

**IMPACT OF INDUSTRIAL GROWTH ON URBAN DEVELOPMENT  
( CASE STUDY-JETPUR )**

**A DISSERTATION**

submitted in partial fulfilment of the  
requirements for the award of the degree  
of  
MASTER OF URBAN AND RURAL PLANNING

By

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CANDIDATE'S DECLARATION

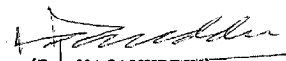
I hereby certify that the work which is being presented in the dissertation entitled, **IMPACT OF INDUSTRIAL GROWTH ON URBAN DEVELOPMENT (CASE STUDY : JETPUR CITY)** is the partial fulfilment of the requirements for the award of the degree of **MASTER OF URBAN AND RURAL PLANNING** submitted in the Department of Architecture and Planning, University of Roorkee, Roorkee is an authentic record of my own work carried out during the period from July 1992 to January 1993 under the supervision of Dr. Najamuddin, Professor, Department of Architecture and Planning, University of Roorkee, Roorkee.

The matter embodied in this dissertation has not been submitted by me for the award of any other degree or diploma.

Dated : 20<sup>th</sup> Jan, '93

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This is to certify that the above statements made by the candidate are correct to the best of my knowledge.

  
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Roorkee

Dated:

(MANDVIYA IQBAL UMAR)

## C O N T E N T S

	Page no.
LIST OF TABLES -----	I II
LIST OF GRAPHS -----	III
LIST OF DRAWINGS -----	III
CHAPTER : 1      INTRODUCTION -----	1-5
1.1      Introduction	
1.2      Identification of Problems	
1.3      Aim and Objectives	
1.4      Scope of Study	
1.5      Methodology	
1.6      Selection of Study Area	
CHAPTER : 2      LITERATURE REVIEW -----	6-28
2.1      Definitions of Urban Structure	
2.2      Components of Urban Structure	
2.3      Classification of Industries	
2.4      Theories of Industrial Locations	
2.4.1      Alfered Webber's Theory	
2.4.2      Seargent Florence's Theory	
2.5      Factor Affecting Industrial Location	
2.6      Industrial Policies of India	

- 2.6.1 Industrial Policy resolution 1948
- 2.6.2 Industrial Policy Resolution 1956
- 2.6.3 Industrial Policy in 1977
- 2.6.4 Industrial Policy of 1980
- 2.6.5 New Industrial Policy of 1991
- 2.7 Policy on Small Scale Industries in Gujarat
  - 2.7.1 Incentives
  - 2.7.2 Different Aids for Industries
- 2.8 Case Study : Study of Morbi City

CHAPTER : 3      PROFILE OF JETPUR CITY      29-64

- 3.1 Jetpur in Regional Context
- 3.2 Geo-climatic Characteristics of the Region
- 3.3 Historical Evolution
- 3.4 Factor Affecting the Growth of Jetpur
- 3.5 Demographic Pattern
  - 3.5.1 Population
  - 3.5.2 Sex-ratio
  - 3.5.3 Literacy rate
  - 3.5.4 Workers' Distribution
  - 3.5.5 Functional Category of Town
- 3.6 Economic Structure
  - 3.6.1 Industry
  - 3.6.2 Trade and Commerce
- 3.7 Occupational Structure

3.8 Land-use

3.8.1 Existing Land use Pattern

CHAPTER : 4 INFRASTRUCTURE AND AMENITIES \_ \_ \_ \_ \_ 65 - 74

4.1 Network

4.1.1 Road

4.1.2 Railway

4.2 Electricity

4.3 Water supply

4.4 Sewarage and Drainage

4.5 Housing

4.6 Communication

4.7 Education

4.8 Health

4.9 Transportation

CHAPTER : 5 INDUSTRIAL GROWTH \_ \_ \_ \_ \_ 75 - 91

5.1 Nature of Industries

5.2 chronological Growth

5.3 Location of industries

5.4 Area Under Industries

5.5 Impact due to Industrial Growth

5.5.1 Impact on Sectoral Distribution of Workers

5.5.2 Impact on Residential & Commercial Development

- 5.5.3 Impact on Transportation
- 5.5.4 Impact on Land values
- 5.6 Waste Water Disposal Plant

CHAPTER : 6 URBAN DEVELOPMENT MANAGEMENT \_ \_ \_ \_ \_ 92 - 97

- 6.1 Municipality - Jetpur
- 6.2 Functions
- 6.3 Legal Frame Work
- 6.4 Financial System
- 6.5 Problems and Suggetions

CHAPTER : 7 PROPOSALS AND RECOMMENDATIONS \_ \_ \_ \_ \_ 98 - 106

APPENDIX 'A' \_ \_ \_ \_ \_ 107 - 109

APPENDIX 'B' \_ \_ \_ \_ \_ 110 - 113

BIBLIOGRAPHY \_ \_ \_ \_ \_ 114 - 116

---

Sr.No.	Table	Page No.
21.	T - 5.3	Average Land, Plot Area & Investment per Workers.
22.	T - 5.4	Summary of Employment & Investment per worker for Sari Printing Industry.
23.	T - 6.1	Ward Wise Population in Jetpur City.
24.	T - 7.1	Participation Rates in 2001 A.D.



5.5.3 Impact on Transportation

5.5.4 Impact on Land values

5.6 Waste Water Disposal Plant

CHAPTER : 6 URBAN DEVELOPMENT MANAGEMENT \_ \_ \_ \_ \_ 92 - 97

6.1 Municipality - Jetpur

6.2 Functions

6.3 Legal Frame Work

6.4 Financial System

6.5 Problems and Suggetions

CHAPTER : 7 PROPOSALS AND RECOMMENDATIONS \_ \_ \_ \_ \_ 98 - 106

APPENDIX 'A' \_ \_ \_ \_ \_ 107 - 109

APPENDIX 'B' \_ \_ \_ \_ \_ 110 - 113

BIBLIOGRAPHY \_ \_ \_ \_ \_ 114 - 116

LIST OF TABLES

Sr.No.	Table	Page No.
1.	T - 2.1	Population growth in Morbi city.
2.	T - 2.2	Industries in Morbi.
3.	T - 3.1	Year wise rainfall in Jetpur city.
4.	T - 3.2	Month wise rainfall in Jetpur city.
5.	T - 3.3	Population growth in Jetpur city.
6.	T - 3.4	Sex Ratio.
7.	T - 3.5	Literacy Rstes.
8.	T - 3.6	Workers' distribution - 1961.
9.	T - 3.7	Workers' Distribution - 1971.
10.	T - 3.8	Workers' Distribution - 1981.
11.	T - 3.9	Functional Category of Town.
12.	T - 3.11	Commercial Establishments.
13.	T - 3.12	Details of Trade & Commerce.
14.	T - 3.13	Land use Patterns in Jetpur city.
15.	T - 4.1	Electric Connections.
16.	T - 4.2	Details of Residential Houses.
17.	T - 4.3	School per 1000 Population in Jetpur & Ot Cities in Rajkot District.
18.	T - 4.4	No. of Hospitals bed per 1000 Population.
19.	T - 5.1	Type of Industries & No. of Workers.
20.	T - 5.2	Chronological Growth of Industries in Jetpur.

---

Sr.No.	Table	Page No.
--------	-------	----------

---

- |     |         |  |
|-----|---------|--|
| 21. | T - 5.3 | Average Land, Plot Area & Investment per<br>Workers.                         |
| 22. | T - 5.4 | Summary of Employment & Investment per worker<br>for Sari Printing Industry. |
| 23. | T - 6.1 | Ward Wise Population in Jetpur City.   |
| 24. | T - 7.1 | Participation Rates in 2001 A.D.   |

## LIST OF GRAPHS

Sr.No.	GRAPH NO.	PARTICULARS	PAGE NO.
1.	G-3.1	Year wise rainfall in Jetpur city	
2.	G-3.2	Month wise rainfall in Jetpur city	
3.	G-3.3	Population Growth in Jetpur city	
4.	G-3.4	Sex-ratio	
5.	G-3.5	Literacy Rates	
6.	G-3.13	land use Pattern in Jetpur -1975	
7.	G-3.14	Land use Pattern -1989	
8.	G-3.15	Land use Pattern - D.C. 1991	
9.	G-4.1	Electric Connections	
10.	G-5.1	Type of Industries and No. of Workers	

## LIST OF DRAWINGS

1.	F-3.01	Locational Map Rajkot District	
2.	F-3.02	Map showing municipal limit	
3.	F-3.03	Existing land use pattern-Jetpur	
4.	F-3.04	Land use pattern of Development plan-1991	
	F-3.05	Road Pattern	
5.	F-5.01	Location of industries in Jetpur city	
6.	F-7.01	Proposed Modified plan of Jetpur city	
7.	F-7.02	Industrial Disposal System	

IMPACT OF INDUSTRIAL GROWTH ON URBAN DEVELOPMENT

(Case Study : Jetpur City)

CHAPTER - 1 INTRODUCTION:

1.1 INTRODUCTION:

Industrialization is the mainstay of modern civilization not only because it affords a scientific base for national development but also because it generates employment and raises per capita income and standard of living at faster pace. It is common knowledge that growth, if not the very existence of towns, depends on industry. This has been seen in the case of Chandigarh and Gandhinagar. After realisation of importance of industry for growth of town, both state governments have promoted industry in both towns.

Industrial growth has always been instrumental in bringing about a change in physical/social structure and pattern of city by concentration of population and introduction of new administrative, social cultural, and economic value, which subsequently reflect in changes of physical growth.

The unplanned and uncontrolled industries act adversely on city's structure creating the problems like congestion, slums pollution, traffic problems etc.

The Gujarat state is well progressing towards the industrialization. Many large, medium and small scale industries both in public and private sector are located in different cities of Gujrat. The main Industrial centres are Ahmedabad, Baroda and Surat, while in Saurashtra region Rajkot

city is famous for small scale industrial activities such as Oil - engine manufacturing, sari printing and its ancillary products.

The Rajkot city is one of the important centres of small scale industries in the country. The other important centre of small scale industries in Rajkot district are MORBI and JETPUR.

JETPUR is famous for Dyeing and Printing industries. It has earned nation wide reputation for screen printing industries on cotton sarees which are exported to foreign countries since few years.

JETPUR has an industrial estate beyond municipal limit, managed by Gujarat industrial development corporation.

## 1.2 IDENTIFICATION OF PROBLEMS:

### General Problems:

1. Problem of mixed land use, e.g. industrial - residential, commercial-residential and commercial-industrial.
2. Lack of parking facilities in commercial areas and lack of semi- public facilities.
3. Traffic problems in residential areas due to narrow streets and other factors.
4. Acute shortage of housing.
5. Development of slum areas.
6. Encroachment by informal shopping activities.

Industrial Problems:

1. Industries are located in a haphazard and unplanned manner.
2. Problems of water pollution.
3. Acute shortage of housing for industrial workers.

1.3 AIM AND OBJECTIVES:

AIM: To prepare a set of recommendations for future growth and to propose some modifications in Jetpur master plan with reference to industrial growth for balance urban growth.

OBJECTIVES:

1. To study industrial growth in Jetpur city.
2. To understand the effect of industrial development on urban structure.
3. Identification of urban problems resulting from industrial development and technological changes in industries.
4. Framing of policy for future development and growth.
5. Proposals and some modifications in Jetpur Master plan for balance growth.

1.4 SCOPE OF STUDY:

1. Analysis of chronological growth and of industrial activities will be done in terms of number of units, capital investment, raw materials, finished products and extent of major markets in India.

2. Analysis of urban problems will be based on the impacts due to industrial growth.
3. Aspects like social implications, economic implications and technical details shall not be dealt with.
4. Recommendations shall be given for integrated industrial growth & urban development based on the outcome of the study.
5. Modifications only in the existing development plan shall be proposed. No new development plan will be made.

#### 1.5 METHODOLOGY:

1. Study existing town with its historical growth, causes of industrialization to understand the present status of the city with reference to industrial growth.
2. Definition of urban structure with respect to study.
3. Identification of impact of industries on urban structure.
4. Study for framing policy related to industrial growth.
5. Study of present management system of town.
6. Policy guidelines/ proposals for future development.

#### 1.6 SELECTION OF STUDY AREA:

Jetpur city is selected as study areas for dissertation because.



- i. It is one of the important industrial towns in Rajkot district and has earned nationwide reputation for Sari printing industry.
- ii. Due to the rapid industrial growth, growth rate of population has also increased creating many problems.

## CHAPTER : 2 LITERATURE REVIEW :

### 2.1 Definitions of Urban Structure :

1. Urban structure signifies the spatial organization human activities and interrelationship' - Winglo-L.
2. The urban structure cover all physical accommodation houses, offices, roads, schools etc. which make up areas - David Lewis.
3. Urban Structure refers to the spatial organization key functional areas and essential services, facility of city in response to certain fundamental link needs and activities of human society.

### 2.2 Components of urban structure :

Main components of urban structure are :

1. Physical structures of city which contents all the land uses.
2. Social structure of city which contains Age sex structure , cast religion, education, health, living habits and conditions etc.
3. Economic structure of city which contains employment, workers etc.

2.3 CLASSIFICATION OF INDUSTRIES ON THE BASIS OF TCPO GUIDE LINES :

TCPO has classified industries in five classes as described below :

a) Service industries :

The service industries are those which are mainly concerned with repair, maintenance, servicing or job work. They can also be accommodated in residential area where operating on a mini scale.

b) Light industries:

These are defined as those which do not employ more than 100 workers and do not use power more than 100 H.P. except in the case of foundries and smithies which do not generally consume any solid fuel. The total area requirement per unit does not normally exceed 4.9 hectares.

c) Extensive Industries :

Extensive industries are those which are employ more than 100 workers and may use any kind of motive power or fuel subject, of course to their noxious features. These industries usually require more than 4.9 hectare of area per unit.

d) Heavy Industries :

Such industries are highly capital intensive and also land extensive in character. They generally function as self contained and independent unit.

e) Obnoxious Industries :

These are industries which are associated with such features as excessive smoke, noise, vibration, stench, unpleasant or injurious fumes, effluent, explosive, inflammable material etc. and other hazards to health or safety to community.

According to above classification, Jetpur city falls in the class of light industries.

## 2.4 THEORIES OF INDUSTRIAL LOCATIONS :

The choice of a place where an industrial establishment comes to be started has a very great influence on productivity, efficiency and profitability of the particular industrial units. Broadly, it was only after the coming of the factory age and spread of factory system in a number of countries forcing competition among products of different countries that the problem of industrial location began assuming increasing importance.

### 2.4.1 Alfred Webber's theory of industrial location :

Alfred Webber, a German economist, profounded for the first time an analytical approach to the problem of industrial location in 1909. Webber's theory has adopted a purely

9

deductive approach and it is based on the critical analysis of general factors which pull an industry towards different geographical locations and ultimately determine the broad and basic frame work of location of different industries.

According to Alfred Webber's theory of industrial location 'certain technical coefficients play a decisive role in determining location of an industry' Thus, according to Webber's theory, there are only two basic factors for determining the location of an industry transport and labour cost. The fundamental factors which determine transport costs are weight of the goods to be transported and the distance to be covered. Raw materials are divided into two categories:

**Pure Materials :**

Like cotton, wood, raw jute etc. which do not lose weight in the process of production.

**Gross Materials :**

which are weight losing in the case of the power steel. OR we can say,

Localized materials which are generally available every where, e.g., water, clay etc.

Deducting from the above consideration, the industries will be localised at a place where transport costs are minimum.

In respect of labour location and its power to attract industries, according to Webber, two factors are important :

The labour cost index, (i.e., the ratio between cost of 1 labour per ton of product)

The locational weight (which is the total weight to be transported during the whole process of production).

From this Webber deduce another rule, when labour costs are varied, an industry deviates from its transport locations in proportion to the size of its labour coefficient.

Thus, a plane in the vicinity of a plane where there is a concentration of industry offers a many advantages to a new entrepreneur if he start an industrial unit in the same industry area there.

#### 2.4.2 Seargent Florence's Theory of Industrial Location :

According to Seargent Florence's theory, the relations of an industry area is not so important as the relation of the industry to the distribution of occupied population as a whole. He made use of two concepts, i.e., 'location factor quotients and 'co-efficient of localisation'. By location factor quotient, is meant an index of the degree of concentration of an iindustry in a particular region. The co-efficient of localisation gives a picture of the degree of local concentration of a particular industry compared with the distribution of the working population as a whole. If the location factor quotient is less than unit it would mean that the region does not have a sufficient share of industry. Location factor quotient on is generally calculated for a region based on the political division in a country. The main purpose of co-efficient of localisation is to classify the different industries according to their qualities of concentration or dispersion. Industries with a high coefficient of localisation show very little tendency towards decentralization , on the other hand industries with low coefficient show higher tendency of dispersal.

Location factor or quotient is calculated by two ratios :

i. The percentage of workers of the industry in question found in the region under consideration and the percentage of all industrial workers found in that particular region to the total industrial workers in the country. The first are when divided by the second one gives the location factor or quotient if the quotient is above unit the region have a higher share of industry. If the quotient is less than unity the region have a less share of industry.

The coefficient of localisation is calculated in the following ways :

- a. Percentage of all workers found in each regions is to be calculated.
- b. Percentage of the workers of the industry in question, in each region to be found out.
- c. The positive deviations of (b) from (a) is to be added up.
- d. The sum thus derived is to be divided by 100, to obtain coefficient of localisation.

On the basis of these can be divided in high medicement low coefficient industries.

## 2.5 FACTORS AFFECTING INDUSTRIAL LOCATION :

### Raw Materials :

The total cost of all the raw materials delivered at the works of the industry has to be taken.

### Supply of raw materials :

1. material are home produced or imported.
2. financial linkages with raw materials suppliers so that the raw materials may be obtained below market prices.
3. Nature of the raw materials : Localised or ubiquitous.
4. Reliability and continuity of the sources of supply.
5. The security of the means of transport.

### LABOUR :

1. Quantity : depends upon competition for labour.
2. Quality : covers special skill, training and acceptability of labour.

Unskilled a labour is largely fluid and hence non locative.

But for industries that employ large number of skilled artisans, i.e., where waves of skill constitute a large item in the total cost of production labour becomes the locative factor.





in 1948, the Indian Parliament adopted the 'Industrial Policy Regulation 1948', the industrial policy resolution of 1948 which was the first definite statement of the Government of India's Industrial Policy contemplated a mixed Economy for the country in which both the public sector and private sector would play an important and effective role in the industrial sphere.

#### 2.6.1 Industrial policy Resolution of 1948 :

The industrial policy regulation of 1948 divided various industries in the following four categories, viz.,

the manufacture of defence equipments, atomic energy, railways and transport were to be the exclusive monopoly of the Union Government.

the second category of industries included iron and steel, coal, ship building, Telephone and Telegraph and wireless and mineral oils and all new undertakings in this category would be established only by State, however, existing private industrial establishment would be allowed to continue in private sector.

Third category include those industries which were of such importance that the Government felt it necessary to plan and regulate them. This category included salt, tractors, automobiles, electricity, engineering, heavy machinery, machine tools, heavy chemicals, fertilizers, power and industrial alcohol, cotton and woolen textiles, cement, sugar, paper, news print, air and sea transport etc.

the fourth category consisting of industries not mentioned in the three categories referred to above was left open to private enterprises, individual as well as cooperatives.

The industrial policy resolution of 1948, also laid down guidelines for small scale and cottage industries, industrial labour and foreign capital.

#### 2.6.2 Industrial Policy Resolution of 1956 :

In 1956, the Indian Parliament by adopting the 'Industrial Policy Resolution of 1956' replaced the industrial resolution of 1948. The main provisions of 1956 resolution were :

The industries were divided into three categories by a new classification of industries. The three categories were viz.

##### Schedule 'A' :

This schedule included the 17 industries which were the exclusive responsibility of State.

These industries are :

Defence equipment, atomic energy, iron and steel, heavy castings and forging of iron and steel, heavy engineering machinery, heavy electrical plant, including steam turbines, coal and lignite gypsum, gold and diamond, mining and processing of copper, leads, zinc, tin, molybdenum, air craft, air transport, railway transport, ship building, telephones, telegraph and wireless generation and distribution of electricity.

#### Schedule 'B' :

It includes those industries which were to be gradually aimed and managed by States. In this category, only State will set up new units and private sector was assigned a role that was only supplementary to the role of State.

#### Schedule 'C' :

Included all the remaining industries left to private sector, but their development was to be in accordance with the social and economic policies and objectives of State policies.

The 1956, industrial resolution also emphasized to encourage small scale and cottage industries by reserving some products exclusively for small scale sector and by giving subsidies. This resolution also stressed the importance of labour and for improving the working and living conditions of industrial labour.

#### 2.6.3 Industrial policy in 1977 :

In 1977, when Janta Party Government replaced Congress Party Government in the Centre, wanting to make radical changes the Janta Party announced a new INDUSTRIAL policy in 1977. The main points of this policy were :

#### Development of Small Scale Industrial Sector :

To stimulate the development of small scale and cottage industries measures were to be taken, increased the items reserved for small scale sector from 180 to 807, setting up of

a District Industries Centre in each district to provide one window service. Revamping of Khadi and village industries and wide spread application of appropriate technology with a view to improve productivity, income of people engaged in this sector.

Role of large scale industries would be related to the meeting of basic needs of the masses of people and to provide infra structure and items like steel, non ferrous metals, cement, oil, etc. to expand the roles of public sector by producing not only basic goods but also essential consumer goods.

1977 policy resolution also allowed the import of technology in the sophisticated areas and in case of foreign collaborations it stated that areas where foreign technological know how is not needed, existing collaborations will not be renewed and foreign companies operating in such fields will have to modify their character and activities in conformity with national principles within the frame work of the Foreign Exchange Regulation Act (FERA Act).

#### 2.6.4 Industrial Policy of 1980 :

In 1980, Congress Government again come to power at Centre and it announced new industrial policy. The main objectives of 1980 Industrial Policy are :

1. To secure optimum utilization of the installed industrial capacity.

2. To make efforts to maximise industrial production and achieve high productivity.
3. To generate high employment opportunities.
4. To reduce regional industrial imbalance by giving higher priority and preferential treatment to industrial development of backward regions in the country.
5. To give high priority and preferential treatment to agro based industries and promoting optimum inter - sectoral relationship.
6. To promote economic federation by properly spreading investment in small scale industries, both in urban and rural areas, and
7. To provide protection to consumers as regards the quality of products and their prices.

#### 2.6.5 New Industrial Policy of 1991 :

On 23rd July 1991, the Congress Government at Centre announced an Industrial Policy, the main features of the new policy are :

1. Industrial licensing policy abolished for all projects except for a short list of industries of security and strategic importance.
2. Direct foreign investment raised from 40 to 51 percent.

3. Automatic permission for foreign technology agreements in high priority industries.
4. Dis-investment of Government holding in public sector to raise resources.
5. MRTP threshold for assets limits to go. Emphasis will be on controlling and regulating monopolistic, restrictive and unfair trade practice.
6. In locations other than cities of more than one million population, there will be no requirement of industrial approvals from the Central Govt., except for industries subject to compulsory licensing.

#### 2.7 POLICY ON SMALL SCALE INDUSTRIES IN GUJARAT :

In such industries total financial investment including machinery and plant should be 35 lacs is called small scale industries.

For Ancillary unit this limit is 45 lacs and for medium scale industries total investment should be more than 35 lacs and up to 1 crore.

In Gujarat State each district has District Industries Centre (D.I.C.). Rajkot District Industries Centre started on 2.10.1978. Small scale industrialists are getting help by the D.I.C.

### 2.7.1 INCENTIVES :

Temporary/Permanent registration of S.S.I. Nos. for getting the aids given by State/Central Government the registration of SSI is necessary. These industrial units can get scared raw materials, imported machinery raw materials, financial aids, land or shed allotment, electricity, water, quality marking, machinery on rent basis, loan from Finance Corporation, Telephone priority and so many other aids. When the unit starts its production then it is given permanent S.S.I. Nos.

### 2.7.2 Different Aids for Industries :

#### Subsidy :

#### A) State Cash Help Scheme :

State Government has announced that those S.S.I. starting in the industrial estates, provided by Gujarat Industrial Development Corporation will be given financial aid of 15% of their total investment during the period between 1.11.1982 to 30.10.1987.

Meanwhile, again Government has started a new scheme from 1.4.1986 to 31.3.1991. In this scheme only three tehsils of Rajkot District can get the aid in cash.

Rates of subsidy for small scale industries for new unit is 30% of total investment or Rs. 30 lac which ever is less. And for expansion or alteration of industrial unit 25% of investment or 25 lacs whichever is less.



B) Testing Subsidy :

If the industrial unit tests its finished product in the approved laboratory then it can get 50% of that expenditure or Rs.1,000 whichever is less.

If the unit wants to purchase a testing machinery for its raw material or finished product, then it can get 50% of that investment for testing, or Rs.10,000/- whichever is less.

If the unit has purchased a fixed asset and a testing machinery then it can get 12.5% or maximum Rs.25,000/- whichever is less.

3. Full Exemption from Electricity Cess :

For new S.S.I. unit from the date of production to the end of five years, full exemption in electricity cess is announced.

4. Aids for Project Report Feasibility Study :

Industrialist will be given 50% to 80% subsidy in the expenses of preparation of project report prepared by the consultants for submission in G.S.F.C. and G.I.D.C. for new projects.

5. Aids for Pollution Control Facility :

80% of the total expenses in the preparation of feasibility report or maximum Rs.2,500/- for S.S.I.

6. Approach Road Scheme :

Government bears 100% expenses on land acquisition for the approach road for small and medium scale industries.

7. Land Acquisition :

For S.S.I. Units.

8. Help in providing Raw materials :

In scarcity, government is providing raw material like steel, cement, pig iron, soda ash etc. to S.S.I. units are registered in D.I.C.

9. Imported Raw Material and Machinery :

10. Registration of Ancillary Units :

By registration of ancillary units these units are also getting the same benefits as the S.S.I. units are getting.

11. Relaxation in Sales Tax :

From 1.4.1986 to 31.3.1997 Government has decided not to charge sales tax for new starting S.S.I. units.

12. Benefits to Electronic units :

New units will get benefits of 30% of their total investment of Rs.30 lacs which ever is less. This scheme is for the duration 1.4.1986 to 31.3.1991.

13. Exemption from Octroi :

For new units for first five years units will get exemption from octroi for incoming raw materials.

14. Exemption from Income Tax :

For new units for first five years, out of their total investment 7.5% amount will be exempted from income tax.

15. Loan by G.S.F.C.:

For S.S.I. units a maximum limit of loan is 35 lacs and for public and private limited company registered under cooperative society will be getting maximum loan upto 60 lacs.

2.8 CASE STUDY : A STUDY OF MORBI CITY :

INTRODUCTION :

Due to increase in population and industrial growth, city would expand. If there is no proper control and planning bon expansion of city, it would result in variety of problems such as congestion, pollution, housing and traffic problems. Morbi is also one such city, which is experiencing a fast growth in industrial activity.

RELEVANT CRITERIA :

Morbi was selected for the purpose of getting an idea of the problems due to industrialization growth and various steps taken by local authority in order to solve these problems. However, the criteria for selecting the Morbi city as case study are given below :

1. Morbi is a bigger city than Jetpur and the biggest taluka in Rajkot District having 121 villages. The population of Morbi and Jetpur cities in 1981 were 73327 and 63074 respectively. The growth rates during 1971-81 for Morbi and Jetpur cities were 20.26% and 50.38% respectively.
2. Morbi and Jetpur are only the industrial towns in Rajkot district and famous for S.S.I.
3. Functional category of Morbi is industries service while of Jetpur it is industry.

#### PROFILE OF MORBI CITY :

Morbi city, situated on the bank of Machhu river, is a town as well as a Taluka H.Q. of Rajkot District in the Saurashtra region of Gujarat State. Morbi is located at  $22^{\circ} 30'$  on north latitude and  $70^{\circ} 40'$  on east longitude. It is 42.00 M above mean sea level. It is on south west corner of Gujarat State. It is well connected by road net work. National Highway No. 8 A from Malia to Ahmedabad is passing through Morbi. Similarly State Highway No. 22 passes from Rajkot to Surendranagar via Morbi. Navalakhi and Kandla ports are nearer to Morbi. Air services are also available at Rajkot 63 Km. from Morbi.

#### DEMOGRAPHIC PATTERN :

Studying Table No. 1, in 1911 and 1921, the growth rate of the town is negative- 16.04, -12.34, but after 1931, the growth rate increased to 44.27%. The maximum growth rate was in 1941 as 95.67%. After independence, it went down to 9.92%

TABLE : T - 2.1

## POPULATION IN MORVI CITY

YEAR	POPULATION	DECADAL GROWTH RATE
1901	13,820	--
1911	14,962	- 16.04
1921	13,115	- 12.34
1931	18,934	44.37
1941	37,048	95.67
1951	40,722	09.92
1961	50,192	23.26
1971	60,976	21.49
1981	73,327	20.26

Source : D.C.H.E. - 1981.

in 1951. In 1961, 1971 and 1981, the growth rate was 23.26 %, 21.49% and 20.26%. The declining growth rate since 1961 to 1981 was because, the population was diverted to Rajkot city for their jobs and 1971 to 1981, Morbi faced dam disaster, many people died and many people migrated from the town.

W.f.p.r.:

The participation rates for Morbi city are 25.07%, 24.79% and 26.98% in 1961, 1971 and 1981 respectively.

According to 1961 census Morbi was functionally categorised as service cum industry, but in 1971 census this category changed and Morbi became industry cum service town. In 1981 census the classification is not shown separately but by studying the past two decade figures Morbi can be categorised as under industry cum trade and commerce town because the percentage of trade and commerce is increased from 18.30% to 22.86% during '71 and '81.

#### EXISTING LAND USE PATTERN :

The arrangement of various land uses and the manner in which these interact determines to a larger extent the distinctive character of a city. Residential land use is major use of total urban land in Morbi town covering 46.02%. It has mixed character of both planned and unplanned growth. Land under remaining land uses are 22.8% for industrial, 5.85% for commercial, 13.23% for utility and services, 4.62% for public, semi public, 4.59% for garden and play ground and 3.09% for water bodies. It is evident from above that land under commercial uses was less than the under industrial use and participation rate for trade and commerce is also less than industrial land use.

**INDUSTRIAL STRUCTURE OF MORBI :**

A large number of S.S.I. units are in private sector. There are six medium scale units which are also in private sector. There are four main important industries in Morbi. These are Roofing tiles, wall clock, Mosaic tiles and diamond cutting and polishing industries. Table T-2.2 shows the type of industry and number of workers in Morbi city.

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TABLE : T - 2.2

## INDUSTRIES IN MORVI CITY

Type of Industry	No. of Unites	Total Workers
1. Oil Mill	19	400
2. Mosaic tiles Industry	300	1800
3. Cement Product Industry	9	100
4. Diamond Cutting	125	4000
5. Cotton Jining Industry	4	100
6. Engineering work	80	300
7. Roofing Tiles	260	7800
8. Wall clock	140	1400
9. Sanitary wares	30	600
10. Laminatos	1	120
11. Vanaspati ghee industry	1	158
12. Spectale industry	16	80
13. Sanitary Nagkin	3	100
14. Mini cement plant	1	25
	989	16,983

Source: DIC, Rajkot.

**INDUSTRIAL STRUCTURE OF MORBI :**

A large number of S.S.I. units are in private sector. There are six medium scale units which are also in private sector. There are four main important industries in Morbi. These are Roofing tiles, wall clock, Mosaic tiles and diamond cutting and polishing industries. Table T-2.2 shows the type of industry and number of workers in Morbi city.

## CHAPTER: 3      PROFILE OF JETPUR CITY

### 3.1      JETPUR IN REGIONAL CONTEXT :

Jetpur is Class II town as well as Taluka H.Q. of Rajkot District in Saurashtra region of Gujarat State. Jetpur is the 3rd biggest Taluka in Rajkot District having 47 villages. The total area of Jetpur Taluka is 67897.0 hectares.

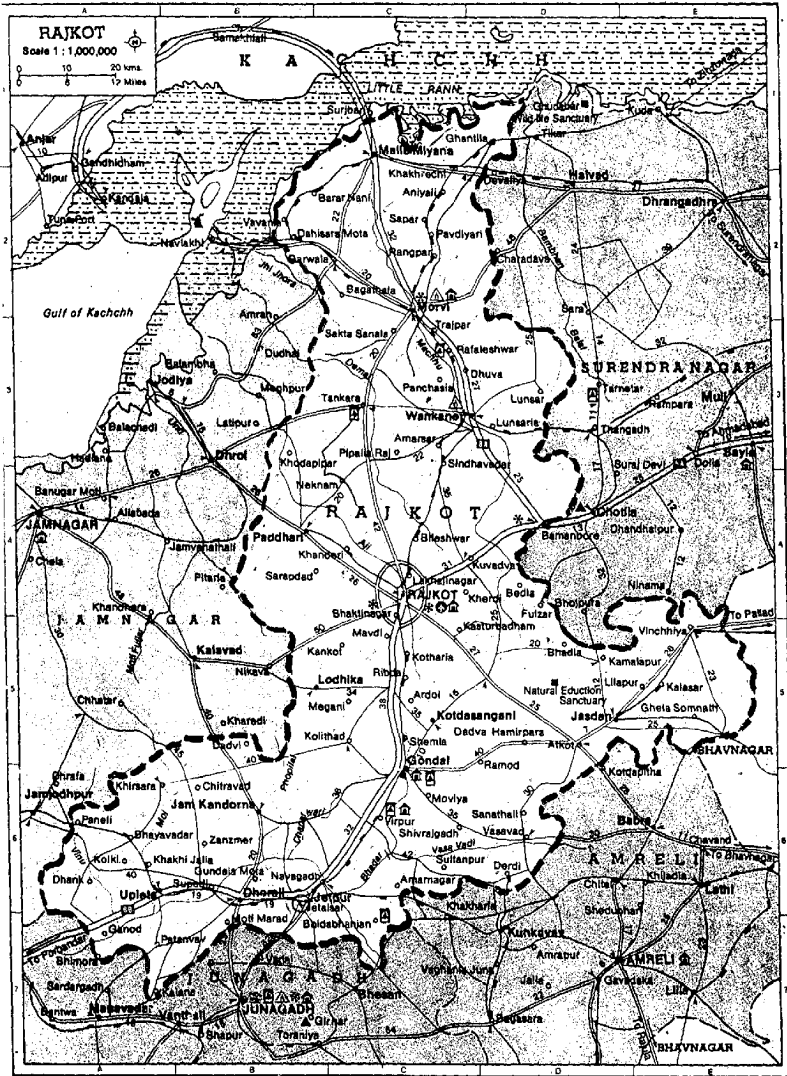
Jetpur town is located on west bank of river Bhadar, the biggest river in Saurashtra region. It is located at  $21^{\circ} 51'$  North latitude and  $70^{\circ} 50'$  on east longitude and 91.44 M above sea level. It is on south west of Gujarat State.

On North of Jetpur	...	Virpur village
On South of Jetpur	...	Junagadh District
On East of Jetpur	...	Amreli district
On West of Jetpur	...	Dhoraji city

### 3.2      GEO CLIMATIC CHARACTERISTICS OF THE REGION :

Slope	:	The slope of the region ranges between 0 to 1% towards west
Strata of soil:		it varies from 45 cm to 90 cm.
Soil colour :		The colour of the soil varies from grey to dark brown. In few parts, it shows black cotton soil.
Climate :		This area has a moderate climate.

The average temperature in Jetpur in summer is 35 deg. C and in winter it is 13 deg. C. The wind is in south west and north west direction. The rainfall data are given in Table T-



Map of Rajkot Dist.

# IMPACT OF INDUSTRIAL GROWTH ON URBAN DEVELOPMENT.

(Case study: JETPUR CITY)

Land use pattern-

- Residential
- Commercial
- Industrial
- Public - semi public
- Utility
- Garden - playground
- Agriculture
- Water bodies
- ⊕ Municipal limit



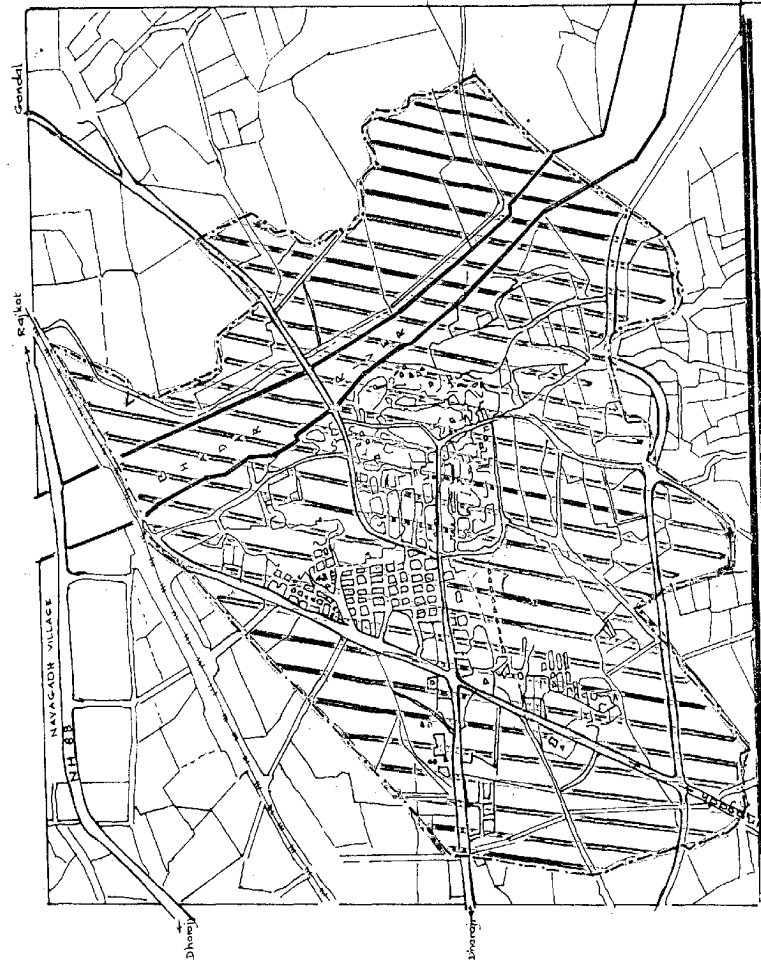
L. U. Mandviya

M.U.R.P Thesis - 1992

Dept. of Arch. & Planning

UOR

Guided by Prof. Najamuddin



**IMPACT OF INDUSTRIAL GROWTH ON URBAN DEVELOPMENT.**  
( case study : JETPUR CITY )

3.1 and 3.2. The average rainfall is 640.6 mm . Majority of rain occurs in the month of July and August, and it adversely effect the transport services. Ultimately it effects the smooth arrival of raw materials and dispatch of finished products. Some industries get effected in their manufacturing process. Some industries get effected in their manufacturing process. The rainy season also adversely effects the labour supply but there is not extreme heat or cold which effects the efficiency of workers. In general, climate of Jetpur is favourable for all kinds of industries, particularly, it is most suitable for sari printing.

### 3.3 HISTORICAL EVOLUTION/BACKGROUND :

Jetpur is an important city situated on the west bank of River Bhadar, having a population of 90,000 at present (within Municipal limit).

After the death of Mughal King Aurangzeb, holding of Mughal kingdom in Saurashtra region became weak. During that period the 'Thanedar' became independent, they had started their small kingdoms. Various forts were built during 17th century.

Jetpur was established in 15th century on the west bank of Bhadar river Jetpur was not a kingdom but an administrative centre for more than 25 kathi Darbars( Rajputs ). Kathi Rajputs were ruling combined. Each Darbar had two or three villages in surrounding area for their 'garash'. 'Garash' means the right to collect taxes. Villages were given to the Darbars by the King as a gift for their valuable services to kingdom or they were relatives of the king.

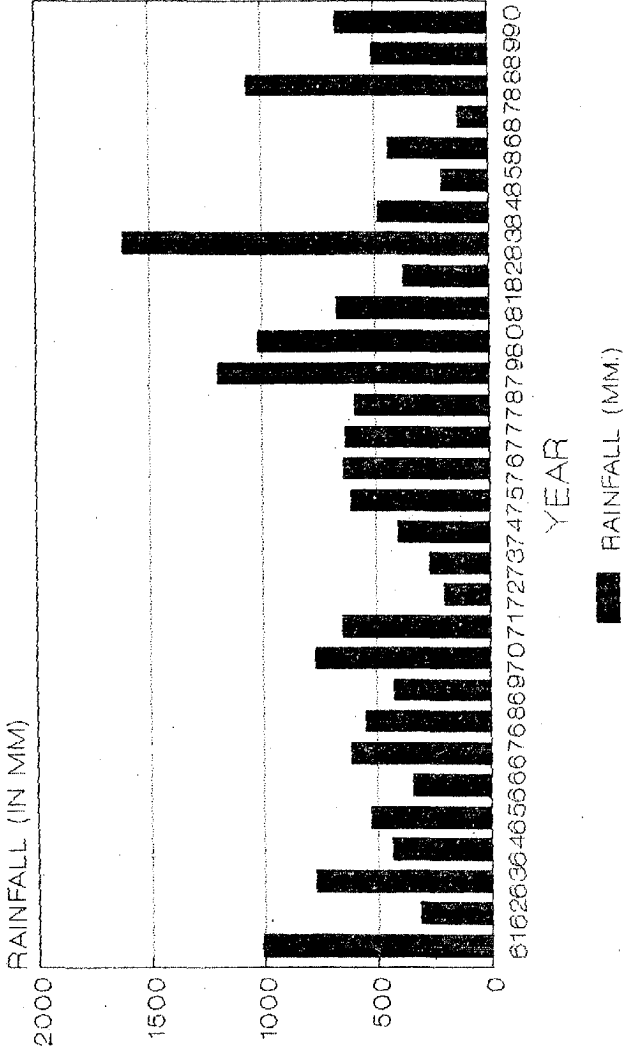
TABLE : T. 3.1

## YEAR WISE RAIN FALL (IN MM)

Year	Average Annual Rainfall	Year	Average Annual Rainfall
1961	1011.00	1981	670.20
1962	314.20	1982	374.00
1963	772.00	1983	1619.00
1964	436.80	1984	486.00
1965	527.80	1985	209.00
1966	342.70	1986	442.00
1967	614.70	1987	135.00
1968	551.30	1988	1065.00
1969	428.00	1989	510.50
1970	767.00	1990	670.00
1971	650.00		
1972	203.00		
1973	265.60		
1974	404.00		
1975	610.50		
1976	840.70		
1977	630.30		
1978	590.20		
1979	1200.20		
1980	1020.40		

source: Jetpur Municipality, JETPUR

# YEAR WISE RAINFALL JETPUR CITY



Source: Jetpur Municipality, Jetpur

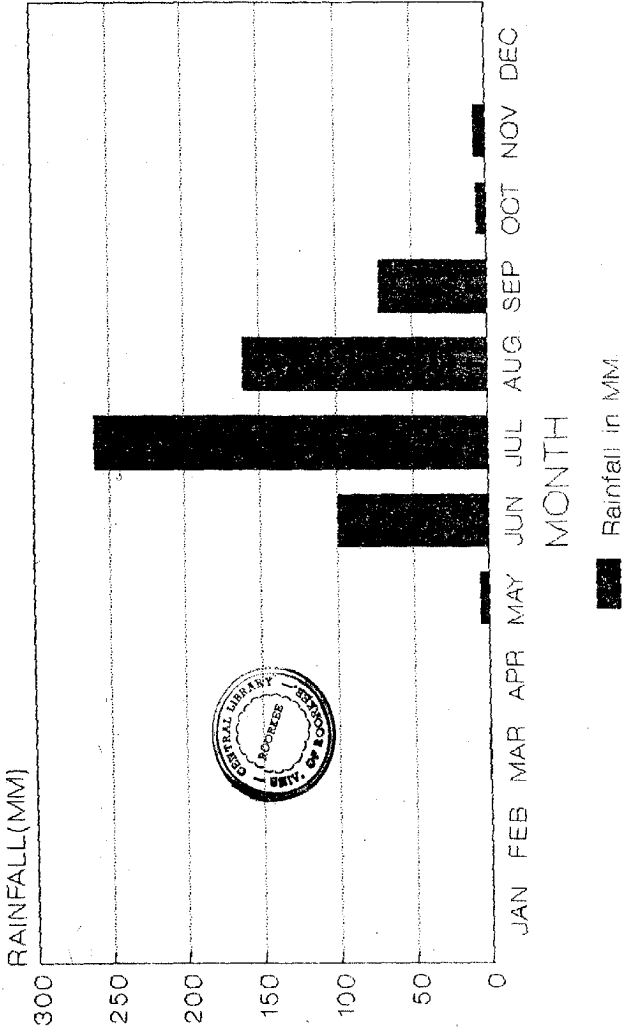


T A B L E : T - 3.2

Average Rainfall Month Wise (in MM)

MONTH	RAINFALL
January	0.0
February	0.0
March	1.0
April	0.0
May	5.6
June	99.6
July	260.0
August	160.5
September	71.7
October	6.4
November	7.9
December	0.0

# AV. RAINFALL MONTHWISE JETPUR CITY



Source: Jetpur municipality.

After independence, Jetpur has developed due to dyeing and printing industry and after 1971, its category has shifted to an industrial town. There were six dyeing units during 1954. At present, there are more than 1200 units in Jetpur and hereby Navagadh village.

### 3.4 FACTORS AFFECTING THE GROWTH OF JETPUR :

The following factors have been primarily responsible for the present growth of this town.:

- i. Taluka H.Q.
  - ii. Transport linkages
  - iii. Dyeing Art
  - iv. Climate
- 
- i. Jetpur is class II town as well as Taluka H.Q. It is covering 47 villages. Being a taluka HQ, it has various commercial activities like trade and commerce, grain market etc. Moreover, village Virpur situated at 10Km. from Jetpur is a famous pilgrimage place of Saint Jalaram. District H.Q. Rajkot is 70 Km. far away from Jetpur, so major commercial activities are also done here. All taluka or Block level offices are in Jetpur.
  
  - ii. Jetpur is well connected by road net work. The national Highway No. 8B from Porbander to Ahmedabad passes near by Jetpur. Similarly it is connected by Junagadh district by a major district road. Nagagadh, a village of Jetpur, has totally mixed up with Jetpur city, has railway station on Meter gauge line.

iii. In ancient time, a dominant cast, Brahm Chhatriya (Khatri) was famous as dyers in Saurashtra (Kathiawad) area. Dyeing art was their profession. By the passage of time, Hand Printing was developed. Clothes were printed by stamp printing. The art of screen printing came from Japan. The owner of 'Jagdish Printers' had visited Japan in 1957. He observed this art there, learned, brought and adopted it in his native place. Since then this art of screen printing took the form of small scale industries which has earned the nation wide reputation and still making progress and diverting to exports.

iv. Climate :

Only an equal and pleasant climate represent the optimum condition for mental and physical work. The atmosphere is favourable to cotton sari printing and no discouraging factor for industrial development.

3.5 DEMOGRAPHIC PATTERN :

In Jetpur city has increasing growth rate in last three decades. This is because of industrial development.

3.5.1 Population :

Details of population growth since 1901 are given on Table T 3.3. Minimum growth rate was in between 1941 and 1951. It shows that due to partition of the country, the muslim population migrated to Pakistan. Maximum growth rate can be seen between 1971 and 1981. ( 50.38% ). The people from villages and

T A B L E : T 3.3

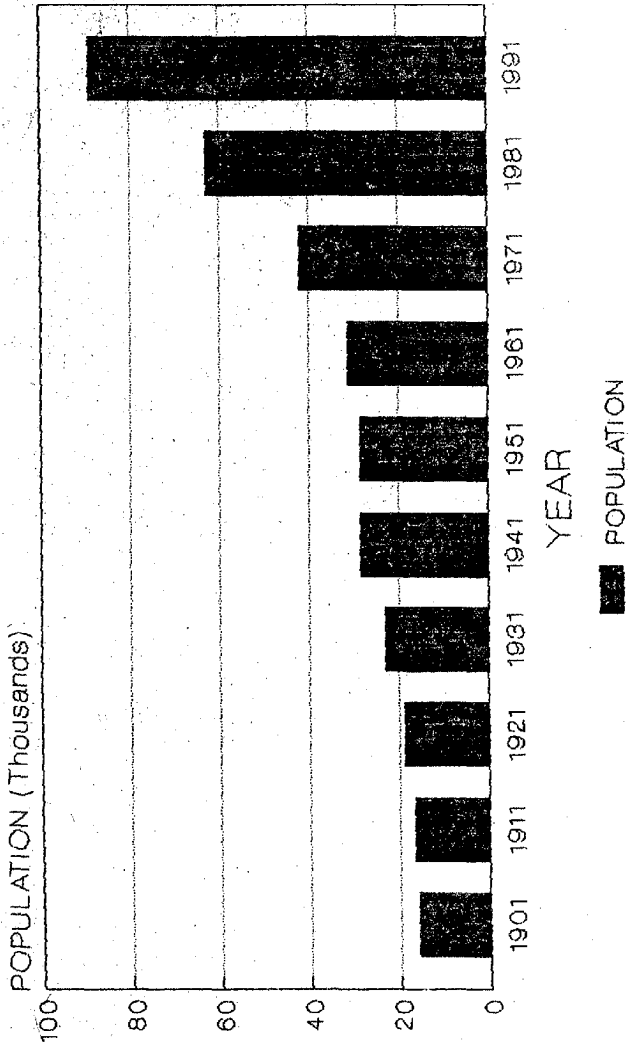
## P O P U L A T I O N

Year	Population	Growth rate % age
1901	15,919	-
1911	16,513	3.73
1921	18,694	13.21
1931	22,973	22.89
1941	28,406	23.65
1951	28,444	0.13
1961	31,186	9.64
1971	41,943	34.49
1981	63,074	50.38
1991	89,185	42.00
2001	1,26,642	42.00

Source : D.C.H.B. 1971,1981.

\* Population figures based on D.P. 1991.

# POPULATION GROWTH JETPUR MUNICIPAL AREA



surroundings cities migrated to seek employment. At present population of Jetpur city within Municipal limit is 90,000.

### 3.5.2 Sex Ratio :

Sex ratio in Jetpur has undergone minor changes during the last three decades. The sex ratio recorded in 1961 was 989 females per 1000 males. This ratio has further reduced to 957 in 1971. It is further dropped down to 945 in 1981. Lower sex ratio suggest the migratory character of the population and this is more prominent in industrialised towns. (Table T 3.4)

### 3.5.3 Literacy :

Studying Table T 3.5, we can see that literacy rate is increasing in Jetpur city. Since last three decades and also higher than district and state figures. It shows the awareness of people.

### 3.5.4 Workers' distribution :

The workers' distribution gives the idea of the economic activities of the town. Table T 3.6, 3.7 & 3.8 shows the the distribution of workers as per census of India DCHB of Rajkot, 1981. Percent of total main workers to population in Jetpur is 27.62%. Cultivator as percent of total workers are 6.27%. Agricultural activity is very less as agricultural labours are 1.41% of total main workers.

T A B L E : T - 3.4

S E X R A T I O  
(No. of Females per 1000 males)

Year	JETPUR CITY		RAJKOT DISTRICT		GUJRAT STATE	
	Population	Sex ratio	Population	Sexratio	Population	Sexratio
1961	31,186	989	1208519	961	20633350	896
1971	41,943	957	1624072	947	26697475	934
1981	63,074	945	2093094	947	34085799	942

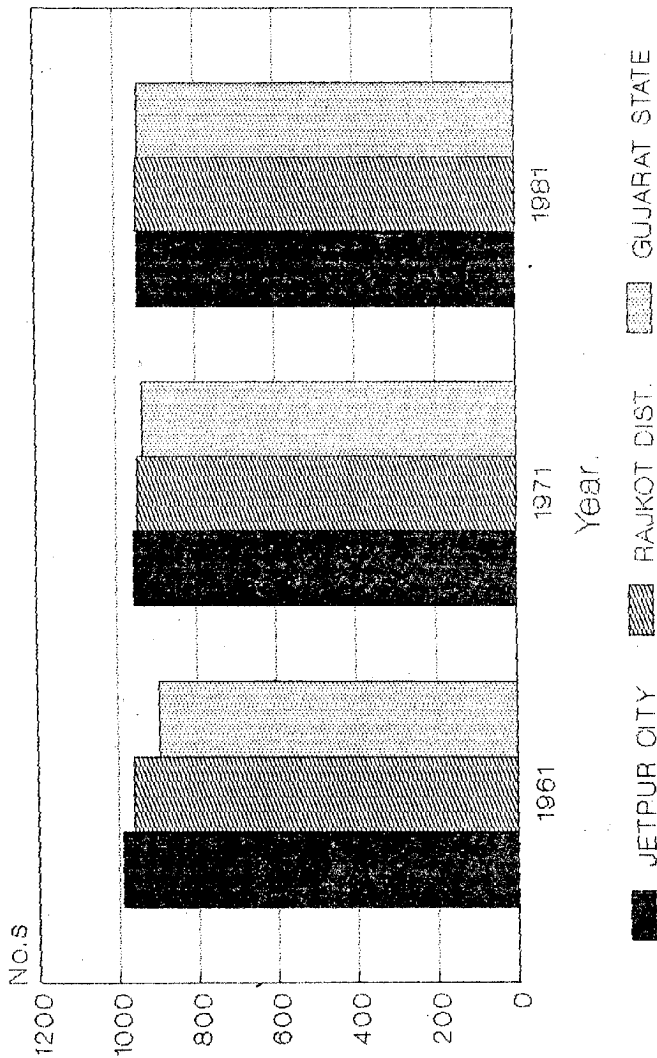
Source : Census of India, Town directory (Gujarat) DCHB.

Comments : The lower sex ratio indicate large single male in town.  
This is prompt for industrial town.



# SEX RATIO

(No. of females per 1000 males.)



Source: Census of India, Town directory

T A B L E : T - 3.5

L I T E R A C Y   R A T E

---

	JETPUR CITY		RAJKOT DISTRICT		GUJARAT STATE	
Year	Population	Literacy rate %	Population	Literacy rate	Population	Literacy rate
1961	31,186	44.83	1208519	31.73	20633350	30.40
1971	41,943	51.84	1624072	39.22	26697475	35.79
1981	63,074	58.57	2093094	48.78	34085799	43.70

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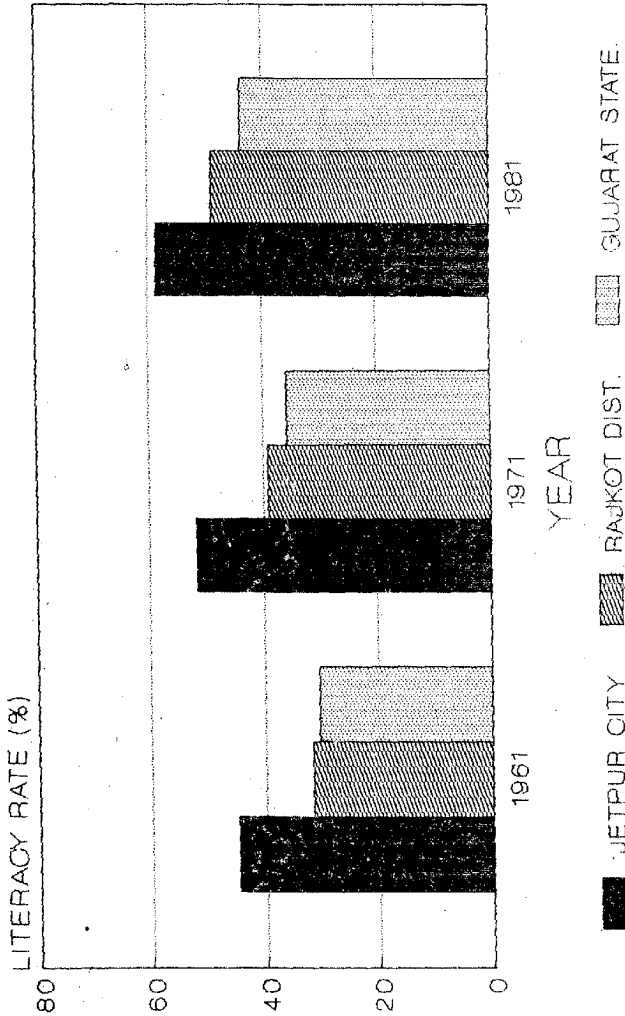
Source : Census of India, Town Directory (Gujarat) DCHB.

Comments: Higher Literate rate denotes the awareness of people.  
It seems people has more attraction for Education.

G-35

# LITERACY RATE

(Jetpur city, Rajkot Dist., Gujarat state)



Source: Census of India, Town directory

During 1981 census, work has been defined as participation in any economically productive activity. Reference period is one year. The main worker is person who has worked for the major period, i. e., for 183 days or more in a year. Those who have worked less than 183 days or more in a year. Those who worked less than 183 days are considered as marginal workers. The main activities of workers have been classified in to four categories cultivators, agricultural labour, house hold industry and other workers.

Cultivator means a person engaged in Agricultural activity either on his field or in the land which is hired. He would not be taking wages for this work in the form of money or the share. The risk of cultivation should be bared by him. The person who is taking wages for his work is called agricultural labour. House hold industry is defined as an industry conducted by the head of the household himself or by members of household at home or within the village in rural area within the precinct ( llimit ) of the house where the household lives in urban area. This relates to production, processing, servicing, repairing or making and selling of goods. Other workers means all workers other than cultivators and agricultural labour and household workers. The type of workers under this category include factory workers, plantation, workers, those in trade, commerce, business, transport, mining construction political or social work, all government servants, Municipal employees, teachers, priests, environmental, entertainment crtists etc.

TABLE : T - 3.6

## WORKER'S DISTRIBUTION - 1961

POPULATION	NON MAIN WORKER	CULTIVATORS	AGRICULTURAL LABOURS	LIVESTOCK HOUSE HOLD IND.	MANUFACTURING & CONSTRUCTION	TRADE AND COMMERCIAL	TRANSPORT & STORAGE COMMUNIC.	OTHER SERVICE			
		I	II	III	IV	V	VI	VII	VIII	IX	
31186	21988	1558	252	138	646	2292	137	1825	258	3085	
	[70.54%]	[29.86%]	(16.96%)	(2.81%)	(1.50%)	(7.03)	(24.94)	(1.49)	(19.86)	(2.81)	(22.60)

SOURCE : Census of India, DCHB Rajkot 1981.

Note : Figure in [ ] shows % of population and ( ) shows % of total main workers.

TABLE : T - 3.7

WORKER'S DISTRIBUTION - 1971

POPULATION	NON-WORKER	MAIN-WORKER	CULTIVATORS	AGRICULTURAL LABOURS	LIVESTOCK FORESTRY AND QUARRING	MINING AND H.H IND.	MANUFACTURING H.H IND.	OTHER THAN HHI	CONSTRUCTION	TRADE AND COMMERCE	TRANSPORT STORAGE & COMMUNICATION.	OTHER SERVICES
	I	II	III	IV	V(a)	V(b)	VI	VII	VIII	IX		
41943	30773 [73.37%]	11170 [26.63%]	1151 [10.30%]	254 [2.27%]	194 [1.74%]	11 [0.09%]	205 [1.84%]	4215 [37.75%]	235 [2.10%]	2530 [22.65%]	338 [3.02%]	2037 [18.24%]

SOURCE : Census of India, D.C.H.B. Rajkot, 1971.

Note: figures in [ ] shows % of population and in ( ) shows % of total main workers.

Comments : Jetpur was designated as industrial town as sum of V and VI has epoled 40 %.

T A B L E : T - 3.8

## Worker's Distribution 1981

Popu- lation	Non Workers	Marginal Wrokers	Main Workers	Culti- vator	Agr. Labours	House Hold Industry	Other Workers
63074	45595	55	17424	1093	246	231	15854
	[72.29%]	[0.09%]	[27.62%]	(6.27%)	(1.41%)	(1.33%)	(90.99%)

Source : Census of India DCHB Rajkot 1981.

Note : Figures in [ ] Shows % of population and in ( ) shows % of total main workers.

Comments : In Jetpur city, only 1.41% of total main workers are engaged in Agricultural activity as it is an industrial town.

The percentage of other workers to main workers in Jetpur is 90.99%. Jetpur has 3rd highest percentage of other workers next to Rajkot and Morbi. So it is 3rd highest industrial town in District, but from the figure of other workers it is not clear how many people are engaged in the industrial activities.

Census earlier than 1981 used to give detailed distribution of workers. It was divided into nine categories :

1. Cultivator
2. Agricultural labour
3. Live stock forestry, fishing, hunting and plantation archard allied and action
4. Mining and quarrying
5. Manufacturing, processing and repair :
  - a. Household industries
  - b. Other than Household industries
6. Construction
7. Trade and Commerce
8. Transport, storage and communication
9. Other services

Details are given in Table T 3.6, 3.7 and 3.8.

Jetpur has the high percentage ( 26.6% ) of main workers to population. Percentage of workers other than household industries are also 37.75% of workers engaged.

### 3.5.5 FUNCTIONAL CATEGORY OF TOWN :

The towns were classified in various functional categories according to the percentage of workers to total main





T A B L E : T - 3.9

## F U N C T I O N A L C A T E G O R Y O F T O W N

Year	1961		1971		
Functional category	Activities % of workers	Functional category of town	Activities	% of workers	
Industries cum					
Services cum	Industry	26.43			
Primary	Services	22.60	Industry	Industry	41.44
	Primary	28.30			

Source : Census of India, DCHB Rajkot, 1961, 1971.

Comments : Shifting of functional category of Jetpur from industry cum service cum primary to "Industrial" shows industrial development of town.

workers, engaged in the economic activities. This classification has been done upto census of India 1971.

The workers were divided in five groups as given below :

S.No.	Group	Category as per para 2.5.4
1.	Agriculture and its allied activities	(1), (2), (3) and (4)
2.	Industrial including Construction	(5) and (6)
3.	Trade and Commerce	(7)
4.	Transport storage and Communication	(8)
5.	Other services	(9)

Since 1971 the percentage of workers in group II has been more than 40% so category of jetpur city has changed to industry. See Table T-3.9.

### 3.6 ECONOMIC STRUCTURE :

The economic structure of Jetpur town is influenced by the investment decision of Government and private organisations. This is dependent on the decision taken by policy makers. At Govt. level various policies are prepared to balance the regional development. Sometime, the decision taken by the local Govt. regarding the infrastructure facilities

also influence the economic structure of a town. The decision of private organisation regarding investment is guided by above all policies and decision. There are other factors like raw material, labour market, etc. which play very important role in investment of decision of private individuals.

Census of India used to give functional category of town upto 1971 census. As per 1961, census Jetpur town was categorised as Industry cum services cum primary activities town. In one decade, the functional category has changed. In 1971 census, the category of Jetpur town became industry. The functional category of Jetpur town in 1961 and 1971 is given in Table No.T 3.9.

In 1961, the industrial and construction activities were dominant activities in Jetpur town even if the percentage of workers engaged work less than 40%. In 1971, the percentage of workers engaged in industrial and construction activities exceeded 40% and Jetpur town was accordingly categorised as Industrial town.

The census of 1981 does not give the functional category of towns. The workers distribution is also not given in details as it was given in 1971 and earlier census. So on the basis of data available in 1981 census, it is not possible to classify the town according to their functions.

### 3.6.1 Industry :

Industries are in Jetpur town are in private sector and established by industrialists on their own. All industries are S.S.I. If we classify the industries as per guideline given by the town and country planning

organisation, Ministry of Works and Housing, Govt. of India. Industry can be classified in service industry and an auxiliary industry. As per this guide line, Jetpur town fall in class of light industry. In Jetpur majority of workers are engaged in sari printing and its auxiliary industries.

### 3.6.2 Trade and Commerce :

Jetpur town is Taluka H.Q. 47 villages come under Jetpur taluka. Many commercial activities are taking place in this town. Jetpur is importing mulmul cloth colours and chemicals from Bombay, Indore and export printed saris all over India and foreign countries too.

### 3.7 OCCUPATIONAL STRUCTURE :

Study of occupational structure of town from 1961 to 1981 does not reveal a clear picture. Because census has changed the classification of economic activities in which the workers are engaged so relative change with respect to previous census can not be studied. Details of census figures are given in Table No.T 3.6, 3.7 and 3.8.

#### (A) Agriculture :

The agricultural activity has shown constant fall from 1961 to 1981. Jetpur had 19.77%, 12.57%, and 7.68% of workers in cultivation and agricultural work to main workers in 1961, 1971 and 1981 respectively. This constant fall in agricultural activities indicates the growth of industries in Jetpur town.

T A B L E : T - 3.11

## C O M M E R C I A L   E S T A B L I S H M E N T S

Types	Year	1984-85	1985-86	1986-87	1987-88	1988-89
1. Shops		612	638	640	639	652
2. Commercial Establishment		478	489	512	518	529
3. Residential Hotels, Restaurants & eating place		42	45	43	48	51
4. Theaters and place of public Entertainment		2	2	2	2	2

Source : Municipality, Jetpur.

T A B L E : T - 3.12

## DETAIL OF TRADE AND COMMERCE

Town	Year	Name of three most Imp. Commodities Imported			Three most Imp. Commodities Exported			Three most Imp. Commodities Manufactured		
		1	2	3	1	2	3	1	2	3
	1969	cloth	Colours and chemicals	sugar	Printed sarees	Ground nut	-	Printed saris	Cement prod- ucts	Wash- ing shop
Jetpur										
	1979	Cotton yarn Malmal cloth	colours and chemi- cals	Buldg. Mater- ials	Malmal saree prin- ted	Screen prints	Thr- ead	Malmal Printed saree	Cement Prod- ucts thre- ad	Wash- ing shop

SOURCE : D.C.H.B. 1971 &amp; 1981

(B) Household Industries :

Household industries has decreased from 7.30% to 1.84% during 1961 and 1971 and again decreased to 1.33% in 1981.

(C) Manufacturing :

This sector has played key role in the development of Jetpur town. In 1961, Jetpur had 24.94% of worker to total main workers in this sector. In 1971, percentage of workers in this sector became 37.75%. This high rise indicates the rapid growth of town.

(D) Trade and Commerce :

1981 census has not given separate figures for this sector. In 1961, percentage of workers in this sector was 19.86 which increased to 22.65% in 1971.

(E) Transport and Communication :

Activity related to industry trade and commerce. The percentage of workers engaged in this sector in 1961 was 2.01% which increased to 3.01% in 1971. 1981 census has not given separate figures on this account.

(G) Other primary activities :

There activities include livestock forestry, fishing, hunting, plantation, orchard and allied activities, mining and quarrying. These all

activities have been covered in other workers in 1981 census, which also cover manufacturing, trade and commerce, transportation, construction etc. Hence, it is not possible to compare primary activities for all these census. In 1961, Jetpur had 1.5% of wokers in this category, it increased to 1.82% in 1971.

3.8 LAND USE :

Land use can be determined by interaction of man and land. This interaction results in activity. Every activity needs a platform. Land is basic platform for all activities. Requirement of land for any activity is dependent on the nature of the activity.

3.8.1 Existing Land use Pattern :

Land use pattern of town or city mean the distribution of land among various uses. Land uses pattern of town is a reflection of its economic and social form and structure. Study of land use pattern give clear picture of the area which is helpful for all kinds of urban planning and management.

Table T 3.13 and Maps gives details of land use pattern of Jetpur town. For the year 1975, 1989, figures of 1991 are of proposed land use of revised development plan.

Studying three land uses, it can be seen that percentage of land use for residential has increased to 65.56 from 56.98% . This is due to development in outside of gamtal



TABLE : T - 3.13

## LAND USE PATTERN - JETPUR

PARTICULARS	1975 (53,000)			Y E A R			* 1991 (PROPOSED DP) (85000)		
	AREA	% OF DEVELOPED AREA	AREA PER 1000 POPULATION	AREA	% OF DEVELOPED AREA	AREA PER 1000 POPULATION	AREA	% OF DEVELOPED AREA	AREA PER 1000 POPULATION
	@ 1989 (77,000)								
RESIDENTIAL	94	56.98	1.77	213	66.56	2.77	302	63.71	3.55
COMMERCIAL	10	6.06	0.19	13	4.06	0.17	40	8.44	0.47
INDUSTRIAL	20	12.12	0.38	43	13.44	0.56	71	14.98	0.84
PUBLIC AND SEMI PUBLIC	15	9.09	0.28	15	4.69	0.19	15	3.16	0.18
GARDEN AND PLAYGROUND	4	2.42	0.08	6	1.88	0.08	6	1.26	0.07
ROADS	20	12.12	0.38	28	8.75	0.36	38	8.03	0.45
UTILITY	2	1.21	0.04	2	0.62	0.02	2	0.42	0.02
TOTAL	165	100.00	3.11	320	100.00	4.16	474	100.00	5.58
WATER BODY	44	--	--	44	--	--	44	--	--

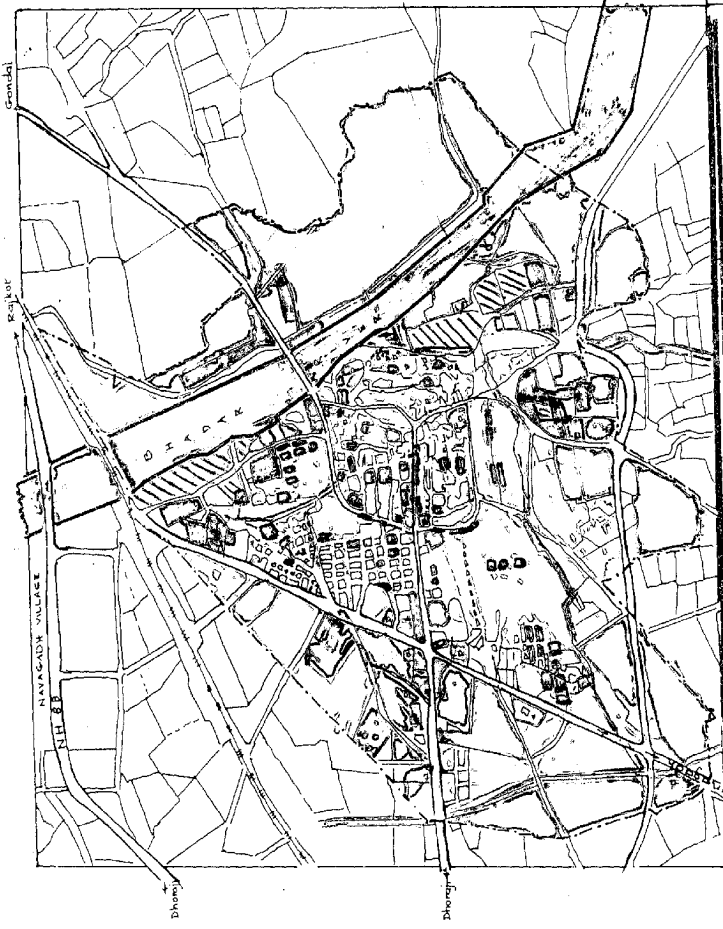
SOURCE : TOWN PLANNING AND VALUATION DEPARTMENT, RAJKOT.

@ : DATA OF 1989 ARE BASED ON SURVER DONE.

\* : DATA OF 1991 ARE BASED ON DEVELOPMENT PLAN.

Existing  
Land use pattern.

- Residential
- Commercial
- Industrial
- Public
- Utility
- Garden - playground
- Agriculture
- Water bodies



**IMPACT OF INDUSTRIAL GROW-  
TH ON URBAN DEVELOPMENT.**  
(case study: JETPUR CITY)

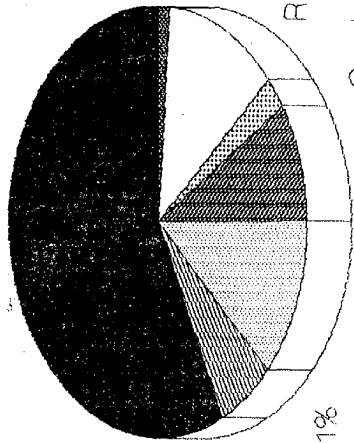
I. D. Mandviya  
M.U.R.P Thesis - 1992  
Deptt. of Arch. & Planning.  
UOR.  
Guided by Prof. Nojammuddin

Fig: 3.03

# LAND USE PATTERN-1975

Jetpur city

Residential 57.0%



Commercial 6.1%

Industrial 12.1%

Garden & Play Grou. 2.4%

Public & Semi pub. 9.1%

Utility 1.2%

Roads 12.1%

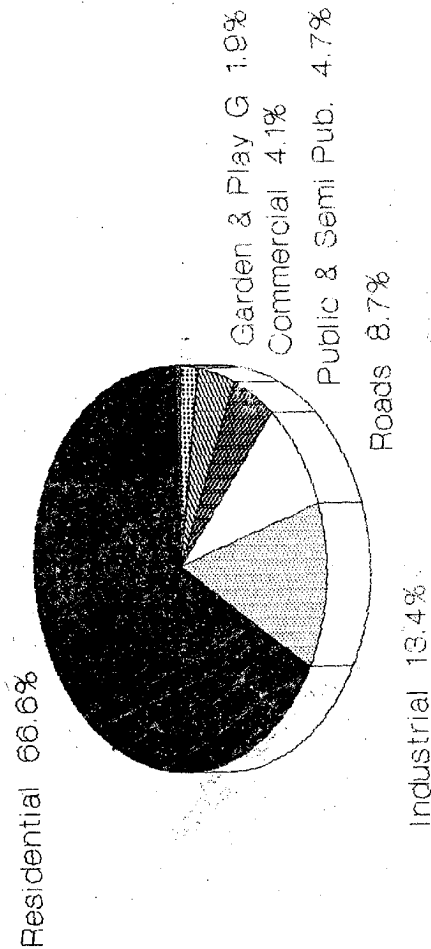
Source: T.P. & Valuation Deptt.  
Rajkot.

**Total Dev. Area - 165 Hec.**

G. 3.14

# LAND USE PATTERN-1989

Jetpur City



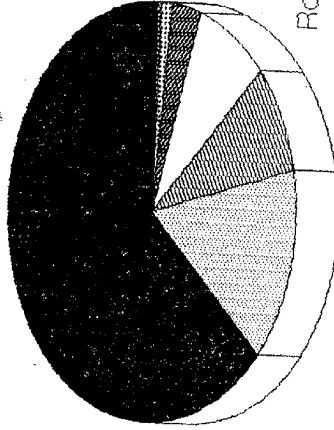
Total Dev. Area = 320 Hec.

Source: T.P. & Valuation Deptt.  
Rajkot  
Data of 1989 Based on survey done.

G 3/15

# LAND USE PATTERN-1991 (Proposed D.P.) Jetpur City

Residential - 63.7%



Garden & Play 1.3%  
Public & Semi P 3.2%

Roads 8.0%

Commercial 8.4%

Industrial 15.0%

Source: T.P. & Valuation Deptt.  
Rajkot

Total Dev. Area - 474 Hec

area. Land used for every 1000 population for residential has increased from 1.77 hectares to 2.72 hectare. This shows the spare development of residential area.

The percentage of land use under industrial uses has also increased to 13.44% from 12.12%. Industrial development has shown progress in absolute number in percentage of total development land and land per 1000 population. Percentage of land under road per every 1000 population has decreased marginally. This is because Municipality has not constructed enough roads in outer areas.

## CHAPTER : 4    INFRASTRUCTURE AND AMENITIES:

Infrastructure has vital role in the development of any town. Provision of the infrastructure in the town at a time at the place is very essential for the balanced and controlled growth of the town. The infrastructure includes network (high way roads), electricity, water supply, sewerage and drainage, housing etc.

### 4.1      NETWORK:

Jetpur is connected by road and railway network. Although it is not directly connected by Air routes.

#### 4.11    ROAD:

There are connecting Jetpur city with different towns. National highway No. 8B connecting Porbandar -Ahmedabad passes near Jetpur city. At by pass for NH is also provided. Jetpur is connected to Dhoraji town by NH 8B. It is also connected to Junagadh city by District road. This road passes through city creating intermixing of highway traffic and town level traffic. Due to location of Bus Stand along main road and lack of transport terminal, main road are congested. As bus stand is located near business area, the road side parking of taxi, rickshaw tonga, scooters and cycles create the problems of traffic.

In short, Jetpur has poor road network, because it has administrative H.Q. of 25 Kathi Rajputs. Due to that no development work of town was taken in pre-independence period.

#### 4.12 RAILWAY:

Jetpur has a railway station on meter gauge. Nagagadh village, at a distance of 2 Km. from Jetpur has Railway Station on Rajkot Porbandar track. Jetalsar village also has important railway junction on veravel - Porbandar metergauge line. At Jetalsar junction four lines of meter gauge are meeting mainly Jetalsar - Dhoraji, Jetalsar Junagadh, Jataisar - Bhavanagar, Jetalsar - Porbandar - Rajkot.

There is not much importance of railway as the majority of goods and passenger traffic is carried through the road. The town has good facilities at state road transport corporation for passenger traffic and good truck transport facilities for goods through state and national Highways.

Jetpur has no Air Port facility. The nearest airport is at Rajkot, i.e. 70 Km. away form Jetpur.

#### 4.2 ELECTRICITY:

The electricity supply for Jetpur city is normal. Town has 66 KV transformer. Entire area coming under the Municipal limit is facilliated with street lights. Yearwise details for various type of electrical connections are given in Table : [T - 4.1].

#### 4.3 WATER SUPPLY:

At persent, Jetpur is getting water form Bhadar Dam. By 18 Km. long pipe line. before that, the water was supplied from intake well of Bhadar river. Due to polluttetd water of sari



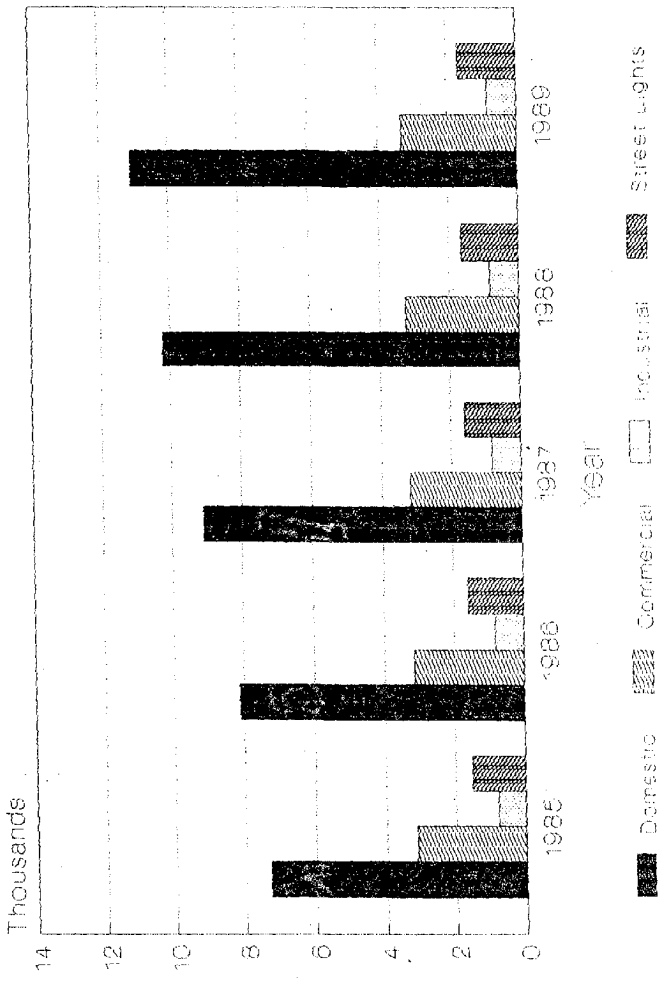
T A B L E : T - 4.1

## E L E C T R I C I T Y    C O N N E C T I O N S

Year Category	1985	1986	1987	1988	1989
Domestic	7288	8128	9081	10225	11085
Commercial	3121	3157	3197	3254	3307
Industrial	782	812	823	835	842
Street Light	1523	1585	1612	1635	1668

Source :        -Gujarat Electricity Board (sub. division)  
                   -Jetpur Municipality.

# ELECTRICITY CONNECTIONS



Source: O.U. Elect. Board (Suo Data)

printing industry, the ground water was polluted. Due to that, the water of intake well has started become red in colour. The water supply project on the basis of Bhadar dam was taken up in 1982 and not it is functioning. Daily 80 lacs litre of water is being supplied to the town it comes to 95 litres per capita per day. Water is being supplied by the over head tank located in the town. From this tank to the individual house hold by tap connections. There are 6055 domestic, 323 industria, 245 commercial and 200 public tape in the town.

#### 4.4 SEWERAGE AND DRAINAGE:

Jetpur has suface drain system. The surface drain is not maintained due to over crowding of residential area and mixed land use in dense polluted areas. All waste water was being disposed of into river Bhadar. For the disposal of the waste water from the sari printing industries. A project was taken on hand by Jetpur dyeing and printing Association in 1983-1984.

#### 4.5 HOUSING:

Housing is also considered as an infrastructure, as it provides facilities for peaceful living. The physical and mental rest after the working hours is essential to get prepared for the next day. House gives shelter against rain, sun and cold etc. Todays in our country housing problem is burning problem. Situation of housing in the big cities is becoming difficult as demand is increasing but supply can't pace with increasing demand, From the table [T - 4.2], it is seen that in Jetpur town the average family size is increasing. It may be due to shortage of houses. Jetpur Municipality has no proper records regarding total houses constructed every year. In fact, most of people don not take permission before construction of new.

T A B L E : T - 4.2

## D E T A I L S O F R E S I D E N T I A L H O U S E S

Year	Population	Number of House	Number of House hold	Average House hold size
1971	41,943	6574	7638	6.22
1981	63,074	9960	10026	6.29

Source : Census of India DCHB 1971 and 1981.

Comments : In Jetpur town the average house hold size has increased form 1971 to 1981. It shows the shortage of houses.

building. Hence, it is difficult to find out the housing stock and requirement of houses from readily available data.

#### 4.6 COMMUNICATION:

Communication facility has vital role in development of trade, commerce and industry and hence in the development of the town. Jetpur has facilities of post office, telegraph offices, telephone exchange and MSTD facility.

#### 4.7 EDUCATION:

Details regarding education facilities are given in Table T - . Facilities in Jetpur town also compared with other towns of District. In Jetpur, facility of primary school has increased same trend has been shown in the case of secondary schools. Comparing other towns, facility is less particularly for secondary schools. More effort is required to provide good facility for education. Jetpur city has also arts and commerce college.

#### 4.8 HEALTH:

Jetpur has Government hospital and dispensary. From table T - it is seen that compared to other towns of District Jetpur has very low medical facilities in terms of bed per 1000 population. This is due to development of Dhoraji as a Health Centre for surrounding area.

T - 4.3

## SCHOOLS PER 10,00 POPULATION IN JETPUR

NAME OF TOWN	HIGHER SCONDARY/ INTER/PUC/JUNIOR COLLEGE	SECONDARY MATRICULAT- ION	PRIMARY
DHORAJI	0.722	0.722	3.474
GONDAL	0.599	0.599	1.946
JASDAN	1.019	1.019	2.548
JETALSAR.	1.813	1.813	1.813
JETPUR	0.793	1.268	3.171
MORVI	0.493	0.409	4.637
PADDHARI	1.654	1.654	3.307
RAJKOT	0.719	0.719	4.157
TANKARA	2.952	2.952	4.428
UPLETA	0.911	0.911	2.003
VINCHHIYA	1.295	1.295	3.885
WANKANER	0.752	0.621	2.795

SOURCE : D.C.H.B. 1991

TABLE : T - 4.4

## NUMBER OF HOSPITAL BED PER 1000 POPULATION - JETPUR

---

TOWNS	NO. OF BED PER 1000 POPULATION
DHORAJI	2.87
GONDAL	1.11
JASDAN	2.09
JETALSAR	3.17
JETPUR	0.87
MORVI	1.76
PADDHARI	0.99
RAJKOT	1.64
TANKARA	0.59
UPLETA	0.82
VINCHHYA	0.78
WANKANER	2.30

---

SOURCE : D.C.H.B. - 1981

#### 4.9 TRANSPORTATION:

As town has development industrially the length of road also been increased over the period of time, and simultaneously the number of vehicles are also increased. Parthicularly, numbers of auto rikshaws and scooters are increasing while numbers of cycles and tongas etc. are decreasing which shows indirectly the economic growth of town and development.



## CHAPTER : 5 INDUSTRIAL GROWTH:

### 5.1 NATURE OF INDUSTRIES:

As stated earlier, Industries in Jetpur city are small scale industries and all are in private sector. According to TCPO classification these industries fall in category of light industries. Majority of industries are of sari printing and its ancillary units. There are least scope for other industries except some of the industries which are developing, are cement product industry and diamond polishing industry. Following are types of industries in Jetpur city.

#### (1) SARI PRINTING INDUSTRY:

This industry has played an important role in the development of city and made it an industrial town. A large quantity of water is required in this industry for washing saris and tables. The base material Malmal cloth is imported from Bombay and Bhivandi. Colours and chemicals come from Bombay, Ahmedabad and culeutta. These are also locally available. A 5.5m piece of cloth is laid on table and printed with screen printing frame. These printed saris are washed out side the unit.

The daily production of sarees is 4 lac sarees. The average per unit is 350 sarees which are exported through out the country. The sarees are also exported in foreign countries which are Bangladesh, Shrilanka, Nepal, Nigeria, Malasia etc. The area required for a unit is 1550 sqm. Table no. I shows area per unit, area per worker and investment per worker. Table no. I shows the summary of investment and employment of saree printing industries.

TABLE : T - 5.1

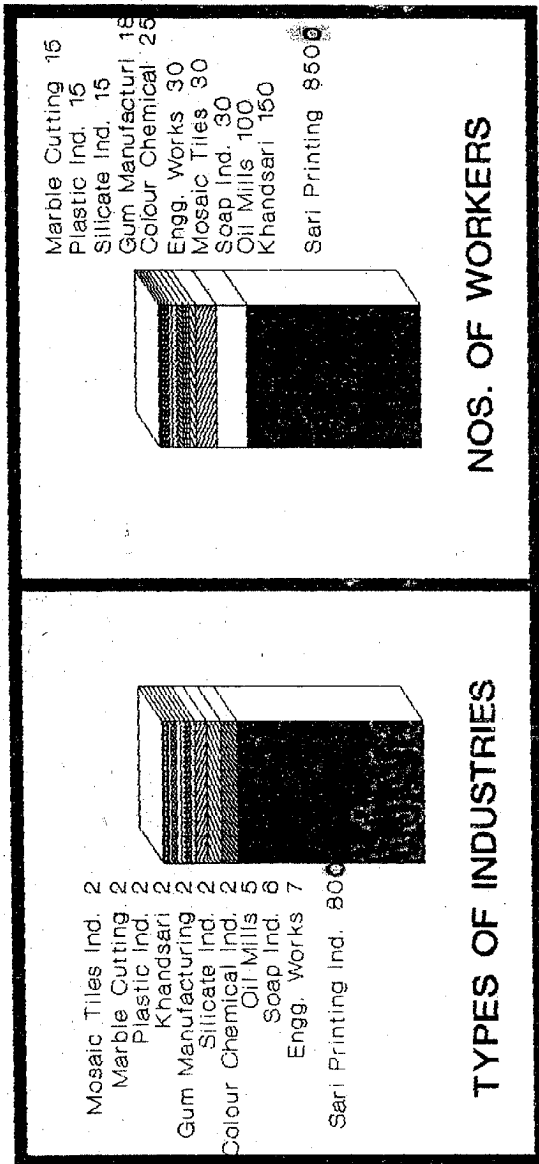
## TYPES OF INDUSTRY IN JETPUR CITY

Type of Industry	No. of Units	Total Workers
Sari Printing	800	8500
Soap Industry	6	30
Color Chemical	2	25
Cilicat Industry	1	10
Gum Manufacturing	2	18
Khandsari	2	150
Plastic Industry	2	10
Marble Cutting	2	10
Mosaic Tiles	2	30
Oil Mill	5	100
Engineering Works	7	30
	831	8913

Source : Chamber of Commerco, Jetpur.

# TYPES OF INDUSTRIES AND WORKERS

Jetpur City



source: Chamber of commerce  
Jetpur

T:54

EMPLOYMENT AND INVESTMENT OF THE JETPUR SAREE INDUSTRY AT A CLANCE  
(Total 1200 Units Approx)

(Rs. in lacs)

DETAIL	SUMMARY OF THE EMPLOYMENT				SUMMARY OF CAPITAL INVESTED			
	DIRECT	INDIRECT	TOTAL	AVERAGE PER UNIT	DIRECT	INDIRECT	TOTAL	AVERAGE PER UNIT
Income of the bleached & mercerised cotton fabric from Bombay.	nil	508	508	nil	nil	270	270	nil
Cutting of the Bales	500	nil	500	0.416	--	--	--	--
Printing the white cotton saree.	11,666	nil	11666	9.721	6880	11520	18400	5.733
Steaming, i.e. Heat Setting or Silicate Padding	2666	nil	2666	2.221	--	--	--	--
Washing of Sarees	2666	400	3066	2.221	nil	300	300	nil
Folding & Finishing	nil	7535	7535	nil	nil	400	400	nil
Stamping, Packing, parcelling & Forwarding the goods.	2000	nil	2000	1.666	--	--	--	--
Consumption Detail No.1	--	--	--	--	--	--	--	--
Consumption of Dyes & Chemicals	--	--	--	--	--	--	--	--
with stage No.	--	--	--	--	--	--	--	--
Consumption Detail No.2 (Sareen Designs Detail)	nil	1704	1704	nil	nil	200	200	nil
Trading Activite No.1	nil	1073	1073	nil	nil	213	213	nil
Trading Activity	nil	275	275	nil	nil	25	25	nil
	19,498	11,495	30,993	16.24	6,880	12,978	19,858	5.733

SOURCE : Prepared by Sari Printing Industry Association, Jetpur.

## (2) OIL MILL:

There are five oil mills in the city and its surrounding area. It requires large space for storage of raw materials and products. Ground nut and other oil seeds are crushed and oil is being extracted. Before crushing the seeds, they are warmed by steam.

## (3) SOAP INDUSTRY:

Washing soap is manufactured from non-edible oil. Process involved and boiling of oil, mixing of soda, allowing for setting, cutting and paking of finished products in required size.

## (4) CHEMICAL INDUSTRY:

Products manufactureed in this clas are colour chemical, sodium silicate, softners and Guvar Gum. Guvar Gum is used as a thickening agent. There are four units manufacturing chemicals and Guvar Gums.

## (5) PLASTIC INDUSTRY:

The road waste plastic is converted into grains and then it is used in final products which are P.V.C. articles.

## (6) MOSAIC TILES/CEMENT PRODUCTS:

These industries are developing as construction activities have increased. Operation involved in both are :(1) Mixing of Cement, sand and grit etc. (2) Moulding it in forms of tiles and other items such as beams, lintels, cement jalis, water tanks etc. (3) curing of product in water tanks and (4) finishing.

(7) KHANDSARI:

This industry is based on agricultural product, sugarcane. This is a seasonal industry running about 4 to 5 months in a year it requires large space.

(8) MARBLE CUTTING:

Irregular shaped marble sheets and pieces are brought from Rajasthan. Cutting and polishing of natural stone marble is carried out as per requirement of customer.

5.2 CHRONOLOGICAL GROWTH:

The growth of industries started after sixties. Upto 1955. There were only six units in the city. Art of screen printing came from Japan when an industrialist visited Japan in 1957, he observed this screen art there, and adopted it. Since then this screen printing has successfully maintained its quality for which Jetpur city has reputation throughout the country and abroad. Now, about 30,000 people are directly indirectly getting employment from the industrial set up of city.

As figure from District Industries Centre, there are more than 1200 sari printing industries in Jetpur and nearby Navagadh village. Table shows the year wise growth of industries.

5.3 LOCATION OF INDUSTRIES :

In Jetpur city, there is no special locational pattern of industrial units. These units are scattered throughout the town. Gantal is divided in four parts by roads east west and forth south. Industrial units are concentrated in north west

# IMPACT OF INDUSTRIAL GROWTH ON URBAN DEVELOPMENT.

( case study : JETPUR CITY )

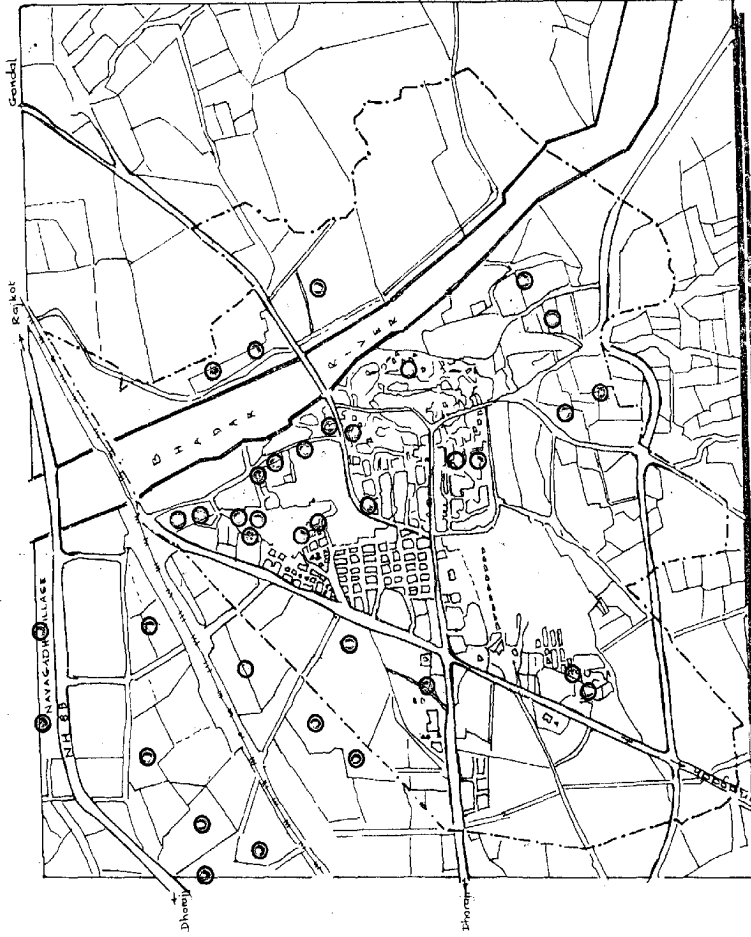
Fig: 5.01

### Land use pattern.

- Residential
- Commercial
- Industrial
- Public - semi public
- Facility
- Garden - playground
- Agriculture
- Water bodies

- Sati printing industry
- shop industry
- oil mill
- chemical.

### Location of industries - jetpur



I. U. Mandviya

M.U.R.P Thesis - 1992

Dept. of Arch. & Planning

UOR.

Guided by Prof. Najamuddin

TABLE : T - 5.2

## CHRONOLOGICAL GROWTH OF INDUSTRIES IN JETPUR CITY

---

Year	No. of industries registered
1955	06
1978	305
1982	403
1984	565
1988	664
1990	760
June 1992	830

---

Source : D.I.C., Rajkot.



and south west quarters. There is no specific reason for this concentration . In newly developed area industrial units are concentrated on north side of the gantal and along the road Rajkot Junagadh passing through the town.

Outside the Municipality limit, in Navagadh village, 1.5 km. from Jetpur and totally mixed with the city, industrial units are located on both sides of N.H. 8B.

The industrial units which are located within Municipal limits are Sari printing units, chemical industry, oil mill, and soap industries. (Fig. 6).

#### 5.4 AREA UNDER INDUSTRIES :

According to land use survey done in 1987, area occupies by industries within Municipal limit is 43 hectares which is 13.44% of developed area. 320 hectares and area under industries per 1000 population is 0.17 hect. The Gujarat Industrial Development Corporation (GIDC) has developed an industrial estate outside the Municipal limit on about 5 hectares of land located at 5 Km. away from the city on N.H. 8B.

Primary survey results show that most of Sari Printing industries having 1000 to 2500 sq.mt. and built up area less than 1000 sq.mt. In case of soap industry, plot area covered is between 1000 to 2000 as in some unit it is combined with chemical industry. Khandsarl industry required large area about 8000 sq.n, as operation involved in it is crushing and getting juice from sugar cane, boiling of juice, cooling, centrifuging of semi solid cooled jelly, drying of crystal form sugars. The bagasse is dried in large open space.

## T - 5.3

DETAILS OF PLOT AREA, FLOOR AREA PER WORKER & INVESTMENT PER WORKER  
JETPUR

TYPE OF INDUSTRY	AVERAGE PLOT AREA IN SQ. MT.	LAND PER WORKER IN SQ.MT	FLOOR AREA PER WORKER IN SQ.MT.	INVESTMENT PER WORKER IN RUPEES
SARI PRINTING	1525	56.69	33.67	30100
SOAP INDUSTRY	1250	210.00	35.00	32900
COLOUR CHEMICAL	840	93.33	12.22	72800
CILICAT INDUSTRY	840	84.00	8.50	32200
GUVAR GUM	840	140.00	15.83	35700
KHANDSARI	8000	126.98	13.49	52700
PLASTIC INDUSTRY	250	50.00	26.00	33000
OIL MILL	980	44.54	31.82	64000
MARBAL CUTTING	300	75.00	31.25	23000
MOSAIC TILES	980	122.50	35.00	47600

In industries like Khandsari, guvar gum, mosaic tile are land intensive while sari printing, plastic etc. are less land intensive.

## 5.5 IMPACT DUE TO INDUSTRIAL GROWTH :

### 5.5.1 Impact on sectoral distribution of workers :

It is quite evident that the degree of urbanization increases sharply as industrialization increases. As per the definition of urban area index of population engaged in agricultural occupation is lower than rural area as a whole. As per census figures for workers distribution, it can be seen that agricultural activity has decreased constantly the percentage of workers engaged in agricultural activities were 19.77%, 12.57% and 7.68% for the years 1961, 1971 and 1981 respectively.

It can be seen from 1971 census that there is a decrease in the number of workers under occupations of primary sector while secondary sector has shown continuously rising trend and played an important role in the development of Jetpur city. Thus we can conclude that due to industrialization economic activities have shifted from primary sector to secondary especially manufacturing activity.

### 5.5.2 Impact on residential and commercial development :

As city grows, more and more agricultural land converts into urban uses. It is continuous phenomena whose rate is stimulated due to centrifugal forces of city and its influence on region.

After seventies, city pattern is largely influenced by industrial growth particularly sari printing industry has played an important role in the growth of the city. Due to industrialization and availability of employment opportunities, people from adjoining areas have migrated to the city as seen from population trend. This rapid growth in population made the city congested. Now residential area like Kanakia plot, fulwadi, area along Junagadh road started to come up. Thus compelling the people to settle in fringe area. Housing demand supply could not keep pace with demand so it is resulted in development of slum areas.

If we look at the land use pattern of city, it reveals the mixed type of land uses. Industries are scattered through out the city. Majority of industries have developed along Junagadh road. Residential development has taken place on west and south and of city. There is also development to some extent the eastern bank of the river.

Due to industrial growth, the commercial activity has increased. But local market for sari printing industry is negligible. Activities in tertiary sector have increased. The percentage of workers engaged in trade and commerce and has increased from 19.86% in 1961 to 22.65% in 1971. Similarly, transport activity also has increased from 2.81% in 1961 to 3.02% in 1971. Census 1981 has not given separate distribution so the picture is not clear. Though due to industrial growth as many private transport companies have established.

#### 5.5.3 Impact on Transportation :

Jetpur city has poor road net work because it was administrative H.Q. of 25 Path Rajputs and no development work of town was taken in pre independence period. Roads are narrow

and unplanned. Industrial development have created a pressure on existing transportation net work of the city. In Jetpur city, the total area under roads works out 30 hectares, forming 9% of developed area. The absence of proper channellisation of traffic, incorrect alignment and unplanned intersection and absence of parking facilities are general features of the net work of roads in Jetpur city.

The Rajkot Junagadh road, along which majority and industries are located passes through the city creating traffic problems. Raw material finished products are brought in and despatched through this road. Bus stand is also located along this road.

The main road, M.G. road, along which commercial activities are located, always seems to be congested specially during peak hours, due to increase in population and number of vehicles. Similarly, as industries are scattered through entire town, loading and unloading of goods creates lot of t traffic problems. The encroachment on main roads by informal commercial activities is also a kind of headache from traffic point of view.

#### 5.5.4 Impact on Land Values :

With the advent of rapid industrialization and growth of population the vacant land is getting scarce day by day. The land values are rising high every where in urban area. The land value differ due to various reasons depending upon potentiality and place and types of operations taking place upon the property.

The District Magistrates office fixes the land values of different areas from time to time which indicates the rate at

which the sale or purchase of land at any particular area shall take place, but other e rates don't reflect actual value.

The land value in Jetpur city has also raised in some areas. The lowest rates are in Jantanagar Gondera and in area on opposite bank of the river, while highest rates are in Kanakia Plot area which is one of the most polished residential area. This area has developed after seventies and it is adjacent to bus stand road and M.G. road. Other areas where land values are higher are fulwadi, Khodpara, Panchsil society etc.

#### 5.6 WASTE WATER DISPOSAL PLANT :

Dyeing and printing industry of Jetpur is highly water polluting waste water coming out is toxic and injurious to health. Up to 88, there was no proper drainage system in Jetpur to discharge industrial waste. It was discharged in open and into river to some extent. So water of river was polluted and ground water was also affected. No industrial unit had any system to treat waste water. To construct the plant for disposal and effluent was expensive. So sari printing association came into picture and worked out a project with Govt. As a result of joint effort waste water treatment plant came into existence in 1990.

The project had cost 1.2 crore. The Department of Mines and Minerals gave grant of 15 lacs. The remaining amount is to be contributed by the association. At the time of permission to start a unit, Rs.150/- per saree has of be paid to the association. The maintenance of plant is done by the Association.

Working :

The effluent plant has started functioning since 1990. The waste water from industrial units are carried through channels and collected into sump from these it is pumped to plant located on east side. This purified water is used for agriculture. After installation of effluent plant, still there is water pollution problem, because channels which carry waste water are open so due to obstruction or when it breaks waste water spread in open. Secondly, still many industrial units are discharging industrial waste in open or into river. Recently, since few months, plant has stopped functioning due to technical defects. So this plant has removed water pollution to very little extent as it is not efficient.

This problem of water pollution due to sari printing industry not only affects Jetpur city, but also neighbouring city Dhoraji, 19 Km. away. Dhoraji city gets drinking water from same river Bhadar, supplied through Fofar dam. The effect of industrial waste containing dyes and chemicals can be found in water supplied to Dhoraji. The laboratory test reports indicates that this water is injurious to health creating skin disease, throat disease and also cancer.

This problem of red water started in late seventies in the earlier stage of industrial development. After eighties, the authority stopped giving permission, to set up industries in the city area. The washing of saris on the banks of river also restricted. These protective measures reduce the water pollution problem to some extent. The installation of the effluent treatment plant was an important step to reduce the pollution.





Recently, the red water problem has again appeared in Dhoraji city as plant stopped functioning due to some technical problems and illegal washing of saris on the banks of river. The people of Dhoraji have started agitation against this problems. The total news papers publish these news in head lines (Refer Akila news paper dated: 8/12/92).

## CHAPTER : 6      URBAN DEVELOPMENT MANAGEMENT

Urban development management system plays important role in the development of city. Success of any development programme depends largely on the efficiency of management machinery. All important aspect such as planning, implementation, maintenance, co-ordination and monitoring have relevance in overall frame work of development management. As development is continuous process so its management holds key for the fulfilment of the needs of people.

In Jetpur city the authorities involved in urban development management are town planning and valuation department municipality, central Board for control and prevention of water pollution, and association of sari printing association. An entrepreneur is required to pay the requisite fee to the association for getting NOC from the pollution board. The pollution board issues NOC after checking the locational validity of the industry. With that NOC, the entrepreneur gets the license from the municipality for establishing the industry within the city limit. To get financial aids and other incentives, it is essential that industry should be registered in the district industries centre.

### 6.1      Municipality Jetpur :

During the state time, as in case of most of other states, there was no elected municipality. The municipal functions were carried on by state till 1-7-1947. After independence, the Jetpur town municipality was constituted for first time under notification no.3 dated 2-7-1949 under section - II of district Municipality Act, as applied to saurashtra region. First elected board took over on 1-1-1950 with 8 wards

TABLE : T - 6.1

## WARD WISE POPULATION IN JETPUR - 1981

WARD NO.	POPULATION	MUNICIPALITY SEATS
1.	3687	2
2.	4100	3
3.	5082	3
4.	5777	3
5.	6928	4
6.	5882	3
7.	5760	3
8.	5693	3
9.	5538	3
10.	5785	3
11.	5171	3
12.	3671	2
TOTAL 12	63074	35

SOURCE : MUNICIPALITY.

and 21 seats which increased to 25 from 1-1-1965 as per new Municipal Act. The constitution of Municipality was revised in March 1985 raising no. of wards from 8 to 12 and no of seats from 25 to 35.

## 6.2 Functions :

There are tow types of functions which are performed by Municipality.

- i) Obligatory Functions
- ii) Discretionary Functions

### Obligatory Functions :

- i) Maintaining Public Streets
- ii) Scavenging
- iii) Disposal of Dead Animals
- iv) Removal of Encrochments

### Discretionary Functions :

- i) Controlling Pollution
- ii) Public Health and Sanitation
- iii) Drainage and Water Supply
- iv) Execution of Development work
- v) Regulation construction Work
- vi) Levying Taxes

From urban development point of view, Municipality's important work is to execute the development work, and this only can be done through a systematic planning of the city. The existing administrative set up of Jetpur Municipality has president, vice-president and chief officer. To carry out the functions, and there are various committees having a chairman from municipality members. The whole staff works under the control of chief - officer.

### 6.3 Legal Frame Work :

Presently, the urban development activities are managed under the provisions of following legislations:

1. The Gujarat Municipal Act 1963.
2. The Gujarat Town Planning and Urban Development Act 1976.
3. The Gujarat peripheral Development control Act 1963.
4. The Gujarat Air & Water pollution control board Act 1973.
5. The Gujarat Housing Board Act 1965.
6. Land Acquisition Act 1894.

Though there are several other legislations which regulate and control some of the activities, yet the above mentioned ones are the main laws.

The Gujarat Municipal Act 1963 gives legal powers to the Municipal board to perform obligatory and discretionary functions within the municipal limits. The Gujarat Town Planning and urban development Act 1976 is a comprehensive planning and development act. It came into force on 1st Feb. 1978. By this Act master plans, action plans etc. can be prepared.

The Gujarat peripheral development control act 1963 is to control the development which occurs on the periphery of town or city. The Gujarat Air and water pollution control board act 1973 gives legal powers to Gujarat Air and water pollution control board to regulate and monitor air and water pollution.

The Gujarat Housing Board Act 1965 gives powers for construction of Houses at a large scale. Land acquisition Act 1894 which was drastically amended in 1984 is the principal legislation for acquisition of land for public purpose.

#### 6.4 Financial Systems :

At present municipal financial condition is not so strong to develop the town. The main sources of income are as follows:

1. Municipality rents and taxes.
2. Other taxes.
3. Miscellaneous income.
4. Government Grant.

In 1990, out of these source of income, the maximum income is through Government grant which was 1 crore 10 lacs i.e. 50% . Next comes octroi income 59 lacs i.e. 24% and rest 26% form other two sources.

Against the income the municipal expenditure is very high. The expenditure is incurred under several heads. The Municipality bears Rs. 2.5 lac per year for water supply scheme for purification of water. The other expenditures incurred under heads like general administration, public safety, street lights, maintenance of roads and bldgs, water works, sanitation, library, education etc.

#### 6.5 Problems and Suggetions :

There are problems with municipality regarding the finance, its legislation, administration etc.

##### Problems :

1. Due to poor enforecement of these acts in Jetpur, it has failed to control the haphazerd development of land.

2. Non - restoration of powers by municipality for the enforcement of law.
3. Industrial area has also developed out side the municipal limit so no income from that development.
4. Octroi rates are not revised since long back.
5. There is no expert in town planning in Municipality staff to implement the plan.

**Suggestions :**

1. Municipality should be firm to enforce the regulations of master plan on land.
2. To employ trained staff from town planning department to implement the plan.
3. Government should give a special grant for plan implementation.
4. Rationalisation of tax rates.
5. Increase the financial resources of municipality by taking additional development works like shopping centre etc.

**CHAPTER : 7            PROPOSALS AND RECOMMENDATIONS:**

The main aim of the foregoing study is to make some modifications in existing land - use and some recommendations to check haphazard growth and that with in growing population so that future growth may be in planned way. For preparing the modified plan of the city and demarcating the land uses, following points are being kept in mind to achieve better solution to the existing problems in city.

- i) Location of industries to a proper place including future expansion.
- ii) Efficient transportation net work to ensure safe and speedy movement of city and regional traffic.
- iii) Improvement of slum areas.
- iv) Improvement of existing drainage system.
- v) Modifications in effluent treatment plant system to check the pollution problem.
- vi) Provision of recreational areas at proper and suitable places.

**Modified Master Plan of Jetpur City :**

As it is difficult to prepare new development plan and also out of scope of present work, so modification in existing master plan is proposed. The population trends of Jetpur city development discussed in previous chapters. The projected



T A B L E : T - 7.1

Year	Population	Workers	Participation rate in %
1961	31186	9186	29.46
1971	41943	11170	26.63
1981	63074	17424	27.62
1991	89185	24972	28.00
2001	126642	35459	28.00

population of in 2001 A.D. in proposed development plan by T.P. Department 1991 is 1,26,642. If we see the participation rates since 1961. It can be seen that in 1961, the participation rate was 29.86% . Which declined in 1971 to 26.63 %, again it increased to 27.62 % in 1981. As discnsed earlier, the industries in Jetpur city are not raw materials based. Main Industry is sarl printing industry. There are no seope for other industries. So the furture participation rate is assumed to be 28 %.

From the table T - 7.1 it can be seen that the no. of workers will be 24970 and 35460 in 1991 and 2001 A.D. respectively. The no. of workers in manufacturing and household industry had been more than 40% as category of town has changed in 1971. So assuming the no of workers in secondary sector as 42% of main workers, the no. of workers in manufacturing censtruction and H.H.I. will be 14890 in 2001 A.D. Average land per worker for small scale industries is taken to be 125 sqm. There fore in future the land required for industries in Jetpur city will be 119 hectares.

The existing city is congested. The developed area as per 1991 D.P. is 474 hectare. In 2001 A.D. the estimated population will be 1,26,642 so it is required to extend the municipal limit.

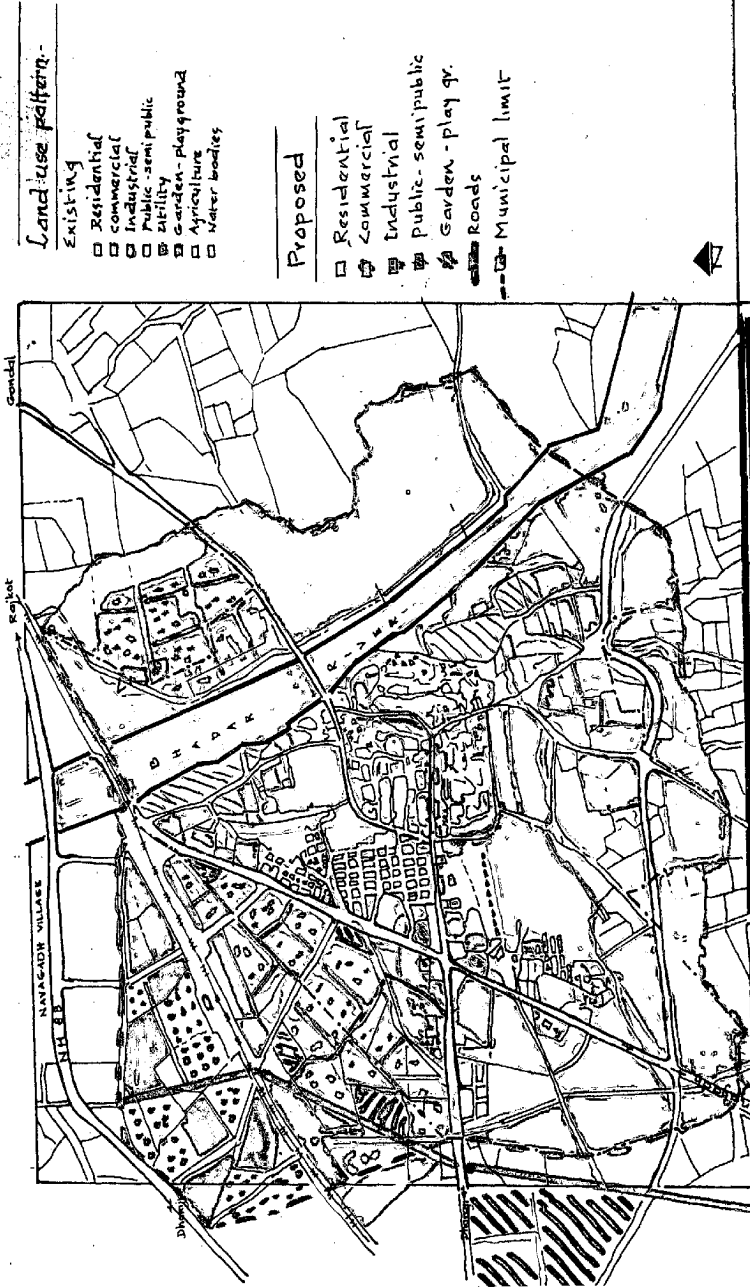
If the average density is taken to be 200 P.P.H., the developed

area will be 635 hect. At present. The total area of the city within municipal limit is 688 hact. which should be increased to 800 hect. to facilitate the future population.

#### Proposed Industrial Area :

As discussed above, the industrial area needed for future industrial development in Jetpur city is 119 hectares by 2001 A.D. The industrial zone should be seperated form the residential zones. The criteria for locating the industries are based on wind direction, transportation linkages, facility for disposal of industrial waste, accessibility of serices etc. In Jetpur city, all industries are small scale and smokeless (air pollution free) industries. The problems with the industries are water pollution problem as 90 % industries are sari printing and its ancillary units. The effort has been made by association to takle this problem by installing effluent treatment plant, but the plant is not efficient as industries are scattered.

The present trend of industrial development is on the periphery of town on West and South side. As there is no Air pollution, following this trend, it is proposed to shift the industries which are located in Gamtal area and create pollution. As shown in fig G - 7.1 the proposed industrial area along with recently developed industrial area on West side



Land use pattern-

- Existing
- Residential
  - Commercial
  - Industrial
  - Public-semi public
  - Utility
  - Garden-playground
  - Agriculture
  - Water bodies

Proposed

- Residential
- Commercial
- Industrial
- Public-semi public
- Garden-play gr.
- Roads
- Municipal limit

**IMPACT OF INDUSTRIAL GROW-  
TH ON URBAN DEVELOPMENT.**  
( CASE STUDY : JEFFUR CITY )

I. U. Mandviya  
 M.U.R.P Thesis - 1992  
 DEPT. of Arch. & Planning  
 UOR.  
 Guided by Prof. Najamuddin

Fig: 7-01

adjacent to NH 8B may reduce the problem of water pollution and traffic to a large extent. The provision of land for future development is also proposed.

#### Transportation :

The percentage of land under roads has decreased from 12.12% in 1975 to 8.75 % in 1989. This is because municipality has not constructed enough roads in outer area. The Bus-stand road which is Major district road joining NH 8B, passes through the city. To segregate the regional traffic and local traffic, in this modified master plan (as shown in fig. 7.1). It is proposed to construct a bye pass starting from NH 8B. This road will pass through proposed industrial area and join again major district road to Junajadh . This may reduce the traffic intensity on Bus-stand road and will separate regional and local traffic. The residential cum commercial areas should be developed on the land from which polluting industries are proposed to be shifted and which are vantage points. The parking lots also can be developed on the land which are less important for commercial development.

#### Environment :

Environment is a gift of nature. Pollution of environment is an important aspect as far as the planning or

replanning of a city is concerned. It should not be disturbed by the haphazard and disorderly located industries.

In Jetpur city all industries fall in the category of light industries. The main industry is sari printing industry and its ancilliary units which are water polluting. To control the water pollution caused by the sari printing and chemical industry, the following proposals are recommended:

1. It is proposed to construct channel to carry the waste water from proposed industrial site. This waste water should be collected into sump or jack well. This collected effluent should be pumped to existing treatment plant.(as shown in Fig.7.2)
2. The open drain system should be converted into under ground drainage system which control unhygenic situation.

**Recommendations :**

The followings are the broad recommendations which can be followed when new development plan is prepared.

1. As Jetpur city is highly congested due to high growth rate, it is recommended to extend the municipal limit which can cover the peripheral industrial development growth, haphazardly so that

a check can be imposed on it.

2. In future, Navagadh village, having 500 industrial units, and totally mixed with Jetpur city, should be included in city limit. This will increase the income of municipality.
3. Industries which are located in residential areas creating problems like water pollution, traffic, parking, congestion etc., should be shifted to West side of city where the present trend of industrial development is taking place ( fig. G - 7.1).
4. An effluent treatment plant, functioning since 1990 is not efficient because, to carry waste water, open drains are running from units and they are a not covering all industrial units. These open channels, spread in city, create problems due to obstruction or when they over flow. Instead of this network, as shown in Fig. G - 7.2. According to this system, industrial waste should be collected from industrial estate in to sump by a channel without running through city. It is then pumped to existing effluent plant.
5. These should be green buffer zones between industrial and residential area.
6. The city bus-stand is located along major district road joining Rajkot - Juvagadh city. This

road passing through the city, is highly congested due to mixed traffic. A bye - pass or other alternative road (as shown in Fig. G - 7.1) should be constructed to reduce the traffic intensity and to separate regional and local traffic.

7. There are open surface drainage system in city. To check unhygienic situation, these should be under ground drainage system.
8. The main raw material for sari printing industry is Malmal cotton cloth. Which is imported from Bombay Bhivandi, Jalgaon etc. This cloth can be manufactured in Jetpur city as cotton can be available from other districts of Gujarat state This will be helpful lowering the production cost of saris and also to reduce traffic intensity.
9. Infrastructure facilities should be increased with in the city and proposed industrial area with the same pace as the demand increases.
10. Recreational facilities in Jetpur city is poor. Childrens park and Garden should be developed at proper places.
11. There should be co-ordination between municipality and other Government departments.



## APPENDIX - A

## QUESTIONNAIRE TO STUDY INDUSTRIAL GROWTH:

1. Name of Industry :
2. Year of Establishment :
3. Type of Industry :    1.  
                                  2.  
                                  3.
4. Locality :        1. Present:  
                          2. Prior to  
                                  Present:
5. Annual turn over in Rs. :
6. Annual Production Value in Rs. :
7. Physical Structure :
  - i. Plot Area :
  - ii. Built up Area :
  - iii. No. of Storey :
8. Name of place from where raw material is procured :
  - i. from the state
  - ii. Out side the state
  - iii. from with in district
9. Mode of transport to procure raw material :
  1. By Truck
  2. By Rall
  3. others

10. Name of Market place :

i) Out side the state

ii) Within state

11. No. of workers & their place

of Residence :

i. Technical Place of Residence

a) Skilled .....

b) Unskilled .....

c) Semi skilled .....

d) Administrative/ .....

Managerial

12. Type of Physical Linkage

between Residence & Work i. Rail

place ii. Pucca Road with Bus Service

iii. Pucca Road W/O Bus Service

iv. Kutcha Road

v. Others

13. Details of Workers

Workers Categories	No.	Sex	Age	Education
i) Managerial Administration				
ii) Skilled Technical Workers				
iii) Unskilled				
iv) Others Workers				

14. Name of Product : i) ii) iii)



## APPENDIX - B

## STANDARDS

For the town having population of 100,000 and above the following criterias of land uses are to be incorporated as prescribed and suggested by copp BUREAU OF PUBLIC ENTERPRISES and TCPO.

## [A] Residential :

- i) Gross residential density : 125-135 Persons/hect.
- ii) Net residential density : 500-600 pph.

## [B] Community Facilities :

## (I) Educational Facilities :

- i) Nursery School : One for 1200-1500 pupulation  
area of 0.10 hect.
- ii) Primary school : One for 3500 pupulation  
area : 0.1 hect.
- iii) Higher secondary: One for 8000 pupulation  
area : 2.5 hect.
- iv) Academic college: One for 1,50,000 pupulation  
area : 6 hect.
- v) Technical & Vocational School: 1 or 2 depending  
upon size of township  
area : 6 hect.

- (II) Health Facilities: 4 beds/1000 population area for  
100 bed hospital 6 hect.
- (III) Commercial Facilities:
- i) Retail shops: 12 to 14 shops/1000 population  
area of shop 10 sq.m.
  - ii) Whole sale Commercial: 30% of area occupied by  
retail commercial activity
  - iii) Community and civil cultural Facilities: One club for 20,000  
to 30,000 population  
area : 0.75 hect.
  - iv) Other Facilities at town level :
    - Three police station
    - Post offices
    - Cremation burial ground
    - Religious area

#### LAND - USE PATTERN

(a)	Residential including open spaces, tot-lots, path ways etc.	40% - 45%
(b)	Roads and circulation except pathways	22% - 24%
(c)	Public and Semi public buildings and facilities.	11% - 14%
(d)	Organised recreational open spaces	16% - 19%
(e)	Commercial - retail, whole sale and ware housing.	2.75% - 3%
(f)	Service and small scale industries	1.25% -2%

- (g) Public utilities and services:
- i) Water supply 40-50 gallons per day/capita
  - ii) Storm water drainage for domestic use
  - iii) Public lavatories and urinals.
  - iv) Refuse collection.
  - v) Sewage treatment.

Roads and street - standards as adopted by TCPO:

Type	Right of Way	No. of Lanes
1. Major Roads	15 - 20	Two Lanes
2. Residential Streets	10 - 15	Two lanes
3. Cul-de-sec not exceeding 600' in length.	8 - 10	Two lanes
4. Loops for residences	3 - 5	--
5. Service Lanes	5 - 7	--
6. Cycle Tracks	2 - 3	--

The following criteria should also be considered while providing the width.

1. Foot path should be provided for sr.no. 1 and 2.
- All roads should be black topped except service lanes.

**Access Standards:**

Based on the planning principles, the following table given the minimum and maximum distances to be covered for gaining access to schools, recreational areas, parks and play grounds, shops and various other public buildings in a sector.

**Suggested walking distances**

**(I) Schools:**

i)	Nursery and Primary	0.4 km.
ii)	Secondary	0.5 km.
iii)	College	0.8 to 1.6 km.

**(II) Recreation and other Amenities:**

i)	Tot-lot	0.2 km.
ii)	Children's park	0.4 to 0.5 km.
iii)	Adult Play ground	0.8 to 1.6 km.
iv)	Local shopping	0.4 to 0.8 km.
v)	Health Centre	0.8 to 1.6 km.
vi)	Post - Office	0.8 to 1.6 km.
vii)	Service shopping	0.8 to 1.6 km.

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slum area



Water pollution



NH 8B



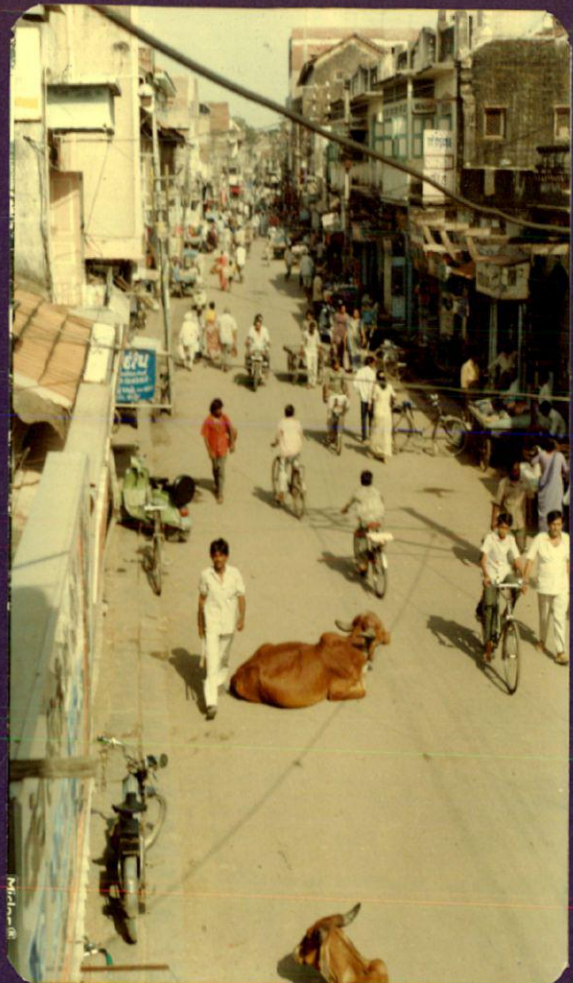
Dhoraji road



Chanprajpur road



Bus-stand road



M.G. road



Kanakia plot