# DISTRICT HUMAN DEVELOPMENT REPORT (2015)

# JAMNAGAR

Gujarat Social Infrastructure Development Society (GSIDS)
General Administration Department (Planning)
Government of Gujarat

**DISTRICT HUMAN DEVELOPMENT REPORT: JAMNAGAR**



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General Administration Department (Planning)

Government of Gujarat

सत्यमेव जयते

**Babubhai Bokhiria**

No. : WRWSACAFC/ 57/1016 /2015

**Office of the Hon'ble Minister,**
**Water Resources (Excluding Kalpasar),**
**Water Supply, Agriculture, Co-operation,**
**Animal Husbandry, Fisheries & Cow Breeding**
**Government of Gujarat**
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Sachivalaya, Gandhinagar-382 010.

- 5 MAY 2015

## Message

*Gujarat enjoys the reputation of being the most progressive and well-administered State in the country. The State Government is aware that although progress has been achieved in various sectors since the State's inception much remains to be done in many fields. The Government is, therefore, making strenuous efforts to provide basic minimum services to the people, including drinking water, housing, health, education, livelihood opportunities, etc. The issues like securing peoples participation, poverty alleviation, social protection to the poor, removal of regional imbalances, good governance are alos high priority areas of focus on the agenda of the Government. We are committed to the cause of Human Development.*

*I compliment the United Nations Development Programme under Planning Commission for collaborating with the State Government in preparation of the District Human Development Report, which provides an objective, in-depth analysis of the present status of various aspects of human welfare in the district. I also compliment the GSIDS, General Administrative Department (Planning) for undertaking this project.*

*I am sure, the comprehensive document, so meticulously prepared, providing a realistic assessment of the current status of the district and will serve as a guide for future planning in various fileds which leads towards inclusive development of the district.*

*I appreciate the endeavor.*

***( Babubhai Bokhiria )***

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# MESSAGE

Human Development is a development paradigm which is beyond mere rise or fall of national incomes. It is about creating an environment where people can develop their full potential and lead productive, creative lives in accordance with their needs and interests. People are the real wealth of nation. Development is thus about expanding the choices people have to lead lives that they value.

The District Human Development Report is a Document which gives the present status of Human Development in different talukas of the District. Human Development requires focus on the basic as well as crucial indicators of Human Development. Thus this report has highlighted three important pillars which are: Education, Health and Livelihood.

I commend the efforts put in by stakeholders in preparing this publication and hope that this will be useful to all the state & district level officials, policy makers and planners in working towards improving Human Development scenario of the District.

**(S. Aparna)**
**Principal Secretary (Planning) and**
**Chairperson, GSIDS**

# PREFACE

A District Human Development Report has to basically address the issue of formulation of a strategy, which will accelerate the pace of Human Development. The Jamnagar DHDR aims to assist process of district level planning through the Human Development prism. Normally a Human Development Report covers three aspects related to Human Development—education, health and standard of living. Broadly the same format has been maintained in this report. The Report incorporates latest information as far as possible in every dimension. The recommendations of the report are indicative and point towards planning for further development of the State.

As an introduction, a brief profile of Jamnagar economy and Society has been given along with important sectorial status like agriculture, power, irrigation, transport, education, health, drinking water etc. The population density is almost half that of the state average signifying the area to be far flung. The process of urbanization has been mono-centric in the district. The sex ratio has exhibited continuous declining trend in the successive decades. Juvenile sex ratio of district is lower but better than last decade and state average. Population distribution is uneven across talukas. Jamnagar has made impressive gains in the literacy front. The gains are impressive both for male and female literacy rates. Gender and residence are critical parameters for differentials in the literacy level.

The decadal growth rate has shown a visible reduction for the district as compare to earlier decade which is a good sign for the district that ever increasing population is now showing some sign of deceleration. The district has shown a considerable improvement in terms of institutional delivery especially for rural areas. With respect to new born care also the district performance is appreciable.

District shows dominance of cash crops over food crops. The area under horticulture crops has marginally increased during the decade. Yield of Vegetable crops is continuously increasing over the years. Main workers in the district have marginally increased and people have regular employment opportunity. District has dominant position in the livestock but show steady picture in last few years. Fisheries and marine resources have enhanced. In Jamnagar district diminishing trend have been seen regarding below poverty line.

This report is an attempt to precise the status of Jamnagar District in the aspect of Human Development. It is hoped that this report would be useful to those who are involved in District Human Development Plan.

**June 2015**
**Jamnagar**

**Shri N. B. Upadhyay**
**Collector - Jamnagar**

# Foreword

Human Development is a development paradigm that is about much more than the rise or fall of national incomes. It is about creating an environment in which people can develop their full potential and lead productive, creative lives in accord with their needs and interests. People are the real wealth of nations. Development is thus about expanding the choices people have to lead lives that they value.

The Human Development approach arose in part as a result of growing criticism to the leading development approach, which presumed a close link between national economic growth and the expansion of individual human choices. As of 1990, the human development concept was applied to a systematic study of global themes, as published in the yearly Global Human Development Reports under the auspice of the UNDP.

The Human Development story of India is unique in its kind. India initiated Human Development issues during 8th Five Year Plan (1992-97). In order to integrate Human Development into state planning in India the preparation of reports at state level has been started. Now-a-days the Gujarat State is on the fast track of development. Planning Commission-Government of India and UNDP had partnered Strengthening State Plan for Human Development (SSPHD) programme, under which the Government of Gujarat had initiated the process of integrating Human Development in planning and policy documents.

Human Development is increasingly becoming an area of concern and increasing priority is given to development a strategy which conceptually goes beyond per capita income as a measure of development. The preparations of DHDR (District Human Development Report) marks the beginning of the process whereby people is mobilized and actively participate in the development process. In the year 2008-09, the state government has initiated the work of preparing District Human Development Report.

The DHDR is expected to be an important document for formulating the District Human Development Plan. The report has examined the status of Human Development in different talukas of Jamnagar District. The report depicts the present status of the district with available information for various indicators of Education, Health and Livelihood.

I hope that this report will form a milestone in the overall planning and development of the district. DHDR will also be very useful to concerned State and District level Officials, policy makers, decision maker and NGOs.

**Shri R. J. Mankadia**
**(DDO - Jamnagar)**

# ACKNOWLEDGEMENT

Jamnagar District Human Development Report has been an educative experience for GSIDS. We express our deep sense of gratitude to the Hon. Ms. S. Aparna (Principal Secretary and Chairperson GSIDS, General Administration Department (Planning), Government of Gujarat) for providing us an opportunity for such a challenging job to fulfill the vital project.

We would like to wholeheartedly thank the District Collector, Jamnagar and his team for providing support in required updated data. The cooperation of the officers of the line departments of Jamnagar district administration has been acknowledged. We are also thankful to the concern persons from the state level Departments (Education Department, Health & Family Welfare Department, WASMO, Census-Gujarat, and Disaster Management) who spared their time to provide us a clear picture about Jamnagar. Similarly, the report has been facilitated in countless ways through the cooperation of the external experts who helped us at various stages of the project. Their cooperation in providing the guidance is very much appreciated.

The support and guidance received during the preparation of this publication from Shri Kalpesh Shah, Joint Secretary (Planning) has played a vital role in adding to the quality of the document. We express our heartily thanks to our all team members of GSIDS who lent us a great support to carry out this task.

We hope this endeavor will contribute towards perspective of “Human Development” in Jamnagar district and facilitate strategies for the future.

**K. D.Vashi**
Director& Member Secretary
GSIDS

## List of officers associated in the preparation of Jamnagar District Human Development Report (DHDR)

**Shri S.S. Leuva**
Deputy Director
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## Special Thanks to:

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# EXECUTIVE SUMMARY

## Concept of Human Development

The concept of Human Development became popular after the first Human Development Report was published by UNDP IN 1990. Introduction of the concept of Human Development is to assess the quality of life of the people. Conceptually, Human Development Index is the combination of the indices of education, health and livelihoods. Thus, the concept of human development places people at the centre instead of macro level achievements. The human development approach basically identifies three essential areas in which enlargement of people choices must take place. These are for people, to lead a long and healthy life, to acquire knowledge and to have access to the resources necessary for a decent standard of living.

## Introduction

The total population of Jamnagar district is 2160119 and it constitutes 3.57 percent of total population of Gujarat State. Jamnagar taluka is most populated having 8,51,948 persons. Urban population of the Jamnagar district is 44.95 %. Except Jodiya and Lalpur talukas, all the talukas of district are urbanized and Jamnagar taluka has highest urbanization (76.20%). The population density (152) is almost half that of the state average (308) signifying the area to be far flung.

Jamnagar district have higher sex ratio 939 as compared to state (919) and is likely to fall in the future as per trend seen in the last decade. The child sex ratio is also higher (904) than the state average of 890. The rural-urban distribution of population shows that the district has a slightly higher percentage (44.95%) of households staying in urban locations when compared with state average (42.6%). The urban population growth during the last decade had been 1.1% which is lower than Gujarat Urbanization (5.2 %). In Jamnagar district, Scheduled caste population is higher than the state average (7.09 %), whereas the S.T Population is meager (1.12%) than the state average of 14.75%.

In rural areas of Jamnagar of the total 230295 households, 16.24% households get tap water from treated source, 66.74% households get from covered source and 17.02 % get from un-covered sources. In urban locations of the district, for drinking water there are various sources. About 63.82 households get tap water supplied from treated sources, 29.95 % get water from covered sources and the rest 6.24 % from uncovered sources.

In rural areas about 34.83 % households having latrine facilities within the premises. The scenario in the urban location however shows better situation. About 83.82% households have latrine facilities within their premises.

In Jamnagar district 86.44% of the total households in rural areas have electrical connection within their house. The urban location shows that 96.62% of the households have direct connection of electricity.

## Literacy & Education

The overall literacy in Jamnagar stood at 73.65 percent, while the male literacy and female literacy stood at 81.50 and 65.33 respectively in 2011. Moreover, the overall gap between male and female literacy has been 16.18 in 2011 in Jamnagar. While the gap between male and female literacy in rural area has been 18.77 in 2011, whereas the gap between male and female literacy in urban area has been 12.90 in 2011. In, Jamnagar the total number of schools has increased during last decade. In primary education, most of the schools (82.45%) are administered by local bodies.

Student enrolments in Jamnagar depicts fluctuating trend at primary level and at upper primary level during last few years. The Net Enrolment Ratio (NER) at primary level for Boys & Girls in Jamnagar has increased. The NER for Boys increased from 88.62 (2003-04) to 98.31 (2013-14), while NER for Girls has improved from 85.49 (2003-04) to 97.09 (2013-14).

The dropout Rate in Class 1-5 decreased from 6.56 in 2009-10 to 2.12 in 2013-14. There has been an impressive upturn in the retention rate from 70.60% (2002-03) to 84.60% (2011-12).

The Student Teacher Ratio in the district is 26:1 (2013-14) which is within the standard set as per the national goals i.e. 33:1.The schools in Jamnagar district show improvement in terms of bettering the ratio of Female teachers at the primary level. In 2004-05, Female to Male teacher ratio was 0.92:1 which increased to 1.04:1 in 2011-12. This likely to improve the retention of girls at the lower level and also diminish drop outs.

During past one decade, huge amount of resources have been spent by the Government to better the Student Classroom Ratio by increasing the number of classrooms in each of the existing schools. As a result, this ratio decreased to 22:1 (2013-14) from 29:1 (2009-10) at primary level.

The number of Schools runs by private institutions and individuals has seen a two hold increase during the last one decade. There has also been a corresponding increase in the enrolment in these schools (+75 %).As a result of Sarva Shiksha Abhiyan (SSA), all (100%) the secondary schools are equipped with the physical amenities like electricity, drinking water, sanitation and playground.

To reduce the cost of expenditure on parents and to attract students to the schools, Government is providing incentives in the form of Text Book, Uniform, Stationery etc. to students.

## Health

As per Census 2011, Sex ratio of the Jamnagar district (939) has declined marginally as compared to Census 2001, but it is far better that the Sex ratio of the State (919). Child Sex ratio of Jamnagar (904) has shown a sign of improvement as compare to previous decade (898). The pace of decadal growth rate of population has also shown a slowed down which is a good sign for the district that ever increasing population is now showing some sign of deceleration. The natural rate of growth of population (NRGP) is lower than the State average which implies that the district is expected to experience relatively rapid demographic transition along with economic development as compare to the State average.

Jamnagar district is well equipped with Health Infrastructure but availability of Health Personal is not adequate. Most of the CHC in the district is absent of specialist doctors. Situation is almost same for Hospitals also. BOR of the District hospital & mental hospital are 56 per cent and 63 per cent respectively, which implies they are not overburdened.

During the year 2012-13, about 88 per cent of pregnant women of rural areas of the district have received 3 check-ups while for urban areas the figure is only around 80 per cent. In terms of Institutional Delivery, the district has achieved considerable success. During 2012-13, district reported institutional delivery at rural areas about 91 per cent and for urban areas it is around 95 per cent. Almost all talukas have reported institutional delivery around 90 percent during 2011-12. Child immunization performance for the district is also remarkable. During 2012-13, around 99 per cent of children have been immunized fully. With respect to new born care also, the district performance is better than the overall State performance. Similarly in terms of malnourished children the district performance is appreciable. Jamnagar is having only 12 per cent underweight children (0M-6Y) as against 19 per cent for State and only 1 per cent severely underweight children till March 2014.

## Livelihood

The livelihood is very much dependent on natural and economic endowments and institutional arrangements. Agriculture holds significant position in the economy of Jamnagar District. Almost 48.56% of working population is engaged in agriculture sector out of which 64.23% are cultivators and 35.77% are agricultural labourers. The total reported area of Jamnagar is about 10 Lakh hectares, of which 3.20% is forest, 10.96% is under non-agricultural use and 5.38% is grazing land.

% of Cropping Intensity in the district increased from 113.52 in 2005-06 to 124.05 in 2010-11. The agricultural land in the district is distributed across 211629 farmers and institutions (2010-11). The average land holding of the district in the year 2010-11 is around 3.79 ha and the range is between 0.61 to 24.05 ha.

Productivity is an important determinant of return to the farmers which has bearing on their livelihood. The district shows a dominance of cash crops (oil seed and lint) over the food crops (cereal and pulse). The reason is that, the preference for the high value crop (cotton, groundnut) got introduced through the extension services of public and private players.

Government canals and Wells are the main sources of irrigation within the district. The total net irrigated area of the district is about a fourth of the total land put to agriculture. The area under irrigation increases from 24.36% in 2005-06 to 42.88% in 2007-08.

Work Participation Rate (WPR) in the district has marginally increased from 38.56% in 2001 to 39.23% in 2011. In one decade, Male WPR has increased nearly about 4% whereas female WPR has decreased by 2%. Agricultural labourers have increased from 14.40% to 17.37% in last decade.

Fisheries and marine resources constitute another important source of livelihood in the coastal talukas. The sea coast is the main source of fisheries in Jamnagar. The fishing population is found in Jamnagar, Khambhalia, Okhamandal, Jodia and Kalyanpur talukas only. During 2006-07, 2181 mechanized and 407 non – mechanized boats were active for fishing. They landed approximately 67,146 Metric Tones of marine fish production in 2011-12.

Jamnagar district caters over 70% of the country's requirement for brass parts supply. Salt industry is well developed with around 17 salt work unit operational in the district. 34,000 people get employment in Micro, Small and Medium enterprises (MSME).

# KEY STATISTICS

| Sr. No | INDICATORS | Year | GUJARAT | JAMNAGAR | *Bhanvad* | *Dhrol* | *Jodiya* | *Jamnagar* | *Kalyanpur* | *Khambhadia* | *Kalavad* | *Jamjodhpur* | *Lalpur* | *Okhamandal* | Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Demographic** | | | | | | | | | | | | | | | |
| 1 | Population | 2011 | 6,04,39,692 | 21,60,119 | 125561 | 79315 | 85,958 | 8,51,948 | 1,96,033 | 2,68,062 | 1,39,729 | 1,32,498 | 1,18,187 | 162828 | Census |
| 2 | Urban Population | 2011 | 2,57,45,083 | 9,71,065 | 22142 | 25883 | 85,958 | 6,49,181 | 19,777 | 88,443 | 28,314 | 25,892 | 0 | 111433 | Census |
| 3 | Rural Poplation | 2011 | 3,46,94,609 | 11,89,054 | 103419 | 53432 | 0 | 2,02,767 | 1,76,256 | 1,79,619 | 1,11,415 | 1,06,606 | 1,18,187 | 51395 | Census |
| 4 | Male Population | 2011 | 3,14,91,260 | 11,14,192 | 63980 | 40581 | 43,582 | 4,43,742 | 99,575 | 1,38,937 | 70,977 | 68,228 | 60,516 | 84074 | Census |
| 5 | Female Population | 2011 | 2,89,48,432 | 10,45,927 | 61581 | 38734 | 42,376 | 4,08,206 | 96,458 | 1,29,125 | 68,752 | 64,270 | 57,671 | 78754 | Census |
| 6 | Child Population (0-6 years) | 2011 | 77,77,262 | 2,63,972 | 16378 | 9215 | 9,784 | 96,173 | 27,231 | 36,943 | 14,946 | 15,172 | 15,462 | 22668 | Census |
| 7 | Sex Ratio | 2011 | 919 | 939 | 963 | 954 | 972 | 920 | 969 | 929 | 969 | 942 | 953 | 937 | Census |
| 8 | Child Sex Ratio (0-6 years) | 2011 | 890 | 904 | 929 | 879 | 914 | 880 | 938 | 931 | 870 | 928 | 908 | 920 | Census |
| 9 | % of SC Population | 2011 | 6.74 | 8.05 | 6.95 | 9.17 | 7.79 | 7.72 | 5.23 | 5.13 | 11.33 | 11.38 | 10.43 | 11.17 | Census |
| 10 | % ST Population | 2011 | 14.75 | 1.12 | 6.11 | 0.65 | 0.32 | 0.68 | 0.28 | 0.29 | 1.26 | 4.39 | 0.32 | 0.41 | Census |
| **Livelihood** | | | | | | | | | | | | | | | |
| 11 | Work Participation Rate (%) | 2011 | 41.00 | 39.23 | 44.56 | 37.60 | 40.36 | 36.13 | 42.03 | 39.26 | 46.91 | 46.39 | 43.47 | 32.64 | Census |
| 12 | Cropping Intensity (%) | 2010-11 | 118.90 | 124.05 | 123.07 | 146.35 | 124.27 | 124.88 | 130.65 | 113.11 | 133.41 | 118.08 | 117.23 | 104.51 | Directorate of Agri |
| 13 | Net Sown Area (%) to total area (%) | 2005-06 | 52.21 | 44.05 | 3.17 | 2.83 | 3.77 | 5.82 | 5.75 | 5.32 | 5.86 | 4.41 | 4.56 | 2.56 | Dist. Statistical Outline |
| 14 | Usage of ground water for irrigation purpose (Ha.M) | 2009 | | 57,402.00 | 5,651.00 | 4,189.60 | 2,979.80 | 7,611.60 | 4,092.00 | 6,799.50 | 8,987.40 | 9,559.90 | 6,283.30 | 1,247.90 | WASMO |
| 15 | % of total irrigated land | 2011 | 42.48 | 11.76 | 69.02 | 10.30 | 6.75 | 4.45 | 4.68 | 14.48 | 29.74 | 16.70 | 6.87 | 44.01 | Directorate of Agri |
| **Literacy** | | | | | | | | | | | | | | | |
| 16 | Literacy Rate | 2011 | 78.03 | 73.65 | 69.85 | 75.44 | 71.58 | 79.52 | 66.65 | 67.94 | 73.98 | 73.19 | 68.17 | 67.16 | Census |
| 17 | Literacy Rate (Male) | 2011 | 85.75 | 81.50 | 78.68 | 82.58 | 80.50 | 85.53 | 77.04 | 77.94 | 81.44 | 80.54 | 77.23 | 76.98 | Census |
| 18 | Litercy Rate (Female) | 2011 | 69.68 | 65.33 | 60.73 | 68.04 | 62.48 | 73.02 | 55.99 | 57.18 | 66.38 | 65.40 | 58.73 | 56.72 | Census |
| 19 | Litercy Rate (Rural) | 2011 | 71.71 | 69.03 | 67.40 | 73.10 | 71.58 | 71.99 | 67.09 | 67.31 | 72.35 | 70.51 | 68.17 | 66.24 | Census |
| 20 | Litercy Rate (Urban) | 2011 | 86.31 | 79.23 | 81.13 | 80.30 | NA | 81.82 | 62.59 | 69.22 | 80.52 | 83.96 | NA | 81.62 | Census |
| **Physical Amenities at Primary Schools** | | | | | | | | | | | | | | | |
| 21 | Electricity available (%) | 2013-14 | 93.63 | 94.46 | 90.97 | 98.98 | 96.59 | 99.75 | 86.13 | 97.79 | 95.92 | 91.55 | 88.31 | 96.75 | SSA-Gandhinagar, District Primary Education Office |
| 22 | Drinking Water (%) | 2013-14 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | |
| 23 | % of girl's toilet | 2013-14 | 98.27 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | |
| **Health Infrastructure facility** | | | | | | | | | | | | | | | |
| 24 | Sub Centres | 2012-13 | 7,274 | 265 | 24 | 16 | 22 | 32 | 32 | 31 | 31 | 28 | 24 | 25 | Health Statistics & CDHO |
| 25 | Primary Health Centres | | 1,158 | 40 | 3 | 2 | 3 | 7 | 5 | 4 | 4 | 6 | 3 | 3 | |
| 26 | Community Health Centres | | 318 | 11 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | |
| **Avg. population served** | | | | | | | | | | | | | | | |
| 27 | Sub Centres | 2012-13 | 8,309 | 8,151 | 5,232 | 4,957 | 3,907 | 26,623 | 6,126 | 8,647 | 4,507 | 4,732 | 4,924 | 6,513 | Computed from Health Statistics, CDHO & Census |
| 28 | Primary Health Centres | | 52,193 | 54,003 | 41,854 | 39,658 | 28,653 | 1,21,707 | 39,207 | 67,016 | 34,932 | 22,083 | 39,396 | 54,276 | |
| 29 | Community Health Centres | | 1,90,062 | 1,96,374 | 1,25,561 | 79,315 | 85,958 | 8,51,948 | 98,017 | 2,68,062 | 1,39,729 | 1,32,498 | 1,18,187 | 1,62,828 | |
| 30 | % of Institutional Delivery | 2011-12 | 93.70 | 91.20 | 95.40 | 89.60 | 86.40 | 90.00 | 89.20 | 92.70 | 93.40 | 95.80 | 95.00 | 85.40 | Comm. Heath |
| 31 | % of Underweight Children (0M-6Y) | Mar-14 | 19 | 12 | 7 | 7 | 8 | 18 | 6 | 11 | 12 | 9 | 12 | 10 | MPR March 2014 |

better performance than District
poor performance than District
Same as District

# CHAPTER - 1

# INTRODUTION

## 1.1 PROFILE OF DISTRICT



## 1.2 SOIL & ITS PRODUCTIVITY



## 1.3 CIVIC AMENITIES

## 1.4 TOURISM

# Human Development Perspective

Human Development is a development paradigm that is about much more than the rise or fall of national incomes. It is about creating an environment in which people can develop their full potential and lead productive, creative lives in accord with their needs and interests. People are the real wealth of nations. Development is thus about expanding the choices people have to lead lives that they value.

The most basic capabilities for human development are to lead long and healthy lives, to be knowledgeable, to have access to the resources needed for a decent standard of living and to be able to participate in the life of the community.

***"The basic purpose of development is to enlarge people's choices. In principle, these choices can be infinite and can change over time. People often value achievements that do not show up at all, or not immediately, in income or growth figures: greater access to knowledge, better nutrition and health services, more secure livelihoods, security against crime and physical violence, satisfying leisure hours, political and cultural freedoms and sense of participation in community activities. The objective of development is to create an enabling environment for people to enjoy long, healthy and creative lives."***

## Origin of the Human Development Approach

The Human Development approach arose in part as a result of growing criticism to the leading development approach, which presumed a close link between national economic growth and the expansion of individual human choices.

As of 1990, the human development concept was applied to a systematic study of global themes, as published in the yearly global Human Development Reports under the auspice of the UNDP. The work of Amartya Sen and others provided the conceptual foundation for an alternative and broader human development approach defined as a process of enlarging people's choices and enhancing human capabilities (the range of things people can be and do) and freedoms, enabling them to: live a long and healthy life, have access to knowledge and a decent standard of living, and participate in the life of their community and decisions affecting their lives.

***The term Human Development, has emerged over the years as a goal as well as an alternative paradigm in development literature***

## Human Development: Analysis to action

The Human Development story of India is unique in its kind. India initiated Human Development issues during 8$^{th}$ Five Year Plan (1992-97).Human Development means increased capabilities of people that enable them to access larger opportunities in life. In the context of India, Human Development implied promoting basic capabilities among those who back them.

In order to integrate Human Development into state planning in India the preparation of reports at state level has been started. Now-a-days the Gujarat State is on the fast track of development. Planning Commission-Government of India and UNDP have partnered Strengthening State Plan for Human Development (SSPHD) programme, under which the Government of Gujarat has initiated the process of integrating human development in planning and policy documents.

Human Development is increasingly becoming an area of concern and increasing priority is given to a development a strategy which conceptually goes beyond per capita income as a measure of development. The preparations of DHDR mark the beginning of the process whereby people is mobilized and actively participate in the development process. The DHDR is expected to be an important document for formulating the District Human Development Plan.

In the year 2008-09 the state government has initiated the work of preparing District Human Development Report. For the first phase the state government has selected five districts for preparation of DHDR namely; Surendranagar, Sabarkantha, Surat, The Dangs and Jamnagar.

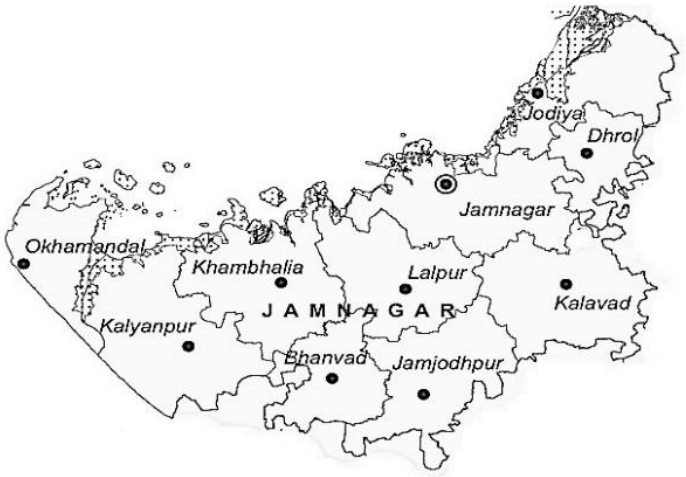
***Jamnagar is selected as it represents Coastal Belt and owing very Urban Characteristics.***

# 1.1 PROFILE OF THE DISTRICT

## 1.1.1 Formation of the District:

The present day District of Jamnagar is result of successive reorganizations of territorial boundaries of the District. The District was organized for the first time in 1948 and it was termed as Halar then by the Government of Saurashtra. The district as originally organized included Class I State of Nawanagar, Class II State of dhrol, taluka of Dhrafa and part of Jalia-Dewani Thana. Since, 1st November 1956, the District along with other districts of Saurashtra formed part of the composite State of Bombay. After this reorganization, several territorial changes were effected in practically all the district of Saurashtra. Accordingly on 19th June, 1959 the boundaries of the District got substantially enlarged by the inclusion therein of the adjoining tract of Okhamandal, which formed part of the Amreli district of Bombay State, and the Halar district was renamed as Jamnagar district. This district became part of the newly born State of Gujarat on the bifurcation of the composite State of Bombay, on 1st May, 1960.

## 1.1.2 Location:




Jamnagar district is situated on the North-West corner of the peninsular region of Gujarat State which is known as Kathiawar or Saurashtra. Formerly the District was called 'Halar'. It is lies between the parallels of latitude 21º.41` and 22º.58` North and the meridians of longitude 68º.56`and 70º.39` East. The length from North to south of this District is about 140.6 km. and that of from East to West about 178.4 km. It is bounded in the North by the Gulf of Kutch, in the East by Rajkot district and it the South by Porbandar district and in the West by the Arabian Sea.

## 1.1.3 Demography:

In Jamnagar district according 2011 census the total population is 2160119 having 1114192 males and 1045927 females. The district population is 3.57 percent of total population of Gujarat State and district ranks 11$^{th}$ in population among 26 districts of the state.

| Population | Child Population | Urban | Rural |
|---|---|---|---|
| 2160119 (3.57 %) | 263972 (3.39 %) | 971065 (44.95 %) | 1189054 (55.05 %) |

*Source: Census 2011*

The population growth during the last census period is 13.44 %. This is significantly lower than the state's population growth (19.16 %). The lesser number of children population in the district established this. The population of children in the age group 0-6 years is 3.39 % of the child

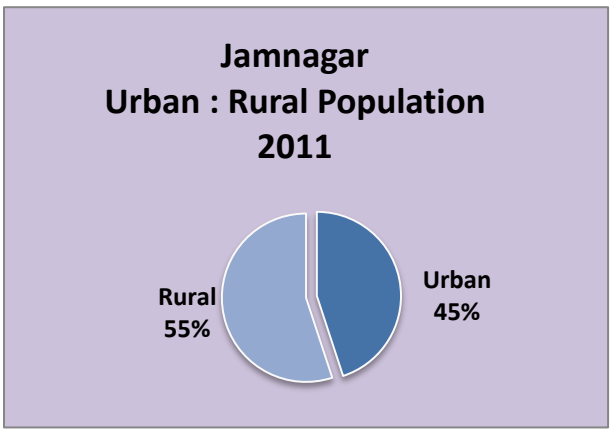
population of the state. The rural-urban distribution of population shows that the district has a slightly higher percentage (44.95 %) of households staying in urban locations when compared with state average (42.6 %). The urban population growth during the last decade had been 1.1% which is lower than Gujarat Urbanization (5.2 %).

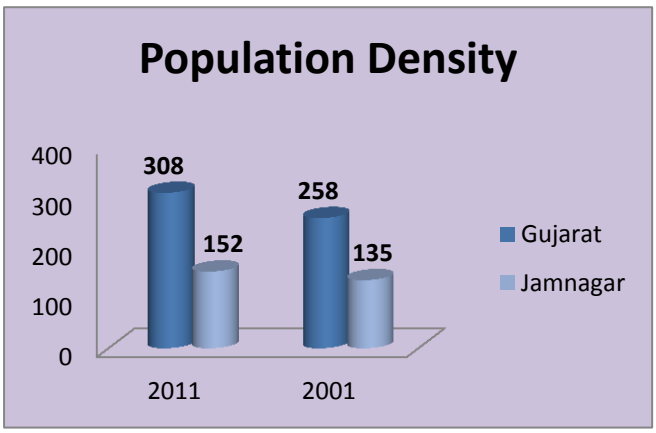
| S C Population | S T Population | Population Density | Sex Ratio |
|---|---|---|---|
| **8.05 %** | 1.12% | 152 | 939 |

***Source:2011 census***

The districts Scheduled caste population is higher than the state average (6.74 %), whereas the S.T Population is meagre (1.12%) than the state average of 14.75 %. The population density (152) is almost half that of the state average (308) signifying the area to be far flung.

The sex ratio of the district is higher than the state average of 919. The child sex ratio is also higher (904) than the state average of 890.




| Talukas /District | % Decadal Growth 2001-2011 | | | Sex Ratio | | Urbanization | |
|---|---|---|---|---|---|---|---|
| | Population | Male | Female | 2001 | 2011 | 2001 | 2011 |
| **Okhamandal** | 12.86 | 11.42 | 14.45 | 912 | 936 | 67.82 | 68.44 |
| **Khambhalia** | 28.42 | 30.05 | 26.71 | 954 | 928 | 30.35 | 33.03 |
| **Jamnagar** | 11.90 | 11.58 | 12.24 | 914 | 917 | 76.73 | 76.19 |
| **Jodiya** | -4.04 | -5.58 | -2.40 | 941 | 973 | 0.00 | 0.00 |
| **Dhrol** | 5.83 | 8.00 | 3.66 | 994 | 960 | 31.53 | 32.67 |
| **Kalavad** | 2.61 | 4.91 | 0.34 | 1013 | 971 | 18.25 | 20.27 |
| **Lalpur** | 16.28 | 16.21 | 16.36 | 952 | 954 | 0.00 | 0.00 |
| **Kalyanpur** | 22.11 | 21.40 | 22.85 | 957 | 970 | 0.00 | 10.09 |
| **Bhanvad** | 14.62 | 14.47 | 14.77 | 960 | 960 | 18.00 | 17.68 |
| **Jamjodhpur** | 12.78 | 13.79 | 11.74 | 959 | 942 | 19.29 | 19.52 |
| **Jamnagar District** | **13.44** | **13.54** | **13.32** | **941** | **938** | **43.91** | **44.96** |

*Source: Census of India, 2011*

### 1.1.4 Units of Administration :

The geographical area of the District is 14,184 sq.km. and it ranks 2nd in the State in this respect. The District is divided in 10 talukas. The district has 16 towns and 756 villages of which 698 are inhabited and 58 are uninhabited villages. There are 664 Gram Panchayats of which 646 are independent and 18 group gram panchayats.

**Table 1.1: Units of Administration**

| Sr. No. | Heads | Nos. |
|---|---|---|
| A | Area (Sq. Kms.) | 14184 |
| B | Talukas | 10 |
| C | Prants | 06 |
| | *1. Jamnagar City* | 01 |
| | *2. Jamnagar Rural (Jamnagar, Kalavad)* | 02 |
| | *3. Dhrol (Dhrol, Jodiya)* | 02 |
| | *4. Lalpur (Lalpur, Jamjodhpur)* | 02 |
| | *5. Khmabhaliya (Khmabhaliya, Bhanvad)* | 02 |
| | *6. Dwarka (Dwarka, Kalyanpur)* | 02 |
| D | Towns | 16 |
| | *1. Municipal Corporation* | *01* |
| E | Taluka Panchayats | 10 |
| F | Villages | 756 |
| | *1. Inhabited* | 698 |
| | *2. Un-inhabited* | 058 |
| G | Gram Panchayat | 665 |

*Source: District Statistical Outline, Jamnagar*

*Table.1.2 ATVT, SSVY and 41 Developing Talukas of Jamnagar District*

| Sr. No | Talukas of District | Apno Taluko Vibrant Taluko | SSVY * | 41 Developing Taluka |
|---|---|---|---|---|
| 1. | Bhanvad | Bhanvad | | |
| 2. | Dhrol | Dhrol | | |
| 3. | Jodiya | Jodiya | Jodiya | |
| 4. | Jamnagar | Jamnagar | Jamnagar | |
| 5. | Kalyanpur | Kalyanpur | Kalyanpur | Kalyanpur |
| 6. | Khambhalia | Khambhalia | Khambhalia | |
| 7. | Kalavad | Kalavad | | |
| 8. | Jamjodhpur | Jamjodhpur | | |
| 9. | Lalpur | Lalpur | Lalpur | |
| 10 | Okhamandal | Okhamandal | Okhamandal | |
| Total | 10 | 10 | 6 | 1 |

* *Sagarkhedu Sarvangi Vikas Yojana*

For the upliftment of Human Development status of common people at district level; the state government has launched various programmes and schemes.

Under Apno Taluko Vibrant Taluko (ATVT) scheme Rs. 1 crore is given to each taluka for the developmental work further to this Jamnagar district is having one developing taluka i.e. Kalaynpur. Under Developing Taluka scheme Rs. 2 crore is given to Kalyanpur Taluka.

For the development of the coastal people Sagarkhedu Sarvangi Vikas Yojana a flagship programme was launched. Under which six talukas of Jamnagar are covered.

## 1.1.5 Physical Features:

Possibilities for widening of opportunities for better livelihood choices, educational attainment and healthy lives are closely connected with the natural endowments of a region. The following paragraphs describe the geo-climatic conditions and physical features of the district. Each characteristic has direct or indirect bearing on the human development status of the District.

### *(i) Geological Formation*

The district consists of varied geological formation i.e. Deccan trap, lateritic rock, Gaj Beds, Miliolite series. The most basic and extensively found geological formation is that of 'Deccan trap' rock formation. The rocks are basaltic in composition and spread over wide areas in the form of horizontal sheets and give rise to relief typical of the Deccan trap topography.

The lateritic rocks of the district cover a narrow zone extending practically due north and south from MotaAsota near the Gulf of Kutch to Lamba bordering the Arabian Sea. The rocks are richly colored, mottled and resemble the "high level lateritic. Although the literates attain a thickness of 200 to 300 feet at place, the average thickness does not exceed 50 feet.

The "Gaj- Beds" of the tertiary period rest conformably upon the traps and overlie the leterities. The largest area covered by Gaj Beds in the district is in Kalayanpur taluka. The formation is represented by limonitic lime-stones, sand-stones, grits, conglomerates and clays which have typical yellow colour. Gypsum is often found associated with the clays. Many individual sections are about 40 to 50 feet thick, the aggregate thickness of the Gaj beds may be several hundred feet. An abundance of marine fossils characterize the Gaj beds.

The Dwarka beds are largely developed near Dwarka, in the low lying areas of the Okhamandal taluka and the Beyt Island. They consist of variegated lime-stone, earthy, marshy or clayey beds, which are partly gypseous with iron-stones. Miliolite **Lime-stone** is rock of the Miliolite series which are Post-tertiary outcrop at a number of places in the district. They are of marine, estuarine, fresh-water and sub-aerial origin and comprise a variety of rocks. The constituent members of miliolite series are pure lime-stones, earthy concretionary lime-stones, calcareous sandstones, consolidated shell sands, grits and conglomerates.

***The geological formation has endowed the district with rich deposits of bauxite and lime stone. This in turn has promoted growth of industries based on these resources..***

### *(ii) Topography*

On the basis of topography, climate, geology, soils and natural vegetation, the District is sub-divided into three sub-regions, namely, Jamnagar North-West Coastal Plain, Jamnagar South Plain and Jamnagar District Barda Hills Forest Region.

### (a) Jamnagar North-West Coastal Plain

The region extends over the coastal tract of district Jamnagar Occupying Jodiya and Okhamandal and large parts of Dhrol, Jamnagar, Khambhaliya, Kalyanpur, Lalpur and Kalavad Talukas. It makes its boundaries with the Gulf and Arabian Sea in the West.

The region is generally flat but fringed with a line of wind-blown sand hills. Marshes and Mangroves are common features of the coastal plain. The coastal tract is covered under water during high tides because of very low-lying area. The slope is South-West ward. North-Eastern part of the slope is South-West ward. North-Eastern part of region is undulating plain. Main rivers are Demi, Aji, Maover, Nagmati, Sasoi, and Phuljar which take northerly course and merge in the Gulf of Kutch.
The geology of this region consists mainly of Deccan Trap and Trap dykes formations.

### (b) Jamnagar South Plain

The region spreads out some part of Paddhari taluka of Rajkot district over parts of Kalyanpur, Jamjodhpur, Dhrol, Jamnagar, Khambhaliya, Bhanvad, Lalpur, Kalavad, talukas.It makes its limit with Jamnagar North-West Coastal Plains in the West-North, Rajkot district in the East and Barda Hills Forest Region in the South.

The relief feature reflects that the Eastern part of the region is covered by hillocks, attaining the maximum altitude of 150 meters above M.S.L. and the minimum height is recorded at 45 meters in the western portion. The general slope of the region is towards south-west. The region is drained by Manvar, Nagmati, Sasoi, Vatru and Sani rivers. The geology of the region is mainly composed of Deccan Trap and Trap Dykes formations. Small tracts of Alluvium, blown sand etc., Nari and Gaj Series and sun-nummulitic beds are also seen in this region.

### (c) Jamanagar District Barda Hills Forest Region

The region extends over the Southern part of the District, occupying parts of Bhanvad and Jamjodhpur talukas. It is enclosed by Jamnagar South Plain from North, by Rajkot district from East and by Porbandar district from South and West. The region is characterized by hillocks and covered with forests. The Barda Hills attain the maximum elevation of 627 meters above M.S.L. Dai river flows from north to south direction. Other hills are below 300 meters. The geological structure of the region pertains to Deccan Trap.

### *(iii) Climate*

The climate of the District is generally pleasant. The year may be divided into four seasons- cold seasons from December to February: hot season from March to May: the south-west monsoon season from June to September and the post monsoon season October to November. The lowest and the highest temperature are experienced during January and June respectively. January is usually the coldest period of the year with the mean daily maximum temperature at 26.00 C (78.80 F) and the mean minimum at 11.60 C (52.80 F). Temperature rises steadily from about the beginning of March till May which is usually the hottest month with the mean daily maximum temperature at 36.30 C (97.40 F) and the mean daily minimum at 25.10 C (77.10 F). In the western coastal region these temperature are generally lower. The air is humid throughout the year. Relative humidity is on the average about 80 percent during the south-west monsoon and about 60 to 75 percent in the rest of the year. The climatic conditions for the human living are not extreme ones, hence, in the normal circumstances human health is not adversely affected by the seasonal variations in the temperature.

### *(iv) Rainfall*

The average annual rainfall in the district is 165.4mm. About 95 % of this mm of rainfall is received from the south west monsoon. The distribution of this as have been computed from the data of the last decade (see table 1.3 below) shows that two months (July and August) have recoded almost 2/3$^{rd}$ of the total rainfall in the entire district. This is an important aspect that planners must take into consideration while agricultural and other supportive infrastructural plans are drawn for the district.

**Table 1.3: Distribution of rainfall during the last decade**

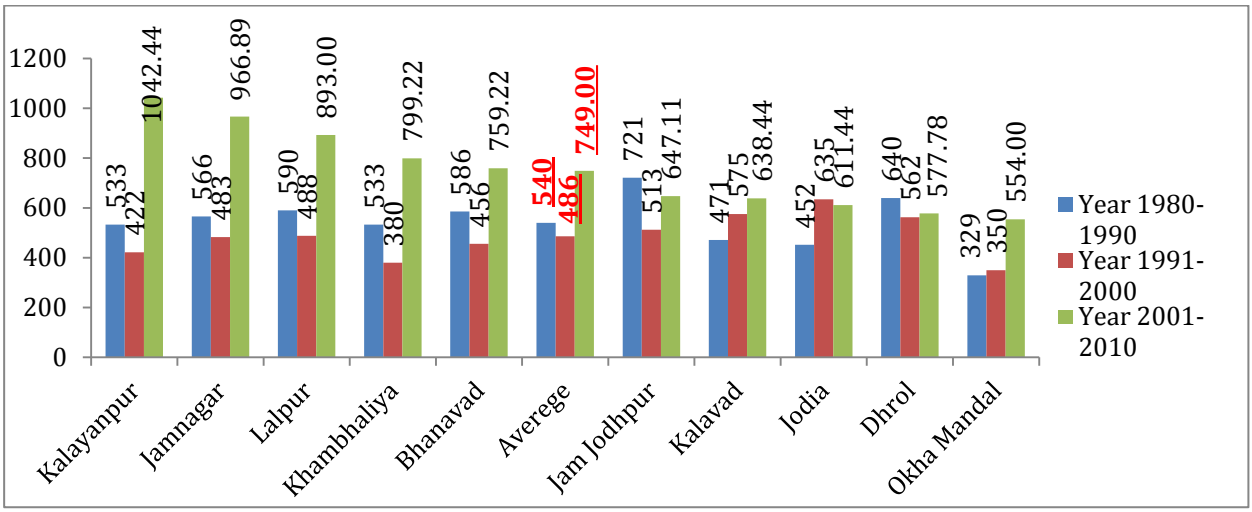
| Distribution of Rain fall -2002-2011 | | | | |
|---|---|---|---|---|
| **June** | **July** | **August** | **September** | **October** |
| **14.20** | **36.16** | **32.96** | **15.91** | **0.76** |

*Source: Compilation of data obtained from GoG, Emergency Operation Center (Disaster Management)*

The rainfall pattern as observed during the previous two decades from the weather stations located in the districts shows that it generally decreased as it moves from the south –east to the north-west region. However, this trend seems to have become irregular and erratic in nature.

The data obtained from the taluka when looked at individually showed that during the last 30 years, Kalyanpur taluka has shown a drastic increase in the rainfall. The average rainfall in Kalyanpur Taluka has jumped from 533mm during 1980-90 to almost about 1042.44 mm in (2001-2011). This is true for almost all the other talukas in Jamnagar (see graph below) though with certain variations. This could be attributed to the overall climate change argument sweeping across all areas.

**Graph 1.1 Average rainfall recorded across all the Taluka (1980-2010)**




*Source: Compilation of data from Emergency Operation Center (Disaster Management)GOG.*

This increase in rainfall has come as a boon for the farmers.

### *(V) River Network*

This district is devoid of any large perennial streams. Most of the rivers are small and flow towards the Gulf of Kutch in the North and North-West. None of them have any large tributaries and most of them are dry channels till the advent of the monsoon. The district is drained from South to North and from the South-East to the North-West to the Gulf of Kutch or Arabian Sea. The principal rivers are the **Aji, Und, Vartu, Venu, Ghee, Rangmati, Nagmati, Fuljar, Phulhar, Sasoi, Sihan, Ruparel, and Demi**. All these are rain fed and dry up soon after monsoon is over.

### *(vi) Sea Coast and Ports*

Jamnagar district has about 342 kms of coast. District has 9 ports. The long coast of Jamnagar has three intermediate ports, namely **Bedi, Sikka and Okha** and six minor ports namely, Jodiya, Salaya, Pidara, Lamba, Dwarka, and Beyt.

***Jamnagar coastline ranks second with 21.37 % in the 1600 km. of total coastline of the State.***

**Bedi Port**

Bedi is an all-weather tidal lighter age port located on the southern coast of the Gulf of Kutch . Being an all-weather port, Bedi serves central Saurashtra, north-east Gujarat, south-west Rajasthan and Madhya Pradesh. The main cargo handled at Bedi port is fertilizers, bauxite, dates, vegetable oils, oil cakes, salt, groundnut seeds, guar gum, oil, and various extraction. Bedi port is connected by broad gauge railway lines with the rest of India. The nearest railway station is Jamnagar, 7 kms away from Bedi port. A railway siding is available at 2 kms from the port. It is connected to National Highway from Rajkot.

**Sikka Port: Sub-port of Bedi Group of Ports**

Sikka port is an all-weather direct berthing port on the northern side of Saurashtra peninsula in the Gulf of Kutch. Sikka port is connected to Jamnagar by Rail & Road .The main cargo handled by Sikka port includes phosperic acid, liquid ammonia, coal, machinery, crude oil, propylene, POL, clinker, cement, and salt.

**Okha Port**

Okha is an all weather port with direct berthing facilities located on the northwest coast of Saurashtra Peninsula at the mouth of Gulf of Kutch. It is connected to Jamnagar / Porbandar by road. Nearest airport is Jamnagar which is 180 km away. The port is connected to rest of India by broad gauge railway system

## 1.2 Soil and its Productivity

Natural resources are important means of subsistence for the communities in the rural area. The detail about economics resources of important sectors are given here in brief.

### 1.2.1 Soil and Cropping pattern:

As the geographical formation of Saurashtra is of volcanic origin, the soils are generally derived from the trap rock. The soil found in Jamnagar district can be broadly classified as alluvial, black, light brown and alkaline. The black or medium black soil and the light brown soil any be termed as the main soils, while the other two, namely, the alluvial and the alkaline as subsoil of the district is confined to some smaller patches. While the medium black soil is rich in minerals and organic matter and, therefore are more fertile. The light brown soil is less fertile and needs plenty of water and manure for getting good harvest.

The black or medium black soil is found in Dhrol, Kalavad, Jamjodhpur and Bhanvadtalukas and eastern portion of Jamnagar taluka. It is generally seen that the soil is 9 to 36 inches in depth and covers approximately 289 thousand hectares. Light brown soil also called dharod is found in all talukas but mainly in the western part of the district, viz., Khambhalia, Kalayanpur and

Lalpurtalukas and western portion of Jamnagar taluka. It is about 12 inches deep and covers about 528 thousand hectares of land in the district. Thus the light brown soil covers around 35 % of the total available land in the district.

The main crops grown on these soils are Millet (Jowar) and Bajri. The alluvial soil also called ghad, bhatha or kantha is found along the drainage channels near Jamnagar taluka and in Kalyanpur and Jodiyatalukas. Though occupying a small area, it is the richest soil found in the district, and is something that is regularly strengthened by fresh deposition or sedimentation when the banks of river areoverflow during high floods.

The alkaline soil locally known as Khar is found in the coastal area and covers nearly 75 thousand hectares of the total land in the district. Well or canal water is generally unsuitable for this tract.

The main crops of the district are Millet (Jowar), bajri, wheat, groundnut and cotton. Groundnut and cotton are important commercial crops, whereas wheat constitutes the irrigated crops.

### *(a) Fruit Crops*

Meagre rainfall in the district is not conducive to abundant growth of orchards and plantations in the district. Yet in certain areas and tracts where conditions permit, fruit cultivation has been undertaken. The total area covered under fruits approximates 2277 hectare. The fruits commonly grown and preferred includes are Mango, Coconut, Chikoo, Papaiya and Ber (zizypus).

The area under some of the horticulture crops has shown some increase during the decade. Though this has been fairly good in case of Citrus fruits (lemon) and Coconut (see table below),

**Table1.4: Area under different horticultural crops**

| Crops | 2008-09 (Ha) | 2010-11 (Ha) | 2012-13 (Ha) | Change % |
|---|---|---|---|---|
| **Mango** | 429 | 451 | 461 | 7.46 |
| **Chiku** | 241 | 245 | 249 | 3.32 |
| **Citrus** | 178 | 209 | 236 | **32.58** |
| **Ber** | 316 | 327 | 327 | 3.48 |
| **Papaya** | 554 | 434 | 412 | -25.63 |
| **Coconut** | 405 | 461 | 465 | **14.81** |
| **Other minor** | 278 | 327 | 127 | -54.32 |

*Source: Directorate of Horticulture*

## 1.2.2 Forests:

The forest area in the district is scattered and is very limited in its extent. It is found in the Southern part of Lalpur taluka and near the seacoast in Jamnagar taluka. According to the Forest Department, there was 1659.36 sq.km. Forest area in the district during the year 2005-06 Out of which 464.13 sq.km.were under the reserved category, 6.71 sq.km.were under protected forest category and 1188.52 sq.km. were under unclassified forest. The forest areas of the District are classified into three different categories, namely, (i) Mangrove forests (ii) Open Scrub forest and (iii) Grassland. The main forest products are Cher wood, Karod leaves etc. whereas gum, grass,

madhuka-indica, hognut, soupnut, diaspar, milenoxilon etc. are some of the minor forest produces.

***(a)Mangrove Forests-*** This type of forests is distributed all along the coast of Jamnagar district. They are situated in the creeks and lagoons and on low islands, where the force of wind and sea is not so strong. They occupy a belt of low lying muddy ground which is subjected to inundation by tidal waters every day. Amongst the species found herein, the *Cher* trees are predominant.

***Out of 207 subtypes of forests, recorded by Champion and Seth, 31 subtypes, (14.7%) have been identified in the state Gujarat.***

***(b) Open Scrub Forests: -*** The forest area under this type falls under the category of "Dry Deciduous Thorny Scrub Forests". They are situated in Alech, Dalasa, Barda and Okhamandal regions of the district. In certain parts where the human factor has less interfered, the tree survives better. Otherwise the remaining parts falling under this type are more or less barren. The trees are scattered, and stunted in growth. The unsatisfactory growth of forests of this type is due to maltreatment, indiscriminate grazing and unscientific management practices.

***(c) Grasslands: -***The forest Department in the district maintains grasslands, which are termed as vidis. These vidis are further classified into reserved and non reserved vidis. Over grazing; scanty and irregular rains have drastically reduced the productivity of the grass land. Barring a few months of monsoon, during the most part of the year the grassland gives a look of barrenness. *MaldhariNeses* (Shepherd Settlements) are in these grasslands of Barda range in the Bhanvad, Khambhalia, Lalpur and Jamjodhpur Talukas.

### *1.2.3 Mineral Resources*

The major minerals found in the district are bauxite, calcite, limestone, and chalk. Other minerals available in the district include sand, black trap, gypsum and bentonite.

***Jamnagar is the largest producer of bauxite in the State contributing 96% to the total production and has the second highest reserves in the State with 30% share***

The gypsum deposits of the district are supposed to be the best in Saurashtra. The mineral occurs in the form of selenite veins or segregations in the plastic clay and marl of the Gaj formation in the Kalyanpur taluka of the district. The quality gypsum of the deposits is being worked for use in the cement and "Plaster of Paris" industry. It can also be used in the fertilizer industry. Richness of the mineral resources have sustained the development of industries like Tata Chemical and salt Works at Mithapur and a range of medium and small scale industries based on these resources.

### *Industry*

Jamnagar district enjoys **monopoly in manufacturing of Brass parts** and its products in the State. The industry is one of the **major revenue and employment generating industries** in the district. **Proposed SEZs of Industrial giants** such as, **Reliance** and **Essar** and presence of large number of industrial estates are accelerating the industrial growth of the district in terms of investment and employment. The district has the potential to evolve as a huge oil, gas, and petrochemical cluster.

| Name | Location | Sector & Area (Hectare) |
|---|---|---|
| **Reliance SEZ** | **Jamnagar** | Multi product 4,494 |
| **ESSAR Jamnagar SEZ** | **Jamnagar** | Multi product 1,125 |

*Source: Industries Commissionerate, Government of Gujarat, 2007*

## 1.2.4 Water Resource

Water is an important resource for human development. Its importance can be gauged not just for drinking purposes, but also for livelihood sustenance. An important use is currently to sustain industrial growth as well. With respect to this and in the absence of major perennial river systems in the district, the source that is often most dependent is the groundwater.

### *(a) Groundwater*

Ground water resources of any place depend on total rainfall, runoff, percolation and other geological consideration like the rock formations and their structures. The net reserves across the ten Talukas have shown growth (except three) during 2004 to 2009. Between 2009 to 2011 Jodiya, Jamnagar, Okhamandal Shows improving trend. Remaining talukas however shows fall in the reserves. This fall are attributed to excessive withdrawal for agricultural operations.

**Table 1.5: Net Annual Ground water availability (million cubic meter .mcm)**

| Sr.No | Taluka | Net Annual Ground water availability | | |
|---|---|---|---|---|
| | | 2004 | 2009 | 2011 |
| 1 | Bhanvad | 90.07 | 116 | 91.99 |
| 2 | Dhrol | 52.48 | 69 | 58.71 |
| 3 | Jodiya | 34.2 | 38 | 44.36 |
| 4 | Jamnagar | 115.07 | 112 | 118.06 |
| 5 | Kalyanpur | 71.96 | 71 | 71.99 |
| 6 | Khambhalia | 133.92 | 110 | 100.47 |
| 7 | Kalavad | 117.26 | 135 | 126.11 |
| 8 | Jamjodhpur | 101.79 | 144 | 125.37 |
| 9 | Lalpur | 118.4 | 127 | 94.5 |
| 10 | Okhamandal | 16.38 | 19 | 23.59 |
| | **Total** | 851.53 | 940 | 855.13 |

*Source:-GoG, WASMO-2004-2011*

Jamnagar, Kalyanpur and Khambhalia Taluka have shown a decline in net ground water reserves between 2004 to 2009. The rest of the seven talukas shows notable increase in ground water availability.

Though the fall is within control but is a cause for worry. Between 2009 to 2011 except Jodiya, Jamnagar, Okhamandal every taluka shows diminishing trend. The worries are that such falls often results into salinity ingress and hence attention must be paid towards through awareness among the people regarding rainwater harvesting; recharge and water use budgeting. With methods available on water budgeting and use efficiency probably these issue can be safely handled if mechanisms are made to come in place. An attempt has been undertaken to understand the cause for this.

### *(b) Use of Ground water in Jamnagar*

The ground water as has been mentioned finds its use for all purposes starting from agriculture, to domestic and even industrial use. The data from the talukas of the districts reveals that during 2004 and 2009, there has been an increased in ground water reserves in seven of the ten taluka (see table below). There has been also a corresponding increase in the usage of the groundwater across all the taluka. The majority of the use has been for irrigation purpose. Only in Jodiya taluka and Okhamandal taluka there is constant increase in net ground water reserves .In between 2004-2009 there is increase in net ground water reserves and in its use also. This increase in usage however did not have negative effect as during this period there also had been a corresponding increase in the ground water reserves. It is noticeable that between 2009-2011 half of the talukas shows diminishing trend in ground water reserves. Between 2004-2009 the ground water reserves have increased by about 10 % and usage in the irrigation has increased by 22% and that of usage in domestic and industrial is 6.14.One can attribute this increase to factors like good rainfall (excessive) in the district and also due to the investment made under various schemes like Hariyali in the district.

**Table1.6 % of growth in Net Increase in Ground water reserves during 2004 to 2011 (mcm)**

| Sr.No | Talukas | % of growth in net increase in ground water reserves(mcm) | |
|---|---|---|---|
| | | 2004-2009 | 2009-2011 |
| **1** | **Bhanvad** | 28.64 | -20.61 |
| **2** | **Dhrol** | 31.67 | -15.03 |
| **3** | **Jodiya** | 10.56 | 17.32 |
| **4** | **Jamnagar** | -2.63 | 5.37 |
| **5** | **Kalyanpur** | -1.80 | 1.87 |
| **6** | **Khambhalia** | -18.01 | -8.50 |
| **7** | **Kalavad** | 15.04 | -6.51 |
| **8** | **Jam Jodhpur** | 41.36 | -12.87 |
| **9** | **Lalpur** | 7.23 | -25.57 |
| **10** | **Okhamandal** | 13.22 | 27.20 |
| **Jamnagar** | | **10.34** | **-8.99** |

*Source:-Compilation of data obtained from WASMO,*

But over period of time percentage of growth in ground water reserves of Jamnagar district is decreasing .It has decreased from 10.34 to -8.99 . The table below shows that during 2004 to 2009, the increment in water usages ranged between 53 % to about (-) 5 % with a district average at + 23 %. The increase in ground water usage as has been pointed out (2004-2009) in the earlier section has been significant in case of agriculture. Water consumed in agriculture has been the maximum.With farmers shifting to a cropping pattern that is likely to consume more of the ground water, this could be a possible reason to worry. It is important that while planning happens at the district for recharging the ground water reserves probably in taluka like Jamnagar, Khambhalia and Kalyanpur, efforts to minimize usages must also be focused in talukas like Kalyanpur (+ 53 %) as well in other Talukas. In between 2009 -2011, except Kalyanpur and Okhamandal all the talukas show decrease in usage of ground water for irrigation purpose.

**Table1.7 Taluka wise usages of Ground water for Irrigation purpose in Jamnagar during 2004-2009 (mcm)**

| Sr. No | Taluka | Increase % in usage | |
|---|---|---|---|
| | | 2004-2009 | 2009-2011 |
| 1 | Bhanvad | 36.93 | -15.59 |
| 2 | Dhrol | 44.37 | -20.47 |
| 3 | Jodiya | 20.30 | -10.73 |
| 4 | Jamnagar | 21.67 | -14.96 |
| 5 | Kalyanpur | 52.52 | 2.05 |
| 6 | Khmbhalia | -4.92 | -11.20 |
| 7 | Kalavad | 14.49 | -10.25 |
| 8 | Jam Jodhpur | 37.22 | -19.13 |
| 9 | Lalpur | 20.69 | -6.23 |
| 10 | Okhamandal | 16.74 | 2.01 |
| **Jamnagar** | | **22.95** | **-12.18** |

*Source:-Compilation of data obtained from WASMO,*

Domestic and Industrial usage of ground water, also have shown a natural increase across all the talukas, with an average increase of around 6.1 This usage is particularly due to industrial activities and the resultant urbanization. However, they still constitute less than 7 % of the total reserves.

**Table1.8 Domestic and Industrial usages (2004-2011) of Ground water across Taluka in Jamnagar (**mcm)

| Sr.No | Taluka | Increase % in usage | |
|---|---|---|---|
| | | 2004-2009 | 2009-2011 |
| 1 | Bhanvad | 6.38 | 4.42 |
| 2 | Dhrol | 4.85 | 4.63 |
| 3 | Jodiya | 6.02 | 4.26 |
| 4 | Jamnagar | 6.15 | 4.57 |
| 5 | Kalyanpur | 6.16 | 4.52 |
| 6 | Khambalia | 6.33 | 4.63 |
| 7 | Kalavad | 6.20 | 4.57 |
| 8 | Jam Jodhpur | 5.92 | 4.41 |
| 9 | Lalpur | 6.14 | 4.42 |
| 10 | Okhamandal | 6.10 | 4.60 |
| **Jamnagar District** | | 6.14 | 4.53 |

*Source:-Compilation of data obtained from WASMO*

Between 2009-2011 all talukas shows decrease in Domestic and Industrial usage of ground water. Reason of this decrease is overall decrease in ground water reserves.

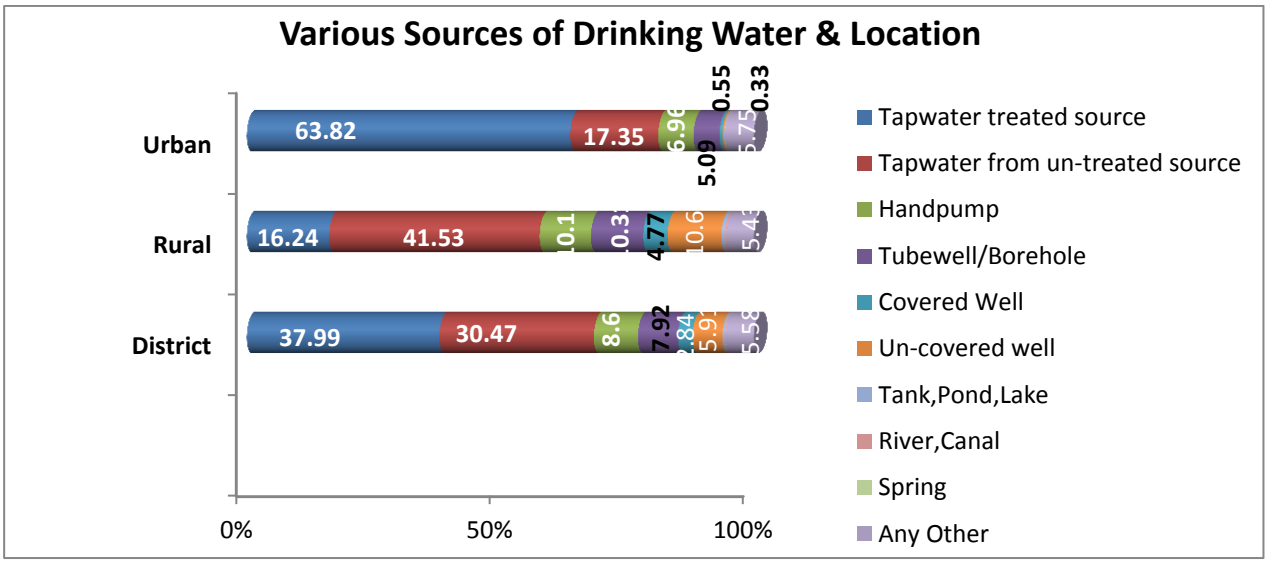
## 1.3 Civic Amenities

The civic amenities which are important indicators for Human Development and for which the state has some or the other programmes have been described in this section.

### *1.3.1 Drinking Water*

Drinking water sources includes tap water from treated sources, tap water from un-treated source, hand pump, tube well/borehole, covered well, un- covered well, tank, pond, lakes, rivers, canal etc. In rural areas of Jamnagar of the total 230295 households, 16.24% households get tap water from treated source, 66.74% households get from covered source and 17.02 % get from un-covered sources.

In urban locations of the district, supplies of water for household consumption, particularly for drinking water are obtained from various sources. About 63.82 households get tap water supplied from treated sources, 29.95 % get water from covered sources and the rest 6.24 % from uncovered sources. The graph below establishes the source wise supplies in the district.




*Source: Census of India 2011*

The above graph shows picture of various sources of drinking water as per census 2011. Gujarat Water Supply Department provides drinking water in rural areas. As per the Gujarat Water Supply Department in Jamnagar District, 100% villages are having access to drinking water. Narmada water is being supplied over and above the local drinking water sources at village level. Most of the villages are having dual mode of water supply.

## 1.3.2 Sanitation:

The sanitation facilities in rural areas of the district show that of the total households i.e. 230295 only about 34.83 % households are having facilities within the premises. The rest of the households are without access to these facilities and hence defecate in the open. The scenario in the urban location however shows better situation. About 83.82% households have latrine facilities within their premises.

| Residence | Total no.of Housesholds | No. of H.H Having Latrine Facility within the Premises | No.of H.H Not Having Latrine Facility within the Premises |
|---|---|---|---|
| **Rural** | **230295** | **34.83** | **65.17** |
| **Urban** | **194041** | **83.82** | **16.18** |
| **Jamnagar** | **424336** | **57.22** | **42.77** |
| **Gujarat** | **12181718** | **57.35** | **42.65** |

*Source: Census of India 2011*

## 1.3.3 Household Lighting:

In Jamnagar district 86.44% of the total households in rural areas have electrical connection within their house. Around 11.83% household have other source of electricity, whereas 1.73 % do not have any source of lighting. The urban locations shows that 96.62% of the households

have direct connection of electricity, 2.71 % have other source of lighting and 0.67% does not have any source for lighting.

| Residence | Total no.of Housesholds | Electricity | Other Source | No Lighting |
|---|---|---|---|---|
| **Rural** | **230295** | **86.44** | **11.83** | **1.73** |
| **Urban** | **194041** | **96.62** | **2.71** | **0.67** |
| **Jamnagar** | **424336** | **91.0** | **7.65** | **1.24** |
| **Gujarat** | **12181718** | **90.41** | **8.63** | **0.20** |

*Source: Census of India 2011*

### 1.3.4 Housing:

Housing conditions in Jamnagar shows that as regards to almost a half million plus census houses in both the urban and rural location, about 93 % of them have all weather roofs (Concrete, Tiles, Stones, Asbestos). Though in urban areas household having concrete roofs shows a higher percentage i.e. 64 % against rural households having concrete roof (39 %). The progress related to schemes for poor on housing will be elaborated latter.

### 1.3.5. Roads:

The total road length in the district is about 3495 Kms of which about 2538.4 Kms controlled by the R and B whereas the remaining under the Panchayats. About 1015 Kms of this stretch has roads which are categorized as Earthen (754) and the 261 as Water bound Macadam roads. The majority of the roads with the Panchayats however fall under this category and hence would need to be upgraded in future. Of the 669 villages in the district around 29 villages are not linked due to technical reasons with connectivity. There are around 8 villages which are having the W.B.M roads.

**Table 1.10 Classification of Roads in Jamnagar (as on 31.03.2012)**

***All figures are in Kms.***

| Type of Roads | | Bitumen | Water Bound Macadam | Earthen Roads | Total | % |
|---|---|---|---|---|---|---|
| **R & B Roads** | Main District Road | 782.62 | 28.26 | 4.94 | 815.82 | 23.3 % |
| | Other district roads | 582.80 | 34.60 | 14.00 | 631.40 | 18.0 % |
| | Village Roads | 941.52 | 84.80 | 65.00 | 1091.32 | 31.2 % |
| **Panchayat Roads** | | 172.10 | 113.80 | 670.00 | 955.90 | 27.5 % |
| **Total Roads** | | **2479.04** | **262.46** | **753.94** | **3494.44** | **100.0 %** |
| | | **71. 0 %** | **7.5 %** | **21.5 %** | **100.0 %** | |

*Source: Panchayat and R.B. Jamnagar*

### 1.3.6. Electricity connections:

The district has shown a growth in terms of consumers subscribing to electricity connections. The number of residential consumers stands at 3422518, Commercial and Industrial together stands at 77039 and that of agriculture at 68455. The residential connections have shown an increase of over 8 % during the last three years and almost about a 15 % growth has been noted in the Agricultural connections as well.

**Table 1.11 Number of consumers and growth**

| Categories | 2009-10 | 2011-12 | % increase |
|---|---|---|---|
| **Residential** | 315958 | 342218 | 8.3% |
| **Agricultural** | 59142 | 68455 | 15.7% |
| **Total all consumers** | **509338** | **557159** | **9.3 %** |

*Source: Pachim Gujarat VIJ Company Limited, Jamnagar 2012*

As regards to the consumption pattern, the growth shows certain specific trends. The per capita consumption figure have shown that residential consumptions have jumped by 9.54 % whereas the consumptions in the agriculture has shown an increase of over 13 %. Given the condition of the ground water that must have been drawn out due to the increase in the number of agricultural connections and a corresponding increase in the per capita consumption, i.e. more number of pumping hours, possibly if the trend continues in this manner, the ground water resources can be at a receiving end in another decade. As a response to this, PGVCL has during 2011-12 have taken up agricultural connections to Drip Irrigation systems and during 2011-12, 1237 connections have been completed. This could be an area of intervention in agricultural connections in days to come.

**Table1.12 Per capita consumption**

*All figures are in KwH*

| Categories | 2009-10 | 2011-12 | % Increase |
|---|---|---|---|
| **Residential** | 67.56 | 74.01 | 9.54 % |
| **Agricultural** | 298.10 | 337.02 | 13.08 % |

*Source: Pachim Gujarat VIJ Company Limited, Jamnagar 2012*

## 1.4 Tourism

***Jamnagar the Jewel of Kathiawar***, is on the coast of Gulf of Kutch in the state of Gujarat, India. It has un spoilt Islands & Beaches, Hills, Temples, Palaces, Forest, Fantastic Bird life in the Bird Sanctuary & Marine Sanctuaries and Fascinating Corals and Marine Life in the Marine National Park. All these attraction makes Jamnagar a good centre for Tourism Development.

***Here are major tourist attractions in the district***.

***Lakhota Lake –*** Located in the center of town with parks and gardens, the lake additionally houses a small zoo around. In the middle is a fort-like structure called Lakhota Tower, connected to the bank by two causeways

***Lakhota Museum –*** It has a collection of 18th century artifacts and a few some specimens from medieval monuments. A photograph collection highlighting major monuments of Jamnagar and coins from various eras are also on display in the museum

***Khijada Mandir –*** It is the founding temple of Pranami sect in Gujarat, Rooted in Hinduism, it however, propounds the unity of all religions. The temple was built around 400 years old sacred trees and depicts the scenes from the life of Lord Krishna

***Beaches –*** Balachadi is the most popular beach of the district with many visitors especially during full moon days. The Beach of Pirotan Island about 12 nautical miles from Bedi port is clean and tide dependent. There is normally a huge flock of birds on this beach

***Marine National Park –*** It is India's first Marine National Park established in 1982. The marine sanctuary area has various species of hard & soft corals, prawns, sponges, crabs, turtles, water birds & brown, green & red algae

***Dwarkadhish Temple –*** A 16th century five- storey high temple of Lord Krishna, built on 72 pillars is situated in the middle of the town

***Khijadia Birds Sanctuary and Gaga Wild Life Sanctuary*** are other tourist attractions in the district

# CHAPTER - 2

# STATUS OF EDUCATION

# 2. INTRODUCTION

## 2.1 STATUS OF LITERACY AND ENROLMENT



## 2.2 ENROLMENT, RETENTION AND DROP OUT

## 2.3 THE DEMAND SIDE

## 2.4 SUPPLY SIDE



## 2.5 CONCLUSION

# 2. INTRODUCTION

The type of education which one receives enhances opportunities for earning, social status and individual freedom of choices in respect to the type of life which one chooses to live. Hence access to education and quality of education play an important role in the human development strategy. In developing economy, access is of utmost importance for educational strategy at the State level. Improvement in the overall literacy of women and particularly that of the girl child in rural area plays a critical role in enhancement of Human Development.

## 2.1 STATUS OF LITERACY AND ENROLMENT

### 2.1.1 Literacy:

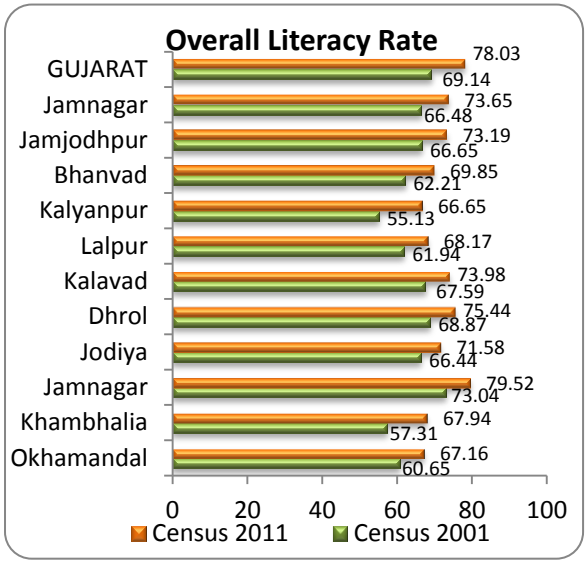
With the overall literacy of the district showing 73.65 percent in 2011, up from 66.48 per cent in 2001 and 58.96 per cent in 1991, Jamnagar definitely have made impressive gains in the literacy front. The gains are impressive both for male and female literacy rates, at 81.50 and 65.33 per cent, respectively (Table 2.1). The decadal percentage increase indicates that the incremental improvement of the literacy rate of the District during 2001-2011 and has maintained pace with that of the State's Averages. Another noticeable feature is the decadal improvement in the Female Literacy percent being higher than that of Male Literacy per cent (Table 2.1). Taluka wise Literacy Rate shows that Jamnagar taluka has highest (79.52%) overall literacy Rate which is more than State Average (78.03) in 2011. However, Khambhalia and Kalyanpur taluka had reported noticeable improvement (nearly 10% point) in overall Literacy Rate between 2001 and 2011.

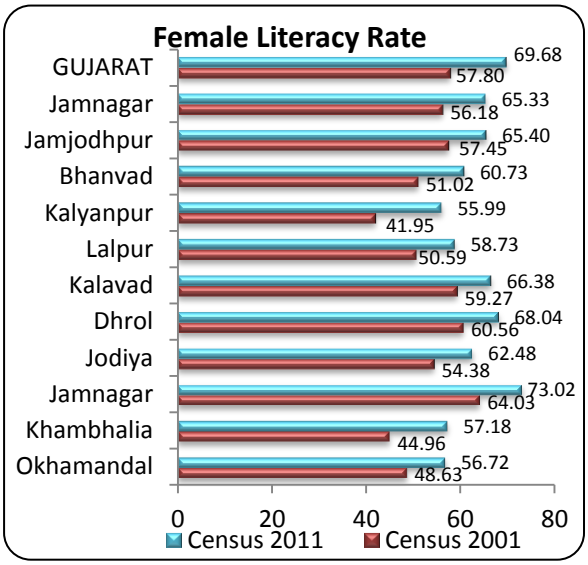
**Table 2.1: Literacy Rate of the District from 1991 to 2011**

| Census Year | Overall | Male | Female |
|---|---|---|---|
| **2011** | 73.65 | 81.50 | 65.33 |
| **2001** | 66.48 | 76.25 | 56.18 |
| **1991** | 58.96 | 69.96 | 47.45 |
| **Decadal % increase (2001-2011)** | 7.17 | 5.25 | 9.15 |

Source: *Census of India (1991, 2001 and 2011)*

**Graph 2.1: Overall and female Literacy Rate in Jamnagar, 2001 & 2011**



Taluka Wise Female literacy rate shows that Jamnagar Taluka (73.02%) has reported highest Female Literacy Rate which is more than State average (69.68%). However, Bhanvad, Kalyanpur and Khambhalia had reported noticeable improvement between 2001 and 2011.

## *SC and ST Population Groups*

The district has a small size of SC population (8.05%) and a further meager size of the ST population (1.12%).As one can see from the following table the District however trails behind the State's average and the same is aggravated in case of rural literacy for this group of population.

**Table: 2.2 Literacy Rates of SC & ST Population Groups, 2011**

| Literacy Rates –SC population group | Total | Male | Female | Gender Differential |
|---|---|---|---|---|
| SC Population in District | 173895 | 89597 | 84298 | 5299 |
| % of SC Population in district | | 8.05 | | N.A. |
| District Literacy Rate (%) | 69.70 | 80.34 | 58.42 | 21.92 |
| Literacy Rate of the State (%) | 79.18 | 87.87 | 69.87 | 18.00 |
| District Urban literacy (%) | 72.70 | 82.69 | 62.05 | 20.64 |
| District Rural literacy (%) | 67.41 | 78.53 | 55.66 | 22.87 |
| **Literacy Rates – ST Population Group** | | | | |
| ST Population in District | 24187 | 12415 | 11772 | 643 |
| % of ST Population in district | | 1.12 | | |
| District Literacy Rate (%) | 56.51 | 63.91 | 48.73 | 15.18 |
| Avg. Literacy Rate of the State (%) | 62.48 | 71.68 | 53.16 | 18.52 |
| District Urban literacy (%) | 69.57 | 76.45 | 62.31 | 14.14 |
| District Rural literacy (%) | 49.96 | 57.60 | 41.92 | 15.68 |

*Source: Census of India (2011)*

## *Gender and Residence Variations in Literacy*

The Scenario of the literacy status of district is quite varied in terms of gender and residence distributions of population. Following table reflect these differentials. The urban literacy gap between male and female is 12.90 percent points, while the rural gender variation is 18.77 per cent. The urban rural divide of the overall effective literacy rate is 10.20 per cent points. While the urban rural divide of the male literacy rate is 7.26 per cent and female literacy rate is 13.13per cent.

| Particulars | Persons | Urban | Rural | Urban-Rural Differentials |
|---|---|---|---|---|
| **Persons** | 73.65 | 79.23 | 69.03 | 10.20 |
| **Male** | 81.50 | 85.45 | 78.19 | 7.26 |
| **Female** | 65.33 | 72.55 | 59.42 | 13.13 |
| **Gender Differential** | 16.17 | 12.90 | 18.77 | - |

Source: *Census of India (2011)*

This aspect must be taken into cognizance while implementing the educational interventions of the state sponsored programs. At the current level the gap between enrolment of boys and that of girls if not addressed would increase the gender gap in rural areas further. Taluka Wise urban-rural differential in Literacy Rate is lowest in Khambhadia taluka whereas it's highest in Okhamandal taluka. As urbanization increases, Kalyanpur taluka has reported increase (4.5% point) in the urban-rural difference in 2011.

**Table 2.3: Taluka Wise Residence based Literacy Rates (2011)**

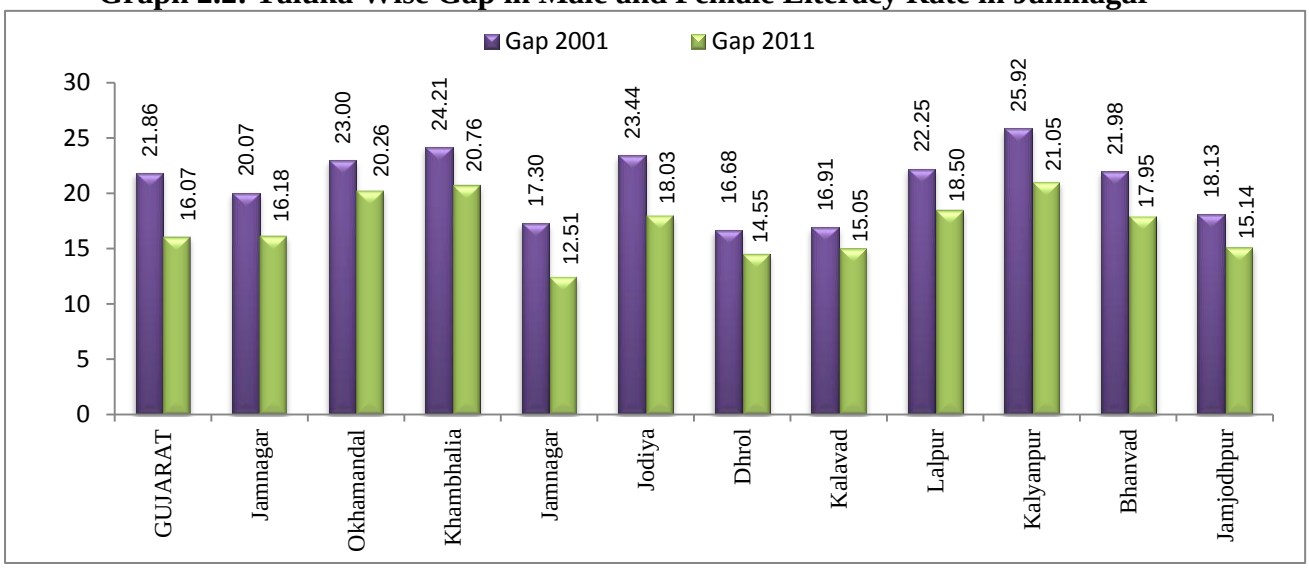
(All Figures are in Percentage)

| State/ District/ Taluka | Literacy Rate 2001 | | | Literacy Rate 2011 | | |
|---|---|---|---|---|---|---|
| | Urban | Rural | Urban-Rural Differentials | Urban | Rural | Urban-Rural Differentials |
| **Gujarat** | **81.84** | **61.29** | **20.55** | **86.31** | **71.71** | **14.6** |
| **Jamnagar** | **74.12** | **60.36** | **13.76** | **79.23** | **69.03** | **10.2** |
| Jamjodhpur | 80.24 | 63.30 | 16.94 | 83.96 | 70.51 | 13.45 |
| Bhanvad | 77.14 | 58.79 | 18.35 | 81.13 | 67.40 | 13.73 |
| Kalyanpur | N.A. | 55.13 | N.A. | 62.59 | 67.09 | -4.5 |
| Lalpur | N.A. | 61.94 | N.A. | N.A. | 68.17 | N.A. |
| Kalavad | 76.68 | 65.55 | 11.13 | 80.52 | 72.35 | 8.17 |
| Dhrol | 77.52 | 64.83 | 12.69 | 80.30 | 73.10 | 7.2 |
| Jodiya | N.A. | 66.44 | N.A. | N.A. | 71.58 | N.A. |
| Jamnagar | 75.67 | 64.14 | 11.53 | 81.82 | 71.99 | 9.83 |
| Khambhalia | 59.76 | 56.22 | 3.54 | 69.22 | 67.31 | 1.91 |
| Okhamandal | 70.33 | 39.02 | 31.31 | 72.40 | 55.21 | 17.19 |

*Source: Census of India (2001, 2011)*

The gap between male and female literacy rate has declined from 20.07% in 2001 to 16.18% in 2011. Jamnagar taluka has reported lowest gender gap differential in 2011 which is less than the District & State average.

**Graph 2.2: Taluka Wise Gap in Male and Female Literacy Rate in Jamnagar**



### 2.1.2 Gender Parity Index (GPI):

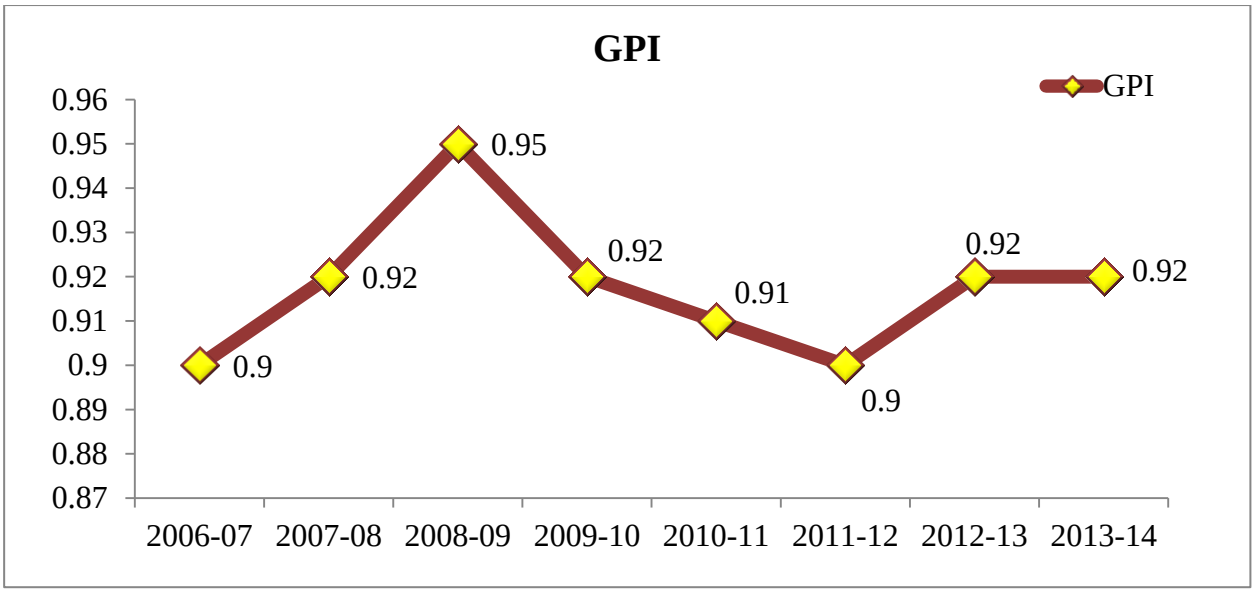
GPI denotes the number of Female enrolment to Male enrolment in a given stage of education. GPI measures the progress made towards gender parity in educational participation and/or learning opportunities available for women in relation to those available to men.

**Table 2.4 Gender Parity Index, Primary level (2006-07 to 2013-14)**

| Year | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 |
|---|---|---|---|---|---|---|---|---|
| **GPI** | 0.90 | 0.92 | 0.95 | 0.92 | 0.91 | 0.91 | 0.92 | 0.92 |

*Source: Gujarat Council of Elementary Education (SSA), Gandhinagar*

**Graph 2.3: Trends in Gender Parity Index at Primary Level (2006-2013) Jamnagar**




As regards to GPI, the situation in Jamnagar is around 0.92. The highest GPI was recorded at 0.95 in 2008-09 but again it reduced to 0.92 in 2013-14. This parity index points out that at the entry level and later at the retention level somehow the girls are on the receiving end. Concerted effort in enrolment and in retention of girls in the education system would be required to make the GPI move towards 1.0.

## 2.2 ENROLMENT, RETENTION AND DROP OUT

Literacy rate or the incremental literacy rate reflects the outcome of the past efforts, both public and private in achieving the basic or the bare minimal levels of learning. Enrolment provides an assessment of the present by relating to the number of students enrolled in the schools to the total population in the age group 6-14 years.

As regards to enrolment, the figures since 2005-06 to 2013-14 show some important features. The number of students enrolled in schools has not shown much of change. The numbers of students enrolled have been hovering around 220-300 thousand since then with falls and some growth in some years. The table below puts up this data:

**Table: 2. 5 Showing enrolment in Schools (in numbers)**

| Year | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 |
|---|---|---|---|---|---|---|---|---|---|
| **Enrolled 1-7th** | 221330 | 232990 | 232574 | 229964 | 224485 | 221785 | 234477 | 292059 | 304161 |
| **Change over previous year** | | 11660 | -416 | -2610 | -5479 | -2700 | 12692 | 57582 | 12102 |
| **Change since 2002-03** | | 11660 | 11244 | 8634 | 3155 | 455 | 13147 | 70729 | 82831 |

*Source: Gujarat Council of Elementary Education (SSA), Gandhinagar*

## *Enrolment of girls in primary (standard 1-4) and upper primary levels (standard 5-7)*

The gross numbers has shown a positive change which ranges between 3-8 % during the period. However as regards to change over previous year there are changes which are not consistent.

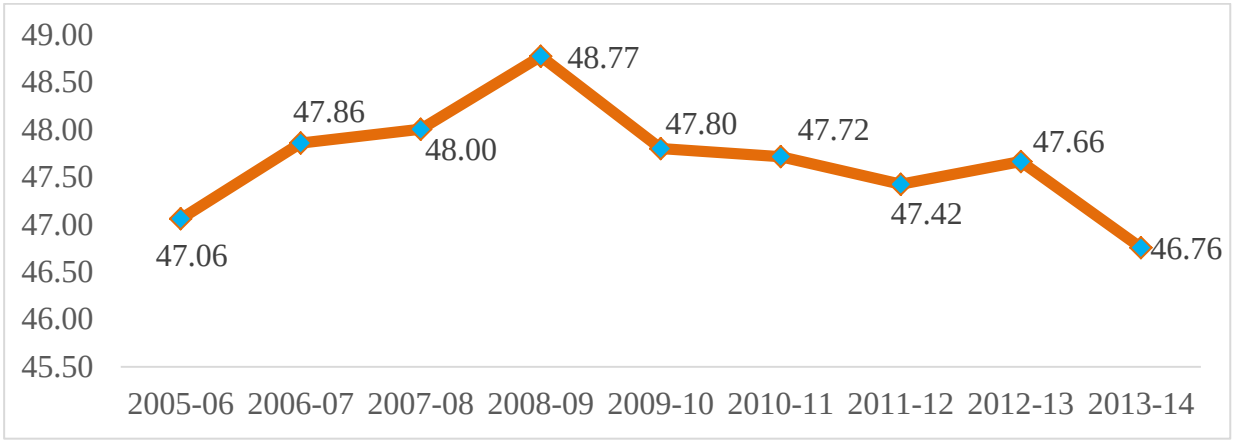
**Table 2.6: Enrolment of Girls (2004-2013) Jamnagar**

| Year | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 |
|---|---|---|---|---|---|---|---|---|---|
| **Enrolled** | 104160 | 111506 | 111646 | 112159 | 107304 | 108407 | 111199 | 139205 | 142214 |
| **Change over previous year** | | 7346 | 140 | 513 | -4855 | 1103 | 2792 | 28006 | 3009 |
| **Change since 2004-05** | | 7346 | 7486 | 7999 | 3144 | 4247 | 7039 | 35045 | 38054 |

*Source: Gujarat Council of Elementary Education (SSA), Gandhinagar*

The gross number of girls enrolled with respect to boys enrolled during that particular year shows an interesting trend. The percentage of enrolment continues to hover around 47 %. See table below.

**Graph 2.4 Enrolments of Girls (Class 1-7)**




*Source: Gujarat Council of Elementary Education (SSA), Gandhinagar*

As regards to the girl's enrolment ratio, the graph indicates it to be around 47% during 2005-06 to 2013-14. There had been some increase noted during 2008-09 (48.77%); but the same again fell by almost a percentage point to 46.76 in the year 2013-14. Probably, the ***Kanya Kelvani Programme*** would be able to bring in the enhanced focus on increasing the girl's enrolment in the district. However, the flow rates (Retention Rate, Transition Rate, Repetition Rate, Drop-out Rate and Promotion Rate) have fluctuating trend between the year 2005-06 to 2013-14 as shown in the table below.

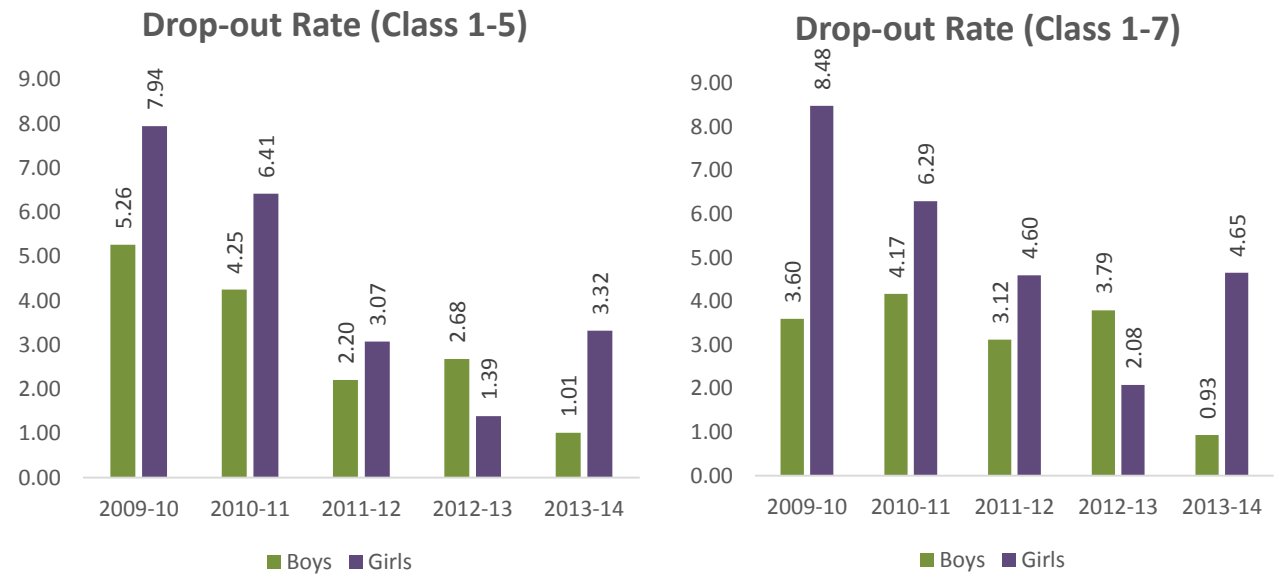
**Table 2.7 Trend in Flow Rates in Jamnagar**

| Flow Rates | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 |
|---|---|---|---|---|---|---|---|
| Retention Rate (Primary Level) | 84.90 | 84.40 | 83.60 | 77.70 | 84.60 | NA | NA |
| Transition Rate (Primary to Upper Primary) | 92.19 | 91.22 | 88.56 | 91.19 | 98.74 | 94.59 | 96.99 |
| Repetition Rate (Class 1-5) | 7.30 | 6.00 | 4.20 | 7.70 | 4.20 | NA | NA |
| Drop-out Rate (Class 1-5) | NA | NA | 6.56 | 5.30 | 2.61 | 2.07 | 2.12 |
| Promotion Rate (Class 1-5) | 88.40 | 89.00 | 90.4 | 86.8 | 92.3 | NA | NA |

*Source: Gujarat Council of Elementary Education (SSA), Gandhinagar*

A closer look at the students getting enrolled at different classes and continuing with their studies at the next higher classes is also an indicator showing retention and drop outs.

**Graph 2.5: Trend in Drop-out Rate in Jamnagar (Boys and Girls)**




*Source: Gujarat Council of Elementary Education (SSA), Gandhinagar*

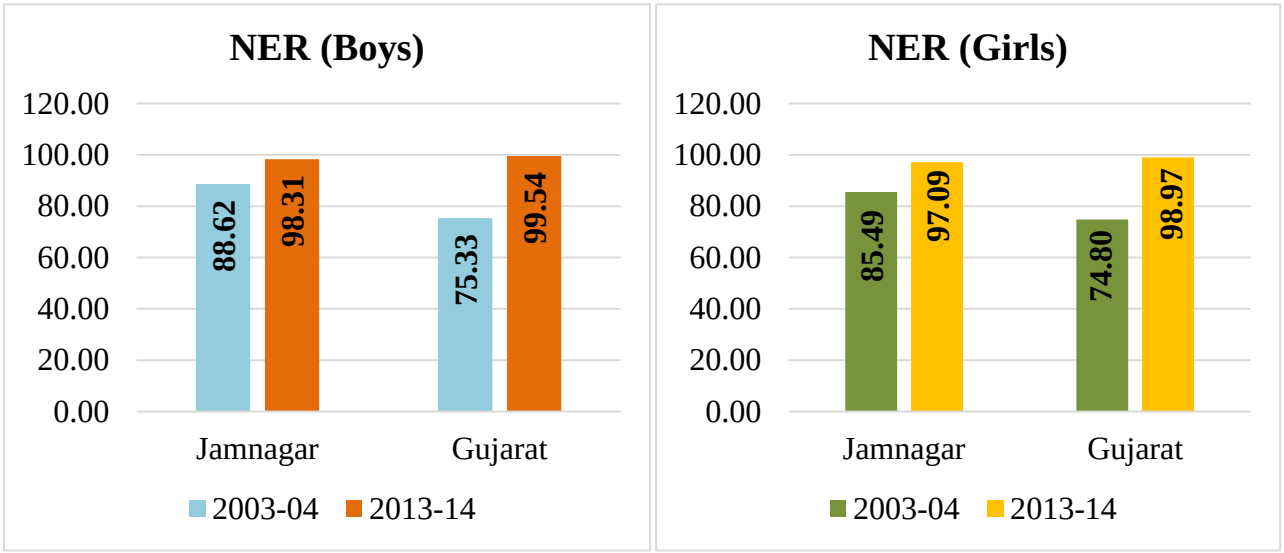
It can be inferred from the above graph that Drop-out rate in class 1 to 5 has decreased from 5.26% (Boys) in 2009-10 to 1.01 (Boys) in 2013-14. The same trend has been found in the girls drop-out rate. It decreased from 7.94% (Girls) in 2009-10 to 3.32% (Girls) in 2013-14.

While comparing the Drop-out rate in class 1 to 7, the rate of drop out is higher than class 1-5. But D.O.R. has decreased from 3.60% (Boys) in 2009-10 to 0.93% (Boys) in 2013-14. The same has been noticed in girls drop-out rate. It decreased from 8.48% in 2009-10 to 4.65% in 2013-14.

### *Enrolment Ratios*

Gross Enrolment Ratio (GER) and the Retention Ratio (RR) also indicate the success of primary education programmes. The Gross Enrolment Ratio (GER) is defined as the ratio of total enrolment in Primary level and Upper Primary level to population in the age group 6-11 years.

**Graph 2.6: Net Enrolment Ratios (Boys and Girls)**




It can be inferred that from the year 2003-04, the NER for primary education has shown an increasing trend. In Jamnagar, boys NER increased from 88.62% in 2003-04 to 98.31% in 2013-14. There is an increase in NER of girls also. It increased from 85.49% in 2003-04 to 97.09% in 2013-14. One can thus infer that probably the ***Shala Praveshotsav Programme*** has been successful for increasing the NER.

## TEACHERS IN PRIMARY SCHOOLS

The schools in Jamnagar district has improved in terms of bettering the ratio of Female teachers at all levels (P, P+UP, P+UP+S/H.S., UP, UP + S/HS). There is an increasing trend in number of male and female teachers in Jamnagar. But the female teachers are increasing more speedily than male as seen from the below table.

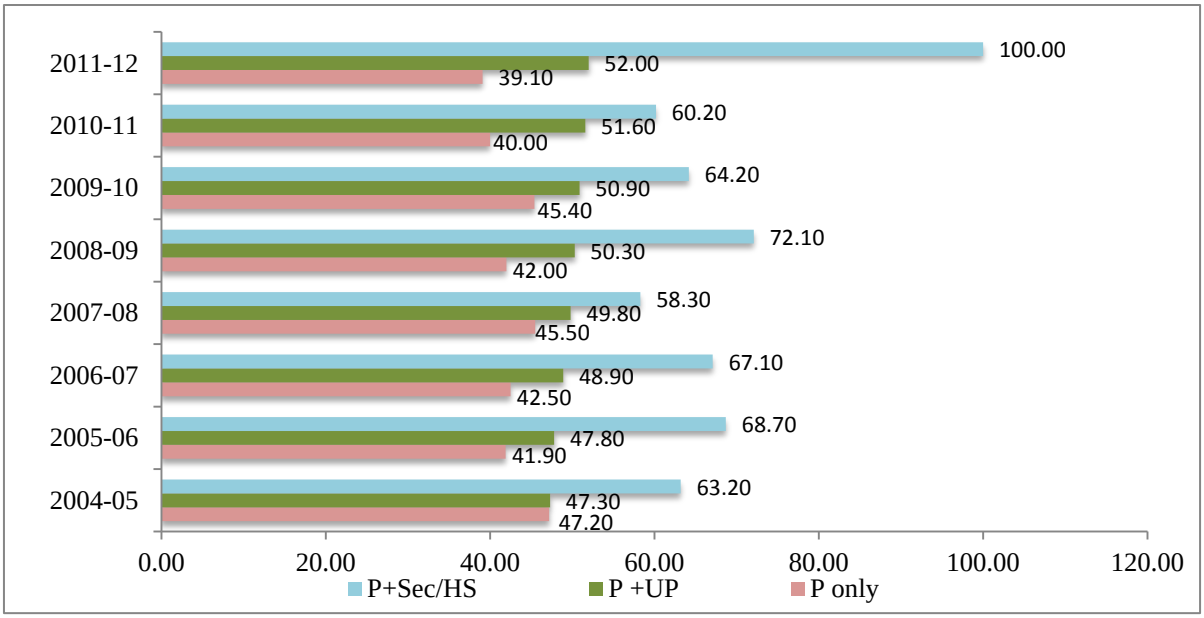
**Table 2.8: Regular Male and Female Teachers in Jamnagar**

| Year | Male | Female | Female: Male Teachers Ratio |
|---|---|---|---|
| 2004-05 | 2786 | 2554 | 0.92 |
| 2005-06 | 3354 | 3016 | 0.90 |
| 2006-07 | 3575 | 3301 | 0.92 |
| 2007-08 | 3688 | 3529 | 0.96 |
| 2008-09 | 3783 | 3721 | 0.98 |
| 2009-10 | 4057 | 4087 | 1.01 |
| 2010-11 | 4478 | 4603 | 1.03 |
| 2011-12 | 4510 | 4698 | 1.04 |

*Source: Based on Database of District Information System for Education, NUEPA (2004-11)*

There were 92 female teachers per 100 male teachers in 2004-05. This has increased to 104 female teachers in 2011-12. This is a welcome proposition and is likely to affect the retention of girls at the lower level and also reduce drop outs.

**Graph 2.7: % of Female Teachers in different School category**




(Note: P- Primary, UP- Upper Primary, S- Secondary and HS- Higher Secondary)

An increasing trend has been found in % of female teachers in Primary, Upper Primary, Secondary and Higher Secondary Schools between 2004-05 to 2011-12. In the year 2011-12, there were 100% female teachers in Primary+ Sec/Higher Secondary schools in Jamnagar.

## *Student Teacher Ratio*

Student to Teacher's ratios have improved better and is within the prescribed limit in Primary Schools.

**Table 2.9: Student to Teacher's ratios in Jamnagar (2009-13)**

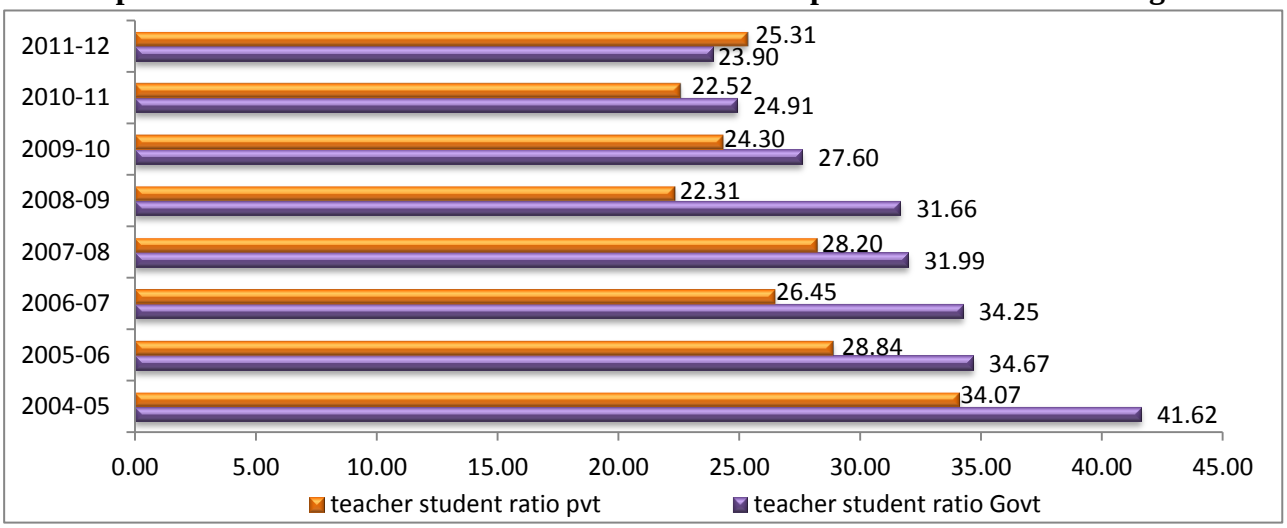
| Year | Student: Teacher |
|---|---|
| 2009-10 | 27:1 |
| 2010-11 | 27:1 |
| 2011-12 | 27:1 |
| 2012-13 | 27:1 |
| 2013-14 | 26:1 |

***Source: District Education Office, Jamnagar***

Above table indicates that the Student Teacher Ratio in the district is within the standard set as per the National Goals. Student teacher ratio further decreased to 26:1 in the year 2013-14 as compared to the year 2009-10 (27:1).

Below graph indicates that the increase / decrease during specific years may reflect the sudden spurt in enrolment or drop out as well. It could also reflect teacher's position are being filled up as well. Teacher Student Ratio in Private school was less i.e. 34:1 in 2004-05 than Government schools (41.62:1). An interesting thing to be noticed is that, in the year 2011-12, the teacher student ratio is less in Government school i.e. 24:1 than Private schools (25:1) which has an impact on quality of education provided to the students.

**Graph 2.8: Teacher Student Ratio in Government and private schools in Jamnagar**




Source: *Based on Database of District Information System for Education, NUEPA (2004-11)*

An important aspect which is of consequence to maintain certain quality standards is with respect to the teaching staff and their qualification. The table below highlights this aspect. It is important to note that though efforts have been made to position teachers with higher levels of education i.e. graduates and post graduates, in the recruitments that have been made, nearly 43% of the teachers still continue to be having lower qualification i.e. higher secondary and below in Primary + Upper Primary schools. During the last decade, the percentage of teachers with higher

qualifications has increased from 23 % to 53% in Primary + Upper primary schools. At only Primary level, still 5% of teachers are having lower qualification i.e. below secondary level. Something that must be looked at given the educational attainment of the students at the primary level, which continues to be a cause for worry.

**Table 2.10: Showing Qualification of teachers**

| Level of education | 2004-05 | | 2013-14 | |
|---|---|---|---|---|
| | Primary | Primary + UP | Primary | Primary + UP |
| **Below Secondary** | 18 | 380 | 21 | 441 |
| **Secondary** | 107 | 2260 | 70 | 1771 |
| **Higher Secondary** | 82 | 907 | 126 | 2938 |
| **Graduate** | 106 | 815 | 104 | 3215 |
| **Post Graduate and above** | 47 | 295 | 50 | 2558 |

*Source: Gujarat Council of Elementary Education (SSA), Gandhinagar*

Another important area that must be incorporated is the Student to Classroom ratio. It is interesting to note that during the past one decade, huge amount of resources have been spent by the Government to better this ratio (see table 2.11) by increasing the number of classrooms in each of the existing schools. The Student to Classroom ratio decreased from 29 in 2009-10 to 22 in 2013-14. This has also been supported by way of increasing human resources and other infrastructure in all the schools right from the primary to the secondary levels.

**Table 2.11: Students to Classroom Ratio in Jamnagar**

| Education Level | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 |
|---|---|---|---|---|---|
| **Primary** | 29 | 28 | 26 | 24 | 22 |

*Source: District Primary Education Office*

## 2.3 THE DEMAND SIDE

The demand for education depends upon costs and benefits. The costs could be valued in terms of incomes foregone if children are engaged in household/ production activities, as in low-income households (or those who reside in a pre-industrial mode); a high premium is attached to such time. On the other hand demand for education is expected to increase if children are compensated in part, e.g. Mid-Day Meals or fully through scholarship as is the case with SC/ST students. The positive impact also gets reflected in the performance of the students belonging to socially backward classes.

With agriculture not giving the return as one would expect and with declining productivity and declining alternative employment opportunities within the district, seasonal migration becomes imperative for ensuring livelihoods. Such a situation requires innovative educational programmes for children belonging to the migrating households. This includes, for example, schools focusing on migrating child labour as a special category, for which extra classes/effort need to be made to bring them at par with other students.

One way to raise attendance is to provide quality education (the supply side), the return on which (even when discounted) are higher than the current income. On the converse, an indifferent supply side management of educational services would compound the problem-poor attendance in government schools and high attendance in private schools is evidence to the quality factor.

The difference in student's achievements, whether in the secondary and higher secondary examinations or at the primary level, is one indicator of the performance of the government schools. ASER report, 2013 on status of education shows that 1.7 per cent of children belonging to the age group 6-14 years are out of school children. As per the report, Jamnagar District has 21.6 Per cent of children (age 6-14 years) in private school.

# 2.4 SUPPLY SIDE

## 2.4.1 Educational Infrastructure:

### *2.4.1.1 Scenario of Primary Education*

Village Amenities Survey conducted in 2008, pointed out that of 698 inhabited villages, 668 villages have at least one or more schools. It also pointed out that Kalyanpur and Khambhalia taluka has the highest number of schools per village. The distribution of the primary schools managed by local bodies in the district is as follows:

**Table 2.12: No. of Primary and Upper primary schools (2013-14)**

| Taluka | Pri Sch (Std -1-5) | P+ U-Pri (Std -1-8) | Total |
|---|---|---|---|
| **Jamnagar** | 2 | 201 | 203 |
| **Dhrol** | 4 | 66 | 70 |
| **Kalawad** | 8 | 111 | 119 |
| **Jamjodhpur** | 0 | 119 | 119 |
| **Jodiya** | 0 | 76 | 76 |
| **Bhanvad** | 11 | 111 | 122 |
| **Lalpur** | 16 | 121 | 137 |
| **Okhamandal** | 3 | 89 | 92 |
| **Khmabhalia** | 21 | 190 | 211 |
| **Kalyanpur** | 72 | 148 | 220 |
| **Total** | **137** | **1232** | **1369** |

*Source: District Statistical office*

The above table shows that Jamnagar District has a total of 137 Primary schools and another 1232 schools which has both the primary and Upper Primary classes. Kalyanpur taluka records the highest number (72) only primary schools and Jamnagar taluka has a highest (201) number of primary and upper primary schools.

Apart from the local bodies, there are schools which are also managed by the private sector. The chapter on education would remain half done if it does not look into the efforts of these private bodies.

The number of Schools runs by private institutions and individuals has seen a two hold increase during the last one decade. There has also been a corresponding increase in the enrolment in these schools (+75 %).

**Table: 2.13 Increase in schools under private control and enrolment**

| Particulars | 2004-05 | 2007-08 | 2010-11 | 2011-12 |
|---|---|---|---|---|
| **Private Schools (nos.)** | 97 | 175 | 213 | 227 |
| **Enrolment** | 23340 | 36628 | 40882 | 49932 |

*Source: Compiled from Database of District Information System for Education, NUEPA (2004-11)*

The latest figures (2011-12) on schools in Jamnagar district is as under. There are about 1640 schools in the districts managed by both; the local bodies and the private entities. An important aspect that one must note is the growth of private entities during the last decade.

**Table: 2.14 Showing Schools by Management (2011-12)**

| Welfare | Local Body | Private Aided | Private Unaided | Others | State Defined |
|---|---|---|---|---|---|
| **13** | 1363 | 16 | 211 | 3 | 47 |
| | 82.45 % | (13.73 %) | | | |

*Source: Based on Database of District Information System for Education, NUEPA 2011-2012*

### *2.4.1.2 Scenario of secondary and higher secondary Education*

Almost all the villages in Jamnagar have secondary or upper secondary schools (Table 2.15)

**Table 2.15 Villages with secondary and higher secondary schools (2013-14)**

| Talukas | Total no. of villages | Secondary Schools | Higher Secondary schools |
|---|---|---|---|
| | | No of schools | No of schools |
| **Jamnagar** | 99 | 79 | 55 |
| **Dhrol** | 41 | 9 | 11 |
| **Kalawad** | 98 | 23 | 7 |
| **Jamjodhpur** | 69 | 26 | 9 |
| **Jodiya** | 52 | 11 | 7 |
| **Bhanvad** | 82 | 22 | 2 |
| **Lalpur** | 72 | 40 | 5 |
| **Okhamandal** | 39 | 21 | 4 |
| **Khmabhalia** | 81 | 46 | 3 |
| **Kalyanpur** | 64 | 44 | 5 |
| **Total** | **697** | **321** | **108** |

*Source: District Education Office*

Above table indicates that out of the total 697 villages, 46%% villages have 321 Secondary Schools i.e. few villages are not having secondary school and only 108 villages i.e. 15% are having Higher Secondary Schools.

## 2.4.2 Physical Amenities in Primary Schools:

Availability of various facilities like drinking water, sanitation, electricity, computer lab, playground and compound wall in primary schools has been one of the major features. The Table 2.16 illustrates this aspect.

**Table 2.16: Taluka Wise % of physical amenities available at primary schools (2013-14)**

| Talukas | Total No. of Schools | Electricity (%) | Computer Lab (%) | Compound Wall (%) | Play Ground (%) |
|---|---|---|---|---|---|
| **Jamnagar** | 407 | 99.75 | 59.71 | 99.75 | 64.86 |
| **Dhrol** | 98 | 98.98 | 65.31 | 98.98 | 76.53 |
| **Kalawad** | 147 | 95.92 | 40.82 | 95.92 | 62.59 |
| **Jamjodhpur** | 142 | 91.55 | 41.55 | 92.96 | 59.15 |
| **Jodiya** | 88 | 96.59 | 54.55 | 96.59 | 63.64 |
| **Bhanvad** | 155 | 90.97 | 41.94 | 92.90 | 69.68 |
| **Lalpur** | 154 | 88.31 | 50.65 | 88.96 | 65.58 |
| **Okhamandal** | 123 | 96.75 | 47.15 | 97.56 | 73.98 |
| **Khmabhalia** | 272 | 97.79 | 43.75 | 97.79 | 69.12 |
| **Kalyanpur** | 274 | 86.13 | 29.56 | 90.51 | 67.15 |
| **Total (%)** | **1860 (100%)** | **94.46** | **47.04** | **95.48** | **66.83** |

*Source: District Primary Education Office*

Above table indicate that almost in all criteria of physical amenities; nearly 95 per cent of the schools are equipped with the basic facility of electricity and compound wall facilities. Shortfall in cases of Compound Wall and Play Grounds has also been noted. Actions are require to be taken to equip these schools with such facilities.

As a result of ***Sarva Shiksha Abhiyan (SSA)***, all (100%) the secondary schools are equipped with the physical amenities like electricity, drinking water, sanitation and playground.

### *Sanitation facilities*

Above table shows that the sanitation facility for girls in Primary and Upper Primary education has continuously increased i.e. from 70.0% in 2007-08 (Primary-Girls) to 100.0% in 2013-14. There is drastic improvement in the sanitation facility for girls in primary education (100.0%) and upper primary education (100.0%). This is an important aspect of the attention being given towards providing facilities to girls and hence will have a positive impact on girls retention in the upper primary and secondary levels.

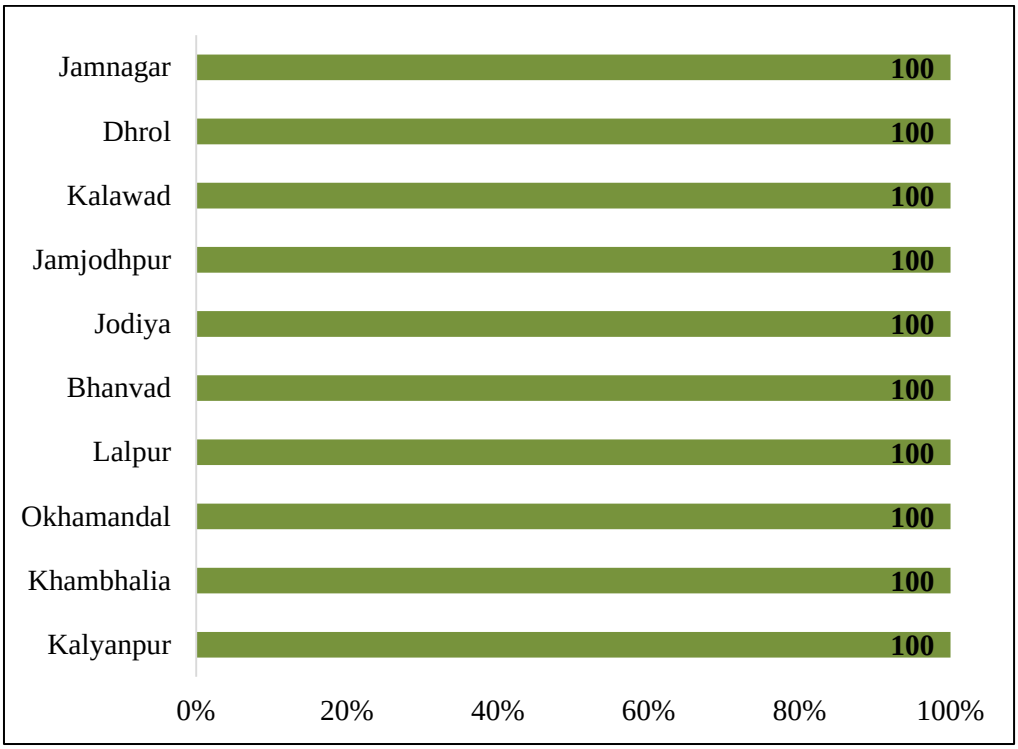
**Table 2.17: % of Sanitation facilities in Primary and upper primary schools in Jamnagar**

| Years | Sanitation Common | | Sanitation Girls | |
|---|---|---|---|---|
| | P | P+UP | P | P+UP |
| **2007-08** | 0.0 | 10.0 | 50.0 | 70.0 |
| **2008-09** | 5.0 | 20.0 | 65.0 | 75.0 |
| **2009-10** | 10.0 | 40.0 | 70.0 | 80.0 |
| **2010-11** | 25.0 | 60.0 | 75.0 | 90.0 |
| **2011-12** | 70.0 | 80.0 | 90.0 | 100.0 |
| **2012-13** | 100.0 | 100.0 | 100.0 | 100.0 |
| **2013-14** | 100.0 | 100.0 | 100.0 | 100.0 |

***Source:*** *District Statistical office*

From the year 2013-14, Taluka Wise sanitation facility reveals that all the Primary and Upper Primary Schools (100%) are having Common sanitation facility. As a result of SSA all the primary and Upper Primary Schools are having separate Girls Sanitation facility.

**Graph 2.9: Taluka Wise Sanitation facility at Primary Schools, 2013-14**




*Source: District Primary Education Office*

## *Drinking water*

The table below indicates improvement made since 2007-08 as regards to provision of drinking water facilities in primary and upper primary schools. Today, all the schools in Jamnagar are having drinking water facility.

**Table 2.18: % of Drinking Water facility in Primary and upper primary in Jamnagar**

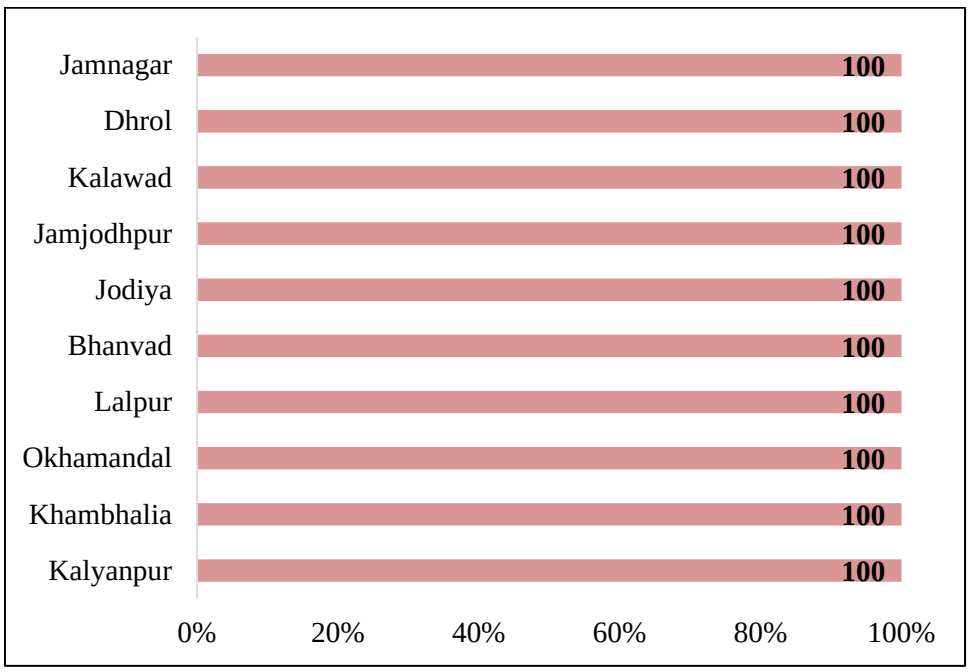
| Years | Drinking water | |
|---|---|---|
| | Primary | Primary + Upper Primary |
| **2007-08** | 10.0 | 50.0 |
| **2008-09** | 20.0 | 65.0 |
| **2009-10** | 40.0 | 75.0 |
| **2010-11** | 60.0 | 90.0 |
| **2011-12** | 70.0 | 95.0 |
| **2012-13** | 100.0 | 100.0 |
| **2013-14** | 100.0 | 100.0 |

*Source: District Statistical Office*

Almost all the Primary and Upper Primary schools are having drinking water facility in Jamnagar District.

Taluka Wise drinking water facility shows that all the Primary and Upper Primary schools are having drinking water facility.

**Graph 2.10: Taluka Wise Drinking Water facility in primary schools 2013-14**

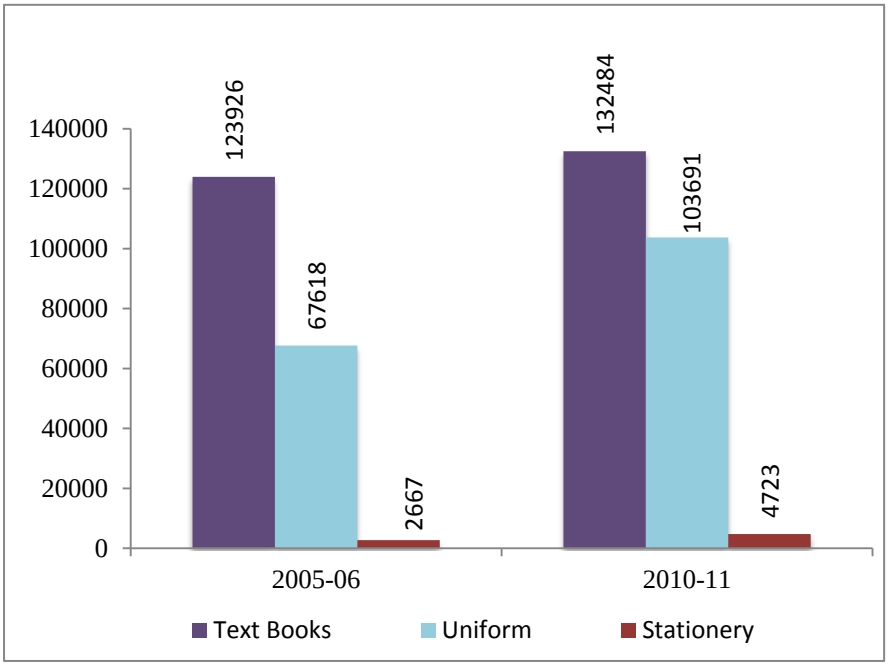



*Source: District Primary Education Office*

## *Incentive to Students:*

Text Books, Uniform and Stationery are provided free of cost to students. This reduces the cost of expenditure on parents and also good way to attract students to the schools. All this incentives are given to both girls and boys at Primary as well as Upper Primary level in Jamnagar. As the enrolment increases, the incentive given to students also increased in 2010-11 as compared to 2005-06 in Jamnagar.

**Graph 2.11: Incentives given in Primary Schools**




*Source: Based on Database of District Information System for Education, NUEPA*

## 2.5 Conclusions

Jamnagar definitely has made impressive gains in both for male and female literacy rates, at 81.50 and 65.33 per cent, respectively. The decadal percentage increase in the female literacy rate is greater i.e. 9.15 per cent than that of male i.e. 5.25 per cent. But still the *Kanya Kelvani* and *Shala Praveshotsav* programme needs to be focused more for improving the female literacy rate and also the overall literacy rate.

Efforts in enrolment and in retention of girls in the education system would be required to make the GPI move towards 1.0. Probably the *Shala Praveshotsav Programme* has been successful in increasing the NER of both boys and girls students.

In 2011-12, the male and female teacher ratio increases to 1.04:1. This is a welcome proposition and is likely to affect the retention of girls at the lower level and also reduce drop outs.

Some immediate action needs to be taken to provide the remaining schools with the basic amenities like Compound Wall, Play Ground etc. However, the progress since the last two years as regards to the provisioning of basic amenities has been quite good. The results of all these is likely to show in days to come.

# CHAPTER - 3

# HEALTH

## 3.1 Introduction:

3.1.1 Population

3.1.2 Crude Birth Rate (CBR) and Crude Death Rate (CDR)

## 3.2 Health Care Infrastructure

3.2.1 Health Personnel Availability

3.2.2 Performance of Health Care Institutions

3.2.3 Other System of Medicine

## 3.3. Maternal & Child Health

3.3.1 Antenatal Care

3.3.2 Institutional Delivery

3.3.3 Government Initiatives for Maternal Health

3.3.4 Safe Motherhood Index

3.3.5 Infant Mortality Indicator

3.3.6 Status of Child Immunization

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3.3.8 Nutritional Status

3.3.9 Government Initiatives for Child Health

## 3.4. Preventive Indicators of Health

3.4.1 Basic Amenities of Health

3.4.2 Taluka level Analysis

3.4.3 Diseases Trend Analysis: Water Borne Disease

## 3.5 Conclusion

# 3.1 INTRODUCTION:

Good health is the key to a happy and productive life and an important indicator of human development. Good health promotes efficiency in workforce, enhances their skill and aptitude and is absolutely necessary for high life expectancy. On the other hand, poor health is capable of pushing the society to go ashtray through a vicious circle of incapability's all around. Health care is a social determinant as it is influenced by social policies.

One of the objectives of the 11th five year Plan was to achieve good health for people, especially the poor and the underprivileged. In view of this, the Department of Health and Family Welfare, Government of Gujarat, had focused its attention to improve primary, secondary and tertiary health care system of every citizen of Gujarat with prime focus on BPL families, marginalized population and weaker sections in rural and urban slum areas. Department also had taken appropriate actions to create adequate educational facilities for medical and paramedical manpower in the state of Gujarat.

The key goals of health care system of the state can be summarise as follows:

- Reducing child and maternal mortality
- Reducing mortality and morbidity due to major communicable and non-communicable diseases
- Providing emergency medical care during disaster and natural calamities
- Creating adequate infrastructure for medical and paramedical education
- Creating awareness oneself care, family care and community care.

It is not the purpose of this chapter to grade Jamnagar on its performance on the basis of the above mentioned goals, alternatively the main purpose of this chapter is to find out the present status as well as particular challenges of the district. The purpose of the chapter is also discuss about the various interventions of government and finally, if is needed, to prescribe appropriate innovations in planning process.

## 3.1.1 Population

**Table 3.1: Population, Decadal Growth Rate, Sex ratio (2011)**

| Year | 2001-11 | 1991-01 | 2011 | 2001 | 2011 | 2001 |
|---|---|---|---|---|---|---|
| | Decadal Growth Rate | | Sex Ratio | | Child Sex Ratio | |
| Jamnagar | 13.44 | 21.79 | 939 | 941 | 904 | 898 |
| Gujarat | 19.28 | 22.66 | 919 | 920 | 890 | 883 |

*Source: Register General of India, Census-2011*

According to 2011 census the population of Jamnagar is 21, 60,119 which ranks the district 11$^{th}$ among all the districts of the State. In terms of population growth rate the district (13.44 %) has shown lesser growth as compare to the State (19.28%). The dent of around 8 points in decadal growth rate (21.79 during 1991-2001) has shown a visible reduction for the district whereas the

dip is only 3 points for the state (22.66% during 1991-2001). Eventually, it is a good sign for the district that ever increasing population is now showing some sign of deceleration.

The sex ratio (female per 1000 male) of district in 2011 is 939 which is better than the sex ratio of State (919) but it has exhibited a continuous decreasing trend than past decades. Although, Child sex ratio of the district (904), in 2011, has shown sign of increase as compared to earlier decade and it is also better that the State average (890), but the figure is not satisfactory at all. It is because, the low child sex ratio is a grim indication of future sex ratio of the district and hence of the state as well. In accordance with India's National Population Policy, Gujarat's population policy also focuses on improving the quality of life of the people, reducing gender discrimination and empowering women. So, women's education can be an important weapon to fight with fertility transition which can be one of the major reasons for low child sex ratio. Universal access to primary education particularly, for girls, and closing of the "gender gap" in education should be given priority to improve the sex ratio in future.

Lastly, demographic factors like age at marriage have a bearing on the health of both the mother and child. The average age at marriage of males in the district is 23 years and that of the females, 21 years which is encouraging as compare to the State average which is 22.3 years for male and 19.6 years for female[1].Not only that, Percentage of marriages below legal age at marriage is lowest (5%) in Jamnagar among the all districts in the State.

### 3.1.2 Crude Birth Rate (CBR) and Crude Death Rate (CDR):

Crude Birth Rate (CBR) is a simple measure of fertility which is defined as the number of live births in a year per 1,000 of the midyear population. Similarly, Crude Death Rate (CDR) is defined as the number of Death in a year per 1,000 of the midyear population. The CBR of Jamnagar district are lower than the State average whereas the CDR is same as the state average as per the CRS-2013. Accordingly, the natural rate of growth of population (NRGP) which varies inversely with economic development is also lower than the State average. This implies that the district is expected to experience relatively rapid demographic transition along with economic development as compare to the State average.

**Table 3.2: Crude Birth Rate (CBR) and Crude Death Rate (CDR)**

| | CBR | CDR | NRGP |
|---|---|---|---|
| Jamnagar | 16.8 | 5.6 | 11.2 |
| Gujarat | 20.8 | 5.6 | 15.2 |

*Source: CRS-2013, Gujarat*

## 3.2 HEALTH CARE INFRASTRUCTURE:

Sound health infrastructure ensures efficient and effective utilization of essential public health services. The totality of the health infrastructure includes all governmental and non-governmental entities that provide public health services to the people. This chapter has mainly

[1] *District Level Household and Facility Survey (DLHS-3), 2007-08:India. Gujarat*: Mumbai: IIPS.

focused on analysing the performance of the public sector health entities of the State. Health infrastructures of the district comprise of one district hospital (DH) attached with Medical College, along with another two medical colleges (MC) including one Government dental college & Government Physiotherapy College, one Sub District-Mental Hospital (MH), 11 Community Health Centres ( CHCs), 40 Primary Health Centres (PHCs) and 265 Sub Centers (SCs). Besides there are Two Ayurvedic Hospital (AH) including one grant in aid Hospital, 14 Ayurvadic Dispensaries (ADs) and 9 Homeopathic Dispensaries (HD) in the Government health care domain (Table-3.3). Apart from these, a total of 1866 Anganwadi Centres (ACs) also there in Jamnagar District. Taluka wise infrastructural distribution is also given at Table 3.3. It shows that among all talukas' Jamnagar taluka is in advantageous position in terms of maximum numbers of medical institutions.

**Table 3.3: Health Infrastructure Facility (As of December, 2014)**

**In Nos.**

| Sr. No. | Districts | SCs | PHCs | CHCs | MC | DH | MH | AH | AD | HD | AC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | Dwarka | 25 | 3 | 1 | - | - | - | - | 2 | - | 148 |
| 2. | Kalyanpur | 32 | 5 | 2 | - | - | - | - | - | 3 | 191 |
| 3. | Jamjodhpur | 28 | 6 | 1 | - | - | - | - | 2 | - | 153 |
| 4. | Jamnagar | 32 | 7 | 1 | 3 | - | 1 | 1 | 2 | 2 | 505 |
| 5 | Jodiya | 22 | 3 | 1 | - | - | - | 1 | 1 | 1 | 108 |
| 6. | Dhrol | 16 | 2 | 1 | - | - | - | - | 2 | - | 94 |
| 7. | Kalavad | 31 | 4 | 1 | - | - | - | - | 1 | 1 | 183 |
| 8. | Lalpur | 24 | 3 | 1 | - | - | - | - | - | 1 | 142 |
| 9. | Bhanvad | 24 | 3 | 1 | - | - | - | - | 3 | 1 | 139 |
| 10. | Khambhaliya | 31 | 4 | 1 | - | 1 | | - | 1 | - | 203 |
| **DISTRICT TOTAL** | | **265** | **40** | **11** | **3** | **1** | **1** | **2** | **14** | **9** | **1866** |

*Source: Compiled from the data of CDHO, Jamnagar ,Health Statistics (2012-13), Commissionerate of Health, Medical Services, Medical Education and Research, Gandhinagar & ICDS MPR-March 2014*

Rural Health Care system is delivered in the district as well as state through the network of the SCs, PHCs and CHCs. As per IPHS[2] guidelines each PHC should cater approximately 30,000 populations through a team of health personnel under the leadership of Medical Officer. Four PHCs will be included under each CHCs and will cater 1,20,000 population. Again under each PHC around six SCs will be covered and each SC will be managed by one female health worker and one male health worker covering approximately 5,000 people. CHCs are also performing as First Referral Units for referral and special medical care. District Hospitals and other

[2] http://mohfw.nic.in/NRHM/iphs.htm availed on 7th March, 2013

Government or Grant-in-aid hospitals are also supporting as tertiary care centres. Table 3.4 shows that taluka wise average population serve by each SC, PHC and CHC in Jamnagar district. It shows that most of all the SCs are serving population as per IPHS guideline except Jamjodhpur, Dhrol and Lalpur. Since Lalpur is a fully rural taluka & Jamjodhpur & Dhrol are also less urbanized talukas, private players may not be available there, which attributes over population at SC level. In terms of PHCs & CHCs also Dhrol, Lalpur & Jamjodhpur, Lalpur respectively are over populated as per IPHS guideline.

**Table 3.4: Taluka wise average population served by SCs, PHCs & CHCs: 2012-13**

| Sr. No. | Talukas | SCs | PHCs | CHCs |
|---|---|---|---|---|
| 1. | Okhamandal | 2056 | 17132 | 51395 |
| 2. | Kalyanpur | 5613 | 35924 | 89810 |
| 3. | Jamjodhpur | 7242 | 33795 | 202767 |
| 4. | Jamnagar | 2686 | 12280 | 85958 |
| 5. | Jodiya | 2429 | 17811 | 53432 |
| 6. | Dhrol | 6963 | 55708 | 111415 |
| 7. | Kalavad | 3812 | 29547 | 118187 |
| 8. | Lalpur | 7344 | 58752 | 176256 |
| 9. | Bhanvad | 4309 | 34473 | 103419 |
| 10. | Khambhaliya | 3439 | 26652 | 106606 |
| | **District** | **4487** | **29726** | **108096** |

*Source: Calculated from the data of Census & Commissionerate of Health, Medical Services, Medical Education and Research, Gujarat*

## 3.2.1 Health Personnel Availability:

Rural health care system is mainly dependent on Auxiliary Nurses Midwife (ANM) and female paramedical worker posted at the sub-centers. They are supported by a male Multipurpose Worker (MPW) who is the front line worker in providing the health services to the community**.** Under the NRHM, the Accredited Social Health Activist (ASHA) is being envisaged in each village to promote the health activities. As of July, 2012 a total of 120 MPW are available in the district as against 265 sanctioned posts and 984 ASHA are available as against 1050 sanction posts (CDHO, Jamnagar).

**Table 3.5:** ***Health Personal at CHCs as of July, 2012***

| Districts | General Surgeon | | Physician | | Gynecologist | | Pediatrics | | MO (MBBS) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | S | F | S | F | S | F | S | F | S | F |
| Jamnagar | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 3 |
| Jamjodhpur | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 2 |
| Jodiya | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 3 |
| Bhanvad | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 3 |
| Kalavad | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 3 |
| Kalyanpur | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 6 | 4 |
| Dwarka | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 2 |
| Khambhaliya | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 1 |
| Lalpur | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 3 | 2 |
| Dhrol | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 3 | 2 |
| **DISTRICT TOTAL** | **11** | **0** | **11** | **1** | **11** | **0** | **11** | **1** | **33** | **25** |

*Source: Compiled from the data of CDHO, Jamnagar*

***S: Sanctioned***

***F: Filled up***

Table-3.5 shows that although CHCs are available at every talukas in the district but availability of Health Personal is not appreciable. As per data, every CHC in the district is absent of specialist doctors. Only Lalpur and Dhorl have one physician and pediatrics respectively. Not only that, data also shows that these CHCs are short of medical officers (25 MOs are available as against 33 sanctioned post). At the PHC level also the situation is almost similar. Out of 40 sanctioned posts for MOs only 14 are filled up till March 2012 (Source: CDHO, Jamnagar). Again, for the position of stuff nurse in the district (Hospitals & CHCs) out of 606 sanctioned positions, 438 are filled up. For the position of Head Nurse, out of 71 only 25 are filled up.

The main reason for lack of health personal in rural areas is attributed to the lack of social and economic infrastructure. Even lack of proper schooling facility for children is also one of the major reasons for Doctors for not accepting posting at rural areas. Some special incentive or special staying arrangement for the doctors at taluka headquarters or special bond singing for all medical students for providing at least 5 years of their total service period to rural area can be an innovative step for addressing this problem.

Even the data of health personal for urban areas also not depicting any rosy picture. Out of 27 specialist position in DH/SDH/MC only eight are filled up.

### 3.2.2. Performance of Health Care Institutions:

Performance of health system is evaluated in terms of bed utilization rate and average Out Door Patients (OPD) per day per institution. On the other hand, average ODP per day shows the actual per day work load of the health institution in terms of outdoor patient.

**Table 3.6: Performance of Public Health Services: 2013-14**

| Sr. No | Item | No. of Beds | OPD | IPD |
|---|---|---|---|---|
| 1. | **DH** | 150 | 757494 | 96833 |
| 2. | **MH** | 50 | | |
| 3. | **CHCs** | 350 | 576289 | 104648 |
| 4. | **PHCs** | 240 | 737470 | 8048 |

*Source: Calculated from Health Statistics, Commissionerate of Health, Medical Services,Medical Education and Research & CDHO-Jamnagar*

### 3.2.3. Other System of Medicine:

The Government of Gujarat has tried to integrate the AYUSH system into its general system of medicine. The term AYUSH covers Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy. The AYUSH systems of medicine and its practices are well accepted by the community, particularly, in rural areas. The medicines are easily available and prepared from locally available resources, economical and comparatively safe.

In Jamnagar, one Ayurved hospital, one grant in aid hospital, 14 Ayurved dispensaries and 9 Homeopathic dispensaries are run by Government set up (Table 3.3). The Ayurveda hospital is having 20 beds and the grant in aid hospital is having 105 beds which are facilitated with Panchkarma treatment. AYUSH doctors have been appointed at PHCs and CHCs also for the integration of AYUSH system with the existing system.

## 3.3. MATERNAL & CHILD HEALTH:

Maternal & Child health care is coming under the RCH Programme (Reproductive Child Health Care). The concept of RCH is to provide need based, client centered, demand driven, high quality and an integrated package of RCH services. It is different from the earlier Family Welfare Programme implemented in the country to stabilize population at a level consistent with the needs of national development.

## Maternal Health:

The National Population Policy (NPP), 2000, adopted by the Government of India (Ministry of Health and Family Welfare, 2000) reiterates the Government's commitments to the safe motherhood programme within the wider context of reproductive health. Among the national socio-demographic goals for 2010 specified by the policy, several goals pertain to safe

motherhood that 80 per cent of all deliveries should take place in institutions by 2010, hundred per cent deliveries should be attended by trained personnel, and the maternal mortality ratio should be reduced to a level below 100 per 100,000 live births.

In view of above, NRHM is being implemented in the State with the aim of reducing infant mortality rate & maternal mortality ratio, ensuring population stabilization, prevention & control of communicable & non-communicable diseases. The most crucial part of maternal health is Ante natal Care (ANC), Post Natal Care (PNC) and Institutional Delivery.

### 3.3.1 Antenatal Care

Factor, that acts as determinants of safe motherhood are the antenatal and post-natal medical cares. Ante natal care (ANC) is the care of the woman during pregnancy, aim of which is to achieve at the end of a pregnancy a healthy mother and a healthy baby. Minimum ante-natal care includes at least three antenatal checkups, at least one tetanus toxoid injection (TT), and supplementary iron in the form of IFA[3] tablets daily for 100 days.

**Box 3.1**

**DLHS-II & III**

As per DLHS-3, 75 per cent of pregnant women have received at least 3 ANC checkups as against 54 per cent at state level. District has shown an impressive improvement over the period because it was only 60 per cent as per DLHS-2. The figure for receiving TT and IFA tablets were 88 per cent and 33 per cent as per DLHS-3 which is almost same as compare to DLHS-2.

The ante-natal cares for the latest year (2013-14) with a gap of five years (2009-10) for the rural and urban areas have been shown in Table 3.7. During the latest reference year (2013-14), about 86 per cent of pregnant women of rural areas of the district have received 3 checkups while for urban areas the figure is around 80 per cent. Again, if we look back for 5 years earlier data for the same, it was 72 per cent for rural areas and only 45 per cent for urban areas. For district as a whole it is showing overall 25 percentage point increase over the five years (58 per cent to 83 per cent). Less proportion of 3 ANC checkup for urban areas might be linked with the fact that people are going for the private hospitals for ANC visits after registering the 1st at government set up. Since our statistical system is not tracking the ANC reporting at private hospitals, we are losing the exact figure of ANC registration which is an important parameter of health statistics. Another important component of ANC is TT doses during the pregnancy which shows a satisfactory performance for the recent year (about 95 %) in rural areas but again for urban areas

[3]Nutritional deficiencies among women are often exacerbated during pregnancy because of the additional nutrient requirements of foetal growth; therefore a pregnant woman needs six times more iron than a non-pregnant woman. So receiving iron folic acid tablets/syrup during pregnancy is important .

the figure is unexpectedly low (74 %) (table-3.7) which may indicating that private players are playing an important role here also which need to be track in immediate future.

**Table 3.7: Performance of ANC Registration (in %)**

| | 2009-10 | | 2013-14 | |
|---|---|---|---|---|
| | **3 ANC** | **TT** | **3 ANC** | **TT** |
| Rural | 72 | 82 | 86 | 95 |
| Urban | 45 | 45 | 80 | 74 |
| **District** | **58** | **64** | **83** | **85** |
| **State** | **75** | **83** | **74** | **84** |

***Source: Health Statistics, Commissionerate of Health, Medical Services, Medical Education and Research, Gandhinagar***

As per the latest year, district performance is better than the state for 3 ANC checkups while for TT doses district & State almost in the same platform.

### 3.3.2. Institutional Delivery:

Another important indicator of safe motherhood is the extent of Institutional Delivery of mother. Which implies Safe motherhood depends mainly on delivery by trained /professional personnel, particularly through institutional facilities.

**Box 3.2**

**Status: DLHS-II & III**

In terms of institutional Delivery, the district has achieved considerable success according to DLHS-III (2007-08). The percentage of institutional delivery (69.3) was better as compared to the state average (56.4). Whereas, it was only 49.7 per cent during 2002-04 (DLHS-II), which was much lower than the state average (52.2%). On the other hand, the coverage of safe delivery (deliveries by skilled personnel) has increased only by 2 percentage points from 70.3 per cent to 72.4 during the same period.

Over the years institutional delivery is continuously increasing in the district, especially for rural areas (Table-3.8). During 2009-10 it was only 79.5 per cent, which rose to 96 per cent during 2013-14. In case of urban area, the situation is always better (in 2013-14 only 5.5 per home delivery has been registered). Various initiatives taken by the State Government to improve the maternal care facility including Chiranjeevi Yojana, Janani Suraksha which may have attributed to success of the institutional delivery of the district as well as the State.

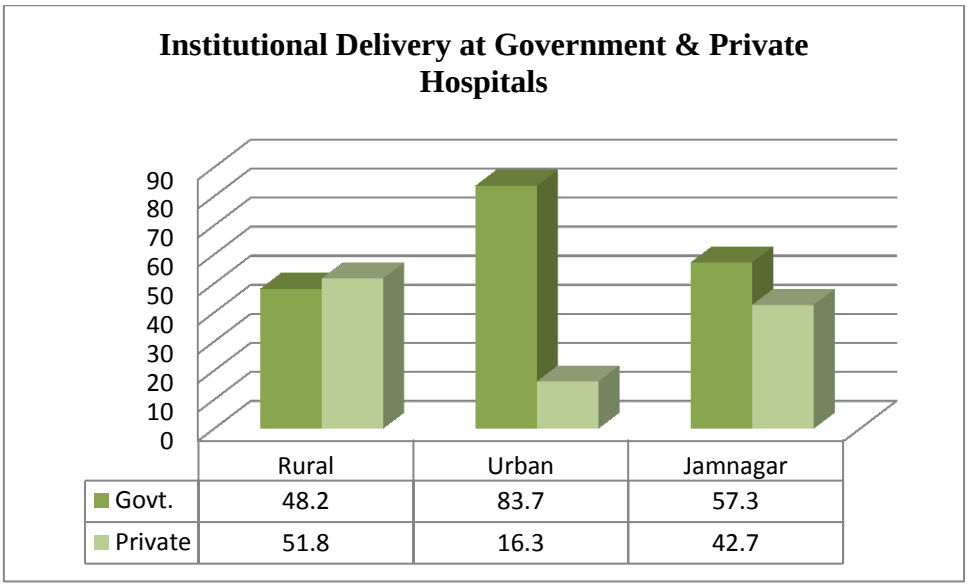
**Table 3.8: Rural-Urban Institutional and Home Delivery**

| | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 |
|---|---|---|---|---|---|
| **Jamnagar** | | | | | |
| **Inst.** | 81.8 | 88.1 | 91.7 | 94 | 95.6 |
| **Home** | 18.2 | 11.9 | 8.3 | 6 | 4.4 |
| **Urban** | | | | | |
| **Inst.** | 87.9 | 92.6 | 93.2 | 95.0 | 94.5 |
| **Home** | 12.1 | 7.4 | 6.8 | 5.0 | 5.5 |
| **Rural** | | | | | |
| **Inst.** | 79.5 | 86.6 | 91.2 | 93.4 | 96.0 |
| **Home** | 20.5 | 13.4 | 8.8 | 6.6 | 4.0 |

*Source: Health Statistics, Commissionerate of Health, Medical Services, Medical Education and Research, Gandhinagar*

It is important to mention here that during the reference period (2013-14), private hospital constitutes more than 50 per cent of the total institutional delivery of the district (57.3 per cent). In particular figure 3.1 shows that in rural Jamnagar private hospital contributes more delivery than the Government Hospital where as in urban areas of the district Government hospital is the majore contributor of Institutional delivery (Figure 3.1).

**Figure 3.1: Characteristics of Institutional Delivery in 2013-14**

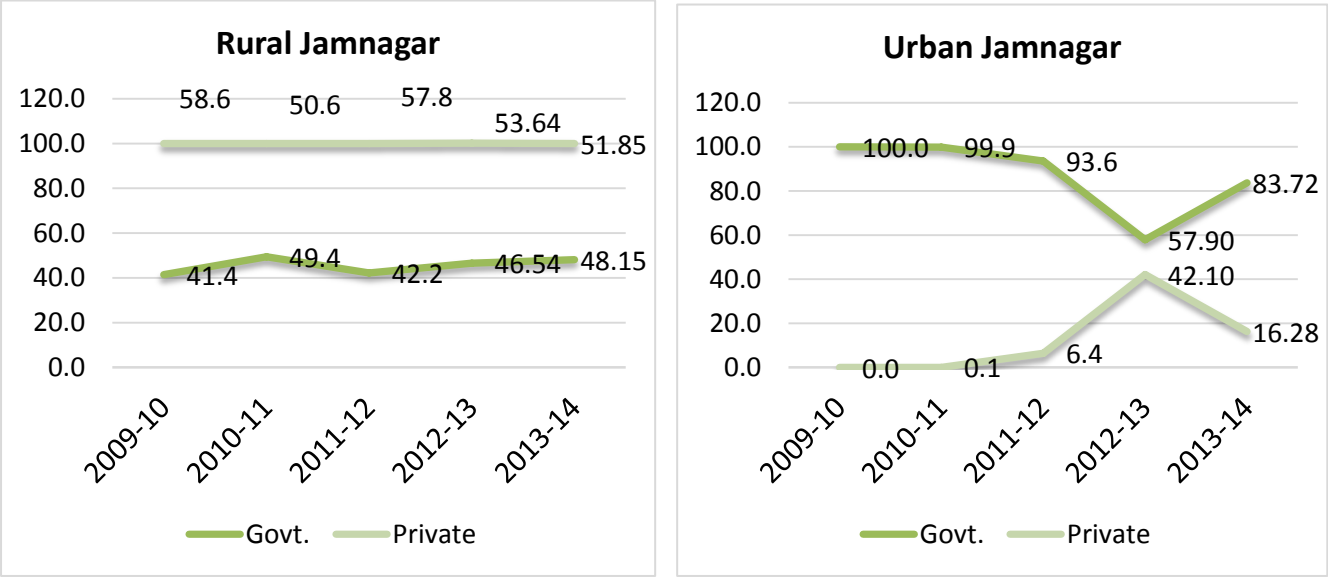



*Source: Health Statistics, Commissionerate of Health, Medical Services, Medical Education and Research, Gandhinagar*

The trend line (Figure 3.2) shows that over the years delivery at private hospital is hovering around 50 per cent to 60 per cent in rural Jamnagar. Urban areas delivery at private hospitals was very less till 2011-12 but it increased substantially during 2012-13 and again during the latest year, Government hospital become the major contributor of the institutional delivery. .

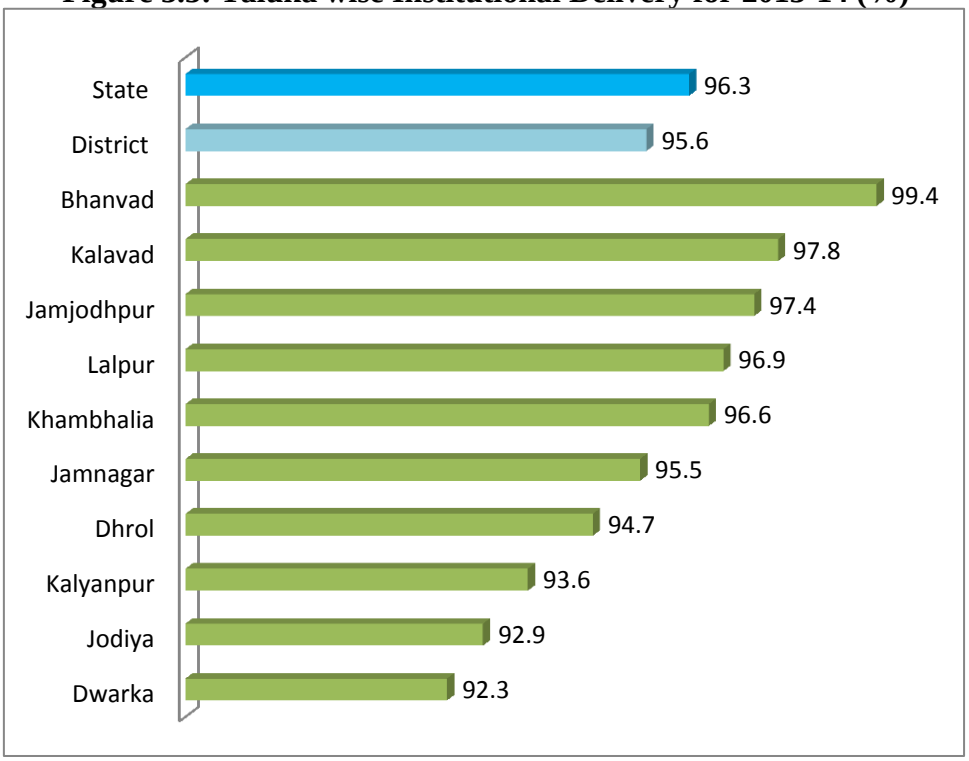
Shortage of obstetricians for providing specialized obstetric services in Government setup can be one of the major reason behind this lack of delivery in Government set up in Rural areas. Not only that, lack of proper management, poor condition of rural health infrastructure, staff vacancies etc. can also be attributed to high birth delivery at private hospitals. Alternatively, it also can be said that the scheme called, **Chiranjeevi Yojana**, which involved private sector specialists to provide services related to safe delivery, initiated by the Gujarat Government can also be one of the reason for increasing private hospital delivery in Rural Areas.

**Figure 3.2: Trends of Institutional delivery-Rural & Urban**




The extent of institutional delivery across the talukas has shown in Figure-3.3. Bhavnad is performing best among the all 10 talukas and occupies 1st rank with 99.4 per cent institutional delivery during 2013-14 while Dwaraka taluka achieved lowest rank with 92.3 per cent of institutional delivery during the same period.

**Figure 3.3: Taluka wise Institutional Delivery for 2013-14 (%)**




*Source: Commissionerate of Health & Medical Services, Medical Education and Research, Gujarat*

### 3.3.3. Government Initiatives for Maternal Health:

The Government of Gujarat has launched two major schemes – ***Chiranjeevi Yojna*** and ***Janani Suraksha***- to achieve visible positive results in a relatively short period regarding safe motherhood and protection of the newly born child.

***Chiranjeevi Yojna:*** In view of the shortage of qualified medical and health personnel for ensuring safe motherhood to pregnant women, the *Chiranjeevi* offers a package of services for anti-natal care, institutional delivery and post natal follow-up. The Yojana was launched in October 2006. The salient features of *Chiranjeevi* Yojana are as under:

- The private medical practitioners (mainly gynaecologist) in the region are being empanelled in the scheme to provide maternity health services.
- A pregnant woman is free to go to any of the empanelled gynaecologist for delivery. The system is voucher based and hence the woman has freedom to choose.
- The eligibility criteria are that the pregnant woman belongs to BPL category or in case of SC/ST there is no income tax payer in the family.

**Benefits:**

- For every delivery, the private doctor is given Rs. 1795/- while a grant-in-aid institution is aid Rs. 695/- per delivery.
- The pregnant woman is given Rs. 200/- for transportation for rural areas and Rs. 100/- for women from urban areas.
- The person who accompanies a pregnant woman is paid Rs. 50/- by the doctor.
- Under the extended Chiranjeevi Yojna the private gynecologist can also enter into contract with the Community Health Centres in the area.

## Performance Report of CY:

**Table 3.9. Year wise performance under CY**

| Year | Jamnagar | | | | Gujarat | | | |
|---|---|---|---|---|---|---|---|---|
| | Total Institutional delivery | Delivery under CY | % of CY delivery to Total Institutional delivery | Empanelled Doctor | Total Institutional delivery | Delivery under CY | % of CY delivery to Total Institutional delivery | Empanelled Doctor |
| **2009-10** | 30373 | 1099 | 3.6 | 16 | 942972 | 155721 | 16.5 | 721 |
| **2010-11** | 36105 | 1248 | 3.5 | 14 | 1098277 | 269942 | 24.6 | 867 |
| **2011-12** | 38937 | 1249 | 3.2 | 27 | 1133558 | 150107 | 13.2 | 646 |
| **2012-13** | 45060 | 1414 | 3.1 | 20 | 1104965 | 89762 | 8.1 | 475 |
| **2013-14** | 27994 | 1105 | 3.9 | 12 | 1087169 | 78510 | 7.2 | 433 |

*Source: Compiled from Health Statistics, Commissionerate of Health & Medical Services, Medical Education and Research, Gujarat*

Last five years performance reports of CY is shown in table-3.9. It shows that percentage of CY delivery to the Total Institutional delivery is nominal & almost same over the years (i.e between 3 to 4 per cent) for the district whereas for the State it is continuously coming down except 2010-11. The reason for under performance of CY may relate with the scarcity of empanelled private doctors in most of the talukas[4] except Jamnagar & Khambalia. According to district health office, although it is very difficult to get private doctors for empanelment for the societal cause (CY) in rural areas, the CHC's are trying to provide the substitute services for the same.

***Janani Suraksha Yojna:*** Janani Suraksha Yojana (JSY) is a safe motherhood intervention under the National Rural Health Mission (NRHM) being implemented with the objective of reducing

[4] Information shared by CDHO Jamnagar.

maternal and neo-natal mortality by promoting institutional delivery among the poor pregnant women. The Scheme has contributed immensely in increasing the Institutional deliveries among the BPL, ST and SC population. The main objective of Janani Suraksha Yojna is that during pregnancy as well as in post-delivery period, financial and nutritional support for healthy motherhood and the protection of the child health which also includes the cost of medicine is provided. Over the years performance under JSY has been shown at table 3.10. It shows, although the number of total beneficiary under the scheme is increasing, the percentage of beneficiaries to total Institutional delivery is decreasing over the years since 2009 for the district as well as for State.

**Table: 3.10. Year wise performance under JSY**

| Year | Jamnagar | | Gujarat | |
|---|---|---|---|---|
| | Total JSY Beneficiary | % of JSY to total Institutional Delivery | Total JSY Beneficiary | % of JSY to total Institutional Delivery |
| 2008-09 | 3842 | 11.1 | 213391 | 25.3 |
| 2009-10 | 7300 | 24.0 | 356263 | 37.8 |
| 2010-11 | 7800 | 21.6 | 343600 | 31.3 |
| 2011-12 | 7801 | 20.0 | 342211 | 30.2 |

*Source: Commissionerate of Health, Medical Services, Medical Education and Research, Gandhinagar*

ASHA workers are having an important role in JSY. Which are as under:

***Role of ASHA or other link health worker associated with JSY:***

- *Identify pregnant woman as a beneficiary of the scheme and report or facilitate registration for ANC,*
- *Assist the pregnant woman to obtain necessary certifications wherever necessary,*
- *Provide and / or help the women in receiving at least three ANC check-ups including TT injections, IFA tablets,*
- *Identify a functional Government health centre or an accredited private health institution for referral and delivery,*
- *Counsel for institutional delivery,*
- *Escort the beneficiary women to the pre-determined health center and stay with her till the woman is discharged,*
- *Arrange to immunize the newborn till the age of 14 weeks,*
- *Inform about the birth or death of the child or mother to the ANM/MO,*

- *Post natal visit within 7 days of delivery to track mother's health after delivery and facilitate in obtaining care, wherever necessary*

- *Counsel for initiation of breastfeeding to the newborn within one-hour of delivery and its continuance till 3-6 months and promote family planning.*

### *108 Emergency Services:*

Government of Gujarat is committed to provide Emergency Response Service through toll free number 108 for Medical, Police and Fire emergencies. In order to ensure efficient delivery of service to the people of Gujarat, GVK Emergency Management and Research Institute has been appointed as nodal agency under PPP (Public Private Partnership) model to professionally manage and deliver comprehensive, speedy, reliable and quality emergency service in Gujarat. 108 Emergency Service has become a synonym of trust and promptness in responding to all kind of emergencies. Ninety nine percent of the calls received on 108 are attended in less than one ring which is better than global standards. In Jamnagar the 108 emergency services was launched on 02nd Oct 2007; 5 ambulances were launched at the time of inception which reached to 21 till July 2012. The performance of 108 emergency facilities in Jamnagar district depicts in table 3.11. It shows that 108 serves mostly (99 %) for the medical emergency cases. Average number of emergency cases handled by each ambulance per day is 3. It is also important to mention here, in medical emergency cases, pregnancy related cases are occupied 35 per cent. Remaining details are given below.

**Table 3.11: Performance of 108 emergency services**

| Sr.No | Key Performance Parameters | Jamnagar till July 2012 |
|---|---|---|
| 1 | Population Covered | 2159130 |
| 2 | Area Covered in Sq.Km | 14126 |
| 3 | Ambulances | 21 |
| 4 | Avg. Population / Ambulance | 102816 |
| 5 | Avg. Area / Ambulance | 672 |
| 6 | Emergency /Ambulance / day | 3 |
| 7 | Total Emergencies | 95259 |
| a | Medical Emergencies | 94245 |
| b | Pregnancy Related cases | 32897 |
| c | Trauma Vehicular Related Cases | 13380 |
| d | Cardiac Related cases | 7042 |
| e | Respiratory Related cases | 3789 |
| f | Others | 37137 |

## *e-Mamta:*

Recognizing the short comings of the health system to effectively deliver the most crucial services for a safe pregnancy and delivery as well as ensure child survival, the Ministry of Health and Family Welfare, Government of India, launched a major initiative, the National Rural Health Mission (NRHM) in 2005 to carry out various corrections in the basic health delivery system. Taking lead from this, the Government of Gujarat was the first to launch a program, the *e-*

*Mamta*, whereby health workers are enabled to track all pregnant women in their area and provide timely antenatal services and subsequently also provide immunization services after childbirth to ensure better reach of maternal and child services.

### 3.3.4. Safe Motherhood Index:

A simplest measure of reproductive health of mother is the simple average of the percentage of institutional delivery and the percentage of ANC-3 check-up which reflected on the index of safe motherhood (Table 3.12). The performance of rural Jamnagar is better as compare to urban Jamnagar, but overall the district performance is not satisfactory among the all 26 districts. Finally, it is satisfactory that a smooth increasing trend is showing for rural & urban both.

**Table 3.12: Safe Motherhood Index**

| Year | 3 ANC | Institutional Delivery | Safe Motherhood Index |
|---|---|---|---|
| **Rural** | | | |
| **2009-10** | 71.8 | 79.5 | 75.7 |
| **2010-11** | 63.3 | 86.6 | 75.0 |
| **2011-12** | 79.0 | 91.2 | 85.1 |
| **2012-13** | 88.0 | 93.4 | 90.7 |
| **2013-14** | 86.0 | 96.0 | 91.0 |
| **Urban** | | | |
| **2009-10** | 44.8 | 87.9 | 66.4 |
| **2010-11** | 66.8 | 92.6 | 79.7 |
| **2011-12** | 70.9 | 93.2 | 82.1 |
| **2012-13** | 80.0 | 95.0 | 87.5 |
| **2013-14** | 80.0 | 94.5 | 87.3 |

***Source: Health Statistics, Commissionerate of Health, Medical Services, Medical Education and Research, Gandhinagar***

## Child Health:

### 3.3.5. Infant Mortality Indicator:

There are various indicators of infant and child mortality. Among the more commonly used, infant mortality rate (IMR) refers to the number of deaths per thousand live births in the first year of a child's life. It reflects the probability of a child dying before attaining the age one year. Similarly, under five mortality rate (U5MR) refers to the probability of child dying before the fifth birthday. The infant and child mortality indicators are likely to be more sensitive to changes that have a bearing on the quality of life, particularly, to the health and longevity of people, thus, more useful from the point of policy targeting and tracking changes in health attainments of a population at more frequent intervals, particularly when the population is yet to complete its demographic transition.

**Box.3.3**

Government of Gujarat had initiated a survey to assess the status of maternal and child health as well as the infant mortality that occurred at the district level. The survey is called District Level Rapid House Hold Survey (DLRHS), to understand the impact of the various MCH programmes in the state. The report was published during 2011. As per the report, *the IMR of the Jamnagr District was 44.4 as against 47.6 at State level. Again, as per the report, the U5MR was 56.9 as against 60.6 at state level. Thus, it depicts that the district condition is better than the state average as per the Infant Mortality Indicator.*

## 3.3.6. Status of Child Immunization:

Immunization is a form of preventive medicine. Its aim is to protect individuals and communities from infectious diseases. Immunization operates like an early warning system. It prepares the body to fight against infection. Following the successful global eradication of smallpox in 1975 through effective vaccination programmes and strengthened surveillance, the Expanded Programme on Immunization (EPI) was launched in Gujarat in 1978 to control other VPDs. The aim was to cover 80% of all infants. Subsequently, the programme was universalized and renamed as Universal Immunization Programme (UIP) in 1985 targeting all infants with the primary immunization schedule and all pregnant women with Tetanus Toxoid immunization. Following the successful launch & implementation of universal immunization programme in 1985, there has been considerable reduction in vaccine preventable diseases. In 1992, the UIP became a part of the Child Survival and Safe Motherhood Programme (CSSM), and in 1997, it became an important component of the Reproductive and Child Health Programme (RCH). The standard immunization schedule developed for the child immunization programme specifies the age at which each vaccine should be administrated and the number of doses and the interval at which it is to be given. Routine vaccinations received by infants and children are usually recorded on a vaccination card that is issued for the child.

According to the data published by Health Department of the state shows a very high degree of child immunization performance for the district during the latest available year i.e 2013-14. It shows that more than 100 per cent of the children have received the required immunisation doses (Table 3.13) which is above than the state performance. Again it is also noticeable that the performance of Rural Jamnagar is better than the urban Jamnagar. Vitamin A doses are also given properly for the district which is also better than the State performance (about 105 per cent are covered).

**Table 3.13: Routine Immunization for the year of 2013-14 in Jamnagar District**

| | BCG | DPT-3 | Measles | Polio-3rd Dose | Vitamin -A | Fully Immunized |
|---|---|---|---|---|---|---|
| Rural | 115.8 | 111.03 | 110.7 | 108.3 | 109.1 | 108.2 |
| Urban | 119.5 | 78.38 | 94.4 | 91.5 | 93.9 | 92.2 |
| **District** | 116.8 | 102.6 | 106.0 | 103.9 | 105.3 | 104.1 |
| **Gujarat** | **107.1** | **107.1** | **99.9** | **90.6** | **93.7** | **97.7** |

***Source: Health Statistics, Commissionerate of Health, Medical Services, Medical Education and Research, Gandhinagar***

The evaluation survey report (DLRHS 2011), however, depicts a somewhat different picture than the official data. *It shows only 62.4 per cent children vaccinated with all vaccination and the performance of Vitamin-A doses is also not so well (81%). This report also shows that urban Jamnagar performance is slightly better than the Rural Jamnagar irrespective of any vaccination (including Vitamin-A). Report highlighted that the main reason for relatively lower coverage of immunization is that a large proportion of children who received some early vaccinations, dropped out of the programme before receiving all of the recommended vaccinations.*

*Annual report of **Integrated Disease Surveillance Project** (2011) is also mentioned that Jamnagar is one of those districts which have reported highest cases of measles. This report also says that drop out is a big challenge for lower immunization of the district as well as for the state.*

In conclusion it can be said that the wide anomalies between reported coverage and evaluated coverage of children immunization services is mainly because of the absence of a comprehensive mechanism for monitoring. A properly oriented district and taluka level health officials could have used the reported data for analysis of performances of individual facilities and plugging the gaps in performance. This aspect needs enhanced focus by the government.

## 3.3.7 New Born Care:

**Table 3.14: New Born care 2013-14**

| New Born care | Jamnagar | Gujarat |
|---|---|---|
| Newborns breastfed within 1 hr of birth ( to reported live births)% | 95.9 | 90.5 |
| Newborns weight less than 2.5 kg (to total newborns weight at birth)% | 8.4 | 10.5 |

*Source: HMIS-2014*

To promote child survival and prevent infant mortality, NRHM envisaged new born care, breastfeeding and food supplementation at the right time and a complete package of immunization for children. With respect to new born care, the district performance is better than

the overall State performance (Table-3.14). About 96 per cent of children are put to the breast feeding within the first day of life for district, which means only 5 per cent infants are deprived of the highly nutritious first milk (colostrum) and the antibodies it contains. Percentage of low birth weight new born babies in the district (8.4 %) is also better than the State average (10.5%).

### 3.3.8 Nutritional Status:

Immunization only protects children from the fatal diseases but it does not ensure nutrition level. Nutrition is linked to the economy of the district and cannot be overcome just by providing better health services. It is a problem related to poverty. Low-income families fail to provide adequate nutritious food to mother and children resulting in malnutrition. Malnutrition affects the physical and mental growth of children. Information from ICDS on weight of children shows that 12 percent of children were underweight across the district till March, 2014. It is highest in Jamnagar at 18 percent (Table 3.15) followed by Lalpur & Kalawad at 12 per cent. In case of Severely Malnourished Children the district is in a very good condition. Except Jamnagar, khambbhalia & Lalpur all talukas having only 1 percent Severely Malnourished Children. On an average 1 percent of children are severely malnourished across the district. Total number of Anganwadi Centre in the District is 1866.

**Table 3.15. Nutritional Status (as of March-2014)**

| Sr. No. | Taluka | No. of AWC Operational | Nutrition Status | | |
|---|---|---|---|---|---|
| | | | Total no. of child weighed (0M- 6Y) | % of underweight Children | % of severe underweight children |
| **1** | DWARKA | 148 | 15904 | 10 | 1 |
| **2** | JAMNAGAR | 505 | 41952 | 18 | 2 |
| **3** | KHAMBBHALIA | 203 | 21234 | 11 | 2 |
| **4** | JODIA | 108 | 7000 | 8 | 1 |
| **5** | BHANWAD | 139 | 9850 | 7 | 1 |
| **6** | DHROL | 94 | 7016 | 7 | 1 |
| **7** | KALYANPUR | 191 | 16495 | 6 | 1 |
| **8** | LALPUR | 142 | 9650 | 12 | 2 |
| **9** | JAM-JODHPUR | 153 | 8977 | 9 | 1 |
| **10** | KALAWAD | 183 | 10957 | 12 | 1 |
| **District Total** | | **1866** | **149035** | **12** | **1** |
| **State Total** | | **51725** | **3964502** | **19** | **1** |

*Source: MPR March-2014, Department of Women & Child*

### 3.3.9 Government Initiatives for Child Health:

Strategies adopted State-wide to curb malnutrition include micro-nutrient supplementation, protein substitution, treatment of infections, and provision of safe drinking water and sanitation facilities. Early and exclusive breast feeding for the first six months, appropriate complementary

feeding, fortification of wheat flour, calcium and vitamin-A supplements to pregnant mothers, use of iodized salt and provision of nutritious Mid-Day Meals in schools have been promoted.

***Bal Sakha Yojana*** *:* Bal Sakha Yojana was incepted in January 2009, to make accessible expert care by private paediatrician to all BPL and tribal children born under the ambit of the Chiranjeevi Yojana or in Government Health care institution.

The Scheme is operationalized in two parts:

- Balsakha Yojana Part 1
- Balsakha Yojana Part 2

***Bal Sakha Yojana 1:*** This part of scheme is applicable to all babies born in BPL, neo-middle class families (with income limit of Rs. 2 lakh) and Tribal APL families (Non Income Tax Paying) under Chiraneevi Yojana, or at CHCs and District Hospitals, where specialized paediatric services are not available.

Under this scheme, the pediatrician attends all eligible new-borns at the place of birth and has to ensure their survival by providing early neonatal care including immunizations at birth, nutrition advice, etc. The gynecologist has to ensure 2 days stay of mother and baby after delivery to cover dangers of immediate post-partum period. In case the infant requires any further care, the baby has to be transferred and treated in the pediatrician's NICU. If the infant requires any high level of care such as ventilator care, the baby will be transferred to Level 3 NICU in medical college hospitals and given facility / money for ambulance charges.

**A package of remuneration is worked out for a total of 100 babies covered as under:** Thus the pediatrician will receive Rs 2,69,000 for 100 consecutive babies treated. Transfer charges shall be given for transfer of babies from one facility to another by the pediatrician as above and will be reimbursed to him / her as per actual.

***Balsakha Yojana Part 2:*** This is applicable to all babies born to BPL, neo-middle class (with income limit of Rs. 2 lakh) and Tribal APL families (Non Income Tax Paying) born at other places than those mentioned in part 1, i.e. born at home, sub centre or a PHC.

The babies born at all places are examined as per IMNCI protocols and those who are identified in Red zone i.e. those who require further medical assistance are referred to the private pediatrician partnering under this scheme. The health worker such as ASHA or anganwadi worker escorts the baby to the pediatrician and is paid incentive for this. The pediatrician will examine and treat 100 such children referred and will admit those who require indoor care. The transfer to higher level will be done as and when required as in part

**Output of the Scheme:** The scheme has given tremendous results in the first year of its launch for the State. A total of 322 private pediatricians have been empanelled under the scheme (Table 3.16). Although over the years the schemes performance is coming down. For the District

Jamnagar, the scheme performance is not noticeable as compare to State. From the starting year the percentage under BSY beneficiaries to the total Institutional delivery is hovering around 1 percent only whereas for the State the same was hovering around 7-8 per cent till 2011-12, after that it is around 5 per cent. The number of empaneled doctors under the scheme also static at 8 for the district over the years while for the state the same is fluctuating.

**Table 3.16: Year wise performance under BSY**

| Year | Jamnagar | | | | Gujarat | | | |
|---|---|---|---|---|---|---|---|---|
| | Total Institutional Delivery | Total New Born under BSY | % BSY beneficiaries to total Institutional Delivery | Enrolled Doctor | Total Institutional Delivery | Total New Born | % BSY beneficiaries to total Institutional Delivery | Enrolled Doctor |
| 2009-10 | 30373 | 87 | 0.3 | 9 | 942972 | 66553 | 7.1 | 322 |
| 2010-11 | 36105 | 255 | 0.7 | 8 | 1098277 | 80515 | 7.3 | 266 |
| 2011-12 | 38937 | 503 | 1.3 | 8 | 1133558 | 92500 | 8.2 | 267 |
| 2012-13 | 45060 | 393 | 0.9 | 8 | 1104965 | 54116 | 4.9 | 194 |
| 2013-14 | 27994 | 429 | 1.5 | 8 | 1087169 | 50687 | 4.7 | 190 |

***Source: Health Statistics, Commissionerate of Health, Medical Services, Medical Education and Research, Gandhinagar***

***School Health Programme:*** To ensure good health for our school children the Department of Health & Family Welfare conducts School Health Program every year which the single, largest, health program operating in the state of Gujarat. Department of Health in collaboration with Education Department & WCD started innovative School Health Program since 1997.
A State level steering committee, under the chairmanship of Hon. Health Minister takes important decision about School Health Program.

Now School Health Program of Gujarat is integrated with Rashtriya Bal Swasthya Karyakram and regular health checkup activities will be carried out through dedicated mobile health teams.

### *Beneficiaries*

- Newborn to 6 years Anganwadi (AW) children
- Children up to 18 years of age enrolled in classes 1 to 12 in all schools (Government , Grant in aids & Private)
- Non-school going children up to age of 14 yrs.
- Children / Juvenile home , Madrassa children

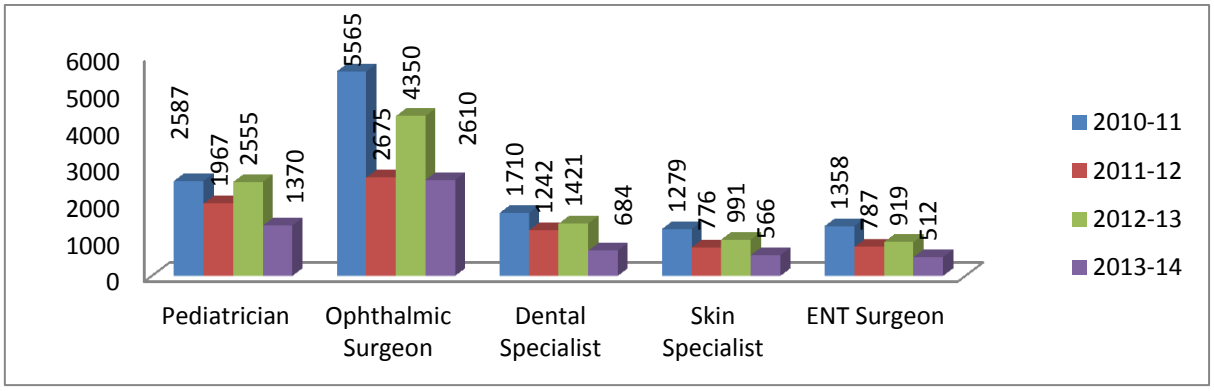
**Table 3.17: Year wise performance under School Health Programme**

| | 2010-11 | 2011-12 | 2012-13 | 2013-14 |
|---|---|---|---|---|
| Child Examined | 495770 | 489469 | 513530 | 397630 |
| Children provided Referral Services | 13433 | 7739 | 11016 | 6496 |
| **Referral Services** | | | | |
| Paediatrician | 2587 | 1967 | 2555 | 1370 |
| Ophthalmic Surgeon | 5565 | 2675 | 4350 | 2610 |
| Dental Specialist | 1710 | 1242 | 1421 | 684 |
| Skin Specialist | 1279 | 776 | 991 | 566 |
| ENT Surgeon | 1358 | 787 | 919 | 512 |

***Source: Health Statistics, Commissionerate of Health, Medical Services, Medical Education and Research, Gandhinagar***

Table 3.17 shows that the year wise performance of School Health Programme in Jamnagar District. Total number of children examined under the scheme is 397630 during 2013-14 among which 6496 children has been provided the Special Referral Services. While during 2012-13 the total number of children examined was 513530 and children got referral services was 11016, higher as compared to reported latest year i.e 2013-14. Again among all referral services, number of children are more under ophthalmic Surgeon, irrespective of year (Figure:3.4). Second largest number is under Pediatrician.

**Figure 3.4: Year wise performance of various Referral Services**



**Special project to improve the nutrition status to middle level under nourished and severely under nourished children in Kalyanpura Taluka of Jamnagar district**

Kalyanpur is the only developing taluka in Jamnagar District, identified under Cowalagi Committee Report. During 2012-13 the unique program was under taken to improve the Nutrition status of 0-6 years of children of the Kalyanpur taluka. Total fund of 20 Lacs was allocated to Kalyanpur taluka under 41 developing taluka scheme for this project.

The project aimed to increase the level of awareness of the parents for their under nourished children and provide them the required knowledge for improvising the health status at regular interval.
The district level has provided the sufficient health staff for completing this task.

At district level training seminar regarding the said project was organized. At the village level the weighing process of the children between the ages 0-5 years was done by FHW and angawadi workers. This process was monitored at regular interval by district project officers. After gradation undernourished children were identified and referred for health checkup at Taluka and Village level.

After recommending at the taluka level this children were referred to the G.G.Hospital of Jamnagar. Severe under nourished children were referred to the Civil Hospital Ahmedabad also. The progress of this project was monitored at every 15 days. The parents of the medium under nourished children and severely nourished children were given the education regarding the day to day care and awareness of latest information. Fresh Snacks and fruits were given twice to the children enrolled in the Aganwadis.

Within 8-10 months period of time, the project was successful as the parents become well versed with formal education of nutrition and awareness and care about their children. Nirmal kits, branded medicines, medicine kits and nutrition kits were circulated at free of cost to all children after the checkup.

The below table shows that the said project was successfully implemented and completed in the Kalyanpur Taluka.

**The status of the whole project in Kalyanpura taluka:**

| Sr No. | Duration | Total weighted children | level of nutrition status | Total numbers | Percentage |
|---|---|---|---|---|---|
| 1 | Before starting the project | 14366 | severely under nourished children | 643 | 4.4 |
| | | | medium under nourished children | 1680 | 11.7 |
| 2 | After completing the project | | severely under nourished children | 163 | 1.1 |
| | | | medium under nourished children | 506 | 3.5 |

# 3.4. PREVENTIVE INDICATORS OF HEALTH:

## 3.4.1. Drinking Water:

Safe drinking water is an essential element for life and of course for better health of an individual. Water born disease like acute diarrhea, dysentery, acute viral hepatitis, cholera, enteric fever etc. are directly related to the source and storage habits of drinking water of the households (Table. 3.18). As far as Jamnagar district is concerned, about 88 per cent of total households are using safe drinking water.[5] This figure is not satisfactory as compare to the state level average where around 93 per cent of total households are using safe drinking water. If we look at the urban scenario, it shows a satisfactory figure (93.8 %) but the lack of safe drinking water availability (83%) in rural area need special attention.

**Table 3.18: Basic Amenities related to Health:**

| | Jamnagar | | | Gujarat | | |
|---|---|---|---|---|---|---|
| | **Total** | **Rural** | **Urban** | **Total** | **Rural** | **Urban** |
| HH having Safe drinking water source | 87.9 | 83.00 | 93.80 | 92.60 | 88.60 | 97.50 |
| H.H Having Latrine Facility within the Premises | 57.22 | 34.83 | 83.82 | 57.34 | 33.04 | 87.70 |

**Source: Census-2011**

## 3.4.2. Latrine Facilities:

Apart from the availability of safe drinking water, lack of sanitation, particularly sewage and disposal of solid waste has been observed as among the main reasons for prevailing ill health and morbidity, especially in rural scenario. As per Census 2011, more than 55 per cent of total number of House Hold of the district (57.22 %) as well as State (57.34%) having toilet facility within the premises of their residence whereas the proportion is around 84 per cent for urban households but less than 40 per cent for rural households in the district. It is to mention here that the rural figure for district is marginally better that the State average (Table 3.18).

**Box 3.4**

DLHS-III (2007-08) also provides data on access to drinking water and toilet facilities. As per the survey report in both facilities, the district performance is far better than state average. As per the report, 94.4 per cent of the households in the district had improved source of drinking water as against around 90 per cent at state level. In case of Toilet facilities within the premises the district's performance is 50.4 per cent in compare to 43.5 per cent at state level.

[5] Tap water, hand pump, tube well / bore well and covered well are considered as a Safe drinking water sources

### 3.4.3 Taluka level Analysis:

Accept Kalyanpur Taluka, almost all talukas are having drinking water facility. However, data in Table 3.19 depicts that during summer the drinking water supply becomes an acute problem in the district.

**Table 3.19: Drinking Water Facility**

| Sr.No. | Talukas | Villages In Taluka | Villages having drinking water facility | | |
|---|---|---|---|---|---|
| | | | All weather | Except summer | Without facility |
| 1 | Okhamandal | 41 | 35 | 3 | 3 |
| 2 | Khmabhalia | 82 | 41 | 39 | 2 |
| 3 | Jamnagar | 99 | 63 | 36 | Nil |
| 4 | Jodiya | 51 | 50 | 1 | Nil |
| 5 | Dhrol | 41 | 35 | 4 | 2 |
| 6 | Kalawad | 98 | 35 | 62 | 1 |
| 7 | Lalpur | 72 | 71 | 1 | Nil |
| 8 | Kalyanpur | 130 | 19 | 46 | 65 |
| 9 | Bhanvad | 80 | 45 | 35 | Nil |
| 10 | Jamjodhpur | 69 | 40 | 29 | Nil |
| **District Total** | | **763** | **434** | **256** | **73** |

Computed from Source: Village Amenity Survey-2008

### 3.4.4 Diseases Trend Analysis: Water Borne Disease:

**Table 3.20: Status of Water Born Diseases**

| Year | District | Acute Diarrheal | Bacillary Dysentery | Acute Viral Hepatitis | Enteric Fever |
|---|---|---|---|---|---|
| **2009-10** | Jamnagar R | 25612 (84.8) | 1623 (93.2) | 112 (31.7) | 4 (0.1) |
| | Jamnagar U | 4586 (18.8) | 118 (6.8) | 241 (68.3) | 3968 (99.9) |
| | **Total** | **30198 (4.7)** | **1741 (5.2)** | **353 (3.2)** | **3972 (25.0)** |
| **2010-11** | Jamnagar R | 24404 (85.9) | 1360 (88.7) | 180 (45.1) | 259 (37.2) |
| | Jamnagar U | 3996 (20.1) | 174 (11.3) | 219 (54.9) | 438 (62.8) |
| | **Total** | **28400 (4.2)** | **1534 (4.0)** | **399 (2.5)** | **697 (3.4)** |
| **2012-13** | Jamnagar R | 20684 (62.6) | 659 (54.2) | 76 (7.1) | 77 (10.0) |
| | Jamnagar U | 12369 (37.4) | 557 (45.8) | 1002 (92.9) | 695 (90.0) |
| | **Total** | **33053 (5.2)** | **1216 (3.2)** | **1078 (2.4)** | **772 (3.5)** |
| **2013-14** | Jamnagar R | 22718 (63.4) | 354 (38.1) | 104 (12.3) | 76 (17.2) |
| | Jamnagar U | 1311 (36.6) | 575 (61.9) | 741 (87.7) | 365 (82.8) |
| | **Total** | **35831 (5.3)** | **929 (3.0)** | **845 (2.1)** | **441 (1.8)** |

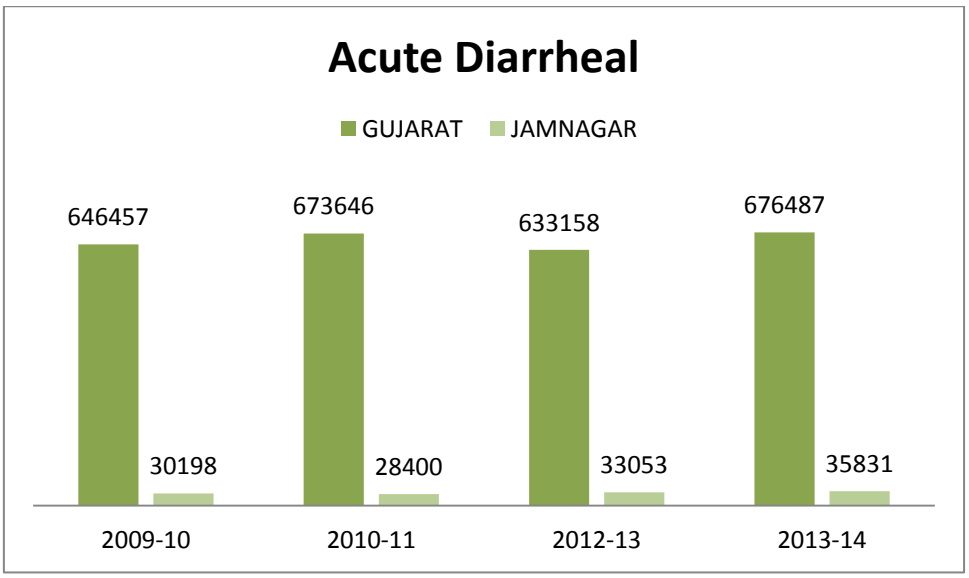
***Source: Health Statistics, Commissionerate of Health, Medical Services, Medical Education and Research, Gandhinagar***

#### Acute Diarrheal:

As per WHO/UNICEF definition "Acute Diarrheal" is an attack of sudden onset, which usually lasts 3-7 days, but may last up to 10-14 days. This is the major public health problem in India as well as Gujarat. Diarrheal related diseases are significant causes of mortality among children under 5 years of age. During 2013-14, a total of 35831clinically diagnosed cases of Acute

Diarrheal were reported in Jamnagar district which covers 5.3 per cent of the of the State's total Acute Diarrheal cases. The trend of last three years shows that rural Jamnagar is mostly affected with this disease which can be related with the unavailability of safe drinking water. The highest reporting of Acute Diarrheal Diseases was noticed in late summer and early monsoon season especially in the month of August.

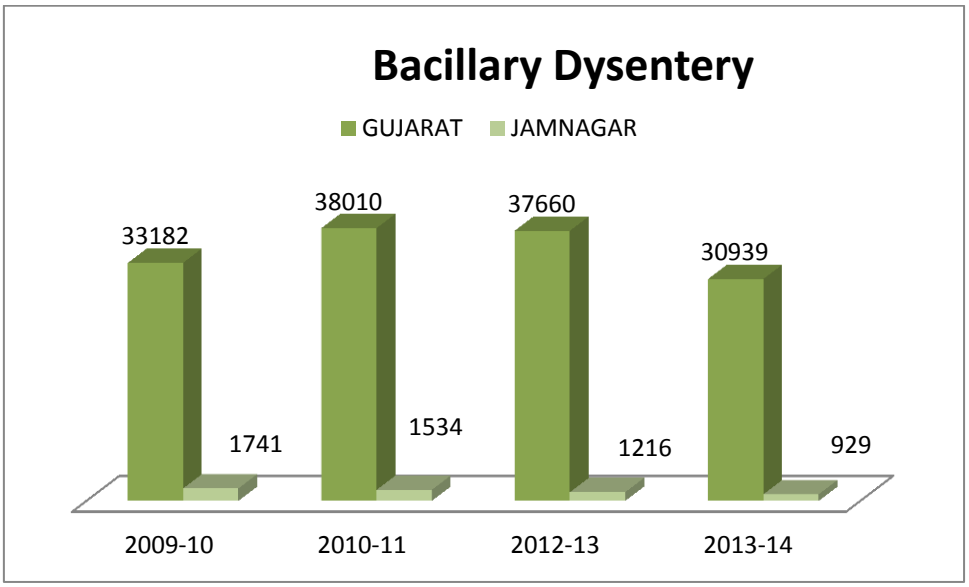
**Figure: 3.5 Year wise case reported in Acute Diarrheal**




## Bacillary Dysentery:

There are a total of 929 clinically diagnosed cases of Bacillary Dysentery reported during 2013-14 in the District which occupied 3 per cent of the State total cases. Trend of last three years shows that rural Jamnagar is mostly affected with this disease till 2012-13. In the current year , urban Jamnagar is showing around 70 per cent of the total cases. Although , total number of the cases has been reduced during the current year for the State as well as district.

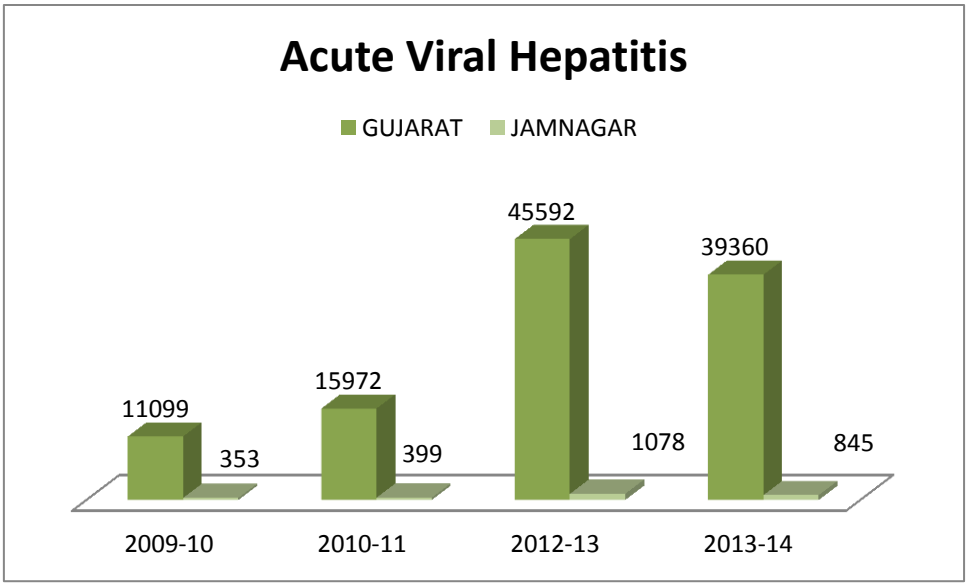
**Figure: 3.6 Year wise case reported in Bacillary Dysentery**



## Acute Viral Hepatitis:

Although Hepatitis is a feature of many viral diseases; the five most common virus which cases Acute Viral Hepatitis are HAV,HBV,HCV,HDV and HEV those primarily target the liver. Table 3.18 shows that in the year 2013-14 outbreak of this disease was occurred in urban Jamnagar where more than 1000 cases were reported which was around 5 times more than the previous years. The total case reported during the same year was 1078 which occupies 2.4 per cent of the total cases of the State. During the current year (2013-14) total number of cases has been reduced for Gujarat as well for the District as compare to the previous year.

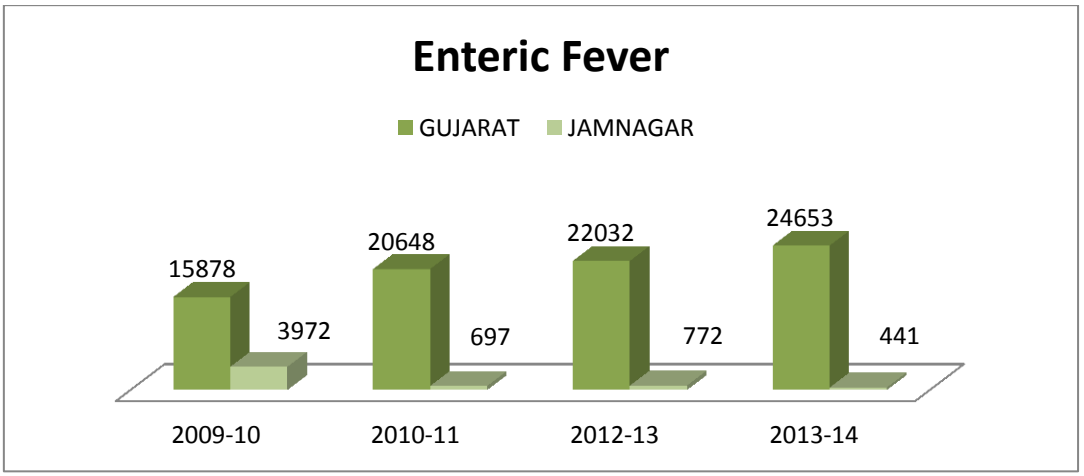
**Figure: 3.7 Year wise case reported in Acute Viral Hepatitis**




## Enteric Fever:

Enteric Fever is a substantial public health problem in India as well as states. There are 441cases of Enteric Fever in 2013-14 reported in the District which occupied very less (1.8) per cent of the State total cases. Over the years the number of cases has been reduced in the district whereas for the State the trend in completely opposite. This diseases is mainly dominated by Urban areas over the years. The factors like contamination of water and food, poor sanitation food handing practice are the most probable reasons for high prevalence of this diseases.

**Figure: 3.8 Year wise case reported in Enteric Fever**




## 3.5 Conclusion

The health service infrastructure in terms of SC, PHC and CHC and other is good in Jamnagar district. But the inadequacy of health service personnel is noticeable. Special incentive or special care for staying arrangement of the doctors at takuka headquarters can help to overcome the situation. Since Government is spending a huge resource for a medical student, a compulsory system for all medical students (passing out from Government Institution) for providing service at least for 5 years at rural areas can be an innovative and affective step to address this problem.

There is no reliable data of supply of the health services from the private sector. As a result it is difficult to visualize complete scenario of the supply situation of health services.

A wide anomaly between reported coverage and evaluated coverage of various services need to be addressed soon. A properly oriented/trained district and taluka level health officials could have used the reported data for analysis of performances of individual facilities and plugging the gaps in performance. This aspect needs enhanced focus by the government.

A more thorough sample study is recommended for addressing health concerns of the human development at the district level. The impact assessment studies for the State's efforts (chiranjeevi, mid-day meal, sanitation, drinking water supply etc.) in this sector are recommended.

# Success Story of WASMO

## Village- Bhimarana, Taluka – Okhamandal, District – Jamnagar

**Village Details**

| | |
|---|---|
| Population | :3668 |
| Male | :1654 |
| Female | :1606 |
| Children | :408 |
| Households | :700 |
| Cattle | :230 |

**Scheme Details**

| | |
|---|---|
| Total Pipeline | :7705 mtr. |
| Pipeline Under ERR | :7705 mtr. |
| Tap Connectivity | :700 |
| Sanitation Facilities | : 155 Toilets, 250 Soak Pits. |

## Our Village:-

- Bhimarana is situated at 30 Kilometers away from Dwarka on DwarkaOkha Highway of Jamnagar District. Main Community of the village is ' MER'. The Community is known for its bravery& unity. It is a 'Samras' village from last 15 years.

## A glimpse of Bhimarana Village:-

- Literacy rate in the village is 48%
- 100% houses have tap water connectivity and have access to safe water. Regular water tariff is being collected by panisamiti for the smooth operation and maintenance of the water supply scheme. Under the ERR project of wasmo, a R.O.Plant is being installed, so that villages can get safe portable water. Under Jalmani Programme of wasmo, a U.V.Plant is being installed, so that children can get safe portable water. Facilities like sanitation for girls & boys, and Rain Roof Water Harvesting System are constrateed in school.
- 533 Nos. of Individual Rain Roof Water Harvesting System has been provided to BPL & APL families.
- Women operated 16 SHG groups in the village.
- The Gram Panchayat election in this village stands unopposed with one village leader elected by consensus last 15 years.
- The village got reward of samaras gam certificate & cash prizes for this purpose.

## Our Past:-

- Bhimarana village was facing acute drinking water problem as there was no local portable source in the village. The villages are situated very near to the costal line, so present source are having high TDS Problem. The village tried for a source by digging wells but all of them have failed having saline water. Bhimarana came out with a solution. They have decided to use group scheme water for drinking purpose and saline water from well is for their usages & started using filtered water from R.O.Plant.

## Begining of Community Managed Village Water Supply Scheme:-

- On 14th September-2004 WASMO team from Jamnagar District explained about wasmo programme in Gram Sabha. Villagers got convinced with the idea and the formation of panisamiti has been done on the same day.
- Under ERR Programme it has been decided by panisamiti to agreement water supply scheme by constructing a sump, ESR and distribution pipeline up to each area with a view to provide house connection to each house, power connection and install and R.O.Plant of 2000 LPH.
- The total cost of the village water supply scheme is 24.60 lacs, for which the villagers have contributed 2.10 lacs as community contribution.

## Drinking Water Facility:-

- WASMO has facilitated the village and created following components of water supply system –

| Sr.No. | Component | Capacity/ Nos | Cost |
|---|---|---|---|
| 1 | R.C.C.Sump | 1.50.000 Ltr capacity | 2,34,000/- |
| 2 | R.C.C.ESR | 1,20,000 Ltr capacity | 7,00,200/- |
| 3 | Pumping Machiner 5 HP. | 1 Nos. | 22,500/- |
| 4 | Pump house 3mx3m (nr.sump) | 1 Nos. | 58,950/- |
| 5 | Power Connection | 1 Nos. | 15,000/- |
| 6 | Sanitation blocks for schools | 4 schools (Govt.Pri.Sh) | 77,540/- |
| 7 | **RRWHS for schools** | **4 Nos. (Govt.Pri.Sh.)** | **2,18,812/-** |

- Panisamiti has implemented the project themselves and called tenders, negotiation and fixed agency. They themselves executed the project. They have purchased pipeline and R.O.Plant.
- Panisamiti is doing regular meetings and gramsabhas to discuss the issues related to drinking water and every year they put accounts in front of village. A good account is also maintained by them.
- For collected contribution, panisamiti has used cable T.V. and has shown whole village the what work is being done is a week and sensitized village to participate.

## R.O.Plant:-

- The village is getting water from R.O.Plant as the underground water of the village is having a high TDS of 3800 ppm. Villagers have decided to use R.O.Water and water from Rain Water Harvesting Structure for drinking purpose and other High TDS water for domestic use and cattle. The village is progressive and innovative. The village is progressive and innovative. They have started to dispose the waste water from R.O.Plant in salt ponds of TCL and in return TCL is supplying them clean treated water through tankers whenever the deficiency of water for drinking. Panisamiti has given a service contract for 1 Year to a local vendor in Jamnagar who maintains the plant and supplies them chemicals. PaniSamiti is collecting Rs. 2/- per 20-Liters for R.O.Water from beneficiaries. TCL Mithapur helps village in technical matters at R.O.Plant.

## Water Tariff:-

- PaniSamiti is collected Rs. 30/- per connection per month and they are maintain the water supply system and other infrastructures.

## Composition of PaniSamitis:-

- PaniSamiti of the village consists of the 15 members.

## Support from WASMO:-

- WASMO has supported village in the area of social mobilization, trainings, technical designs, preparation of village action plan and providing financial assistance of 90% cost from Govt. Tata Chemical Society for Rural Development has worked as an implementation support agency. It has assisted village in implementation of the program. Following activity were done with the help of TCSRD & WASMO.

# CHAPTER - 4

# LIVELIHOOD

## 4.1 AGRICULTURE

### 4.1.1 Land Use pattern

### 4.1.2 Cropping Intensity

### 4.1.3 Land Holding Pattern

### 4.1.4 Agriculture: Crops Production and the Yield

## 4.2 WORK PARTICIPATION

### 4.2.1 Taluka wise WPR of Jamnagar

### 4.2.2 Taluka wise Distribution of Main & Marginal Workers

### 4.2.3 Classification of Workers by Gender and Residence

## 4.3 ANIMAL HUSBANDRY

## 4.4 FISHERIES

## 4.5 INDUSTRIES

### 4.5.1 Support Infrastructure for Industries

## 4.6 BPL FAMILIES

## 4.7 STATUS OF DEVELOPING TALUKA (FLAGSHIP SCHEME)

## 4.8 CONCLUSION

# The Districts Economy

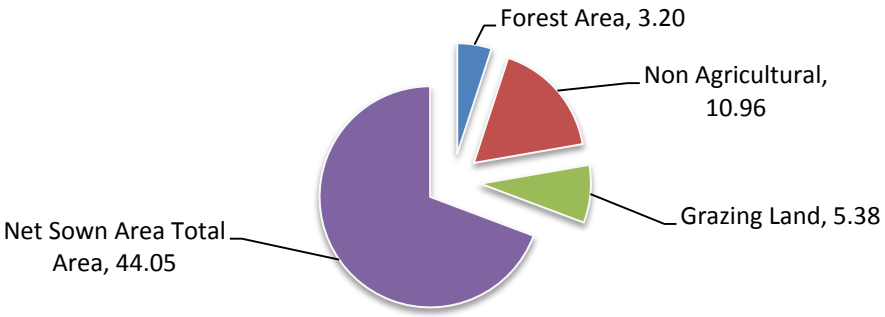
Livelihood is one of the core concerns of human development. Well-developed agriculture, establishes strong linkages between agriculture and the rest of the economy, which helps agricultural population to access higher incomes and better opportunities for human development. The livelihood is very much dependent on natural and economic endowments and institutional arrangements. Agriculture holds significant position in the economy of Jamnagar District. Almost 48.56% of working population is engaged in agriculture sector out of which 64.23% are cultivators and 35.77% are agricultural labourers. This is a reflection on the development of economy. The chapter discusses land use pattern, net area sawn, Irrigated area, cropping intensity, land holding classification, cropping pattern, productivity of fruit crops, productivity of vegetable crops, productivity of food crops, Micro irrigation system and performance of Krishi Mahotsav, animal husbandry, fisheries, industries, Work Participation rate, Classification of workers, BPL families and status of Developing Taluka flagship scheme in Jamnagar District.

## 4.1 AGRICULTURE

### 4.1.1 Land Use pattern (2010-11) :

Land being a vital natural asset, its efficient use is the prerequisite for development as it has greater significance in livelihoods. The total reported area of Jamnagar is about 10 Lakh hectares, of which 3.20% is forest, 10.96% is under non-agricultural use and 5.38% is grazing land.

**Graph 4.1**
**Land Use Classification (%)**




Geographically, Kalyanpur is the biggest taluka sharing 9.96% of district area, while Dhrol is the smallest taluka sharing 4.02% of area of district. Jamjodhpur shares maximum forest area (18.76%) of total Forest area, while Dhrol shareslowest (1.84%) forest area. Kalyanpur shares

largest area (18.59%) under non-agricultural use and Okhamandal shares least area (1.75%) under non-agricultural use. Kalavad shares maximum area (13.82%) under grazing and Okhamandal shares least area (5.08%) under grazing. Kalavad shares largest net sown area (13.30%), while Okhamandal shares least portion (5.82%) of Total net sown area as shown in Table 4.1.

**Table 4.1: Taluka wise Land Use Classification**

| Unit | Forest Area | | | Non Agricultural | | | Grazing Land | | | Net Sown Area Total Area | | | Total Area |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Area (Ha.) | % Dist | % Tal | Area (Ha.) | % Dist | % Tal | Area (Ha.) | % Dist | % Tal | Area (Ha.) | % Dist | % Tal | (Sq. Km) |
| Bhanvad | 7535 | 0.53 | 16.60 | 8087 | 0.57 | 5.20 | 6112 | 0.43 | 8.00 | 44915 | 3.17 | 7.19 | 731.95 |
| Dhrol | 835 | 0.06 | 1.84 | 7772 | 0.55 | 5.00 | 4606 | 0.32 | 6.03 | 40111 | 2.83 | 6.42 | 569.89 |
| Jamjodhpur | 8517 | 0.60 | 18.76 | 21221 | 1.50 | 13.65 | 10436 | 0.74 | 13.66 | 62500 | 4.41 | 10.00 | 1091.32 |
| Jamnagar | 1735 | 0.12 | 3.82 | 11132 | 0.78 | 7.16 | 8247 | 0.58 | 10.80 | 82500 | 5.82 | 13.21 | 1173.91 |
| Jodiya | 8208 | 0.58 | 18.08 | 13801 | 0.97 | 8.88 | 6348 | 0.45 | 8.31 | 53500 | 3.77 | 8.56 | 868.66 |
| Kalavad | 3371 | 0.24 | 7.43 | 22396 | 1.58 | 14.40 | 10551 | 0.74 | 13.82 | 83123 | 5.86 | 13.30 | 1244.37 |
| Kalyanpur | 3685 | 0.26 | 8.12 | 28909 | 2.04 | 18.59 | 9667 | 0.68 | 12.66 | 81600 | 5.75 | 13.06 | 1412.22 |
| Khambhadiya | 1897 | 0.13 | 4.18 | 25876 | 1.82 | 16.64 | 8791 | 0.62 | 11.51 | 75500 | 5.32 | 12.08 | 1214.25 |
| lalpur | 5368 | 0.38 | 11.83 | 13552 | 0.96 | 8.72 | 7731 | 0.55 | 10.12 | 64650 | 4.56 | 10.35 | 1078.29 |
| Okhamandal | 4243 | 0.30 | 9.35 | 2728 | 0.19 | 1.75 | 3882 | 0.27 | 5.08 | 36355 | 2.56 | 5.82 | 716.67 |
| **Jamnagar District** | **45394** | **3.20** | **100.0** | **155474** | **10.96** | **100.0** | **76371** | **5.38** | **100.0** | **624754** | **44.05** | **100.0** | **14184** |

*Source: District Statistical Outline (2010-11), Jamnagar*

Agriculture in Jamnagar is predominantly single season. The monsoon months engages the rural population into agriculture operation. Like other districts of Saurashatra, Jamnagar is also known for being a water deficient area. Off late, studies have revealed that many of the villages in the coastal locations of the district suffer from salinity ingress in the groundwater aquifers.

### 4.1.2 Cropping Intensity:

There are two ways to satisfy the increasing food and other agricultural demands of the rising population: either by expanding the net area under cultivation or intensifying cropping over the existing area. The Net Area Sown of Jamnagar has risen only by about 1.27% in 2005-06 indicating less possibility to make any appreciable increase. Thus; raising the Cropping Intensity is the only viable option left. Cropping Intensity refers to rising of a number of crops from the same field during one agriculture year. It can be expressed as Cropping Intensity = (Gross Cropped Area / Net Cropped Area) x 100. Thus, higher Cropping Intensity means that a higher portion of the net area is being cropped more than once during one agricultural year. In 2005-06, the highest intensity is seen in Kalavad and Jamnagar Taluka. In the year 2010-11, Dhrol shows noticeable increased in the cropping pattern that is 146.35, which is highest among all the talukas

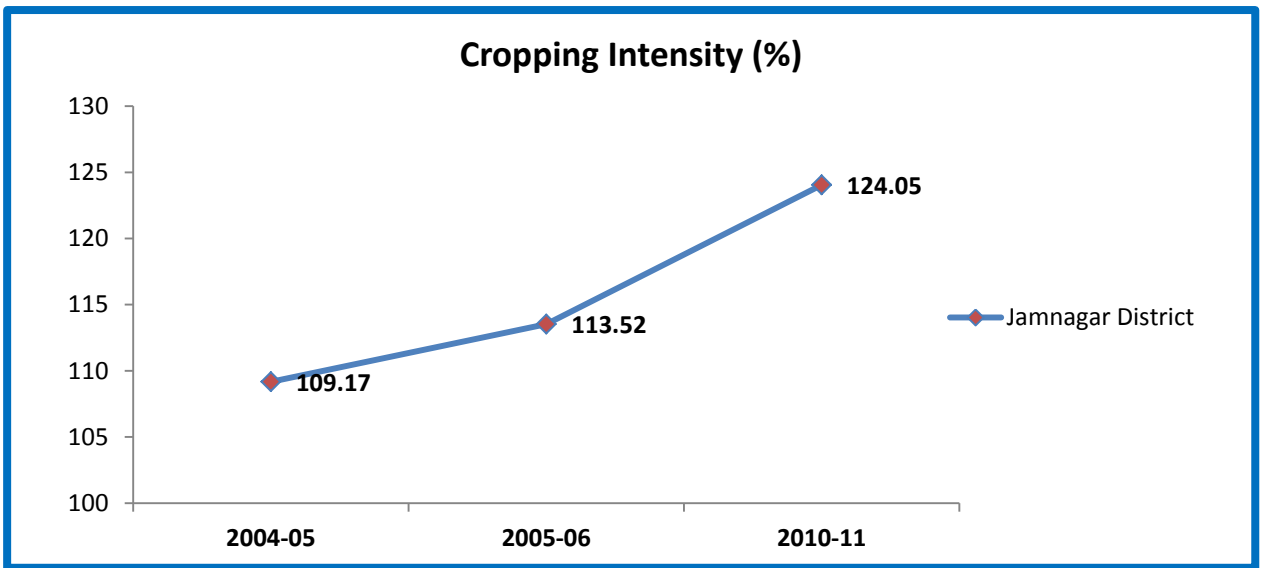
of the district .The low cropping intensity suggests that in most cases, agriculture is single seasonal. The Cropping Intensity of Jamnagar district is constantly increasing which is depicted below in (Table 4.2).

**Table 4.2: Cropping Intensity across Taluka of Jamnagar**

| Taluka | 2004-05 | | 2005-06 | | 2010-11 | |
|---|---|---|---|---|---|---|
| | Net Area Sown (Ha) | Cropping Intensity (%) | Net Area Sown (Ha) | Cropping Intensity (%) | Net Area Sown (Ha) | Cropping Intensity (%) |
| **Bhanvad** | 44827 | 114.60 | 44915 | 112.01 | 49308 | 123.07 |
| **Dhrol** | 40066 | 117.59 | 40111 | 114.92 | 38780 | 146.35 |
| **Jamjodhpur** | 62150 | 107.19 | 62500 | 119.42 | 59870 | 118.08 |
| **Jamnagar** | 82050 | 106.09 | 82500 | 126.63 | 77680 | 124.88 |
| **Jodiya** | 53523 | 116.82 | 53500 | 109.52 | 48612 | 124.27 |
| **Kalavad** | 82525 | 113.73 | 83123 | 128.98 | 77120 | 133.41 |
| **Kalyanpur** | 75778 | 102.64 | 81600 | 102.52 | 79232 | 130.65 |
| **Khambhalia** | 75530 | 104.7s6 | 75500 | 101.78 | 75157 | 113.11 |
| **Lalpur** | 63540 | 110.21 | 64650 | 109.04 | 65837 | 117.23 |
| **Okhamandal** | 36900 | 103.05 | 36355 | 101.37 | 25915 | 104.51 |
| **Jamnagar District** | **616889** | **109.17** | **624754** | **113.52** | **597511** | **124.05** |

*Source-Directorate of Agriculture, Gandhinagar*

**Graph: 4.2. % of Cropping Intensity**



### 4.1.3 Land Holding Pattern

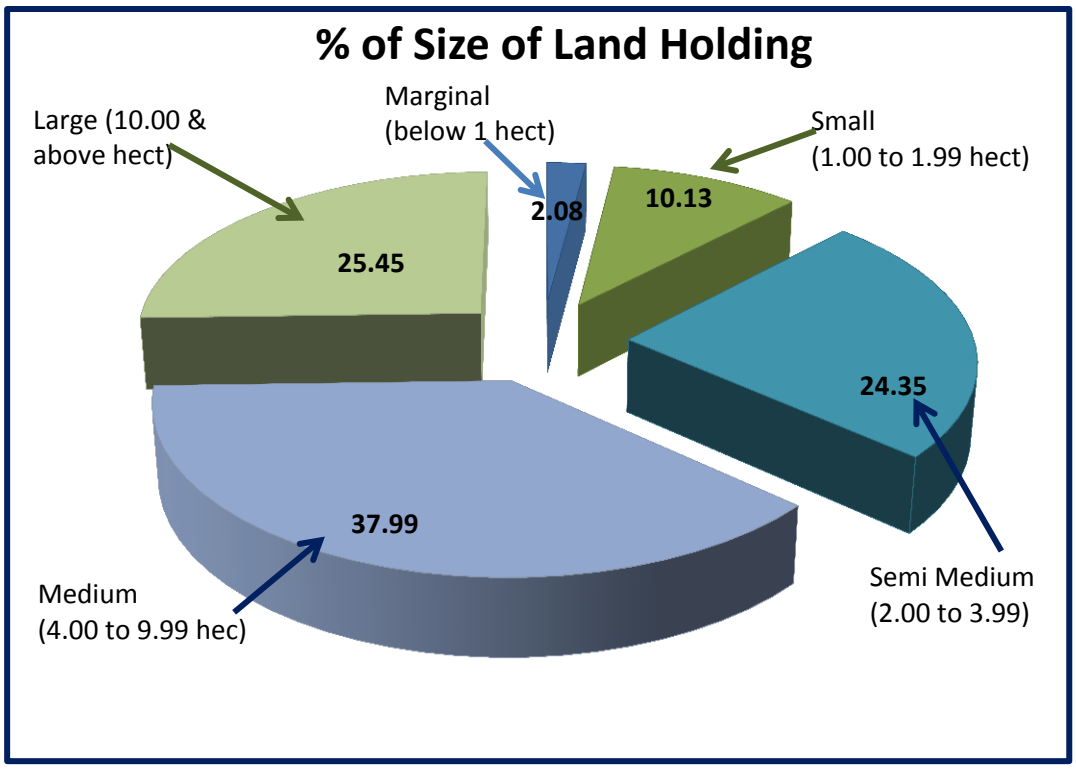
An important feature of agriculture in India is with regards to the fragmentation of landholdings. Jamnagar district shows changing picture. The agricultural land during 2005-06 in the district was distributed among total of 240118 farmers and institutions, which is decrease in 2010-11 to 211629. In the Jamnagar district average land holding per person has increased. It is to be noted that Marginal, semi and semi medium farmers' landholdings has decreased. This decreased is noticed in others social group, as % of land holdings of SC and ST shows good increase. Medium, large farmer's landholdings have increased. It implies that other social group farmers might be shifted to other sectors.

Out of the total operational holdings (No.) of Jamnagar, 5.02% belongs to SC which is raised from 2.46%, and % holdings of ST also increased which is exhibited in table 4.4.

**Table 4.3: Number &Area (ha) of Operational Holders according To Size Class & Social Groups in Jamnagar (2005-06 & 2010-11)**

| Sr. No | Size Class | Year | Institutional | | SC | | ST | | Others | | All Social Group | | Avg. Land Holding per Person (All Social Groups) | % Size against Total Area | % Holding of SCs | % Holding of STs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | No. | AREA | No. | AREA | No. | AREA | No. | AREA | No. | AREA | | | | |
| 1 | Marginal (below 1 hect.) | 2005-06 | 93 | 36 | 731 | 519 | 7 | 6 | 35497 | 23138 | 36328 | 23699 | 0.65 | 3.74 | 2.19 | 0.03 |
| | | 2010-11 | 37 | 20 | 1300 | 821 | 180 | 118 | 25829 | 15740 | 27346 | 16699 | 0.61 | 2.64 | 4.92 | 0.71 |
| 2 | Small (1.00 to 1.99 hect.) | 2005-06 | 31 | 44 | 2163 | 3234 | 21 | 32 | 85017 | 127482 | 87232 | 130791 | 1.50 | 20.64 | 2.47 | 0.02 |
| | | 2010-11 | 61 | 90 | 3137 | 4651 | 277 | 412 | 51684 | 76194 | 55159 | 81344 | 1.47 | 10.13 | 5.72 | 0.51 |
| 3 | Semi Medium (2.00 to 3.99 hect.) | 2005-06 | 49 | 134 | 2094 | 5704 | 19 | 49 | 73113 | 202569 | 75275 | 208456 | 2.77 | 32.90 | 2.74 | 0.02 |
| | | 2010-11 | 83 | 243 | 4004 | 11200 | 339 | 945 | 64469 | 183065 | 68895 | 195454 | 2.84 | 24.35 | 5.73 | 0.48 |
| 4 | Medium (4.00 to 9.99 hect.) | 2005-06 | 69 | 446 | 845 | 4639 | 12 | 68 | 37141 | 212429 | 38067 | 217582 | 5.72 | 34.34 | 2.13 | 0.03 |
| | | 2010-11 | 87 | 541 | 2612 | 16435 | 182 | 1042 | 48853 | 287005 | 51734 | 305019 | 5.90 | 37.99 | 5.39 | 0.34 |
| 5 | Large (10.00 & Above hect.) | 2005-06 | 87 | 7485 | 64 | 1504 | 0 | 0 | 3065 | 44070 | 3216 | 53058 | 16.50 | 8.37 | 2.83 | 0.00 |
| | | 2010-11 | 148 | 28178 | 255 | 7157 | 24 | 956 | 8068 | 168023 | 8495 | 204314 | 24.05 | 25.45 | 3.50 | 0.47 |
| All Classes | | 2005-06 | 329 | 8145 | 5897 | 15600 | 59 | 155 | 233833 | 609688 | 240118 | 633586 | 2.64 | 100.00 | 2.46 | 0.02 |
| | | 2010-11 | 416 | 29072 | 11308 | 40264 | 1002 | 3473 | 198903 | 730027 | 211629 | 802830 | 3.79 | 100.56 | 5.02 | 0.43 |

**Graph 4.3 % of Size of Land Holding (2010-11)**




The distribution of land across various socio-economic groups also does not reflect a different picture. The SC and ST also show that they also own similar amount of land vis-à-vis the other groups. Table 4.4 represents this.

**Table 4.4: Average Land Holdings amongst SCs and STs (2005-2006 & 2010-11)**

| Sr. No. | Size Class | % Holding of SCs | | % Holding of STs | |
|---|---|---|---|---|---|
| | | 2005-06 | 2010-11 | 2005-06 | 2010-11 |
| 1 | **Marginal** (Below 1 hect.) | 2.19 | 4.92 | 0.03 | 0.71 |
| 2 | **Small** (1.00 to 1.99 hect.) | 2.47 | 5.72 | 0.02 | 0.51 |
| 3 | **Semi Medium** (2.00 to 3.99 hect.) | 2.74 | 5.73 | 0.02 | 0.48 |
| 4 | **Medium** (4.00 to 9.99 hect.) | 2.13 | 5.39 | 0.03 | 0.34 |
| 5 | **Large** (10.00 & Above hect.) | 2.83 | 3.50 | 0.00 | 0.47 |

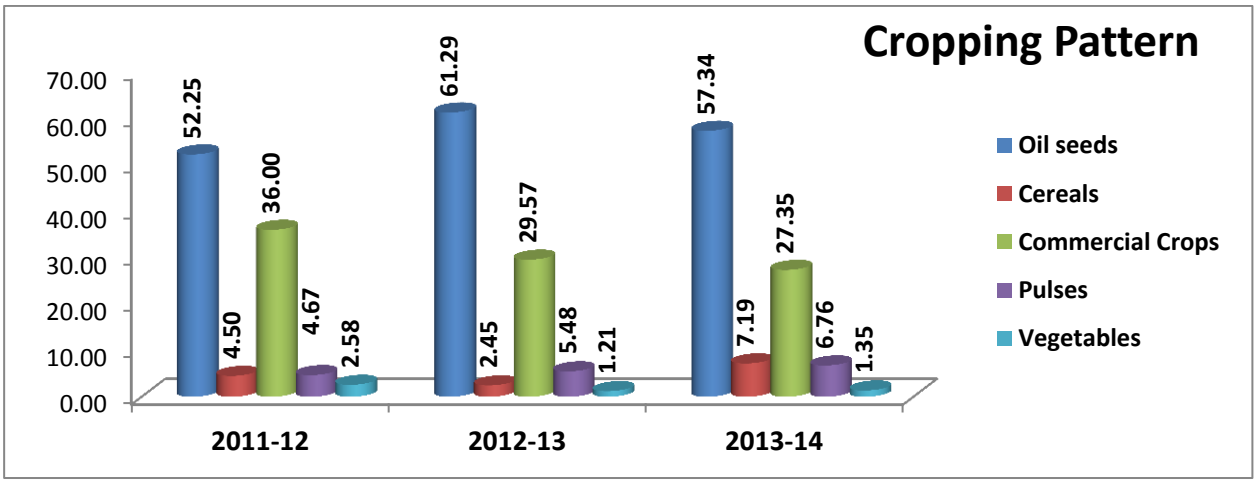
*Source- Agriculture Census Gujarat State: 2010-11*

## 4.1.4 Agriculture: Crops Production and the Yield:

### *4.1.4.1 Cropping Pattern*

Productivity is often an important determinant of returns the farmers have and this has an important bearing on their livelihoods. The district shows a dominance of cash crops (Oilseeds and Lint) over the food crops (Cereals and Pulses). Over the period, the areas under food crops have also shown a decline. The reason that one could attribute is the preference for the high value crops (Cotton) which has got introduced through extension services of the public and the private players. The cropping pattern of the district in the last three years has been graphical shown.

**Graph 4.4: Cropping pattern of Jamnagar (2011-12 to 2013-14)**




*Source-District Agricultural Officer,Gandhinagar*

It is has been noticed that more than 50% of cropped area is under cash crops (oilseeds) in Jamnagar district and rest of the area is under cereals, commercial crops , pulses, vegetables.

### *1.4.2 Fruit Crop*

The Fruit crops grown in the district includes Mango, Chiku, Bananas, Papayas etc. The Production and Yield of these fruit crops have been mentioned below. Papayas have highest Yield per hectare i.e. 62.11 M.T. /Ha in the year 2013-14, although it's Yield has increased as compare to 2011-12 i.e. 60.40 M.T. / Ha. However Cashew Nut have lowest yield per ha. i.e. 1.00 m.t. /ha in the year 2013-14.

**Table: 4.5: District's Area, Production &Yield of FRUIT Crops**

| *Area in Ha., Prod. In M.T, Yield in M.T./Ha* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Sr. No.** | **Name of Crop** | **2011-12** | | | **2012-13** | | | **2013-14** | | |
| | | **Area** | **Prodn.** | **Yield** | **Area** | **Prodn.** | **Yield** | **Area** | **Prodn.** | **Yield** |
| **1** | Mango | 457 | 4387 | 9.60 | 461 | 3740 | 8.11 | 466 | 2843 | 6.10 |
| **2** | Chiku | 246 | 2755 | 11.20 | 249 | 2822 | 11.33 | 249 | 2822 | 11.33 |
| **3** | Citrus | 218 | 1264 | 5.80 | 236 | 1237 | 5.24 | 249 | 1843 | 7.40 |
| **4** | Ber | 318 | 1813 | 5.70 | 326 | 3135 | 9.62 | 335 | 3222 | 9.62 |
| **5** | Bananas | 17 | 362.1 | 21.30 | 29 | 1267 | 43.69 | 29 | 1267 | 43.69 |
| **6** | Guava | 11 | 45.65 | 4.15 | 11 | 48 | 4.36 | 11 | 48 | 4.36 |
| **7** | Pomegranate | 79 | 639.9 | 8.10 | 162 | 1938 | 11.96 | 445 | 3783 | 8.50 |
| **8** | Datepalm | 19 | 74 | 3.89 | 53 | 283 | 5.34 | 71 | 355 | 5.00 |
| **9** | Papayas | 412 | 24885 | 60.40 | 412 | 25595 | 62.12 | 420 | 26087 | **62.11** |
| **10** | Custard apple | 58 | 330.6 | 5.70 | 65 | 347 | 5.34 | 65 | 488 | 7.50 |
| **11** | Aonla | 33 | 112.2 | 3.40 | 35 | 109 | 3.11 | 35 | 210 | 6.00 |
| **12** | Cashews Nut | 4 | 2 | 0.50 | 4 | 4 | 1.00 | 4 | 4 | **1.00** |
| **13** | Coconut | 463 | 3889 | 8.40 | 465 | 4012 | 8.63 | 465 | 418500 | 900 |
| **14** | Others | 124 | 651.85 | 5.26 | 127 | 5840 | 45.98 | 127 | 964 | 7.59 |
| **Total** | | **2459** | **41211** | **16.76** | **2635** | **50377** | **19.12** | **2506** | **43934** | **17.53** |

*Source: Directorate of Horticulture, Gandhinagar, Government of Gujarat*

It is worth noting that Area under food crops as well as its Yield has fallen down from 2635 ha & 19.12 M.T. /Ha respectively in 2012-13 to 2506 Ha & 17.53 M.T. /Ha in 2013-14. Reason may be that the focus of farmers have shifted slightly towards Vegetable crops rather than fruit crops. (table 4.6 depicts the status).

### *4.1.4.3 Vegetable Crops*

The vegetable crops grown in the district includes Potato, Onion, Bringle, Tomato etc. Tomato have highest Yield per hectare i.e. 29.00 M.T. /Ha in 2013-14. Overall picture of vegetable crops has shown vast increase in its Area, Production as well as its yield from 2011-12 to 2013-14. May be initiatives like Krushi Mohatsav has played a vital role in developing the overall status of the farming sector in the district.

**Table 4.6: District's Area, Production &Yield of Vegetable Crops**

*Area in Ha., Prod. In M.T, Yield in M.T./Ha*

| Sr. No | Name of Crop | 2011-12 | | | 2012-13 | | | 2013-14 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Area | Prodn. | Yield | Area | Prodn. | Yield | Area | Prodn. | Yield |
| **1** | Potato | 1035 | 16353 | 15.80 | 230 | 4010 | 17.43 | 667 | 9309 | 13.96 |
| **2** | Onionx | 3626 | 86299 | 23.80 | 1610 | 33960 | 21.09 | 4310 | 86200 | 20.00 |
| **3** | Bringle | 1475 | 14603 | 9.90 | 830 | 9146 | 11.02 | 1740 | 32364 | 18.60 |
| **4** | Cabbage | 719 | 10641 | 14.80 | 632 | 8890 | 14.07 | 690 | 11040 | 16.00 |
| **5** | Okra | 2037 | 11611 | 5.70 | 2385 | 14360 | 6.02 | 2290 | 16076 | 7.02 |
| **6** | Tomato | 2689 | 45175 | 16.80 | 2840 | 42866 | 15.09 | 2450 | 71050 | **29.00** |
| **7** | Cauliflower | 412 | 4244 | 10.30 | 182 | 1735 | 9.53 | 195 | 2681 | 13.75 |
| **8** | Cluster Bean | 1029 | 4528 | 4.40 | 2590 | 6820 | 2.63 | 4301 | 40860 | 9.50 |
| **9** | Cowpea | 818 | 3436 | 4.20 | 835 | 4485 | 5.37 | 585 | 4680 | 8.00 |
| **10** | Cucurbits | 1038 | 13473.24 | 12.98 | 1958 | 19988 | 10.21 | 1660 | 27002 | 16.27 |
| **11** | Others | 87 | 315.80 | 3.63 | 1150 | 24525 | 21.33 | 104 | 1136 | 10.92 |
| **Total** | | **14965** | **210679** | **14.08** | **15242** | **170785** | **11.20** | **18992** | **302398** | **15.92** |

*Source: Directorate of Horticulture, Gandhinagar, Government of Gujarat*

### *4.1.4.4 Food Crops*

Initially Bajra was the major food crop but gradually its production seems decreasing i.e. from 48000 tonnes in 2001-02 to 25000 tonnes in 2005-06. After the year 2003-04 Wheat becomes one of the major food crop grown in the district. Total area of wheat increases from 442 ha in 2001-02 to 1253 ha in 2007-08. In the year 2007-08, production yield per hectare is 3694 kgs, which is higher than State's 2938 kgs/ hectare.

**Table 4.7**
**District's Area, Production &Yield of Food CROPS**

***Area in'000Ha., Prod. In '000 Tonnes, Yield in K.G.s/Ha***

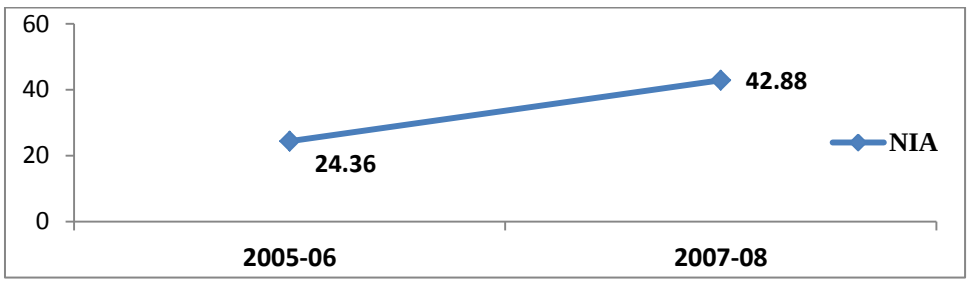
| Year | State/ District | Rice | | | Jowar | | | Bajra | | | Wheat | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Area | Prod. | Yield | Area | Prod | Yield | Area | Prod | Yield | Area | Prod | Yield |
| 2001-2002 | Gujarat | 698 | 1048 | 1501 | 222 | 210 | 944 | 115 | 1509 | 1303 | 442 | 1037 | 2346 |
| | Jamnagar | - | - | - | @ | @@ | 751 | 40 | 48 | 1176 | 10 | 28 | 2845 |
| 2002-2003 | Gujarat | 629 | 838 | 1334 | 212 | 198 | 937 | 1129 | 1160 | 1027 | 479 | 934 | 1951 |
| | Jamnagar | - | - | - | - | - | - | 31 | 9 | 284 | 8 | 21 | 2482 |
| 2003-2004 | Gujarat | 719 | 1339 | 1861 | 166 | 197 | 1183 | 1161 | 1701 | 1465 | 734 | 1936 | 2637 |
| | Jamnagar | - | - | - | 3 | 2 | 875 | 34 | 58 | 1716 | 35 | 128 | 3610 |
| 2004-2005 | Gujarat | 734 | 1277 | 1741 | 161 | 190 | 1178 | 1016 | 1183 | 1164 | 755 | 1899 | 2514 |
| | Jamnagar | - | - | - | 5 | 4 | 948 | 29 | 36 | 1227 | 25 | 80 | 3158 |
| 2005-2006 | Gujarat | 737 | 1383 | 1520 | 149 | 181 | 1212 | 986 | 1250 | 1267 | 892 | 2388 | 2678 |
| | Jamnagar | - | - | - | 2 | 2 | 1104 | 23 | 25 | 1070 | 30 | 83 | 2728 |
| 2007-2008 | Gujarat | 804 | 1526 | 1898 | 151 | 185 | 1225 | 947 | 1348 | 1423 | 1253 | 3689 | 2938 |
| | Jamnagar | 0 | 0 | 0 | 1 | 1 | 1000 | 15 | 24 | 1600 | 49 | 181 | 3694 |

***@below '000 ha, @@ below '000 tonnes*** *Source-Directorate of Agriculture Gandhinagar*

### *4.1.4.5 Irrigation Status:*

Government canals and Wells are the main sources of irrigation within the district. The total net irrigated area of the district is about one fourth of the total land put to agriculture. The area under some or the other sources of irrigation is 24.36% in 2005-06 which increases to 42.88% in 2007-08.

**Graph 4.5:% Net Irrigated Area to Net Area Sown**




It shows 27 % increase over the previous year's area under irrigation (119281 hectare). Of all the talukasKalawad taluka has the maximum land (35742 Ha) under irrigation (23.47 %) whereas Okhamandal registers the lowest (4125 ha) area (2.70%) under irrigation. The distribution of irrigated land across all the ten Taluka is shown as below.

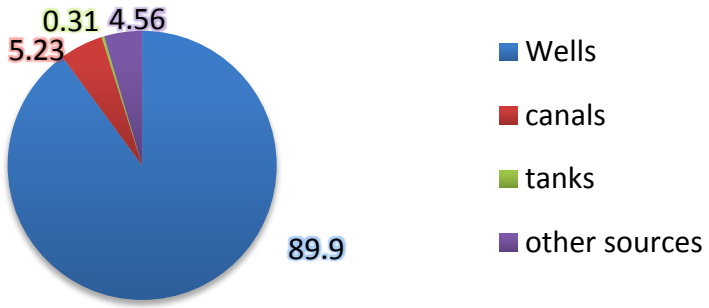
**Table 4.8: Distribution of Irrigated area (2005-06)**

| Taluka | Net Area under Irrigation | Share of irrigated area |
|---|---|---|
| **Bhanvad** | 8444 | 5.54 % |
| **Dhrol** | 11382 | 7.47 % |
| **Jamjodhpur** | 20806 | 13.66% |
| **Jamnagar** | 30102 | 19.77% |
| **Jodiya** | 15732 | 10.33% |
| **Kalavad** | 35742 | 23.47% |
| **Kalyanpur** | 8492 | 5.57% |
| **Khambhalia** | 6490 | 4.26% |
| **Lalpur** | 11010 | 7.23% |
| **Okhamandal** | 4025 | 2.70% |

*Source-Directorate of Agriculture, Gandhinagar*

Irrigation in Jamnagar as is revealed from the data of 2007-08, shows dominance of supplies from the privately operated irrigation wells. Around 89.90% of the irrigated land receives water from the wells (which includes Tube wells also). Irrigation from canals is restricted to 5.23% of the total irrigated area. A very small i.e. 0.31% of irrigated land receives water from tanks. The taluka of Bhanvad,Jamjodhpur, Khambalia and Kalavad receives the majority of canal irrigation waters.

**Graph 4.6 Land Irrigated By Different Sources**




### *4.1.4.6 Efforts done by agencies to boost Agriculture in Jamnagar*

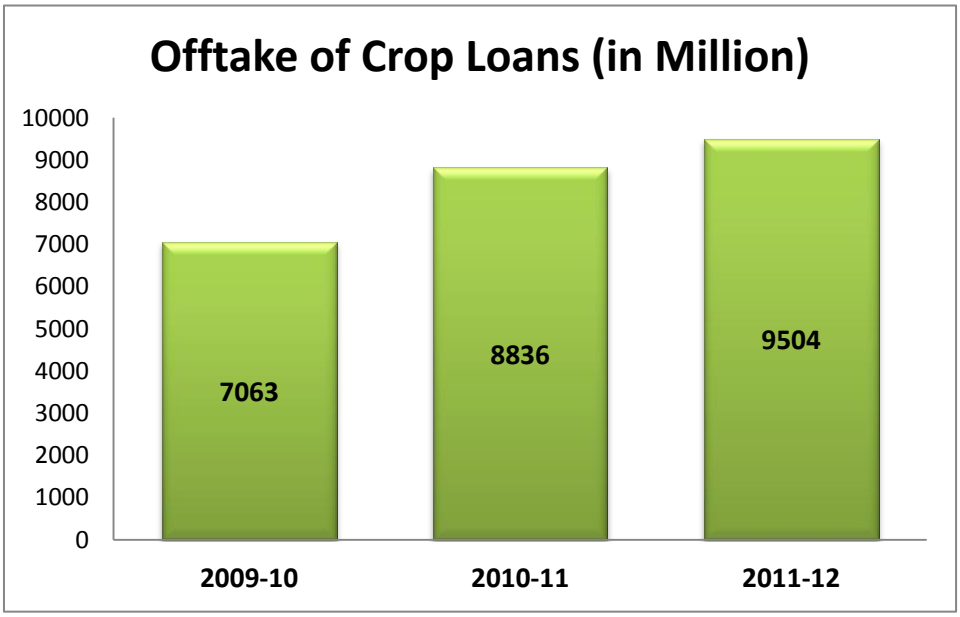
Combinations of players together have been responsible for the performance of agriculture in the district. They include the KVKs, the Agricultural Extension department and also the Banks.

***Agricultural Finance:*** The regional rural banks, the cooperative banks and the commercial banks have been financing agriculture in a variety of ways. The crop loans and the loans for other purposes (investments in aspects like pump sets, tractors and other implements) have come

to the advantage of the farming community. The following aspects have been witnessed as regards to financing agriculture in the district.

1. The average sizes of crop loans have increased from Rs. 18,580 in 2009-10 to Rs. 66000 during 2011-12.
2. Around 35 % increase in credit off-take has been witnessed during the same period for crop loans.
3. The crop loans and other agricultural loans have together reached most of the farmers. Of the 240118 farmers having agricultural lands in the district, the crop loans during the year 2011-12 had reached 142574 accounts. This is almost 60 % of the total farmers having land in Jamnagar. The total loans for other agri-allied had reached another 243817 households thus covering many other rural households in the district. However as regards to these agri-allied loans the average loan sizes are Rs. 2823 per accounts which is on the lower side. Probably, not much is happening on the agri-allied sector in the district.

**Graph 4.7 Offtake of Crop Loans (in Million)**




***Research and Agricultural extension:***

Research and agricultural extensions through the Agricultural universities like the Junagadh Agricultural University and by the local KVK has helped the sector extensively. The dominance of Ground nut in this district is more to do with the extension services provided by the Agricultural University as Groundnut is one of the major themes of research and extension by this university. The KVK had done several projects which included trainings – both on campus

and off campus on plant protection and crop production, field days, 'KisanGosthis'; visit of scientists to the farms etc. These have been specifically around crops like Ground nut, Cotton, Castor and Wheat.

***Krishi Mahotsav:***

The state agricultural department since last five years has been celebrating agriculture through its sponsored project *Krishi Mahotsav*. The programme helps scientists reach out to farmers and also provide to them support by way of information on various government schemes like the GGRC scheme on Micro Irrigation Systems and also the Scheme of the *Kisan Credit Cards*. The ***'Mahotsav'*** had been a hit in all the years in this district. Some of the major achievements of the programme are as under:

- Micro Irrigation systems have reached to 13913 farmers covering a total area of 19948 hectares.

**Table 4.9: Micro Irrigation system (MIS) in Jamnagar**

| YEAR | NO.OF FARMER | AREA ( HECTARE) |
|---|---|---|
| **2006-07** | 537 | 867.94 |
| **2007-08** | 1733 | 2324.49 |
| **2008-09** | 3991 | 4822.76 |
| **2009-10** | 2592 | 3693.78 |
| **2010-11** | 1330 | 2304.61 |
| **2011-12** | 3730 | 5934.25 |
| **Total** | **13913** | **19947.83** |

*Source: Gujarat Green Revolution Company*

**Graph 4.8: Farmers Using Micro Irrigation System in Jamnagar**

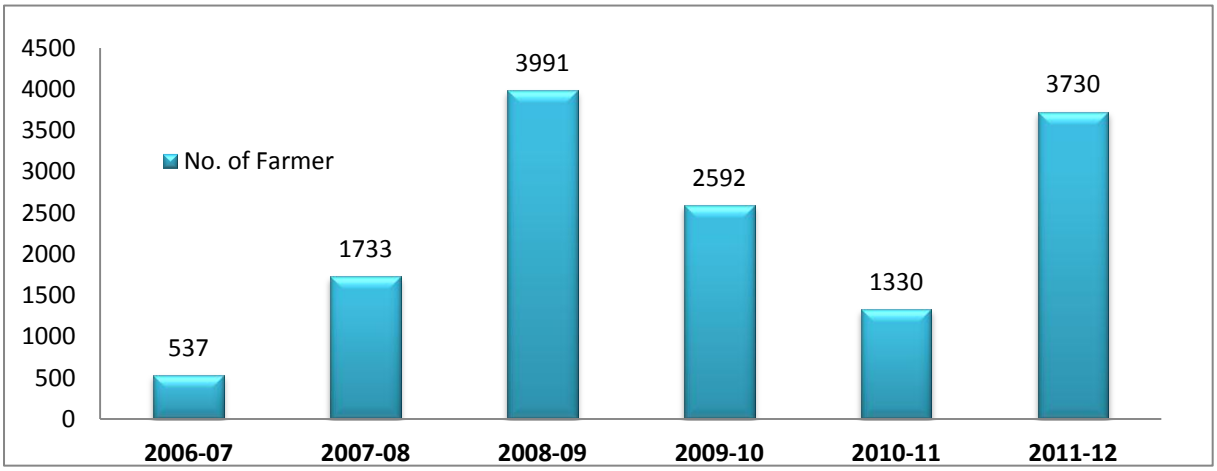
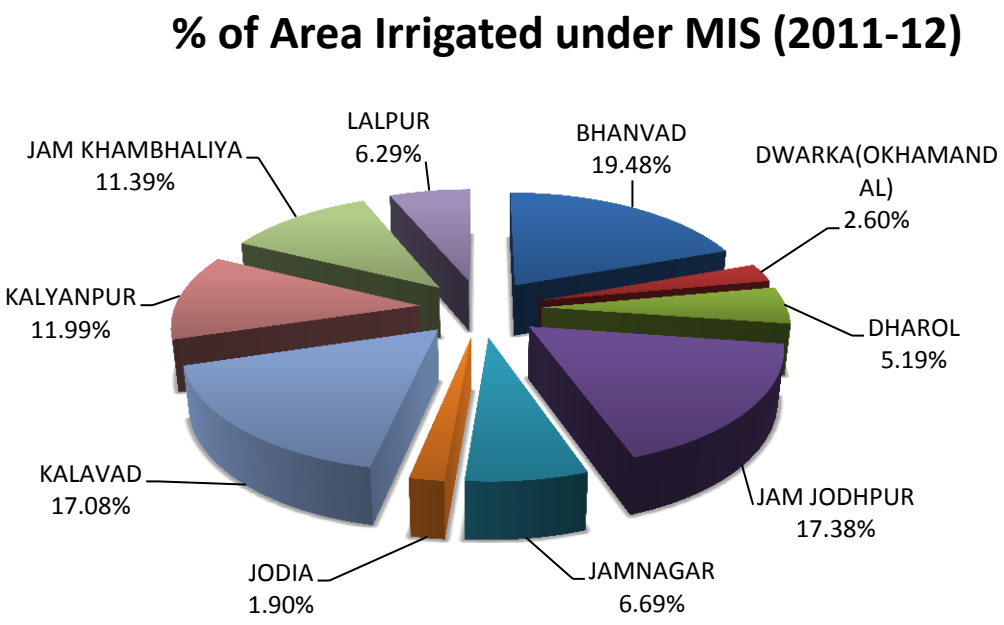


**Table 4.10: Micro irrigation across the Taluka in Jamnagar (2011-12)**

| Taluka | Area (hec.) |
|---|---|
| Bhanvad | 3881.04 |
| Dwarka(Okhamandal) | 522.43 |
| Dharol | 1041.34 |
| Jam Jodhpur | 3468.37 |
| Jamnagar | 1337 |
| Jodia | 369.38 |
| Kalavad | 3417.65 |
| Kalyanpur | 2392.17 |
| Jam Khambhaliya | 2268.91 |
| Lalpur | 1249.54 |
| **Total** | **19947.83** |

*Source: Gujarat Green Revolution Company*

**Graph 4.9:% of Area Irrigated under MIS**




Bhanvad taluka had highest i.e. 19.5% of area whereas Jodia taluka has lowest i.e. 1.9% of area under Micro Irrigation System.

- The total number of Kisan Credit Card (KCC) that had been distributed during the last two years had been 6949. The proliferation of KCC is responsible for the high off take of credit for crop loans in the district. In addition to that; the Krishi Mahotsav, during the last two years, have done Soil testing of over 70000 farmers. The break up across the Taluka is seen in table below:

**Table 4.11: Performance of Krishi Mahotsav in Jamnagar across Taluka**

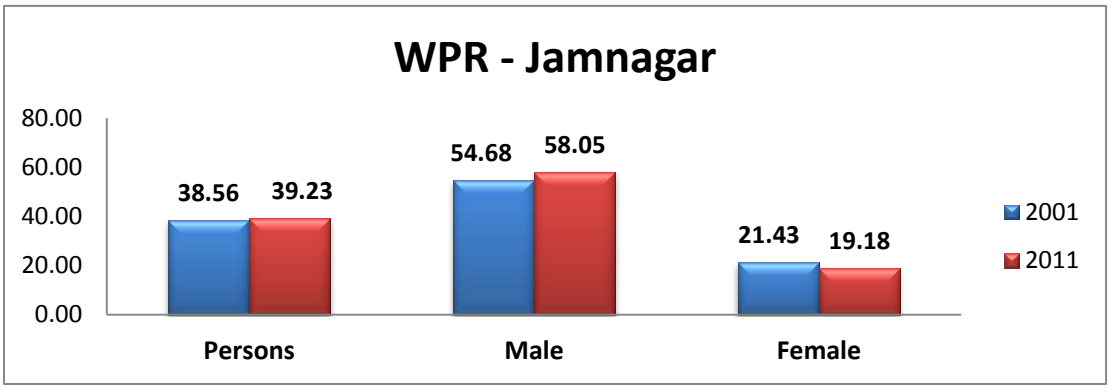
| Sr No. | Talukas | 2010 | | 2011 | |
|---|---|---|---|---|---|
| | | Soil Health card | Kisan Credit card | Soil Health card | Kisan Credit card |
| **1** | Okhamandal | 1170 | 197 | 8297 | 0 |
| **2** | Khambhalia | 585 | 53 | 14371 | 0 |
| **3** | Jamnagar | 2798 | 902 | 8712 | 4492 |
| **4** | Jodiya | 435 | 351 | 1139 | 0 |
| **5** | Dhrol | 545 | 215 | 654 | 0 |
| **6** | Kalavad | 1095 | 0 | 1120 | 31 |
| **7** | Lalpur | 820 | 156 | 14092 | 0 |
| **8** | Kalyanpur | 274 | 245 | 1492 | 0 |
| **9** | Bhaanvad | 0 | 90 | 11007 | 50 |
| **10** | Jamjodhpur | 1 | 55 | 3299 | 112 |
| **Total** | | **7723** | **2264** | **64183** | **4685** |

*Source- Central Monitoring Cell, Department of Agriculture & Co-Operation*

## 4.2 WORK PARTICIPATION

One of the important indicators of progress is emancipation of working people in society. WPR in the Jamnagar district has marginally increased from **38.56 %** (2001) to **39.23 %** (2011). Male WPR has increased nearly 4% in the last decade both in Urban & Rural area. Whereas Female WPR in the district has fallen nearly by 2%, interestingly only rural Female WPR has fallen drastically by 7% on the other hand Urban Female WPR has increased nearly by 3%.

**Graph 4.10: Work Participation Rate Jamnagar**




### 4.2.1 Taluka wise WPR of Jamnagar

Taluka Wise WPR indicates that Kalavad had highest WPR of 47.13% in 2001, which continues in 2011 as well having WPR of 46.91%. Talukawise male WPR shows that Kalavad has highest male WPR of 64.01% in 2011whereas Okhamandal have lowest male WPR of 52.62% in 2011. The picture of female workforce in the Jamnagar district shows that Jamjodhpur taluka is having highest female WPR of 30.85% in 2011, while Okhamandal having lowest female WPR of 10.25% in 2011. In rural WPR Kalavad is having highest WPR of 49.71%, whereas Okhamandal has lowest rural WPR of 36.81% in 2011. In urban Jamnagar, Kalyanpur taluka is having highest Urban WPR of 44.19%, whereas Okhamandal has lowest Urban WPR of 30.72% in 2011.

Percentage of Main Workers in the district has marginally increased from 84.98% (2001) to 85.11% (2011), while percentage of Marginal Workers has declined from 15.02% (2001) to 14.89% (2011). Increase in percentage of Main Workers is giving an indicator that employment opportunity has increased in the district and people gets more work as compare to what they used to get before.

**Table 4.12: Taluka wise WPR of Jamnagar 2001 & 2011**

| Unit | T/ R/ U | WPR | | | | | |
|---|---|---|---|---|---|---|---|
| | | 2001 | | | 2011 | | |
| | | P | M | F | P | M | F |
| **Jamnagar (District)** | **T** | **38.56** | **54.68** | **21.43** | **39.23** | **58.05** | **19.18** |
| | **R** | **44.53** | **56.32** | **32.23** | **43.11** | **59.44** | **25.90** |
| | **U** | **30.94** | **52.64** | **7.32** | **34.49** | **56.37** | **10.85** |
| **Okhamandal** | **T** | **32.19** | **52.10** | **10.36** | **32.64** | **53.62** | **10.25** |
| | R | 36.85 | 53.78 | 18.94 | 36.81 | 53.80 | 19.05 |
| | U | 29.98 | 51.32 | 6.18 | 30.72 | 53.54 | 6.13 |
| **Khambhalia** | **T** | **39.52** | **53.61** | **24.75** | **39.26** | **58.39** | **18.68** |
| | R | 44.32 | 55.31 | 32.77 | 42.57 | 59.60 | 23.88 |
| | U | 28.50 | 49.68 | 6.40 | 32.55 | 55.86 | 8.44 |
| **Jamnagar** | **T** | **33.08** | **53.44** | **10.82** | **36.13** | **57.23** | **13.18** |
| | R | 39.77 | 54.88 | 23.72 | 40.00 | 58.77 | 19.92 |
| | U | 31.05 | 53.02 | 6.83 | 34.92 | 56.76 | 11.06 |
| **Jodiya** | **T** | **41.19** | **55.84** | **25.61** | **40.36** | **59.86** | **20.30** |
| | R | 41.19 | 55.84 | 25.61 | 40.36 | 59.86 | 20.30 |
| | U | - | - | - | - | - | - |
| **Dhrol** | **T** | **40.12** | **55.01** | **25.15** | **37.60** | **57.36** | **16.89** |
| | R | 43.09 | 57.02 | 28.63 | 40.07 | 58.98 | 20.19 |
| | U | 33.68 | 50.42 | 17.96 | 32.50 | 53.99 | 10.12 |
| **Kalavad** | **T** | **47.13** | **58.64** | **35.76** | **46.91** | **64.01** | **29.26** |
| | R | 50.48 | 59.83 | 41.31 | 49.71 | 65.22 | 33.87 |
| | U | 32.13 | 53.44 | 10.50 | 35.91 | 59.36 | 10.55 |
| **Lalpur** | **T** | **43.14** | **56.33** | **29.29** | **43.47** | **59.91** | **26.22** |
| | R | 43.14 | 56.33 | 29.29 | 43.47 | 59.91 | 26.22 |
| | U | - | - | - | - | - | - |
| **Kalyanpur** | **T** | **46.77** | **55.11** | **38.06** | **42.03** | **56.27** | **27.33** |
| | R | 46.77 | 55.11 | 38.06 | 41.79 | 56.54 | 26.52 |
| | U | - | - | - | 44.19 | 53.77 | 34.48 |
| **Bhanvad** | **T** | **46.04** | **57.04** | **34.59** | **44.56** | **59.26** | **29.28** |
| | R | 48.60 | 57.09 | 39.78 | 45.98 | 59.29 | 32.17 |
| | U | 34.42 | 56.82 | 10.76 | 37.94 | 59.14 | 15.74 |
| **Jamjodhpur** | **T** | **45.16** | **58.31** | **31.45** | **46.39** | **61.03** | **30.85** |
| | R | 48.31 | 59.20 | 36.93 | 48.79 | 61.44 | 35.30 |
| | U | 32.00 | 54.57 | 8.60 | 36.51 | 59.33 | 12.75 |

*Source: Registrar General of India*

### 4.2.2 Taluka wise Distribution of Main & Marginal Workers

The proportion of main workers over total workers of the district has increased from **84.98**in 2001 to **85.11** in 2011, shows more people have regular employment opportunity than it used to be before.

Percentage of Male Main Workers decreased from 95.23% in 2001 to 93.47% in 2011; whereas Female Main Workers get marginally increased from 57.15% in 2001 to 58.14% in 2011. The reverse trends have been found in 2011 also. As a result of decreased in Main Workers the percentage of Marginal Workers get increased by 2% in 2011 whereas Female Marginal Workers get decreased by 1% in 2011.

Talukawise Main WPR exhibits that; in 2001 Jamnagar has highest 92.24% of Main workers against Total workers whereas Kalyanpur has lowest 73.48% of Main workers. In 2011, Lalpur has highest 89.20% of Main workers whereas Kalyanpur has continued to have lowest 77.47% of Main Workers.

Lalpur taluka has highest 96.65% and 71.34% of Male & Female Main Workers in 2011. Kalyanpur has lowest 45.23% of Main Workers; whereas Jamnagar Taluka has lowest 92.13% of Male Main Workers.

In 2011, Khambhalia has highest 56.5% of Female Marginal Workers in Rural area; whereas Lalpur has lowest 28.6% of Female Marginal Workers.Dhrol has highest 44.4% of Female Marginal Workers in Urban area; whereas Kalavad had lowest 18.0% of Female Marginal Workers in Urban Area.

## Table 4.13: Taluka wise Distribution of Main and Marginal Workers to Total Workers

| Unit | | Main | | | | | | Marginal | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2001 | | | 2011 | | | 2001 | | | 2011 | | |
| | | P | M | F | P | M | F | P | M | F | P | M | F |
| **Jamnagar (District)** | **T** | **84.98** | **95.23** | **57.15** | **85.11** | **93.47** | **58.14** | **15.02** | **4.77** | **42.85** | **14.89** | **6.53** | **41.86** |
| | **R** | **79.77** | **93.99** | **53.86** | **82.45** | **94.18** | **54.10** | **20.23** | **6.01** | **46.14** | **17.55** | **5.82** | **45.90** |
| | **U** | **94.54** | **96.89** | **76.10** | **89.18** | **92.58** | **70.10** | **5.46** | **3.11** | **23.90** | **10.82** | **7.42** | **29.90** |
| **Okhamandal** | **T** | **89.91** | **94.52** | **64.50** | **88.52** | **93.03** | **63.30** | **10.09** | **5.48** | **35.50** | **11.48** | **6.97** | **36.70** |
| | R | 79.62 | 89.42 | 50.16 | 82.15 | 91.76 | 53.76 | 20.38 | 10.5 | 49.84 | 17.85 | 8.24 | 46.24 |
| | U | 95.91 | 96.99 | 85.93 | 92.04 | 93.61 | 77.19 | 4.09 | 3.01 | 14.07 | 7.96 | 6.39 | 22.81 |
| **Khambhalia** | **T** | **81.31** | **93.45** | **53.72** | **82.99** | **93.71** | **46.91** | **18.69** | **6.55** | **46.28** | **17.01** | **6.29** | **53.09** |
| | R | 78.03 | 92.26 | 52.80 | 79.55 | 92.72 | 43.48 | 21.97 | 7.74 | 47.20 | 20.45 | 7.28 | 56.52 |
| | U | 93.01 | 96.53 | 64.50 | 92.11 | 95.92 | 66.03 | 6.99 | 3.47 | 35.50 | 7.89 | 4.08 | 33.97 |
| **Jamnagar** | **T** | **92.24** | **96.47** | **69.41** | **88.03** | **92.13** | **68.68** | **7.76** | **3.53** | **30.59** | **11.97** | **7.87** | **31.32** |
| | R | 84.88 | 95.00 | 60.00 | 86.77 | 93.70 | 64.90 | 15.12 | 5.00 | 40.00 | 13.23 | 6.30 | 35.10 |
| | U | 95.10 | 96.92 | 79.53 | 88.48 | 91.62 | 70.83 | 4.90 | 3.08 | 20.47 | 11.52 | 8.38 | 29.17 |
| **Jodiya** | **T** | **81.76** | **94.68** | **51.81** | **88.52** | **96.36** | **64.73** | **18.24** | **5.32** | **48.19** | **11.48** | **3.64** | **35.27** |
| | R | 81.76 | 94.68 | 51.81 | 88.52 | 96.36 | 64.73 | 18.24 | 5.32 | 48.19 | 11.48 | 3.64 | 35.27 |
| | U | - | - | - | - | - | - | - | | | - | - | - |
| **Dhrol** | **T** | **82.38** | **94.60** | **55.52** | **87.10** | **94.39** | **61.16** | **17.62** | **5.40** | **44.48** | **12.90** | **5.61** | **38.84** |
| | R | 82.10 | 95.13 | 55.19 | 87.14 | 95.16 | 62.52 | 17.90 | 4.87 | 44.81 | 12.86 | 4.84 | 37.48 |
| | U | 83.16 | 93.24 | 56.60 | 86.99 | 92.65 | 55.57 | 16.84 | 6.76 | 43.40 | 13.01 | 7.35 | 44.43 |
| **Kalavad** | **T** | **83.03** | **96.04** | **61.97** | **81.61** | **95.34** | **50.60** | **16.97** | **3.96** | **38.03** | **18.39** | **4.66** | **49.40** |
| | R | 81.66 | 95.62 | 61.80 | 79.12 | 94.86 | 48.20 | 18.34 | 4.38 | 38.20 | 20.88 | 5.14 | 51.80 |
| | U | 92.71 | 98.10 | 64.89 | 95.21 | 97.39 | 81.95 | 7.29 | 1.90 | 35.11 | 4.79 | 2.61 | 18.05 |
| **Lalpur** | **T** | **81.11** | **95.03** | **52.97** | **89.20** | **96.65** | **71.34** | **18.89** | **4.97** | **47.03** | **10.80** | **3.35** | **28.66** |
| | R | 81.11 | 95.03 | 52.97 | 89.20 | 96.65 | 71.34 | 18.89 | 4.97 | 47.03 | 10.80 | 3.35 | 28.66 |
| | U | - | - | - | - | - | - | - | - | - | - | - | - |
| **Kalyanpur** | **T** | **73.48** | **93.65** | **42.96** | **77.47** | **92.64** | **45.23** | **26.52** | **6.35** | **57.04** | **22.53** | **7.36** | **54.77** |
| | R | 73.48 | 93.65 | 42.96 | 77.52 | 92.85 | 43.68 | 26.52 | 6.35 | 57.04 | 22.48 | 7.15 | 56.32 |
| | U | - | - | - | 77.08 | 90.62 | 55.71 | - | - | - | 22.92 | 9.38 | 44.29 |
| **Bhanvad** | **T** | **79.79** | **94.01** | **55.36** | **82.32** | **94.96** | **55.75** | **20.21** | **5.99** | **44.64** | **17.68** | **5.04** | **44.25** |
| | R | 77.82 | 93.18 | 54.91 | 80.71 | 94.79 | 53.79 | 22.18 | 6.82 | 45.09 | 19.29 | 5.21 | 46.21 |
| | U | 92.47 | 97.78 | 62.89 | 91.45 | 95.74 | 74.57 | 7.53 | 2.22 | 37.11 | 8.55 | 4.26 | 25.43 |
| **Jamjodhpur** | **T** | **82.34** | **94.61** | **58.65** | **81.39** | **94.35** | **54.15** | **17.66** | **5.39** | **41.35** | **18.61** | **5.65** | **45.85** |
| | R | 80.32 | 93.87 | 57.63 | 79.58 | 94.32 | 52.21 | 19.68 | 6.13 | 42.37 | 20.42 | 5.68 | 47.79 |
| | U | 95.16 | 97.93 | 76.91 | 91.34 | 94.50 | 76.02 | 4.84 | 2.07 | 23.09 | 8.66 | 5.50 | 23.98 |

*Source: Registrar General of India*

### 4.2.3 Classification of Workers by Gender and Residence

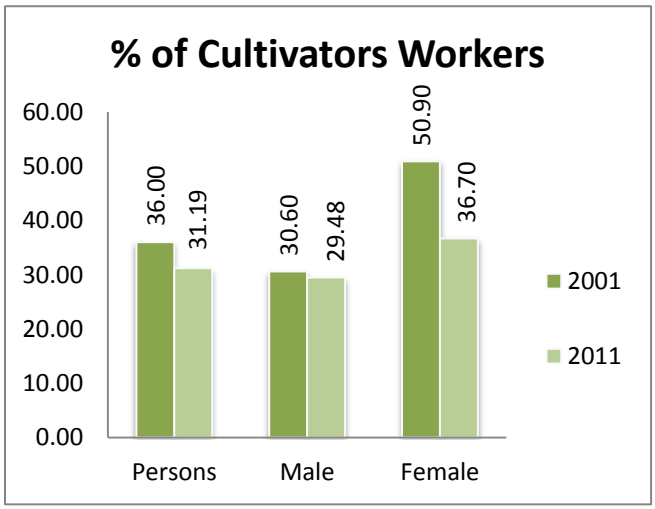
As per census 2011, Jamnagar district, Agriculture labourers has increased from 14.40% to 17.37% in last decade. Interestingly in this decade Female agri- labourers has increased around 7% which is more growth than male agri- labourers which has increased by just 3%. The proportion of cultivators got decreased in Jamnagar district in both rural and urban areas as shown in table.

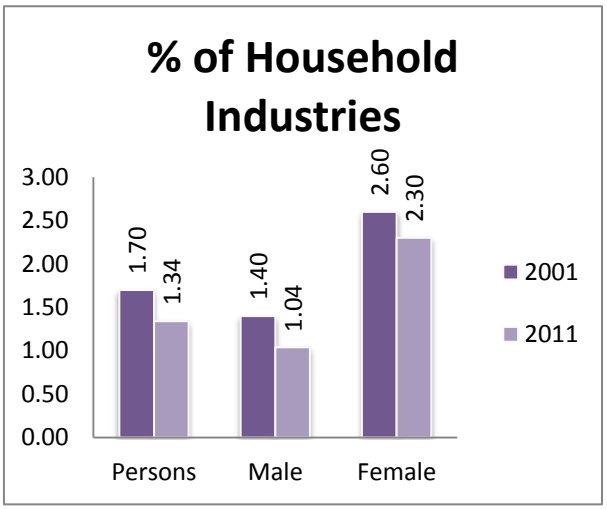
**Table 4.14: Classification of Workers**

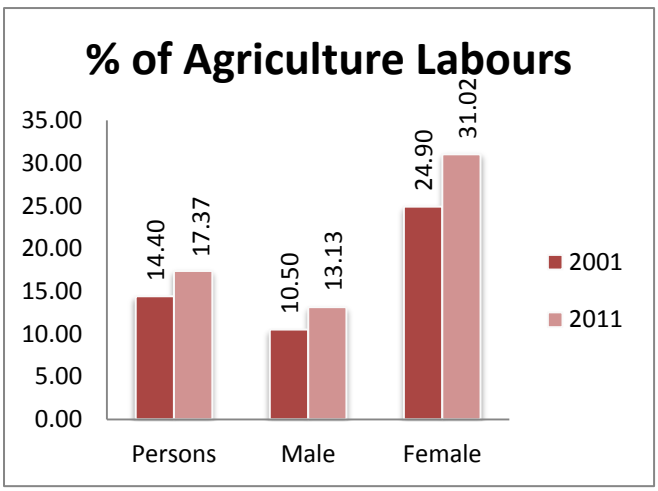
| % classification of types of workers by Gender & Residence 2001 & 2011 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit | Category | Total Workers | | Cultivators | | Agri. Lab. | | HH Inds. | | Others | |
| | | 2001 | 2011 | 2001 | 2011 | 2001 | 2011 | 2001 | 2011 | 2001 | 2011 |
| **Jamnagar** | **Persons** | **38.56** | **39.23** | **36.00** | **31.19** | **14.40** | **17.37** | **1.70** | **1.34** | **47.90** | **50.10** |
| | **Male** | **54.68** | **58.05** | **30.60** | **29.48** | **10.50** | **13.13** | **1.40** | **1.04** | **57.60** | **56.34** |
| | **Female** | **21.43** | **19.18** | **50.90** | **36.70** | **24.90** | **31.02** | **2.60** | **2.30** | **21.60** | **29.98** |
| **Rural** | Persons | 44.53 | 43.11 | 54.50 | 49.71 | 21.10 | 25.75 | 1.40 | 0.91 | 23.00 | 23.63 |
| | Male | 56.32 | 59.44 | 52.10 | 50.49 | 17.10 | 20.82 | 1.40 | 0.83 | 29.40 | 27.86 |
| | Female | 32.23 | 25.90 | 59.10 | 47.83 | 28.20 | 37.66 | 1.40 | 1.12 | 11.40 | 13.39 |
| **Urban** | Persons | 30.95 | 34.49 | 2.00 | 2.84 | 2.10 | 4.55 | 2.30 | 1.99 | 93.60 | 90.62 |
| | Male | 52.64 | 56.37 | 1.80 | 2.67 | 1.60 | 3.33 | 1.30 | 1.32 | 95.30 | 92.68 |
| | Female | 7.31 | 10.85 | 4.20 | 3.76 | 6.00 | 11.38 | 9.60 | 5.78 | 80.20 | 79.07 |

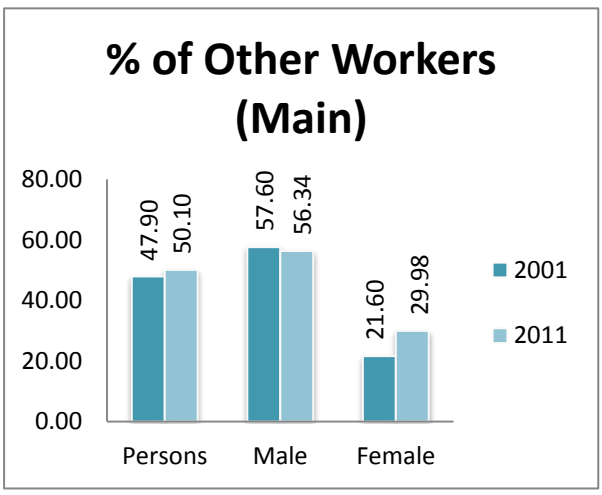
*Source: Registrar General of India*

**Graph 4.11:% of Cultivators Workers, household, Agricultural workers and other workers**



## 4.3 ANIMAL HUSBANDRY

Animal husbandry is complementary to and inseparable from agriculture. Livestock rearing as an economic activity is pursued by certain sections of the community who have made grazing and breeding of livestock as their traditional occupation. During the past two Animal census (2003 & 2007), some variations has been observed in the type and numbers of animals. Below table elaborate the same.

**Table 4.15: Taluka wise Livestock Census**

| Sr. No. | Talukas | Cattle | | Buffalo | | Sheep | | Goat | |
|---|---|---|---|---|---|---|---|---|---|
| | | 2003 | 2007 | 2003 | 2007 | 2003 | 2007 | 2003 | 2007 |
| 1 | Okhamandal | 21016 | 20964 | 13123 | 14667 | 22433 | 22044 | 11433 | 11624 |
| 2 | Khambhalia | 42697 | 46035 | 25354 | 36377 | 25396 | 27715 | 20127 | 29253 |
| 3 | Jamnagar | 58056 | 44306 | 37532 | 42102 | 39653 | 33204 | 34538 | 26368 |
| 4 | Jodiya | 14635 | 16432 | 12440 | 16176 | 17505 | 20553 | 9479 | 10164 |
| 5 | Dhrol | 19153 | 18977 | 11214 | 13034 | 17759 | 15402 | 9903 | 9836 |
| 6 | Kalawad | 49277 | 49199 | 21209 | 21921 | 36337 | 31775 | 22134 | 20002 |
| 7 | Lalpur | 34110 | 37505 | 21359 | 27204 | 29256 | 18812 | 20628 | 15483 |
| 8 | Kalyanpur | 50476 | 61608 | 25104 | 34153 | 22766 | 20750 | 13912 | 26067 |
| 9 | Bhaanvad | 23844 | 23440 | 21462 | 25922 | 10670 | 10279 | 13931 | 12848 |
| 10 | Jamjodhpur | 34679 | 31479 | 20819 | 25199 | 10755 | 7433 | 16937 | 10973 |
| **Total** | | **347943** | **349945** | **209616** | **256755** | **232530** | **207967** | **173022** | **172618** |

*Source: Livestock Census 2003 & 2007*

The cattle and small ruminants (goats and sheep) did not increase. On the contrary the ruminant population decreased. It has been seen that the Buffalo population has increased drastically during this period. A closer look at the situation in the Taluka shows a different picture. The increase in cattle has been the highest in Kalyanpur taluka (22.05%) while Jamnagar taluka has seen the maximum decrease (-23.68%). The highest growth of buffaloes has been seen in Khambhalia taluka (43.48%) whereas Kalavadshowed the lowest increase (3.36%). While in the sheeps, Jodiya taluka has registered highest increase (17.41%) while Lalpur taluka has registered a decrease of around (-35.70%).Similarly, Kalyanpur taluka has registered the highest increase in number of goats (87.37%) while Jamjodhpur registered a fall of (-35.21%) during the corresponding period.

The cooperative Milk sector does not have its own district union in Jamnagar district. In the current stage, it is the Rajkot District Milk Union Limited that has extended its network support to collect milk from the villages in Jamnagar district.

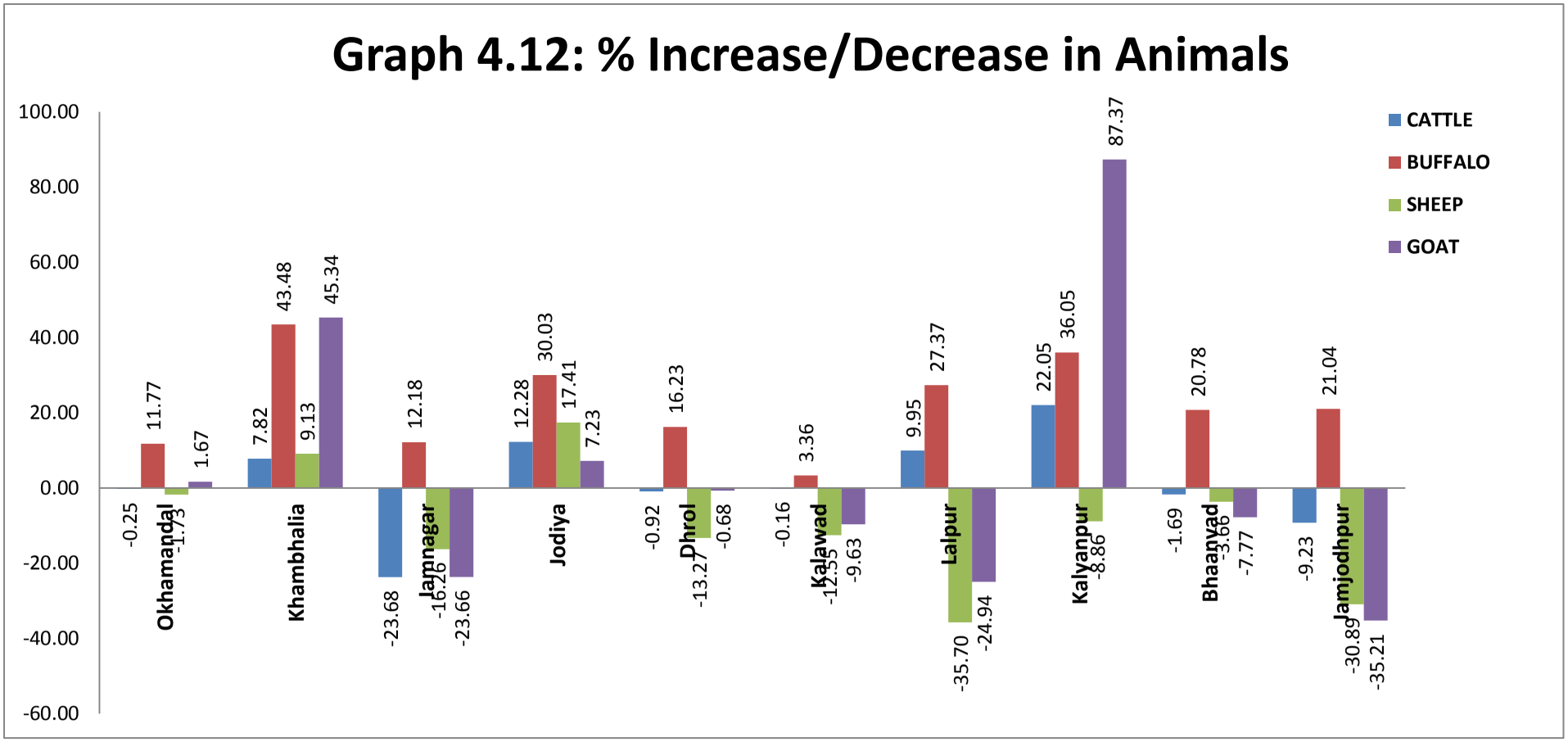

Graph 4.12: % Increase/Decrease in Animals
100.00
80.00
60.00
40.00
20.00
0.00
-20.00
-40.00
-60.00
CATTLE
BUFFALO
SHEEP
GOAT
Okhamandal
-0.25
11.77
-1.73
1.67
Khambhalia
7.82
43.48
9.13
45.34
Jamnagar
-23.68
12.18
-16.26
-23.66
Jodiya
12.28
30.03
17.41
7.23
Dhrol
-0.92
16.23
-13.27
-0.68
Kalawad
-0.16
3.36
-12.35
-9.63
Lalpur
9.95
27.37
-35.70
-24.94
Kalyanpur
22.05
36.05
-8.86
87.37
Bhanvad
-1.69
20.78
-3.66
-7.77
Jamjodhpur
-9.23
21.04
-30.89
-35.21

**Table 4.16: Total Livestock & Total Poultry in Jamnagar**

| Sr. No. | Talukas | Total Livestock | | Total Poultry | |
|---|---|---|---|---|---|
| | | 2003 | 2007 | 2003 | 2007 |
| **1** | Okhamandal | 75205 | 72130 | 1731 | 1477 |
| **2** | Khambhalia | 121944 | 1319649 | 9349 | 16527 |
| **3** | Jamnagar | 181431 | 147467 | 18650 | 16042 |
| **4** | Jodiya | 57372 | 637393 | 804 | 978 |
| **5** | Dhrol | 63456 | 57966 | 961 | 348 |
| **6** | Kalawad | 141067 | 123147 | 1329 | 408 |
| **7** | Lalpur | 113109 | 99995 | 514 | 1081 |
| **8** | Kalyanpur | 121953 | 148417 | 1152 | 268 |
| **9** | Bhaanvad | 75294 | 74467 | 2463 | 1172 |
| **10** | Jamjodhpur | 90235 | 75377 | 1088 | 290 |
| **Total** | | **1041066** | **1002438** | **38041** | **38591** |

There is a marginal decrease in total number of livestock from 2003 to 2007, on the other side total poultry has marginally increased from previous Livestock census. Khambhalia taluka has shown highest growth in both livestock as well as poultry.Total livestock and Total Poultry in Jamjodhpurhas declined in very huge numbers, while the reverse effect was shown in poultry in Lalpur taluka. The overall picture of the district has almost maintained its livestock as well as poultry and no drastic fall or rise has been shown.

## 4.4 FISHERIES

Fisheries and marine resources constitute another important source of livelihood in the coastal talukas. The sea coast is the main source of fisheries in Jamnagar. The important fishing centres of the district are Jodiya, Sachana, Bedi, Samrat, Bharana, Salaya and Okha. The fishing population is found in Jamnagar, Khambhalia, Okhamandal, Jodia and Kalyanpurtalukas only.The population dependent on fishing as a means of livelihood shows that over 10717 of them are directly involved with the activity. There could be almost another ten thousand families who would be supporting the activity along the value chain and in ancillary industries supporting the livelihood activities.

**Table 4.17: No. of Fishermen**

| Sr. No | Taluka | Male | Female | Total |
|---|---|---|---|---|
| **1** | Okhamandal | 2857 | 2509 | 5366 |
| **2** | Khambhalia | 3226 | 3199 | 6425 |
| **3** | Jamnagar | 3281 | 2874 | 6155 |
| **4** | Jodiya | 880 | 804 | 1684 |
| **5** | Kalyanpur | 473 | 440 | 913 |
| **Total** | | **10717** | **9826** | **20543** |

***Source- 18th Census of Fishermen– 2007***

The district has over 2181 mechanised boats and another 407 non mechanized boats. There are also significant number of fisher folk who are work as pagadiyafisherfolk. There are schemes that have been supporting the fisher folk.

**Table 4.18: Types of Boats in Jamnagar District**

| Sr. No | Taluka | Mechanized Boats | Non Mechanized Boats |
|---|---|---|---|
| **1** | Okhamandal | 914 | 53 |
| **2** | Khambhalia | 496 | 218 |
| **3** | Jamnagar | 511 | 106 |
| **4** | Jodiya | 34 | 2 |
| **5** | Kalyanpur | 226 | 28 |
| **Total** | | **2181** | **407** |

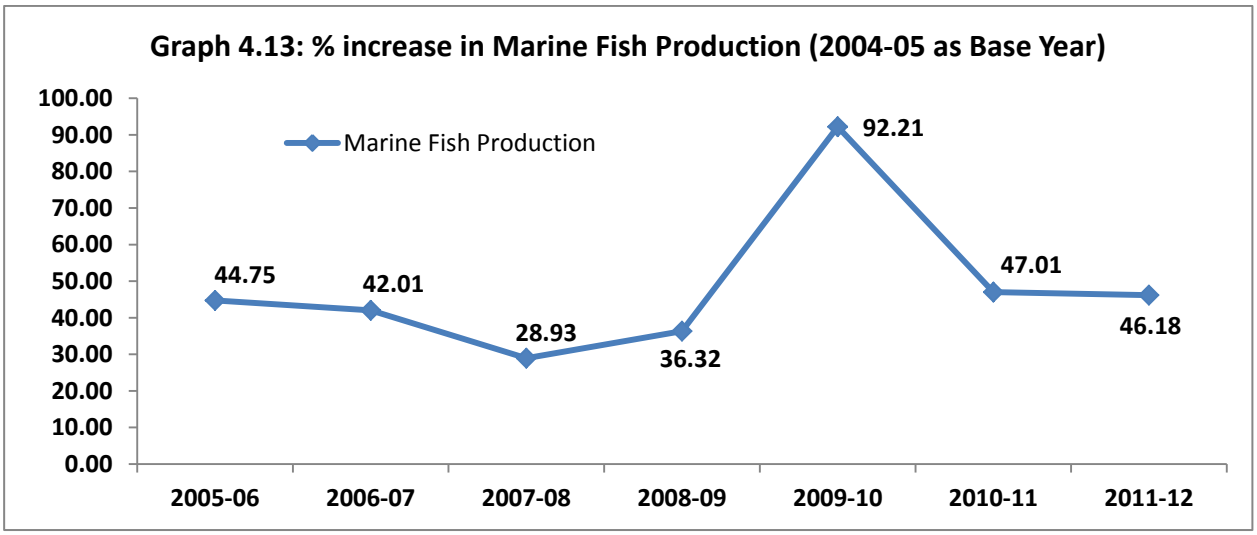
***Source- 18th Census of Fishermen – 2007***

The total marine catch of fishes within the district also shows an increasing trend during the last decade. There had been certain years when the production had fallen but between 2004-05 and 2011-12, the total catch has gone up by almost 46 %.

**Table 4.19: TOTAL MARINE FISH PRODUCTION (PROD.IN M.T.)**

| YEAR | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 |
|---|---|---|---|---|---|---|---|---|
| **TOTAL** | 45,935 | 66,489 | 65,232 | 59,225 | 62,618 | 88,293 | 67,530 | 67,146 |

*Source- Gujarat Fisheries Statistics, Commissioner of Fisheries, Gujarat*




The fisheries sector is also supported by supply industries like the ice plants, transport and the boat making industry. In addition to this in Okhamandal atleast three large fish processing plants operate. They are majorly dealing with export processing to countries in Europe and Asia.

## 4.5 INDUSTRIES

The district has a long history of pro-active industrialization. During the pre-independence period Industrial development was confined to the state of Navanagar, because of its progressive policy. The industries thus established were Cement, Cotton-textiles, and Woolen-textiles etc. Another important factor responsible for the industrial development of the district was port facility available in the district. Besides Jamnagar, other centers which assumed industrial importance were Dwarka and Mithapur in Okhamandal taluka. The Dwarka cement works was established at Dwarka in 1921 and Tata Chemicals Ltd. came into being at Mithapur in 1939.

Jamnagar district caters to over 70% of the country's requirement for brass parts supply. There are over 4,500 units involved in production of brass parts and Jamnagar district is the major supplier to the electric and electronics factories located in Delhi, Bangalore and Mumbai. Around ₹ 300 crore (USD 71 million) worth of brass parts are produced by industries in Jamnagar, of which 90% is marketed within the country and 10% is exported.

Jamnagar is one of the principle inventers for production of ***tie-dyed fabric (Bandhani)*** in the State, yearly production accounting being around ₹250 crore (USD 60 million).

Other major industry sectors of the district include engineering & machinery, plastics and oil mills. Petroleum refineries of industry leaders such as Reliance Industries and Essar oil, Gujarat State Fertilisers Corporation (GSFC), chemical fertilizer complex and a chemical plant of Tata Chemicals is based in the district. Huge reserves of bauxite are found in the district.

Salt industry in the district is well developed with around 17 salt work units operational in the district.The proximity to **Sikka and Bedi ports** along with up gradation of **Bedi-Rozi port** shall boost the exports of salt from the district. These Salt Units in the district exports salt to countries like China, Indonesia, Vietnam, Bangladesh, Japan, and Nepal. The district also has the potential to evolve as a huge oil, gas, and petrochemical cluster.

There are nearly **13,236 Registered Small Scale Industrial (SSI) Units** operating in Jamnagar. Some of the main industries under SSI in Jamnagar are metal industries, food products, rubber, and plastic products.

There are total **2735 registered Micro, Small and Medium Enterprises (MSME)** registered under different memorandums, with an investment of more than ₹ 1,31,708 /- lakhs, in which nearly 34,000 people are getting employment in these units.

## Jamnagar as a Petroleum City

Jamnagar is also known as petroleum city as huge private sector crude oil refinery is located here. This refinery is owned by Reliance Industries. In Jamnagar two refineries are located namely Reliance Industries Limited (Domestic Tariff Area) (RIL-DTA) (Private Sector) and Reliance Industries Limited-SEZ (RIL-SEZ) (Private Sector), The present capacity of the RIL-DTA is 33 MMTPA. The capacity of the RIL-SEZ is 27 MMTPA .The SEZ refinery has a unique design and path breaking configuration with ‘Clean Fuels’ process plant. It is designed with high level of flexibility to change grades based on economy and to capture margins based on market dynamics. The new SEZ refinery is the first refinery in India to produce Euro-IV grades of gasoline and diesel.

| Table 4.20 INVESTMENT & EMPLOYMENT OF MICRO, SMALL& MEDIUM Enterprises EM Part-1(₹ In Lakhs) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | MICRO | | | SMALL | | | MEDIUM | | | Total | | |
| | Units | Investments | Employment | Units | Investments | Employment | Units | Investments | Employment | Units | Investments | Employment |
| 2006-07 | 12 | 280 | 208 | 2 | 104.14 | 21 | 1 | 977 | 17 | 15 | 1361.14 | 246 |
| 2007-08 | 33 | 760.50 | 298 | 21 | 2796 | 440 | 0 | 0 | 0 | 54 | 3556.5 | 738 |
| 2008-09 | 42 | 776 | 539 | 24 | 5192.5 | 1265 | 0 | 0 | 0 | 66 | 5968.5 | 1804 |
| 2009-10 | 106 | 2504 | 1407 | 41 | 4734 | 908 | 1 | 698 | 4 | 148 | 7936 | 2319 |
| 2010-11 | 123 | 2349.78 | 1563 | 45 | 14298 | 2389 | 9 | 9094.4 | 411 | 177 | 25742.18 | 4363 |
| 2011-12 | 51 | 1021.14 | 543 | 28 | 5779.50 | 700 | 8 | 6636.50 | 317 | 87 | 13437.14 | 1560 |
| **Total** | **367** | **7691.42** | **4558** | **161** | **32904.14** | **5723** | **19** | **17405.9** | **749** | **547** | **58001.46** | **11030** |
| **I/E ratio (employment generated in per lakh investment** | | **0.59** | | | **0.17** | | | **0.04** | | | **0.19** | |

| Table 4.21: INVESTMENT & EMPLOYMENT OF MICRO, SMALL & MEDIUM Enterprises EM Part-2 (₹In Lakhs) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | MICRO | | | SMALL | | | MEDIUM | | | Total | | |
| | Units | Invst | Emplmt | Units | Invst | Emplmt | Units | Invst | Emplmt | Units | Invst | Emplmt |
| 2006-07 | 79 | 899.93 | 683 | 16 | 2344.37 | 391 | 1 | 1416 | 36 | 96 | 4660.30 | 1110 |
| 2007-08 | 266 | 4412.58 | 2538 | 57 | 11908 | 2250 | 0 | 0 | 0 | 323 | 16320.58 | 4788 |
| 2008-09 | 390 | 5685 | 3169 | 49 | 3953 | 947 | 0 | 0 | 0 | 439 | 9638 | 4116 |
| 2009-10 | 436 | 7938 | 3380 | 47 | 5354 | 1901 | 1 | 235 | 82 | 484 | 13527 | 5363 |
| 2010-11 | 647 | 8273.60 | 3849 | 51 | 5941 | 1073 | 12 | 7489 | 84 | 710 | 21703.60 | 5006 |
| 2011-12 | 124 | 2763 | 2967 | 11 | 3707.51 | 230 | 1 | 1388 | 50 | 136 | 7858.51 | 3247 |
| **Total** | **1942** | **29972.11** | **16586** | **231** | **33207.88** | **6792** | **15** | **10528** | **252** | **2188** | **73707.99** | **23630** |
| **I/E ratio (employment generated in per lakh investment** | | **0.55** | | | **0.20** | | | **0.02** | | | **0.32** | |

**Major Medium and Large Scale Players in Jamnagar:**

| Name of Industry | Taluka | Type of Production |
|---|---|---|
| **Tata Chemicals Ltd.** | Mithapur | Soda Ash, Costic Soda & Other Chemicals |
| **Essar Oil Ltd.** | Jam Khmabhaliya | Petrochemicals |
| **Reliance Industries Ltd** | Jamnagar | Petrochemicals |
| **Gujarat State Fertilizers Co. Ltd.** | Sikka | Fertilizers |
| **New Bharat Engineering Works** | Jamnagar | Machine Tools |
| **Bellarpur Industries Ltd.** | Jam Khmabhaliya | Salt & Other Chemicals |
| **AshapuraMinchem Ltd.** | Jamnagar | Bauxite |
| **Digvijay Cement Co. Ltd.** | Sikka | Cement |
| **Nova International** | Jamnagar | Brass Parts |
| **Natraj Ceramics & Chemical Industries Pvt. Ltd.** | Jam Khmabhaliya | Refractory, Calcite, Bauxite |

## 4.5.1 Support Infrastructure for Industries:

### *4.5.1.1 ROAD*

National Highway (NH) 8 Ext. passes through thedistrict, which is connected to Somnath – Porbandar– Dwarka. The district is well connected by road to Ahmedabad (313 km), Gandhinagar (337 km), Vadodara (382km), Vapi (638 km), Palanpur (459 km), Rajkot (88km), Mehsana (387 km) and Bhavnagar (266 km).

### *4.5.1.2 RAIL*

Jamnagar is well connected by rail to other districts of the state such as, Rajkot, Surat, Porbandar, Ahmedabad, and Vadodara. The district is also well linked to major Indian cities like Mumbai, Delhi, Varanasi, Uttaranchal, andJ amnagar. Hapa Junction is a convenient railhead on broad gauge terminus connecting to Okha & Porbandar.

### *4.5.1.3AIR*

There is one domestic airport in Jamnagar located at adistance of 10 km from the city, connecting the districtto Mumbai and Bhuj (Gujarat).

### *4.5.1.4 PORT*

There is a 355 km long coastline in the district with 9 ports. Bedi, Okha and Sikka are intermediate ports while Salaya, Jodiya, Pidara, Bet (Dwarka), are minor ports. Bedi port is connected by broad gauge railway lines with the rest of India. The nearest railway stations Jamnagar, 7 kms away from Bedi port. A railway siding is available at 2 kms from the port. It is connected to National Highway from Rajkot. Sikka is an all-weather direct berthing port which is by rail and road connected to Jamnagar. Okha port is connected by State Highways 6A and 6B to Jamnagar/Porbandar.

## 4.6 BPL FAMILIES

In the year 2001 we have seen that nearly 46% of rural families in the district were under Below Poverty Line, while in 2011 the % of BPL families amongst total families in the district has decreased to 43.08% i.e. 3% decrease which has shown sign of good economic development in the district.

**Table 4.22: Talukawise BPL Families**

| Sr No. | Talukas | 2001 (Old List) | 2007 (Add On) | 2009 (Add On) | Total | No. of rural families in census (2001) | % of BPL families to total families (2001) |
|---|---|---|---|---|---|---|---|
| **1** | Okhamandal | 4513 | 662 | 35 | 5210 | 10610 | 42.54 |
| **2** | Khambhalia | 4801 | 1303 | 1385 | 7489 | 19359 | 24.80 |
| **3** | Jamnagar | 13667 | 1199 | 1598 | 16464 | 33324 | 41.01 |
| **4** | Jodiya | 8555 | 271 | 323 | 9149 | 15842 | 54.00 |
| **5** | Dhrol | 2824 | 521 | 788 | 4133 | 9343 | 30.23 |
| **6** | Kalawad | 6993 | 899 | 800 | 8692 | 20388 | 34.30 |
| **7** | Lalpur | 9083 | 482 | 654 | 10219 | 15100 | 60.15 |
| **8** | Kalyanpur | 9611 | 1445 | 214 | 11270 | 18389 | 52.26 |
| **9** | Bhaanvad | 12828 | 2817 | 892 | 16537 | 15844 | 80.96 |
| **10** | Jamjodhpur | 9190 | 736 | 125 | 10051 | 19158 | 47.97 |
| **Total** | | **82065** | **10335** | **6814** | **99214** | **177357** | **46.27** |

*Source –Rural Development Department,Gandhinagar*

## 4.7 STATUS of DEVELOPING TALUKA (FLAGSHIP SCHEME):

### *Kalyanpur Taluka*

***Background:***

*During the 11th Five Year Plan Government of Gujarat has taken several major initiatives in development planning. One of the major initiatives was emphasizing monitoring of outcomes in a Taluka Centric Approach in respect of Flagship Scheme. The flagship scheme of Developing Talukas is a unique experiment in planning by the Government of Gujarat.*

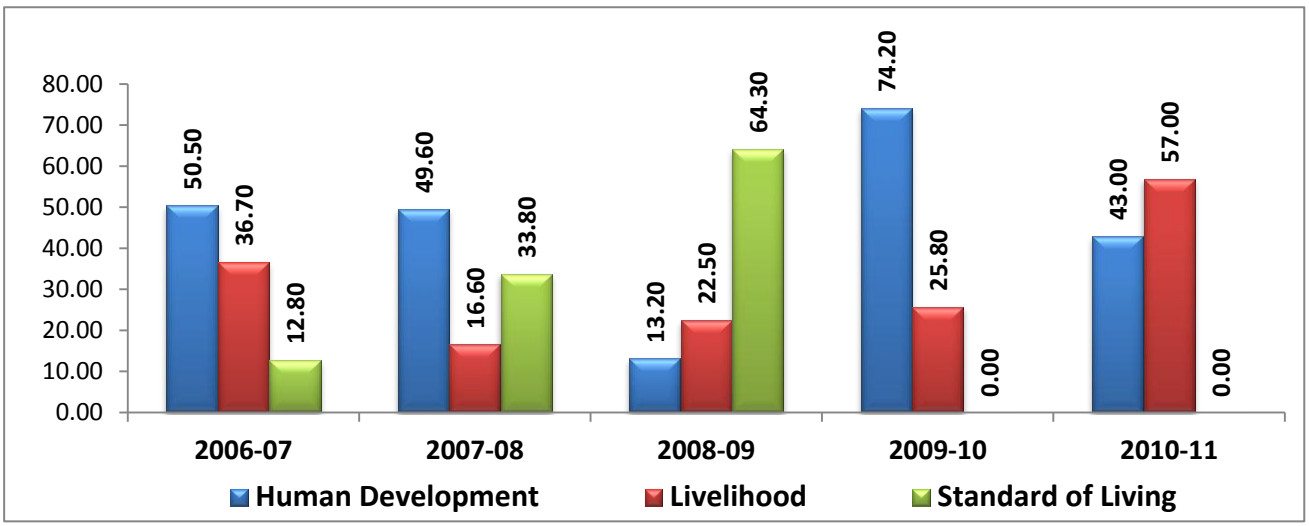
***Status:***

*Kalyanpur Taluka of Jamnagar District is one of the developing taluka covered under this flagship scheme. Cowlagi Committee ranked Kalaynpur Taluka on 28th position as compared with all 225 talukas of the state. Initially taluka focused on the development of Health, Nutrition, Education, Irrigation, Road and Electrification. After achieving the noticeable progress in these sectors, from the year 2008-09 onwards focus was shifted towards the development of Education, Water Supply, Agriculture, Animal Husbandry and other Local developments. During the tenure from 2006-07 to 2010-11 ₹116.37 Lakhs were spent on Road connectivity and ₹111.71 Lakhs were spent on Nutrition. Special Training programs were held for SHGs for generating Self Employment in the taluka. 2 Mobile Vans worth ₹15 Lakhs were allotted in the taluka.*

**Table: 4.23: Expenditure pattern of special grant of Developing Taluka**

| Year | Human Development | Livelihood | Standard of Living |
|---|---|---|---|
| **2006-07** | 44.10 (50.50) | 32.02 (36.70) | 11.16 (12.80) |
| **2007-08** | 42.40 (49.60) | 14.15 (16.60) | 28.89 (33.80) |
| **2008-09** | 24.21 (13.20) | 41.40 (22.50) | 118.06 (64.30) |
| **2009-10** | 90.42 (74.20) | 31.50 (25.80) | 0.00 |
| **2010-11** | 20.92 (43.00) | 27.76 (57.00) | 0.00 |

**(Figures in Bracket shows percentage)**



## 4.8 CONCLUSION

Considering the large scale industries like Reliance, Tata, Essar, GNFC etc. Jamnagar district is considered as one of the most industrialized district in the state. It is well known as "PETROILUM CITY" of India. Along with large scale industrialization Handicrafts industries (BANDHANI), Brass products, as well as agriculture also plays a vital role in the economic development of the district. With a coastline of approximately 350 kms in Jamnagar, there are several salt work units in the district and salt is exported to different countries.

Overall WPR in the district has increased marginally from 38.56% to 39.23%. Percentage of main workers has also increased marginally whereas percentage in marginal workers has declined which shows that full time employment opportunity has increased in the district.

In the past decade average land holding per person has increased from 2.64 (ha) in 2005-06 to 3.79 (ha) in 2010-11. Agriculture in the district is mainly dominated by cash crops over food crops. Although dairy sector in the district is not so strong, in fact Jamnagar does not have its own district union.

As mentioned above Jamnagar has 350 kms of coastline, which caters to huge fishing business. There would be almost 10000 families in the district depending directly or indirectly on fishing activities.

# THE WAY AHEAD

Jamnagar district requires evolving a strategic action plan and corresponding policy practices to enhance the Human Development.

Jamnagar, Kalyanpur and Khambhalia Talukas have shown a decline in net ground water reserves though the fall is within control but is a cause for worry. The worries are that such falls often results into salinity ingress and hence attention must be paid towards through awareness among the people regarding rainwater harvesting; recharge and water use budgeting. With methods available on water budgeting if used efficiently, probably these issue can be safely handled.

As there has been a major difference in the gender gap in literacy rate in the urban- rural. This aspect must be taken into cognisance while implementing the educational interventions of the state sponsored programs. At present the gap between enrolment of boys and that of girls if not addressed it would increase the gender gap in rural areas further. So this calls for intensive actions from the district to rectify the differentials.

Concerted effort in enrolment and in retention of girls in the education system would be required to make the Gender Parity Index (GPI) moves from 0.90 (2011-12) towards 1.0. The Kanya Kelvani and Shala Praveshotsav programme needs to be focused more for improving the female literacy rate, NER and also the overall literacy rate.

An important aspect which is of consequence to maintain certain quality standards is with respect to the teaching staff and their qualification. The bulk of the teachers (65 %) still continue to be having lower qualification i.e. higher secondary and below. So efforts need to be taken to recruit well qualified teachers (Post Graduate) for primary as well as upper primary level.

Some immediate action needs to be taken to provide the remaining schools with the basic amenities. However, the progress since the last two years as regards to the provisioning of basic amenities has been quite good.

The health service infrastructure in terms of SC, PHC and CHC and other is good in Jamnagar district. But the inadequacy of health service personnel is noticeable. Special incentive or special arrangement for staying of the doctors at taluka headquarters can help to overcome the situation. Since Government is spending a huge resource for a medical student, a compulsory system for all medical students (passing out from Government Institution) for providing service at least for 5 years at rural areas can be an innovative and affective step to address this problem.

There is no reliable data of supply of the health services from the private sector. As a result it is difficult to visualize complete scenario of the supply situation of health services. Reliable data on nutritional status, birth weight of baby, food security etc. need to be addressed seriously. A proper District Health Information System is needed for improving the health data system which will help to improve the overall health status. Availability of timely and reliable data is essential for a proper planning and management of health services. For improving the health care delivery system a set of improved mechanism of monitoring and evaluation can increase the effectiveness of the scheme.

A wide anomaly between reported coverage and evaluated coverage of various services need to be addressed soon. A properly oriented/trained district and taluka level health officials could have used the reported data for analysis of performances of individual facilities and plugging the gaps in performance. This aspect needs enhanced focus by the government.

# SWOT ANALYSIS

## STRENGTHS

- ***Jamnagar the Jewel of Kathiawar,*** is on the coast of Gulf of Kutch in the state of Gujarat, India. It has un spoilt Islands & Beaches, Hills, Temples, Palaces, Forest, Fantastic Bird life in the Bird Sanctuary & Marine Sanctuaries and Fascinating Corals and Marine Life in the Marine National Park. All these attraction makes Jamnagar a good centre for Tourism Development.
- Jamnagar is the largest producer of bauxite in the State contributing 96% to the total production and has the second highest reserves in the State with 30% share
- District caters over 70% of the country's requirement for brass parts supply
- Major industry leaders such as Reliance Industries and Essar oil, Gujarat State Fertilisers Corporation (GSFC), Chemical fertilizer complex and a Chemical plant of Tata Chemicals is based in the district
- Jamnagar coastline ranks second with 21.37 % in the 1600 km. of total coastline of the State.
- Salt industry in the district is well developed
- 100% sanitation facility for girls in primary & upper primary schools
- District is having major dominance in cash crops
- Health Infrastructure availability is satisfactory
- Jamnagar is home to the country's only Ayurvedic University offering post graduate and diploma courses in Ayurvedic medicines and pharmaceutical science, yoga and naturopathy
- Child sex ratio is improved and better than the state
- Good Performance shown by Jamnagar District in Ante Natal Care (ANC) for Mother and Institutional Delivery

## WEAKNESSES

- Wide gap between rural & urban households having sanitation facility
- 17.04% primary schools need to be electrified
- Female WPR of 2011 has fallen as compared to 2001
- Health personnel at CHCs as well as at District Hospital including specialist doctor like; general surgeon, physician, gynecologist, pediatrics are vacant
- Availability of safe drinking water in rural Jamnagar is an area of concern

## OPPORTUNITIES

- Average rainfall in last three decades has improved. Increased Rainfall water can be preserve by rainwater harvesting, recharge and water use budgeting
- Decadal improvement in female literacy rate is higher than male literacy rate
- Marine offers new direction for the promotion of tourism in the district
- With Kanya Kelvani & Praveshotsav programme, overall & female literacy can be further improved
- Use of Micro Irrigation System has increased in Jamnagar; Bhanvad taluka has highest area under MIS
- Irrigation system further can be improved by providing awareness among the farmers regarding various government schemes

## THREATS

- Net Ground water reserves of Jamnagar, Kalayapur & Khambhalia talukas have declined
- Salinity ingress has constrained availability of potable groundwater
- In villages there is scarcity of drinking water supply during summer season
- Shortage of staffs in Health Care Institutions affects the quality of Health Care Services

# List of Abbreviations

| | | |
|---|---|---|
| **A.G.W.A** | **:** | Average Ground Water Availability |
| **ADs** | : | Ayurvedic Dispensaries |
| **AHs** | : | Ayurvedic Hospitals |
| **ANC** | : | Ante natal Care |
| **ANM** | : | Auxiliary Nurses Midwife |
| **ASER** | : | Annual Status of Education Report |
| **ASHA** | : | Accredited Social Health Activist |
| **BOR** | : | Bed Occupancy Rate |
| **BPL** | : | Below Poverty Line |
| **CBR** | : | Crude Birth Rate |
| **CDHO** | : | Chief District Health Officer |
| **CDR** | : | Crude Death Rate |
| **CHC** | : | Community Health Centers |
| **CSSM** | : | Child Survival and Safe Motherhood |
| **CY** | : | Chiranjeevi Yojana |
| **DH** | : | District Hospital |
| **DLHS** | : | District Level Household Survey |
| **EPI** | : | Expanded Programme on Immunization |
| **GER** | : | Gross Enrolment Ratio |
| **GGRC** | : | Gujarat Green Revolution Company |
| **GPI** | : | Gender Parity Index |
| **GSFC** | : | Gujarat State Fertilizers Corporation |
| **HD** | : | Homeopathic dispensaries |
| **ICPD** | : | International Conference on Population and Development |
| **IMR** | : | Infant Mortality Rate |
| **IPHS** | : | Indian Public Health Standards |
| **JSY** | : | Janani Suraksha Yojana |
| **KCC** | : | Kishan Credit Card |
| **KVK** | : | Kaushalaya Vardhak Kendra |

| | | |
|---|---|---|
| **M.S.L** | : | Mean Sea Level |
| **MC** | : | Medical Colleges |
| **MH** | : | Mental Hospital |
| **MIS** | : | Micro Irrigation System |
| **MPW** | : | Multipurpose Worker |
| **MSME** | : | Micro, Small and Medium Enterprises |
| **NER** | : | Net Enrolment Ratio |
| **NH** | : | National Highway |
| **NPP** | : | National Population Policy |
| **NRHM** | : | National Rural Health Mission |
| **ODP** | : | Out Door Patients |
| **P** | : | Primary |
| **PGVCL** | : | Paschim Gujarat Vij Company Limited |
| **PHC** | : | Primary Health Centers |
| **PNC** | : | Post Natal Care |
| **RCHC** | : | Reproductive Child Health Care |
| **RR** | : | Retention Rate |
| **S C** | : | Scheduled Caste |
| **S T** | : | Scheduled Tribes |
| **SC** | : | Sub centers |
| **SSI** | : | Small Scale Industrial |
| **TT** | : | Toxoid Injection |
| **U5MR** | : | under Five Mortality Rate |
| **UIP** | : | Universal Immunization Programme |
| **UP** | : | Upper Primary |
| **WPR** | : | Work Participation Rate |