Chapter 2

A REGIONAL PROFILE

This chapter gives a brief description of the physical, demographic and economic profile of the National Capital Territory of Delhi. This background information is provided to understand the processes which have led to the structural changes in the peri-urban settlements which have been studied extensively in the following chapters.

2.1 Location and extent

National Capital territory of Delhi forms a part of Indo-Gangetic alluvial plain and covers an area of 1483 sq. kms. It lies between 28° 24' 17'' and 28° 53' 00'' North latitude and 76° 50' 24'' and 77° 20' 37'' East longitude. It is surrounded by the state of Haryana on the north, west and south (Sonepat, Rohtak, Gurgaon and Faridabad districts) and by Uttar Pradesh (map 2.1) on the east (Meerut, Ghaziabad and Budh Vihar districts). Its maximum length in the north south and breadth in the east west direction is 51.90 and 48.48 kilometres respectively. Delhi's altitude ranges between 198 metres near Jaitpur to 318 metres near Bhati above mean sea level. The general slope of the land is from west to east. In trans-Yamuna area, the slope is from north to south while in the south, it is from east to west.

2.2 Administrative divisions

Administratively, Delhi is divided into two tehsils i.e. Delhi and Mehrauli and five community development blocks of Alipur, Kanjhawala, Najafgarh, Mehrauli and Shahdara. As per 1991 census, it comprises of 209 villages (map 2.2), out of which 199 are inhabited while remaining 10 are uninhabited. Najafgarh community block has the maximum number of 65 inhabited villages followed by Alipur block, which has 50 villages. The villages in Kanjhawala (39), Shahdara (23) and Mehrauli (22) blocks are fewer. Besides, National Capital Territory of Delhi has three statutory and 29 census towns. Out of 29 statutory towns, 23 are included in the urban agglomeration on account of its contiguity with the Municipal Corporation limits while 6 remain outside the urban agglomerations.
LOCATION
NATIONAL CAPITAL TERRITORY OF DELHI
In 1996, Govt. of National Capital Territory of Delhi made changes in its administrative set up and divided the whole territory into 9 districts viz. East, North-east, North, North-west, West, South-west, South, New Delhi and Central Delhi each to be headed by Deputy Commissioners. Each district is further divided into three sub-divisions.

However, in the present study, the old administrative set up is used, as the secondary data mainly of census is available as per the old administrative set up.

2.3 Physical profile

2.3.1 Physiography, relief and drainage

National capital territory of Delhi can be divided into five macro physiographic units:

i) Active alluvial plain
ii) Recent alluvial plain
ii) Old alluvial plain
iv) Piedmont plain
v) Ridge and hillocks

i) Active alluvial plain

This is an area along the meanders of the river Yamuna (map 2.3). The altitude ranges from 198 metres in the southern most part to 210 metres in the extreme north along the river. During rainy season, the floodwater inundates this region. The river deposits the loose material along its extended bank forming the levees. After the floods, the moisture in the soil lasts for quite sometimes. The embankment along this area has been constructed to control the spill over of floods to the adjoining areas.

ii) Recent alluvial plain

In the north, this region lies between east of northern railway line and the active alluvial plain of the Yamuna River. The slope of the area is very gentle. During heavy rains, this area is flooded with water. Being the area poorly drained, water stagnates at many places even after the floods. Remnants of left out river channels, low lying area near the Bhalswa and the river receding towards eastern side shows that once river was flowing through this area. The cumulative flow from the old alluvial plain and backwash from the excess flow of Yamuna puts the area in floods.
NCT DELHI
PHYSIOGRAPHIC DIVISIONS

LEGEND
1. Active Alluvial plain
2. Recent Alluvial Plain
3. Old Alluvial Plain
4. Piedmont
5. Ridge and Dissected Hillocks

State Boundary
Drainage
Physiography Unit
In the south, the recent alluvial plain is a narrow belt that lies between active alluvial
plain along the Yamuna River and the central railway line. Unlike northern recent alluvial
plain, this is moderately well drained and water does not stagnate for long after the rains.
This area is flooded with backwash of the river Yamuna. The water table is fairly high in
the recent alluvial plain that facilitates irrigation from wells and tube wells.

iii) Old alluvial plain

Areas west of northern railway line separate this region from the recent alluvial plain in
the north and in the southwest central railway line separates it from the piedmont plain of
the Aravali ridge. Water table is lower than the recent alluvial plain. On the basis of the
drainage this plain can be divided into two parts:

a) Kanjhawala plain
b) Najafgarh plain

a) Kanjhawala plain

The average height of the plain is 215 metres above sea level. The general slope of the
area which is very gentle (1-3 percent) runs from west to east direction. This is
moderately well drained region. Mungeshpur drain, the important drainage channel flows
through this area and enters Haryana near Nijampur Rasidpur. After flowing some
distance in Bahadurgarh area of Haryana, this drain re-enters Delhi near Jharoda Kalan in
Najafgarh plain and flows in the Southeast direction and ultimately enters in Najafgarh
drain. The water table is comparatively lower in the Kanjhawala old alluvial plain than
the recent alluvial plain. The western Yamuna canal that traverses through this area
provides partial irrigation facility for agriculture.

b) Najafgarh plain

It is moderate to poorly drained plain and has concave slope at many places. Slope being
nearly level (1-2 percent), rainwater is not drained properly and as a result, water logging
takes place at number of places. There is a depression near Najafgarh Township where
drainage coming from the adjoining piedmont plain and ridge in the east and from
Haryana plain in the west accumulates during rainy season. Najafgarh drain is the main
drain in the area, which enters Delhi near Dhansa (map 2.4). It flows west to east
direction till Badosra where it takes turn towards north and passing near the areas of Dhul
Siras, Chawala, Qutabpur, Goela Khurd and Kakrola reaches near Bapraula. From here, it
tapers slowly towards Northeast direction and flows through northern area of Delhi City before it falls into river Yamuna near Wazirabad. The diversion of Sahibi Nadi and silting up of the tributary depression has contributed to the reduction of the area liable to floods. As a result, water table has gone down rapidly and present ground water depth in the area is lower than the Kanjhawala plain. Poor quality of irrigation water that is the result of over drawl of water resources and poor drainage system has increased salinity of the soils.

iv) Piedmont plain

Piedmont is formed by the Aravalli ridge in different locations. Major part of the piedmont is a triangular shaped feature encircled by the ridge from all sides. The north apex of the triangular piedmont ends up near Masudpur where one flank of the Aravalli coming from Mehrauli direction and the other from Ayanagar along the Gurgaon border merges. In the south, it covers central part of the southern most extension of the area and includes the areas of Ghatormi, Chandanhola, Fatehpur Beri, Rajpur Khurd and Masudpur. Water table in this unit is very low. The drainage channels coming from the Aravalli ridge ends up in this zone. Earlier, water used to be stored in the ponds for irrigation. Second part of the piedmont is formed on the east and west sides of the ridge forming boundary with Najafgarh plain in the west and recent alluvial plain in the east. In the west Rajokri, Kapas Hera, Mahipal Pur, Rangpuri, Nangal Dewat, Sahajahanpur Kotla, Naraina, Shadipur, Sarai Rohila, Karol Bagh, Sadar Bazar and Delhi university areas are covered; while on the east, Okhla, Tughlakabad, Chirag Delhi Hauz Rani, Katwaria Sarai, Adchini, Zia Sarai, Hauz Khas, Mohmmandpur and Safdarjung are covered under this physiographic unit.

v) Ridge and hillocks

Ridge is an important feature of Delhi, which plays an important role in maintaining the environment of ever-growing urban Delhi. This is a spur of Mewar branch of Aravallis. It enters the territory from the south and moves to northeasterly direction. The highest point of ridge lies near Bhati that has a height of 318 metres above mean sea level. Tughlakabad fort is located on one of the highest spins of the ridge. A branch of ridge separates itself from the main trunk near Bhati and extends in the north easterly direction upto Arangpur, where it turns to the Northwest till it rejoins the main ridge in a sweeping
curve. Apart from the main branch, there are number of flanking spurs adding to the complexity of topography. It has a number of intervening valleys. Due to the inadequacy of water and rocky nature of terrain, the ridge is generally bare of vegetation. However, it supports some stunted trees of *Acacia arabica* (Kikar), *Capparis phyalla* (Karil), Thorny bushes and *Bushes of Zizyphus nummularia* (Ber) and hardy varieties of trees. Quarrying used to be conducted in the ridge area and as a result many deep pits have been created which act as reservoir of water and attract animals and birds.

### 2.3.2 River system

The Yamuna, one of the ancient water courses of north India, forms the chief drainage channel of the Territory. The river enters the Territory North of Palla village, at an altitude of 210 metres above MSL and leaves it near Jaitpur below Okhla at an altitude of 198 metres. Its course, within the limits of Delhi, extends roughly over 51 kilometres. During rainy season it extends considerably in breadth, swelling in places to several kilometres. The maximum depth in this season is about 25 feet and discharge at Okhla is above 41000 cusecs. In dry weather, however, river narrows down in breadth, the maximum depth dwindles to 4 feet and discharge to less than 200 cusecs. The river is flanked by low sandy banks on both side and flows over the bed of riverain sand, though firm rock has been detected in the bed at Okhla weins. The banks of the river have been strengthened by embankments.

Yamuna has a long history of floods, which are mainly caused by heavy rainfall in the catchment area. The tendency to flooding is aided by the inadequate capacity of the river to carry the full flood discharge and flat nature of the area of its course. During heavy flow, the river encroaches upon cultivated land of active and recent flood plain on either side. Adjacent villages get flooded and much havoc to the life and property is caused. The floods are generally confined on the left bank between the river and the eastern Yamuna canal and on the right bank between the river and the northern railway line.

### 2.3.3 Ground water

The ground water resources of Delhi are limited and their utilisation for irrigation on large scale does not seem to be possible as the level of the ground water is falling rapidly. The problem is more acute in south and Southwest Delhi where the level has fallen in the
range of 20-30 metres. Furthermore, chemical tests have indicated that except for few isolated wells, under ground water in Delhi is not fit for drinking and irrigation. In spatial terms, salinity in water has variable intensity in Delhi. In the areas west of ridge comprising the blocks of Najafgarh, Kanjhawala, part of Alipur and Mehrauli, the salinity of ground water generally increases towards Southwest and Northwest direction being fairly high in areas around Dhansa, Raota in Southwest and Auchandi, Kanjhawala and Tikri Kalan in the Northwest (NCRPB 1999)\(^1\). High nitrate concentration is present at several locations. High level of nitrate concentration in shallow ground water could be due to leaching from solid wastes, discharge from sewage water etc. The ground water in the vicinity of the landfill in Yamuna flood plains also has high nitrate concentration. Similarly, fluoride and other harmful chemical concentration beyond permissible limits are observed in the ground water at several locations in Delhi.

2.3.4 Geology

The Litholoy controls the physiographic features in Delhi and structure of Alwar series of rocks i.e. Alwar or Delhi Quartzite. The historic ridge of Delhi is the most northerly prolongation of Alwar series. It is hard quartzites that are resistant to erosion. The bedding of the quartzites are inclined at moderate to steep angles (40-90 approximately) The nature of quartzite strata suggest the occurrence of large-scale folds which are overturned. The greater width of ridges south of Delhi is likely to be due to the increase in the number of folds, which repeats the quartzite strata. The quartzite, which constitute the plateau south of Tughlakabad, indicate a general North- south to north east -south west strike and moderate to steep dip of strata. However, dip may be irregular and nearly east west strike may be observed. Although, the plateau appears to be flat tableland it is actually very uneven in detail.

**Delhi quartzite**

The Delhi quartzites are white, pale grey or pale pinkish in colour, more or less streaked and mottled with brown and reddish tints due to the grains of iron oxide and the oxidised pyrite grain they contain.
**Pagmatites**

In several localities thick pagmatites occur; these rocks consist of white kaolinised feldspar, biotite, a little quartz and very scanty tourmaline.

**Quaternary Deposits**

The Quaternary deposits laid on the Delhi quartzites consists of terrestrial material such as alluvium, grit and gravel deposited by running water and sand deposited by wind action. These deposits are of two type i.e. recent and old deposits. The old deposits have well defined soil horizons while the recent deposits have not.

**Mineral Wealth**

Except of building and road making materials and some china clay deposits, Delhi has no other minerals of economic importance. The Delhi quartzite rocks available on the ridge used to provide inexhaustible supply of building and road making materials. The rocks are extensively quarried at Paharganj, Kalkaji, Jhandewalan, Rohtak road, Mehrauli Okhla and more recently in Bhati mines, Rangpuri and other places. However, in order to protect the Ridge from the environmental degradation, Supreme Court of India has banned quarrying in Delhi.

Another mineral available in Delhi is Kankar. It occurs both at the surface and at shallow depths. Beds of kankar are generally exposed near the surfaces in the stream sections in hilly areas. A reddish gravelly kankar, locally known as bajri is often found in the beds of such streams and are generally used for surfacing local roads. Kankar had been extensively used for making lime in the past.

Kaolin is used as the principal raw material for refractory industries and fine clay for brick manufacture and chinaware. The china clay mines are located in southern parts of Delhi. Delhi is famous for the craftsmanship of blue vases. Some quantity of china clay produced used to be supplied to neighbouring places like Faridabad and Ghaziabad.

**2.3.5 Climate**

The climate of Delhi is influenced by its inland position in the sub-tropical zone. Extreme dryness with intensely hot summer and cold winter is the characteristics of the climate.
Mean daily max.temp.

<table>
<thead>
<tr>
<th>Month</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
<th>Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.3</td>
<td>23.6</td>
<td>30.2</td>
<td>36.2</td>
<td>40.5</td>
<td>39.9</td>
<td>35.3</td>
<td>33.7</td>
<td>34.1</td>
<td>33.1</td>
<td>28.7</td>
<td>23.4</td>
<td>31.7</td>
<td></td>
</tr>
<tr>
<td>7.3</td>
<td>10.1</td>
<td>15.1</td>
<td>20</td>
<td>26.6</td>
<td>28.7</td>
<td>27.2</td>
<td>26.1</td>
<td>24.6</td>
<td>18.7</td>
<td>11.8</td>
<td>8</td>
<td>18.8</td>
<td></td>
</tr>
<tr>
<td>29.4</td>
<td>33.3</td>
<td>40.6</td>
<td>45.6</td>
<td>47.2</td>
<td>46.7</td>
<td>45</td>
<td>40.6</td>
<td>40.6</td>
<td>39.4</td>
<td>35</td>
<td>28.9</td>
<td>35.5</td>
<td></td>
</tr>
<tr>
<td>-0.6</td>
<td>1.7</td>
<td>4.4</td>
<td>10.7</td>
<td>17</td>
<td>18.9</td>
<td>21.4</td>
<td>21.2</td>
<td>17.6</td>
<td>9.4</td>
<td>3.9</td>
<td>1.1</td>
<td>21.7</td>
<td></td>
</tr>
<tr>
<td>72</td>
<td>59</td>
<td>47</td>
<td>32</td>
<td>31</td>
<td>48</td>
<td>73</td>
<td>77</td>
<td>70</td>
<td>54</td>
<td>48</td>
<td>63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>28</td>
<td>21</td>
<td>16</td>
<td>18</td>
<td>32</td>
<td>60</td>
<td>65</td>
<td>54</td>
<td>35</td>
<td>31</td>
<td>38</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2.1

NCT Delhi

Temperature and relative humidity

Safdarjang observatory

<table>
<thead>
<tr>
<th>Month</th>
<th>Mean daily max.temp.</th>
<th>Mean daily min.temp.</th>
<th>Highest max. ever recorded</th>
<th>Highest min. ever recorded</th>
<th>Relative humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>°C</td>
<td>°C</td>
<td>°C</td>
<td>Date</td>
<td>°C</td>
<td>Date</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0830</td>
</tr>
<tr>
<td>January</td>
<td>21.3</td>
<td>7.3</td>
<td>29.4</td>
<td>24/1/1946</td>
<td>0.6</td>
</tr>
<tr>
<td>February</td>
<td>23.6</td>
<td>10.1</td>
<td>33.3</td>
<td>26/2/1934</td>
<td>1.7</td>
</tr>
<tr>
<td>March</td>
<td>30.2</td>
<td>15.1</td>
<td>40.6</td>
<td>31/3/1945</td>
<td>4.4</td>
</tr>
<tr>
<td>April</td>
<td>36.2</td>
<td>20</td>
<td>45.6</td>
<td>29/4/1941</td>
<td>10.7</td>
</tr>
<tr>
<td>May</td>
<td>40.5</td>
<td>26.6</td>
<td>47.2</td>
<td>29/5/1944</td>
<td>17</td>
</tr>
<tr>
<td>June</td>
<td>39.9</td>
<td>28.7</td>
<td>46.7</td>
<td>17/6/1944</td>
<td>18.9</td>
</tr>
<tr>
<td>July</td>
<td>35.3</td>
<td>27.2</td>
<td>45</td>
<td>01/7/1931</td>
<td>21.4</td>
</tr>
<tr>
<td>August</td>
<td>33.7</td>
<td>26.1</td>
<td>40</td>
<td>12/8/1945</td>
<td>21.2</td>
</tr>
<tr>
<td>September</td>
<td>34.1</td>
<td>24.6</td>
<td>40.6</td>
<td>16/9/1938</td>
<td>17.6</td>
</tr>
<tr>
<td>October</td>
<td>33.1</td>
<td>18.7</td>
<td>39.4</td>
<td>17/10/1951</td>
<td>9.4</td>
</tr>
<tr>
<td>November</td>
<td>28.7</td>
<td>11.8</td>
<td>35</td>
<td>05/11/1943</td>
<td>3.9</td>
</tr>
<tr>
<td>December</td>
<td>23.4</td>
<td>8</td>
<td>28.9</td>
<td>15/12/1959</td>
<td>1.1</td>
</tr>
<tr>
<td>Annual</td>
<td>31.7</td>
<td>18.8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Hours Ist  Source: India Meteorological Department, New Delhi

The year can broadly be divided into four seasons. The cold season starts towards late half of November when both day and night temperature drop rapidly with the advance of the season. January is the coldest month with mean monthly temperature at 21.3°C and mean daily minimum temperature at 7.3°C (Table 2.1). In the winter months, minimum temperature sometimes goes down to the freezing point during the cold waves in the wake of western disturbances. May and June are the hottest months. From about the middle of March, temperature begins to rise fairly rapidly.

From April, the hot wind locally known as 'loo' blows and the weather become unpleasant. In May and June, maximum temperature sometimes reaches 47°C.

With the incoming of the monsoon in the area at the end of June or beginning of July, day temperature drops appreciably. The monsoon continues to the last week of September. Two post monsoon months, October and November constitute a transition period from the monsoon to the winter conditions.

The average annual rainfall in Delhi is 611.8 mm. (Table 2.2). The rainfall increases from the Southwest to the Northeast. About 80 percent of the annual rainfall is received in the month of July, August, and September. Rest of the rainfall is received as winter rains.
### Table 2.2

**NCT Delhi**

**Distribution of rainfall**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chandralal</td>
<td>20</td>
<td>a</td>
<td>8.5</td>
<td>15.3</td>
<td>16.7</td>
<td>5.5</td>
<td>18</td>
<td>47.6</td>
<td>329.8</td>
<td>308.4</td>
<td>102.3</td>
<td>14.4</td>
<td>8.2</td>
<td>11.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>0.6</td>
<td>1.2</td>
<td>1.2</td>
<td>0.5</td>
<td>1.5</td>
<td>2.2</td>
<td>10.4</td>
<td>10.4</td>
<td>3.9</td>
<td>0.9</td>
<td>0.2</td>
<td>0.8</td>
</tr>
<tr>
<td>New Delhi</td>
<td>20</td>
<td>a</td>
<td>20.5</td>
<td>20.1</td>
<td>13.3</td>
<td>7.8</td>
<td>13</td>
<td>62.2</td>
<td>203.2</td>
<td>202.2</td>
<td>137.6</td>
<td>21.7</td>
<td>3.1</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>1.8</td>
<td>1.5</td>
<td>1.2</td>
<td>0.8</td>
<td>1.4</td>
<td>3.6</td>
<td>9.2</td>
<td>9.5</td>
<td>5.1</td>
<td>1</td>
<td>0.2</td>
<td>0.7</td>
</tr>
<tr>
<td>Delhi University</td>
<td>29</td>
<td>a</td>
<td>20.7</td>
<td>18.3</td>
<td>19.1</td>
<td>5.1</td>
<td>16</td>
<td>62.6</td>
<td>281.5</td>
<td>263.5</td>
<td>147.4</td>
<td>41.6</td>
<td>4.1</td>
<td>7.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>1.6</td>
<td>1.4</td>
<td>1.5</td>
<td>0.7</td>
<td>1.5</td>
<td>2.8</td>
<td>10.3</td>
<td>10.5</td>
<td>5.2</td>
<td>1.6</td>
<td>0.2</td>
<td>0.8</td>
</tr>
<tr>
<td>New Delhi</td>
<td>22</td>
<td>a</td>
<td>14.7</td>
<td>14.1</td>
<td>9.3</td>
<td>6.1</td>
<td>19</td>
<td>54.2</td>
<td>241.4</td>
<td>284.3</td>
<td>119.4</td>
<td>16.8</td>
<td>6.4</td>
<td>8.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>1.3</td>
<td>1.5</td>
<td>1. 0</td>
<td>0.6</td>
<td>1.5</td>
<td>3.5</td>
<td>10.9</td>
<td>10.7</td>
<td>4.9</td>
<td>1.4</td>
<td>0.2</td>
<td>0.8</td>
</tr>
<tr>
<td>Okhla</td>
<td>21</td>
<td>a</td>
<td>9.6</td>
<td>11.9</td>
<td>14.7</td>
<td>2.6</td>
<td>17</td>
<td>66.9</td>
<td>212.5</td>
<td>296.3</td>
<td>124.6</td>
<td>23.2</td>
<td>5.7</td>
<td>7.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>0.9</td>
<td>1.3</td>
<td>0.9</td>
<td>0.3</td>
<td>1.4</td>
<td>3.4</td>
<td>9.3</td>
<td>9.7</td>
<td>5.1</td>
<td>0.9</td>
<td>0.3</td>
<td>0.6</td>
</tr>
<tr>
<td>Mehrauli</td>
<td>33</td>
<td>a</td>
<td>13.9</td>
<td>10.1</td>
<td>7.3</td>
<td>9.4</td>
<td>3.6</td>
<td>28.3</td>
<td>139.9</td>
<td>152.5</td>
<td>98.7</td>
<td>11.5</td>
<td>1.5</td>
<td>2.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>1.1</td>
<td>0.7</td>
<td>0.6</td>
<td>0.6</td>
<td>0.3</td>
<td>1.5</td>
<td>5.8</td>
<td>5.9</td>
<td>3</td>
<td>0.3</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>Delhi Sadar</td>
<td>38</td>
<td>a</td>
<td>22.6</td>
<td>17.5</td>
<td>13</td>
<td>8.8</td>
<td>9.6</td>
<td>44.8</td>
<td>184.3</td>
<td>180</td>
<td>132.2</td>
<td>26.1</td>
<td>3.5</td>
<td>5.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>1.9</td>
<td>1.4</td>
<td>1.4</td>
<td>0.6</td>
<td>0.9</td>
<td>2.4</td>
<td>7.6</td>
<td>8.9</td>
<td>4.7</td>
<td>1</td>
<td>0.3</td>
<td>0.6</td>
</tr>
<tr>
<td>Nangloi</td>
<td>25</td>
<td>a</td>
<td>8.5</td>
<td>4.6</td>
<td>1.1</td>
<td>4</td>
<td>2.4</td>
<td>19.8</td>
<td>100.3</td>
<td>121.6</td>
<td>69</td>
<td>5</td>
<td>0.4</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>0.8</td>
<td>0.3</td>
<td>0.2</td>
<td>0.2</td>
<td>0.3</td>
<td>1.1</td>
<td>4.6</td>
<td>5.4</td>
<td>3.1</td>
<td>0.4</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Shahdara</td>
<td>12</td>
<td>a</td>
<td>15.5</td>
<td>17.9</td>
<td>5.6</td>
<td>5.3</td>
<td>2.8</td>
<td>24.8</td>
<td>170.7</td>
<td>125.8</td>
<td>74.9</td>
<td>7.9</td>
<td>0.0</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>0.7</td>
<td>0.8</td>
<td>0.7</td>
<td>0.3</td>
<td>0.5</td>
<td>1.4</td>
<td>6.1</td>
<td>5</td>
<td>2.8</td>
<td>0.3</td>
<td>0.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Najafgarh</td>
<td>23</td>
<td>a</td>
<td>8.9</td>
<td>8.2</td>
<td>4.7</td>
<td>4.2</td>
<td>3</td>
<td>25.1</td>
<td>122</td>
<td>122.8</td>
<td>75.9</td>
<td>27.7</td>
<td>0.5</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>0.8</td>
<td>0.7</td>
<td>0.2</td>
<td>0.4</td>
<td>0.4</td>
<td>1.3</td>
<td>5.5</td>
<td>5.6</td>
<td>3.2</td>
<td>0.8</td>
<td>0.0</td>
<td>0.2</td>
</tr>
<tr>
<td>Badli</td>
<td>23</td>
<td>a</td>
<td>13.7</td>
<td>8.6</td>
<td>9.6</td>
<td>3.6</td>
<td>1.4</td>
<td>21.8</td>
<td>154.2</td>
<td>181.3</td>
<td>88.2</td>
<td>32.9</td>
<td>0.8</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>1</td>
<td>0.7</td>
<td>0.2</td>
<td>0.4</td>
<td>0.2</td>
<td>1.1</td>
<td>5.8</td>
<td>6.4</td>
<td>3.7</td>
<td>0.2</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Alipur</td>
<td>21</td>
<td>a</td>
<td>11.7</td>
<td>10.6</td>
<td>3.3</td>
<td>3.6</td>
<td>6</td>
<td>26.7</td>
<td>146.1</td>
<td>137.1</td>
<td>87.7</td>
<td>13.7</td>
<td>1.3</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>1.3</td>
<td>0.7</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
<td>1.5</td>
<td>4.7</td>
<td>6</td>
<td>2.9</td>
<td>0.7</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Narela</td>
<td>19</td>
<td>a</td>
<td>19.9</td>
<td>14.5</td>
<td>10.6</td>
<td>4.9</td>
<td>7.2</td>
<td>20.6</td>
<td>184.7</td>
<td>190.4</td>
<td>111.2</td>
<td>14.8</td>
<td>1.1</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>1.5</td>
<td>0.9</td>
<td>1.1</td>
<td>0.4</td>
<td>0.4</td>
<td>1.6</td>
<td>6.4</td>
<td>8.2</td>
<td>4</td>
<td>0.5</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Delhi (district)</td>
<td>24</td>
<td>a</td>
<td>14.5</td>
<td>13.2</td>
<td>9.9</td>
<td>5.5</td>
<td>9.2</td>
<td>38.8</td>
<td>191.6</td>
<td>197.4</td>
<td>105.3</td>
<td>2.8</td>
<td>2.8</td>
<td>2.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>1.2</td>
<td>1.1</td>
<td>0.8</td>
<td>0.5</td>
<td>0.8</td>
<td>2.1</td>
<td>7.4</td>
<td>7.9</td>
<td>4</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
</tbody>
</table>

a) Normal rainfall in mm; b) Average no. of rainy days (i.e. days with rainfall of 2.5 mm or more

Source: India Meteorological Department, New Delhi.

### 2.3.6 Soils

Delhi soils are formed mainly of river deposits except in Aravalli ridge where the soil formation is in-situ formed of the disintegration of rocks. These are broadly classified in the following:

**Soils of active flood plain**

These are confined to the filled up channels and course of the river. The dominant soils are deep well drained, greyish brown to olive brown, sandy loam to loam, calcareous,
moderately eroded and occur on the gentle slopes. They are neutral to slightly alkaline, medium in organic content, CEC and available water capacity. They are classified as Typic Ustifluents. Sub-dominant soils in this physiographic unit occur on very gentle slopes and are deep, well drained, greyish brown to dark greyish brown, loamy sand to sand, calcareous, low in organic content, CEC and very low available water capacity and classified as Typic Ustipsamments. These areas are cultivated mostly for vegetables in flood free season. Major constraints of the soils are seasonal flooding, low fertility, poor soil structure and high permeability. Farm yard manure and inorganic fertilisers may be applied to increase the productivity of crops.

**Soils of recent alluvial plains**

These soils are confined to northern, northeastern and eastern part of the state. The mean annual rainfall in this area varies from 450-600 mm. These are occasionally subject to water stagnation during heavy rains. The dominant soils occur on very gentle slopes and are deep, well drained, yellowish brown to brown, coarse loamy, calcareous, slightly alkaline, low to medium in salt content, high in base saturation and are classified as Typic Ustochrepts. Sub-dominant soils occur on nearly level plain and are deep, well-drained, dark greyish brown to dark yellowish brown, slightly alkaline, coarse loamy, calcareous and classified as Typic Ustorthents. They are cultivated to wheat paddy, mustard, bajra, jowar, vegetables etc. Salinity, calcareousness, low to medium fertility, occasional water stagnation are some of the constraints of the soils. In some places, proper drainage is required in kharif season if crops other than paddy are to be grown. Rice crop may be rotated with some legume crops to improve the fertility than taking wheat after rice.

**Soils of old alluvial plain**

These soils are extending over the northern, central and western part of the state. The mean annual rainfall in this area varies from 340-580 mm. The dominant soils occur on nearly level to very gentle slopes and are deep, well drained, brown to dark yellowish brown, slightly alkaline to alkaline, low to medium in salinity and are classified as coarse loamy Typic Ustochrepts. These are most potential soils of the state. Salinity and medium fertility status are some constraints of these soils.
Soils of the piedmont plain

These soils occupy the adjoining areas of the aravalli hills in the southern and western part of the state. The mean annual rainfall in different stations of this unit varies from 790-890 mm. The dominant soils occur on a moderate to gentle slopes and are deep well drained, yellowish brown to dark yellowish brown, slightly alkaline, fine loamy Typic ustochrepts where as sub-dominant soils are deep, well drained, yellowish brown, calcareous, coarse loamy Typic ustochrepts. Some parts of this unit are lying fallow and rest of the area is cultivated for wheat, bajra, jowar vegetables etc. Moderate erosion, calcareousness and medium fertility are some the constraints of these soils. The soils may be protected from erosion by simple soil conservation measures like contour bundings, contour terracing and contour cultivation. Horticultural crops may not thrive well due to the calcium rich horizons below 75 cm., which may restrict root growth and availability of nutrient etc.

Soils of Aravalli hills

These soils occupy aravalli hill ranges around Thughlakabad, Mehrauli and Palam areas. The mean annual rainfall in these areas varies from 500-800 mm. Dominant soils occur on the moderate slopes and are severely eroded. They are shallow, some what excessively drained, gravelly sandy loam to gravelly loam, brown to dark brown, non-calcareous, mostly neutral (pH 7.0-7.3), low in available water capacity and are classified as loamy skeletal Lithic Ustorthents. Sub-dominant soils occur on gentle to moderate slopes and are moderate to severely eroded. They are medium in depth, well drained, brown to strong brown, gravelly sandy loam to gravelly sandy clay loam, non-calcareous, neutral (pH 7.0), low in available water capacity and are classified as loamy skeletal Typic Ustorthents. These areas are mainly under shrubby forest or lying as barren.

2.3.7 Natural vegetation

The main areas growing natural vegetation are the Aravalli ridge and the banks of the Yamuna River.

Shrubs and forest of the ridge

The vegetation of the ridge can be grouped into two broad categories:

i) Permanent vegetation

ii) The ephemeral vegetation
The permanent vegetation of the ridge abounds in thorny tree and shrub species. The important tree species are Acacia arabica (Kikar), Acacia catechu (Katha), Acacia leucophloea (Ronj) and Acacia modesta (Phulahi). The other conspicuously distributed tree members are Salvadora persica (Pilu) Salvadora oleoides (Baldu), Balanites roxburgi (Hingot), Azadi-rachta indica (Neem) and Butea monosperma (Dhak). The wild date palm (Phoenix sylvestris) occurs as a few isolated clumps. The chief shrub constituents of the permanent vegetation are Capparis sepiaria (Heens), Capparis desidua (Karir), Ziziphus nummularia (Ber), Maytenus senegalensis (Kakera), Cordia dichotoma (Lasoora). Adhatoda vasica (Bansa) grows as very common, gregarious under shrub co-dominant with Capparis sepiaria.

The ephemeral vegetation of the ridge comes up mainly during the brief monsoon season when the moisture is abundant in the soil and in the atmosphere. Some of the common herbs of the ephemeral vegetation include Achyranthes aspera (Lapa), Peris rophe bicaluculate (Missi), Tephrosia purpurea (Jhojhrui), Boerhavia diffusa (Punarnava), Triumfetta rhomhoidea ( Kasni), Sesamum indicum (Till), Cleome viscosa (Hulhul) and Tribulus terrestris (Gokhru). The thorny shrubs of the permanent vegetation provide support to the growth of many climbers of seasonal nature such as Rivea hypocrateriformis (Amerbel) and Cryptostegia (Rambel) etc. Delhi vegetation has been harnessed for medical purposes. The Boerhavia diffusa (Punarnava) has been widely exploited by the Hamdarad Dawakhana, a very large pharmaceutical company in Delhi.

Vegetation on the banks of Yamuna

The sandy soils on the banks of Yamuna supports rich vegetation after the monsoon and during winter. Some of the plants of this muddy and marshy region are Riccia (liverwort), Equisetum (horsetail), Ramunculus sceleratus (A tiny buttercup) are prevalent. On the drier region of the banks Saccharum spontaneum (Kans), Tamarix troupii, Salsol baryosama and Suaeda fruticosa (Bui) are common

2.3.8 Land utilisation

Land utilisation in the National Capital Territory of Delhi has gone under significant changes since independence. With the rapid growth of Delhi metropolis, the area under
non-agricultural uses has significantly increased while the area under agricultural use has drastically reduced. Significant changes in different categories of land use since 1955-56 are described below:

Table 2.3
NCT Delhi
Land utilisation

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Geographical area</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>2 Forest</td>
<td>0.96</td>
<td>0.96</td>
<td>0.77</td>
<td>0.97</td>
<td>1.06</td>
<td>0.75</td>
</tr>
<tr>
<td>3 Area not available for cultivation</td>
<td>23.22</td>
<td>23.32</td>
<td>32.05</td>
<td>35.31</td>
<td>48.71</td>
<td>56.27</td>
</tr>
<tr>
<td>a) Land put to non-agricultural uses</td>
<td>22.49</td>
<td>22.62</td>
<td>23.17</td>
<td>23.22</td>
<td>42.14</td>
<td>49.36</td>
</tr>
<tr>
<td>b) Barren uncultivable land</td>
<td>0.72</td>
<td>0.69</td>
<td>8.88</td>
<td>12.09</td>
<td>6.57</td>
<td>6.92</td>
</tr>
<tr>
<td>4 Other uncultivated excluding fallow land</td>
<td>13.26</td>
<td>12.26</td>
<td>2.17</td>
<td>1.84</td>
<td>8.72</td>
<td>5.55</td>
</tr>
<tr>
<td>a) Permanent pasture and other grazing land</td>
<td>3.29</td>
<td>3.29</td>
<td>0.27</td>
<td>0.59</td>
<td>0.51</td>
<td>0.04</td>
</tr>
<tr>
<td>b) Land under misc. tree crops and groves not included in net area sown</td>
<td>0.00</td>
<td>0.00</td>
<td>0.03</td>
<td>0.72</td>
<td>0.86</td>
<td>0.53</td>
</tr>
<tr>
<td>c) Cultivable wasteland</td>
<td>9.97</td>
<td>8.97</td>
<td>2.14</td>
<td>0.54</td>
<td>7.36</td>
<td>4.99</td>
</tr>
<tr>
<td>5 Fallow land</td>
<td>3.24</td>
<td>4.39</td>
<td>10.19</td>
<td>22.18</td>
<td>8.72</td>
<td>5.55</td>
</tr>
<tr>
<td>6 Net area sown</td>
<td>59.32</td>
<td>59.08</td>
<td>54.81</td>
<td>39.70</td>
<td>32.79</td>
<td>31.88</td>
</tr>
<tr>
<td>7 Area sown more than once</td>
<td>28.99</td>
<td>17.62</td>
<td>24.44</td>
<td>19.70</td>
<td>18.90</td>
<td>14.45</td>
</tr>
<tr>
<td>8 Total cropped area</td>
<td>88.32</td>
<td>76.70</td>
<td>78.98</td>
<td>59.39</td>
<td>51.69</td>
<td>46.33</td>
</tr>
</tbody>
</table>


Fig. 2.1 NCT Delhi: Land Utilisation 1955-56 to 1995-96
Forest

Table 2.3 shows that in 1955-56, area under forest was 0.95 percent of the total geographical area. It increased to 1.05 percent in 1990-91 but again reduced to 0.75 percent in 1995-96. Though, efforts have been made by the forest department to increase the forest resources but the percentage of area under this land use class has reduced. This is on account of the encroachment of ridge (main forest area) by the unauthorised occupants, development of institutional area and cutting of forest for the development of urban land.

Area not available for cultivation

This category includes land put to non-agricultural uses and the barren uncultivable land. First sub-category includes the area under settlements, roads, railway lines, industries and other non-agricultural uses.

The area under this category is continuously increasing with rapid growth of population, industrial and commercial activities. It has increased from 22.49 percent in 1955-56 to 49.36 percent in 1995-96 (Fig 2.1). This significant change in area is attributed to the increase in population from 1.74 million in 1951 to 9.44 million in 1991.

Area under the second sub-class i.e. barren and uncultivable land was 0.72 percent in 1955-56. It increased to 8.88 percent in 1970-71 and 12.09 percent in 1980-81. Percent of area under this sub-class has declined to 6.92 percent in 1995-96. The increasing urbanisation and unauthorised construction outside the city limits has increased the area under this sub-class since 1955-56. Also, mining for extraction of building material, garbage-dumping sites, brick kiln sites have played a significant role in increasing the area under this sub-class.

Other uncultivated land

Area under this category includes permanent pastures and grazing land, miscellaneous trees and wasteland. With the decline in agricultural land, percentage area under this category has also declined. In 1955-56, area under this land use class was 13.26 percent which was reduced 8.72 percent in 1990-91 and further declined to 5.55 percent in 1995-96. Percentage area under this class was lowest in 1980-81.
Fallow land

Percentage of land under agricultural uses is declining with increasing urbanisation but land under fallow though fluctuated in different years has maintained a significant percentage. In 1955-56, area under this category was 3.24 percent that was increased to 10.19 percent in 1970-71, 22.18 percent in 1980-81 and then reduced to 5.55 percent in 1995-96.

Net sown area

Area under this class is continuously declining with the expansion of urbanisation. In 1955-56, area under this class was 59.32 percent that was declined to 32.79 percent in 1990-91 and 31.88 percent in 1995-96. First major reduction in the net sown area was observed during 1970-71 to 1980-81 when the percentage declined from 54.39 to 39.71 percent. The following decade also witnessed significant decline in the net sown area. These two decades have experienced unprecedented population growth. To accommodate the growing population and the industrial and commercial activities, Delhi Development Authority has acquired vast tracts of agricultural land during this period. Growth of unauthorised colonies in the periphery has also encroached upon large tracts of agricultural land during this period.

2.4 Demographic profile

2.4.1 Growth of population

National Capital Territory of Delhi has experienced phenomenal growth of population during the last few decades. From the population of 4,05,819 persons in 1901, it has increased to 94,20,644 persons in 1991. First major breakthrough in the growth of population of Delhi was experienced in 1951 when it increased from 9.2 lakh in 1941 to 17.4 lakh in 1951. Significant growth during this period was on account of heavy influx of population in the territory after the partition in 1947. Growth of population was more significant in urban areas (186.6 percent) than the rural (38.1 percent). In subsequent decades, Delhi Territory experienced rapid growth of population and percentage in urban areas has always been higher than the rural areas except in 1991 when rural area experienced more than double the growth in urban. Low percentage of population growth
in rural areas has been on account of incorporation of number of villages in urban in each
decade after 1951. High growth of population in rural areas in 1991 indicates that urban
areas could not absorb the growing population and large part has settled in the adjoining
rural zone.

2.4.2 Density of population

Table 2.4 shows that the density of population of Delhi territory has been on the rise
since 1911. However, it made spectacular increase in 1951 when it became double
compared to the previous census period. In 1971, population density was 2738 persons
km\(^2\) which was more than double the density of 1951. Similarly in 1991, population
density which was increased to 6352 persons km\(^2\) was more than double the density of
1971. Rapid increase in density of population has been on account of large scale
migration in Delhi since independence.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>135</td>
<td>123</td>
<td>140</td>
<td>144</td>
<td>171</td>
<td>243</td>
<td>258</td>
<td>403</td>
<td>507</td>
<td>11090</td>
</tr>
<tr>
<td>Urban</td>
<td>10568</td>
<td>11798</td>
<td>1812</td>
<td>2639</td>
<td>3470</td>
<td>7169</td>
<td>7225</td>
<td>8172</td>
<td>9745</td>
<td>12361</td>
</tr>
<tr>
<td>Total</td>
<td>271</td>
<td>245</td>
<td>326</td>
<td>429</td>
<td>613</td>
<td>1174</td>
<td>1791</td>
<td>2738</td>
<td>4194</td>
<td>6352</td>
</tr>
</tbody>
</table>


The rural density has been steadily increasing throughout the period except for the decade
1901-1911 when it experienced decrease on account of epidemic of plague. Urban
density of population, which was very high till 1911, suddenly decreased to very low in
1921. It picked up gradual increase in 1931. Decrease in urban population density in 1921
was on account of large increase in the urban area after the shift of capital from Calcutta
to Delhi in 1911.The phenomenal increase of urban density in 1951 was on account of
settling of large size of refugees in the urban areas. The decade 1951-61 experienced
slight increase in urban density, which was on account of incorporation of large size area
in the urban limits. Population density in urban areas in 1991 has increased to 12361
persons km\(^2\).
2.4.3 Sex ratio

There has been fluctuation in the sex ratio (female per thousand male population) since 1901. It experienced continuous decline from 1911-1941 (Table 2.5). From 1941-1991, it experienced slight increase in each decade. Sex ratio has been high in rural than the urban in all the decades except in 1991. Higher sex ratio in the rural areas is on account of higher rate of selective migration in urban areas where large number of male population migrate in search of employment leaving females at their native place. Comparatively low sex ratio in rural areas in 1991 is on account of large scale migration in these areas during 1981-91 out of which large part is male selective.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>916</td>
<td>869</td>
<td>845</td>
<td>860</td>
<td>845</td>
<td>837</td>
<td>847</td>
<td>825</td>
<td>810</td>
<td>807</td>
</tr>
<tr>
<td>Urban</td>
<td>817</td>
<td>740</td>
<td>672</td>
<td>670</td>
<td>677</td>
<td>754</td>
<td>777</td>
<td>798</td>
<td>808</td>
<td>830</td>
</tr>
<tr>
<td>Total</td>
<td>862</td>
<td>793</td>
<td>733</td>
<td>722</td>
<td>715</td>
<td>768</td>
<td>785</td>
<td>801</td>
<td>808</td>
<td>827</td>
</tr>
</tbody>
</table>

*Note: sex ratio refers to female per thousand male population.*


2.4.4 Migration

National capital territory of Delhi has experienced large-scale migration from different states since independence. In 1951, out of the total population of 17.44 lakh, 5.45 lakh were migrants forming 31.13 percent of the total population (Table 2.6). In 1961, the proportion of migrants to total population was increased to 36.55 percent and in 1971 it reached to 46.94 percent. In 1981, the percentage of migrants to total population has declined to 42.81 percent and in 1991, it came down to 39.52 percent. Annual growth rate of migration in 1961 and 1971 was higher than the total annual growth rate of population in the territory. Percent of annual growth of migration has declined in 1981 as compared to 1971. In 1991, annual growth of migration has slightly increased in comparison to 1981.
Table 2.6
NCT Delhi
Migration

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of migrant</td>
<td>5,42,982</td>
<td>9,71,725</td>
<td>19,08,732</td>
<td>26,63,184</td>
<td>37,23,462</td>
</tr>
<tr>
<td>Total population</td>
<td>17,44072</td>
<td>26,58,612</td>
<td>40,65,698</td>
<td>62,20,406</td>
<td>94,20,644</td>
</tr>
<tr>
<td>Percent of migrants to total population</td>
<td>31.13</td>
<td>36.55</td>
<td>46.94</td>
<td>42.81</td>
<td>39.52</td>
</tr>
<tr>
<td>Annual growth rate of migration</td>
<td>-</td>
<td>5.99</td>
<td>6.99</td>
<td>3.39</td>
<td>3.40</td>
</tr>
<tr>
<td>Annual growth rate of population</td>
<td>-</td>
<td>4.30</td>
<td>4.33</td>
<td>4.34</td>
<td>4.24</td>
</tr>
</tbody>
</table>


2.5 Economic profile

Rapid increase in urbanisation has regularly affected the economic base of state economy. Shift of focus from primary to secondary and tertiary sector clearly speaks of the changed economic structure.

2.5.1 Net domestic product in different sectors

Table 2.7 show that relative share of primary sector in net domestic product has decreased from 4.37 percent in 1980-81 to 1.22 percent in 1994-95. Both secondary and tertiary sectors have experienced increase in percentage share of net domestic product during this period and the increase percentage is more significant in tertiary sector than the secondary. Substantial increase of tertiary sector’s share in net domestic product speaks of increase in the activities like trade, hotels, restaurants, transport, storage, financing, insurance, real estate, social and personal services etc.

Table 2.7
NCT Delhi
Net domestic product in different sectors (at constant prices1980-81)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>4.37</td>
<td>3.35</td>
<td>3.16</td>
<td>3.41</td>
<td>1.02</td>
</tr>
<tr>
<td>Secondary</td>
<td>24.87</td>
<td>26.31</td>
<td>27.48</td>
<td>25.79</td>
<td>25.54</td>
</tr>
<tr>
<td>Tertiary</td>
<td>70.76</td>
<td>70.34</td>
<td>69.36</td>
<td>70.79</td>
<td>73.25</td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Table 2.8
NCT DELHI
Workforce participation percentage in different sectors

<table>
<thead>
<tr>
<th>Sectors</th>
<th>1981</th>
<th>1991</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>3.81</td>
<td>2.85</td>
</tr>
<tr>
<td>Secondary</td>
<td>34.87</td>
<td>32.43</td>
</tr>
<tr>
<td>Tertiary</td>
<td>61.32</td>
<td>64.72</td>
</tr>
</tbody>
</table>


2.5.2 Workforce participation
Change in the structure of work force in different sectors also confirms that the importance of primary sector has declined during this period. In 1980-81, percentage share of workforce in primary sector was 3.81 percent, which was reduced to 2.85 percent in 1990-91. Secondary sector has also shown decline in the percentage share of workforce during this period. Work participation percentage has significantly increased in the tertiary sector during this period (Table 2.8).

2.5.3 Per capita income
Per capita income in Delhi State is significantly higher than all India figures. Table 2.9 shows that in 1980-81, per capita income in Delhi (at constant prices of 1980-81) was 147.24 percent higher than all India figures, which was further increased to 159.27 percent in 1994-95. At current prices, there is slight decrease in the percentage difference in per capita income in Delhi and all India figures during this period but the difference is still significantly higher.

Table 2.9
NCT Delhi and All India
Temporal per capita income

<table>
<thead>
<tr>
<th>At constant prices</th>
<th>Level</th>
<th>Income in rupees</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All India</td>
<td>1630</td>
</tr>
<tr>
<td></td>
<td>Delhi</td>
<td>4030</td>
</tr>
<tr>
<td>% difference</td>
<td>147.24</td>
<td>157.90</td>
</tr>
<tr>
<td>At current prices</td>
<td>All India</td>
<td>1630</td>
</tr>
<tr>
<td></td>
<td>Delhi</td>
<td>4030</td>
</tr>
<tr>
<td>% difference</td>
<td>147.24</td>
<td>130.48</td>
</tr>
</tbody>
</table>

2.5.4 Industries

After independence, there has been vast industrial development in Delhi. The migrants settled after the partition started small-scale industrial units in rural pockets to rehabilitate themselves. In 1951, number of registered industrial units in Delhi was 431 as against 227 in 1945 (Gazetteers 1987)\(^2\)

Delhi Govt encouraged village small-scale industries by providing exemptions in the Lal Dora in 1963 (Gupta 1996)\(^3\) and as a result, the rural areas near Delhi have developed number of industrial units.

In 1970, there were 26,000 industrial units in Delhi, which were increased to 45,000 in 1980, 81,000 in 1990 and 1,26,000 in 1996 (Table 2.10). Besides, there are some informal industrial units but their location and number is not certain. Najafgarh road, Mayapuri, Rohtak road, Patparganj, Samepur Badli, Nangloi have developed into major industrial complexes. For small industrial units Motia Khan, Jhilmil, Kirti Nagar, Anand Parbat, G.T. road, Kesopur, Badarpur, Gulabi Bagh, Bhogal, Mathura road, Naraina, Wazirpur, Lawrence road and Motinagar are famous. The period after 1990 has shown great spurt in industrial units. Delhi being well connected with different parts of India through its efficient net work of railway and roadways has easy access to different parts of India. Other favourable factors for the development of industries are cheap and skilled labour, large market, number of financial institutions and nearness to administration both at the centre and state level. Though, in master plan it has been proposed to discourage industrial expansion in Delhi, the trend shows high rate of expansion.

Table 2.10
NCT Delhi
Industrial progress

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of industrial units</td>
<td>26</td>
<td>50</td>
<td>65</td>
<td>81</td>
<td>101</td>
<td>126</td>
</tr>
<tr>
<td>Number of persons employed</td>
<td>215</td>
<td>480</td>
<td>595</td>
<td>729</td>
<td>909</td>
<td>1136</td>
</tr>
<tr>
<td>Investment (Rs. In crores)</td>
<td>190</td>
<td>965</td>
<td>1260</td>
<td>1580</td>
<td>1980</td>
<td>3434</td>
</tr>
<tr>
<td>Production (Rs. In crores)</td>
<td>380</td>
<td>2350</td>
<td>3450</td>
<td>4250</td>
<td>5555</td>
<td>5748</td>
</tr>
</tbody>
</table>

The industrial expansion employed 215000 workers during 1970 which were increased to 1136000 in 1996. The investment in the industrial units has increased from 190 crore rupees in 1970 to 3434 crores in 1996 while the production has increased from the value of 380 crores to 5748 crores during this period.

2.5.5 Trade and commerce

Delhi is one of the most important trade centres of India and it works as distributive centre for sending and receiving number of goods to different states as well as foreign export. The importance of Delhi has greatly increased after the partition. Delhi as a trading centre has progressively increased due to its important transport network of railways and other transport means. It is largest trading centre in Northern India. There are 24,600 whole sale shops and establishment in whole sale market in Delhi. The whole sale markets are dealing with 27 major commodities. Besides, it has about 1 lakh retail shops and are located in 1,600 markets of varying size. In the informal sector, about 1.39 lakh retail units (without roof) are working within the shopping areas, along the roadsides and other areas of public concentration. Delhi has the tradition of weekly markets and there are 95 weekly markets with about 6,000 daily shopping spaces (DDA 1990).

The whole sale market is mainly located in the congested areas of Chandni Chowk, Khari Baoli, and Sadar Bazar in the radius of 2-3 kms and functions as a central business district. Across Yamuna Gandhi Nagar has emerged as large whole sale trading centre for garments

Sabzi Mandi, Sarai Rohilla, Azadpur and Okhla are the main whole sale trading centres for fruits and vegetables; Shahdara, Naya Bazar, Narela and Najafgarh for food grains; Jakhira for fodder; Chandni Chowk for clothes; Jhandewalan and Jama Masjid for bicycles and Khari Baoli for dry fruits. Other market centres, which have recently come up, are Bhagirath Place, Nehru Place, Bhikaji Cama Place, Janakpuri and Luxmi nagar.

2.6 Summary

Area of the National Capital Territory of Delhi is a part of Indo Gangetic Alluvial plain and has five distinct physiographic units viz. active alluvial plain, recent alluvial plain, old alluvial plain, piedmont plain and ridge and hillocks. The main drainage flowing through the territory is Yamuna river. The soils of the territory is mainly alluvial deposited by the
river action except in the Aravallis, where the soils are in-situ formed by the disintegration of rocks. The fertility of soils is medium. The climate of the territory is semi-arid with intensely hot summer and cold winter. The ground water resources are deteriorating both in quality and its reserves. In general land use, the area not available for cultivation has the highest percentage to total geographical area of the state followed by net sown area. Net sown area is constantly decreasing while area not available for cultivation is increasing.

Population of the territory has increased rapidly since independence and its density has increased from 1174 persons km$^2$ in 1951 to 6352 persons km$^2$ in 1991. Sex ratio in Delhi Territory is increasing since 1951. Migration from different states to Delhi has been significant since 1951 and about 1/3 of the population of the Territory belongs to migrants.

The economy of the Territory is based mainly on the tertiary sector which has about ¾ share in its net domestic product. The importance of primary sector is decreasing. Similarly, in the workforce participation, the share of primary sector is decreasing while of secondary and tertiary is increasing. Tertiary sector has highest share in the workforce participation. Number of industrial units in the territory have increased about five times between 1970 and 1996 while production has increased from 380 crores to 5748 crores in the corresponding period. Delhi territory has vast net work of trade and commerce. About 27 major commodities are handled by the whole trade in Delhi. There are 1 lakh retail shops in 1600 markets. Besides, open markets on the footpaths and weekly markets are also playing equally significant role in the trade and commerce in the territory.

This base information of the entire region of National Capital of Delhi is useful for the study in the peri-urban as all the major activities in this area are influenced by major unit of the region i.e. Delhi Metropolis.

References

1  NCRPB (1999), Delhi1999, A Fact Sheet, India Habitat Centre, Lodhi Road, New Delhi, p.37-38.
2  Gazetteer of Rural Delhi (1987), Delhi Administration, p.149.