</td>
<td>9</td>
<td>3</td>
<td>160</td>
<td>88.23</td>
</tr>
<tr>
<td>1991</td>
<td>151</td>
<td>14</td>
<td>18</td>
<td>11</td>
<td>4</td>
<td>198</td>
<td>23.75</td>
</tr>
<tr>
<td>2001</td>
<td>239</td>
<td>25</td>
<td>32</td>
<td>30</td>
<td>4</td>
<td>330</td>
<td>66.66</td>
</tr>
</tbody>
</table>

Source: Inspector of Schools, Aligarh (2007)
2.3.3 Residential Structure

Aligarh city is expanding very fast, it sprawled a lot during last three decades because of this many villages not absorbed in the city itself. People purchased huge chunks of land for residential purposes and now they have developed beautiful colonies on such lands. Nearly 77.89 per cent of total land of Aligarh city is used for residential purposes. Residential structure of the city can be broadly separated in to two - the eastern and the western part, with railway line making the divide. The eastern area consists of the old city, characterized by old houses, which are line with petty shops. East of the railway line comprises of new part, the Civil Lines area and the Aligarh Muslim University area. This is because the residential area of urban elite (Table 2.7). Elegant compact colonies with high quality spacious houses came up, but now it has become congested. Recent development is the construction of apartments all over the city.

Table: 2.7 Growth of residential structure in Aligarh city

<table>
<thead>
<tr>
<th>Years</th>
<th>No. of Houses</th>
<th>Decadal growth (in per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>32787</td>
<td>-</td>
</tr>
<tr>
<td>1981</td>
<td>46390</td>
<td>41.48</td>
</tr>
<tr>
<td>1991</td>
<td>54113</td>
<td>16.64</td>
</tr>
<tr>
<td>2001</td>
<td>132880</td>
<td>145.44</td>
</tr>
</tbody>
</table>

Source: Aligarh Development Authority, Aligarh (2007)

2.3.4 Occupational Structure of the City

Aligarh city is multi-occupational in nature ranging from unemployed to employed in good jobs. Majority of the peoples are engaged in business, ranging from small scale shops to large scale shops, followed by the professionals like electricians, mechanics etc. In the old walled city of Aligarh, people are engaged mostly in small scale industries like manufacturing of locks i.e. parts of lock. Iron and silver melting is generally performed in the mohallas of old city. Some acid processing and making factory is also found in this area and people of these mohallas suffer a lot of diseases due to their occupation.
People living in Civil Lines and northern part of the city and some other mohallas have a good occupational structure with Muslims in majority. They are mostly engaged in class one jobs as doctors, engineers, lawyers and teachers. Ladies of their families are also working on top posts of various govt. services. Their children are also studying in various professional courses. The core and central area of the city is dominated by the Business class peoples whom mostly Hindus belonging to higher caste. Sikhs, Baniyas and people belonging to other castes also involved in business and live there. Concentration of business activities in these areas is because it being the central business area. These businessmen are now shifting to the outskirts of the city because they want to go away from the congestion and pollution of the city. Their business remains here but they have shifted their residence to the fringe area where they are constructing palatial houses for themselves.

Aligarh city is famous for its industrial character too. The locks, paper and Unani product from Aligarh Tibbya College like Janam ghutti and Dimagheen are very famous all over India. These industries attract a large number of both un-skilled and skilled labourers. The city has a total population of 669087 (2001 Census), of which 54 per cent are in economically active age group, 25.9 per cent of the total population is workers (39 per cent in secondary sector, 59 per cent in tertiary sector).

Aligarh district is an agriculturally developed district where, agriculture activity is prime source of income. Moreover agricultural production is high as it lies in Ganga Yamuna plain. Regional agricultural Mandies or markets are present in Aligarh. Many important routes passes through Aligarh, this advantage makes Aligarh a transportational hub.

2.3.5 Transport

Roads are the most important and common mode of transportation because of its reliability, efficiency and mainly because it needs comparatively less expenditure than other alternatives. Roads network, therefore, influences the urban development of an area. Generally, people prefer to live near their work place. This is the reason why the main cities are term as pedestrian cities. As observed that the Indian cities are more pronounced along the roads, and these roads change the pattern of growth from circular to linear. Aligarh, being an industrial city has good transportation facilities both by road and rail. The city has a good network of connected, well-developed roads.
During the last three years the roads of Aligarh have improved tremendously. The main roads are all cemented and constructed by Bridge India Co. and most of the bi-lanes have also been developed and cemented by the municipality. The National Highway No. 1 or the Grand Trunk (G.T) road running between Amritsar to Kolkata...
passes through Aligarh. This road has acted as the most important agent helping in the development of the city (Fig. 2.5). Recently big factories and other industrial establishments have sprung along this road. There are many state highways which links different districts. There is a good network of roads within the city as well.

Land which is used for transportation covers over an area of 169 hectares, comprising about 36.00 per cent of the total land area of the city. Other roads inside the city are not in good shape and they are less wide, having no footpath, at some places roads are very narrow which results into traffic jams.

Most of these roads are having potholes, which creates problem especially in the rainy season. City population has almost increased three times and the city area has increased two times (from 1971-2001). Residential buildings have increased four times, educational building four times, hospital building six times, market nine times, small scale industries fifty nine times. Thus, the small city of Aligarh is no longer small as it has increased by leaps and bounds.

2.3.6 Commercial centres

Aligarh city has a good number of Commercial centres to cater to the requirements of the people. The city markets are always flooded in all seasons and these provide all the basic items. Both wholesales and retail markets are found.

The central business district of Aligarh encompasses Railway Road, Phaphala, Barahdvari and Abdul Karim Chauraha. Because of the commercial establishments, the price value of the land is very high. There is an amalgamation of both the wholesale and retail trade in this area. The by-lanes of the area have mushroomed with humming business activity. Certain areas of the city are famous for wholesale and retail goods. The important ones are Mamubhanja area for hardware items, electronics and electrical goods. Phapala for pharmaceuticals items, Dhanipur for Vegetables cereals, and Bans ki Mandi for bamboos, Baraduari for food items, Railway road for cloths, Delhi Gate for wood works, and Abdul Karim Chauraha for brass ware.
Table 2.8 Growth of commercial centres in Aligarh city (1971-2001)

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Commercial Centres</th>
<th>Decadal growth (in per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>1981</td>
<td>21</td>
<td>110.00</td>
</tr>
<tr>
<td>1991</td>
<td>35</td>
<td>66.66</td>
</tr>
<tr>
<td>2001</td>
<td>90</td>
<td>157.14</td>
</tr>
</tbody>
</table>

Source: Deputy Regional Marketing Centres, Aligarh (2007)

Table 2.8 shows the growth of commercial/marketing facilities. In Aligarh city since 1971 marketing facilities increased from 10 to 90 in 2001 and many more marketing complexes are under construction. Thus an overall 800 per cent increased from the year 1971-2001. In due course of time, the spread of markets has also acquired greater dimension. The frequent occurrence of communal riots of Aligarh has also played a vital role in segregating the market centres. Every *mohalla* has a market like Jamalpur, Shamshad, Dodhpur, Amir Nishan, Kela Nagar, Jeevargarh, Centre Point and Ramghat road etc. are all the newly developed market centres.

2.4 Morphology of the City

The Aligarh city lies in the central low lying part of the district, its expanse is approximately 9 km in north-south and 6 km in east-west, the roads radiate in all direction from the city centre. Recent urban sprawl is taking place along the roads. The city has been divided into seventy municipal wards. The growth of the city had been in a concentric pattern due to labour accessibility. There is now major change in this trend, due to resent advancement in transportation and communication facilities a linear corridor growth has been induced along the major roads (Ahmad, 1996).

The city witnessed three marked passes and the similar number of pockets of the growth. The south-eastern and southern parts of the city around Achal Taal belong to the historical antiquity of more than one thousand years. The earliest settlement is dominated by Hindu population. The onset of Muslims in India paved the way for
settlement of Muslim in the Upper Kot area during medieval period (1200 – 1900 AD). With the British supremacy, a separate Civil Lines area was developed on the eastern side of the main railway track. This is a post 19th century phenomenon. Later on, establishment of Aligarh Muslim University and recent commercial growth has paved way to the fringe area development. However, the south-eastern and south-western parts of the city have seen most of the expansion and increase in population density (Ahmad, 1965).

The city is famous for its lock industry which has remained a small – scale labour intensive enterprise. Other industries of significance are metallurgical, building filling material, iron foundries, electrical goods, brass works, readymade garments etc. the agro – based industries also booming up.

2.4.1 Upper kot area / old part of the city

The growth pattern and consequent morphological components of Aligarh city are rather distinct and are woven around the Upper Kot (Balai Quila), which historically and textually represents the core and centre of the city. For most of its medieval history it was a walled city with gates (Turkman gate, Madar gate, Delhi gate) opening towards Delhi, Agra, Budaun etc. The antiquity of sequential occupation, contained within the wall has produced a high level of congestion and very high population density. With the passage of time vertical growth took place and most of the buildings became two to three stories high. Larger mansions were compartmentalized adding to residential congestion. The congested and overcrowded houses and areas, with the framework of narrow circular lanes, by lanes and blind alleys speak of age and territorial constraints. The mohallas are separated by very narrow lanes. These are just broad enough to allow access to pedestrians and rickshaws. Its choked with traffic in the day time, with labourers pushing hand carts and rickshaws piled high with goods sent to other mohallas for processing, assembling and packaging. All mohallas have shops, household manufacturing units, factories and residences, but retail and wholesale outlets are concentrated on the main roads leading in and out of the city (Ahmad, 1965).

This area acquired its basic form in the medieval period and is continuing. Generally concentric but occasionally sectoral growth has taken place in this area.
Fact is that the numerous sarais (inns), which were lying outside the city, along the roads leading to the city have become full- fledged mohallas and were drawn into the city matrix. Mohallas with pre-fix sarai like Rahman, Hakim, Qazi Kaba, Qutub, Mansingh, Virandhavan, Narottam and Mian are all known as sarais. Upper Kot area is largely inhabited by Muslim working class and middle class people. Some of the families trace their history to the medieval period and represents the social elite of the area. Industry and trade has improved the well being of a section of the people. Households industries like lock, dyes, biscuit, mutry, building fitting etc. which are polluting the environment.

2.4.2 Achal Tal area / old part of the city

East of the pre- Christian and medieval zone in the ancient area, dating back to the tenth century, there are few remains here of that period except Achal Tal of masonry and the Achaleshwar temple. This is a site inhabited predominantly by Hindus. In later period development of this area took between the Manik Chowk and Madar Gate which have whole sale markets (Aziz, 1989).

2.4.3 Civil line area / new part of the city

This area was developed by the British during the nineteenth century. It has much enlarged now. It is characterized by almost complete segregation from the first and second area. Its remoteness from earlier areas of ancient and medieval settlements speaks of the British intentions of keeping a distance from commoners and from the people to be governed. Development of the railway line in the later half of the nineteenth century, dividing the city into a western and eastern half, made the segregation of this area more pronounced. This segregation however was overwhelmed by the post independence of the city (Nevill, 1909).

The principal lines of development were along the Marris road, University road, Anop Shahar road, Ramghat road and The Russel Ganj (now Rasalganj). The growth of this zone has a linear north-south bias. All the aforesaid roads have a north-south trend and seem to have been oriented with reference to the railway station. British people were fond of town planning and laying straight broad roads and well architected buildings. Clock tower, Government Press, Church and the Collectorate bear the imprints of British period. The civil lines houses, Aligarh Muslim University
campus, the main government offices such as the law court, the main post office, the railway station and residences of the ex- zamindars elite and wealthier businessmen. In the west lies the Industrial Estate which harbours factories and Government Offices dealing with industrial development, such as the District Industrial Centre (DIC) and Small Scale Industrial Centre (SSCI). This area is sparsely built up having large spacious houses with lawns in front and kitchen gardens in the backyard. It presents a refreshing contrast to the congested and dilapidated areas of old city. Gradually this part is also getting congested.

2.4.4 Peripheral / ring area

Lastly, is the most recently developed area of the city lying in the peripheral ring. They do not make a well - demarcated zone but appears in the form of small clusters that have developed in the post independence period. Most of them are residential but some are industrial areas. These areas are well laid out on rectangular patterns. Many of these areas were till recent past villages; well outside the city limits and its infrastructure not well developed but then the sprawling city swapped their lands and occupations. Villages like Kishanpur, Dodhpur, Begpur, Jamalpur, Bhamola, Nagla Baraula etc. witnessed in mute silence their transformation. New industrial and residential colonies have developed, many of them, like Industrial colony, Loco, Medical, Begpur, Kaila Nagar, Dodhpur and Janakpuri colonies. These have developed on the northern circumference of the city, where as in the south, Jawalapuri, Mahindra Nagar, Saheb Singh Nagar and Nagala Masani Colonies were developed (Aziz, 1989).

2.4.5 Ward — wise density of population and literacy

It is pointed out that there is a close relationship between the nature of social structure, population density and quality of life of the people. The important consideration here is, to visualize the density of population as an inhibiting factor for the social group living in a particular city.

The spatial pattern of the density of population in Aligarh city on the basis of data obtained from the Municipal Corporation of Aligarh is shown in Fig. 2.6, the figure depicts five categories ranging from very low (less than 10,000 persons / sq.km.) to very high density (more than 40,000 persons/sq.km.). The large variation
entails significant ward-wise differences in the open space availability, built-up density and the consequent congestion. The city structure comprises of following features.

- The ward-wise percentage population to the total, ranges between 0.66 per cent in Sarai Lavaria (ward no. 4) to 1.64 per cent in Indra Gandhi Khair Road (ward no. 1). in the year 2001(Appendix-II).
- Out of the seventy wards fifty two wards have either pre-dominated Hindu or Muslim population comprising more than 80 per cent of the total population of the pre-dominated community.
- Remaining twenty two wards represent a secular distribution of the inhabitants ranging between 20 to 80 per cent.
- The areal extent of wards varies in a disproportionate way. It varies between 0.084 sq. km for Kala Mahal and Baniya Para (ward no. 38 and 70) to 1.97 sq. km for Medical College (ward no. 58) (Appendix-II). Thus a varying pattern of density of population merges.
- The distribution of population density reveals a concentric pattern. It would be pertinent to examine the relevance of population density in the people’s life. It is appropriate to justify the density of population as a negative factor in determining the overall quality of life of city dwellers because,
  - Higher density signifies overcrowding and congestion and higher pressure on community resources and municipal facilities i.e. a situation of over-population.
  - Congestion pattern of housing and street system.
  - Higher literacy rate are found in new part of the city, where as south western part has low literacy rate (Fig. 2.7). Some wards in southern portion has also found with high literacy rate.

The old city area of Aligarh records highest density due to long history of settlement. This part of the city carries pre-British imprint of the society. The high density situation indicates that early inhabitants had a propensity to cluster together due to strategic and security reasons. The lower density wards found in the eastern part of the city is popularly known as the Civil Lines. The important feature of these wards is that they have most of the government offices and the Aligarh Muslim University.
The new rich and educated class Muslims and Hindus prefer to inhibit in this part of the city. The average size of the wards is very large in comparison to the old city and density is very low.

Fig. 2.6
Fig. 2.7

Sources: Census of India, 2001
Nagar Nigam, Aligarh, 2009
2.4.6 Religious Composition of the Population

The Aligarh city characterised spatial distribution of Hindus and Muslims population, the distribution is more or less sectoral in nature. The wards having majority of Hindus are mainly found in the eastern, north-western and southern parts. There is one wedge of mixed population wards in the north of the city. The central part of the city has mixed population. The tendency of the separate communal enclaves has become pronounced during the British period. The newer Muslim settlement in the Civil Lines has been developing around Aligarh Muslim University. These Muslims are educated and economically well-off. They constitute intellectual, technical, managerial and specialized work force of the university teachers, doctors, engineers and professionals etc.

The population of Hindu generally in the eastern and southern part of the city is business community. Practitioners of law, medicine as well as bank employers are also noticeable. Muslims vis-a-vis Hindus lack such a powerful economic class which is compensated by a Muslim intellectual enclave here due to Aligarh Muslim University. The high income Hindus wards are found around Marris Road, Centre Point and Ramghat Road areas. This zone is emerging a new Central Business District (CBD). The old CBD had been the Railway road and Baradwari of the old city. Still, this area is humming with commercial activities.

There are as many as twenty nine wards of Hindus constitute more than 80 per cent of the total population. On the other hand a total number of twenty one wards have more than 80 per cent Muslim population. Six wards report 60-80 per cent of Muslim population. There are five wards having 60-80 per cent of Hindu population. Nine wards report mixed population having 40-60 per cent of either community. Hence the social segregation of the religious population is closely associated with the geographical segregation through ward boundaries in Aligarh city.

Concluding Remarks

Aligarh is one of the important town of western utter Pradesh, located at 27°53' N latitude and 78°4' E longitude. The city is divided into 70 wards which spread over 158 Mohallas and covers an area of 38.29 sq. km. According to 2011 Census of India, the total population of the Aligarh city was estimated as 0.87 million with literacy level 70.36 per cent, women literacy is quite low in comparison to males.
Aligarh city is an educational centre as well as a trading centre and famous for its renowned university (Aligarh Muslim University), numaish (exhibition) and the lock industry. The city has more than 5,000 industrial units involved in the manufacturing of locks, brass-ware, brass-fittings, brass-sculptures, plastic and iron toy pistols, handicrafts, art ware, iron-bronze-zinc products, thermometer, glass etc. It is multi-occupational in nature ranging from unemployed to employ in good jobs. Majority of the peoples are engaged in business, ranging from small scale shops to large scale shops, followed by the professionals like electricians, mechanics etc. the city is divided into two part old or central part and new part or line area. The core and central area of the city dominated by the Business class peoples are mostly Hindus belonging to higher caste. People living in Civil Lines and northern part of the city and some other mohallas have a good occupational structure and has Muslims in majority. They are mostly engaged in class one jobs as doctors, engineers, lawyers and teachers.
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