

CHAPTER II

APPROACH TO THE STUDY

1. Study area :

With the context of a rapidly growing urban population, our town and cities, are constantly undergoing change, although they differ in the rate with which this change occurs. While some have been growing at a steady rate, others have expanded very rapidly. This rapid growth of any urban settlement or in other words the abrupt increase in the size during a specific time of event as compared to the other urban centers shows the internal force of regeneration.

The present study highlights those factors responsible for the rapid expansion and development of the town and its emergence as a regional center. An attempt is made, here, to bring out the causes behind the growth of Anand, and its importance compared to the other urban agglomeration of the District of Kheda.

Anand town having an area of 21.13 Sq.km, and population of 1,31,104 persons (1991) is located on 22°33' N and 72°58' E in Kheda district of Gujarat State, 76 km south of Ahmedabad and 38 km North of Vadodara, on the National highway No.8. It is a taluka headquarter and an important junction on the Mumbai-Ahmedabad broad gauge line of the Western Railways. From Anand, railway lines branch off to Godhra in the Northeast, Khamhat (Cambay) in the Southwest and in the east to Vadtal. The town is connected to other places in Gujarat by excellent network of roads and bus services.*1

The importance of Anand grew because of its connection with the British in the first half of the 19th Century and later due to the Satyagrah movement; Anand popularly called

'The milk city' is the birth place of 'White revolution' (Dairy farming) and is prominent all over the country. The Kheda District Cooperative Milk Producer's Union (The Amul dairy) was established here in 1946.

Being in the heart of the tobacco growing region of Gujarat State, Anand is famous for its large scale manufacturer of snuff; Anand is a busy receiving and distributing commercial center with several banks and industrial establishments.

The Amul dairy, first and unique of its kind in India, produces milk powder, condensed milk, butter, ghee (rarefied butter) milk food for babies, processed cheese, cheese powder, chocolates and cattle feed. Insulated tankers supply milk to Mumbai, Calcutta and Delhi. The Union supplies quality cotton seeds to the members as fodder for the buffaloes and maintains free veterinary services with mobile dispensaries and artificial insemination centers. It trains personnel and works as consultants too similar other schemes. It looks after the welfare activities of the villages covered by them. The Ministry of Food and Agriculture, Government of India, established the Headquarters of the National Dairy Development Board at Anand in 1965. The Board evolved a scheme known as 'operation flood' for organized dairy development all over India. The Gujarat Agricultural University spreading over 850 acres of land is located at Anand. It confers degree in dairy technology, Veterinary science and Animal husbandry.

The Institute of Rural Management (IRMA) in Anand is the first institute in India to train personnel in rural management and development. There are several important hospitals and a homeopathy college established here. The Charotar, Educational society, founded in

1916, runs several educational institutions. The well known University town of Vallabh Vidyanagar is only 5 km away from Anand. The Gujarat Cooperative Milk Marketing Federation limited of Kheda, Vadodara, Surat, Mahesana, Sabarkantha and Banaskantha districts has its headquarters at Anand.

The other branches are at Ahmedabad, Mumbai, Calcutta and Chennai with depots at Hyderabad, Bangalore and Ernakulam. The Anand Taluka Cooperative Cotton Sales, Ginning and Pressing Society Limited located on National Highway No.8 concentrates on the production of cotton seed oil. Anand has several cooperative societies and educational institutions besides the above mentioned pioneer institutes. The Irish Presbyterian Mission, the Salvation Army extends educational and medical services to the handicapped children also. The most important commodities imported are food grains, medicines and machinery and important items exported are milk, milk powder, butter, chocolate, cloth, food grains and tobacco products.

The industrial area of Vithal Udhyognagar is 5 km from Anand. Though Anand does not have an airport, an office of Air India is located here. It is reported that the maximum number of tickets in Gujarat is sold at Anand. A large volume of daily commuters is attracted by the numerous small-scale industries in and around Anand. Anand does not have any slum area as stated by the Municipal authorities.

Though Anand, by way of its population size is next to Nadiad which has 1,67,051 (1991), the economic activities existing in it seem to be more attractive to the people. Several of the well known educational and training institutes and cooperatives are located in

Anand. The impact of these can be seen in the rapid increase of its population and on the large number of commuters coming in to Anand for various economic activities and job opportunities.

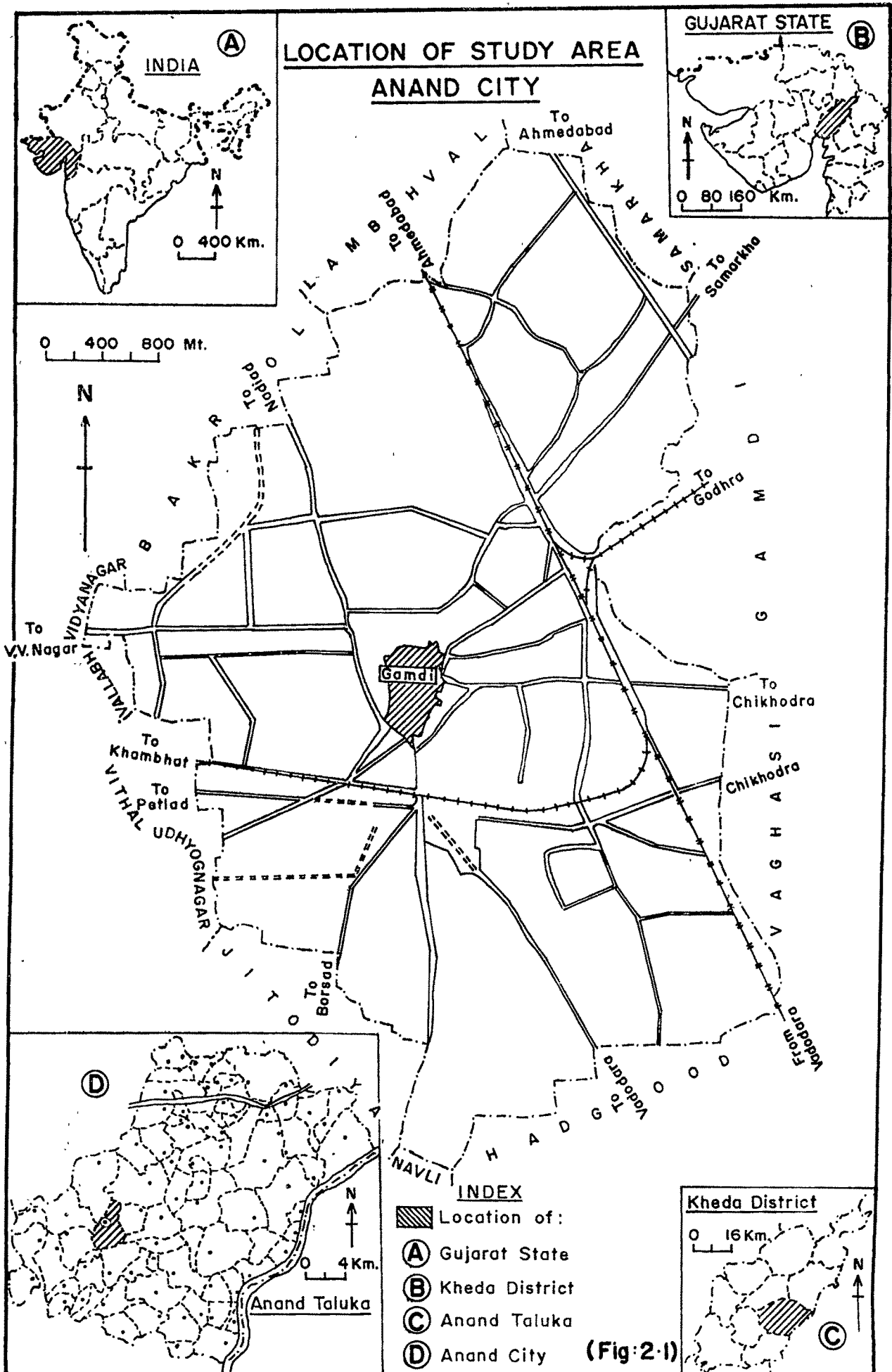
All these characteristics of the area have attracted attention to deal with several physical, social, economic and political factors in order to get certain answers to some questions regarding the towns further growth and expansion.

2. Location and environment of the study area :

(i) Site and Situation :

The town of Anand is situated in the southwest portion of Anand Taluka in the Kheda district of Gujarat State (Fig 2.1). It is 65 km South of Ahmedabad, 52 km Northwest of Khamhat, 79 km Southwest of Godhra and 39 km and 427 km North of Baroda and Mumbai respectively.

Situated on the Mumbai-Ahmedabad broad gauge railway line of the Western Railways, it has a favourable location with regard to Nadiad, Petlad, Borsad, Vadodara, Dakor, Umreth and Thasra. It is surrounded by the villages of Lambhavel and Samarkhs in the North, Gamdi, Chikhodra and Vaghasi in the east, Hadgood, Navli and Jitodiya in the South and Mogari, Karamsad and Bakrol in the west (Fig 2.1)*1



Anand Telephone Exchange links the town to Gujarat and Maharashtra with telephone connections and trunk lines from Anand Telephone Exchange office. Thus, Anand has a favorable location in the Gujarat plain.

Because of the transport and communication facilities, the town has become a collecting and exporting center. It is also an educational, industrial, social and cultural center of Kheda district.

Bajri, rice, Kodra, Wheat, Cereals, Vegetables, and tobacco are the important crops of the town as well as of the region. AMUL and POLSON dairies have brought Anand into prominence as an industrial center. The town is well-known for its medical services in the area - Sardar Patel University which is situated at Vallabh Vidyanagar, a fast developing educational town and Vithal Udyognagar an industrial area is growing in the West of Anand. Swaminarayan temple at Vadtal, and Ranchodji temple at Dakor, Dhuvaran Thermal power station at Dhuvaran and oil fields at Khambhat have also increased the importance of Anand as a city.

(ii) Historical evolution of Anand :

The history of Anand dates long back with the evolution of its name. According to the diary of Batcharan's, a Gosai named Anandgir settled at this place and soon it began to take shape as a small hamlet which later on came to be known as Anand. With the passage of time due to the decline in economic condition of the Gosai's their property was bought by the patidars who later on began to live there. In the north of Anand besides the Anand-Arts

College Hostel, comes the Hanuman wadi, owned by the Gosais, which was used as a burial ground by them. But today there is no memorial statue or plate besides the only Hanumanji temple that exists as an evidence. Thus after the name of the Gosai 'Anandgir' the town came to be known as "Anand".

The existence of Anand during 766 AD is confirmed from the copper plates of Shiladitya VII excavated from Alina.

On the copper plates of Shiladitya VII from Alina in Samvat (766 AD) there are names of many other places surrounding Anandpur viz; Boriavi, Mehilavi, Alina, Kheda, etc. However it is notified that the above-mentioned king used to stay at Anandpur from where he used to make such donations. This concludes that in 8th century Anand was an important center and so the king from Vallabhi Dynasty made it their headquarters.*3

However even before 157 years i.e. one and half century ago before the Katchuri king, Buddharaj - I, when he stayed at Anand for giving donation to Brahmins, in the same manner the king from Maitrak Dynasty also stayed at Anand and had donated to the Brahmins which is very interesting. So from these donation letter/plates it seems that for about 150 years the political importance of Anand continued to be prosperous in the 10th century A.D., also.

As mentioned in the copper plates, a Brahmin named Akhandal Bhatt resident of Anandpur, was given a donation of a village named 'Mahilabali' of 'Upalhet' track of 'Khetak Aahar' (Kheda district) by this king, which recently are known to be Upleta and Mehalav which is at 15 km from Anand. According to this information it can be said that these places existed even before the 8th Century.

However according to Hariprasad. G. Shastri, Anandpur is Vadnagar of North Gujarat. But the Copper plates of Mitrak Dynasty of Vallabhi proved that present Anand was Anandpur. It is also possible that the name Anand may have been of two different towns, as it happens in many cases those two different place posses the same name.

Vallabhi Dynasty declined due to Arab invasions. After the decline of Vallabhi, 32 years passed when it completed at the same time, a period of about 60 years for the record of Anand in the donation letter of Shiladitya, the name of Anand was noted again. On this basis a new clue for the history of Gujarat is formed for research purpose and the research on discovered coins and other equipments reveal the fact that Anand was a very ancient town or an old settlement area of Gujarat.*4

Even today in Anand in the Nava Adath area, the Gosai Falia still exists, where 'Anand Gir Gosai' was the previous resident. At present where Shri. G R B Patel, a member of the Municipal Corporation resides, belonged to Gosais, which was bought by Patel's Great Grand father. Similarly in the same area, the house in front of the Narayan Mahadeo Tekra is called the 'Bavano Math', Where it is said that the Gosai named Madhavgir, Khushalgir etc used to live.

Many people believe that, these Gosais once occupied the Jogivado of Lotia Bhagol, the Mathiochoro and the Chosath Jogini's temple near it.

Later on due to poor economic conditions of the Gosais the patidars who came after them and settled at Anand bought their lands and other property. The patidars then began to stay in the houses and areas of the Gosais. Some elderly persons reported that the patidars

migrated from Punjab to Adalaj and from there to charotar. Similarly two patidars brothers came to settle at Anand. Even today the area where the Elder brother's family and followers flourished came to be known as Motu Adath and that of the younger brother as Nano Adath.

Anand has contributed to the revolution of 1857 A.D. The president and electorate Patel Garbaddas Haridas was present in Anand during this revolution. He was brilliant and brave person. The Thakor of Khanpur (14 km from Anand) waved for the first time the flag of India against the British Empire, with Patel Garbaddas' support. They formed a troop of 2000 soldiers, which included the tribals and backward classes such as Bhils and Kolis (fisherman) and established their power on the surrounding villages, and challenged the British rule. The British military from Baroda arrested all the revolutionists. Thakor Jivabhai was hanged to death after which the British military stayed for some time at Lotia Bhagol.

Mukhi Garbaddas and his colleagues Mulji Joshi, Bapuji Patel, Dadabhai Patel, Krishnaram Dave along with Gosais attacked these British Camp and destroyed their food resources and snatched their houses, because of which the white soldiers ran away. However, with the help of the information provided by some traitors, Garbaddas and his companions were arrested from Asoj and sent to Andaman where they died.

Today, the temple of 'Rokadia Hunuman' is in the north of Anand. The English state established somewhere from 1800 to 1820 A.D. During this time the founder of Swaminarayan Community Swamiji Shri. Shgahajanandji visited many villages of charotar. In his visit to Anand, some people who were against him did not allow him to stay in the town and so he decided not to live in Anand, but to live outside the town at the temple of

Rokadia Hanuman. Afterwards, the followers of Swamji established an idol of 'Hanumanji' at this place (however according to the priest of the temple, the idol was established after burying the previous idol of Kalbhirav at the same place). Even today many people come to worship at this Rokadia Hanumanji's temple.*5

Second event - when the 'Sheth' (leader) of the Vallabh community came to know about the procession of Viharilalji Maharaj from Vadtal which was likely to pass through the present 'Undi sheri', (Fig 4.2), he constructed a bridge as an obstacle over the two sides of the road so that the Elephant along with the Maharaj cannot pass, but Viharilalji's followers dug out the road below the bridge and since then it came to be known as 'Undi-sheri' (Sheri - street and Undi - deep).

Many Christian missionaries and hospitals were established during the British rule. The I.P.Mission Institute in 1878, constructed a church at Anand. A primary education school providing facilities for entrance classes came to be known as 'preparatory school'. Around 1853 A.D. this school was shifted to prantij. Later on in 1891 Lord. Robert Gilepsi celebrated the 50th Anniversary of this I.P.Mission. Even today in Anand , Catholic and Protestant followers continue their services through hospitals, schools, and donating funds etc.

In the northeast of Anand on the banks of the Lake is the famous 'Veraimata's' temple. This temple now appears to be a new one, because of the repairs made after 20 years. Infront of the walls of this temple is kept five (5) broken idols of ancient God and Goddesses. The names of areas like Lotia Bhagol, Vadvalu' falia, Loteshwar Mahadeo, Jogiwalu, Motu and Nanu adath, Mathio chora, Gosai falia, Sarkari chora, Kotwala Darwaja, Undi sheri,

Gamdivad etc shows the old - Gamtal or the Central Historic Core of Anand (Fig : 4.2), from where it seems that the town has rapidly developed radially in all directions. At present this area seems to be at the center of the developed Anand.*6

Conclusion :-

On the basis of these Copper plates, stone inscriptions, coins and other fossils and their descriptions on walls and stones, we can say that it was inhabited since 4th Century A.D. Similarly it seems to be in existence even during the Gupta period. There are however many other evidences, people's beliefs and historical events reveal the fact that Anand was one of the ancient towns.

(iii) Physiography :

Relief:-

Geologically, Anand Taluka is made of fertile alluvium deposits of various rivers especially the Mahi and forms a part of the fertile tract of charotar.

The whole of Anand Taluka extends over an area of 260.6 Sq.miles. The area, as a whole, is a part of Gujarat plain and no bold relief is found anywhere.

Anand stands at a height of 143 feet above sea level. The area covered by the Municipal limit of the town is 21.13 Sq.km. The general slope of the ground is from Southeast to Northwest. Some small hillocks are also seen on the western boundary of the town.*1 They are very low in height but higher than the surrounding area. South of Lotia

Tank there is a big patch of land which is covered with scrub and grass and a very small patch of the same type of ground to the north.

The Gamtal area of the town which is densely populated, is situated between Vada-Mota Talav and Lotia Talav. It is 6 to 8 feet lower than the height of the station area (142 feet).

The station area is the highest area while Gamdi vad area is the lowest part of the town. The area slopes very gently from the station to Gamdi vad place.

Joshi Tekra and Narayandev Mahadeo's Tekra are at a higher level in the middle of the original town before it was extended to the station.

The Vad-Mota Talav and Goya Talav flood the area north of Gamtal in the rainy season. These two tanks together with the Lotia tank are the main depressions in the town.

(iv) Soil :

The soil of the area is composed of mainly sedimentary deposits brought down by the rivers Mahi and Shedhi. It is sandy loam. The local people call it as "Goradu". It is very deep, well drained and fairly retentive of moisture but deficient in organic matter and nitrogen. It is rich in potash and does not need potash fertilization.

The depth of the soil is above 60 feet to 70 feet from the surface. The soil in the low lying patches are black but not the true deep black soil. It is used for paddy cultivation .

Agriculture though not an important function of the city is practiced in the northern, southern and most of the western part of the settled area of the city. The Institute of Agriculture is to the south, where experiments are carried out for better utilization of soil and

high yielding crops. The other areas are mainly used for tobacco, rice, bajri, wheat, lemon, kodra etc. The soil is found to be fertile for these crops. Out of the total area of the city, 80% of the land is directly or indirectly under cultivation and the remaining portion has been utilized for residential purposes, road, industrial, commercial and cultural activities.

(v) Water features :

The river Mahi flows about 8 miles east of Anand and makes the boundary of the Taluka and ultimately meets the Gulf of Khambhat. The Shedhi river is a small and semi-perennial river which flows towards the north of the city.

To the west of Anand is the Gulf of Khambhat, which has a very moderate influence on climate of Anand. There are 49 wells (including 2 Step-wells) in the old town. Very few of them are used for drinking purpose but they are mainly used for washing and for animals. They have lost much of their importance. The city water-supply works now supplies drinking water to the people of the city. Many of them are small wells known as 'Kui'. The main important wells are Mitho Kuvo at Bada Talav, Varai Kuvo near Verai mata temple, Dabagario Kuvo in Southwest of Gamtal and a Kuvo near the railway line where the water works is situated.

The general depth of the wells in the Taluka is 35 feet to 45 feet. Wells form a secondary source of water. In the dry season, the water level is about 40 to 50 feet. During the rainy season the depth of the water in the wells is about 25 to 30 feet. As a whole the

beds of the wells are found to be sandy and muddy. But sometimes rocky beds are also found.

There are 81 hand pumps, which supply drinking water in the city. They are located in the houses of the owners. The agricultural areas of the city are irrigated by water pumps, which are mainly run by electricity. A branch of the Mahi Canal project passes through the western part of the city. Apart from wells, there are 36 big or small tanks and ponds in the different areas. The big tanks are situated around Gamtal area Moto Talav or Vada Talav is in the North of Gamtal. Goya Talav is situated near Vada Talav west of the Gamtal. Lotia Talav is located near Lotia Bhagol Southeast of Gamtal. Sikhod Talav is in the North of Vada Talav, where water comes from the fields.

The first three are large depressions, while animals use other small tanks and ponds, which are situated, in different parts of the town. Some are in the lower areas in the cultivated area of the city.

Out of the total area of Anand, less than 3 percent of the land is under ponds and tanks. Anand-Mogari drain runs from the Central part of the town, near Gamtal to Mogari village. The other channels run from Chikhodra to Mogari and passes through the Lotia Bhagol via T.B.Hospital (Salvation Army). It is an artificial watercourse to discharge over-flows of water.

In 1964 Gujarat Government installed an overhead tank to (75 feet high) the capacity of 9 lakh Litres on Bhalej road. Later, Anand Municipality installed an overhead tank to a

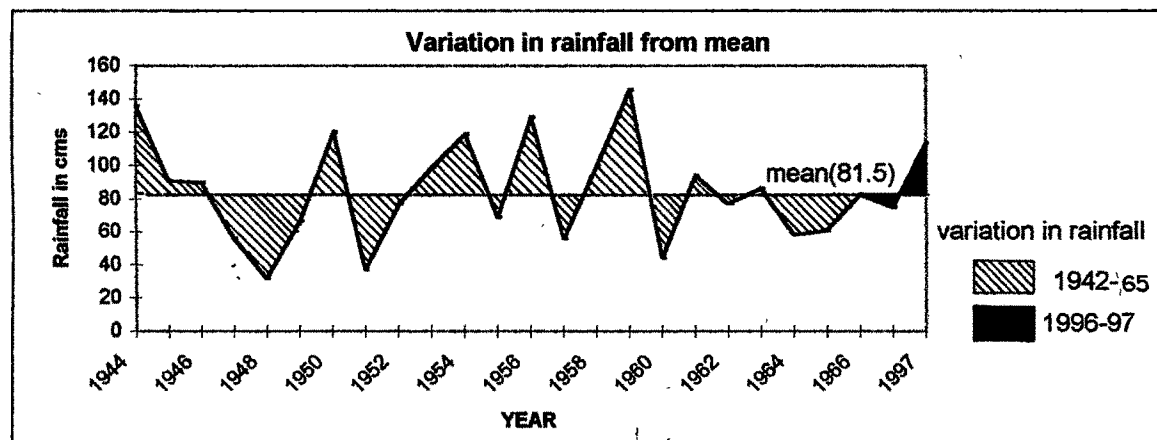
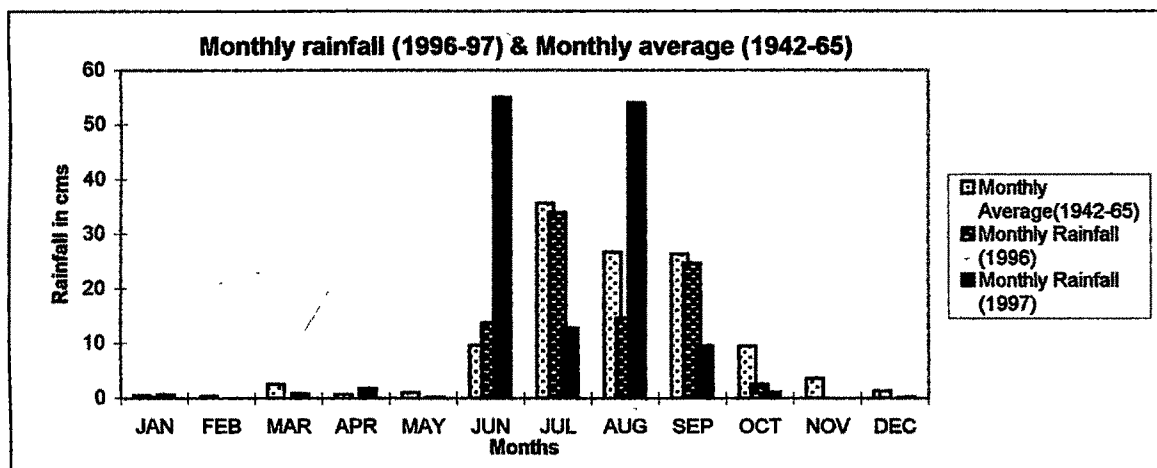
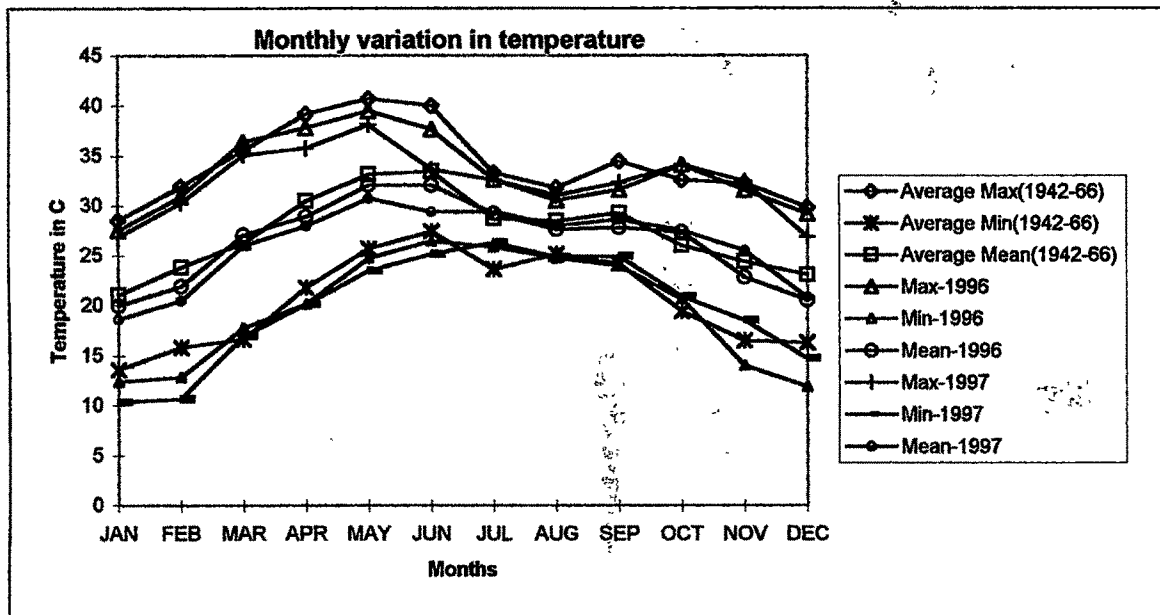


Fig:2-2

capacity of 5 Lakh Litres in 1968 and laid down pipeline. Thereafter another tank on Anand-Sojitra road, to the capacity of 27-lakh litre was also laid down.*6

Recently, according to Town planning (T.P.) Scheme No.3, 6 and 7 still two more tanks are proposed for which loan from World Bank is sanctioned for Rs. 148 lakhs.

(vi) Climate :

Anand's location of on the Tropic of Cancer indicates that it enjoys a tropical climate (Fig 2.1). The average maximum and minimum temperatures so far recorded were 105.29 F and 56.50 F respectively. But according to 1997, minimum temperature is 50.68 F. The maximum and minimum rainfall so far recorded is 57.25 inch and 12.50 inch respectively in 50 years. (i.e. from 1944 to 1994).

The climate is suited for growing of food crops like Bajri, rice, kodra, jowar, tur and vegetables and cash crops like tobacco.*7

Throughout the year, Anand enjoys warm days and pleasant nights. The climate on the whole is healthy.(Fig 2.2)

3. Objectives of the study :

- To study the interaction between, the physical, biological and social system and to analyze more closely the demographic factors.
- To illustrate the human impact on the main urban system and functions.

- To analyze the nature and extent of urban growth and its influence on the periphery. ✓
- To verify the impact of developmental activities and to extend appropriate suggestions for an environmentally sound development.
- To understand the urban growth and change in land use pattern by analyzing the process and trend in urbanization.
- To examine the position of Anand, in the district.
- To measure the extent and degree of Anand's influence on its surrounding region. ✓
- To examine the validity of our study of Anand as a regional center and a central place of the District.
- To study, the locational aspect of industries and associated developmental activities and their propulsive influences.
- To find out the impact of the higher rate of population growth on changing land use pattern i.e. in and around the city.
- To verify the following Hypothesis :
 1. The denser and more heterogeneous the population of an area, more urbanized is the way of life and degree of industrialization.
 2. Culturally diverse immigrants from rural areas who have been displaced as a result of agricultural scarcity and political upheavals or natural calamities.
 3. Urbanization, segregation, or social rank are strongly related to attitudes or social interaction patterns.
 4. Higher the degree of urbanization more is the social polarization.

5. A "Rational" person chooses housing by considering Rental and Transportation costs, along with social and environmental factors.
6. Areas with highest incidence of delinquency are those characterized by communal heterogeneity and a low proportion of home ownership.
7. More prestigious the neighborhood, higher is the cost of housing.
8. The residential patterns of a city reflect imperfectly, but often dramatically its class structure.
9. Higher the mobility rates, higher are the degree of urbanization and the more heterogeneity of the population and occupational structure.
10. Higher the degree of accessibility of a town/city, higher is the rate of urbanization.
11. Higher the administrative status, faster is the growth of a town/city.

4. Review of Literature :

Urban studies have a recent foundation actually laid after 1950s. Series of research papers have been published dealing with general aspects of urbanization, regional, urban pattern, urban regional relationship, segregation of social class, commercial structure of CBD, city structure and morphology, overall growth process and internal structure, industrialization, urban landvalues, rural-urban fringe, urban sociology, urban environment etc in context to particular urban center. However, these studies give also contemporary

urban features and Nature and process of urbanization that somehow or the other helps the study of Anand City and its region.

Urban studies, (1977) L.K.Loewenstein, investigate the trend of urbanisation in the light of social and economic aspects : poverty, finance, housing, urban design, environment and the quality of city life etc.

Apart from these some doctoral research and Dissertations on Urban fields are carried out by many authors e.g. Mr. B.B.Patel, studies on Establishments and Urban morphology in Anand, where he gives an historical account and emphasis on economic aspects of industrial development, present industrial position but lacks in making an inquiry into the constraints and potentiality for development in future.

Mohit and Chognill (1987) have studied on small and medium sized towns, the recent one being of Jaymala Diddée and Vimala Rangaswamy, have shown the importance of decentralization of urbanization, nature of intermediate urbanization, Socio-economic conditions and spatial integration. They emphasize the need of policy formulation to strengthen development of lower and small sized urban centers.

Indian Geographers have carried out extensive and numerous works on urban areas. Since it is not possible to enumerate all the studies carried out, a few well-known researches are mentioned.

Contribution to urban research from Banaras is enormous and of quality. R.L.Singh (1955), Banaras - A study in Urban Geography is a valuable documentation on the city which he has dealt with from all aspects. In his several papers he has analyzed the morphology

evolution, growth and functions of different towns of Uttar Pradesh and Bihar. His another major work is worth mentioning i.e. on Bangalore, an urban survey in the year 1964. Other important contributions are by U.Singh (1962), Allahabad : A study in Urban Geography, H.H.Singh (1965), Kanpur : A study in Urban Geography : other distinguished geographers in this field are A.S.Jauhari, K.N. Singh, H.H.Singh, K.K.Dube, A.Romesh, P.S.Tiwari, B.P.Rao, O.P.Singh, O.Singh and J.Singh. The work of Pushpa Singh (1986) on Ghaziabad : A study in Urban Geography owes its rapid growth to the site and situation despite its proximity to Delhi.

Mansoor Alam (1965) in his study of Hyderabad-Secunderabad, discuss various aspects of urban functions and city region relationship. He examines their structure and growth pattern within the general framework of certain theories of urban growth and morphology where he found out a new scheme that does not certify western model. Rao (1981) in Warangal : study, examines spatial growth aspects in historical perspective. Spatial emphasis on social aspects is given to analyze the urban structure and city region relationships. Singh (1980) studies Shillong in reference of land use planning through different urban functions and process of growth. Research papers and studies on Kanpur and Lucknow city (published in Journal of ISRS, 1997) by using satellite data in urban sprawl and land use change were of great use to the author for further studies in his area using the GIS technique.

Studies regarding urban rural relationship, Boralis (1985) work on neighboring areas of Gauhati are of great academic value. This work not only involved in delimiting Umland boundaries and describing their physical and socio-economic characteristics but also

satisfactorily deals with the pattern of Urban-rural gradient relationship and impact on surrounding region.

Works on urban-rural fringe pertinent to our study are : Gopi's (1978) process of urban fringe settlement of metropolitan Hyderabad, to understand the process of sub-urban development under the impact of metropolitan expansion. Mukherjee (1987) has carried out extensive work on the fringe of Calcutta.

The Research paper by Aditya Prakash : Contributions to Indian Geography VII, Urban geography (1986) indirectly throws light upon how migration from rural areas to urban areas result in the increased number of slums and even such 'mobile' shops as he calls them 'Rehri' originate and locally called as 'Lari' in Anand. Also the problems they face from socio-economic point of view in lieu of political factors.

A recent volume on "Million Cities of India" ed. by Prof. R.P.Mishra and Dr. Kamlesh Mishra, does not contain anything on Anand though Anand has crossed over a million population as per the census of 1991.

Another volume on "Patterns of urban settlements in Gujarat" by Dr. D.G.Pandya (1999) describes the incentives for the development of small and medium towns and control of development of large cities. In his work he mentions the way in which population and economic activities of urban settlements are organised. But makes only a passing reference of Anand, since the emphasis is on regional aspect.

5. Methodological aspects :

The combination of old and recent new techniques has been followed in the present study, which is described as follows :

i) Collection of Secondary data :

This is done by scanning variety of literature from urban related disciplines and relevant information and data is collected from various books, journals, and papers. Village wise, town wise, district wise and even ward wise data on general population, literacy, scheduled caste and scheduled tribes, occupational structure, land use and information about the basic amenities available, were obtained from the District Census Handbook, Kheda District for 1961, 1971, 1981 and 1991 along with 1997 records obtained from Agriculture University, Municipality and others.

Various other informations are collected from the Municipal Council of Anand and District Panchayat offices etc. Secondary data is also obtained from various Institutions like IRMA, NDDB and others. However, secondary data collected were inadequate, primary data thus is collected by sampling technique.

ii) Collection of Primary data :

A sample survey of 3% of the total number of Households (19,956) which comes to about 598, is undertaken for a better understanding of the socio-economic factors.

Questionnaire is framed after an intensive study of Books, Journals and reports and also according to our requirement and relevance to my study. It consists of following aspects:-

- a) General socio-economic conditions of households e.g. Number of family members, number of literate and school going children, number of workers, Main and Subsidiary occupations, Time period of work and migration pattern, Income levels etc.
- b) Provision of proper Amenities and their access to the city population, Distribution pattern of various shops, the origin and destination of the goods (flows) and item etc is considered.
- c) Taking into account the number and type of home appliances used and the number of vehicles or mode of transportation used to commute between work place and residence derives area wise family status.
- d) Questions like, land and other asset holdings, availability and use of irrigation and fertilizers, livestock etc, and also an inquiry into the awareness among the respondents about the benefits and impact of some of the Governmental planning, policies going on in the area which are in the nature of extension services, educational policies, loan-cum-subsidies etc for various purposes. This helps to understand and study the rural to urban and urban to urban migration patterns.

A special survey of all the slum localities (54) described by the Municipality in 1991 was carried out, so as to study various environmental and health problems faced by them and their surroundings.

iii) Land use pattern Analysis and other urban attributes based on available data and field study :

The data and information in the form of maps, photographs and Imageries along with secondary and primary sources are tabulated and through relevant statistical methods like, percentage, densities, frequency diagrams, radar diagram, standard deviation methods, regression and correlation methods, by using mathematical formulas, which finally is supported by cartographic representations.

iv) Cartographic Representations :

After the data processing into relevant tabular forms, mapping is done using the most advanced cartographic representations. The use of Geographic Information System as well as Microsoft Excel and Auto Cad R14 package are also made, in order to have accuracy in area calculations and three dimensional representation of the given data respectively.

Various information and data are also represented by graphs and diagrams, which help for better comparison and comprehension. However in most cases choropleth technique based on standard deviation method is used.

6. Organization of work :

The study has been broadly divided into Eight Chapters;

Chapter 1 deals with the conceptual framework of urban studies, which includes, place of geography and geographer in urban studies, definitions, urban growth and pattern, fringe

development and the concepts, approaches, classification of urban areas, the scope of urban studies and development and its relation to its surroundings and other disciplines.

The methodological aspects and objectives including the review of literature in the relevant fields of the study. It also includes the location and environment of the study area, physical aspects, setting, Brief history of Anand, its evolution, trend and development of fringe area and locational analysis, structure and morphology of the city, its land use patterns and trends along with their changes etc are dealt in Chapter II.

While Chapter III is attributed to the demographic structure - growth of population, occupational structure, literacy, Age structure and sex ratio and migration patterns. Slum their distribution, density and influence.

Chapter IV gives a detailed study about the land use, and its analysis along with the schematic representations using remote sensing technique, Satellite data and GIS software.

In Chapter V, the various functional services are discussed, which are clubbed as the economic functions, while social functions and administrative functions are dealt with separately.

Chapter VI, brings out the influence of the city over its periphery with the help of various zones of influence.

Chapter VII, deals with planning and development of the city suggesting a new way of looking at the purpose of development in which environmental considerations play an important role, and elaborates the basic necessities of life in the city, finally, the lags and

constraints in growth of economy for micro-level economically sustainable and viable development is discussed.

Chapter VIII, finally is attributed to summary and conclusion, which deals with the broad findings and concluding remarks and comments of the study.

7. Reference:

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