Chapter 4

DEMOGRAPHIC ASPECTS AND DEVELOPMENT
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The geographical approach with a focus on synthesis, gives a better overview of the totality of human life at micro, meso and macro regions. Such studies with a view to identify spatial disparities in the levels of socio-economic activities and development will be of immense utility in the planning process especially so, while making prescriptive recommendations.

Population is a multi-faceted aspect of development, which needs careful understanding. Since the human factor has been recognized as an important factor of development, the analysis of various population indicators related to certain geographical units becomes necessary. The ultimate aim of the planning process is to improve the living conditions of people in a given area. The population is the target group in the planning exercise. Material betterment of the population is the end of development but this betterment must relate both to its end function of consumption and its instrumental role as a means of production (Desai P.B., 1975). The more we know about population, about its structure, composition and distribution about the factors of population change, and more specifically, about its potential for the performance of development tasks, the more effective would our development efforts be. Among the various population characteristics, there are certain characteristics which reflect indirectly the positive level of development such as percentage of literacy, female literacy,
level of education, level of employment, sectoral employment etc. These may be termed as indirect or reflective indicators. The indicators such as growth rate, sex ratio reflect the negative level of development.

The size of population influences economic systems in many ways. The easy availability of adequate labourers is considered as an important precondition for the establishment of productive units. Along with the necessary population size, it is also equally important to have the population of certain qualities and characteristics in terms of educational attainment, age structure, necessary skills, the presence or absence of particular social attitudes are also important (Brian J.L. Berry, Edgar C. Conkling, and D. Michael Ray, 1976).

Population, in its various aspects, has two-fold relevance to development; Firstly, it is an integral part of the resource base of the region for any kind of developmental activities and secondly it is in itself, to a greater extent an outcome of development. Development can never be thought independent of man, his capabilities and his aspirations. Population patterns are at the core of the development process in the developed world (Warren C. Robinson, 1975). The interrelation between man and development is a dynamic one, both in temporal and spatial perspectives. The changing numbers and characteristics of population through time, and the spatial variations therein, are vital to the whole process of socio-economic advancement.
Living standard is not only influenced by growing population but migration of the population from villages to cities. As the population increases, in many cases, living standards of the people goes down. Migration beyond a certain limit may adversely influence the levels of development. The stock and structure of the human population, its flows over time and the factors underlying such flows are essential prerequisite for social and economic development, which are closely interrelated (UN population conference, 1974).

A closer look into the development of towns in respect of their people's well-being would reveal that the development of any city or town is associated with the past and present population, with its concomitant social and economic institutions, distinctive occupations and functions. The present study is an attempt to visualize the interrelationship between city size in respect of population number and social and economic development and to see how far socio-economic development is affected by population size. A brief review of the literature on the subject has revealed that the major theme on this aspect has revolved around the influence of demographic determinants of socio-economic development. Thus, the demographic indicators are, by far the well established indicators of development at all levels.

Brian Berry and Norton Ginsburg's work an 'Atlas of Economic Development' (1961), is based on the analysis of 43 variables,
which they considered as significant in economic development. Among the 43 selected indicators, the demographic indicators were also included such as population density, crude birth rates, crude death rates, population growth rates and infant mortality rates (Berry B.J.L., N. Ginsburg, 1961). McGranahan and his colleagues at the United Nations Research Institute for Social Development used seventy three variables including the demographic indicators such as expectation of life at birth, percentage of population in towns of 20,000 and above, average number of persons per room, percentage of male labour in agriculture, salaried and wage earners etc. (1972). Edward Hall (1966), Desmond Morris (1969) et. al. observed in their studies, the deleterious effects of crowding on human well-being and quality of life. M. N. Pal devised a composite index of 'economic development' in the districts of South India. The study includes the indicators such as proportion and density of factory workers, male immigrants, urban population and labour employed in industry, transport and services (1962). Brian J. L. Berry and Afzal Mohammad in their work on, "Spatial Incidence of Urban induced Mortality in Andhra Pradesh" have used 55 variables pertaining to socio-economic infrastructure and population (1978). The UN committee of experts on International Definition and Measurement of Standards of Living, has proposed nine components of levels of living including demographic indicators like education, employment, mortality, ratio of male labour force in agriculture to total male force. P.C. Agarwal and Z.T.Khan (1983) used nine indicators of regional development in their work
entitled 'Spatial Analysis of the Levels of Regional Development in Madhya Pradesh'. In that they used indicators like the percentage of urban population, percentage of literacy, percentage of workers in industry, percentage of workers in tertiary activities etc. Another interesting work by G.S.Gosal and Gopal Krishan (1984) is based on twelve demographic indicators for the purpose of identification of 'Regional Disparities in Levels of Socio-Economic Development in Punjab'. Kundu's work (1980) is based on ten demographic indicators for measuring the urban process in the context of regionalisation. Ashok Mitra's pioneering work (1961) is on the 'Levels of Regional Development in India' which uses 64 indicators including a set of demographic indicators. The work is an important outcome of the 1961 Census Operations in India. The other notable studies by taking human factor in the economic developmental processes include the works of V.K.R.V. Rao (1946), S. Chandrasekhar (1954), R.R. Iyer (1967), Ram Narain (1965), S.L. Shah (1968), and A. Chandrasekhar (1968).

In this section of the study, an attempt has been made to evaluate a set of demographic indicators pertaining to all the towns and cities of Gujarat as the reflective indicators of development. The focus of this study is on the identification of the levels of development among the 255 urban centres of Gujarat. Among the variables of demographic structure, size, density, working population, proportion of female workers, literacy, housing condition and dependency ratio are of some importance in understanding the process of urban development in Gujarat. The
other indicators such as fertility, mortality and age-groups of population were not considered due to their non-availability of data for all the urban centres. The variation in the demographic indicators is well understood in the background of the distribution of urban population.

Concentration of Urban Population:

According to the intensity of concentration of urban population, six divisions can be made (i) More than 20,000 population per sq.km (ii) 10,001 to 20,000 (iii) 5,001 to 10,000 population per sq.km (iv) 2,001 to 5,000 population per sq.km (v) 1,001 to 2,000 per sq. km (vi) Less than 1,000 population per sq.km. As per the Lorenz’s Curve (Fig : 5.0) 37 percent of Gujarat’s urban population, resides in only 5 percent of Gujarat’s urban area. About 75 percent of the urban population live in 22 percent of the total urban area. This shows high concentration of urban population.

Among the towns of Gujarat, Naliya situated in Kachchh, has the lowest density of population (96 persons per Sq. km) and Padra has the highest density of population (57,582 per Sq.km). Padra is a typical high density residential town at the outskirts of Vadodara city. Out of a total of 18 towns with more than 10,000 persons per sq. km, 14 of them are situated in fertile plains of mainland of Gujarat (North, Central and South Gujarat). Fertile alluvial plain region, sea-coast and
CONCENTRATION OF URBAN POPULATION
(BY LORENZ CURVE)

NUMBER OF PERSONS PER SQ.KM

> 20,000
10,001 - 20,000
5001 - 10,000
2001 - 5000
1001 - 2000
BELOW 1000

CUMULATIVE PERCENT OF AREA

CUMULATIVE PERCENT OF POPULATION

FIG: 5-0
industrial and commercial development are some of the important reasons for the concentration of 37 percent of urban population in 5 percent of the urban area of Gujarat.

Towns with the density condition of 5,001 to 10,000 persons per sq.km account for 25 percent of urban population and 8 percent of the urban area of Gujarat.

Out of a total of 32 towns of this category, 19 are situated in the mainland of Gujarat. Udhana, Vadodara, Rajkot, Digvijaygram, and Nadiad are industrial towns. Vadodara, Rajkot, Porbandar and Nadiad are Class-I cities with industrial, commercial and administrative functions. While Visnagar, Gondal, Dholka, Mahesana and Viramgam are situated in agricultural region and serve as market towns. Porbandar, Kandla and Mahuva are the important ports of Gujarat. Vallabhbh Vidyanagar is an educational centre. The agricultural, commercial and industrial activities along with the development of other urban infrastructural facilities have favoured high concentration of population in all these towns. Among these towns, Visnagar has the highest density of 9,921 persons per sq. km and Nadiad has the lowest density of 5,010 persons per sq.km.

Another 13 percent of urban population with density of 2,500 to 5,000 persons per sq. km covers 9 percent of the total urban area. In this category, out of a total of 35 towns, 26 towns are situated in the mainland of Gujarat. In this category, Deesa has
the highest density (4,950 persons per sq. km), while Bodeli has
the lowest density (2,505 persons per sq. km). Among the towns
of this density category, Bhavnagar is the only Class-I city.
Bedi, Bhavnagar and Okha are the intermediate ports whereas
Dhrangadhra and Palanpur are the market centres, situated in
semi-arid region. Amreli, Godhra, Palanpur and Himatnagar
function as district headquarters. Dhoraji, Sidhpur, Anand are
relatively small in size but are important market centres in
their respective regions. Isanpur, Odhav, Ghatlodiya, Memnagar,
are mainly the residential suburbs of Ahmedabad city situated at
the outskirts of the municipal limit. Since these are new resi-
dential suburbs, the density of population is relatively moderate.

Another 16 percent of the total urban area accommodates 12
percent of the urban population with the density of 1,000 to
2,500 persons per sq.km. Out of a total of 65 towns, 51 are
situated in the mainland of Gujarat. Petro-Chemical Complex,
Fertilizernagar, Vithal Udyognagar, Naroda, Chhani, Atul and
Jawaharnagar are newly developed industrial towns which are
better planned in terms of functions and residential density.
Sarkhej, Ghodasar, Ahmedabad cantonment, Naroda Industrial
Notified Area and Vastrapur are the suburbs of Ahmedabad city
having one of the specialised functions such as industrial,
residential and cantonment. Vaso, Sojitra, Talala, Mangrol,
Kodinar etc. are situated in agricultural regions functioning as
small market towns with some agro-based industrial base. Ukai
and Dakor have a highly specialised functional base.
The remaining 62 percent of the urban area, accounts for 13 percent of the urban population. In this density category, of less than 1,000 persons per sq.km there are 105 towns, which are mainly situated in Saurashtra region. These towns have low density of population mainly due to the Kharlands, poor water resources and high variability of rainfall.

Thus, only 85 towns, out of a total of 255 towns of Gujarat have high concentration* (more than 2,500 persons per sq. km ) of urban population, accommodating 75 percent of the total urban population in 22 percent of the total urban area of Gujarat.

A critical appraisal of each of the demographic indicators is presented here. The following are the demographic indicators considered for analysis :

(1) Percentage of individual towns population to the total population of the category
(2) Percentage of individual towns population to the total urban population of the State
(3) Density of population per sq. km
(4) Houses to household ratio
(5) Average size of household

* The concentration of density of urban population becomes all the more intense, if the urban population is related only to the residential landuse of the total urban area.
(6) Percentage of literate population
(7) Percentage of female literacy
(8) Percentage of workers to total population
(9) Percentage of male workers to total male population
(10) Percentage of female workers to total female population
(11) Dependency ratio

Population characteristics are the manifestation of the level of development of a given area. The degree of urbanisation is one of the important measures of socio-economic development. The urban population in Gujarat has grown over one hundred percent as against a general growth rate of about 65 percent of the total population between 1961 and 1981 (Chitharanjan K.V., 1983). As per the Census records of 1981, nearly 31 percent of Gujarat's population is urban as compared to the national average of 24 percent.

Urbanization in India is the product of an increasing gap between the rising expectations of the people and the response of the national economy and body politic to meet these expectations (Misra R.P., 1978). Urbanization is the diffusion of economic innovations, and it is also a process of social change and spatial development. The assumption is that well-co-ordinated development of socio-economic infrastructure is essential in order to maintain a high level of urban and economic development.

Urbanization is a process which reveals itself through
temporal, spatial and sectoral changes in demographic, social, economic, technological and environmental aspects of life in a given society. These changes manifest themselves in increasing concentration of population in human settlements larger than villages, in increasing the involvement of people in secondary and tertiary production and in progressive adoption of traditional rural societies. Bogue and Zachariah point out "rural to urban migration is by far the chief mechanism by which all the world's great urbanization trends have been accomplished" (Viswanadham G; 1979). The degree of urbanization in any country or a region is one of the important measures of socio-economic progress. It is particularly so in developing countries like India, in which it is the town where new innovations, technology, modern traits of life and new ideas grow and from where they spread to the countryside.

The towns of Gujarat, numbering 255 (1981), vary greatly in population size. The range of population among these towns is from 370 in Vatva which is an industrially notified area to that of 20,59,725 in Ahmedabad. The Table : 6 and Table : 7 show the pattern of association of various demographic indicators with the rank size categories and the type of local self-governments. According to administrative units, the towns have been classified into seven categories for studying the population characteristics. Table : 6 and Table : 7 reveals that the urban centres of varying sizes in Gujarat are distributed unevenly under different rank size categories and different administrative categories.
Table: 6

Demographic Characteristics by Rank Size Categories (1981)

<table>
<thead>
<tr>
<th>Rank Size Categories</th>
<th>No. of Towns</th>
<th>Percentage of urban population of the state</th>
<th>Percentage of urban population per sq. km</th>
<th>Density of population</th>
<th>Percentage of female literacy to total female population</th>
<th>Percentage of workers to total population</th>
<th>Percentage of male workers to total male population</th>
<th>Percentage of female workers to total female population</th>
<th>Dependency Ratio</th>
<th>Average Size of Household</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>12</td>
<td>15.5</td>
<td>49.8</td>
<td>8,722</td>
<td>63.7</td>
<td>41.7</td>
<td>29.1</td>
<td>50.3</td>
<td>5.2</td>
<td>2.4</td>
</tr>
<tr>
<td>II</td>
<td>71</td>
<td>9.4</td>
<td>30.1</td>
<td>3,002</td>
<td>58.5</td>
<td>39.8</td>
<td>27.9</td>
<td>49.1</td>
<td>5.0</td>
<td>2.6</td>
</tr>
<tr>
<td>III</td>
<td>63</td>
<td>3.2</td>
<td>10.1</td>
<td>674</td>
<td>54.5</td>
<td>39.0</td>
<td>28.2</td>
<td>48.6</td>
<td>6.4</td>
<td>2.5</td>
</tr>
<tr>
<td>IV</td>
<td>99</td>
<td>2.5</td>
<td>8.1</td>
<td>560</td>
<td>54.9</td>
<td>39.1</td>
<td>29.7</td>
<td>50.2</td>
<td>7.4</td>
<td>2.3</td>
</tr>
<tr>
<td>V</td>
<td>10</td>
<td>0.06</td>
<td>0.2</td>
<td>587</td>
<td>46.7</td>
<td>35.2</td>
<td>40.0</td>
<td>62.2</td>
<td>10.8</td>
<td>0.7</td>
</tr>
<tr>
<td>Total</td>
<td>225</td>
<td>30.06</td>
<td>98.3</td>
<td>2,189</td>
<td>60.4</td>
<td>40.3</td>
<td>28.7</td>
<td>49.8</td>
<td>5.5</td>
<td>2.5</td>
</tr>
<tr>
<td>Administrative Categories</td>
<td>No. of Towns</td>
<td>Percentage of urban population to the total population of the State</td>
<td>Percentage of urban population to the total population of the State</td>
<td>Density of Population per sq. km.</td>
<td>Percentage of Literacy</td>
<td>Percentage of worker to total population</td>
<td>Percentage of male workers to total male population</td>
<td>Percentage of female workers to total female population</td>
<td>Dependancy ratio</td>
<td>Average size of household</td>
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<td>---------------------------</td>
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</tr>
<tr>
<td>Municipal Corporations</td>
<td>4</td>
<td>11.78</td>
<td>37.9</td>
<td>12,129</td>
<td>64.2</td>
<td>41.0</td>
<td>29.5</td>
<td>50.7</td>
<td>5.3</td>
<td>2.4</td>
</tr>
<tr>
<td>Municipalities</td>
<td>53</td>
<td>10.57</td>
<td>33.8</td>
<td>4,262</td>
<td>59.9</td>
<td>40.6</td>
<td>27.5</td>
<td>48.5</td>
<td>5.0</td>
<td>2.6</td>
</tr>
<tr>
<td>Nagar Panchayat Village</td>
<td>76</td>
<td>4.57</td>
<td>14.7</td>
<td>842</td>
<td>55.9</td>
<td>34.1</td>
<td>28.4</td>
<td>49.2</td>
<td>7.7</td>
<td>2.4</td>
</tr>
<tr>
<td>Village Panchayat</td>
<td>103</td>
<td>3.20</td>
<td>10.2</td>
<td>679</td>
<td>54.3</td>
<td>38.1</td>
<td>30.0</td>
<td>51.3</td>
<td>6.5</td>
<td>2.5</td>
</tr>
<tr>
<td>Non-Municipal Towns</td>
<td>7</td>
<td>0.42</td>
<td>1.3</td>
<td>1,432</td>
<td>61.2</td>
<td>39.6</td>
<td>28.5</td>
<td>47.5</td>
<td>6.5</td>
<td>2.5</td>
</tr>
<tr>
<td>Industrial Notified Area</td>
<td>11</td>
<td>0.09</td>
<td>0.3</td>
<td>814</td>
<td>60.3</td>
<td>37.3</td>
<td>39.4</td>
<td>61.8</td>
<td>9.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Cantonment</td>
<td>1</td>
<td>0.03</td>
<td>0.1</td>
<td>1,924</td>
<td>61.7</td>
<td>44.5</td>
<td>20.7</td>
<td>38.4</td>
<td>4.4</td>
<td>3.8</td>
</tr>
<tr>
<td>Total</td>
<td>255</td>
<td>30.66</td>
<td>98.3</td>
<td>2,189</td>
<td>60.4</td>
<td>40.3</td>
<td>28.7</td>
<td>49.8</td>
<td>5.5</td>
<td>2.5</td>
</tr>
</tbody>
</table>
It is observed that in rank size categories I and V, there are fewer number of towns as compared to II, III and IV categories of towns. The highest number of towns are in rank size category IV and the largest proportion of population in the towns of category I. The cities of rank size category I, with a population of more than 85,000 play a significant role in the process of urbanization in Gujarat. These cities which are 12 in number account for about 50 percent of the urban population. Table 6 reveals that the concentration of population in relation to the total population and the total urban population of the State is quite significant. Nearly 12 percent of the total population of the State and 38 percent of the total urban population of the State is concentrated in 4 Municipal Corporations (Table 7), namely Ahmedabad, Surat, Vadodara and Rajkot. These towns are now attracting relatively less migrants than before, although in absolute terms, their share is still very large. People who migrate from rural areas and small townships to the cities, prefer to move to the larger ones, especially to have more individual freedom, economic opportunities and better economic returns. On the other hand, the proportionate share of the small towns in urban population is progressively declining. There is a remarkable tendency of intermediate towns with a population range of 50,000 to 1,00,000 to grow faster both in number and population size.

Gujarat ranks third in the degree of urbanization in India with 31.08 percent of urban population. However, the decennial
growth rate of population in the State is the second highest in the country (40.8 percent). Prior to 1986 Census, the experts committee on population projection was appointed by the Planning Commission, with the Registrar General of India as its head. The committee worked out the projected figures of the percentage of urban population in Gujarat as 30.02 for 1981 and 31.07 percent for 1986. The projected percentage of urban population mark for 1986 was reached in 1981 itself. This perhaps indicate the rapid rate of urbanization in Gujarat (Pichholiya K.R., 1983).

The varied causes and consequences of urbanization have led to its complex process, making it rather difficult to sort out the complexities, their type and magnitude. Fivefold increase has taken place in the State's urban population during the period 1901 and 1981 (20.3 lakh to 105.5 lakh). Till 1961, the industrial structure of Gujarat State was basically remained centred on the textile industries. The exploration of oil fields and the setting up of the refineries, fertilizer complexes and several other allied industrial units especially in the Central and North Gujarat regions paved the way for the rapid industrial strides. Further, due to government's liberal policy towards finance and making available the infrastructural facilities both in the public and private sectors, the economic base has expanded considerably. In the field of agriculture, significant progress has been made during the last two decades, which has accelerated the pace of industrialisation and urbanization in the State. The urban population in Gujarat has almost doubled during the last
two decades i.e., during 1961 and 1981 as against the total population increase of about 65 percent during the same period.

Out of a total of 31 percent urban population, 22.35 percent concentrated in only 57 cities consisting of all municipal corporations (11.78 percent) and municipalities of Gujarat (10.57 percent). The remaining 198 towns accommodate 8.31 percent of urban population. The distribution of urban population under various categories of towns, show a marked bias for larger cities especially the four municipal corporations of Gujarat, Ahmedabad Municipal Corporation accommodates 19.75 percent of urban population. The greater concentration of urban population in Ahmedabad, Surat, Vadodara and Rajkot is due to the establishment of large scale industries and other ancillary industries.

The concentration of urban population shows positive association with the city size categories. The percentage of concentration increase considerably with the increase in city size. Table : 7 reveals that the municipal towns share 33.80 percent of urban population whereas, nagar panchayats accomodate only 14.75 percent of urban population and the proportion further declines in the categories of village panchayat, non-municipal towns, industrial notified towns and cantonment town. Thus, it is not only the size of the individual towns but also their size categories that indicate close association with the size of urban population and urban based activities.
Urban Density:

Density of population is positively associated with the city size. The large towns of Gujarat are not only few in number but also have high density of population. It is observed from the data that a large number of towns have relatively low density of population. The towns of rank size category I show the highest density of population (8,722 persons per sq. km) and the lowest density of 560 persons per sq. km in the towns of rank size category of IV. Among the towns of category II, Padra has the highest density of 57,583 persons per sq. km while the lowest density of 96 persons per sq. km is recorded in Naliya town of Kachcha district in the rank size category of IV. It is commonly observed that the large towns show high density of population than small and medium size towns, especially in terms of the intensity of residential and industrial landuse (Chauncy, D. Harris, 1956).

The average density of population per sq.km ranges from 679 persons in village panchayat towns to 12,129 in municipal corporation towns. The average density of population per sq. km is approximately 5 times more in municipal towns than the nagar panchayat towns. Similarly, the density is nearly 3 times more in corporation towns than in municipal towns. The ratio of increase in density is more or less same in case of ranksize categories of III and II; and II and I.

The relationship between the rank size category of towns and
density of population has shown positive association. Similarly, the density of population also shows association with the type of landuse and functional base. The cities with industrial and commercial function, show high density of population. Ahmedabad, Vadodara, Surat, Rajkot, Odhav INA and Naroda INA are some of the cities of this category which attract greater population from far and wide resulting into the crowded living conditions necessitate the provision of social amenities at a much lesser per capita cost. The high density living has become a rather cultural norm in the oriental cities (Kulkarni K.M., 1984). High density of population will imply greater economic activities and an obvious urge for an improved standard of living, a greater struggle for existence and continuous change in living conditions. On the other hand high density conditions will result in congestion, slums, air pollution, housing problem etc. (Ghosh, B.N., 1985). Thus, a density of population is a synthesis of all geo-economic conditions. As per the recommendations of the towns planners, an ideal urban density is approximately around 5000 persons per sq. km.

Literacy:

Among the various population characteristics, the aspect of literacy is quite significant in the context of development process. It is believed that literacy in general brings about much desired public awareness especially by way of their effective participation in developmental activities. The mass education, adult education, free female education, distance education,
education through media and vocational training are some of the measures undertaken by the Central and State Governments in bringing out mass awakening. Apart from literacy as an indicator of development, level of educational attainment needs to be understood especially in terms of proportion of technical graduates, professional graduates (medical, pharmacy, law etc.) and others including scientists. The data related to these aspects give an insight into the processes and stages of development. The level of education gives the best exposition of urban development because of its dual functions as cause and effect of modernisation, it serves as a sensitive indicator of the level of development which a society possesses for its future progress. Education, in fact, is the key to prosperity and the level of prosperity finds its instant expression in the educational standards of the people. It is the quality and level of education which prepares an individual for full participation in a rapidly changing social and economic order. It may therefore, be employed as an indicator in determining urban development.

Education has long been recognized as vital to development, not only in fostering attitudes and aptitudes conducive to economic and social change but also in meeting a basic need for all individuals (Wilson R.K. and C.S. Wood, 1982). Literacy levels may be a preferable guide to development as these purport to show the outcome of the educational process rather than just the inputs, but so far data present serious limitations on this measure as a reliable indicator.
It is a commonly accepted dictum that resources derive their significance from the quality of population using them. The progress in literacy and economic development is generally, though not always, inter-related. Economic and social progress may not necessarily go hand in hand. There are several studies which highlight the possibility of rising levels of education resulting into lower fertility. The greater the increase in the level of education of females, the greater is the depressing impact on their fertility. At the higher level of education, the process of attaining certain level, delays marriage. They may also be less influenced by traditional views on fertility. The higher levels of education and associated higher income may increase opportunities for work and leisure. This however bring about decline in the motivation for large families (United Nations, 1977).

The ultimate goal of education for all, is to attain social and economic equity and to make it possible that individual's participation becomes effective in national development. An empirical study by Bowman and Anderson covers as many as eighty three countries which subscribe to a view that a certain minimum level of education is a basic pre-requisite for economic development (Chaudhary M.D. and K.R.G. Nair, 1981). In fact international bodies like the United Nations and Organisation for Economic Co-operation and Development, look upon education as an area of major social concern and list the same as an important constituent of the level of living.
The percentage of literacy as an indicator of social progress does not show encouraging pattern both at the national level and the State level. On account of educational facilities, communication media network, cosmopolitan social structure and effective interaction in urban areas, the proportion of literacy is more in favour of urban sector though it does not recognise any geographical barrier.

It is quite well known fact that the degree of urbanization and the percentage of literacy are directly proportionate. Similarly, the rank size category of towns, which show the degree of urban concentration indicate positive relationship with the percentage of literacy (Table : 6 and 7).

Among the 255 towns of Gujarat, 4 towns belonging to the category of Municipal Corporation show 64.2 percent literacy, whereas the average literacy for all the towns remains 60.4 percent. On the whole the literacy shows urban bias due to the availability of best education in the cities and elsewhere it is sometimes not available at all (Yeatts, 1941). In a developing country like ours sizeable population belongs to the middle class who in turn attach greater importance to education, as it makes a powerful influence (Hanumappa H.G, 1981). Large towns have greater proportion of literates, educated, technical and qualified people as they are attracted towards it due to better economic opportunities and in turn have higher literacy rates among all the towns of Gujarat due to the better educational facilities.
The highest literacy is observed in Fertilizernagar (82 percent) and the lowest literacy in Dungarpur (15 percent). In the category of municipal corporation, Vadodara city has 68.4 percent literate population which is highest among the four municipal corporations of Gujarat. This is mainly because of its early development as an educational, cultural, administrative town under the princely rule and now for its systematic industrial development. Vadodara has two dominant functions namely educational and industrial. The city has a number of institutions of technical and non-technical education and a number of industrial units especially petro-chemicals, pharmaceuticals and allied industries. Among the towns having municipal corporations, the lowest literacy was recorded in Surat (about 61 percent). This is mainly because of its industrial structure composed mainly of diamond cutting, machine-tools and powerloom-textiles. These industries employ skilled and professional workers rather than highly qualified and technical labour. Thus, the illiterate and unskilled labourers are drawn from Saurashtra and North Gujarat to work in highly specialised industrial units of Surat. Among the municipal towns, Valsad has highest literate population (68.6 percent) and lowest being recorded at Patan (Veraval) (34.9 percent). Valsad is developing as an industrial town with planned industrial estate, while Patan is a pilgrim centre with no significant economic activities worth the name. The average percentage literacy of the categories of municipal corporation and municipality is 64.2 and 59.9 respectively.
Among the towns of Nagar Panchayat, Vaso has the highest literacy of 70.6 percent. This is mainly because, Vaso is a modernised and prosperous town of charotar region (covering Kheda district). The lowest literacy rate is observed in Bedi (16.1 percent), a port town of Saurashtra coast, where large number of unskilled labourers are engaged in port activities. Average literacy of Nagar Panchayat towns is 55.9 percent. Among the Village Panchayat towns, the highest literacy rate is observed in Ghatlodiya town. It is developing as a fringe town of Ahmedabad city mainly as a residential or dormitory town of Ahmedabad. It has a large number of co-operative housing societies, government and semi-government employees quarters accommodating mainly the migrants both from within and outside the city. The lowest literacy is observed in Dungarpur (15.2 percent) of Junagadh district because it is situated in remote area, and has no facility of school. The average literacy for the category of Village Panchayat towns is 54.3 percent which is much lower than the average for all the towns of Gujarat.

The non-municipal towns recorded 61.2 percent literate population, which is much higher than the average for all towns. Among the non-municipal towns, highest literacy is recorded in Fertilizernagar (82.1 percent). This is mainly due to the migration of educated, skilled and technically qualified workers. The lowest literacy is recorded in Kandla (32.5 percent) in the same category of towns. The proportion of unskilled and undeducated workers is relatively more in port towns. The
development of Kandla as a major port has helped in attracting more labourers from other parts of Gujarat and India. Industrial Notified Areas are the new developing towns especially in the vicinity of major towns. Among these towns, Petro-Chemical Complex has registered highest literacy rate of 73.3 percent. This is mainly due to the immigration of highly qualified, skilled and technical labourers to work in the industrial units. Vithal Udyognagar has recorded the lowest literacy rate of 34.9 percent in this category of towns because of industries like saw mills, glass industries etc. which do not require educated and highly qualified workers. Ahmedabad cantonment is the only one of its kind in Gujarat, has recorded 61.8 percent literacy.

The percentage of literacy by different rank size categories show positive relation. With the higher rank size category, the proportion of literates increases. Among the towns of Gujarat, the towns of rank size category I show 63.7 percent literates, whereas in the lower category, the proportion comes down to 64.7 percent. This is mainly because the large towns attract literate qualified and technical persons from other small and medium sized towns. Moreover, the large towns have relatively better and more educational institutions, making it available for all. Thus, the urban society is more aware of the socio-economic implications of the educational training. It is interesting to note that it is not only the size but also the dominant functional type of the towns that affects the number of literates. Generally, the towns dominated by secondary activities, have the largest number of
literates, whereas the towns with primary activities show a very low literacy level. Certain occupations need literacy as prerequisite condition, while others do not make it a condition. However, it is observed that most of the towns of category V are industrial notified areas with low literacy level. This is perhaps due to the nature of demand for certain type of labourforce in the industrial sector. Large number of illiterate, uneducated and unskilled labourers have moved in to these towns from different parts of the country.

The differentials in the literacy rates by sexes are also most pronounced. The literacy rates for females are strikingly low in comparison to the literacy rates for male. According to the 1981 Census, 68.7 percent of total males were found literate where as the literate females accounted for 40.3 percent of the total female population of towns of Gujarat. Like the proportion of total literacy, the proportion of female literacy also increase with the increasing size and category of the towns (Table : 6 and 7). Even within the hierarchy of urban centres, the literacy is higher in the cities than in any other lower order of centres and similarly a marked difference is observed in case of female population. Again, as the towns move upwards according to the size, the difference between the levels of male and female literacy rates get reduced.

Female literacy rate reflects indirectly the status of women. In the existing social conditions in India, female
literacy may be taken as a rough measure of the degree to which the womenfolk are bound by tradition and superstition and operating within the environment of primary production.

The average literacy of females in the towns of the category of Municipal Corporation and Municipality is 41 percent, whereas in the towns of Nagar Panchayat category is 39.1 percent and in the Village Panchayat category 38.1 percent. Thus, with the increasing status of local self government, the female literacy increases. The Non-municipal towns also have shown high female literacy even more than Nagar Panchayat and Village Panchayat towns. This is mainly because the Non-Municipal towns have specialised functions, such as administrative, industrial and port oriented activities. Gandhinagar as a capital town, Kandla as a major port town, Mithapur, Atul, Jawaharnagar and Fertilizernagar as industrial towns have developed. These towns are well-developed in terms of functions and social amenities. In large towns, female literacy rate is higher because of selective migrants and the general awareness for education, without any discrimination of sexes. While in small towns, meagre educational facilities, traditional and conservative societies do not approve equal opportunities for men and womenfolk in getting better education, resulting into lower female literacy rate. The lowest female literacy is recorded in the towns of industrial notified area. These are the typical industrial suburbs or outgrowths attracting migrant, unskilled and uneducated industrial labourers, who prefer to reside close to their place of work.
Like the proportion of male literacy, the proportion of female literacy also increases with the increasing rank size of the towns. The average female literacy in the towns of rank size category I is 41.7 percent, whereas in the smallest category the proportion comes down to 35.2 percent.

With the higher proportion of female getting educated and rising status of women-folk due to industrialisation and urbanization, there has been a marked improvement in the employment (5.5 percent of female population of Gujarat) and social status of women in the urban areas of Gujarat. Thus the average literacy of population and female literacy are the important indicators of the level of development, especially in the developing countries despite certain limitations. The Census of India defines literacy, as a condition having the skill of writing and reading alphabets. It does not impose any criteria of attaining certain level of formal education. Literacy in the present context may be taken as a process of developing intellectual abilities, of shaping cultural attitudes, and of acquiring knowledge and useful skills. Therefore, literacy rate alone does not indicate the excellence and quality of population except as a crude indicator.

**Workforce:**

As the literacy level of a population reflect the crude patterns of social development, the proportion of workforce is an index of economic development. Manpower is the basic resource of
any settlement. The employment of human resources in various sectors of economy determines the level of economic development. The prosperity of urban community directly depends on the size of working population which contributes to the Gross National Product. The detailed analysis of formal sectors (production and service sectors) and informal sectors strengthen the argument in favour of workers and urban economy. The supply of a labour-force is mainly affected by the population growth and changes in its composition. The high rate of population growth in India has become a cause of concern to economic planners especially in providing social amenities and creating employment opportunities. The preponderance of administrative and professional services (tertiary sector) in the urban sector is well marked and it increases with the size of the town.

It is observed that as per the Census of 1981, only 28.7 percent of the urban population is working. The detailed break up of working population of various towns by their administrative categories is as follows: 29.5 percent working population in Municipal corporations, 30 percent workers in Village Panchayat towns and 39.4 percent workers in Industrial Notified towns. All the above mentioned categories show higher percentage of workers than the average percentage of workers of all the towns of Gujarat. There is no significant difference in the working population of Nagar Panchayat towns (28.4 percent) and the towns having Non-Municipal body (28.5 percent).
Among all towns, the Industrial Notified Areas which are relatively smaller in size show a higher proportion of working population (39.4 percent), mainly due to the systematic development of industries attracting skilled and professional workers and to a limited extent unskilled labourers for physical work.

There is no significant difference in the proportion of working population in the rank size categories from I to V. Among all the towns, the smallest category towns (rank size category V) show relatively higher proportion of working population (40 percent) including high proportion of female workers (10.8 percent), as they have the industrial base. The proportion of gainfully employed males is six times more than that of the employed females in these towns. Besides child-bearimg and shouldering the responsibility of performing household duties, some of the female folks do participate in economic activities. However, the proportion of gainfully employed women-folk is relatively far too less in majority of the towns of Gujarat. Further, their lower level of education and the traditional and conservative attitude of the male dominated society do not encourage womenfolk to take part in economic activities. However, steadily such social values are being questioned very often by certain public and private organisations. Thus, the distinct employment pattern in favour of males emerges as a result of social discrimination by sexes.
Another important feature is the occurrence of highest percentage of total workers to total population, male workers to male population and female workers to female population among the towns of industrial notified category. The predominance of industrial function in these notified areas not only require more male workers but also the female workers depending upon the need of the work. One observes that, the vast majority of urban female workers are engaged in various occupations that require no formal education at all (Sharma O.P., 1975). A comparison of the sex-ratio, female literacy rate and working population of various towns reveals that, the Industrial Notified towns, despite their highest sex ratio and lowest female literacy rate, show higher percentage of workers to the total population and female workers to female population and male workers to male population i.e. 39.4 percent, 61.8 percent and 9.5 percent respectively. Table 7 shows that the average proportion of female work-force is 5.5 percent and the range is from 4.4 percent in Ahmedabad cantonment to 9.5 percent in the category of Industrial Notified towns. It is clear from the Table 6 that despite high literacy level among large towns, the female workforce is much less than the medium and small towns.

Dependency Ratio:

About 71 percent of the total urban population in the State is dependant on 29 percent of the workforce. The average dependency ratio worked out on the basis of workers and non-workers is 2.5. Approximately, the ratio come to 1500 dependants
LEVELS OF DEVELOPMENT
(BASED ON DEMOGRAPHIC INDICATORS)
(Towns of Rank Size Category I)

AHMEDABAD

SURAT

NAVSARI

VADODARA

JUNAGADH

POPULATION (In Lakh)

FIG: 6.0
LEVELS OF DEVELOPMENT
(BASED ON DEMOGRAPHIC INDICATORS)
(Towns of Rank Size Category II)

PADRA
UPLETA
UNA

LEVELS OF DEVELOPMENT
(BASED ON DEMOGRAPHIC INDICATORS)
(Population in thousand)

Demographic Score

FIG. 6.1
over the vacant urban space without any regard for density, civic amenities, building standards and sanitary facilities. The increase in population due to migration also adds to the problems of the municipal bodies. Most of the people who were drawn from the rural areas in search of employment, lived in semi-urban and semi-rural areas with their rural habits. The way of living has affected the quality of micro urban environments. The over-all effect has been the creation of 'slums, semi-slums and super slums' in the physical as well as social sense. Several studies including the reports of U.N. Agencies have estimated the magnitude of housing shortage which comes to about 2 million dwelling units per annum at the present rate of urban growth in India. The present rate of construction of houses, fulfills only 15 percent of the total demand in India (Sinha S.P., 1984).

Housing is a global problem. According to the estimates of the United Nations, there are more than 180 million people who are homeless in the world, while another 100 million live in insanitary dwelling units including even the advanced countries. (Francis Cherunilam, 1984). The housing problem is more chronic in the urban areas of the developing countries. A large number of urban families in the developing countries cannot afford even the cheapest dwelling unit. According to the estimates of the World Bank, nearly 64 percent of urban households in Ahmedabad cannot afford even the cheapest dwelling units. The comparable percentage figures for Madras is 63, Nairobi 68 and for Hong Kong it is 35 percent (World Bank, 1979).
As a result of the explosive increase in population, low income levels and low rates of additions to the housing stock, the housing problem has assumed alarming proportion. According to the estimates of the National Building Organisation (NBO), the housing shortage has increased from 3.8 million to 4.7 million in urban India. The high growth of cities in developing countries coupled with high rate of immigration (upto 10 percent a year) have shown the sprawl of squalter settlements holding between 30 to 50 percent of the population. The housing facility in India is highly overcrowded with an average level of more than three persons per room, as compared to 0.2 persons per room in Canada and West Germany. Housing facility and the lack of it, ranks, therefore as one of the greatest urban problems in the third world cities. Rosser has aptly describes this problem as the greatest single cause of environmental deterioration (Geoffrey K. Payne, 1977). In urban India, it may be seen that over 58 percent of the households in class-I cities (with population of 1,00,000 or more) had only one room as the dwelling unit. As many as 7 cities with more than 1 million population, showed nearly 67 percent of its households possessing only one room and its average occupancy was 3.17 persons (Howard Spodek, 1983). The International Union of Local Authorities has estimated that, even by modest standards, from one to two-third of a typical Asian city population must be considered as slum dwellers (Francis Cherunilam, 1984). Former Union Minister of State for Works and Housing disclosed that in the metropolitan and 'A' class cities of India, "the proportion of slums and squatter population ranges
between 33 and 50 percent, where hardly any one of the essential community services, such as supply of potable water, sanitary facilities, roads, pavements etc. exists" (Bhagat H.K.L., 1976). Quite obviously, the very low level of the income of a large segment of the population and the insufficient supply of good residential buildings at reasonable prices are the most important causes of the emergence of slums.

Slums are the plague-spots of city life. The slum population of Calcutta, Madras, Bombay and Ahmedabad is estimated at 25, 25, 34 and 45 percent of their respective total populations. A special survey of Ahmedabad was carried out in 1976 and it reveals that nearly 4.15 lakh people live in 700 slums and squalter settlements (Alfred de Souza (ed), 1978). The Operation Research Group of Vadodara studied the problem of slums in the seven major cities of Gujarat. According to the report of the Group, 15 percent of the urban population lived in slums, whereas the proportion of slum population varied from 6.9 percent in Rajkot to 22.4 percent in Jamnagar (Khatu K.K., 1973). In Ahmedabad, most of the slums were formed during the pre-independence period when the textile industry was making considerable progress. However, the problem of this kind is more recent one in smaller cities, such as Nadiad, Rajkot, Jamnagar and Bhavnagar, where about a quarter of the slum population is self-employed (Singh Andrea Menefee and de Souza Alfred, 1980). Studies conducted in different cities of India have revealed that most of the slum population is composed of rural migrants. For
instance, in Ahmedabad, about 83 percent of the household heads in the slums are migrants from the countryside (Francis Cherunilam, 1984).

The resources at the disposal of the governments, both the national and the local, are quite insufficient to improve the condition of slum areas in the near future. It is therefore, important to increase substantially the investments so as to bring environmental improvement in slum areas. The provision of low cost sanitation and drainage measures can be taken up on a priority basis to improve the slums of our cities (Government of India, Planning Commission, 1980 - 85).

It is evident from the Table 6 that there is a significant relationship between size of towns and housing stock. As the size of towns increases, the inadequacy of housing units also increase. Among the 4 towns having Municipal Corporation with a housing shortage of 8,401 houses. Ahmedabad city alone accounts for more than 2000 houses. While Cantonment town has almost no shortage of houses mainly due to the type of local self government that is Cantonment Board. Cities like Ahmedabad, Vadodara and Surat are overcrowded in respect of number of house and their condition. According to the findings of the expert committee on methods for achieving low cost, large scale housing construction in the major cities, appointed by the Government of India, the shortage of pucca houses in Ahmedabad is classified
according to the income groups, as on July, 1970 (Refer Table : 8) (Kirtee Shah, 1978).

It is revealed from the Table : 7 that the total shortage of 18,140 house in the towns of Gujarat, Municipal Corporations and Municipal towns together account for the shortage of 14,222 houses. Thus, it is clear from the analysis that, shortage of houses is mainly in large cities and towns. The various estimates on the shortage of houses in different cities differ widely. This makes the problem all the more confusing and difficult to solve.

Table : 8
Shortage of Pucca Houses in Ahmedabad

<table>
<thead>
<tr>
<th>Monthly Income Range</th>
<th>Housing Shortage (in units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rs. 0 - 100</td>
<td>65,300</td>
</tr>
<tr>
<td>101 - 250</td>
<td>23,600</td>
</tr>
<tr>
<td>251 - 500</td>
<td>9,300</td>
</tr>
<tr>
<td>501 - 1000</td>
<td>4,200</td>
</tr>
<tr>
<td>1001 and above</td>
<td>2,600</td>
</tr>
</tbody>
</table>

It is evident from Table : 6 that there is a significant relationship between the size class of the towns and availability of housing facility. As the size class of the town increases, the inadequacy of housing units becomes greater.
The housing policy of the government aimed at a massive programme of building houses for the economically weaker section of the urban society. The various State governments have established Housing Boards in their respective States to facilitate houseless population to possess their own house with greater ease. Shelter is one of the basic needs of human being and its inadequacy indicate the extent of housing problem. However, the extent of availability of housing facility is one of the important indicators to measure the development of towns.

Despite their problems, the rapidly growing towns have still not put the bottle down, saying to themselves, like Alice (One of the Swedish towns), 'That's quite enough......I hope I sha'nt grow any more,' but 'Alas, it was too late to wish that' (Ella Ödman Gun-Britt Dahiberg, 1970).

Family Size:

Table : 6 and Table : 7 reveals the positive association between the rank size category of the towns and the average size of the family. In urban Gujarat, the average size of the family is 5.6 which is also observed in the rank size category of I, II and III towns. The smallest family size of 4.3 is observed for the towns of rank size category of V. Like the rank size categories, the towns of Municipal body show an average of 5.8 as their family size and the smaller family size of 4.1 is observed for the category of Industrial Notified towns. By and large, the major towns have experienced a high rate of population growth
due to their initial industrial development. This resulted into a steady life situation and better economic condition along with increase in birth rate and average family size. The Industrial Notified towns have the small families due to their initial stage of industrial development and also due to the early stage of family life of migrants. Some of the male immigrants have settled in these towns leaving their families in their respective place of origin due to their uncertainty of settling down to their present job. Studies dealing with the economic consequences of family size indicates that the small family is more conducive to the welfare of the people (Souza Victor S., 1985).

Growth of population is not included as a developmental indicator in the present study due to its negative effect. Urbanisation is both a cause and consequence of economic development. The rate of urban growth is one of the several important induces of the progress of economy. But a high rate of population growth at least in the shortrun, become an impediment to economic development (Bose Ashish, P.B. Desai and S.P. Jain., 1970). The increase in population size requires considerable capital investment, in order to support the additional population at the existing standards of living of the population. In the long run, high rate of population growth tends to retard social and economic development especially by way of changes in the age structure, affecting the infrastructural facilities and the quality of urban life. Growth of population is not always a constraint in the developmental activities. Sometimes high
growth rate is a boon for the industrial development by way of assured qualitative supply of labour force. Thus, there is a continuous tradeoff between the socio-economic inputs and the growth of population.

During the decade 1971-81 the towns of Gujarat have shown a very significant growth in their population, which amounts to an increase of 40.82 percent. It is observed that the industrialisation appears to have been the major factor for their rapid growth. The pattern of growth among the towns of Gujarat is characterised by considerable variation, especially between the towns of different rank size categories. There is no clear cut trend in the growth of the population in relation to the rank size categories of towns. However, one observes a declining rate of population growth with the increase in size of towns, except the municipal corporations, nonmunicipal towns and a cantonment town (Municipal Corporation, towns - 42.2%, Municipal towns - 32.2%, Nagar Panchayat - 36.8%, Village Panchayat - 59.6%, Cantonment town - 0.56%). This phenomena is mainly due to the size of the absolute population itself which affects the rate of growth. In terms of absolute increase in population size, the magnitude of increase is positively associated with the rank size category of towns.

City Size and the Levels of Demographic Development:

The hierarchy of towns is attempted for the towns of all rank size categories, on the basis of population size and
demographic score. There are four significant groups of towns in all the categories on the basis of demographic score (i) Very high level of development (ii) High level of development (iii) Moderate development and (iv) Low level of development (Table:9).

Figure:6.0 reveals that Ahmedabad and Surat have very high level of development. These two cities rank first and second in population size and also in demographic score respectively (Appendix:I). The high level of development is observed in Navsari town, whereas Vadodara, Jamnagar, Bharuch, Rajkot and Porbandar have moderate level of development. Nadiad, Surendranagar, Bhavnagar and Junagadh have the low level of development among the towns of rank size category I.

It is observed from the Figure:6.1 that among the towns of rank size category II, Padra town of Vadodara district has attained a very high level of development. Upleta town of Rajkot district with its industrial and commercial activities, Petlad town of Kheda with its commercial and residential based functions and Sardarnagar, a suburb of Ahmedabad city record high level of development. The moderate level of development based on demographic indicators is observed at Limbayat, Karanj, Valsad, Veraval, Kadi, Sahijpur Bogha, Visnagar, Gondal, Mahuva, Dholka and Dohad. Out of these eleven towns, Limbayat, Karanj and Valsad have industrial base, while Veraval is developed as a fishing port and the remaining towns are developed either as
LEVELS OF DEVELOPMENT
(BASED ON DEMOGRAPHIC INDICATORS)
(Towns of Rank Size Category I)

AHMEDABAD

JUNAGADH

SURAT

NAVSARI

VADODARA

POPULATION (In Lakh)
LEVELS OF DEVELOPMENT (BASED ON DEMOGRAPHIC INDICATORS) (Towns of Rank Size Category II)

POPULATION (in thousand)

LEVELS OF DEVELOPMENT (BASED ON DEMOGRAPHIC INDICATORS) (Towns of Rank Size Category II)

POPULATION (in thousand)

DEMографIC SCORE
commercial centre or taluka headquarters. Sahijpur Bogha is a part of Ahmedabad urban agglomeration. The remaining towns of rank size category II have low level of development (Fig:7.0).

Table : 9

Levels of Development Based on Demographic Score

<table>
<thead>
<tr>
<th>Ranksize Categories</th>
<th>Total No. of Towns</th>
<th>Very</th>
<th>High</th>
<th>Moderate</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>12</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(100)</td>
<td>(17)</td>
<td>(8)</td>
<td>(42)</td>
<td>(33)</td>
</tr>
<tr>
<td>II</td>
<td>71</td>
<td>1</td>
<td>3</td>
<td>11</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>(100)</td>
<td>(2)</td>
<td>(4)</td>
<td>(15)</td>
<td>(79)</td>
</tr>
<tr>
<td>III</td>
<td>63</td>
<td>3</td>
<td>3</td>
<td>9</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>(100)</td>
<td>(5)</td>
<td>(5)</td>
<td>(14)</td>
<td>(76)</td>
</tr>
<tr>
<td>IV</td>
<td>99</td>
<td>4</td>
<td>5</td>
<td>24</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>(100)</td>
<td>(4)</td>
<td>(5)</td>
<td>(24)</td>
<td>(67)</td>
</tr>
<tr>
<td>V</td>
<td>10</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(100)</td>
<td>(20)</td>
<td>(20)</td>
<td>(20)</td>
<td>(40)</td>
</tr>
<tr>
<td>Total</td>
<td>255</td>
<td>12</td>
<td>14</td>
<td>51</td>
<td>178</td>
</tr>
<tr>
<td></td>
<td>(100)</td>
<td>(5)</td>
<td>(5)</td>
<td>(20)</td>
<td>(70)</td>
</tr>
</tbody>
</table>

(Note: Figures in bracket indicate percentage to total of rows.)

Among the total of 63 towns of rank size category III, Vijapur, Kalawad and Dhari have very high level of development (Fig:6.2). Rajula, Vallabh Vidyanagar and Freelandgunj towns have
LEVELS OF DEVELOPMENT
(BASED ON DEMOGRAPHIC INDICATORS)
(Towns of Rank Size Category III)

DEMOGRAPHIC SCORE

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>TOWNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>VIJAPUR, KALAWAD, DHARI</td>
</tr>
<tr>
<td>II</td>
<td>RAJULA, VALLABH, VIDHYANAGAR</td>
</tr>
<tr>
<td>III</td>
<td>KALI, THARAD</td>
</tr>
<tr>
<td>IV</td>
<td></td>
</tr>
</tbody>
</table>

POPULATION (In thousand)

FIG: 6.2
LEVELS OF DEVELOPMENT
(BASED ON DEMOGRAPHIC INDICATORS)
(Towns of Rank Size Category IV)

POPULATION (In thousand)

FIG: 6-3
high level of development, and Kali, Chhota Udaipur, Gandevi, Ghatlodiya, Vapi, Bedi, Chansma, Pardi and Bhachau have moderate level of development. The remaining 48 towns have a low level of development. Out of these 48 towns, 14 towns have the population in the range of 12,000 to 15,000 (Fig. 7.1).

Among the 99 towns of ranksize category IV, four towns namely Chalala, Sankheda, Chikhali and Digvijaygram have shown a very high level of development (Fig. 6.3) Chalala and Chikhali are developed as market towns, while Digvijaygram as a industrial suburb of Jamnagar city. High level of development is reflected in the demographic indicators of 5 towns namely Bajwa, Vijalpor, Memnagar, Sari Bujrang and Bhedvad. Out of these 5 towns 4 towns are part of the urban agglomerations. Memnagar is a part of the Ahmedabad urban agglomeration and developed as a residential suburb of Ahmedabad city. The development of these outgrowths into residential suburbs has taken place due to the residential crowding in the core areas of cities. Bajwa is a part of the Vadodara urban agglomeration and developed as a centre of petrochemical industry. Bhedvad is developed as a residential and industrial suburb of Surat urban agglomeration, while Vijalpor is developed as a part of the Navsari urban agglomeration. 24 towns of rank size category IV showed a moderate level of development. The remaining 66 towns of this category recorded a low level of development. Some of the towns of this are Shivrajpur, Naliya, Lakhatar, Thasra, Rapar, Sayla, Sinor, Delwada, Vartej and Vinchhiya (Fig. 7.2).
LEVELS OF DEVELOPMENT
(BASED ON DEMOGRAPHIC INDICATORS)
(Towns of Rank Size Category V)

FIG: 6-4
The towns of rank size category V are mainly the industrial notified towns. The figure: 6.4 reveals that with the increase in city size, the level of development also increases. Out of a total of 10 towns, Beyt and Naroda INA have a very high level of development, whereas Odhav and Ankleshwar industrial towns have high level of development. The moderate level of development is observed in the towns of Vithal Udyognagar and Nandesari, whereas the remaining 4 towns with less than 1000 population record a low level of development. These towns are Pandesara INA, Umbergaon INA, Valsad INA and Vatva INA.

The extent of correlation between population size and the levels of development based on demographic score is measured for all the categories of towns. It is interesting to note that as the rank size category of the town increases, the correlation between the population size and demographic score also increases (the extent of development). The towns of rank size category I show relatively high correlation between population size and degree of development as reflected in demographic score. The correlation between population size and demographic score of all the towns of category I is 0.4719. Towns of rank size category II, III, IV and V show 0.32, 0.16, 0.08 and zero respectively.

On the basis of rank differences, between population size and demographic score, three types of towns have been identified.
Table: 10

Classification of Towns Based on Rank differences  
(Population size and Demographic Score)

<table>
<thead>
<tr>
<th>Rank size category of Towns</th>
<th>Number of Towns</th>
<th>Rank size Total Population</th>
<th>Low population rank =</th>
<th>High population rank and more</th>
<th>Low population demographic score</th>
<th>High population demographic score</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>12</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>(100)</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(16)</td>
<td>(42)</td>
</tr>
<tr>
<td>II</td>
<td>71</td>
<td>2</td>
<td>29</td>
<td>40</td>
<td>(100)</td>
<td>(3)</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>(2)</td>
<td>(56)</td>
</tr>
<tr>
<td>III</td>
<td>63</td>
<td>1</td>
<td>31</td>
<td>31</td>
<td>(100)</td>
<td>(2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(49)</td>
<td>(49)</td>
</tr>
<tr>
<td>IV</td>
<td>99</td>
<td>2</td>
<td>41</td>
<td>56</td>
<td>(100)</td>
<td>(2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(41)</td>
<td>(57)</td>
</tr>
<tr>
<td>V</td>
<td>10</td>
<td>10</td>
<td>-</td>
<td>-</td>
<td>(100)</td>
<td>(100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>255</strong></td>
<td><strong>17</strong></td>
<td><strong>106</strong></td>
<td><strong>132</strong></td>
<td><strong>(100)</strong></td>
<td><strong>(7)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>(41)</strong></td>
<td><strong>(52)</strong></td>
</tr>
</tbody>
</table>

(Note: Figures in bracket indicate percentage to total of rows)
FIG. 7-1

LEGEND

VERY HIGH LEVEL

HIGH LEVEL

MODERATE LEVEL

LOW LEVEL

BOUNDARIES.

INTERNATIONAL

STATE/UNION TERRITORY

DISTRICT

LEVELS OF DEVELOPMENT BASED ON
DEMOGRAPHIC SCORE

GUJARAT

LEVELS OF DEVELOPMENT BASED ON
DEMOGRAPHIC SCORE

(RANK SIZE CATEGORY III)

GUJARAT
(1) The towns having similar rank in case of population size and demographic score.

(2) The towns having lower rank in case of population size and relatively higher rank in case of demographic score (low population and more demographic score).

(3) The towns having higher rank in case of population size and the lower rank in case of demographic score (High population and low demographic score).

(1) Ahmedabad and Surat cities of rank size category I are the important cities showing the same rank for the population size and demographic score. This shows perfect association between population size and demographic score. These cities with their industrial and commercial activities support large population and provide more and higher order services and amenities.

Among the towns of rank size category II, Savarkundla and Udhana show similar rank for population size and demographic score. Patdi is the only town which shows similar rank for population size and demographic score in the rank size category III whereas in the rank size category IV, Barwala and Dungarpur towns show similar rank for population size and demographic score. Among the towns of rank size category V, all the towns show similar rank for population size and demographic score. This conforms to the desired association between population size and demographic score.
GUJARAT
LEVELS OF DEVELOPMENT BASED ON DEMOGRAPHIC SCORE
(RANK SIZE CATEGORIES IV & V)

LEGEND

- VERY HIGH LEVEL
- HIGH LEVEL
- MODERATE LEVEL
- LOW LEVEL

BOUNDARIES:
INTERNATIONAL
STATE/UNION TERRITORY
DISTRICT

FIG. 7-2
(2) Towns with higher demographic score and lower population size, are Jamnagar, Probandar, Bharuch, Navsari and Surendranagar among the towns of rank size category I. The higher demographic score of these towns is mainly due to their industrial development affecting the demographic indicators such as literacy, dependancy ratio, growth rate etc.

Among the towns of rank size category II, Sahijpur Bogha, Dohad, Upleta, Valsad, Mahuva, Sardarnagar, Petlad, Visnagar, Dholka, Bilimora, Karanj, Ankleshwar, Ranip, Kadi, Wankaner, Limbdi, Jambusar, Umreth, Bardoli, Limbayat, Padra, Khambhalia, Sihor, Lunawada, Vyara, Kandla, Balasinor, Sanand and Mehmedabad are the towns with higher demographic score and lower population size. Thus, out of a total of 71 towns in this category, 29 towns have low population and more demographic score.

In the rank size category III, out of a total of 63 towns, 31 towns have higher demographic score and lower population size. Some of the towns of this type are Rajula, Kali, Vapi, Vijapur, Vallabh Vidyanagar, Kalawad, Ghatlodiya, Chansma, Patdi and others. Out of a total of 99 towns in the category IV, 41 towns have higher demographic score and lower population size. Some of the more important towns of this category are Sarkhej, Bajwa, Sankheda, Jawaharnagar, Nana Varachha, Petro-chemical Complex, Bodeli, Bansada,
Abrama and others. There is no town having higher demographic score and lower population size in the category V.

(3) Though population size and demographic score are moderately correlated, there are some towns whose population size do not show corresponding demographic score. The towns of this type in the rank size category of I are Vadodara, Rajkot, Bhavnagar, Nadiad and Junagadh. Among the towns of category II, 40 towns have large population size and low demographic score. Godhra, Veraval, Anand, Patan, Dhoraji, Mahesana, Kalol, Bhuj, Gandhinagar, Gandhidham are some of the important towns of category II, which belong to this type. In the rank size category III, 31 towns have large population size and low demographic score, whereas in the category IV, 56 towns (more than 50 percent of the towns of the category) have large population size and low demographic score.

Thus, among the 255 towns of Gujarat, only 17 towns (7 percent) conform to the desired association between population size and demographic score. The towns which are grouped as third type show less development (as reflected in demographic indicators) in relation to their population size. As many as 132 towns (nearly 52 percent of the total towns of Gujarat) show large population size and less development in terms of demographic score.