8.CONCLUSION

Urbanisation an important process plays a significant role in transforming the socio-economic as well as the natural environment of any region, state and nation. It is considered as an index indicating a continued improvement in the social and economic status and quality of life in respective regions. Cities have always been considered the nucleus of human civilization and culture which owe their existence to the functions they perform not only for themselves but also for their adjoining rural areas. Thus, the impacts of cities on rural areas extend according to the intensity of role they play. The areas beyond the boundaries of urban centres too are influenced by changes being recorded in urban economic and social systems. The transitional zone between the pure urban and pure rural landuse are described as urban fringe and/or urban rural fringe intensively transformed with the improving contacts with its city or town. With the growth of population and diversification of economic activities, the limits of cities extend into their fringe areas and gradually the limits or the territories of fringe areas further extend towards the adjoining rural areas. That is how such urban fringe areas are directly or indirectly influenced by their urban activities.

Urbanisation and Industrialisation have been the two major processes of development, which have rapidly been adopted by the country, state and region and have been substantially transforming the urban as well as the rural environment of the study region. Some of these important transformations include transformation of the process rather exploiting using the available natural resources, transforming the quality of land and water, transforming the demographic characteristics, transforming the transport network and associated systems, transforming the agricultural environment, transforming the urban as

well as rural settlements in reference to their size and shape, transforming the socio-economic status of the people and issues related to health, transforming the infrastructural facilities and finally transforming the rural environment as has been recorded in the study region.

With the implementation of various developmental activities over the period of time environment is transformed along with the adoption of modern techniques to initiate the process of rapid development that has caused and is causing many dangerous changes specially the rural environment. Most of the developing and developed regions are confronting with the emerging problems caused by the environmental transformation and study region is not an exception to this.

Ahmedabad City Taluka region, the biggest leading Industrial and commercial area of Gujarat, was formerly known as Karnavati till 1411 A.D. till it was conquered by Sultan Ahmad Shah who laid the foundation of Ahmedabad- The city of Ahmed on 26th Jan 1411 A.D. Some important landmark years for the city during the British rule have been the establishment of Cantonment in 1824, formation of Municipal Committee in 1834, introduction of Municipal administration in 1858 and the railway link between Ahmedabad and Bombay was established during the year 1864. Ahmedabad also played an outstanding role in the country's struggle for freedom under the leadership of Mahatma Gandhi who on return from South Africa in 1915 established his famous Ashram on the banks of Sabarmati.

Geographically it lies between 22º56' to 23º01' North latitude and 72º30' to 72º41' East longitude along the bank of Sabarmati River. The geographical location of the study region has constantly been favourable in its expansion and development. Apart from its central position in the heart of Gujarat, Ahmedabad

City Taluka region in the past enjoyed a strategic importance in view of its location on the main highway to Rajputana and Malwa regions on one hand and to Saurashtra Peninsula on the other. After the bifurcation of ex-billingual Bombay state in May 1960, Ahmedabad remained the capital of Gujarat till Gandhinagar, a newly planned capital town at a distance of 24 km in the year 1970 became functional. Ahmedabad is now a District Headquarter and many state-level and district level offices are located in the city. The city is agglomerated with the surrounding towns and villages of Daskroi taluka. Today, as the region under study, Ahmedabad has emerged as a unique city for its harmonious blends with a vibrant present. Ahmedabad is a model city in terms of its ideals and aspirations. What is remarkable about Ahmedabad is its harmony between art and industry, between a reverence to the past and a vision for the future. This has influenced the transformation of its rural areas with the expansion of urban territory.

Residential, Commercial and Industrial activities have gradually developed in Western, Central and Eastern Ahmedabad and parts of the walled city, respectively. Vatva, Naroda, Odhav, Rakhial and Asarwa areas have developed on the Eastern part as industrial area and on the Western part, Navrangpura, Ellisbridge, Naranpura, Memnagar, Paldi, Madalpur, Ambavadi, Vastrapur, Ghatlodia, Thaltej, Bodakdev and Vejalpur areas have developed as residential areas. However the commercial activity remained concentrated within the wall city area although there has been a gradual shift towards Ashram Road, Shri Arvind Marg (C.G. Road) and Sarkhej Gandhinagar Highway. Gauging these changes territorial limits of Municipal Corporation of Ahmedabad have changed many times in last 50 years from 1956 to 2006. The last change was made in 2006 and the city has been extended on all sides incorporating the out growth

areas and gram panchayats into the municipal limits. To meet the growing demand and to coordinate the developmental activities Ahmedabad Urban Development Authority (AUDA) as an administrate unit was constituted on 1st February 1978 by the state government under the provision of the Gujarat Town Planning and Urban Development Act, 1976. The state government has declared an area measuring 1294.65 sq. kms for AUDA including the area of Ahmedabad Municipal Corporation. This was not a simple change of administrative territory but to a great extent it became the main reason in transforming the rural environment of the Ahmedabad City Taluka region under study. In last two decades, city has extended well beyond the AMC limit especially towards the Western and Eastern areas. In the Western side development of AUDA area is along the Sarkhej Gandhinagar Highway, particularly in the revenue village of Vejalpur, Jodhpur, Vastrapur, Bodakdev, Thaltej, Memnagar, Ghatlodiya and Ranip. Ahmedabad is the seventh largest city of the country and was expanded in 2006 when many surrounding villages and semi urban areas were merged within the Municipal Corporation and its boundary now spreads over an area of 582.84 kms and accommodates 44,87,348 people with 2381478 males and 2105870 females. The study region has about 77.15 per cent of the total population of the district and 96.22 per cent of the urban population of the district. Population density in the region comes to 7699 persons per sq. km. and the Sex Ratio is 884 females per 1000 males.

The city of Ahmedabad was known as Manchester of India in the past, due to the predominance of cotton textile industries, Historically, an important trading town, it was transformed into one of the major industrial centers of the region as well as of the country due to the entrepreneurial abilities of its elite residents.

The multiplier effect of this textile industry has been evident in the rapid growth of commercial sector, chemical and dyes industries and light engineering industries - as dependents on this core sector. The first textile mill established in 1857 became a landmark in the growth of Ahmedabad. This became the turning point in the city's economic history, which was further facilitated by the Railways in 1864. The growth of textile industries reached its peak in 1940s attracting considerable migration. In the post independence period, the city witnessed not only diversification of its industrial base but also significant progress in other spheres of lives especially the establishment of professional and technical institution of various types.

The study region is well connected with other parts of the state as well as the country and enjoys a intra and inter regional connectivity through dependable, fast and safe Road, Rail and Air transport network. Ahmedabad has a domestic as well as an international airport. There are various domestic airlines connecting Ahmedabad with Mumbai, Delhi, Chennai, Kolkata, Bangalore and other important cities as well as international flights to various overseas destinations. Ahmedabad is linked with developed rail network to Delhi, Mumbai, Jaipur, Udaipur, Calcutta, Chennai, other major cities and towns of the state as well as of the country and several other tourist centres. The Ahmedabad city at present has emerged as an important Railway junction with a wider connectivity due to The Bombay-Viramgam Broad gauge, Ahmedabad Delhi Broad gauge, Ahmedabad-Khedbrahma meter gauge and Ahmedabad-Bhavnagar meter gauge sections of the Western Railway. Along with the main Ahmedabad city broad gauge railway station there are three more stations Maninagar, Sabarmati and Chandlodiya on Broad gauge and Asarwa, Saijpur,

Sardarnagar, Naroda, Sabarmati, Gandhigram, Vastrapur and Sarkhej on meter gauge catering the movement of the men and materials in the region.

National Highway No. 8 traverses through the study region. The National Highway No.8 connects Ahmedabad with New Delhi through Udaipur in the North and Mumbai in the South through Valsad. The NH-8 branches out as NH 8A, NH-8B and 8C linking Porbandar, Bhachau and Rajkot etc. There is a wide network of State Transport Bus Stops across the region ensuring direct accessibility. Thus all villages are connected by road facilities. State transport buses and private luxury coaches ply to various cities of Gujarat, Maharashtra, Madhya Pradesh, Delhi and Rajasthan.

Geologically, the region falls in the alluvial tract of Ahmedabad district and comprises mostly of Quaternary thick alluvium and brown sand. Ahmedabad City Taluka, the study region lies close to the Dudhpur fault line. The part of the study region falls under the Platform cover and folded cover classification of the Peninsular shield Tectonic Framework.

The major part of region is covered by stratographic position of recent and sub recent alluvium formations. The region is level to very gently slopping with average height of 48.77 metres above the mean sea level and due to this sedimentary alluvium is mainly derived from various rocks viz. Deccan trap, Quartzite, Granite, Sand Stones, impure Calcarious faces metamorphic and argillaceous rock like Slates, Schist and Phyllite and Conglomerate Besalt. Depositions are also found due to rain water run off along with fine soil particles from hilly area to flat areas helped in the formation of heavy textured soils. Land Capability is high in region. However, the agricultural land in the region has a medium agricultural use due to its speedy conversion to non-agricultural uses. The drainage pattern is dendritic to sub dendritic in Gulf of Cambay. Sabarmati,

one of the longest rivers of Gujarat, bifurcates the study region into Eastern and Western parts. Though the river is perennial but it gets practically dried up in the summer, leaving only small stream of water flowing feebly. R. Kharicut is the other river flows in the region. Kankaria and Chandola Lakes are two major water bodies also big tourist attractions of the region.

The economic opportunities offered by a developed city like Ahmedabad has been initiating a series of new activities specially meant for the villagers living in the adjoining rural areas. This has silently been signalling a point of departure from their traditional occupations. For instance, most of the villages around Ahmedabad city have been influenced by the market-oriented economy not only by selling vegetables and milk products but also by providing their residents as labourers. The city has opened up a wide range of employment opportunities for the villagers and to some extent they have option to choose from the wide range offered along with the diversification of crops supported by modern inputs.

It has been observed that changes in the landuse pattern in rural-urban fringe area is a reflection of the changes being made in natural, economic, social and cultural structure over a period of time in the study region. Rapid technological changes being adopted too have created new needs which demand more land as well as new modes of land utilization. In last 25 years land utilization in the region has witnessed major changes alongwith the growth of population and diversification and expansion of industrial and other related economic activities. These major adjustments between the land resources and expanding economic activities have caused widespread environmental degeneration in various parts of the region.

The history of resources being used clearly indicates, that with the increasing number of people along with the diversification of needs and their enhanced capabilities with the adoption of advanced technology, initially the best land has been used for cultivation. But with the growing pressure due to the population and economic development, gradually the pressure on the available agricultural land too has increased and even the marginal lands too are cultivated with the induction of modern scientific and technological innovations. As a result use of agricultural land has gradually been intensively diversified to a higher level. There is another notable factor, which has affected the agricultural land, considering the changing scenario the small; even the marginal farmers of the region also have start adopting the recent technical knowledge and the use of modern inputs in agriculture. Thus the study of landuse pattern provides the guidelines to maximise the use of available land in the area/region in optimum conditions.

With the study of landuse pattern, one can know the distribution and use of land in different categories. Land utilization in the region too has witnessed similar changes with the growth of population, and activities related to rural industry and dairy. This has struck the transformation of environment.

To gauge the transformation, which has taken place in the study region, detailed survey has been conducted between the month of December 2007 and June 2008 to find out the nature and direction of changes brought out as a result of the implementation of science and technology for the development of agriculture and also to assess its multiple effects on the rural environment. The socio-economic changes in the region have become possible mainly with urbanisation and industrialisation.

Due to urbanisation the development in agriculture technology has not been observed greatly as the rate of conversion of land from Agriculture to non-agriculture activities has been very high. This has resulted in negligence in cultivation practices and rapid selling of land wherever and whenever possible. Number of farmers totally dependent on agriculture are now in minority and practice of giving land on hire has also become very common. Shrinking open spaces and changing landuse of open spaces on the periphery of the city have resulted in reduced number of livestock. Reduced production due to pollution and expenditure constraints has reduced the viability of agriculture for people in the region.

There is no doubt that the adoptation and applications of modern inputs, on one hand have increased the agricultural production, and on the other has changed both the physical as well as the socio-economic environment. The rich agricultural land of the region has gradually degenerated even at places degraded due to the excessive use of irrigation, use of polluted water for irrigation, imbalanced and excessive use of fertilizers and pesticides and improper use of modern machinery. Dumping of urban wastes near the agricultural fields too has recorded as one of the main factor for the declining yields and quality, and ultimately polluting the agricultural as well as the rural environment.

The high population growth in the urban-rural fringe area clearly indicates the increasing influence of urbanisation. Due to the high population growth and increasing demand of residential houses available agricultural land has been converted to meet the requirement of residential plots and other non-agricultural activities. As a result and also to reside apart from conversion, the landholdings are fragmented with increasing pace to meet the growing demand.

Considering the family tradition normally the agricultural land owned by the family is divided among the sons of the family. It has been found that in the recent years due to the continued fragmentation of available agricultural land owned by the family the proportion of marginal and small farmers has increased and the region under study is not an exception to this urban array.

On the other hand in the recent years the pace of fragmentation of land has accelerated specially in the villages located on the outer margins of the Ahmedabad urban area so as to accommodate the increasing pressure due to the shifting of residential and various diversified activities to these rural areas. As a result, on a large scale agricultural land is being transformed into the non-agricultural uses and thereafter it is being constantly fragmented into small pieces assessing the demand and cost of land.

Process of social change in any region is initiated by variety of factors such as advancement of trade and transport facilities, political change, religious movement, industrialization and urbanisation or combinations of some or all of these. Urban environment has influenced the main stimulus of change in the surrounding villages. Thus, the feedback effect of urbanisation on villages is of a great significance in understanding the changes in reference to the prevailing traditional rural social structure.

The process and pattern of changes in the composition of the families is prompted by availability of employment opportunities in respective villages. Family dispute, marriage, increased family responsibilities, increase in family size and enhanced migration have also played an important role. The main reason for the split in the family is the employment opportunities. Most members of a family when find jobs in different institutions, are forced to move considering the long distances between the work place and their native place.

During the fieldwork it has been noticed that still there are good number of families whose priorities too have changed. As they have start giving greater importance for the education of their children and at times fails to spare money to share the responsibilities of the joint families. As a result they opt to live independently rather a part of joint family. The other two major reasons for these changes include marriage and increased family size.

67.64 per cent of the respondents belong to joint families followed by nuclear families with 32.36 per cent in the study region. Most of the families engaged in cultivation still live together with traditional lifestyle. The emerging change in the family structure is mainly due to space constraint with expansion in families and change in marital status. Level of urbanisation has had little impact on the family structure with only Ranip and Memnagar having highest proportion of joint family with 50.00 per cent. Even when most of the population in these sample villages engage in non-agricultural activities, moving out of the village has not happened. This may be attributed to the communication facilities and increased living cost in the city.

Broadly the houses built for residential purpose are classified into three types i.e. kuccha, pucca and mixed. In the kuccha houses roofing, flooring and walls are made by the locally available construction materials. In a typical kuccha house country-made tiles are used for roofing, mud-flooring and mud-walls. While in pucca houses the walls are made of bricks plastered by cement-concrete and the flooring by red tiles. On the other hand in the mixed houses various types of construction material is used depending upon the availability of the materials and the cost.

Type of houses being constructed in the region is considered as one of the parameters to judge the socio-economic status of the households clearly

indicates the life style of the people in the sample villages of the region. Nature and type of the residential houses become one of the main factor determines the use of electricity with its enhanced frequency for domestic purposes. About 6.71 per cent of the respondents in the region are living in Kuccha houses followed by mixed (Pucca and Kuccha) type houses and Pucca houses. The percent of these types are 28.28 and 65.01 respectively among sample villages.

All the sample households have the electricity connection. During the fieldwork it has been noticed that most of the Kuchha houses are using electricity only for lighting, and their consumption of electricity is very limited. Whereas most of the Pucca houses with electric connection are using electricity for lighting, and cooling, etc. They are also using various types of electrical appliances used for domestic needs include electric fans, iron, grinders, refrigerators and Television sets etc.

During the field work it has been noted that over the period of time the living environment in most of the residential areas of the sample villages has start degenerating due to the construction in a very unplanned manner causing congestion. With the increasing gap in the civic amenities as compared to the construction of the houses and expansion of residential areas, presents a very disorderly and unhygenic conditions in and around the residential areas.

The detailed analysis of the room density presents a very diverse picture considering the size of the built up area in different sample villages. It clearly indicates that irrespective of the size of the houses, room density is high especially in the villages located near the industrial areas and is financially backward. Similar has been noted in those villages that are accessible with the urban centre through dependable fast transport. Leaving few exceptions, most

of the respondents own a house with one or two rooms, with some space for other utilities.

As per the tabulation of the data 8.16 per cent respondents from the sample villages use open space to attend their nature's call. The shift to more hygienic methods is due to non-availability of open space in the villages. Leaving few exceptions in 10 sample villages, while all others have started using flush toilets.

The process of urbanisation has played an important role in transforming the composition of occupational structure. As a result over the period of time the proportion of agricultural workers has substantially declined in the adjoining rural areas. In the study region, with the expansion of urban and industrial activities, large number of workers have start migrating to these areas in search of better job opportunities. Similarly due to the increasing demand of agricultural labourers in the villages, increase in the intra regional migration too has been noticed in the region.

Majority of the persons living in the adjoining villages are engaged in the agricultural and other allied activities. But in last two decades the proportion of people engaged in non-agricultural activities has increased substantially. However, agriculture sector still accounts for the major share of workers for three different reasons i.e. Firstly, people who totally depend upon agricultural land; Secondly, people who are engaged in agricultural activities and partly depend on non-agricultural activities and finally people, who have given their agricultural land on hire and are presently engaged in non-agricultural activities. Change in occupation is one of the indices for assessing a change in the status of the people which has brought about a shift in the socio-economic status of people in and around the region. Villagers have not only been affected due to

the occupational mobility caused by urbanisation but are also confronted by a variety of goods and services which city offers. There is a wide range of possibilities in which they choose to spend their income, being acquired through new economic gains.

Population of the region fulfills their requirement and job opportunities through urbanisation as well as industrialisation, which has adversely effected the environment of the study region. Rapid and unplanned industrial growth is mainly responsible for the speedy transformation of the rural environment.

Urbanisation as well as industrialisation provides a way to demographic changes in the region. This not only creates new job opportunities which has been attracting people towards the urban area of Ahmedabad. But because of this there has been rapid increase in the urban population due to large scale inmigration from the nearby and distant rural as well as urban areas.

With this increase, the population density and size of urban centres and of its adjoining villages has changed. The growth of population and the process of industrialisation has changed the urban as well as rural environment. Ancillary activities have started in the adjoining villages as an effect of industrialisation and manufacturing sector has recorded an increase both in urban and rural areas.

Distribution of population in rural and urban areas of the study region has become very uneven. The collected data clearly shows a decline in rural population in last few decades i.e. 1961 to 2001. The unplanned growth of urban areas and the population has caused greater pressures on natural resources in few areas and this has caused the lowering of environmental quality and also the ecological imbalances.

Similarly ever increasing concentration of population in urban centres has created the existence and expansion of environmental pollution causing degeneration as well as degradation. Increasing population in the urban areas has disturbed the available infrastructure facilities, quality of life, and the prevailing socio-cultural environment of the region.

In the urban areas and its adjoining villages growth of population, density of population, proportion of literates as well as non-agricultural workers has increased. While in reference to the increasing distance from urban areas this proportion gradually declines.

The main reason for such increasing pattern of distribution is attributed to administrative activities, availability of adequate non-agricultural opportunities, developed education and medical facilities developed trade, transport, commerce and communication related activities. They together have been attracting a large number of people, causing very high growth of population and rapid increase of population density in the study region. Availability of non-agricultural occupations has accelerated the inmigration of educated people and also because of educational centre with diversified education facilities, it has generated educational consciousness among the masses. With this fact the literacy rate has increased sharply in the region.

Further, male population migrates from villages to urban areas and they leave their families in villages resulting in low Sex Ratio in urban areas, while it is high and very high in rural areas. Thus, urban centre has a high concentration of population that creates several environmental problems. High growth of population creates unplanned growth of built up areas and houses, dumping of garbages, scarcity of drinking water, improper waste management which creates serious imbalances and disorders in the ecosystem of the urban area

and its adjoining territories. Thus it has become necessary to check the growth of population, to improve the quality of life, living conditions and quality of environment as a whole in the study region.

It has been observed that people residing in the adjoining villages have positively responded to the available employment opportunities being offered by the city. While rural areas have their own limitations. Though the rural people opted for salaried jobs with minimum salaries making as they join most of the jobs as a helper or as unskilled workers in the industrial units or even as Chowkidar, peon, gardener and sweepers mostly in the private sector. It has been recorded that apart from other sectors commercial sector has a dominating share in offering the job opportunities in the potential areas to the rural people living in the fringe areas. Considering the availability of wide variety of opportunities some of the rural people have start working as wage earners doing few odd jobs while others are working as venders, hawkers, barbers. People belonging lower classes have taken the benefit of reservation policy of the government and almost one member form each family is in a government job or its subsidiary.

A concomitant change that has occurred in most of the sample villages is that the villagers have start giving importance to education. As a result the proportion of children sent to the schools within and outside the villages has increased substantially. The upper castes, who do not want to be left behind, too have start taking initiatives for higher education to their children with a hope that this will help in providing better jobs as office assistant and/or supervisory levels in the city.

The impact of urbanisation and occupational changes progresses steadily recorded that most families in the village have at least one member working in

the Ahmedabad urban area. In the region, population engaged in agricultural activity as a main earning source, are educationally less qualified. Along with this, a new category of part time farmers has also emerged in the region and as a result of this actually the farm workers are slowly transformed as landless labourers. Those who do not own agricultural land play an important role in farming activities as well as in other non-agricultural activities like dairy workers and labourers, etc. At the same time, women also contribute their share as agricultural workers and even as a constructional labourer.

As compared to rural boys the proportion of rural girls in school and even in job activities in Ahmedabad city is relatively less. The main reason behind this is that females have to take care of their families in the absence of males and education of girl child is still to become important to parents.

Some enterprising village families also venture into independent businesses in Ahmedabad city, focusing on grocery or readymade garment stores, cycle repairing shops, and tea shops, etc. As time passes, the range of private enterprises widens to include almost every type of enterprise.

This stage marks a quantum jump in terms of the spatial mobility of the village population. The villages are invariably connected by city bus services, either as a terminal point or as an important transit point in the network area. Two wheelers however, continue to play an important role as a popular mode of transport. The village economy is transformed in many ways. Shops having a variety of urban consumer goods also appear in the village itself. Radio, television, mobile phone and other electrical and household gadgets are found in a good number even in the surrounding villages. There is a rapid increase in the number of scooters and motorcycles, providing greater personal mobility. Dressing sense and even eating habits have undergone drastic changes.

Houses are rebuilt using cement and bricks as a main raw material. Maximum proportion of single storied houses are replaced by doubled storied and even three storied structures. The housing environment in study area has improved with better furnishing and equipments but problems in some of the basic amenities such as sewage disposal and drainage facilities are yet to be resolved in many villages.

The process transforming the rural environment has been a complicated interplay of shifts towards urbanisation, industrial structure, the character of economic and social organisation, change in the quality of life, changes of agricultural practices, and changes in the proportion of population engaged in agricultural activities which provide a key to economic growth. The expansion of Ahmedabad urban area has influenced the rural environment both towards the development and modernisation and has caused degeneration and even degradation by polluting the rural environment.

8.1. PROBLEMS

During the fieldwork some of the areas from various sample villages have been identified as highly problematic areas with emerging problems which have caused and are causing more environmental hazards. The scholar has attempted to understand and scan the intensity and nature of problems being noticed during the survey are discussed below.

With the growing population to meet the increasing demand for food and other requirements pressure on the available agricultural land has increased in the recent years. This has resulted in rapid conversion of agriculture land into non agricultural land. The construction of Sardar Patel ring road has accelerated the conversion of agricultural land of the adjoining villages to accommodate the expansion of non agricultural

activities along the highway. Escalating land prices too has become a major driving force encouraged farmers to sell their land, especially when the returns from agriculture are constantly declining.

On the other hand most of sample villages gradually have start accommodating the population in these areas comparing the cost of living and their accessibility with the core area of the study region. The villages located on the rural urban fringe of the study region are witnessing the constantly increasing pressure on the available residential space due to the push from the main areas. To meet such expanding demands of residential and/or commercial activities efforts have been by modifying or altering the existing space by adding residential space and also by converting the residential space for commercial uses. Due to change in front portions of old houses and inner part of houses. On the available living space with the reduced size of rooms non-availability of adequate sunlight, fresh air and cross ventilation, living environment has been transformed and people are forced to compromise with such changes as their living environment is adversely effected.

Even then requirement of land for housing, industrial expansion, transport and dumping sites for waste dumping along with agriculture to cultivate cash crops and some other basic needs supporting human life is further putting the pressure for the conversion of land ultimately transforming the rural environment. Due to the expanding human activities and their unplanned development, land has been worst affected as compare to water and air. During the survey, it has been recorded that land is polluted by expanded industrial, commercial and residential activities as an outcome of the urbanisation process.

Problems which have been created due to the continued and disorderly dumping of urban and industrial wastes being discharged in large quantity solid as well as liquid industrial wastes at different locations in the adjoining rural areas has caused and is causing land degeneration/ degradation. With waste dumping in the nearby agricultural fields in a very unplanned manner and is causing degradation of agricultural land in and around Shilaj, Visalpur, Hathijan and Hanspura villages

Along with this in and around Ahmedabad and its suburban areas, the proportion of culturable wasteland has increased. Production and the quality of crops has been affected in most of the villages and points land has become barren and only grass is grown on large areas of Saijpur Gopalpur, Piplaj and Hathijan in the region are severely affected villages.

With dumping of urban wastes in and around the agricultural land not only the yields have been effected but quality of crops too has declined. Most of the farmers are forced to use even wastes as manure and as a result gradually soil have been polluted. Fine-grained particles of such wastes are gradually deposited on the agricultural land. During the rainy season the decayed wastes mixed with rainy water or irrigation water percolates in to the lower layer of soil. Polythin and other harmful waste materials and products too are mixed with soil and generates harmful germs which are adversely affecting agricultural crops.

With use of polluted water along with the rain water, the pollutants gradually reach to the lower layer of soil with the porosity rate and the soil starts declining. Village areas nearer to industrial areas of Naroda, Odhav and Vatva are severely affected by the effluents released through the canals or drainage lines in the adjoining areas. With illegal discharge of

industrial effluents through small river streams, the surface water too has been polluted.

Due to ever expanding activities not only the land is polluted but also the adjoining water sources as well as groundwater creating favourable conditions for spreading diseases and germs. With depleting ground water resources, poor management and multiple activities constantly polluting the available water sources situation gradually is becoming uncontrollable in certain areas of Hanspura, Vatva, Piplaj, Saijpur Gopalpur and Odhav villages. The noxious gases and the chemical effluents released is also adversely effecting human life.

Certain sites of the sample villages located close to the Ahmedabad city are frequently used as the dumping sites for the garbage and sewage released from the city. All obnoxious land uses relevant to the normal life of urban areas are pushed towards the city's outer limits and often into the fringe villages. The classic examples of such land uses include garbage dumps, water works, sewage disposal tanks and farms, burial and cremation ground, airport, timber yards, brick kilns and so on. The Gauchar land of Lambha, Hathijan and Vatva is used for relocation of the city slums. In such a process the villagers hardly have any say in these matters as decisions are made by the planners and administrators living in the Ahmedabad city.

8.2. PEOPLE'S PERCEPTION

Sincere effort has been made by the scholar to gauge the perception of the villagers living in 23 sample villages. Number of questions related to the process of development have been asked and were duly weighted

considering the nature of some common factors concerning all 23 sample villages have been used in the analysis process. The factors have broadly been classified as Transport, Agriculture, Education, Infrastructure facilities and issues related to Safety, Job opportunity, Literacy, Performance of AMC, Migrant problem, Emerging Social Evils, Pollution of air, water and land and the Overall Development of respective villages.

Transport includes accessibility through rail and road public transport, private transport such as jeep, Auto and others, Agriculture includes cultivation level and livestock, education includes the facilities and level of education from primary, higher secondary school and colleges, importance given to education of the girl child is also considered. Requirement of other facilities needed by villagers include medical, market and provision of civic services.

Performance of AMC after taking over from panchayats has satisfied only few, while others expressed their dissatisfaction. Migration of labourers from other parts of Gujarat and states into the region, social evils like gambling and drinking prevailing in many villages not only has affected growth but also has disturb the social fabric of respective villages. Air, water and land pollution caused by industry, increasing problem of traffic congestion have been of major concern expressed by local people representing sample villages. Depleting ground water levels has become a burning issue throughout the region.

8.2.1. METHODOLOGY ADOPTED

The perception factors are divided based on their positive and negative aspects. These factors are then weighted from 10

points for each issue in each village. Then ranks are given to the villages based on the total points credited to them in both positive and negative aspects. For positive aspects (Table 8.1), lowest ranking is given to the village earning maximum points. In departure from positive aspects (Table 8.2), highest ranking is given to the village earning lowest points and lowest ranking to the village earning highest in negative aspects. Thereafter rankings are given to the villages based on the difference of their positive and negative points credited. Lowest ranking is given to the village earning highest point and the village with highest is given lowest rank (Table 8.3).

8.2.2. INTERPRETATION

Common perception of people in seven villages namely Asarwa, Bodakdev, Jodhpur, Memnagar, Ranip, Shilaj and Vejalpur is that merger of villages into the city territory has benefited the villagers and they are happy with the growth of their area on the whole (Table 8.4). In other sixteen villages of Danilimbda, Ghatlodiya, Ghodasar, Hanspura, Hathijan, Kali, Kotarpur, Lambha, Odhav, Piplaj, Saijpur Gopalpur, Sarkhej Okaf, Tragad, Vastral, Vatva and Visalpur respondents were of the opinion that village environment was better and with merger in the city has not improved their living standards rather this has created many problems for them.

Table 8.1 - Ahmedabad City Taluka Region: Positive Perception of Sample Respondents

Sample Villages	Communication				Agriculture			Literacy				Services			Perception					Positive Ranking
	Accessibility	Public Transport: Rail	Public Transport: Bus	Private Transport: Jeep, Auto, Others	Cultivation Level	Livestock Population	Primary Education	Higher Secondary Education	College Education	Education: Girl Child	Medical Facilities	Market	Service Units	Safety	Job opportunities	AMC performance	Over all Development	Total positive	
Memnagar	10	8	10	10	1	1	10	10	10	9	10	10	10	9	9	9	9	145	1
Asarwa	10	9	10	10	1	1	9	10	8	9	10	10	10	9	9	9	9	143	2
Ghatlodiya	10	8	10	10	2	2	8	10	9	7	9	10	10	9	9	9	9	141	3
Ranip	10	7	9	10	2	1	10	10	8	9	9	10	10	9	9	9	9	141	4
Sarkhej Okaf	8	10	8	8	8	6	9	10	9	9	8	9	10	3	8	8	8	139	5
Vejalpur	10	10	10	10	1	2	7	10	8	7	9	10	10	6	9	9	9	137	6
Jodhpur	10	9	9	10	1	1	7	8	8	9	9	10	9	9	9	9	9	136	7
Odhav	10	8	10	10	1	3	9	9	7	7	8	10	10	7	9	9	9	136	8
Bodakdev	10	7	9	10	3	4	7	4	7	9	8	10	10	9	9	9	9	134	9
Vatva	10	10	8	10	3	1	6	10	6	9	7	10	10	2	9	9	8	128	10
Visalpur	7	5	5	7	9	8	9	10	5	9	6	8	8	9	5	6	8	124	11
Danilimbda	10	7	9	10	1	1	7	8	8	6	8	10	10	2	9	8	9	123	12
Kali	7	10	7	9	1	3	5	6	6	5	9	9	10	6	9	8	9	119	13
Ghodasar	8	7	8	9	2	2	7	7	7	5	7	9	8	5	9	5	8	113	14
Shilaj	6	8	6	7	8	7	7	6	5	7	6	6	5	8	5	4	6	107	15
Lambha	8	5	8	9	8	6	8	5	5	7	7	7	6	4	5	4	4	106	16
Tragad	5	8	6	6	8	8	6	4	3	6	5	5	3	8	5	3	5	94	17
Hathijan	5	5	5	8	8	7	5	4	3	8	4	5	4	4	6	3	3	87	18
Kotarpur	10	7	7	7	1	1	4	2	2	2	5	7	3	5	2	3	3	71	19
Hanspura	3	5	2	2	9	7	6	3	1	8	2	2	1	9	4	2	2	68	20
Vastral	6	5	6	6	4	4	3	3	3	3	4	4	3	2	4	2	3	65	21
Piplaj	4	4	1	4	7	6	5	2	1	2	2	3	7	2	7	1	2	60	22
Saijpur Gopalpur	4	4	1	4	7	7	4	2	1	2	2	3	7	2	7	1	2	60	

Source: Based on Tabulation

Table 8.2 - Ahmedabad City Taluka Region: Negative Perception of Respondents

Sample Village	Migrant problem	Social Evils	Air Pollution	Water Pollution	Land Pollution	Total Negative Score	Golf Score
Shilaj	1	1	3	5	5	15	23
Tragad	1	4	2	5	4	16	22
Memnagar	1	1	8	5	2	17	21
Visalpur	1	1	2	5	9	18	20
Asarwa	1	2	8	6	2	19	19
Ghatlodiya	1	2	7	5	5	20	18
Jodhpur	1	1	8	5	5	20	17
Ranip	2	1	8	5	4	20	16
Ghodasar	1	2	8	5	5	21	15
Hanspura	1	1	2	9	8	21	14
Kotarpur	3	9	3	5	2	22	13
Lambha	8	3	2	5	7	25	12
Sarkhej Okaf	3	4	8	5	8	28	11
Bodakdev	1	8	8	6	6	29	10
Vejalpur	1	9	7	5	7	29	9
Kali	5	3	7	8	8	31	8
Danilimbda	9	3	8	5	8	33	7
Hathijan	9	5	4	9	6	33	6
Vastral	9	9	3	6	8	35	5
Vatva	8	2	9	9	9	37	4
Odhav	7	9	9	9	6	40	3
Saijpur Gopalpur	9	9	10	5	9	42	2
Piplaj	9	9	10	7	9	44	1

Source: Based on Tabulation

Table 8.3 - Ahmedabad City Taluka Region: Perception of Respondents

S. No.	Sample Village	Total Positive Score	Total Negative Score	Positive Score – Negative Score	Perception – Village / City is better	Positive Ranking	Negative Ranking	Final Ranking
12	Memnagar	145	17	128	City	1	3	1
1	Asarwa	143	19	124	City	2	5	2
4	Ghatlodiya	141	20	121	Village	3	6	3
15	Ranip	141	20	121	City	4	7	4
8	Jodhpur	136	20	116	City	7	8	5
17	Sarkhej Okaf	139	28	111	Village	5	13	6
22	Vejalpur	137	29	108	City	6	14	7
23	Visalpur	124	18	106	Village	11	4	8
2	Bodakdev	134	29	105	City	9	15	9
13	Odhav	136	40	96	Village	8	21	10
5	Ghodasar	113	21	92	Village	14	9	11
18	Shilaj	107	15	92	City	15	1	12
21	Vatva	128	37	91	Village	10	20	13
3	Danilimbda	123	33	90	Village	12	17	14
9	Kali	119	31	88	Village	13	16	15
11	Lambha	106	25	81	Village	16	12	16
19	Tragad	94	16	78	Village	17	2	17
7	Hathijan	87	33	54	Village	18	18	18
10	Kotarpur	71	22	49	Village	19	11	19
6	Hanspura	68	21	47	Village	20	10	20
20	Vastral	65	35	30	Village	21	19	21
16	Saijpur Gopalpur	60	42	18	Village	23	22	22
14	Piplaj	60	44	16	Village	22	23	23

Source: Based on Tabulation

Table 8.4 - Ahmedabad City Taluka Region: Perception of Respondents

Sample Village	Positive Ranking	Sample Village	Negative Ranking	Sample Village	Final Ranking
Memnagar	1	Piplaj	23	Memnagar	1
Asarwa	2	Saijpur Gopalpur	22	Asarwa	2
Ghatlodiya	3	Odhav	21	Ghatlodiya	3
Ranip	4	Vatva	20	Ranip	4
Sarkhej Okaf	5	Vastral	19	Jodhpur	5
Vejalpur	6	Hathijan	18	Sarkhej Okaf	6
Jodhpur	7	Danilimbda	17	Vejalpur	7
Odhav	8	Kali	16	Visalpur	8
Bodakdev	9	Bodakdev	15	Bodakdev	9
Vatva	10	Vejalpur	14	Odhav	10
Visalpur	11	Sarkhej Okaf	13	Shilaj	12
Danilimbda	12	Lambha	12	Ghodasar	11
Kali	13	Kotarpur	11	Vatva	13
Ghodasar	14	Hanspura	10	Danilimbda	14
Shilaj	15	Ghodasar	9	Kali	15
Lambha	16	Jodhpur	8	Lambha	16
Tragad	17	Ranip	7	Tragad	17
Hathijan	18	Ghatlodiya	6	Hathijan	18
Kotarpur	19	Asarwa	5	Kotarpur	19
Hanspura	20	Visalpur	4	Hanspura	20
Vastral	21	Memnagar	3	Vastral	21
Piplaj	22	Tragad	2	Saijpur Gopalpur	22
Saijpur Gopalpur	23	Shilaj	1	Piplaj	23

Source: Based on Tabulation

Final rankings clearly shows that Memnagar as an urbanised village followed by Asarwa, Ghatlodiya and Ranip are leading the 23 sample villages considering the quality of life. While in reference to progress rate Saijpur Gopalpur and Piplaj villages rank last in the tally (Plate 8.1). These two villages have also got the highest ranks in negative perception largely due to the haphazard growth of unauthorized and illegal process houses in their respective village areas. Very high levels of air and water pollution has also made these areas unviable for cultivation. Vastral ranks third with highest points due to high mortality rate reducing young population due to increasing levels of alcoholism. Hanspura has good quality of life but ranks high in negative perception due to accessibility and infrastructure

problem. Shilaj followed by Tragad are ranked lowest showing the good quality of life in these villages.

The above analysis shows that the problems are sometimes common and sometimes unique to sample villages. Finally considering the ranking, sample villages are grouped in five categories according to the 30 points interval. The sample villages are classified as:

S. No.	Villages	Range	Level of Development
1	– Memnagar – Asarwa – Ghatlodiya – Ranip	Above 120	Well Developed
2	– Sarkhej Okaf – Vejalpur – Jodhpur – Odhav – Bodakdev – Vatva – Visalpur – Danilimbda – Kali	91-120	Normal development
3	– Ghodasar – Shilaj – Lambha – Tragad	61-90	Average development
4	– Hathijan – Kotarpur – Hanspura	31-60	Under developed
5	– Vastral – Piplaj – Saijpur - Gopalpur	0-30	Ignored

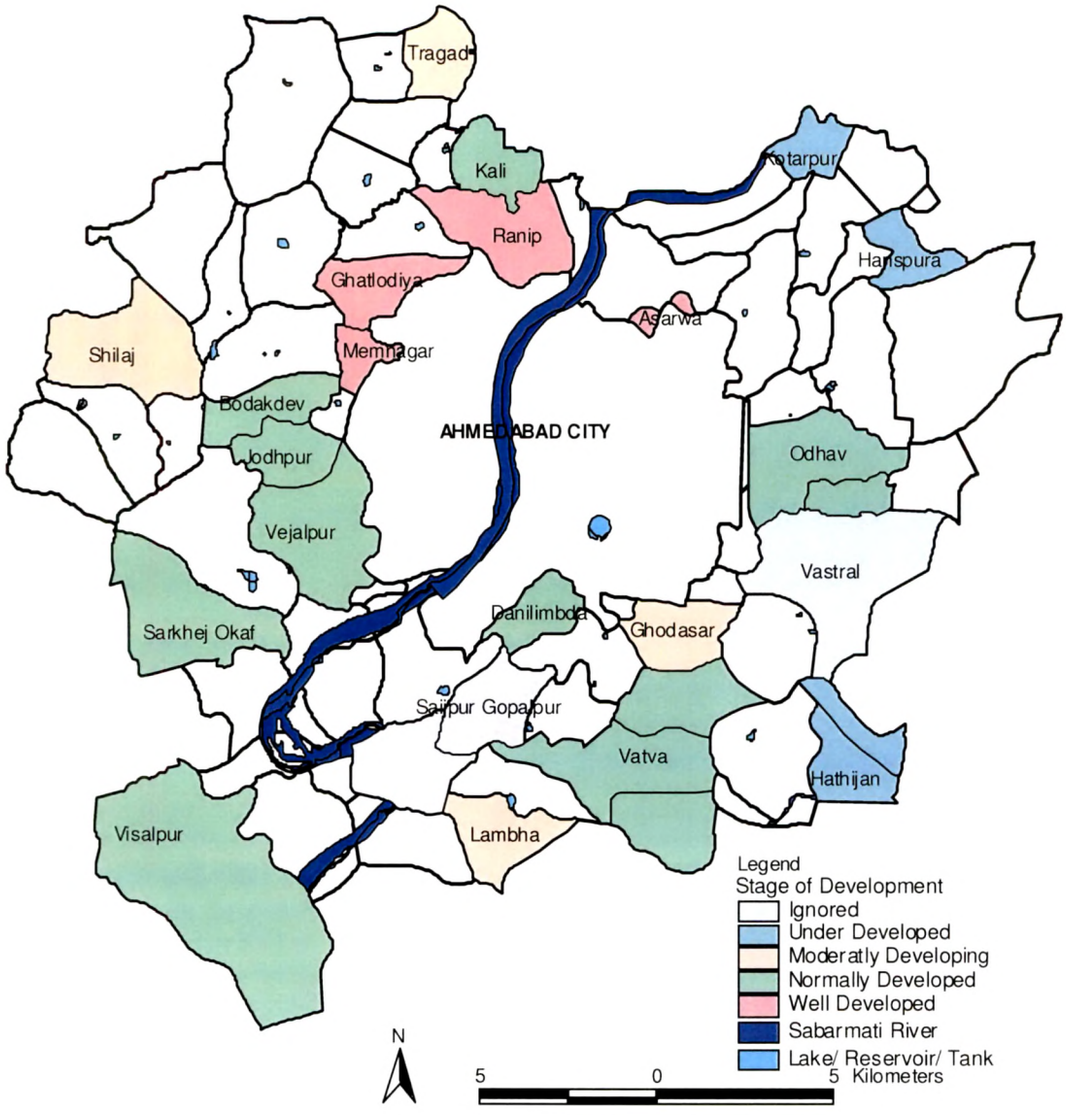

Plate 8.1 – Ahmedabad Taluka Region: Sample Villages - Level of Development
Source: Based on Village / Household Questionnaires

8.3. SUGGESTIONS

The present study clearly reveals that region under study has undergone some major transformations, which not only are causing degeneration and degradation of natural environment but also have become hazardous for the human health. To monitor all these problems some effective measures have to be adopted with the involvement of the local administration and local people. To control and monitor these problems efforts at individual level as well as at community and society level, region or state level have

to be evolved. Some of the important suggestions which are to be initiated based on practical experience to prevent the available land from land degradation and its transformation, some important measures have to be adopted by local administration as well as state government to strictly control the emerging problems in the study region, include:

- Proper planning is required at the time of developing the residential colonies especially provisions related to sunlight, fresh air, ventilation, waste dumping points have to be incorporated considering the strict provisions and to be monitored along with progress.
- At the time of planning of residential colonies provision must be made for adequate garden/colonies as open space in the form of gardens, play grounds, community halls be strictly followed.
- Provision of Waste disposal points within the residential colonies and land fill sites at distance must be made and ensured,
- provision for sweeping, handling and disposal supported by mechanical equipments and staff have to be made.
- Provision to prevent agricultural land from the water logging have to be made with strict monitoring, along with provision for proper drainage system which is being disturbed with the transformation of the landscape due to large scale constructional activities,
- In the study region dustbin should be shared by some households according to their accessibility, which will properly be maintained i.e. regularly empty, disposal in dumping place etc.
- Proper attention has to be given towards monitoring and controlling the unplanned mushrooming of manmade structures,

- Proper planning has to be done for developed drainage system in the region.
- To prevent soil erosion and degeneration basically from farm activities, the authorities should give attention and farm processing training. Proper education of villagers can check the level of transformation. Education gives knowledge to understand and to evaluate the present situation, keeping future in mind. So proper education should be provided to the farmers.
- Out growing centres and residential areas, needs proper planning with phase wise creation of basic amenities to meet the emerging requirements.
- Further establishment of illegal industries and warehouses in agricultural land should be stopped and industries which are causing severe environmental problems be relocated at proper industrial sites with adequate infrastructure for effluent and hazardous disposal.
- Disaster Management Plan to be made for all the villages located within 25 kilometers of industries that are using hazardous material as raw material and villagers should trained to made a response team for adequate action under emergency
- Regulation to control the use of ground water should be prepared to conserve and preserve the available water resources for future.