CHAPTER-IV

SOCIAL INDICATORS AND QUALITY OF LIFE: A WARD WISE ANALYSIS OF ROHTAK CITY

4.1 Introduction:

Social relevance paradigm in geography has generated interest of geographers towards social indicators for monitoring the quality of life in different socio-cultural context. According to Jones and Eyles (1973) "Social Indicator is a statistic of direct normative interest which facilitates concise, comprehensive and balanced judgment about the condition of major aspects of a society. It is in all cases a direct measure of welfare and indicates the direction of well being of people". As a result of emphasis on social indicators, researchers as well as different organisations had tried to identify the various domains of life which are directly related to the well being of people. The dimension of life as suggested by various organisations and researchers are presented in Table 4.1. It may be noted from Table 4.1 that a lot of emphasis has been given on the monetary aspects of human well being. It is being realised that conventional measures of development or progress such as growth of per capita income and gross national product (GNP) are far from satisfactory as real guides to whether life is getting better or worst. However, it may also be relevant to point out that most of dimensions of life suggested in Table 4.1 have been proposed for analyzing the variation at the cross
Table 4.1 have been proposed for analyzing the variation at the national or regional level for which data are easily available. At a smaller areal level, all the dimensions cannot be incorporated due to non-availability of data. Therefore, at a smaller areal level, researcher have taken only few important indicators. Morris & Mcapin (1982) in his study on physical quality of life of Indian population at regional level has taken three indicators which are as follows.

(i) Literacy Rate
(ii) Life Expectancy
(iii) Infant Mortality

The first two indicators reflect the level of social development and third one shows the access of health facilities to the population. Recently United Nations Development Programme (UNDP) has started publishing Human Development Report (HDR) since 1990 in which a Human Development Index has been constructed for various countries of the world. Human Development Index is a measure of quality of life in which following indicators have been included:

i) Life Expectancy
ii) Adult literacy
iii) Enrollment ratio
iv) Per capita GDP (Gross Domestic Product)
Table 4.1

Indicators of Quality of life suggested by various Researchers/Organisation

1. Alternate Criteria of Human Well Being : UN Components of Level of Living
   i) Health Including Demographic Condition
   ii) Food and Nutrition
   iii) Education, including Literacy and skills
   iv) Conditions of work
   v) Employment Situation
   vi) Aggregate Consumption and Savings
   vii) Transportation
   viii) Housing, including household facilities
   ix) Clothing
   x) Recreation and Entertainment
   xi) Social Security

2. Composition of Drewnowski's Level of Living Index
   i) Nutrition
      (a) Calories intake
      (b) Protein intake
      (c) Per cent of non-starchy calories
   ii) Clothing
      (a) Cloth consumption
      (b) Footwear consumption
      (c) Quality of clothing
   iii) Shelter
      (a) Services of dwellings
      (b) Density of occupation
      (c) Independent use of dwellings
   iv) Health
      (a) Access to medical care
      (b) Prevention of infection and parasitic disease
      (c) Mortality Rate
   v) Education
      (a) School enrolment ratio
(b) School output ratio
(c) Teacher / pupil ratio

vi) Leisure
(a) Leisure time

vii) Security
(a) Security of the person
(b) Security of the way of life

viii) Social Environment
(a) Labour relations
(b) Conditions for social and economic activity
(c) Information and communication
(d) Recreation : Cultural activities
(e) Recreation : Travel
(f) Recreation : Sport and physical exercise

ix) Physical Environment
(a) Cleanliness and quietness
(b) Public amenities in the neighborhood
(c) Beauty of the environment

3. O.E.C.D. (Organisation of Economic Co-operation and Development)

i) Health

ii) Individual development through learning

iii) Employment and quality of working life.

iv) Time and Leisure

v) Command over goods and services

vi) Physical Environment

vii) Personal safety and administration of justice

viii) Social opportunity and participation


i) Income Wealth and Employment

ii) Health

iii) The living Environment

iv) Education

v) Social order

vi) Social Belonging

vii) Recreation and leisure
The Human Development Index based on above said indicators measure the three important dimension of life; longevity, knowledge and access to basic resources. Therefore, the Human Development Index (HDI) measures the average achievement of a country in basic human capabilities. Recently there is an emphasis on gender related development index (1995) which takes into account the male-female differentials in human capabilities. Therefore, one cannot recommended a set of indicators for different socio-cultural context and for all the time. Keeping in view the recent development in the field of measurement of quality of life and availability of data of socio-economic context, the following indicators have been selected to study the intra-urban variation of quality of life in Rohtak City:

4.2 Indicators for Rohtak City:

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Description of measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Population Density</td>
<td>Number of persons per acre</td>
</tr>
<tr>
<td>(2) Sex Ratio</td>
<td>Females per 1000 males</td>
</tr>
<tr>
<td>(3) Male Literacy Rate</td>
<td>Percentage of literate males to total male population (excluding age group 0-6)</td>
</tr>
<tr>
<td>(4) Female Literacy Rate</td>
<td>Percentage of literate females to total female population (excluding 0-6).</td>
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<td></td>
<td>Variable</td>
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<td>----------------------------------------------</td>
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<tr>
<td>5</td>
<td>Per cent Child Population</td>
</tr>
<tr>
<td>6</td>
<td>Total workers</td>
</tr>
<tr>
<td>7</td>
<td>Workers Engaged in Secondary Activities</td>
</tr>
<tr>
<td>8</td>
<td>Workers Engaged in Tertiary Activities</td>
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<td>9</td>
<td>Scheduled Caste Population</td>
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<tr>
<td>10</td>
<td>Death Rate</td>
</tr>
<tr>
<td>11</td>
<td>Telephone Connections</td>
</tr>
</tbody>
</table>

The rationale for selecting the above mentioned variables are given below:

1. **Population Density:**
   
   Population density is a measure of population size in relation to area. In urban context, it shows the extent of crowding and congestion at the ward level. Thus, higher density of population is expected to be associated with lower quality of life.

2. **Sex-Ratio:**
   
   Sex ratio measures the availability of females per thousands male
population. It is generally taken as a measure of status of women in society. Availability of women also shows the extent of care provided to family or children. Thus, higher sex-ratio is likely to be associated with higher quality of life.

(3) Literacy Rate:

Literacy rate is considered one of the most important variables of social development. Female literacy rate has been taken separately because female literacy has special significance in social development and family life. The education and awareness of females has direct bearing on the rearing of children and the management of household. Therefore, literacy rates are expected to be positively associated with quality of life.

(4) Per cent child Population:

It is a measure of fertility in a society. Due to lack of relevant data at ward level like birth rate this indicator has been taken as a proxy measure of fertility at ward level. It is believed that more number of children depress quality of life as there is a pressure on household resources and on parent’s time. Therefore, it is expected that more number of children will lower the quality of life in any society.

(5) Level of work force and structure:

Work status is an important dimension of life. People with work enjoy better status in society than those who do not have work status. Further
those who are engaged in secondary and territory work are mostly paid workers and they enjoy better status than primary workers who are either unpaid family labourer or receive wages. Therefore, level of workforce and its structure are expected to be positively associated with quality of life. In this connection three indicators have been taken namely (i) Percentage of workers to total population (ii) Percentage of secondary workers to total workers (iii) Percentage of territory workers to total workers.

6) Percentage of scheduled caste population:

In Indian context scheduled castes are mostly socio-economically backward communities. Thus, their more presence will reflect the lower quality of area inhabitated by them. Therefore, it is likely that scheduled castes will be associated with lower quality of life.

(7) Death Rate:

Death rate is an indicator of health facility as well as nutritional availability to the population. In the literature of quality of life, life expectancy at birth is usually taken at the country level. Life expectancy is dependent upon death rate. It is constructed on the basis of age specific death rates in a population. In want of estimate of life expectancy at ward level, death rate is taken as a substitute for it. It is expected that lower death rate is expected to be associated with higher quality of life or vice versa.
(8) Number of Telephones per 1000 population:

It is a measure of economic condition of population. It is expected that more number of telephones is associated with higher quality of life at ward level.

4.3 Results & Discussions:

4.3.1 Density of population

Density of population is one of the most important attributes of population. The density of Rohtak district was 410 persons per square km. but it was 7,614 persons per square km. in Rohtak City in 1991. The Rohtak City has been divided into 35 wards by Municipal Committee for better administration. The ward wise data indicates the variation in density of population. The ward wise density of population per acre has been grouped into three categories viz., (i) areas of high density, (ii) areas of moderate density and (iii) areas of low density.

Areas of High Density of Population (301 above per acre) : The central part of the city has high density. It is situated near the civil hospital and consists of areas of older parts of the city.

Areas of Moderate Density of population (101-300 persons per acre) : The built up area along the Delhi road, has stint an oldest part of the city fall in this category. Almost 43 per cent part of the city has moderate density of population.
Areas of low Density of Population (100 and below per acre): About 54 per cent area of the city has low density of population. The wards located on the periphery fall in this category. (Figure 4.1).

4.3.2 Sex Ratio:

The sex ratio is a very important demographic characteristic and a significant indicator to measure the quality of life. In Rohtak district sex ratio is 851, whereas Rohtak City has 884 females per 1000 males. There is a ward wise variation in sex ratio in the city and all wards have more males than females. The figure 4.2 shows the ward wise variation in sex-ratio of Rohtak city. The variation in sex-ratio has been grouped into three categories viz., areas of high, moderate and low sex ratio.

Areas of High Sex Ratio (901 and above) About 40 per cent area of city has high sex ratio. These areas constitute the older part of the city situated near bus stand.

Areas of Moderate Sex Ratio (801 - 900): About 57 per cent area of city has moderate sex ratio and the major part of this category is situated on the periphery of the city.

Areas of Low Sex Ratio (800 and Below): Remaining areas of the city have the lowest sex ratio. This is southern most area located in the periphery of city. This part comprises sugar mill colony and areas adjoining to Mohan Spinning Mills. Thus, because of male labour in migration in this area, the sex ratio is

80
ROHTAK CITY

SEX RATIO 1991
(WARDWISE)

Fig. 4.2
found to be low compared to other parts of the city.

4.3.3. Male & Female Literacy:

There is very good net of educational institutions in Rohtak City. The educational institutions comprise a university, five degree colleges, three B.Ed. Colleges, two polytechnique colleges and one Industrial Training Institute. There is a medical college which caters nearly 10 districts of the state. Therefore, the city population is better placed in terms of educational facility. Male and female literacy have been selected as an indicator to measure the quality of life. Male and female literacy in the district was 45.74 and 76.19 per cent respectively, whereas in the city the percentage of male and female literacy was 84.86 and 67.92 per cent respectively. The figure 4.4 shows the ward wise variations in Male literacy rate.

Areas of high Male Literacy (71 per cent and Above) About 71 per cent wards of the city has high male literacy rate. This includes central, north eastern, south eastern and peripheral areas of the city. Most of these areas are situated along Delhi road and near the Bus stand where maximum educational institutions are located.

Areas of moderate male literacy (51-70 per cent) : about 1/4th wards of the city has moderate male literacy rate. This part comprises north west and south west peripheral area which is also the oldest part of the city.
ROHITAK CITY

LITERACY, 1991
(WARDWISE)

Percentage of Total Literates to Total Population

- 71 and Above
- 61-70
- 51-60
- 50 and Below

Fig. 4.3
MALE LITERACY, 1991
(WARDWISE)

Figure 4.4

Percentage of Male Literates to Total Male Population
Areas of low male literacy (50 per cent and below) : only few wards fall in this category. This is the part where there is a concentration of scheduled caste population.

Female literacy is another important indicator to measure the quality of life. The figure 4.5 shows the ward wise variations in female literacy rate in Rohtak City.

Areas of High Female Literacy rate (56 per cent and above) : More than half of the wards of the city has high female literacy rate. The central and eastern parts of city fall in this category. There are several girls schools and also a college located in the area.

Areas of moderate female literacy rate (36-55 per cent) About 1/4th of the city has moderate female literacy rate. This part comprises areas near bus stand, Gaur College and Gau Karan Tank and also some parts along Delhi road.

Areas of low female literacy rate (35 per cent and below) : only few wards of the city has low female literacy rate. These wards also have high concentration of scheduled caste population and there is lack of girl’s schools in the area.

4.3.4. Child Population :

Children population aged 0-6 is also used to measure the level of fertility which is directly related to the quality of life. In Rohtak city, the child population is 15.7 per cent of total population. The figure 4.6 shows the ward wise picture of child population in Rohtak city.
Percentage of Female Literates to Total Population

ROHTAK CITY
FEMALE LITERACY, 1991
(WARDWISE)

Fig. 4.5
Fig. 4.6

ROHTAK CITY
CHILD POPULATION, 1991
(WARDWISE)

Percentage of Children
(0-6) Total Population

- Below 15
- 13 - 17
- 17.1 - 19
- 19.1 and above

Feet 1320 0 1320 Feet
Areas of high percentage of child population (19.1 per cent and above): More than 1/10th area of the city has high percentage of child population. This part comprises the areas inhabited by socially and economically weaker strata like scheduled castes. Male and female literacy is also low in these areas.

Areas of moderate percentage of child population (15-19 per cent). Nearly half of the areas of the city has moderate child population. These areas include northern, southern as western parts of the city.

Areas of low percentage of child population (14 per cent and below): Nearly 42 per cent area of the city has low percentage of child population. This part comprises the whole eastern side and some areas near the bus stand.

4.3.5 Work Status:

Work status also affects the quality of life of people. The occupational structure of the city is dominated by the other services, trade and commerce. The percentage of secondary and tertiary workers to total workers is 21.3 and 70.4 per cent respectively. The three indicators has been taken namely (i) percentage of total workers to total population (ii) percentage of secondary workers to total workers and (iii) percentage of tertiary workers to total workers. Figures 4.7 shows the ward wise variation of these indicators.

Areas of high percentage of total workers (above 31 per cent): This category comprises the south and eastern part of the city near the Medical College and Maharishi Dayanand University.
Fig. 4.7

ROHTAK CITY

TOTAL WORKERS, 1991
(WARDWISE)

Percentage of Total Workers to Total Population

- Above 31
- 29-31
- 26-28
- 25 and below

Feet

0

1320 Feet

Fig. 4.7
ROHTAK CITY
DISTRIBUTION OF PRIMARY WORKERS, 1991
(WARDWISE)

Fig. 4.8
Areas of moderate percentage of total workers (26-31 per cent): The majority of the wards of city have moderate percentage of total worker. This part comprises north, north eastern, some western areas and central areas along Delhi Road and near the bus stand.

Areas of low percentage of total workers (25 per cent and below): Remaining 12 per cent area of the city has low percentage of total workers. This part comprises some northern and southern areas of the city.

Areas of high percentage of secondary workers (31 per cent and above): Only few wards of the city has high percentage of secondary workers. This part comprises the areas near the bus stand and areas near to Mohan Spinning Mills and northern peripheral area.

Areas of moderate percentage of secondary workers (21-30 per cent): About 1/5th wards of the city has moderate percentage of secondary workers. This part comprises the central and western areas of the city.

Areas of low percentage of secondary workers (20 per cent and below): The remaining 57 per cent wards of the city has low percentage of secondary workers. The eastern and central parts of the city fall in this category.

(Figure 4.9)
Areas of High percentage of tertiary workers (81 per cent and above): The city of Rohtak has high percentage of tertiary workers only in few areas. This part comprises the core area and eastern of the city.
Areas of moderate percentage of tertiary workers (61-80 per cent) : The majority of the wards of the city has moderate percentage of tertiary workers. The central areas and whole of eastern area fall in this category.

Areas of low percentage of tertiary workers (60 per cent and below) : Remaining 20 per cent wards of city has low percentage of tertiary workers. The north, north, western and southern areas fall in this category. (Figure 4.10)

4.3.6. Scheduled caste population :

The Scheduled caste population is one of the important characteristic of demographic structure. The presence of scheduled caste population is associated with level of quality of life as they have lower socio-economic status. The S.C. population forms about 14.09 per cent of the city population, whereas district has 18.40 per cent of scheduled caste population.

Areas of high percentage of scheduled caste population (51 per cent and above) : In two wards of the city have high percentage of S.C. population and these are situated in northern periphery of the city.

Areas of moderate percentage of scheduled caste population (11-50 per cent) : One third wards of the city has moderate percentage of schedule caste population. This part comprise some areas of north, east, west, south and center of the city.

Areas of low percentage of scheduled caste population (10 per cent and below) : Remaining 63 per cent part of the city has low percentage of scheduled caste
ROHTAK CITY

SCHEDULED CASTE POPULATION 1991
(WARDWISE)

Percentage of Scheduled Caste Population to Total Population

51 and Above
31 - 50
11 - 30
10 and Below

Fig. 4.11
population. Southern periphery falls in this category. Generally these areas are adjacent to higher class residential areas where the scheduled caste find certain domestic jobs. (Figure 4.11)

4.3.7. Death Rate:

Rohtak city has a big hospital to which people come from different part of the state. There is also a civil hospital and a tuberculosis clinic to take care of the local population of the area of the city. There are also civil hospital for women, police and jail hospitals, school health clinics, family planning clinic and employees state insurance dispensary situated in Rohtak. Because of the variation in location of health care centers there is a likely ward wise variation in death rate in the city. Death rate affects the quality of life. Therefore it has been taken as a measure to study quality of life in the present study. Data are collected from the Municipal Committee's death record book 1991. Death rate means number of deaths per thousand persons in each ward during the calendar year 1991. The municipality does not keep the number of deaths wardwise. Only the name and address of the deceased is kept in the municipal committees record book. A list of colonies falling in each ward was prepared by the researcher and death data were compiled for year 1991 and death rate estimated. It was a bulky registrar and it took about three months time to complete the work. Figure 4.12 shows the wardwise variation of death rate in the city.
ROHTAK CITY
DEATH RATE, 1991
(WARDWISE)

Fig. 4.12
Areas of high death rate (9 and above): In two wards of the city have high death rates. These wards are situated in the northern periphery which is generally inhabited by scheduled caste population.

Areas of Moderate Death Rate (3-8): The majority of the wards of city has moderate death rate. This area comprise the north, north western periphery and southern areas of city.

Areas of low death rate (0-2): The remaining 23 per cent ward of the city has low death rate. There is a concentration of high income family and high male and female literacy rate in these wards of the city.

4.3.8. Telephone connection:

There is lack of data to measure the economic condition which directly affects the quality of life of people. Therefore, number of telephones per thousand population is taken as an indicator to measure the economic condition of people. Data of telephone connections was collected from telephone directory. The telephone directory provides the name and address of subscribers. First the data were compiled colony wise and then these information were assembled at ward level and number of telephones per 1000 population has been calculated. The compilation of information from telephone directory was a cumbersome job and it too about 2 months time in completing the work. Figure 4.13 highlights the ward wise distribution of telephone connections per 1000 population.
Areas of maximum telephone connections (91 and above): Only in few wards of the city has high concentration of telephone connections. These wards are located central and north eastern parts of the city.

Areas of moderate telephone connections (31-90): About half of wards of the city has moderate concentration of telephones connections. This part comprises central, north and south periphery of the city.

Areas of low telephones connections (30 and below): The remaining 40 per cent part of city has low concentration of telephones. This part comprises central, south and north western areas of the city.

4.4 Quality of life of wards of Rohtak City: The composite score

The ward wise data on the above mentioned indicators were further processed and a composite index was prepared in order to analyse the quality of life of the city. The methodology of computing composite score was discussed in chapter I. There are 35 wards in Rohtak City. On the basis of composite score, 35 wards are divided into four categories.

(i) High quality of life wards
(ii) Medium quality of life wards
(iii) Low quality of life wards
(iv) Very low quality of life wards

4.4.1 Wards of High quality of life (0.61 and above):
Twelve out of thirty five wards have high quality of life. About 34 per cent population of the city are residing here. This category comprises the area along Delhi road and colonies namely Sant Nagar, Green Road, Civil Lines, Durga Colony, Mansarover Colony, D.L.F. Colony, Subhash Nagar, Bharat Colony, Model Town, Chanakaya Puri and Sector 14 etc.

4.4.2 Wards of Medium quality of life (0.51-0.60):

About 46 per cent of population are residing in these wards. Sixteen out of thirty five wards have medium quality of life. These wards constitute the colonies namely Krishna Colony, Silara Mohalla, Babra Mohalla, Dairy Mohalla, Saini Pura, Prem Nagar, Gandhi Nagar, S. M. Colony, Janta Colony, Medical College and M.D. University etc.

4.4.3. Wards of Low Quality of Life (0.41-0.50):

Two wards out of thirty five wards have low quality of life. About 6 per cent population fall in this category. Colonies namely Sukhpura, Azadgarh, Kailash Colony, Chuni Pura, Saidas Colony, Sanjay Nagar etc. fall in the category.

4.4.4. Wards of very low quality of life (0.40 and below):

Five wards out of thirty five wards fall in this category. Remaining 14 per cent population of the city have very low quality of life. This category comprises the colonies namely Kartar Pura, Baba Laxman Colony, Rainak pura, Harijan Basti etc.
4.5 Conclusions & Limitations:

In this chapter, an attempt has been made to study the quality of life of Rohtak city with the help of some social indicators namely population density, sex ratio, literacy rate, per cent child population, work force status, scheduled caste population, death rate and number of telephone connections per 1000. It has been observed that at ward level 34 per cent population of city belongs to high quality of life whereas only 20 per cent population belongs to low and very low quality of life category. It is found that wards of high quality of life have low density of population, high level of literacy rate and low per cent of child population and death rate, on the other hand wards of low and very low quality of life have low literacy rate, high death rate, high child population and high concentration of scheduled caste population. (Figures 4.1-4.14)

The ward wise analysis is based on data from secondary sources mainly derived from Census and unpublished government records. Some of the important variables of quality of life related to housing infrastructure and sanitation could not have been incorporated due to lack of available data at the ward level for Rohtak city. However, these variables are included in the household level study.
### Table 4.2

Selected Socio-Economic and Demographic Indicators in Rohtak City, 1991 (Ward Level Data)

<table>
<thead>
<tr>
<th>No of wards</th>
<th>Area in acres</th>
<th>Total population</th>
<th>Pop/area Density per acre</th>
<th>Sex ratio (F/M)</th>
<th>% of S.C. Pop.</th>
<th>% of Child Pop.</th>
<th>% of Male Literacy (total)</th>
<th>% of Female Literacy</th>
<th>% of Total Workers</th>
<th>% of Workers primary</th>
<th>% of Workers secondary</th>
<th>% of Worker Teritary</th>
<th>Death Rate per 1000</th>
<th>Telephone per 1000</th>
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</thead>
<tbody>
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<td>28.4</td>
<td>7598</td>
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