

District Human Development Report

MAHESANA



Gujarat Social Infrastructure Development Society (GSIDS)

General Administration Department (Planning)

Government of Gujarat

DISTRICT HUMAN DEVELOPMENT REPORT



Gujarat Social Infrastructure Development Society (GSIDS)

General Administration Department (Planning)

Government of Gujarat, Gandhinagar

District Human Development Report: MAHESANA

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The report is prepared by Ganpat University under a tripartite MoU between
Member Secretary, Gujarat Social Infrastructure Development Society (GSIDS),
District Collector, Mahesana and
Principal, V. M. Patel College of Management Studies, Ganpat University.



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



BHUPENDRASINH CHUDASAMA



No. Edu(P&S). H&T. F&CS,L.&P./ /2014

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Date :

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 also 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 fields which leads towards inclusive development of the people of the district.

I appreciate the endeavor.

(Bhupendrasinh Chudasama)

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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 it will be useful to all the state & district level officials, policy makers and planners working towards improving Human Development scenario of the District .

(S. Aparna)

**Principal Secretary (Planning) and
Chairperson, GSIDS**



सत्यमेव जयते
गुजरात सरकार

ભોચન સેહરા

આઈ.એ.એસ.

કલેક્ટર અને જિલ્લા મેજિસ્ટ્રેટ

બ્લોક નં. ૩, પ્રથમ માળ, જિલ્લા સેવા સદન,
રાજમહેલ રોડ, મહેસાણા : ૩૮૪૦૦૧

PREFACE

Over the past few decades, there had been concern about the socio-economic developments particularly in backward areas; however special emphasis has been laid on the human development aspects recently. Consequently, along with the economic growth and development, the due importance is given to aspects pertaining to people living long and healthy life, to acquire knowledge and to have access to the resources needed for a decent standard of living. The rationale is to observe how economic growth can be translated in to the overall development of society.

The first Human Development Report, commissioned by the United Nations Development Programme (UNDP) was launched in 1990 with the single target of putting people at the center of the development process in terms of economic debate, policy and advocacy. The first Human Development Report introduced a new way of measuring development by combining indicators of life expectancy, educational attainment and income into a composite Human Development Index. It signified development of the people, by the people, and for the people, and emphasizing that the goals of development are choices and freedoms. Human Development Reports at the regional, national and state levels take the human development approach to the regional, national and state levels and are prepared and owned by regional, national and state teams.

India launched its first Human Development Report in 2001 prepared by National Human Development Report project team of Planning Commission, Government of India. UNDP has signed an initiative with the Government of India to assist State Governments to move from analysis to action. The Project "Strengthening State Plans for Human Development (SSPHD)" is designed to assist state governments in following up to their respective State Human Development Reports (SHDRs). Under this program Government of Gujarat has initiated the process of integrating human development in planning and policy documents. The initiative has been transformed in terms of the preparation of State Human Development Report in 2004. The preparation of SHDR has supported analysis on status of human development at the state level and has led to better investigative alternatives for policies and strategies.



સત્યમેવ જયતે
ગુજરાત સરકાર

લોચન સેહરા

આઈ.એ.એસ.

ડિસ્ટ્રિક્ટ અને જિલ્લા મેજિસ્ટ્રેટ

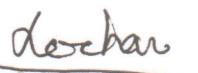
બ્લોક નં. ૩, પ્રથમ માળ, જિલ્લા સેવા સદન,
રાજમહેલ રોડ, મહેસાણા : ૩૮૪૦૦૧

To incorporate human development all through the Planning process, a special initiative was taken by Government of Gujarat by establishing the Gujarat Social Infrastructure Development Society (GSIDS) under the Chairmanship of Additional Chief Secretary (Planning) with a more specific objective of raising Human Development Index of the State. In 2008 under SSPHD, Gujarat initiated preparation of District Human Development Reports (DHDR). The DHDR concentrates on the issue of strategy formulation to bring about human development at taluka level in particular district. The DHDRs aims at understanding the level of human development and disparities existing among regional as well as social groups to provide clarity on the need and direction of initiated program intervention.

Mahesana being one of the developing districts of Gujarat is characterized by low level of human development. According to the Gujarat State Human Development Report (2004), out of 25 districts of Gujarat, Mahesana district ranked 17th with reference to overall Human Development Index (HDI) amongst all the 25 districts of Gujarat in 1991. While after a decade, Mahesana district ranked 18th with reference to overall HDI amongst all the 25 districts of Gujarat in 2001. Since then various efforts for enhancing human development has been undertaken through district administration by the State Government. Special emphasis with specific efforts has been laid on Agriculture, Animal Husbandry, Education, Health Care, Poverty Reduction, Food Security and other aspects of human development by district administration, which has been reflected in the Mahesana DHDR.

The Mahesana DHDR aims to assist process of district planning through the human development prism. It does so by analysing the status of human development attainment and key human development challenges faced with a special focus on efficiency of delivery systems. The Mahesana DHDR is fondly hoped to become an important reference document for integrated district planning in future. It is expected to effectively assist district planning committees and Government line departments in directing adequate public resources towards priority areas and sectors of persisting backwardness within district.

May 2016
Mahesana


Lochan Sehra
District Collector
Mahesana



S. K. Langa

I.A.S.

District Development Officer

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FOREWORD

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 was started. Now-a-days the Gujarat State is on the fast track of development. NITI Aayog (erstwhile Planning Commission of India), 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 that's why priority is given to develop a strategy which conceptually goes beyond per capita income as a measure of development. The preparation of DHDR (District Human Development Report) marks the beginning of the process in Mehsana District whereby people are mobilized and actively participate in the developmental process.

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

I hope this report will form a stepping stone towards the journey of Human Development initiatives and will ultimately prove a milestone in the overall planning and development of the district. DHDR will also be very useful to concerned District level Officials, policy makers, decision makers and NGOs as guiding principles.

S.K.Langa

**District Development Officer,
Mahesana**

ACKNOWLEDGEMENTS

The Mahesana DHDR is prepared under the aegis of Gujarat Social Infrastructure Development Society (GSIDS), General Administration Department (Planning), Government of Gujarat. The GSIDS has initiated the project of preparing District Human Development Reports (DHDR). For this purpose, GSIDS has assigned the task of preparing Mahesana DHDR to Ganpat University. The HDR is the culmination of the concentrated efforts all the agencies involved in preparation of this report. We express our deep sense of gratitude to the Principal Secretary (Planning) & Chairperson, GSIDS, General Administration Department (Planning), Government of Gujarat and Director & Member Secretary, GSIDS for entrusting us and our organization for such an important project.

We are thankful to the Vice Chancellor of Ganpat University for his kind consent to undertake this work. We would like to wholeheartedly thank the District Collector, Mahesana and his office for the support and guidance. We are thankful to District Development Officer and his team for assistance rendered. The cooperation of the officers of the line departments of Mahesana district administration, SPACs - GSIDS, Directorate of Economics and Statistics and representatives of other departments of Government of Gujarat has been acknowledged. We express our sincere gratitude to the villagers for sharing their experiences and enriched the report input by way of discussion during the field visits to the villages in Mahesana district. We have no words to thank those respondents who spared their time to answer the queries. Similarly, the project has been facilitated in countless ways through the cooperation of the experts who helped us at various stages of the project. Their cooperation in providing the guidance is very much appreciated.

We wish this modest effort will contribute towards insights into the 'human development' in Mahesana district and facilitate strategies for the future.

Dr. K. M. Chudasama
Ganpat University

District Human Development Report: MAHESANA

Core Committee

Chairperson	:	District Collector, Mahesana
Co-Chairperson	:	District Development Officer, Mahesana
Members	:	Resident Additional Collector, Mahesana Director, District Rural Development Agency (DRDA), Mahesana District Superintendent of Police, Mahesana Additional Residential Collector, Mahesana Director, District Rural Development Agency (DRDA), Mahesana Executive Engineer, Road & Building, (State)Mahesana Executive Engineer, Road & Building, (Panchayat)Mahesana Executive Engineer, Water Supply, (District Panchayat)Mahesana Chief Engineer, Gujarat Water Supply & Sewerage Board, Mahesana Executive Engineer, SujalamSufalam Division, Kherva Chief Engineer, Uttar Gujarat Vij Company Limited (UGVCL), Mahesana Deputy Conservator of Forest, Mahesana District Agricultural Officer, Mahesana Deputy Director, Animal Husbandry, Mahesana District Education Officer, Mahesana District Primary Education Officer, Mahesana Program Officer, Integrated Child Development Scheme (ICDS), Mahesana Divisional Director, State Transport, Mahesana Civil Surgeon, General Hospital, Mahesana Chief District Health Officer, Mahesana District Backward Class Welfare Officer, Mahesana District Social Welfare Officer, (District Panchayat), Mahesana District Social Welfare Officer, Mahesana District Social Defense Officer, Mahesana District Planning Officer, Mahesana
DHDR Project Director	:	Principal, V. M. Patel College of Management Studies, Ganpat University

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EXECUTIVE SUMMARY

Introduction

The concept of Human Development became popular after the first Human Development Report was published by UNDP in 1990. Since then, the concept is evolving continuously over a period of time and is gaining immense significance. The first Human Development Report has defined human development as the process of enlarging the choices of people and the most critical of those choices are those of long and healthy life, education and decent standard of living. This highlights the aspects pertaining to people living long and healthy life, to acquire knowledge and to have access to the resources needed for a decent standard of living. Given this basic background, the Planning Commission, Government of India has joined hands with UNDP for Strengthening State Plan for Human Development (SSPHD) Programme. In this context, Government of Gujarat has initiated the process of incorporating human development in planning and policy formulations. In order to ensure human development perspective in the Governmental functions, the Government of Gujarat has established Gujarat Social Infrastructure Development Society under the Chairmanship of Additional Chief Secretary (Planning) with the purpose of enhancing Human Development in the State and initiated preparation of District Human Development Reports. Mahesana District Human Development Report is the outcome of the series of the initiatives.

Mahesana district being one of the developing districts of Gujarat is characterized by low level of human development. As per the Gujarat State Human Development Report (2004), out of 25 districts of Gujarat, Mahesana district ranked 17th with reference to overall Human Development Index amongst all the 25 districts of Gujarat in 1991. While after a decade, Mahesana district ranked 18th with reference to overall Human Development Index amongst all the 25 districts of Gujarat in 2001. Thus, the Mahesana District Human Development Report aims to assist process of district planning through the human development prism. The Mahesana District Human Development Report address the issues pertaining to agriculture, animal husbandry and livelihood; literacy and education; health, nutrition and sanitation;

poverty, food security and vulnerability and provides insight for strategy formulation to bring about human development at district and taluka level.

Agriculture, Animal Husbandry and Livelihood

Agriculture and allied activities (including animal husbandry) are major source of livelihood in Mahesana. Almost 53.29% of working population of Mahesana is engaged in agriculture sector and more than 65% and 70% of workforce in Vadnagar and Becharaji depend on agriculture and allied activities. Agriculture in Mahesana is dominated by marginal farmers (owning up to 1 hectare of land), that shares more than 56.06% hectares of operational holdings. Considering the distribution of population across categories and across the talukas, SC and ST population shares relatively proportionate operational holdings out of the total operational land holdings as compared to the other population in Mahesana.

The land use pattern in the district has been stagnant over last decade, where nearly 79.55% of area is under cultivation. The cropping pattern of the district remained almost similar in the years of last decade. In 2009-10 the share of area under food crops was 48.42%, which declined to 46.38% in 2011-12 and increased to 48.12% in 2014-15. Consequently, at times farmer produce cash crops and sell after harvesting, compromising the nutrition need on one hand and on other hand some farmers are forced by emergencies to opt for loan in case of unavailability of resources during emergency, leading to uncertainty in the critical time.

It has been noticed that productivity (Yield in Kg per Hectare) of main food grain crops, oil seeds, cash crops, as well as vegetables has remained volatile in Mahesana during last decade. Moreover cropping intensity has increased from 105.45 to 114.06 between 2009 and 2012 and from 114.06 to 123.82 between 2012 and 2015. Out of the total geographical area of district, about 65.55% of area is irrigated, accounting nearly 82.39% of the total cropped area. Vijapur and Satlasana have more than 95% of its cropped area that is irrigated, while Kadi and Becharaji have less than 70% of its cropped area that is irrigated. The major cause of concern is that still more than 30% of cropped area in Becharaji and Kadi taluka is unirrigated, which needs to be provided irrigation facility by various sources.

The extensive campaigning about the various agricultural schemes and workshops at local level can enhance the awareness of farmers pertaining to their agricultural planning and can provide opportunities for better livelihood.

Animal husbandry plays limited role in Mahesana. Animal husbandry can generate gainful employment in the rural Mahesana, particularly among the landless labourers, small and marginal farmers and women by supplementing their family incomes. Consequently, animal husbandry has to be developed on large scale in Mahesana and to foster livelihood options for people, it can offer more income and employment opportunities by backward and forward linkage strategies.

Literacy and Education

The overall literacy in Mahesana stood at 83.61, while the male literacy and female literacy stood at 91.31 and 75.32 respectively in 2011. Moreover, the overall gap between male and female literacy has been 22.55 in 2011, while the gap between male and female literacy in rural area has been 17.88 in 2011, whereas the gap between male and female literacy in urban area has been 10.71 in 2011. In Mahesana, the total number of schools has increased during last decade. In primary and middle education, most of the schools are administered by local bodies, while in secondary and higher secondary education most of the schools are aided/unaided. In Mahesana, 78.13% of schools are managed by local bodies and 78.60% of schools possess government buildings. The network of schools in Mahesana indicate that majority (85.37%) of schools are in rural area. Mahesana has 65.77% of schools with primary/upper primary sections and 26.79% of school are into only primary education.

In Mahesana, most of the schools have pucca buildings with classrooms in good condition. More than 17% of classrooms in Satlasana, Kheralu, Visnagar and Vadnagar require major and Minor repair. However, new class rooms are required in almost all talukas of Mahesana. Moreover, Mahesana needs to prioritize the provision of computers. Mahesana has improved on construction of separate girls' toilets. As far as taluka wise scenario is concerned, almost all the schools in all the talukas have

separate girls' toilets. In Mahesana, most of the schools have drinking water facilities. Provision of drinking water facilities shows improvement in 2015 as compared to 2006-07 in all sections and categories of schools in Mahesana.

Student enrolments in Mahesana depicts declining trend at primary level as well as in totality from Grade 1-7 between 2006-07 and 2014-15. The Gross Enrolment Ratio (GER) at primary level for Mahesana has remained almost stagnant i.e 107.4 in 2006-07 and 107.2 in 2013-14, while GER at upper primary level has improved from 58.1 in 2006-07 to 97.0 in 2013-14. The Net Enrolment Ratio (NER) at primary level for Mahesana has improved from 84.8 in 2006-07 to 88.5 in 2013-14, while NER at upper primary level has improved from 45.3 in 2006-07 to 74.4 in 2013-14. There has been hardly any improvement in girls' enrolment in lower primary level, while there has been severe fluctuation in girls' enrolment at upper primary level between 2006-07 and 2014-15 in Mahesana. The gap between boys and girls enrolment at primary and upper primary level ranges between 8.77% and 13.22% in Mahesana.

Class-wise enrolment in the elementary education in Mahesana from 2006-07 to 2014-15 shows tendency for Class 1 enrolments to decline over the years. Not only the number of students decline as they go from Class 1 to Class 2 to Class 3 and so on, but also there has been declining trend in the number of students being enrolled in Class 1 every year since 2006-07. Class 1 students enrolled in 2006-07 reduced by almost 3.77% on an average of their initial strength as they transit to Class 2 in 2007-08 and so on. Further shrinkage every successive year ranges between 2% and 10% of the remaining transited students, at every stage of higher classes. Moreover, the flow rates (Repetition Rate, Drop Out Rate, Promotion Rate, Transition Rate and Retention Rate) remained fluctuating in Mahesana. Due to such dips in enrolment, the mass of students enrolled in Class 1 every year is downsized to fit the limited intake of the upper primary system.

In Mahesana, the PTR ranges from 22:1 to 28:1 and SCR ranges from 22:1 to 27:1, which is better than the national norms specified in Model school criteria. However, almost 94.1% of schools have SCR lower than 40:1 and about 96.11% of schools have PTR lower than 40:1. Furthermore, out of total schools in Kheralu, Unjha,

Visnagar, Vijapur and Becharaji more than 95% of schools have SCR less than 40:1, while out of total schools in Kheralu, Unjha, Vadnagar and Vijapur taluka more than 97% of schools have PTR less than 40:1 in Mahesana district for the year 2014-15.

In Mahesana, 21.15% of schools are located within the 1 km, while 48.85% of schools are located within 1 km to 5 km distance and 18.47% of schools are located within 5 km to 10 km, whereas 7.22% of schools are located beyond 10 km distance from CRC. In Satlasana taluka almost 15.63% of schools and in Mahesana taluka about 11.94% of schools are located beyond the 10 km distance from CRC. Moreover, Mid –Day meal is provided in almost all the schools of Mahesana.

State Government provides Vidya Laxmi Bonds to the girls enrolled in Class 1 in rural areas and BPL girls in urban areas. The volatility is noticed in the trend of beneficiaries of Vidya Laxmi Bonds between 2004-05 and 2013-14. This indicates fluctuating trend in girls, enrolment in district. Moreover, distribution of uniforms and textbooks has played vital role in encouraging enrolment of students in schools of Mahesana and regular school health checkups has facilitated better monitoring of school going children in Mahesana.

Specific efforts for providing primary education to social groups (especially SC and ST) and women in backward talukas should be given greater importance along with the measures to reduce the literacy gap between male and female in Mahesana. Special efforts should be made not only to enroll the students but to retain them and provide higher education. Drinking water and sanitation being the matter of prime concern in education, availability of such facilities should be ensured by linking it with grants (school development funds) for strict implementation. It is expected that provisions made available under the SSA should be optimally utilized, as it has gained significance in view of the RTE provisions.

Health, Nutrition and Sanitation

Mahesana district has 288 sub centers, 56 PHCs, 14 CHCs. There are 312, 596 and 160 beds available in PHCs, CHCs and District hospital respectively. Moreover, there are 18 Ayurvedic and 10 Homeopathic institutions, 2 first referral units, 1 mobile medical unit and 39 Govt. ambulances.

As far as health care institutions (Govt, municipality and grant in aid other than panchayat) are concerned in Mahesana, the number of clinics, the number of beds, number of doctors and number of nurses has remained stagnant between 2011 and 2014. This depicts the lopsided growth in health sector leading to bottleneck in provision of health care services in Mahesana. However, the problem of vacant posts is mainly evident in class 1 staff under certain medical divisions as compared to class 2 staff across medical divisions in Mahesana. Moreover, large number of the medical and paramedical positions in Mahesana are yet to be filled. Prompt efforts are required to fill up the key positions at various levels across the talukas of Mahesana to ensure the quality of health care services offered in district.

Major diseases prevailing in Mahesana are Acute Diarrheal Diseases, Acute Respiratory Infection, Acute Viral Hepatitis, Bacillary Dysentery, Malaria Vivax, Malaria Falciparum, Enteric Fever and Fever of unknown origin. The cases suffering from Acute Respiratory Infection, Acute Diarrheal Diseases, Malaria Falciparum and Enteric Fever have major prevalence in Mahesana district. Moreover there has been increased in the cases reported for Acute Respiratory Infection and Acute Diarrheal Diseases over the years in Mahesana. This indicates that the district is highly vulnerable to number of diseases and therefore regular campaigning of prevention of diseases, health care tips and hygiene instructions along with drinking water and sanitation guidelines are required to create the awareness amongst the people.

During last decade, significant change is noticed in maternal health care in Mahesana. The institutional (Govt. & Private) deliveries which were 99.91% in 2009-10, increased to 99.96 % in 2014-15, while the deliveries at home have declined in Mahesana between 2009-10 and 2014-15. Moreover it has been observed that PHCs, CHCs and Govt. Hospital has played vital role in deliveries at Govt. institutions, but

PHCs has performed remarkably well in serving patients for maternal health care. The deliveries assisted by untrained dais have remarkably gone down in 2011-12 and increased in 2014-15 in Mahesana.

Significant proportion of underweight new born babies persists in Mahesana between 2009-10 and 2014-15, indicating that prevalence of malnutrition in Mahesana. As far as nutrition in Anganwadi going children in Mahesana is concerned, nearly 11% of children were reported undernourished suffering from malnutrition in 2014-15. ICDS scheme in Mahesana is operational in all the talukas having more than 1190 operational Anganwadi centers in Mahesana, but it has to be linked with provision of milk to the children (as implemented in name of "Bhagwan No Bhaag" by ICDS Banaskantha) to fight the malnourishment. However, the infrastructure of Anganwadi, location and efficiency are the matters of concern in Mahesana.

As far as sanitation of households in Mahesana is concerned nearly 67.97% of households has sanitation (individual household latrine) facility, while 32.03% of households lack the sanitation facility. The households without individual household sanitation facilities are targeted under total sanitation campaign for providing the sanitation facilities. In Mahesana 25.55% of target is achieved in provision of household sanitation facilities.

It has been observed that BCG coverage ranged from 82% to 93%, while DTP 3 coverage hovered between 86% and 98% between 2009 and 2014. OPV booster lingered from 87% to 90%, while Measles vaccination coverage ranged from 88% to 96% and full immunization coverage remained between 86% and 95%. ANC registration (% of early registration) remained between 87% and 96% of the early registration while ANC 3 checkups coverage ranged between 76% and 88% between 2009 and 2014 in Mahesana. However, the performance of women and child health care especially ANC registration and ANC 3 Checkups needs to be prioritized in Mahesana.

Proper administering at micro level and monitoring the implementation is required, which shall improve the health care coverage in Mahesana Considerable efforts are required through community groups, NGOs, religious institutions and other suitable

agencies to handle the conservative socio-cultural practices and shift illiterate people to opt for better health care.

Poverty, Food Security and Vulnerability

In Mahesana, out of the total families covered under socio-economic survey 2002-03 and successive add-on lists 2008-09 and 20014-15, almost 31.62% families turned out to be poor, with the score of 20 or below. Out of total BPL families in Mahesana, 49.00% families turned out to be very poor with the score ranging from 0 to 16, while 51.00% of BPL families had the score ranging from 17 to 20. Satlasana taluka had more than 65% of BPL families with the score between 0 and 16 (very poor families).

The income level of the BPL families in Mahesana, depicts that 75.83% of families have average monthly income below Rs. 500, while the land holding features of BPL families in Mahesana reveals that 81.64% of families do not possess land. The housing condition of BPL families in Mahesana shows that 24.49% of families do not possess housing facilities, while 52.18% of families possess kachha houses. The sanitation conditions of BPL families in Mahesana indicate that as many as 94.45% of families do not possess sanitation facilities.

The food security in BPL families of Mahesana illustrate that 7.45% of families out of total BPL families can manage less than 1 square meal per day for major part of the year, while 15.97% of families out of total BPL families can manage 1 square meal per day, but less than 1 square meal occasionally, whereas nearly 10% of families out of total BPL families can manage 1 square meal per day throughout the year, however, 35.98% of families out of total BPL families can manage 2 square meals per day, with occasional shortage.

Out of total ration card holders in 2012-13, 76.06% of card holders were APL card holders, 19.49% of card holders were BPL card holders and 4.44% of card holders were Antodaya card holders. While, out of total ration card holders in 2014-15, 84.12% of card holders were APL card holders, 13.07% of card holders were BPL card holders and 2.82% of card holders were Antodaya card holders in Mahesana.

This illustrate that many BPL households in the district live in hunger despite the efforts by food security schemes.

The problem of the water resources of Mahesana involves qualitative deterioration as well as quantitative shortages. In Mahesana, one of the major prevalent issues pertaining to water is overexploitation of ground water and its depletion. Out of 9 talukas of Mahesana almost 8 talukas fall under the category of 'Over Exploited' while 1 taluka fall under the category of 'Critical'. Given the geological and hydrological features of Mahesana, the continuous efforts with suitable technology and schemes are required besides existing schemes to constantly improve the water related crises in Mahesana.

In Mahesana still there exists economic and social inequality and consequently there are people who remain vulnerable to various conditions. The overall extent of crime is reported to been declining in Mahesana, but the total cognizable crimes such as burglary and theft seems to persist in Mahesana. In Mahesana the reporting of incidents pertaining to crime against women has increased between 2009 and 2015. This also reflects that due to increasing awareness and literacy the reporting of crime and violence against women have increased in Mahesana. Over a period, the increasing awareness amongst women is leading to protest against domestic violence. It replicates the wakefulness of women and society towards women dignity and right to live respectful life.

KEY STATISTICS: MAHESANA

Demographic	Mahesana		Gujarat	
	2001	2011	2001	2011
Population	1837892	2035064	50671017	60439692
% Decadal Growth in Population	12.00	10.73	22.66	19.27
% Rural Population	77.59	74.72	62.64	57.40
% Male	51.90	51.92	52.07	52.10
% Female	48.10	48.08	47.93	47.90
% Male (0-6)	7.80	6.35	7.89	6.81
% Female (0-6)	6.25	5.34	6.97	6.06
Sex Ratio (Over All)	927	926	920	919
Sex Ratio (0-6)	801	842	883	890
% Scheduled Cast (SC) Population	8.09	7.97	7.1	6.7
% Scheduled Tribe (ST) Population	0.49	0.46	14.8	14.8
Sex Ratio (SC)	912	921	925	931
Sex Ratio (ST)	837	925	974	981
Male Literacy	86.20	91.39	79.66	85.75
Female Literacy	63.65	75.32	57.8	69.68
Total Literacy	75.22	83.61	69.14	78.03
Male-Female Literacy Gap	22.55	16.07	21.86	16.07
Rural-Urban Literacy Gap	11.20	6.40	20.55	14.60
Population Density	420	469	258	308
Work Participation Ratio	45.08	39.90	41.9	41.0

Source: Computed from database of Census of India (2001, 2011)

Agriculture	Mahesana		Gujarat	
	2002-03	2007-08	2002-03	2007-08
% Area under Forest	1.64	1.41	9.85	9.75
% Area not available for cultivation	8.38	8.27	19.95	23.31
% Other Uncultivated Area	7.19	6.92	15.09	14.97
% Fallow Land	3.23	1.87	5.00	2.81
% Net Sown Area	79.55	81.53	50.10	52.98
% Net Sown Area more than once	22.20	25.11	6.10	11.94
% Gross Cropped Area	101.75	106.65	56.51	64.92
Cropping Intensity	127.90	130.80	112.79	122.53
% Net Irrigated Area	45.38	52.76	16.19	22.51
% Gross Irrigated Area	55.46	64.64	19.33	29.85
% Net Irrigated Area to Net Sown Area	57.04	64.70	32.32	42.48
% Gross Irrigated Area to Gross Cropped Area	54.51	60.61	34.21	45.97
Irrigation Intensity	122.23	122.53	119.40	132.62

Source: Computed from database of Directorate of Agriculture, Gujarat (2003, 2008)

Animal Husbandry	Mahesana		Gujarat	
	2007	2012	2007	2012
Total Livestock	896064	917000	23793513	27128200
% Cattle (Cross Breed)	11.45	17.60	4.80	7.10
% Cattle (Indigenous)	12.68	12.43	28.72	29.70
% Buffaloes	63.34	55.95	36.87	38.28
% Goat	9.78	9.34	19.50	18.28

Source: Computed from database of Directorate of Animal Husbandry, Gujarat (2007, 2012)

Education	Mahesana			Gujarat		
	2005-06	2009-10	2014-15	2005-06	2009-10	2014-15
Total Schools	1165	1226	1285	37256	39939	43638
Government Schools (%)	89.87	83.20	79.14	87.59	83.69	77.36
Private Schools (%)	10.13	16.80	20.86	12.41	16.31	22.64
Rural Government Schools (%)	82.49	78.38	73.93	78.7	76.09	70.34
Rural Private Schools (%)	4.89	8.65	11.44	6.41	7.48	9.94
Schools with Common Toilet (%)	74.76	31.65	0.00	57.26	32.8	7.82
Schools with Separate Girls Toilet (%)	72.19	67.86	97.74	50.17	42.9	98.15
Schools with drinking water facility (%)	95.02	99.76	99.92	80.92	96.74	98.92
Total Classrooms	7784	8471	10794	186090	229586	317663
Classrooms in Good Condition (%)	83.54	85.61	85.45	82.24	82.56	87.07
Total Enrolment	280856	279300	265521	7155000	7814391	8064151
Total Enrolment Government (%)	90.77	82.22	75.18	84.77	75.26	65.31
Total Enrolment Private (%)	9.23	17.78	24.82	15.23	24.74	34.70
Rural Enrolment Government (%)	81.29	74.69	67.70	70.68	63.23	54.79
Rural Enrolment Private (%)	2.95	6.24	10.01	5.77	8.71	11.04
% Girls to Total Enrolment	43.55	43.99	44.94	46.31	46.41	46.41
Gross Enrolment Ratio (Primary)	87.8	106.8	107.2*	100.3	109	98.72
Gross Enrolment Ratio (Upper Primary)	87.8	59.8	97.0*	49.91	59.7	93.56
Net Enrolment Ratio (Primary)	83	84.3	88.5*	78.89	85.8	83.29
Net Enrolment Ratio (Upper Primary)	44.6	45.1	74.4*	36.64	42.4	71.36
Teachers Total	7895	8308	10791	206693	243342	319170
Teachers Government School (%)	90.54	81.72	73.00	83.71	76.88	64.88
Teachers Private School (%)	9.46	18.28	27.00	16.29	23.12	35.12
Pupil Teacher Ratio	35.57	33.62	24.61	1:35	1:32	25.27
Student Classroom Ratio	36.08	32.97	24.60	1:38	1:34	25.39
Drop Out Rate (I-V)	NA	1.0	0.3*	4.3	3.9	0.76

Source: Computed from database of Gujarat Council of Elementary Education, SSA, Gujarat (2005-2014)

Note: *Data of 2013-14

Health		Mahesana			Gujarat		
		2008-09	2010-11	2013-14	2008-09	2010-11	2013-14
Number of CHCs		13	15	16	273	305	318
Number of PHCs		49	52	52	1084	1114	1158
Chiranjeevi Yojana	% of Normal Delivery	86.13	89.30	89.75	48.82	89.10	85.35
	% of LSCS	6.89	7.35	8.83	48.82	6.37	8.52
	% of Complicated	6.96	3.34	1.49	2.36	4.53	6.12
National Program for Control of Blindness	% cases served by District Hospital	3.15	3.76	4.09	3.12	3.18	2.97
	% cases served by Sub-District Hospital	2.65	2.36	2.59	2.72	2.72	2.44
	% cases served by DMU / CMU	0	0	0	0.39	0.37	0.13
	% cases served by NGO	51.94	47.98	44.34	37.96	38.76	39.02
	% cases served by Private	42.24	45.87	48.97	54.89	52.86	53.25
	% cases served by Others	0	0	0	0.93	1.05	2.16
Performance of ANC Registration	% against Workload	84.5	93.88	314.65	87.60	93.11	101.38
	% of Early Registration to Total ANC	86.90	87.35	88.37	60.60	66.21	70.87
BCG Immunization	% against Workload	83.17	90.25	281.55	90.67	91.81	92.89
	% against Live Birth	85.87	104.28	92.94	106.09	103.64	107.13
DPT 3rd Dose Immunization	% against Workload	83.67	96.86	304.89	84.48	93.13	96.66
	% against Live Birth	86.38	106.12	96.68	98.85	99.69	107.11
Measles Immunization	% against Workload	83.87	94.73	290.70	81.36	90.09	90.11
	% against Live Birth	86.59	103.78	92.18	95.20	96.43	99.86
Fully Immunized Children	% against Workload	83.18	94.13	279.19	79.14	88.70	88.13
	% against Live Birth	85.88	103.13	88.53	92.60	94.94	97.66
Performance of Sterilization	% against Workload	85.13	99.17	83.6	92.89	85.72	81.3
	% of NSV to total Sterilization	1.53	0.94	0.0	3.55	2.12	0.56

Source: Computed from database of Commissionerate of Health, Medical Services, Medical Education and Research, Gujarat (2008-2014)

Incidents of Crime / Violence Registered	Mahesana			Gujarat		
	2009-2010	2010-2011	2013-2014	2009-2010	2010-2011	2013-2014
Total Cognizable Crimes	0.48	2.38	2.54	115183	123371	157435
% Incidents of Murder	0.23	0.89	1.52	0.89	0.91	0.71
% Incidents of Dacoity	3.07	16.48	15.74	0.21	0.18	0.18
% Incidents of Burglary	13.02	61.17	53.60	3.90	3.65	3.16
% Incidents of Theft	0.50	2.28	5.69	17.08	13.00	9.73
% Incidents of Robbery	1.20	6.85	12.28	1.23	1.11	0.91
% Incidents of Kidnapping	1.26	7.85	7.92	1.17	1.31	1.69
% Incidents of Riots	0.02	0.20	0.10	1.34	1.31	1.09
% Incidents of Culpable Homicide	0.06	0.60	0.51	0.03	0.03	0.03
% Incidents of Counterfeit Coins	0.15	1.29	0.10	0.21	0.21	0.09
% of Miscellaneous Incidences	0.48	2.38	2.54	52.75	56.57	63.92

Source: Computed from database of State Crime Records Bureau, Gujarat (2014)

Living Condition	Mahesana	Gujarat
	2011	2011
Total number of households	425907	12181718
Households by Main Source of Drinking Water (%)		
Tap water from treated source	43.65	39.85
Tap water from untreated source	44.58	29.18
Covered well	0.98	2.30
Un-covered well	0.58	4.79
Hand pump	0.17	11.62
Tube well/Borehole	8.72	9.60
Spring/ River/Canal	0.31	0.43
Tank/Pond/Lake	0.01	0.22
Other sources	0.98	2.00
Households by the Condition of Houses Occupied (%)		
Good	67.76	67.26
Liveable	30.01	31.21
Dilapidated	2.23	1.54
Households by Predominant Material of Roof of Houses Occupied (%)		
Grass/Thatch/Bamboo/Wood/Mud etc.	2.31	1.53
Plastic/Polythene	0.74	0.49
Handmade Tiles	4.29	8.94
Machine made Tiles	3.97	22.55
Burnt Brick	0.58	0.52
Stone/Slate	2.55	3.10
G.I./Metal/Asbestos sheets	42.66	18.89
Concrete	42.82	43.89
Any other material	0.06	0.10
Households by Availability of Bathing Facility & Drainage (%)		
Households having bathing facility within the premises	68.22	67.43
Households having Bathroom	60.75	56.46
Households having Enclosure without roof	7.47	10.97
Households not having bathing facility within the premises	31.78	32.57
Waste water outlet connected to Closed drainage	39.80	37.29
Waste water outlet connected to Open drainage	3.71	9.44
Waste water outlet without drainage	56.48	53.27
Households by Main Source of Lighting (%)		
Electricity	90.54	90.41
Kerosene	7.80	8.08
Solar energy	0.06	0.13
Other oil	0.27	0.21
Any other	0.11	0.21
No lighting	1.21	0.96

Source: Computed from database of Census of India (2011)

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List of Abbreviations

<1M/DY	Less than 1 Square Meal per day for Major part of the Year
1M/D<1MO	Normally 1 Square Meal per day, but less than 1 Square Meal Occasionally
1M/DY	1 square meal per day throughout the year
2M/DOS	2 square meals per day with occasional shortage
AFNCL	Adult Female and No Child Labour
AHPTP	Associated Herd Progeny Testing Programme
AIDS	Acquired Immune Deficiency Syndrome
AML	Adult Male Labour
ANC	Ante Natal Care
ANM	Auxiliary Nurse Midwife
APL	Above Poverty Line
ASHA	Accredited Social Health Activist
ATMA	Agricultural Technology Management Agency
AYUSH	Department of Ayurveda, Yoga and Naturopathy, Siddha and Homoeopathy
BCG	Bacille Calmette Guérin Vaccine for preventing tuberculosis
BIA	Borrowing only from Institutional Agencies
BISAG	Bhaskaracharya Institute for Space Applications and Geo-Informatics
BPL	Below Poverty Line
BRGF	Backward Region Grant Fund
CAGR	Compound Annual Growth Rate
CDPOs	Child Development Project Officers
CHCs	Community Health Centers
CHMSMER	Commissionerate of Health, Medical Services, Medical Education & Research
CMU	Central Mobile Unit
CRC	Cluster Resource Centre
DD	Door Darshan
DMU	District Mobile Unit
DPIS	Daily Purpose from Informal Sources
DPO	District Programme Officer
DPT	Diphtheria, Tetanus and Pertussis (Vaccine)
DWSC	District Water and Sanitation Committees
EFY	Enough Food Throughout The Year
ENT	Ear Nose and Throat (Surgen)
FCL	Female and Child Labour
FHW	Female Health Workers
GDI	Gender Development Index
GDM-1	Gender Development Measure-1
GEI	Gender Equity Index
GER	Gross Enrolment Ratio
GGY	Gokul Gram Yojana

GoG	Government of Gujarat
GPs	Gram Panchayats
GSDP	Gross State Domestic Product
GVT	Government
GVTRF	Government Rent Free
GWIL	Gujarat Water Infrastructure Limited
GWSSB	Gujarat Water Supply and Sewerage Board
HDI	Human Development Index
HDM-1	Human Development Measure-1
HDM-2	Human Development Measure-2
IAY	Indira Awas Yojana
ICDS	Integrated Child Development Service
IDDP	Intensive Dairy Development Project
IMR	Infant Mortality Rate
IPC	Indian Penal Code
IPHS	Indian Public Health Standards.
ISRO	Indian Space Research Organisation
IWMP	Integrated Watershed Management Program
KGBV	Kasturba Gandhi Balika Vidyalaya
LB	Local Body
LHV	Lady Health Visitor
LSCS	Lower Segment Caesarian Section
MM	Modified Mercalli Intensity
MMR	Maternal Mortality Rate
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MSP	Minimum Support Price
NER	Net Enrolment Ratio
NFSM	National Food Security Mission
NGO	Non Governmental Organization
NGSW	Not Going to School and Working
NICU	Neonatal Intensive Care Unit
NIPA	No Indebtedness and Possess Assets
NSMC	National Swajaldhara Monitoring Committee
NSV	Non Surgical Vasectomy
OBC	Other Backward Caste
OP	Only Primary
OPD	Out Patient Department
OPV	Oral Polio Vaccine
OTH	Others
OUP	Only Upper Primary
P, UP	Primary with Upper Primary
P, UP,HS	Primary with Upper Primary, Secondary / Higher Secondary
PHC	Primary Health Centre
PHN	Public Health Nurse

POPIS	Production Purpose from Informal Source
PS	Pani Samitis
PTR	Pupil-Teacher Ratio
PVT	Private
RKVY	Rastriya Krushi Vikash Yojna
RNT	Rented
RSVY	Rashtriya Sam Vikas Yojana
RTI	Reproductive Tract Infections
SC	Scheduled Caste
Score 0-16	Socio Economic Survey Score for Extreme Poor Families
Score 0-20	Socio Economic Survey Score for Poor Families
SCR	Student-Class Ratio
SGNW	School Going & Not Working
SGSY	Swarnajayanti Gram Swarajgar Yojana
SGW	School Going and Working
SHG	Self Help Group
SMY	Sakhi Mandal Yojana
SPAY	Sardar Patel Awas Yojana
SSA	Sarva Siksha Abhiyan
ST	Schedule Tribal
STI	Sexually Transmitted Infections
SWOC	Strengths, Weaknesses, Opportunities, Challenges
SWSM	State Water and Sanitation Mission
TASP	Tribal Area Sub Plan
TSC	Total Sanitation Campaign
TSWD	Tribal/Social Welfare Department
UNDP	United Nations Development Programme
UNICEF	United Nations International Children's Emergency Fund
UP,HS	Upper Primary with Secondary / Higher Secondary
VAP	Village Action Plan
VWSC	Village Water and Sanitation Committees
WASMO	Water And Sanitation Management Organization
WHO	World Health Organization

Chapter 1

Introduction

Chapter 1

INTRODUCTION IN BRIEF

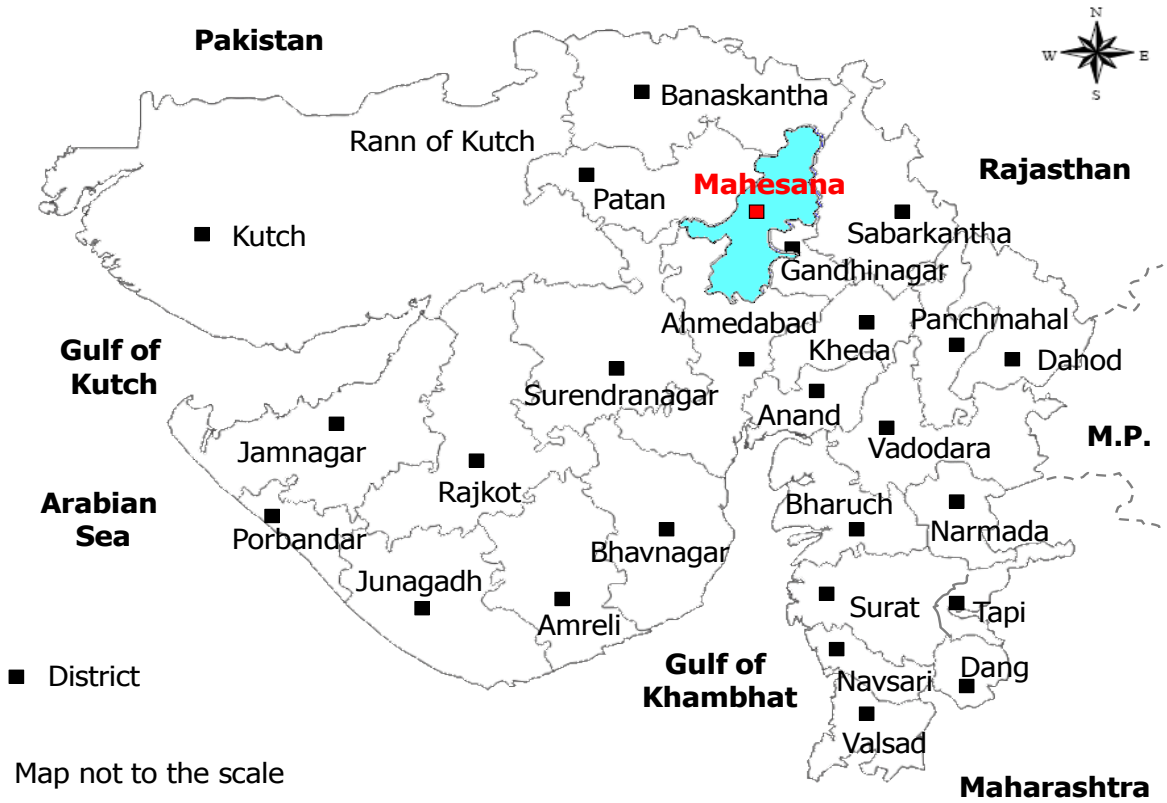
1.1 Historical Overview

The history of the present Mahesana District can be distinctly traced from the end of the seventh century onwards. The Mahesana District derives its name from the town of Mahesana, which is the headquarter of taluka and the district. It is said that the town of Mahesana was founded by Mahesaji and Masaji, a ruler in the Chavada dynasty. During the period of freedom movement, district joined the prevailing trends in the nation. The regions of Kadi, Mahesana, Saij and Ladol in Mahesana area became the storm centers in this political movement. Since formation of separate Gujarat state in 1960 Mahesana district had been an integral part of the Gujarat state. Separate district of Gandhinagar and later on Patan were carved out by merging some talukas of earlier Mahesana district with adjoining talukas of other districts. (Census of India, 2001).

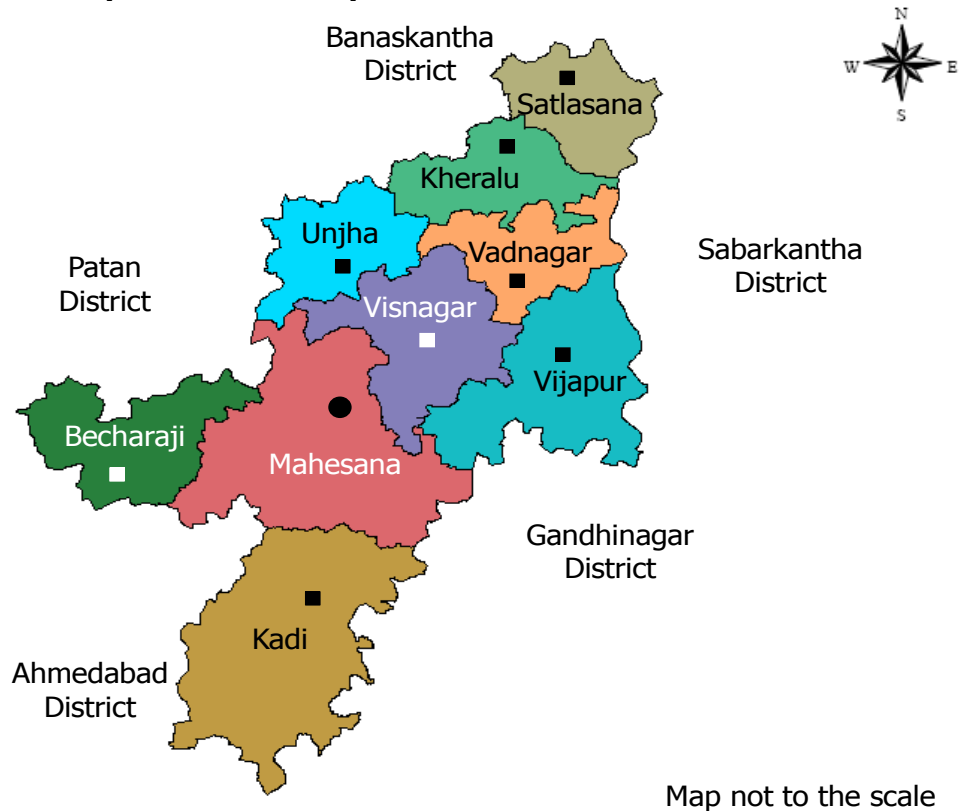
1.2 Location

The Mahesana district is located between the parallels of 23°.2' and 24°.6' North Latitude and the meridians of 71°.56' and 72°.52' East Longitude situated in the northern part of Gujarat. The Mahesana district covers the geographical area of 4401 sq. km. The district is bounded by Banaskantha district in the north, Sabarkantha district in the east, Gandhinagar district in the southeast, Ahmedabad district in the southwest and Patan district in the west. The major rivers that flow through the Mahesana district are Sabarmati and Rupen. State Highway 10, 130, 55, 159, 7, 214 and 221 connects the district to Patan district, while State Highway 133, 135, 138 and 41 connects the district to Ahmedabad district, whereas State Highway 138, 71, 218, 55 and 130 connects the district to Gandhinagar district. The State Highway 55, 10 connects the district to Sabarkantha district and the State Highway 41, 56 connects the district to Banaskantha district. Mahesana, Unjha, Siddhpur are major railway station in the district and connects it to the Mumbai-Ahmedabad-Jaipur-Delhi corridor.

Map 1.1: Location of Mahesana District in Gujarat



Map 1.2: Taluka Map of Mahesana District



1.3 Administrative Setup

For the administrative purpose, Gujarat has a three-tier arrangement; Gram Panchayat, Taluka Panchayat and District Panchayat. In 1997, Government of Gujarat (GoG), vide Notification No. GHM-97-81-M-PFR-1097-L reconstituted Mahesana district. Chanasma, Harij, Patan, Sami, and Sidhpur talukas of earlier Mahesana district were carved out to be included in the newly created Patan district. By Government Resolution No. PFR-2097-2594-L, Becharaji taluka was created by separating it from Chanasma taluka. Bechraji taluka was included as a taluka in Mahesana district vide Notification No. GHM-99-134-MPFR-1099-3998-L in 1997. By Resolution No. PFR-2097-2595-L, Unjha taluka was created by separating it from Sidhpur taluka and Unjha taluka was included as a taluka in Mahesana district vide Notification No. GHM/99-40-M-PFR-1099-UO-75-L in 1999. The Mahesana district since 1999 had nine talukas namely, Satlasana, Kheralu, Unjha, Visnagar, Vadnagar, Vijapur, Mahesana, Becharaji, and Kadi. In 2013, vide Notification No: GHM/2013/93/M/PFR/102013/139/L.1 Gozariya taluka and Jotana taluka were created in Mahesana totaling to eleven talukas in Mahesana. However, the analysis is based on nine talukas (considering Gozariya taluka and Jotana taluka as part of other talukas as till 2013). Thus the district all together consists of 600 villages, 218 gram Panchayats, 128 group Panchayats, 91 independent Panchayat and 7 Municipal Towns. The taluka wise administrative setup details are shown in Table 1.1.

Table 1.1: Taluka Wise Villages, Gram Panchayats and Towns

Taluka / District	Villages		Gram/Village Panchayats			Municipal Towns
	Inhabited	Uninhabited	Group	Independent	Total	
Bechraji	52	0	2	51	53	
Kadi	120	0	0	120	120	Kadi
Kheralu	51	0	5	41	46	Kheralu
Mahesana	116	0	1	129	130	Mahesana
Satlasana	65	8	17	20	37	
Unjha	31	0	0	35	35	Unjha
Vadnagar	43	1	3	38	41	Vadnagar
Vijapur	64	1	2	72	74	Vijapur
Visnagar	59	0	0	65	65	Visnagar
Total	601	10	30	571	601	

Source: District Statistics Office, Mahesana (2015)

Kadi taluka has highest number of (120) inhabited villages, while Unjha taluka has least number of (31) inhabited villages. Satlasana has highest number of (8) uninhabited villages. Satlasana taluka has highest number of (17) group Gram Panchayats, while Mahesana taluka has highest number of (129) independent Gram Panchayats.

Moreover, there are 7 Statutory Town viz. Kadi, Kheralu, Mahesana, Unjha, Vadnagar, Vijapur and Visnagar with Municipality and 3 Census Towns viz. Ambaliyasan, Baliyasan and Bechraji in Mahesana district. Furthermore, Mahesana is a Lok Sabha (parliamentary) constituency and there are seven Vidhan Sabha (legislative assembly) segments in Mahesana viz. Bechraji Kadi Unjha, Mahesana, Vijapur, Visnagar and Kheralu.

1.4 Physical Characteristics

Mahesana district is a part of Gujarat Plain and is subdivided into five sub-micro regions viz. (1) Western Sandy Waste, (2) Central Alluvial Plain, (3) Mahesana Aravalli, (4) Sabarmati Basin and (5) Mahesana Lowland on the basis of topography, climate, geology, soils and natural vegetation. The Western Sandy Waste region is having low relief in comparison to other regions of the district. The maximum height of 57 meters above Mean Seal Level (M.S.L.) is found in this region and it decreases towards west. The Central Alluvial Plain region occupies the northern part of the district and covers Visnagar, Vijapur, Vadnagar and Mahesana talukas. The region is plain having a maximum elevation of 100 metres above M.S.L. The slope is towards west. The Mahesana Aravalli region of the district makes boundaries with Banaskantha district in the west and north, Sabarkantha district in the south-east and Central Alluvial Plain and Sabarmati Basin in the south. The terrain of this region is undulating with the altitude ranging from 200 metres to 370 metres above M.S.L. The Sabarmati Basin occupies parts of Vijapur taluka. The basin is formed by Sabarmati river which flows in the region from north to south direction. The height goes upto 100 metres above M.S.L. Mahesana Lowland occupies Kadi, Mahesana and Visnagar talukas. The topography of this region is flat and of sandy plain. The elevation is generally varies between 68 metres and 99 metres above M.S.L.

The Taranga Hill is the only hill in the Mahesana district, situated in Kheralu taluka. It is approximately 365.8 meters (1,200 feet) above M.S.L. Principal rivers of Mahesana district are Sabarmati and Rupen. Total length of Sabarmati river in the district is about 90 km. and that of Rupen river is about 135 km. Sabarmati river originates from Aravalli mountains. It passes through Kheralu and Vijapur talukas and flows towards south. Then the river meets the Gulf of Khambhat. Rupen river originates from Taranga hills in Kheralu taluka of Mahesana district. It passes through Kheralu, Visnagar and Mahesana talukas and absorbs in small desert of Kachchh. The Dharoj dam on river Sabarmati in Satlasana taluka is the major water resources projects of Gujarat.

1.5 Basic Demographics

As per the abstracts of Census of India (2011) the total population of Mahesana increased from 18,37,892 in 2001 to 20,35,064 in 2011 reporting a decadal growth of 10.73%. In 2001, Mahesana shared 3.63% of population of Gujarat; whereas in 2011, Mahesana shared 3.37% of the state population. The decadal growth dimension of population is shown in Table 1.2.

Table 1.2: Decadal Growth Dimension of Population in Mahesana

Taluka / District	% Decadal Growth 2001-2011			Sex Ratio		Urbanisation		Work Participation					
	Total	Male	Female	2001	2011	2001	2011	2001			2011		
								Total	Male	Female	Total	Male	Female
Becharaji	8.13	8.40	7.86	952	947	0.00	12.63	50.44	56.41	44.16	42.49	56.70	27.47
Kadi	14.98	14.68	15.31	916	921	20.22	23.84	45.11	54.91	34.41	38.29	56.21	18.84
Kheralu	16.60	16.46	16.76	937	940	17.56	16.33	50.29	55.21	45.04	40.16	55.17	24.19
Mahesana	14.85	14.92	14.77	913	912	32.12	38.08	41.58	52.80	29.30	37.67	54.89	18.79
Satlasana	17.92	18.27	17.54	951	945	0.00	0.00	47.22	53.79	40.31	40.87	54.52	26.43
Unjha	0.71	0.95	0.45	932	927	30.91	32.53	44.57	54.60	33.80	40.19	56.70	22.39
Vadnagar	11.35	12.21	10.46	969	954	19.16	19.11	47.21	52.25	42.01	41.17	54.36	27.33
Vijapur	7.92	7.78	8.08	925	927	12.97	13.63	47.13	53.49	40.26	44.94	57.00	31.93
Visnagar	3.58	3.43	3.75	921	924	29.03	29.27	43.79	52.76	34.04	39.24	55.93	21.17
Total	10.73	10.76	10.69	927	926	22.40	25.27	45.08	53.73	35.75	39.90	55.72	22.83

Source: Census of India (2001, 2011)

The sex ratio in Mahesana has marginally declined from 927 females per 1000 males in 2001 to 926 females per 1000 males in 2011, while the sex ratio in rural area has declined from 934 females per 1000 males in 2001 to 932 females per 1000 males in 2011, whereas the sex ratio in urban area has improved from 901 females per 1000 males in 2001 to 910 females per 1000 males in 2011. However, the sex ratio (0-6 age group) in the district improved from 801 females per 1000 males in 2001 to 842 females per 1000 males in 2011. Furthermore, the urbanization has marginally increased from 22.40% in 2001 to 25.27% in 2011. The overall literacy rate has increased from 75.22 in 2001 to 83.61 in 2011, while male literacy rate increased from 86.20 in 2001 to 91.39 in 2011, whereas female literacy rate increased from 63.65 in 2001 to 75.32 in 2011. The gender wise demographic features of Mahesana are presented in Table 1.3.

Table 1.3: Gender wise Demographic Features of Mahesana

% Male		% Female		% Male (0-6)		% Female(0-6)		Male Literacy		Female Literacy	
2001	2011	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
51.90	51.92	48.10	48.08	55.53	54.29	44.47	45.71	86.20	91.39	63.65	75.32

Source: Census of India (2001, 2011)

The density of population in Mahesana has increased from 421 to 462 per square kilometer from 2001 to 2011 respectively.

As far as child population (0-6 Years) is concerned, the percentage of child population out of total population in Mahesana district has declined between 2001 and 2011. The overall decadal change in child population has been -16.76% between 2001 and 2011. Moreover, the proportion of child population to the total population in rural area as well as in urban areas has declined in 2011 as compared to 2001 and therefore, the decadal change in child population in rural has been -17.38% and decadal change in child population in urban area has been -12.41. Furthermore, the proportion of male child population to the total male population as well as the proportion of female child population to the total female population has declined in 2011 as compared to 2001 and therefore, the decadal change in male child population has been -18.64% and decadal change in female child population has been -14.41% in Mahesana as shown in Table 1.4.

Table 1.4: Decadal Change in Child (0-6 Yrs) Population in Mahesana

Taluka / District	% of Child Population By Residence						% of Child Population By Gender					
	Rural		Decadal Change	Urban		Decadal Change	Male		Decadal Change	Female		Decadal Change
	2001	2011		2001	2011		2001	2011		2001	2011	
Becharaji	14.66	12.65	-13.73	11.27		15.41	13.01	-15.57	13.86	11.90	-14.17	
Kadi	15.10	12.82	-15.09	12.78	10.69	-16.32	15.39	12.54	-18.56	13.79	12.07	-12.51
Kheralu	16.66	13.65	-18.07	13.28	11.41	-14.10	16.68	13.69	-17.91	15.41	12.85	-16.63
Mahesana	14.59	12.04	-17.49	11.69	10.49	-10.31	14.69	12.11	-17.57	12.53	10.72	-14.43
Satlasana	16.86	13.60	-19.39				17.57	14.34	-18.37	16.13	12.81	-20.58
Unjha	13.22	10.78	-18.47	11.00	9.87	-10.29	13.90	11.16	-19.69	11.07	9.75	-11.93
Vadnagar	16.64	12.88	-22.58	13.79	12.26	-11.04	17.10	13.33	-22.02	15.06	12.17	-19.18
Vijapur	13.17	10.95	-16.87	13.17	11.57	-12.18	14.26	11.58	-18.81	11.99	10.44	-12.89
Visnagar	13.62	11.01	-19.15	11.14	9.23	-17.15	14.03	11.05	-21.27	11.67	9.88	-15.29
Total	14.64	12.10	-17.38	11.98	10.49	-12.41	15.03	12.23	-18.64	12.99	11.11	-14.41

Source: Census of India (2001, 2011)

The decadal change in SC population as well as ST population in Mahesana depict that proportion of SC and ST population to the total population in Mahesana has declined between 2001 and 2011 as shown in Table 1.5.

Table 1.5: Decadal Change in SC & ST Population in Mahesana

	% of SC Population			% of ST Population		
	2001	2011	Decadal Change	2001	2011	Decadal Change
Becharaji	8.85	8.05	-9.10	0.09	0.18	111.88
Kadi	9.20	8.65	-6.02	0.42	0.33	-22.65
Kheralu	9.17	8.45	-7.88	0.21	0.29	34.22
Mahesana	8.15	8.72	6.99	0.85	0.75	-12.06
Satlasana	9.04	9.08	0.53	0.51	0.27	-46.89
Unjha	7.63	7.95	4.13	0.24	0.40	67.38
Vadnagar	7.12	6.45	-9.37	0.13	0.07	-44.65
Vijapur	7.04	6.47	-8.14	0.64	0.51	-19.56
Visnagar	7.40	7.29	-1.47	0.38	0.52	36.21
Total	8.09	7.97	-1.37	0.49	0.46	-5.49

Source: Census of India (2001, 2011)

1.6 Mahesana in Human Development Ladder of Gujarat

Gujarat Human Development report published in 2004 captured human development attainments of the districts in the State. The Human Development Index (HDI) was derived from the 4 components viz. (1) Human Development Measure-1 (HDM-1) that measures opportunities / capabilities of individuals; (2) Gender Development Measure-1 (GDM-1) that measures the level of opportunities / capabilities available to women in relation to men; (3) Gender Equity Index (GEI) that measures gender inequality per se, independent of level of development and (4) Human Development Measure-2 (HDM-2) measures macro level capabilities and opportunities available to both men and women and includes macro capabilities relating to macro processes and structures. Accordingly the 25 districts of Gujarat were ranked. Mahesana was placed at a lower rank of human development. The HDI value and Gender Development Index (GDI) value of Mahesana turned out to be 0.459 and 0.506 respectively and ranked 18th and 14th respectively amongst all the 25 districts of Gujarat as compared to the HDI value and GDI value of Gujarat that turned out to be 0.565 and 0.551 respectively and ranked 6th amongst 15 major states of India.

In terms of HDM-1, Mahesana ranked 16th in Income with the index value 0.037, while it ranked 4th in Education with the index value 0.721, whereas it ranked 18th in Health and 14th in Housing with the index values 0.621 and 0.397 respectively. However, Mahesana ranked 4th in Participation with the index value 0.496. The overall HDM-1 rank of district was 14th with the index value 0.454. This indicates that Mahesana lags far behind other districts in terms of HDM-1 indicators except Education and Participation. Moreover, it is revealed from the Table 1.6 that the index values for Income, Education and Health in Mahesana district are much lower than the state average indices pertaining to HDM-1.

Table 1.6: Human Development Indices (HDM-1) and Ranking at a Glance

Indicators	Income	Education	Health	Housing	Participation	HDM-1	HDI
Mahesana Index 2001	0.037	0.721	0.621	0.397	0.496	0.454	0.459
Gujarat Index 2001	0.241	0.744	0.710	0.266	0.434	0.479	0.565
Mahesana Rank 2001	16	4	18	14	4	14	18
Gujarat Rank 2001	6	6	9	2	10	6	6

Source: Hirway and Mahadevia (2004)

In terms of GDM-1, Mahesana was ranked 11th in Income with the index value 0.214, while it ranked 6th Education with the index value 0.708, whereas it ranked 18th in Health and 14th in Housing with the index values 0.596 and 0.397 respectively. However, Mahesana ranked 3rd in Participation with the index value 0.449. The overall

GDM-1 rank of Mahesana was 13th with the index value 0.473. This depicts that Mahesana lags much behind other districts in terms of GDM-1 indicators except Education and Participation. Moreover, it is revealed from the Table 1.7 that the index values for Education and Health in Mahesana district are lower than the state average indices pertaining to GDM-1.

Table 1.7: Human Development Indices (GDM-1) and Ranking at a Glance

Indicators	Income	Education	Health	Housing	Participation	GDM-1	GDI
Mahesana Index 2001	0.214	0.708	0.596	0.397	0.449	0.473	0.506
Gujarat Index 2001	0.208	0.736	0.710	0.266	0.348	0.454	0.551
Mahesana Rank 2001	11	6	18	14	3	13	14
Gujarat Rank 2001	4	6	9	2	12	6	6

Source: Hirway and Mahadevia (2004)

In terms of GEI, Mahesana was ranked 7th in Income with the index value 0.840, while it ranked 14th in Education with the index value 0.769, whereas it ranked 22nd in Health with the index values 0.785 and it ranked 6th in Participation with the index value 0.428. The overall GEI rank of Mahesana was 13th with the index value 0.705. This reveals that Mahesana lags behind other districts in terms of GEI indicators except Income and Participation. Table 1.8 shows the index and rank of Mahesana and Gujarat for indicators of GDM-1.

Table 1.8: Human Development Indices (GEI) and Ranking at a Glance

Indicators	Income	Education	Health	Participation	GEI
Mahesana Index 2001	0.840	0.769	0.785	0.428	0.705
Gujarat Index 2001	0.509	0.804	1.055	0.358	0.682
Mahesana Rank 2001	7	14	22	6	13
Gujarat Rank 2001	4	9	8	10	8

Source: Hirway and Mahadevia (2004)

In terms of HDM-2, Mahesana was ranked 7th in Environment, 2nd in Basis Services, 24th in Regional Equality and 23rd in Patriarchy with the index values 0.841, 0.806, 0.455 and 0.430 respectively. The overall HDM-2 rank of Mahesana was 5th with the index value 0.633. This exhibits that Mahesana lags behind other districts in terms of GEI indicators pertaining to Regional Equality and Patriarchy. Table 1.9 presents the index and rank of Mahesana and Gujarat for indicators of HDM-2.

Table 1.9: Human Development Indices (HDM-2) and Ranking at a Glance

Indicators	Environment	Basic Services	Regional Equality	Patriarchy	HDM-2
Mahesana Index 2001	0.841	0.806	0.455	0.430	0.633
Gujarat Index 2001	0.315	0.692	0.769	0.563	0.585
Mahesana Rank 2001	7	2	24	23	5
Gujarat Rank 2001	13	2	9	9	6

Source: Hirway and Mahadevia (2004)

1.7 District Human Development Report: Mahesana

1.7.1 Background

Since the inception of Gujarat as a separate state in 1960, certain regions in the state have been identified as less developed. Certain region of Mahesana district (including Patan district during that period) in north Gujarat region is one of them. Considering the variation in the intra-district socio-economic conditions, the Govt. of Gujarat in 1966 opted for taluka as a unit of identifying backwardness in line with the recommendations of the Planning Commission given in 1965. In this context, all Sami taluka (at present in Patan district, but was included in Mehsana district in 1966) was declared as backward. While on the basis of selected indicators Hathi Committee (GoG, 1972) and Dr. I. G. Patel Committee (GoG, 1984) declared Sami taluka and Chanasma taluka (at present in Patan district, but was included in Mehsana district in 1972 and 1984) as backward talukas. According to the report of the committee to study backwardness of talukas of Gujarat (GoG, 2005) on the basis of group indicators (levels of living, economic indicators, infrastructural indicators and social development indicators), out of 9 talukas of Mahesana district, no talukas of Mahesana were included amongst the 50 most backward talukas of state. However, Satlasana and Becharaji talukas were listed in backward taluka list of level 2 and 3 (not most backward, but more backward. It implies that poor socio-economic conditions and poor human development conditions in certain regions of the district has played significant role in the backwardness of the district.

1.7.2 Objectives

- To understand the present state of human development in different dimensions at the district and at the inter-taluka levels of the Mahesana district.
- To study the major challenges pertaining to human development in talukas of Mahesana district.
- To discover the inter taluka gaps pertaining to human development aspects in Mahesana district.
- To identify the constraints and propose remedy to translate the development programs into action in Mahesana district.
- To understand the priority area of development in Mahesana district.

1.7.3 Methodology

The procedure and methodologies of measuring human development are continuously evolving and are being refined since the introduction of Human Development concept. Due to the all-inclusive nature of human development and its significance, it is relatively complex to appraise the progress in human development. Given the availability of secondary data required for analyzing the human development in Mahesana, the inter taluka comparisons of socio-economic variables has been applied. The situation of human development across talukas (wherever possible) has been studied with reference to socioeconomic variables. The preparation of DHDR Mahesana done in a participatory manner involving concerned line departments of district administration, NGOs, academia, women's groups and people's representatives. The workshops at the district level, discussions at taluka level and sub-committee meetings were organized for an open consultations with the concerned stakeholders. The DHDR Mahesana is based on various data sources. The governmental as well as nongovernmental data sources have been consulted. The governmental sources include the departments such as agriculture, animal husbandry, irrigation, health, education, rural development, and so on. The data were also collected from the concerned branches of District Panchayat and Taluka Panchayats. The published as well as unpublished data and reports of Directorate of Economics and Statistics have been used. The nongovernmental database includes concerned research reports and information from NGOs. However, field studies have been carried out and focus group discussions were undertaken to review the schemes and programs.

1.7.4 Structure of Report

For analytical convenience the report has been organized into six chapters.

Chapter 1: Introduction in Brief; is introductory and gives an overview of Mahesana district. It discusses the historical, location, administrative, physical and demographic features of Mahesana. The chapter highlights the position of Mahesana in human development ladder of Gujarat.

Chapter 2: Agriculture, Animal Husbandry and Livelihood; discusses land use pattern, land holding features, cropping pattern, major crops and productivity, livestock in Mahesana, livelihood by agriculture and animal husbandry, schemes and programs for agriculture and animal husbandry, success stories and status of talukas in pertaining to agriculture and animal husbandry in Mahesana.

Chapter 3: Literacy and Education; reviews the status of literacy, literacy gaps, school infrastructure and amenities, staffing pattern, enrolment and transition pattern, teaching and learning environment, incentives for education, schemes and programs in education, success stories and status of talukas pertaining to education in Mahesana.

Chapter 4: Health, Nutrition and Sanitation; deals with health care scenario in Mahesana. It studies health care infrastructure accessibility, human resource availability in health care, health care services offered, prevalence of major diseases, women and child health care, nutrition, drinking water and sanitation, schemes and programs for health care, success stories and status of talukas pertaining to health, nutrition and sanitation in Mahesana.

Chapter 5: Poverty, Food Security and Vulnerability; analyses aspects of poverty, aspects of food security as well as vulnerability, programs for BPL and vulnerable groups, success stories and status of talukas on poverty, food security and vulnerability in Mahesana.

Chapter 6: The Way Ahead; discusses the issues of major concern in Mahesana and highlights the possible actions to deal with the issues for betterment in human development.

Chapter 2

Agriculture, Animal Husbandry and Livelihood

Chapter 2

AGRICULTURE, ANIMAL HUSBANDRY AND LIVELIHOOD

2.1 Introduction

The primary sector, including agriculture and animal husbandry holds significant position in the economy of Mahesana district. Since majority of the workforce is engaged in this sector, it is important that this sector develops to ensure sustainable earnings to the people engaged in the primary sector. 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 animal husbandry also plays vital role in providing nutritive food and supplementary income to the economically weaker section of society. It offers employment potential, if adopted on a large commercial basis and provides opportunities for woman empowerment in rural area.

Agriculture and allied activities are major source of livelihood in Mahesana. Almost 53.29% of working population is engaged in agriculture sector out of which 43.85% are cultivators and 56.15% are agricultural labourers. Almost 88.56% of cultivators and 61.65% of the agricultural labourers are male. The land use pattern in the district depicts that nearly 79.55% of area is under cultivation. The average size of the operational holdings of the district is 1.31 hectare. Agriculture in Mahesana is dominated by marginal farmers (owning up to 1 hectare of land), which shares 56.06% of total operational holdings. Out of total cropped area 84.60% of area is irrigated and 48.11% of irrigation is shared by food crops and 51.88% of irrigation is shared by non food crops.

The chapter discusses land use pattern, land holding features, cropping pattern, major crops and productivity, livestock in Mahesana, livelihood by agriculture and animal husbandry, schemes and programs for agriculture and animal husbandry, success stories and status of talukas in pertaining to agriculture and animal husbandry in Mahesana.

2.2 Land Use Pattern

Livelihoods are the means that people use to support themselves, to survive and to prosper. It comprises the abilities, assets and activities for a means of living (Chambers and Conway, 1991). Access to various levels and combination of asset has major influence on choice of livelihood options. Land being a vital natural asset, its efficient use is the prerequisite for development as it has greater significance in livelihoods especially for agrarian area like Mahesana where huge mass of working population is dependent on agriculture.

The total reported area of Mahesana is 439153 hectares, of which 1.63% is forest, 1.19% is barren land, 7.18% is under non agricultural use, 83.88% is cultivable land, 6.12% is grazing land and 4.33% is uncultivable land. However, 79.55% of total reported area is net cropped area and 65.55% of total reported area is irrigated. Geographically, Mahesana taluka has been the biggest taluka sharing 18.96% of district area, while Satlasana taluka has been the smallest taluka sharing 7.02% of area of district. Satlasana shares maximum forest area (87.80%) of the district, while no other taluka except vijapur share the forest area of the district. Mahesana taluka shares largest area under non agricultural use as well as under cultivation, while satlasana shares least area under non agricultural use as well as under cultivation. Mahesana shares largest net cropped area as well as net irrigated area, while Satlasana shares least net cropped area as well as net irrigated area of the district as shown in Table 2.1.

Table 2.1: Taluka wise Land Use Classification (2011)

Taluka / District	Forest Area		Non-Agricultural		Cultivable Land		Net Cropped Area		Net Irrigated Area		Total Area
	Dist %	Tal %	Dist %	Tal %	Dist %	Tal %	Dist %	Tal %	Dist %	Tal %	Dist %
Becharaji	0.00	0.00	10.53	8.02	9.49	84.47	9.65	81.50	9.32	64.81	9.42
Kadi	0.00	0.00	18.72	7.10	19.50	86.43	20.02	84.16	18.97	65.73	18.92
Kheralu	0.00	0.00	9.94	9.37	7.52	82.80	7.69	80.36	6.10	52.49	7.61
Mahesana	0.00	0.00	19.66	7.44	19.59	86.68	20.47	85.87	19.00	65.69	18.96
Satlasana	87.80	20.42	3.70	3.78	5.15	61.44	4.31	48.75	5.61	52.35	7.02
Unjha	0.00	0.00	9.20	9.16	7.25	84.36	7.46	82.29	7.73	70.25	7.21
Vadnagar	0.00	0.00	8.24	8.34	7.23	85.55	7.16	80.30	8.39	77.60	7.09
Vijapur	12.20	1.55	8.56	4.79	13.07	85.48	11.60	71.91	11.25	57.47	12.83
Visnagar	0.00	0.00	11.46	7.53	11.21	86.02	11.65	84.82	13.64	81.78	10.93
Total	100	1.63	100	7.18	100	83.88	100	79.55	100	65.55	100

Source: Computed from database of District Agriculture Office, Mahesana (2015)

Majority of area in the talukas is cultivable area. More than 80% of area in all the talukas except Satlasana and Vijapur is under cultivation. Moreover, more than 70% of land in Unjha, Vadnagar and Visnagar talukas is irrigated area. However, Becharaji,

Kheralu, Satlasana and Vijapur talukas except shares lesser proportion of net irrigated area as compared to district average.

2.3 Land Holding Features

Land holding is the concept which involves operating of land for the purpose of producing agricultural goods (Subedi et al., 2007a). Distribution and ownership of land has greater significance in determining income level. The diversity of livelihoods in agrarian region exists as a result of variation land holdings. The economic wellbeing of agrarian region people is tied-up with amount of land owned by the household. Land is regarded as the means of piling of wealth that also symbolizes social status and political power and hence land being a basic and primary resource, the poor livelihoods is due to poor status of arable land.

Out of total population of Mahesana, 7.97% belongs to SC, 0.46% belongs to ST and 91.56% belongs to other categories, while out of total operational holdings (in numbers) 2.57% belongs to SC, 0.39% belongs to ST and 97.04% belongs to other categories, whereas out of total operational holdings (in hectares) 2.20% belongs to SC, 0.29% belongs to ST and 97.51% belongs to other categories in Mahesana as exhibited in Table 2.2.

Table 2.2: Taluka wise Operational Holdings

Taluka / District	Operational Land Holding Features 2001									Operational Land Holding Features 2011										
	Total Holdings		Avg. Size		SC		ST		Other		Total Holdings		Avg. Size		SC		ST		Other	
	(No)	(Ha)	(Ha)	No	Area	No	Area	No	Area	No	Area	(No)	(Ha)	(Ha)	No	Area	No	Area	No	Area
Bechraji	13274	33035	2.49	4.81	3.53	0.00	0.00	95.19	96.47	13352	21008	1.57	4.01	2.99	0.40	0.35	95.59	96.65		
Kadi	34111	64744	1.90	3.95	2.74	0.05	0.04	95.99	97.22	16691	26279	1.57	3.50	2.64	0.29	0.32	96.21	97.03		
Kheralu	13680	23800	1.74	3.41	2.23	0.00	0.00	96.59	97.77	27172	24911	0.92	3.17	2.17	0.59	0.32	96.24	97.51		
Mahesana	39750	64900	1.63	3.08	2.21	0.00	0.00	96.92	97.79	35212	36412	1.03	2.82	2.58	0.60	0.35	96.58	97.07		
Satlasana	10398	15406	1.48	4.31	2.98	0.00	0.00	95.69	97.02	19430	25902	1.33	4.46	2.46	1.16	0.43	94.38	97.11		
Unjha	23582	25018	1.06	0.89	0.84	0.00	0.00	99.11	99.16	33085	45174	1.37	1.32	1.71	0.04	0.06	98.63	98.23		
Vadnagar	16216	24396	1.50	2.10	1.75	0.00	0.00	97.90	98.25	47097	60783	1.29	2.15	1.68	0.77	0.69	97.08	97.63		
Vijapur	29290	44057	1.50	0.99	0.69	0.00	0.00	99.01	99.31	16447	29052	1.77	1.16	1.46	0.18	0.13	98.66	98.41		
Visnagar	30367	39283	1.29	1.27	1.02	0.00	0.00	98.73	98.98	43742	60470	1.38	1.95	1.66	0.08	0.07	97.97	98.26		
Total	210668	334639	1.59	2.54	2.00	0.01	0.01	97.45	97.99	252228	329991	1.31	2.57	2.20	0.39	0.29	97.04	97.51		

Source: Computed from database of District Agriculture Office, Mahesana (2015)

On the other hand Mahesana taluka shares 28.47% of SC population of the district and shares 20.46% of SC holdings of the district. On the other hand, Mahesana taluka shares 42.21% of ST population of the district and shares 28.89% of ST holdings of the district. Moreover, it is noticed that out of total population of Satlasana taluka, 9.08% are SC, while out of total holdings of Satlasana taluka, 4.46% are SC holdings. Out of total population of Mahesana taluka, 0.75% are ST, while out of total holdings of Mahesana taluka, 0.60% are ST holdings. However, out of total population of Mahesana taluka, 90.53% are other than SC/ST, while out of total holdings of Mahesana taluka 96.58% are other than SC/ST holdings. Agriculture being a major

source of livelihood in Mahesana, the landholding share significantly impacts the standard of living of people in Mahesana.

2.4 Cropping Pattern

The cropping pattern used on a farm and its interactions with farm resources are significantly determined by the soil characteristics and available technology. Sustainable cropping pattern promotes the cultivation of short duration, less water intensive cash crops combined with horticulture using improved seeds resulting in an increase in income.

Out of the total reported area of Mahesana, about 79.55% of area is the net cropped area (under cultivation). The cropping pattern of the district remained almost similar in the years of last decade. In 2009-10 the share of area under food crops was 48.42%, which declined to 46.38% in 2011-12 and increased to 48.12% in 2014-15. Correspondingly, in 2009-10 the share of area under non food crops was 51.58%, which increased to 53.62% in 2011-12 and decreased to 51.88% in 2014-15. However, it has been noticed that more than 50% of cropped area in Mahesana, Unjha and Vadnagar remained under the cultivation of food crops between 2009 and 2015, while more than 50% of cropped area in Vijapur and Visnagar have remained under the cultivation of non food crops between 2009 and 2015. Moreover, cropping pattern in Kadi, Kheralu and Satlasana talukas depicted volatile shifts in cropping pattern between 2009 and 2015 as shown in Table 2.3.

Table 2.3: Taluka wise Area (% Hectares) Under Food Crops and Non Food Crops

Taluka / District	% Area 2009-10		% Area 2011-12		% Area 2014-15	
	Food Crops	Non Food Crops	Food Crops	Non Food Crops	Food Crops	Non Food Crops
Bechraji	51.46	48.54	58.99	41.01	44.16	55.84
Kadi	41.99	58.01	56.52	43.48	42.57	57.43
Kheralu	58.92	41.08	24.30	75.70	58.53	41.47
Mahesana	50.47	49.53	53.51	46.49	50.89	49.11
Satlasana	53.78	46.22	42.77	57.23	54.37	45.63
Unjha	54.73	45.27	59.13	40.87	54.85	45.15
Vadnagar	53.65	46.35	52.97	47.03	54.11	45.89
Vijapur	42.19	57.81	29.45	70.55	43.42	56.58
Visnagar	43.91	56.09	41.10	58.90	44.81	55.19
Total	48.42	51.58	46.38	53.62	48.12	51.88

Source: Computed from database of District Statistics Office, Mahesana (2009-2014).

This scenario indicate relatively stable trend in area under food crops and non food crops in Mahesana during last decade. Vijapur and Visnagar share 11.25% and 13.64% of district's irrigated area respectively and have better irrigation availability

and therefore farmers cultivate non food crops to earn better returns than food crops. However, cropping pattern also impose criticality on food security on one hand and assured returns on other hand.

2.5 Major Crops and Productivity

Crop yields are inevitably affected by weather, input quality, input prices, etc. Agricultural productivity is measured as the ratio of agricultural outputs to agricultural inputs. The productivity of a region's farms is important for food sufficiency, growth prospects, income distribution, etc. An increase in a region's agricultural productivity implies a more efficient utilization of scarce resources, which leads to higher incomes from low cost. It can help to alleviate poverty in agrarian regions, where agriculture often employs the greatest portion of the population. As farms become more productive, the wages earned by workers in agriculture also increases and at the same time, food supplies become more stable.

Main food grain crops cultivated in Mahesana are Wheat, Bajra and Maize, while major oil seeds grown in the district are Castor and Mustard, whereas the main cash crops are Cotton, Cumin and Fennel and the main vegetables are Potato and Onion. It has been noticed that productivity (Yield in Kg per Hectare) of main food grain crops, oil seeds, cash crops, as well as vegetables has remained volatile in Mahesana during last decade between 2009 and 2014 as shown in Table 2.4.

Table 2.4: Productivity of Major Crops (In Kg/Ha)

Major Crops	2009-10	2010-11	2011-12	2012-13	2013-14
Wheat	2914	3052	3152	2975	2975
Bajra	2308	2589	2492	2783	2783
Maize	964	1638	1393	1674	1674
Castor	2101	1970	2120	2253	2253
Mustard	1544	1582	1549	1481	1481
Cotton	640	667	758	702	702
Cumin	584	454	561	443	443
Fennel	1732	1412	1654	2106	2106
Isabgul	581	472	756	576	576
Potato	21313	24137	25397	25649	25649
Onion	26789	30500	25000	24483	24483

Source: Computed from database of District Agriculture Office, Mahesana (2015)

However, as the larger area in Mahesana is under the cultivation of non food crops, due to better irrigation facilities, the earnings needs to be largely predictable as they

are directly associated with the productivity and uncertain productivity poses a major risk on farmers for sustainable farming.

There are two ways to satisfy the increasing food and other agricultural demands of the rising population: either expanding the net area under cultivation or intensifying cropping over the existing area. The net cropped area of Mahesana has remained stagnant in last decade which indicates less possibility to make any substantial 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 $\text{Cropping Intensity} = (\text{Gross Cropped Area} / \text{Net Cropped Area}) \times 100$. Thus, higher cropping intensity means that a higher portion of the net area is being cropped more than once during one agricultural year. The cropping intensity of Mahesana is shown in Table 2.5.

Table 2.5: Taluka wise Cropping Intensity

	Cropped Area (Hectares) 2009-10		Cropping Intensity 2009-10	Cropped Area (Hectares) 2011-12		Cropping Intensity 2011-12	Cropped Area (Hectares) 2014-15		Cropping Intensity 2014-15
	Net	Total		Net	Total		Net	Total	
Bechraji	33725	34953	103.64	32991	37872	114.79	35618	43648	122.54
Kadi	69931	71818	102.70	53808	62715	116.55	51952	64565	124.28
Kheralu	26872	27688	103.04	37787	43749	115.78	26371	33089	125.47
Mahesana	71501	72170	100.94	59704	69063	115.68	64416	80270	124.61
Satlasana	15040	18953	126.02	20919	22375	106.96	19092	23615	123.69
Unjha	26060	26716	102.52	18242	20285	111.20	22898	28372	123.91
Vadnagar	24998	26634	106.54	28544	32405	113.53	28270	35088	124.12
Vijapur	40507	48152	118.87	45577	51267	112.48	35626	44283	124.30
Visnagar	40708	41287	101.42	27133	30627	112.88	32978	39848	120.83
Total	349342	368371	105.45	324705	370358	114.06	317221	392778	123.82

Source: Computed from database of District Agriculture Office, Mahesana (2015)

Over a period of time the net cropped area has declined in Mahesana but area cropped more than once has increased and therefore the total cropped area has increased and the overall cropping intensity in Mahesana has increased from 105.45 to 114.06 between 2009 and 2012 and from 114.06 to 123.82 between 2012 and 2015. However it has been noticed that cropping intensity has continuously increased over a period of time in all the talukas except Satlasana and Vijapur.

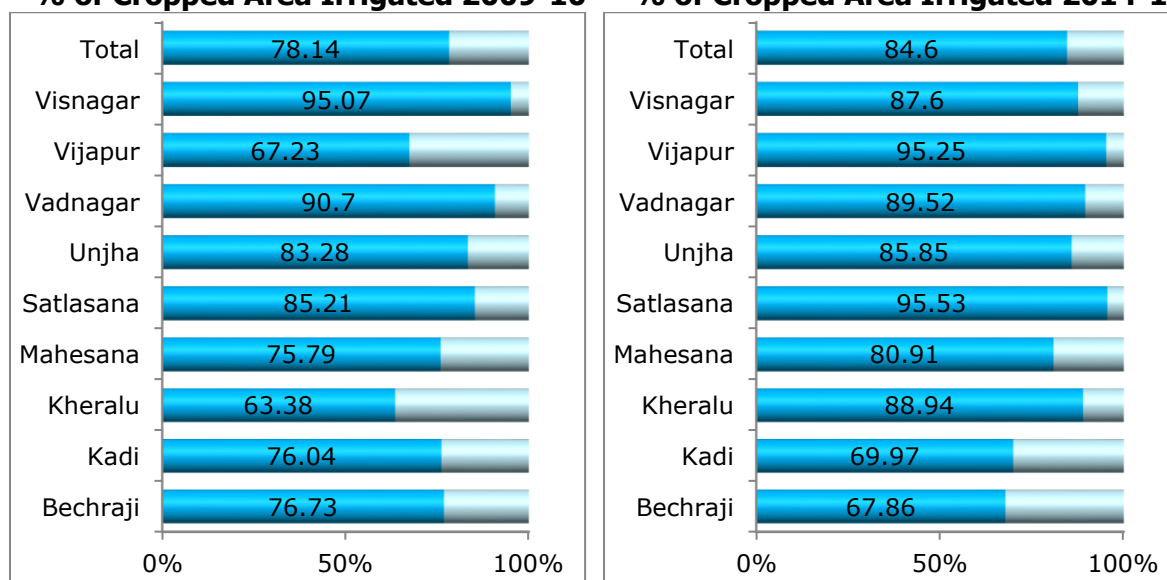
If the cropping intensity increases, the farmers perceives the greater opportunity to earn their living by farming and are attracted to agriculture either as owners of farms

or as labourers. Increase in cropping intensity is often linked with sustainable development to ensure that future generations will also have the resources they will need to live and thrive.

2.6 Irrigation Status and Scope of Irrigation

Out of the total geographical area of district, about 65.55% of area is irrigated, accounting for nearly 82.39% of the total cropped area irrigated. It has been noticed that the share of irrigated area as compared to the total cropped area in Mahesana has increased during last decade as shown in Figure 2.1.

Figure 2.1: Taluka Wise Irrigated Area as a % of Cropped Area in Mahesana
% of Cropped Area Irrigated 2009-10 % of Cropped Area Irrigated 2014-15



Source: Based on database of District Agriculture Office, Mahesana (2015)

Proportion of irrigated area to the cropped area has increased in all the talukas in last decade except Becharaji, kadi, Vadnagar and Visnagar. However, it has been observed that not only the irrigated area has increased but the cultivated area has also increased in all the talukas, but in some talukas the increase in irrigated area has been less than the increase in cultivated area, which resulted to depict the proportion of irrigated area to the cropped area has declined in few talukas. Kheralu, Vijapur and Satlasana talukas witnessed major increase in proportion of irrigated area to the cropped area, while Mahesana and Unjha taluka witnessed minor increase in irrigated cropped area.

The cultivable area (under food crops and non food crops) can be irrigated by various sources on the perception that unlimited quantity of water is available. The intensity of irrigation is the percentage of the irrigation proposed to be irrigated annually. Usually the area irrigated during each crop season (Rabi, Kharif, etc) is expressed as

a percentage of the cultivable area which represents the intensity of irrigation for the crop season. The percentage of cultivated (food crops + non food crops) area under irrigation can be close representation of irrigation intensity, while the percentage of cultivated (food crops + non food crops) area unirrigated can be close representation of scope of irrigation.

Table 2.6: Taluka wise Irrigation Scenario

Taluka / District	Food Crops + Non Food Crops Area under Cultivation (Hectare) 2009-10	Food Crops + Non Food Crops Area under Irrigation (Hectare) 2009-10	% of Cultivated Food Crops + Non Food Crops Area Irrigated 2009-10	(Scope of Irrigation)	Food Crops + Non Food Crops Area under Cultivation (Hectare) 2014-15	Food Crops + Non Food Crops Area under Irrigation (Hectare) 2014-15	% of Cultivated Food Crops + Non Food Crops Area Irrigated 2014-15	(Scope of Irrigation)
				% of Cultivated Food Crops + Non Food Crops Area Unirrigated 2009-10				% of Cultivated Food Crops + Non Food Crops Area Unirrigated 2014-15
Becharaji	50328	24534	48.75	51.25	60924	41343	67.86	32.14
Kadi	83621	42641	50.99	49.01	86205	60318	69.97	30.03
Kheralu	30873	17279	55.97	44.03	32273	28704	88.94	11.06
Mahesana	104327	54975	52.69	47.31	106027	85786	80.91	19.09
Satlasana	21757	16877	77.57	22.43	23357	22313	95.53	4.47
Unjha	33759	17476	51.77	48.23	34958	30012	85.85	14.15
Vadnagar	36320	14885	40.98	59.02	37120	33230	89.52	10.48
Vijapur	64509	45058	69.85	30.15	65909	62779	95.25	4.75
Visnagar	59670	31754	53.22	46.78	61371	53761	87.60	12.40
Total	485164	265479	54.72	45.28	508144	418246	82.31	17.69

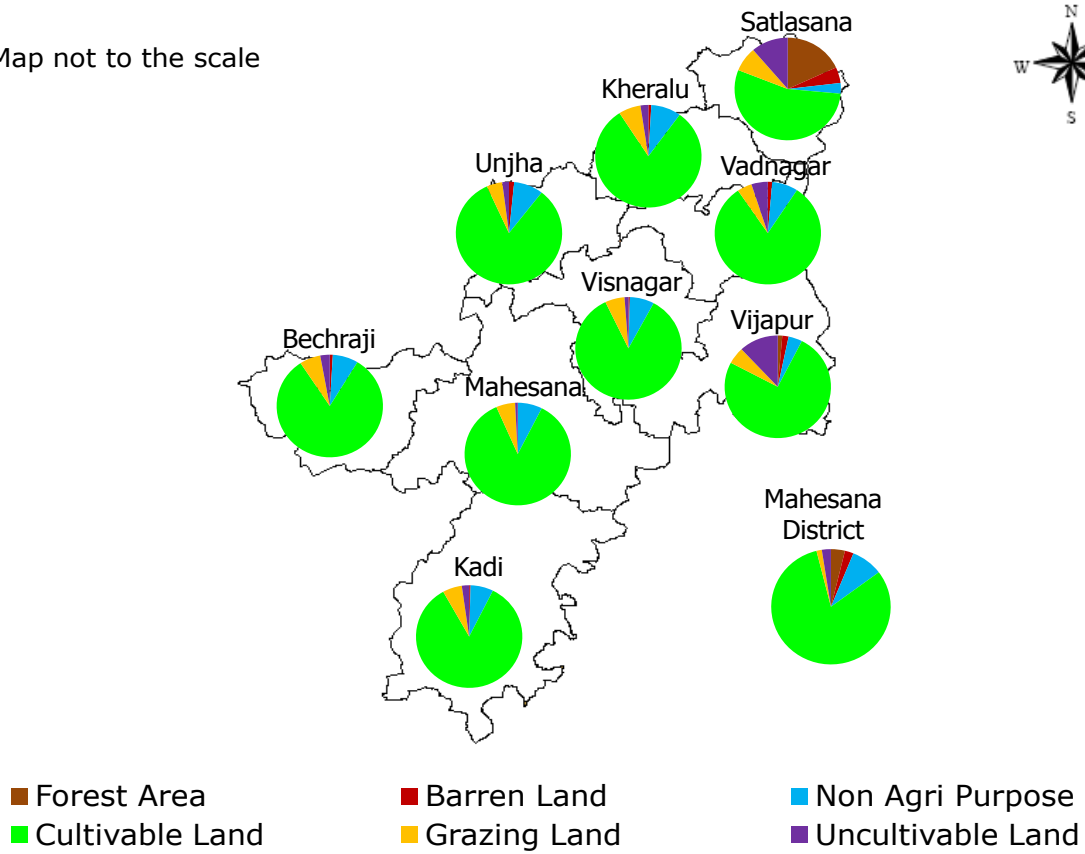
Source: Computed from database of District Agriculture Office, Mahesana (2015)

As far as Mahesana is concerned, only 54.72% of cultivated (food crops + non food crops) area was irrigated in 2009-10, while almost 45.28% of cultivated (food crops + non food crops) area had scope for further irrigation by various sources in 2009-10. However, about 82.31% of cultivated (food crops + non food crops) area was irrigated in 2014-15, while nearly 17.69% of cultivated (food crops + non food crops) area still have scope for further irrigation by various sources in 2014-15.

Highest (59.02%) scope of irrigation was noticed in Vadnagar taluka followed by Becharaji taluka (51.25%) in 2009-10. Consequently, there has been noticeable improvement in irrigation availability in Vadnagar and Becharaji and the scope of irrigation has declined to almost 10.48% in Vadnagar and 32.14% in Becharaji indicating about 48.54% of improvement in irrigation status in Vadnagar and about 19.1% of improvement in irrigation status in Becharaji between 2009 and 2015. However, still more than 30% of cropped area in Becharaji and Kadi taluka is unirrigated, which needs to be provided irrigation facility by various sources.

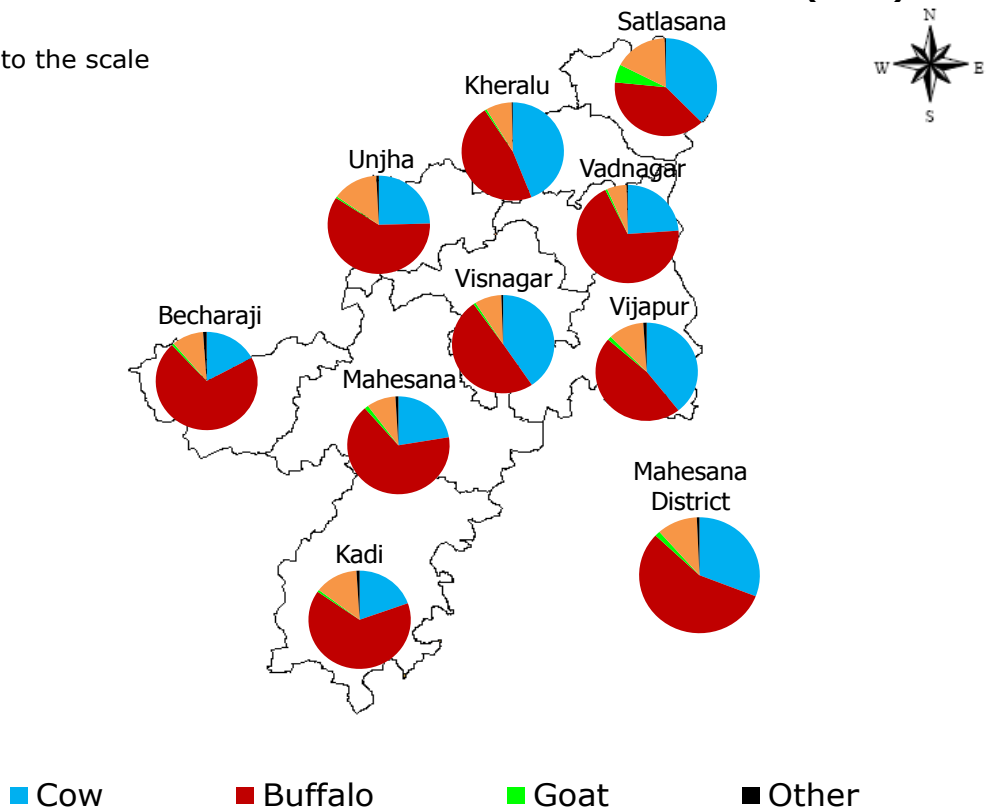
Map 2.1: Taluka wise Land Use Classification of Mahesana (2011)

Map not to the scale



Map 2.2: Taluka wise Livestock Classification of Mahesana (2012)

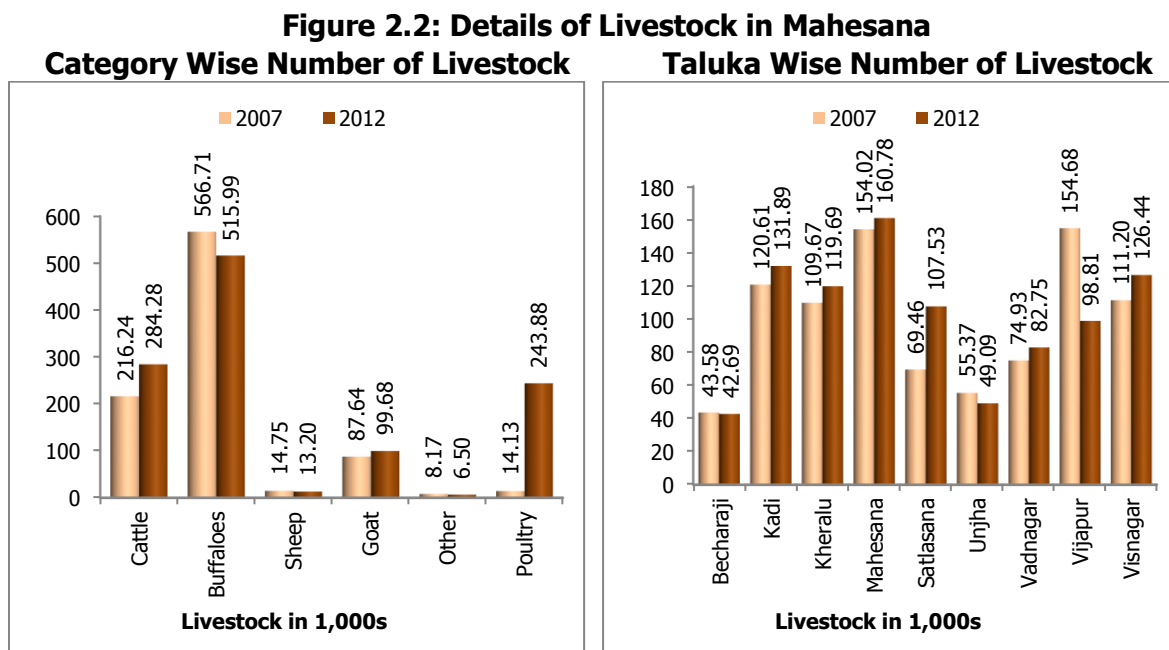
Map not to the scale



2.7 Livestock in Mahesana

Animal husbandry plays an important role in the socio economic development by providing nutritional food to people, by generating gainful employment in the rural sector, particularly among the landless labourers, small and marginal farmers and women by supplementing their family incomes. Livestock are the best insurance against the vagaries of nature like drought, famine and other natural calamities. Livestock development is a labour intensive activity which happens to be a boon for the small farmers and landless who are mostly unemployed or under-employed.

As per Livestock Census 2007 and 2012, significant change is noticed in volume of livestock in Mahesana during last decade. There has been expansion in the volume of cattle, volume of goat and volume of poultry. Interestingly, the volume of cattle has grown at 5.62% CAGR, but the volume of buffalo has grown/declined at -1.86% CAGR, while sheep and goat has grown at -2.20% CAGR and 2.61% CAGR respectively, where as other animals like donkey, dog, etc together have grown/declined at -4-47% CAGR. However, poultry has grown by 76.77% CAGR. Nevertheless, the total volume of livestock grew at 0.58% CAGR, while total livestock including poultry grew at 5.09% CAGR between 2007 and 2012 in Mahesana as shown in Figure 2.2.

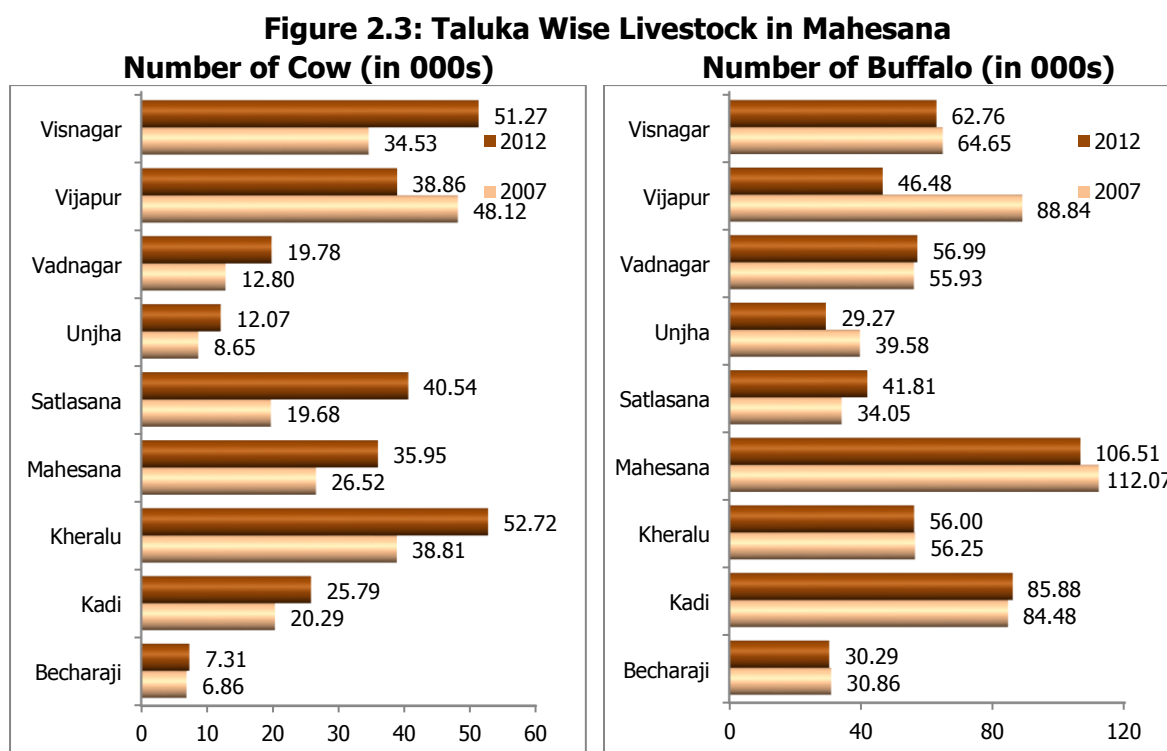


Source: Based on database of District Animal Husbandry Office, Mahesana (2015)

Taluka wise review of livestock shows that Vijapur possessed highest volume of livestock in 2007, while Mahesana taluka possessed highest volume of livestock in

2012. However, Becharaji possessed least volume of livestock amongst all the talukas of Mahesana in 2007 as well as 2012. The CAGR of livestock in Satlasana has been 9.14% between 2007 and 2012, whereas the CAGR of livestock in Vijapur has been -8.57% between 2007 and 2012.

Taluka wise trend in volume of cow show that number of cow has increased in all the talukas except Vijapur taluka in last decade. Satlasana recorded highest (15.56% CAGR) increase in volume of cow between 2007 and 2012, followed by Visnagar that recorded (8.23% CAGR) increase in volume of cow between 2007 and 2012. However, Vijapur taluka recorded (-4.18% CAGR) decline in volume of cow between 2007 and 2012 as shown in Figure 2.3.



Source: Based on database of District Animal Husbandry Office, Mahesana (2015)

Taluka wise trend in volume of buffalo show that the number of buffalo has decreased in all the talukas except Kadi, Satlasana and Vadnagar talukas in last decade. Vijapur recorded highest (-12.15% CAGR) decline in volume of buffalo between 2007 and 2012. However, Kadi, Satlasana and Vadnagar talukas recorded (0.33% CAGR, 4.33% CAGR and 0.37% CAGR respectively) increase in volume of buffalo between 2007 and 2012. The decline in volume of cow and buffalo has to be supported by alternative sources of earning as Mahesana district is greatly involved in animal husbandry to earn and sustain livelihood.

2.8 Livelihood in Mahesana

Out of total population of Mahesana, almost 45.08% of population was working population (workers) in 2001, while in 2011; about 39.90% of population was working population (Census, 2011). The proportion of working population has declined in Mahesana district and especially in Kheralu and Becharaji talukas.

In 2001, out of total workers in Mahesana, almost 80.27% of workers were main workers (who generally works for more than 6 months in the year) and 19.73% of workers were marginal workers (who generally works for less than 6 months in the year), while in 2011, out of total workers in Mahesana, almost 86.05% of workers were main workers and 13.95% of workers were marginal workers. This depicts that proportion of marginal workers who gets work for less than 6 months in the year has declined during last decade. The proportion of main workers has increased in Mahesana district and especially in Kheralu and Becharaji talukas. However, the proportion of main workers has slightly declined in Visnagar taluka as shown in Figure 2.7.

Table 2.7: Distribution of Main Workers and Marginal Workers in Mahesana

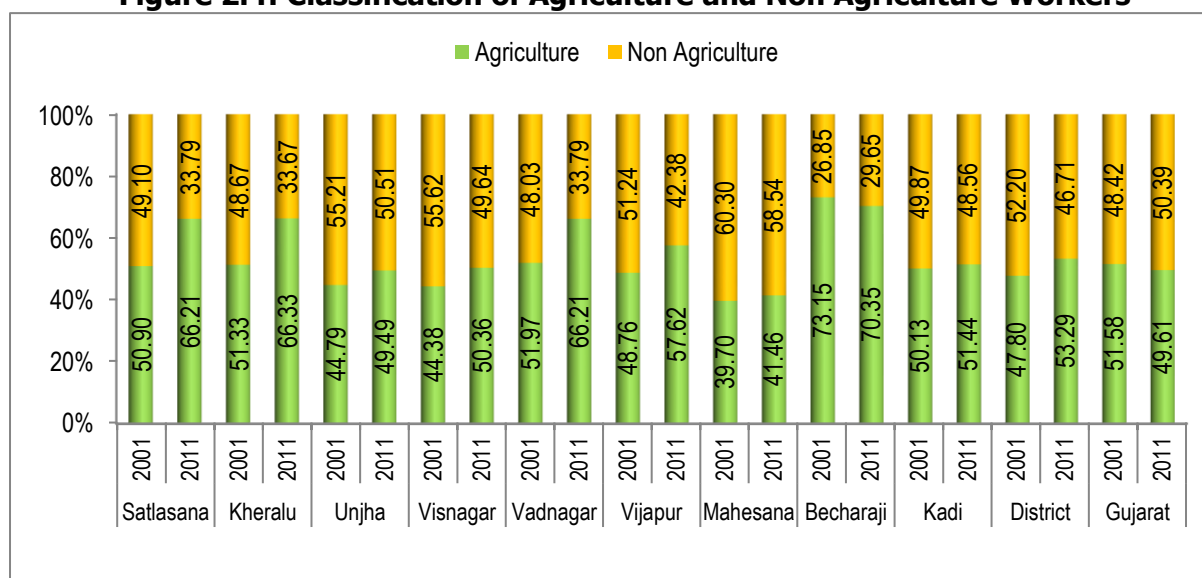
District	% Total Workers out of Total Population		% Main Workers out of Total Workers		% Marginal Workers out of Total Workers	
	2001	2011	2001	2011	2001	2011
Satlasana	47.22	40.87	75.37	76.28	24.63	23.72
Kheralu	50.29	40.16	77.31	88.71	22.69	11.29
Unjha	44.57	40.19	74.44	83.76	25.56	16.24
Visnagar	43.79	39.24	87.16	86.71	12.84	13.29
Vadnagar	47.21	41.17	78.20	86.86	21.80	13.14
Vijapur	47.13	44.94	83.27	86.97	16.73	13.03
Mahesana	41.58	37.67	83.14	87.19	16.86	12.81
Becharaji	50.44	42.49	69.53	83.77	30.47	16.23
Kadi	45.11	38.29	78.60	86.21	21.40	13.79
Total	45.08	39.90	80.27	86.05	19.73	13.95

Source: Based on Census of India (2001, 2011)

In 2001, about 47.80% of workforce of Mahesana was engaged in agriculture and allied activities (Cultivators + Agriculture Labours), while in 2011, almost 53.29% of workforce of Mahesana was engaged in agriculture and allied activities, which depicts huge workforce depend on primary sector for livelihood.

In Becharaji taluka, almost 73.15% of workforce in 2001 and 70.35% of workforce in 2011 seems to be dependent on agriculture and allied activities. However, in all other talukas except Becharaji, there has been increase in workforce dependent on agriculture and allied activities between 2001 and 2011. In satlasana, Kheralu and Vadnagar there has been increase of 15.30%, 15.00% and 14.24% of workforce in agriculture and allied activities. This indicates that in majority of talukas, majority of workforce is dependent for livelihood on primary sector as shown in Figure 2.4.

Figure 2.4: Classification of Agriculture and Non Agriculture Workers



Source: Based on Census of India (2001, 2011)

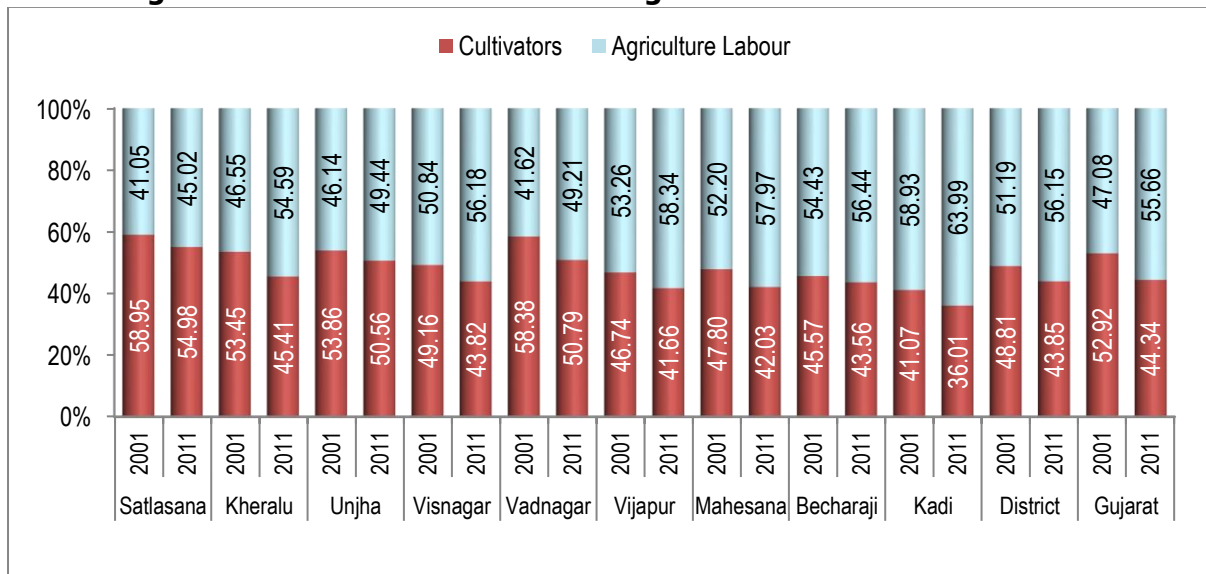
In 2001, out of total population engaged in agriculture and allied activities in Mahesana, about 48.81% of people were cultivators (who owned land and were engaged in effective supervision or direction in cultivation) and 51.19% of people were agriculture labours (who work on another person's land for wages and does not own the land); while in 2011 out of total population engaged in agriculture and allied activities in Mahesana, about 43.85% of people were cultivators and 56.15% of people were agriculture labours, which depicts huge workforce dependent on agriculture and allied activities are engaged as agriculture labour in primary sector for livelihood.

In Satlasna, Unjha and vadnagar talukas, out of the total population engaged in agriculture and allied activities, more than 50% of people have been cultivators in 2001 as well as in 2011, while less than 50% population engaged in agriculture and allied activities in these talukas have been agriculture labour.

In Kheralu taluka, out of the total population engaged in agriculture and allied activities, almost 53.45% of people were cultivators and 46.55% of people were agriculture labour in 2001, while in 2011, out of the total population engaged in agriculture and allied activities, 45.41% of people were cultivators and 54.59% of people were agriculture labour in Kheralu taluka.

In Vadnagar taluka, out of the total population engaged in agriculture and allied activities, almost 58.38% of people were cultivators and 41.62% of people were agriculture labour in 2001, while in 2011, out of the total population engaged in agriculture and allied activities, 50.79% of people were cultivators and 49.21% of people were agriculture labour in Vadnagar taluka as shown in Figure 2.5.

Figure 2.5: Classification of Total Agricultural Workers in Mahesana



Source: Based on Census of India (2001, 2011)

In Kadi taluka, out of the total population engaged in agriculture and allied activities, almost 41.07% of people were cultivators and 58.93% of people were agriculture labour in 2001, while in 2011, out of the total population engaged in agriculture and allied activities, about 36.01% of people were cultivators and 63.99% of people were agriculture labour in Kadi taluka.

Developments in agricultural activities can be observed from trends in agriculture sector related cooperative societies and its memberships by agriculturists. The cooperative societies and its memberships in Mahesana depict that number of societies and the membership in these societies has also marginally increased between 2012 and 2014.

The number of agriculture credit societies has been 386 and 397 in 2012-13 and 2013-14 respectively, while number of agriculture credit society members has been 180514 and 184807 in 2012-13 and 2013-14 respectively. Kadi taluka had highest number of agricultural credit societies followed by Mahesana taluka and Visnagar taluka. As far as agricultural credit society members are concerned, Vijapur taluka had highest number of members followed by Mahesana taluka and Kadi taluka in 2013-14 as shown in Table 2.8.

Table 2.8: Developments in Agricultural Activities

	Agricultural Credit Societies		Agricultural Credit Society Members	
	2012-13	2013-14	2012-13	2013-14
Satlasana	8	8	4178	1964
Kheralu	29	31	9680	9878
Unjha	37	38	22191	22904
Visnagar	59	59	26884	25394
Vadnagar	26	29	9690	9915
Vijapur	52	54	32407	42936
Mahesana	66	59	32427	32858
Becharaji	31	33	6982	7328
Kadi	78	76	36075	29194
Jotana		10		2436
Total	386	397	180514	184807

Source: Computed from database of District Statistics Office, Mahesana (2012-14)

This portrays an improving scenario in terms of agricultural development between 2012 and 2014. The developments in cooperative societies enable agriculturists / farmers to facilitate the agriculture activities. Such developments needs to be prioritized as huge workforce in Mahesana are engaged in agricultural activities.

Developments in animal husbandry are illustrated from trends in cooperative societies and its membership pertaining to animal husbandry. Cooperative societies in animal husbandry sector in Mahesana exhibits that number of societies as well as membership in these societies has also increased between 2009 and 2014 in Mahesana. The milk cooperative societies in Mahesana have grown by 0.06% CAGR and its members have grown by 0.67% CAGR between 2009 and 2014. Mahesana taluka shared highest number of milk cooperative societies and highest number of members in milk cooperative societies in Mahesana between 2009 and 2014. Highest growth in number of milk cooperative societies is observed in Becharaji (0.48% CAGR) and highest growth in number of milk cooperative society members is noticed in Kadi (3.18% CAGR) between 2009 and 2014 as shown in Table 2.9.

Table 2.9: Developments in Animal Husbandry

Taluka / District	Milk Cooperatives Societies		Milk Cooperatives Members		Milk Collection (Lakh Litres)	
	2009-10	2013-14	2009-10	2013-14	2009-10	2013-14
Becharaji	41	42	10665	11632	9092024	9155305
Kadi	120	120	45360	53046	41604269	40136604
Kheralu	67	67	28246	28564	58709639	60612341
Mahesana	120	120	54987	55338	48248393	46749408
Satlasana	70	71	19845	20041	32002347	36114567
Unjha	36	36	25842	26004	17185175	16109785
Vadnagar	46	46	24409	24319	26737116	27537167
Vijapur	85	85	53982	53668	70209662	70892445
Visnagar	70	70	41004	42101	51986851	47792585
Total	655	657	304340	314713	355775476	355100207

Source: Computed from database of District Statistics Office, Mahesana (2009-14)

The milk production/collection in Mahesana district has grown/declined by -0.04% CAGR between 2009 and 2014. Vijapur taluka shared highest volume of milk production/collection amongst all the talukas of Mahesana district. Highest growth in number of milk production/collection is observed in Satlasana (2.45% CAGR). However, volume of milk production/collection has declined in Kadi, Mahesana, Unjha and Visnagar, while volume of milk production/collection has increased in Becharaji, Kheralu, Satlasana, Vadnagar and Vijapur talukas between 2009 and 2014. Backward and forward strategies linking agriculture and animal husbandry could offer more livelihood options, help in poverty alleviation and promote socioeconomic development in Mahesana.

2.9 Schemes and Programs for Agriculture and Animal Husbandry

Various schemes and programs pertaining to agriculture development are being implemented for farmers. Every year Agriculture Fair is organised by State Government.

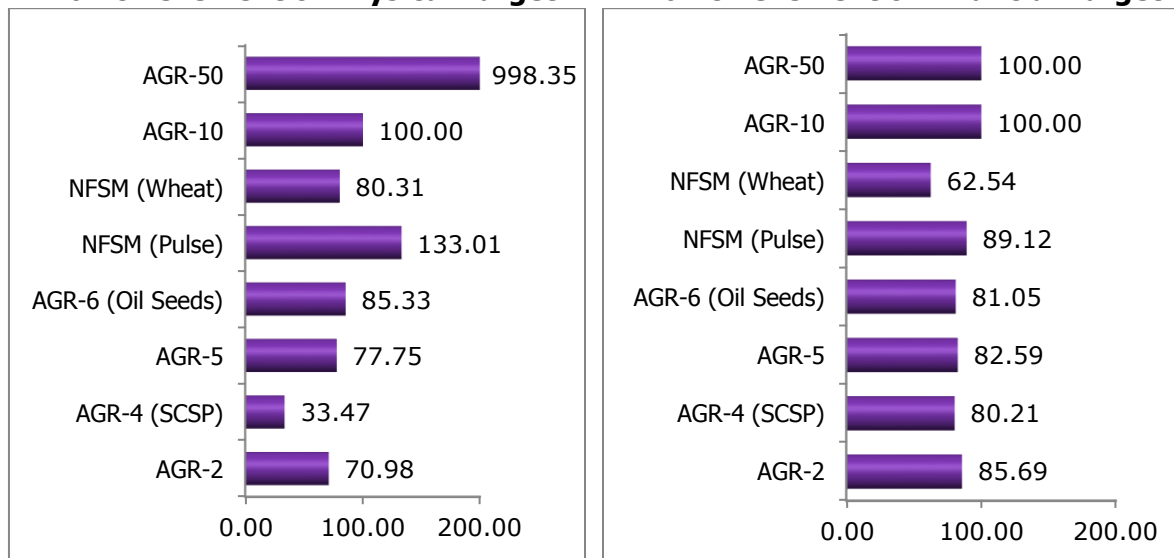
Box 2.1: Major Schemes and Programs for People in Agriculture Sector

Schemes / Programs	Brief Details of Schemes / Programs
National Agriculture Insurance Scheme	To provide insurance coverage / financial support to the farmers in the event of failure of any of insurable notified crop due to natural calamities/pest/diseases.
Farmers Accident Insurance Scheme	To assist the successor of the farmer financially in case of death or disability due to accident.
Schemes for Remunerative Farm Produce Price (MSP)	To ensure the minimum support prices for food crops and additional incentive for selected pulses and cotton.
Farmers Training Center Program	To provide access to the knowledge, skills and services in agriculture and allied activities to raise agriculture output and income for socioeconomic stability.
Soil and Water Testing Laboratory Program	To provide free of charge testing facilities to all the farmers under soil health card programme. To provide information of the soil and fertilizers for future crop planning to all the farmers.
AGR-2 Agriculture support Program for farmers other than SC/ST	To provide motivation, for adoption of various New Agriculture Technology and increasing production of farmers other than S.C. & S.T. i.e. Normal farmers.
AGR-3 Agriculture Support Program in Tribal Area Sub Plan and Dispersed Tribes (TASP)	To facilitate ST farmers to increase agricultural yield. To provide improved seed, fertilizer, bio-fertilizer organic manure, plant protection equipments, gypsum, extension services, bullock, carts etc. To grant subsidy to cultivators for wells, oil engine/ electric motors, pump sets and pipeline.
AGR-4 Agriculture Support Program for SC Farmers (SCSP)	To uplift the living standard of SC farmers by increasing agricultural production and income. To provide improved seed, fertilizer kits, organic manure, equipments, bullock carts, etc. To grant subsidy to cultivators for construction of new wells, improvement of wells, installation of engine/ motors/pump and pipeline to raise agriculture yield.
AGR-8 Agricultural Technology Management Agency (ATMA)	To promote role of farm women in agriculture & allied fields. To promote farmers as stakeholders in extension. Capacity building of extension workers and farmers. To strengthen research extension farmers linkage.
AGR-23 : Scheme for Integrated Horticulture Development Program	To provide inputs kit for horticulture crops to the BPL farmers to up-lift them. To financially assist farmers for perennial fruit crops. To assist general category farmers to establish new fruit nurseries / develop old fruit nurseries. To financially assist Hi-technology, post-harvest management, marketing and export. To assist establishment of low cost Green Houses.

Source: Compiled from database of Directorate of Agriculture, Gujarat (2014)

Other schemes and programs for agriculture sector are: AGR-2 Seed Village, AGR-4 [Schedule Cast Sub Plan (SCSP): Agriculture Support programme for SC Farmers], AGR-5 (Technology Mission on Cotton), AGR-6 (Technology Mission on Oilseeds, Pulses & Maize), National Food Security Mission (NFSM), AGR-10 and AGR-50, etc. In Mahesana, some schemes have achieved more physical targets in less finance, while other schemes have achieved less physical targets in more finance. AGR-50, AGR-10, NFSM (Pulses) has been outstanding compared to other schemes. It is noteworthy that AGR-50 achieved 998.35% of physical target with 100% of targeted finance, while AGR-10 achieved 100% of physical target with 100% of targeted finance, whereas, NFSM (Wheat) achieved 80.31% of physical target with 62.54% of targeted finance, NFSM (Pulses) achieved 133% of physical target with 89.12% of targeted finance, AGR-6 (Oil Seed) achieved 85.33% of physical target with 81.05% of targeted finance as shown in Figure 2.6.

Figure 2.6: Achievements of Agriculture Schemes in Mahesana (2013-14)
% Achievement of Physical Target **% Achievement of Financial Target**



Source: Based on database of District Agriculture Office, Mahesana (2015)

However, AGR-5 achieved just 77.75% of physical target with 82.59% of targeted finance, while AGR-4 (SCSP) achieved only 33.47% of physical target with 80.21% of targeted finance and AGR-2 achieved just 70.98% of physical target with 85.69% of targeted finance. This indicates that AGR-5 (Technology Mission on Cotton), AGR-4 (SC Farmers Support Program) and AGR-2 (Compost Fertilizers) schemes require more efforts for creating better awareness and generating success stories.

Various schemes and programs pertaining to the development in animal husbandry are being implemented for people involved in animal husbandry as shown in Box 2.2.

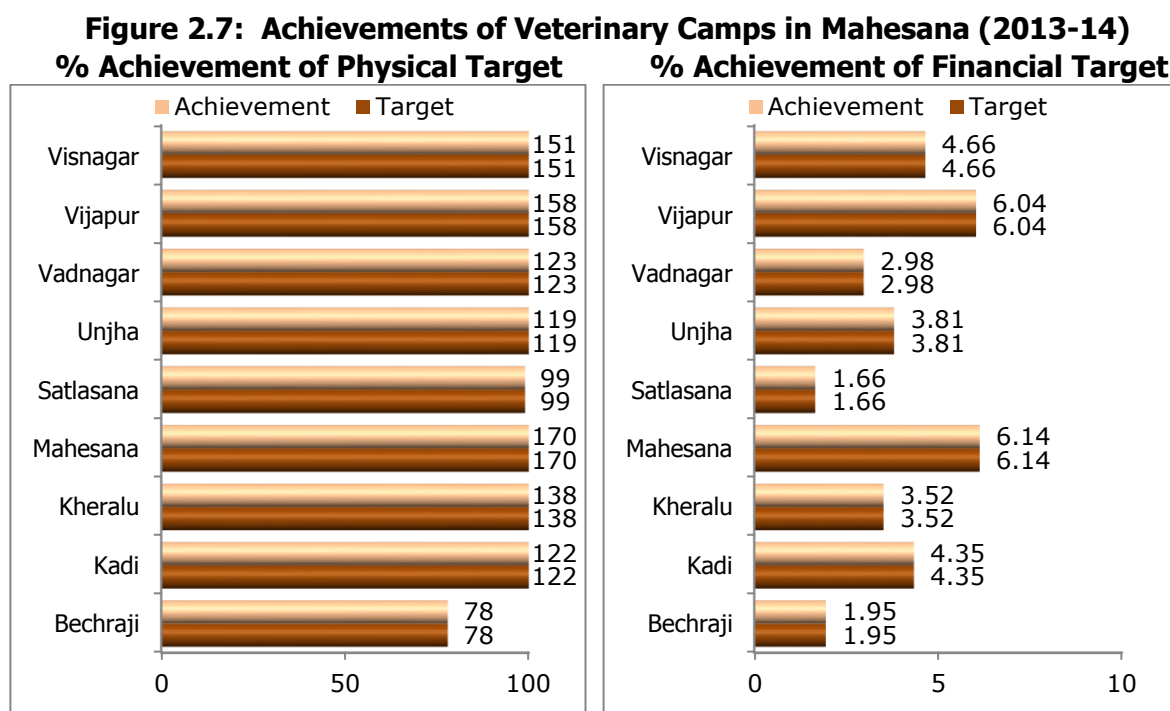
Box 2.2: Major Schemes and Programs for People in Animal Husbandry Sector

Schemes / Programs	Brief Details of Schemes / Programs
Intensive Cattle Development Program	To facilitate pure-breeding and cross-breeding to preserve and improve genetic potentiality of cattle and buffalo breed. To produced and supply elite breeding bulls to the institutes at nominal cost.
Sankalpa Patra Yojna	To provide the veterinary care by organizing camps at rural areas. To increase the general awareness of farmers/animal keepers for the scientific management of their animals.
National Bull Production Program	Associated Herd Progeny Testing Programme (AHPTP) and thereby increasing milk production potentiality and conservation of pure Gir and Kankrej breed of cattle.
Interest Subsidy Schemes	To establish farm of Cow-Gir or Kankrej or Buffalo-Mehsana, Surti or Jafarabadi. To provide interest subsidy 100%, for interest 12% for loan of Farm of 1-4 milch animals and 75% for interest 12% for loan of Farm of 5-10 milch animals.
Fodder Development Program	Distribution of fodder mini kits. Subsidy to establish fodder seed production farm. Subsidy for cattle shed for scheduled cast people. Subsidy for cattle shed for general people. Subsidy for cattle shed for BPL people in tribal area.
Subsidy Schemes	Milk enhancement program for animals of SC people. Assistance for establishment of poultry birds unit / goat unit for SC people. Assistance for establishment of broiler poultry birds farm for unemployed educated youths of SC people. Assistance for fodder mini kits, round wheel chaff-cutter to ST farmers. Assistance for poultry units / rabbit unit to ST farmers. Assistance for poultry unit/broiler birds unit to women. Assistance for fodder mini kit / round wheel chaff-cutter to the general category farmers.

Source: Compiled from database of Directorate of Animal Husbandry, Gujarat (2014)

Other schemes and programs for animal husbandry sector are: Livestock Health Scheme, Rinderpest Eradication Program, Dairy Development Program, Sheep And Goat Development Program, Intensive Dairy Development Project (IDDP), Strengthening infrastructure for quality & clean milk production, Assistance to Cooperatives Dairy/Poultry venture capital funds, National Programme for Prevention of Animal Diseases, Conservation of Threatened Breeds of Small Ruminants, Rabbits, Pigs, Pack Animals and Equines, etc. State Government organises Cattle Camps and

Cattle Fair every year to develop the animal husbandry sector in Gujarat. The details of Veterinary Camps organised in Mahesana is presented in Figure 2.7.



Source: Based on database of District Animal Husbandry Office, Mahesana (2015)

The performance of all the districts in providing veterinary services has been outstanding in Mahesana. Full (100%) of physical target and financial target has been achieved in all talukas in Mahesana.

Table 2.10: Animal Husbandry Infrastructure in Mahesana

	2009-10	2013-14
Rural Primary Veterinary Health Care Centers	3	3
Animal Disease Investigation Center	1	1
Intensive Cattle Development Project	1	1
Village Fodder Production Farm	1	1
Village Milk Producer Cooperative Society	1239	1287
Veterinary Service Center Run By Dairy	16	23
Mobile Veterinary Dispensary	1	3
First Aid Veterinary Centres	22	22
Veterinary Polyclinic	1	1
Veterinary Dispensary	22	31
Gaushalas	2	2
Panjarapoles (Registered)	6	9
Cattle Feed Factories	2	2
Artificial Insemination Centre	81	81
A.I. Centre Run By Dairy	585	770

Source: Compiled from database of Directorate of Animal Husbandry, Gujarat (2014)

However, Animal Husbandry College, Poultry Extension Centre, District Sheep & Wool extension Programs, Cattle/Buffero Breeding Farm needs to be developed in Mahesana.

2.10 Success Stories

Box 2.3: Agri-Business Management in Mahesana

Name of Firm: Ganesh Farm & Nursery Owner: Mr. Manilal Ishwardas Patel		Place: Vasai (Dabhla), Taluka: Vijapur, District: Mahesana
	Ganesh Farm & Nursery has been established by Manilal Ishwardas Patel in 2002. Manilal started nursery with lemon plants and later on extended developing plants for vegetables like chilly, brinjal, tomato, cucumber, cauliflower etc and fruits like gooseberries, chikoo, papaya and guava. Mr. Manilal developed net house, drip irrigation, vermicompost projects.	
Total investment of 28 Lakh was incurred for developing the Farm Nursery. For this project Manilal obtained subsidy from Central Government as well as State Government. National Horticulture Mission financial assistance has played a vital role development of the project. Approximately 10 employees are working at Ganesh Farm & Nursery with implementing standards for safety and quality. Instruments and shades have been developed in line with scientific requirement pertaining to horticulture. The Ganesh Farm & Nursery facilitates customer farmers from Surendranagar, Bhavnagar, Sabarkantha, Mahesana and Gandhinagar districts. Ganesh Farm & Nursery has been a success story for Agri-Business initiative in Mahesana.		

Source: Field Survey, Mahesana (2015)

Box 2.4: Animal Husbandary

Name: Senma Ishwarbhai Bhikhabhai	Village: Vijapur, Taluka: Satlasana
Scheme: Support of (10+1) Goat to SC Household	Support Amount: Rs. 30,000/-
Senma Ishwarbhai Bhikhabhai residing in Vijapur village of Satlasana taluka of Mahesana district was economically incapable to have a Goat Unit on his own. He came to know about the scheme of Government pertaining to support for having a Goat Unit for earning the livelihood. Due to his representation to the concerned authorities, he was provided (10+1) Goat Unit. He was supported by the financial assistance worth Rs. 30,000/-.	

Source: Field Survey, Mahesana (2015)

Box 2.5: Horticulture for better Livelihood

Name: Patel Sarojben Bhaveshkumar	Village: Moti Day, Taluka: Mahesana
Developed 4000 Sq mtr Naturally Ventilated Greenhouse with the help of Horticulture department. Started with investing Rs. 2.25 Lakh for cultivating cucumber of the first time and achieved the production of 51 tons which was sold at the average price of Rs. 28 per kilogram, Sarojben earned total income of Rs. 7.5 Lakh and a net profit of 5.25 Lakh. Now she cultivates crops like: Cucumber, Tomato, Cabbage, Cauliflower, Capsicum, Fenugreek (Methi), Coriander (Dhana), Ladyfinger, Beetroot, etc. which has made her self-sustained after adopting horticulture.	

Source: Field Survey, Mahesana (2015)

Box 2.6: Social Forestry for better Tomorrow

Social Forestry in Mehsana district was initiated in 1972 with plantation of an area covering 48 ha. A total of 36,605 ha area (Panchayat and waste land, private lands (agro-forestry) and other such lands) were afforested by the Social Forestry Division, Mehsana from 1970 to 2013. Additionally, about 25 crore seedlings were supplied to farmers, institutions and industries under Van Mahotsav during the period. This has tremendous impact in tree cover, as tree cover improved consistently during the past decades. There is great scope for further improvement of tree cover by about 15% to 20 % under intensive social forestry activities in the next decade.
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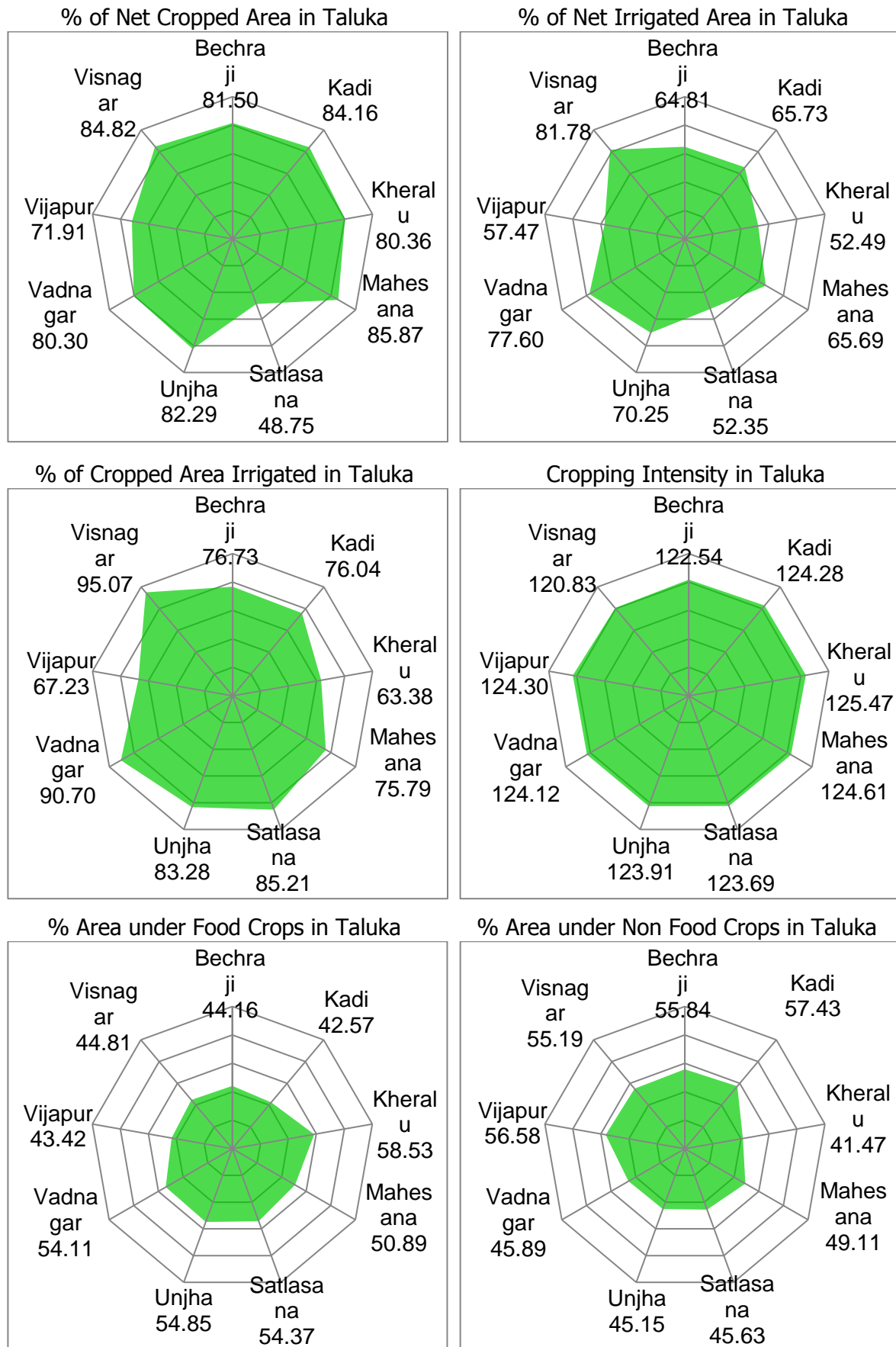
Source: Gujarat Forest department (2014)

2.11 Summary

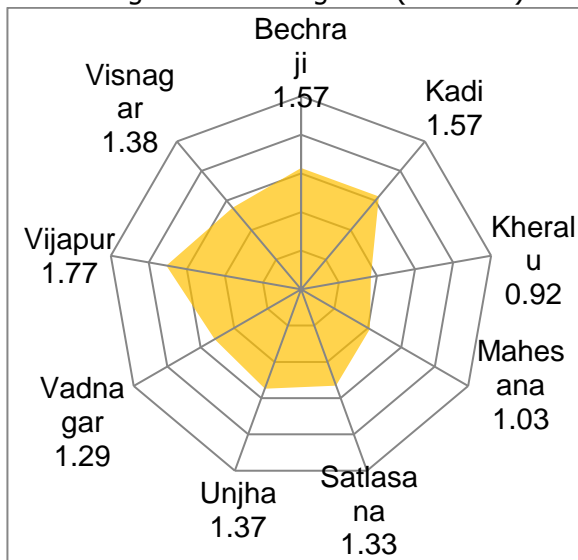
Box 2.7: SWOC Analysis for Agriculture and Animal Husbandry in Mahesana

Strengths	Weaknesses
<ul style="list-style-type: none"> • Majority (almost 80%) of geographical area is under cultivation. • Nearly 78 % of cropped area is irrigated. • 7 of 9 (Bechraji, Kadi, Kheralu, Mahesana, Unjha, Vadnagar and Visnagar) taluka share greater portion of cropped area as compared to district average. • 5 of 9 (Kadi, Mahesana, Unjha, Vadnagar and Visnagar) taluka share greater portion of irrigated area as compared to district average. • The Cropping Intensity and the proportion of Cropped Area Irrigated in Mahesana has increased over a period of time. • The volume of livestock (especially cows) has increased in Mahesana District between 2007 and 2012. • Proportion of Main Workers compared to Marginal Workers has increased in Mahesana between 2001 and 2011. 	<ul style="list-style-type: none"> • Forest coverage is very less (just 1.6%) in Mahesana district. • Volatile cropping pattern of food crops and non food crops over the years. • Fluctuating productivity of Major Crops over the years in Mahesana district. • Almost 8% of population in Mahesana is SC, which share about 2% of operational holdings (in hectares). • The volume of Buffalo has decreased in Mahesana district between 2007 and 2012 • More than 75% farmers of the district are categorized under small and marginal farmers (with less than 2.00 hectare of land)
Opportunities	Challenges
<ul style="list-style-type: none"> • Almost 20% of the land (including 6% of Grazing land) is not under cultivation. Part of it may be utilized under watershed development programme. • Nearly 30% of the cultivable land is rain fed, which may be brought under irrigation by providing irrigation facilities through bore wells / farm ponds /canals/ micro irrigation system. • Tree plantation may be carried out on massive scale under Social Forestry / Agro Forestry/Farm Forestry and Social Horticulture as there is no forest cover. • If the essential agriculture and animal husbandry infrastructure, technology and knowhow related gaps are filled, the district can progress to the desired level of development. • Setting of processing facilities for vegetable and lemon fruit. 	<ul style="list-style-type: none"> • More and more agriculture land is being diverted for non-agriculture use due to fast growth of urbanization. • Needy people are not much aware about various schemes and programs by Government and therefore the priority section of people cannot get intended benefit. • Volatile cultivation pattern impose risk of returns to farmers. • Indiscriminate use and over exploitation of canal and underground water for irrigation. • Breeding problems in milch animals associated with mineral deficiencies and incidences of higher calf mortality. • Need to support training of farmers /entrepreneurs in Agro Processing/ Food Processing/Packing technologies. • Proportion of agriculture labour has increased in Mahesana between 2001 and 2011.

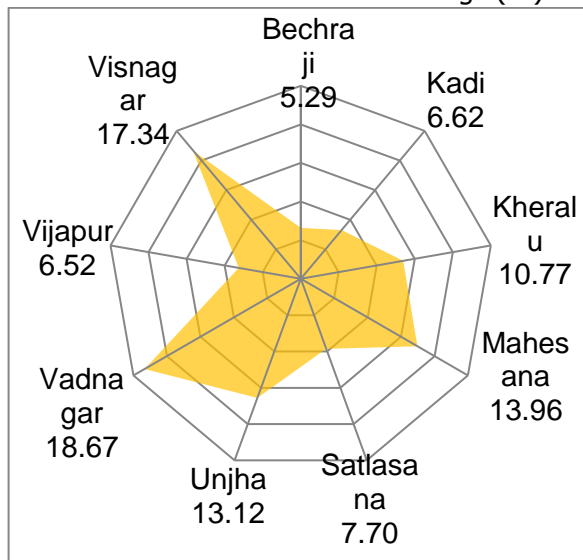
2.12 Agriculture and Animal Husbandry: Taluka Wise Status of by Radars



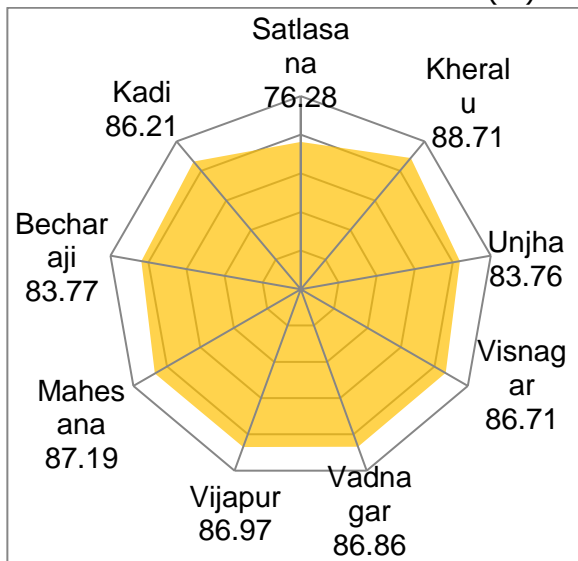
Average Land Holding Size (Hectares)



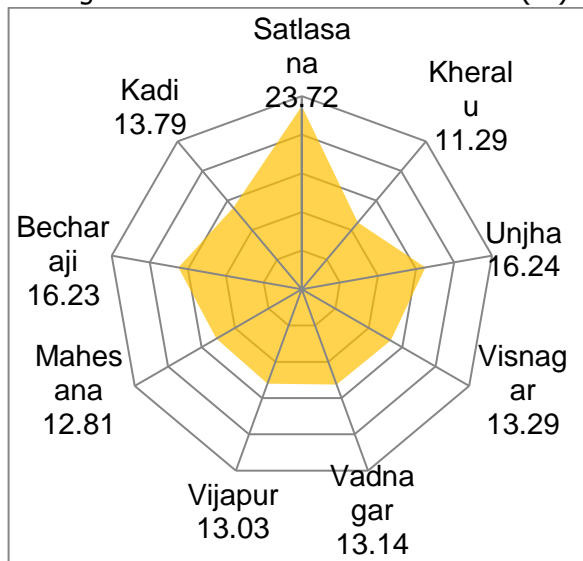
% Distribution of of Total Holdings (%)



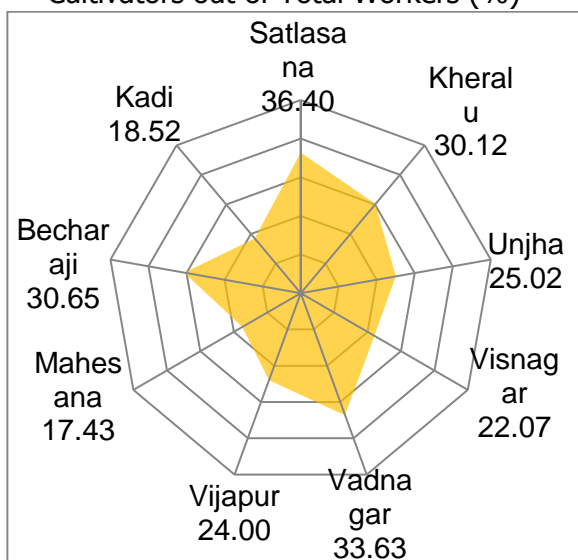
Main Workers out of Total Workers (%)



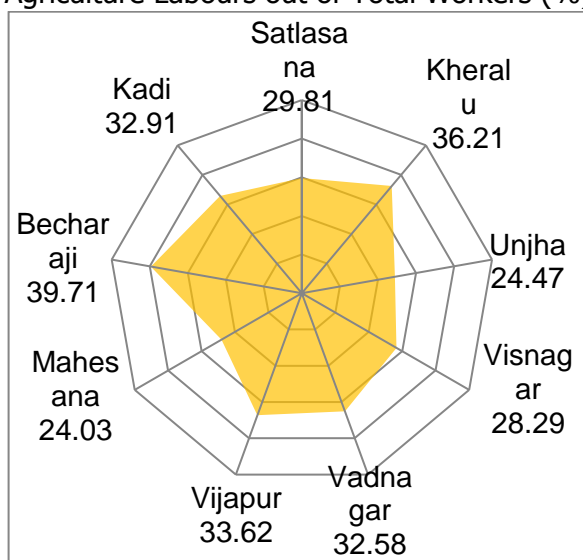
Marginal Workers out of Total Workers (%)



Cultivators out of Total Workers (%)



Agriculture Labours out of Total Workers (%)



Chapter 3

Literacy and Education

Chapter 3

LITERACY AND EDUCATION

3.1 Introduction

Literacy and Education are important non-income dimensions of human development and are the basic requirements for capability development and functional empowerment. It enables people to make informed choices about their lives and opportunities and enhances the capacity of an individual to participate in the process of development. Education is generally perceived as the foundation of society which brings economic wealth and social prosperity. Education acts as an instrument in the human development process, and improvements in educational status directly enhance skill-acquisition, occupational mobility and earning capabilities, reducing existing income asymmetries within the population. Hence, apart from its intrinsic value, the importance of education in contribution towards human development is well accepted and education, particularly elementary education, has been accorded a reasonable amount of centrality in policy initiatives.

The education system in India attempts to impart ability to read, write and count through a formal system. It also imparts knowledge and skills mainly to increase productivity of workers in the formal economy. Education when viewed more broadly, imparts values, ideas, attitudes and aspirations that are in the best interests of a nation, a community, an individual, and above all, in the interests of humankind (Hirway and Mahadevia, 2004). Gujarat has a higher literacy rate than India, but Mahesana district is far behind the state as well as national average. Over the years, a vast network of schools for effective teaching learning process, provision of infrastructure and incentives for education and regular monitoring have paid dividends in terms of improvement in enrolments, teaching and learning activities.

The chapter discusses status of literacy and literacy gaps in Mahesana, school infrastructure and amenities, staffing pattern, enrolment and transition pattern, teaching and learning environment, incentives for education, schemes and programs in education, success stories and status of talukas pertaining to education in Mahesana.

3.2 Status of Literacy

The overall literacy in Mahesana was 75.22 in 2001, which increased to 83.61 in 2011. The male literacy increased from 86.20 in 2001 to 91.39 in 2011, whereas the female literacy increased from 63.65 in 2001 to 75.32 in 2011 as shown in Table 3.1.

Table 3.1: Status of Literacy in Mahesana

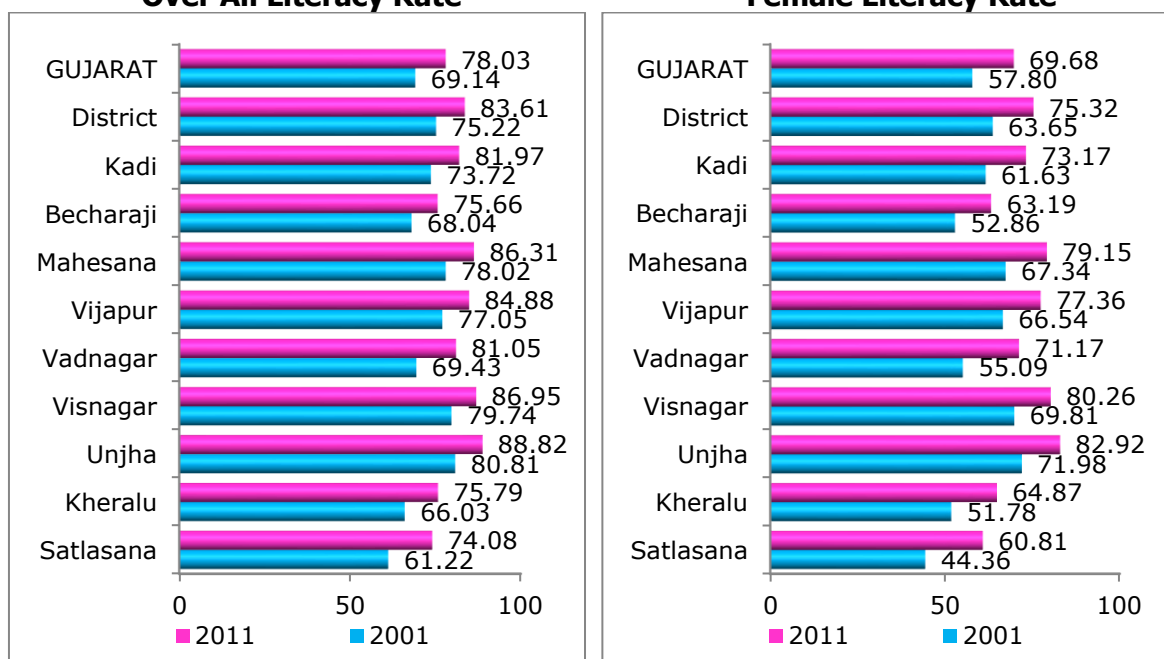
	2001				2011			
	Total	Rural	Urban	Regional Gap	Total	Rural	Urban	Regional Gap
Person	75.22	72.65	83.85	11.20	83.61	81.97	88.37	6.40
Males	86.20	84.85	90.65	5.81	91.39	90.65	93.52	2.87
Female	63.65	59.90	76.48	16.58	75.32	72.77	82.81	10.03
Gender Gap	22.55	24.95	14.18		16.07	17.88	10.71	

Source: Census of India (2001, 2011)

Moreover, the overall gap between male and female literacy that was 22.55 in 2001, which decreased to 16.07 in 2011, while the gap between male and female literacy in rural area that was 24.95 in 2001, which decreased to 17.88 in 2011, whereas the gap between male and female literacy in urban area that was 14.18 in 2001, which decreased to 10.71 in 2011.

Taluka wise status of literacy exhibits that literacy rate has been highest in Unjha in and lowest in Satlasana in 2001 and 2011. However, Satlasana and Vadnagar talukas reported noticeable improvement in literacy between 2001 and 2011 as shown in Figure 3.1.

Figure 3.1: Status of Literacy in Mahesana
Over All Literacy Rate Female Literacy Rate



Source: Based on Census of India (2001, 2011)

Taluka wise female literacy exhibits that literacy amongst women has been highest in Unjha and lowest in Satlasana in 2001 and 2011. However, Satlasana, Vadnagar and Kheralu talukas reported noticeable improvement in female literacy between 2001 and 2011 as shown in Figure 3.1. The gap in literacy rate of rural and urban regions of talukas in Mahesana has considerably declined between 2001 and 2011. However, the highest rural-urban literacy gap was noticed in Kadi and the lowest rural-urban literacy gap was noticed in Vijapur in 2001. The highest rural-urban literacy gap was noticed in Kadi and the lowest rural-urban literacy gap was noticed in Vadnagar in 2001 as shown in Table 3.2.

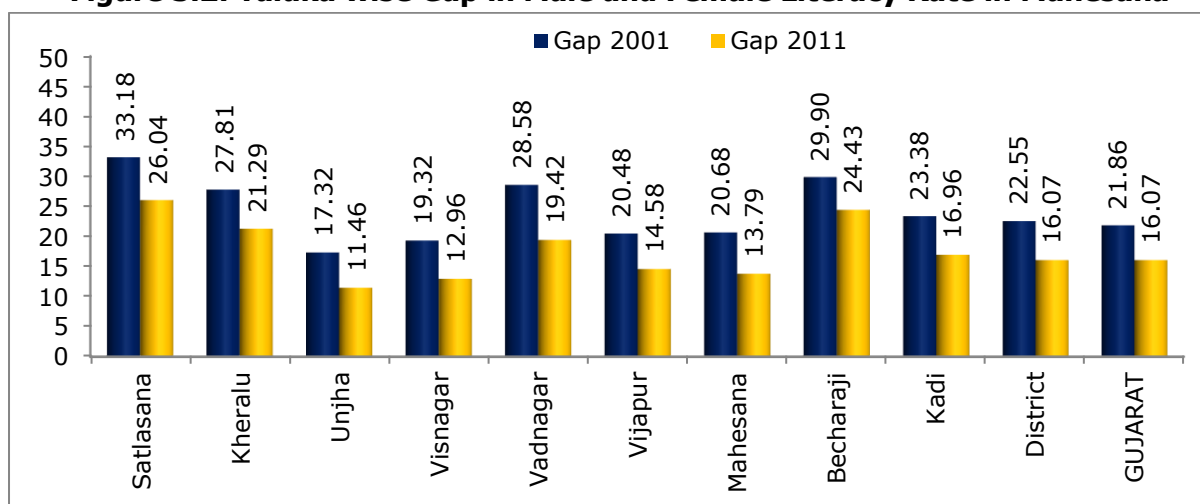
Table 3.2: Taluka wise Rural and Urban Literacy Rate in Mahesana

Taluka/District	Literacy Rate 2001			Literacy Rate 2011		
	Rural	Urban	Gap	Rural	Urban	Gap
Satlasana	61.22			74.08		
Kheralu	63.64	76.80	13.16	74.42	82.64	8.22
Unjha	78.90	84.96	6.07	87.88	90.75	2.87
Visnagar	76.98	86.28	9.30	85.68	89.96	4.27
Vadnagar	68.35	73.83	5.48	81.17	80.53	0.64
Vijapur	76.73	79.23	2.50	84.67	86.20	1.53
Mahesana	74.37	85.48	11.11	84.54	89.13	4.59
Becharaji	68.04			74.66	82.47	7.80
Kadi	70.89	84.57	13.68	79.63	89.27	9.63
District	72.65	83.85	11.20	81.97	88.37	6.40
Gujarat	61.29	81.84	20.55	71.71	86.31	14.60

Source: Based on Census of India (2001, 2011)

The gap between male and female literacy rate in Mahesana has declined from 22.55 in 2001 to 16.07 in 2011. The male-female literacy gap has noticeably declined in Vadnagar and Satlasana talukas as shown in Figure 3.2.

Figure 3.2: Taluka wise Gap in Male and Female Literacy Rate in Mahesana



Source: Based on Census of India (2001, 2011)

3.3 School Infrastructure

The development of educational infrastructure aims to increase school attendance, motivate students' enrolment and improve academic performance of students. The basic infrastructures like buildings, class rooms, drinking water, textbooks, etc. play significant role in education. Among supportive infrastructure, sanitation facilities, mid-day meal facilities and health checkups also acts as important motivating factors to attend school. In Mahesana, the total number of schools has increased during last decade. In primary and middle education, most of the schools are administered by local bodies, while in secondary and higher secondary education most of the schools are private aided/unaided. It has been observed that schools managed by Govt. has marginally increased from 2008-09 to 2012-14, while the private aided/unaided schools marginally increased between 2008-09 and 2013-14 in Mahesana. However, between 2006-07 and 2014-15, total schools in Mahesana has also increased marginally as shown in Table 3.3.

Table 3.3: Number of Schools with Elementary Education in Mahesana

School Category	2006-07		2008-09		2010-11		2012-13		2013-14		2014-15	
	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.
OP	155	18	124	17	130	28	177	31	183	44	178	44
P+ UP	855	65	888	106	885	133	833	127	830	128	833	130
P+UP+S/HS	17	9	4	37	1	35	1	40	1	22	1	22
OUP	11	17	0	10	0	25	0	20	1	44	2	48
UP+S/HS	8	14	0	23	1	12	1	10	1	4	1	5
P+UP+S	0	0	0	0	0	0	0	22	1	16	1	16
UP+S	0	0	0	0	0	0	0	4	0	2	1	3
Sub Total	1046	123	1016	193	1017	233	1012	254	1017	260	1017	268
Total	1169		1209		1250		1266		1277		1285	

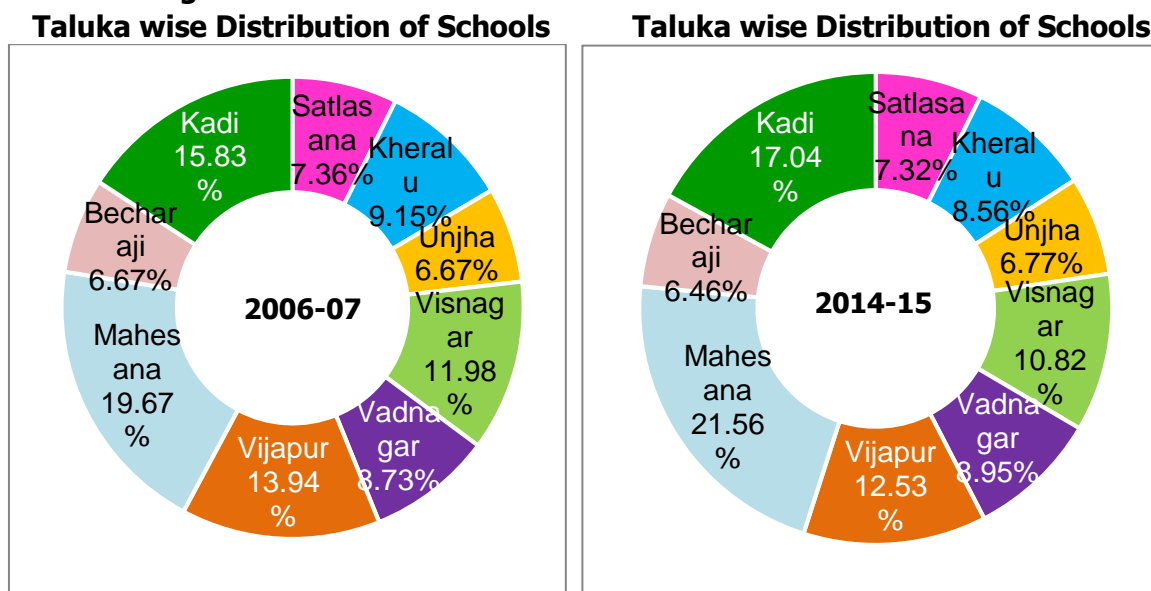
Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2006-15)

Note: OP: Only Primary; P +UP: Primary with Upper Primary; P+UP+S/HS: Primary with Upper Primary, Secondary / Higher Secondary; OUP: Only Upper Primary; UP+S/HS: Upper Primary, Secondary / Higher Secondary.

The accessibility of schools from the places of habitation has been the additional enabling condition that plays a vital role in determining the achievement of school education. Although the number of primary schools has increased, but the total number of schools at the secondary and higher secondary education level, the school accessibility is still a challenge in Mahesana.

As recorded by Sarva Siksha Abhiyan, Mahesana had 1169 schools (with elementary education) in 2006-07, which accounted for 3.04% of total schools of Gujarat in 2006-07. The number of schools in Mahesana increased to 1285 in 2014-15, which accounted for 2.94% of schools of Gujarat. Between 2006-07 and 2014-15 Mahesana recorded the increase of 116 schools which accounted for 2.24% of increase in schools of Gujarat state between 2006-07 and 2014-15. The distribution of schools in Mahesana district reveal that Mahesana taluka shared highest proportion of schools in 2006-07 (19.67%) as well as in 2014-15 (21.56%), while Becharaji and Unjha taluka shared least proportion of schools in 2006-07 (6.67%) and Becharaji taluka shared least proportion of schools in 2014-15 (6.46%). Out of the total increase of schools (116 Schools) in Mahesana district between 2006-07 and 2014-15, major increase in schools is found in Mahesana taluka (47 out of 116 schools, 40.52% of increase), followed by Kadi taluka (34 out of 116 schools, 29.31% of increase) However, the share of schools in Vijapur and Visnagar has only increased marginally between 2006-07 and 2014-15 as shown in Figure 3.3.

Figure 3.3: Taluka wise distribution of Schools in Mahesana

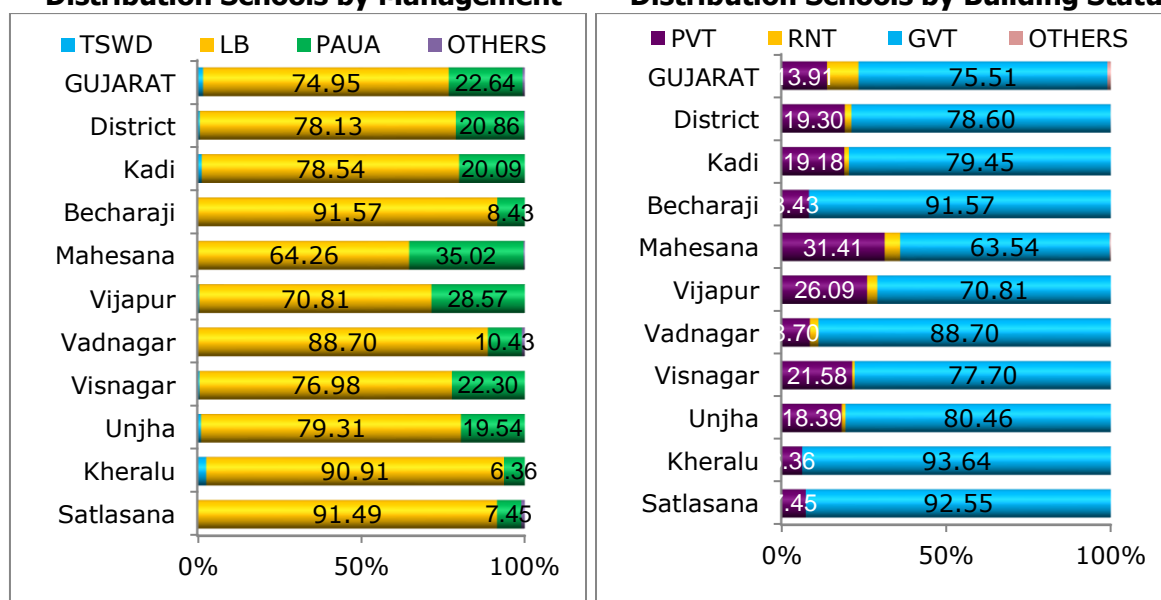


Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2006-16)

It has been observed that Govt. schools have grown (declined) at -0.35% CAGR between 2006-07 and 2014-15 in Mahesana as compared to the public schools in Gujarat that has grown at 0.31% CAGR between 2006-07 and 2014-15. The private schools have grown at 10.22% CAGR between 2006-07 and 2014-15 in Mahesana as compared to private schools in Gujarat that has grown at 7.51% CAGR between 2006-07 and 2014-15, which indicates major reliance of basic education on public schools in Mahesana despite its low growth.

In Mahesana, 78.13% of schools are managed by local bodies as compared to 74.95% of schools in Gujarat. In all the talukas, majority of schools are managed by local bodies. In Mahesana district 0.78% schools are managed by tribal/social welfare department, wherein Kheralu, Kadi and Unjha talukas possess 2.73%, 1.37% and 1.15% of schools respectively managed by tribal/social welfare department. In Mahesana, 20.86% schools are managed by private management wherein Mahesana, Vijapur, Kadi and Visnagar talukas possess 35.02%, 28.57%, 20.09% and 22.30% of schools managed by private management as shown in Figure 3.4.

Figure 3.4: Distribution of Schools by Management and Building Status (2015)
Distribution Schools by Management **Distribution Schools by Building Status**



Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2015)

Note: TSWD: Tribal/Social Welfare Department; LB: Local Body; PAUA: Private Aided & Unaided; PVT: Private; RNT: Rented; GVT: Government.

As far as status of school building is concerned, as most of the schools are managed by local bodies, they possess government buildings, while few schools in Mahesana, Vijapur, Kadi and Visnagar talukas have private and rented buildings. However, the share of private and rented buildings of schools in Mahesana district is about 19.30% and 2.02% respectively as compared to 13.91% and 9.55% respectively at State level. Amongst all the talukas of Mahesana district, highest numbers of private schools with private buildings are in Mahesana taluka as Mahesana is the district head quarter and urban area. On the other hand, in Becharaji, Kheralu and Satlasana taluka more than 90% of schools are managed by local bodies and therefore the buildings of these schools are government buildings and hence these talukas are highly dependent on government resources for basic education.

The network of schools in Mahesana indicate that majority of schools are in rural area because of the highly rural nature of the district. About 85.37% of schools in Mahesana district are located in rural areas as compared to 80.28% of schools in rural localities in Gujarat. In Becharaji and Satlasana taluka all the schools are located in rural areas. The school network of Mahesana reveal that majority of schools are primary with upper primary sections. As compared to Gujarat having almost 65.77% of schools in primary with upper primary section, Mahesana district has 74.94% of schools in primary with upper primary section. However, 17.28% of schools in Mahesana are only primary schools as compared to 26.79% in Gujarat. Furthermore, in Unjha more than 90% of schools have primary with upper primary section, while in Vadnagar more than 30% of schools have only primary sections. Majority of primary to higher secondary combination schools are only located in Mahesana and Vijapur talukas as shown in Table 3.4.

Table 3.4: Distribution of Schools by Locality and Category (2015)

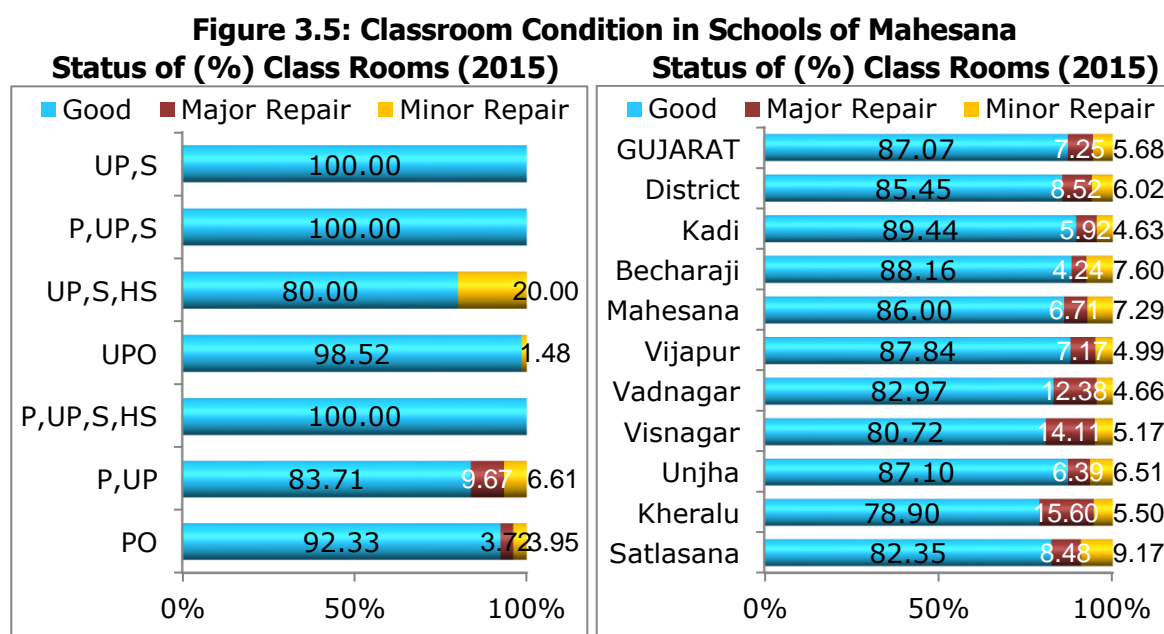
	Rural	Urban	PO	P+UP	P+UP+S /HS	UPO	UP+S /HS	P+UP+S	UP+S
Satlasana	100.00	0.00	23.40	72.34	0.00	3.19	0.00	0.00	1.06
Kheralu	88.18	11.82	25.45	71.82	0.91	1.82	0.00	0.00	0.00
Unjha	79.31	20.69	4.60	90.80	1.15	1.15	0.00	1.15	1.15
Visnagar	76.98	23.02	17.27	74.82	0.72	3.60	0.72	2.88	0.00
Vadnagar	82.61	17.39	31.30	62.61	0.87	2.61	2.61	0.00	0.00
Vijapur	92.55	7.45	21.12	63.98	4.35	7.45	0.00	2.48	0.62
Mahesana	74.73	25.27	11.19	77.62	3.61	3.97	0.36	2.89	0.36
Becharaji	100.00	0.00	25.30	73.49	0.00	1.20	0.00	0.00	0.00
Kadi	89.50	10.50	10.05	83.11	0.91	5.48	0.46	0.00	0.00
District	85.37	14.63	17.28	74.94	1.79	3.89	0.47	1.32	0.31
Gujarat	80.28	19.72	26.79	65.77	3.30	1.75	0.47	1.57	0.34

Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2015)

Note: PO: Primary Only; P+UP: Primary with Upper Primary; P+UP+S/HS: Primary with Upper Primary, Secondary & Higher Secondary; UPO: Upper Primary Only; UP+S/HS: Upper Primary with Secondary & Higher Secondary; P+UP+S: Primary, Upper Primary & Secondary; UP+S: Upper Primary & Secondary.

It is apparent that the structure of the educational network in the Mahesana places institutional obstacle on the path of progress for rural learners as they transit from one educational stage to the other while they prepare to enter the secondary stage. The absolute dearth of secondary/higher secondary schools in the district is enough to stop most of the rural students who had previously enrolled under the upper primary system in their tracks. Thus for rural students in Mahesana, the possibility of progressing through the given institutional network stage-after-stage places constraint and hence access to secondary/higher secondary schools should be stressed to enhance availability of secondary/higher secondary education in district.

Classrooms are crucial elements for basic school infrastructure. The good condition classrooms reveal provision of reasonably decent quality of basic infrastructure. In Mahesana, most of the schools have buildings with classrooms in good condition. Out of total classrooms in school imparting only primary education, about 92.33% of classrooms are in good condition, while out of total classrooms in school having primary and upper primary sections, nearly 83.71% of classrooms are in good condition, whereas out of total classrooms in school having only upper primary section and school having upper primary with secondary and higher secondary section, almost 98.52% and 80% of classrooms respectively are in good condition. However, all other categories of schools have all the classrooms in good conditions as shown in Figure 3.5.

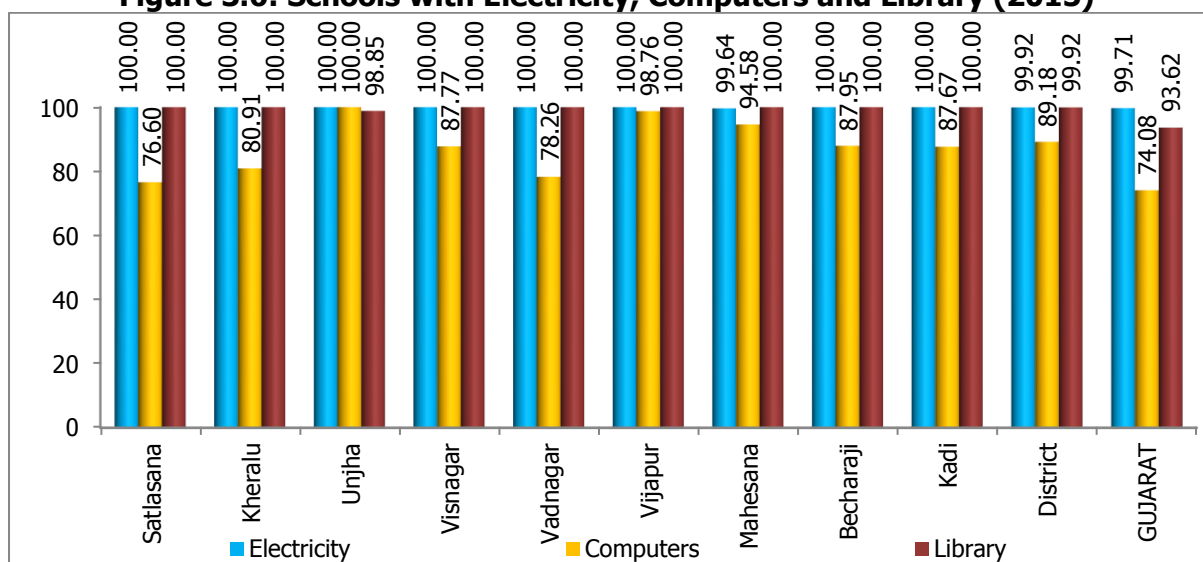


Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2015)
Note: OP: Only Primary; P,UP: Primary with Upper Primary; P,UP,S,HS: Primary with Upper Primary, Secondary & Higher Secondary; OUP: Only Upper Primary; UP,S,HS: Upper Primary with Secondary & Higher Secondary; P,UP,S: Primary with Upper Primary & Secondary; UP,S: Upper Primary with Secondary.

Moreover, in Mahesana almost 85.45% of class rooms are in good condition as compared to 87.07% of good conditions classrooms in Gujarat in 2014-15. Almost 15.60%, 14.11% and 12.38% of classrooms in Kheralu, Visnagar and Vadnagar talukas respectively require major repair, while nearly 9.17%, 7.29% and 7.60% of classrooms in Satlasana, Mahesana and Becharaji talukas respectively require minor repair. This indicates that despite most of classrooms are in good condition across schools, large numbers of classrooms are yet required to be repaired in schools of Mahesana district.

Basic infrastructure like electricity, computers and library along with boundary wall and playground are essential for effective teaching-learning transaction and to enhance the teaching and learning environment. Most of the schools in Mahesana have electricity connectivity and is functional and as far as computer and library facility is concerned, Mahesana district is ahead when compared to the status of Gujarat as shown in Figure 3.6.

Figure 3.6: Schools with Electricity, Computers and Library (2015)



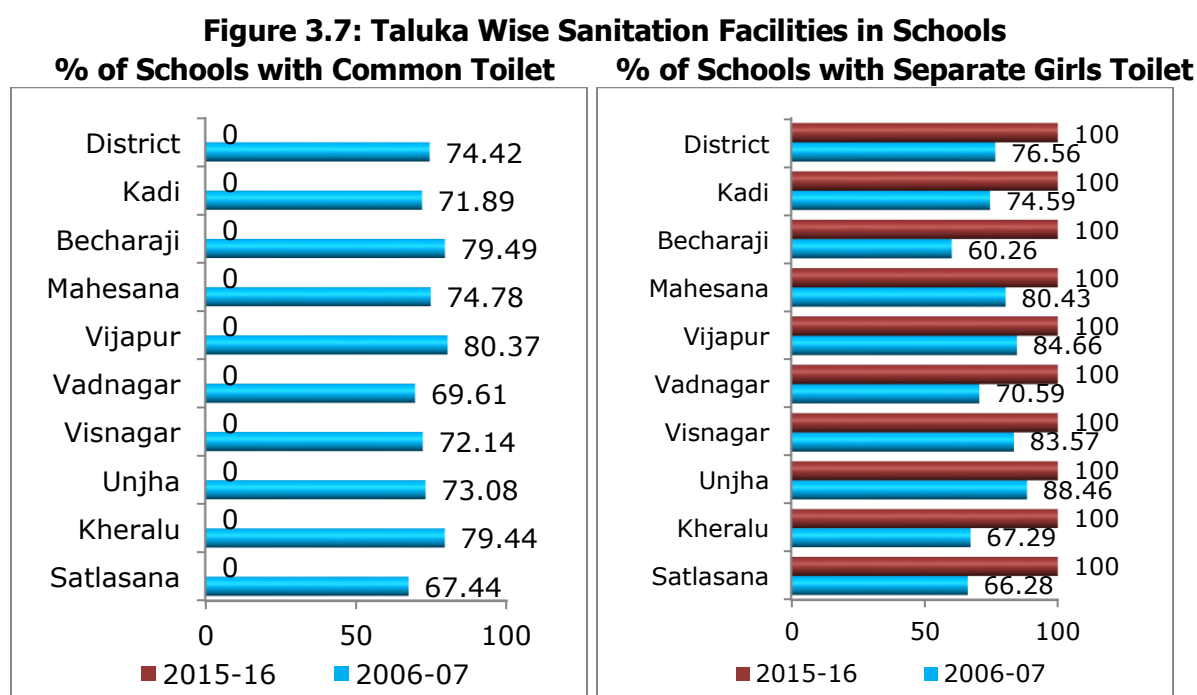
Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2015)

It is evident from Figure 3.6 that all the schools in Mahesana district except one have functional electricity connectivity. Almost, 99.92% of schools in Mahesana district have electricity as compared to 99.71% of schools in Gujarat with electricity connectivity. However, 99.64% schools in Mahesana taluka have functional electricity connectivity. Almost 89.18% of schools in Mahesana district have computer facilities as compared to 74.08% of schools in Gujarat with computer facilities. On one hand, almost 100% schools in Unjha taluka, 98.76% schools in Vijapur talukas and 94.58% of schools in Mahesana taluka have computer facilities and on other hand 76.06% schools in Satlasana taluka and 78.26% schools in Vadnagar taluka have computer facility. All the schools in Mahesana district except one have library facility. Almost, 99.92% of schools in Mahesana district have library facility as compared to 93.62% of schools in Gujarat with library facility. However, 98.85% schools in Unjha taluka have library facility.

Library and computer facilities help acquiring knowledge and skills development, especially for poor and rural students who cannot afford these facilities otherwise, if not provided by schools. Apart from linking grants to be utilized for infrastructure development, regular monitoring of infrastructure deficiency play a vital role in continuous improvement of infrastructural facility for the students.

3.4 School Amenities

School being the ideal setting for promoting learning, it stimulate positive change among children. Therefore, school environment will not be encouraging as long as basic hygiene, sanitary and water facilities are missing or inadequate. Such conditions result in high absenteeism and low enrolment. These issues are particularly important for girls. Lack of safe and private sanitation substantially increases absenteeism among girl learners, and lead to their dropping out of schools altogether. The hygiene and sanitation facilities in schools should be very gender specific as girls have specific physical and cultural needs demanding different solutions. In 2006-07 almost 74.42% of schools in Mahesana had common toilets, while till 2015-16 no schools had common toilets. In 2006-07 only 76.56% of schools in Mahesana had separate girls toilets, while till 2015-16 all 100% of schools had separate girls toilets. However, major improvement has been noticed in Kheralu, Becharaji and Satlasana taluka between 2006 and 2015 as shown in Figure 3.7.

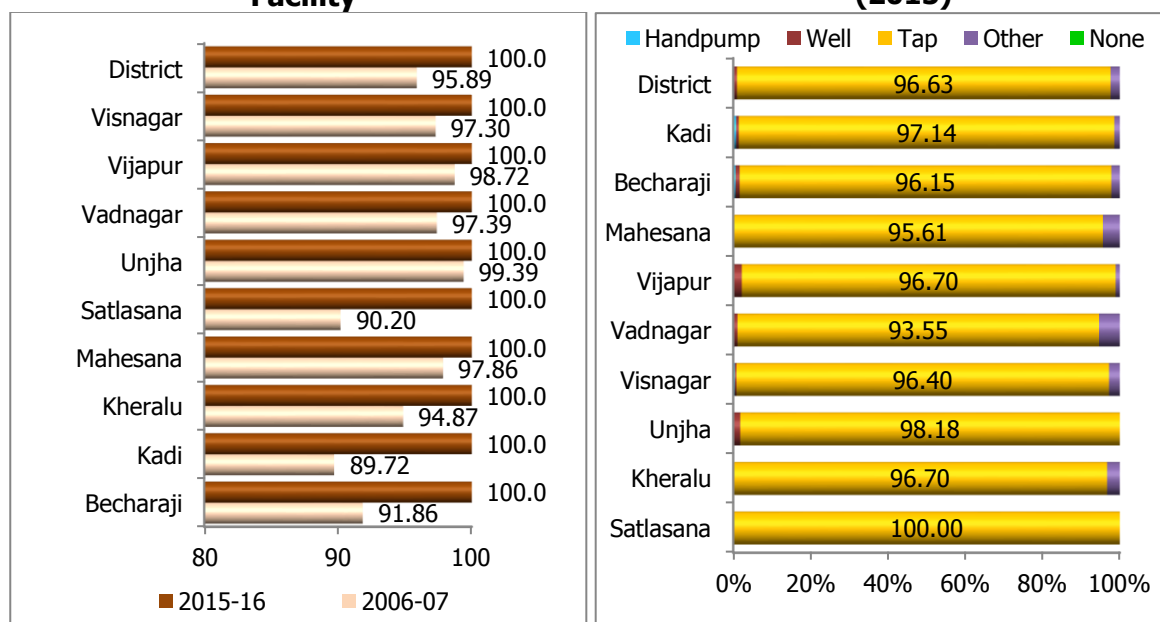


Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2006-15)

There has been major shift from common toilets towards separate toilets for boys and girls. This indicates conscious efforts for emphasizing privacy, safety, dignity of girl students in the school education in Mahesana district. However, there are few schools in talukas of Mahesana district where separate girls toiled are yet to be provided.

In Mahesana, most of the schools have drinking water facilities. The percentage of schools with drinking water facilities shows improvement from 95.89% of schools with drinking water facility in 2006-07 as compared to 100% of schools with drinking water facility in 2015-16. In Mahesana district all the schools have drinking facility till 2015-16. Highest growth in provision of drinking water facilities in schools has been noticed in Kadi followed by Satlasana, Becharaji and Kheralu taluka as shown in Figure 3.8.

Figure 3.8: Drinking Water Facilities in Schools of Mahesana
% Schools with Drinking Water Facility **% Schools by Source of Drinking Water (2015)**



Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2006-15)

In Mahesana almost all the schools have access to drinking water and for the schools having access to drinking water, the major source (96.63%) of drinking water is tap water, while in just 0.72% of schools the source of drinking water is well, whereas about 2.41% of schools avail drinking water facility from other sources in Mahesana and 0.24% of schools avail drinking water facility from Hand Pumps. However in Satlasana, the source of drinking water in all the schools is tap water, while in Mahesana, Vadnagar and Kheralu talukas about 3% to 6% schools avail drinking water from other sources. Overall, the coverage rate for provision of drinking water in all the talukas of Mahesana district has been 100% indicating reasonably good achievement.

3.5 School Staffing Pattern

The number of teachers in Mahesana district has increased till 2014-15 since 2006-07. The same pattern of increase is noticed in Govt. and Private school teachers in Mahesana district as shown in Table 3.5.

Table 3.5: Number of Teachers in Schools with Elementary Education in Mahesana

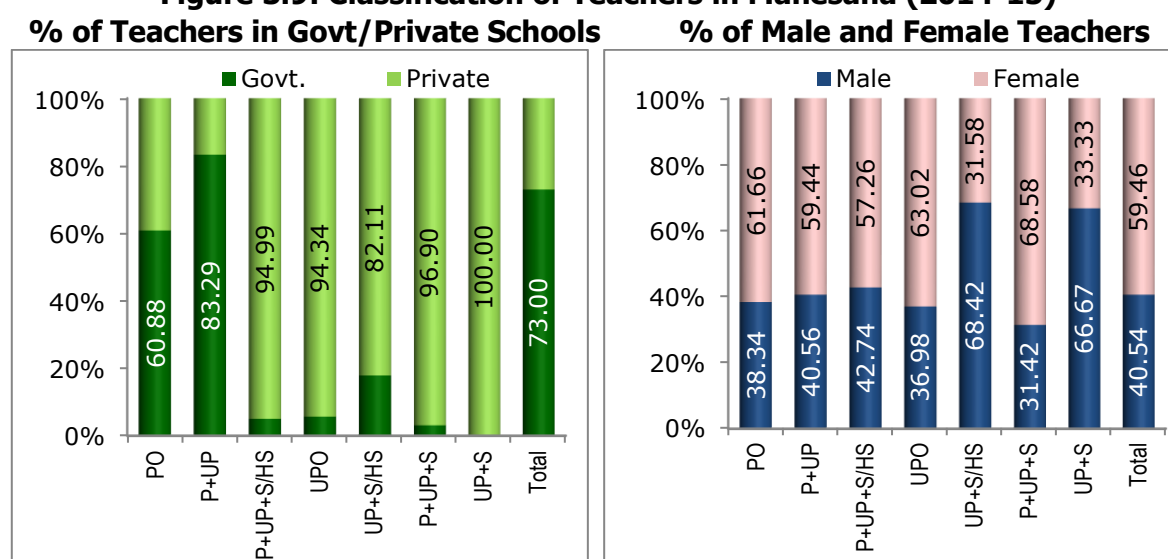
School Category	2006-07		2008-09		2010-11		2012-13		2013-14		2014-15	
	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.
OP	445	90	319	117	335	152	523	187	496	283	470	302
P+UP	6310	505	7038	893	6918	1127	7060	1300	7285	1501	7338	1472
P+UP+S/HS	108	57	31	263	4	342	36	721	30	518	30	569
OUP	36	74	0	46	0	87	0	98	5	223	15	250
UP+S/HS	29	39	0	83	12	35	14	151	13	62	17	78
P+UP+S	0	0	0	0	0	0	0	271	7	184	7	219
UP+S	0	0	0	0	0	0	0	19	0	11	0	24
Sub Total	6928	765	7388	1402	7269	1743	7633	2747	7836	2782	7877	2914
Total	7693		8790		9012		10380		10618		10791	

Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2006-15)

Note: OP: Only Primary; P +UP: Primary with Upper Primary; P+UP+S/HS: Primary with Upper Primary, Secondary / Higher Secondary; OUP: Only Upper Primary; UP+S/HS: Upper Primary, Secondary / Higher Secondary.

The distribution of teachers across the categories of school reveals that as all other schools except OP and P+UP are dominated by private management, more private teachers are found in such schools of Mahesana. However, Mahesana has more number of female teachers except in UP+S/HS, and UP+S categories schools in Mahesana as shown in Figure 3.9.

Figure 3.9: Classification of Teachers in Mahesana (2014-15)

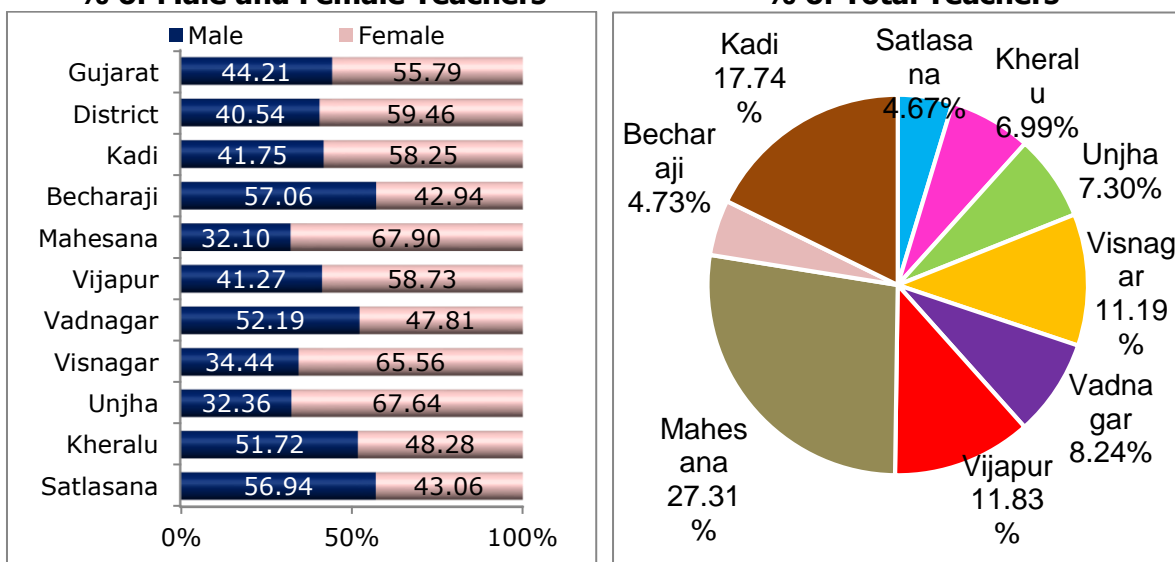


Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2015)

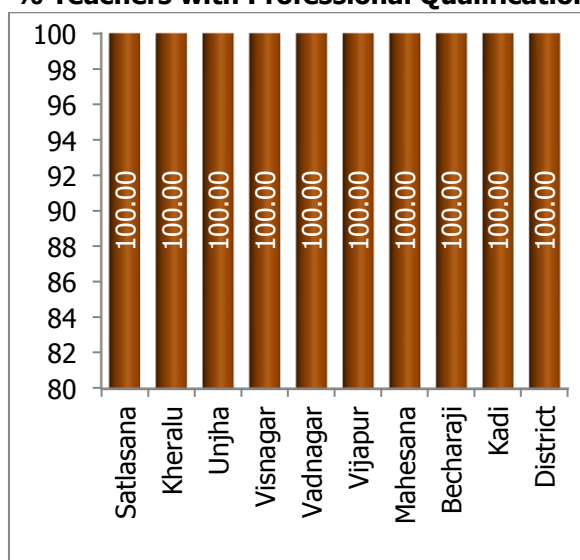
Note: PO: Primary Only; P+UP: Primary with Upper Primary; P+UP+S/HS: Primary with Upper Primary, Secondary & Higher Secondary; UPO: Upper Primary Only; UP+S/HS: Upper Primary with Secondary & Higher Secondary; P+UP+S: Primary, Upper Primary & Secondary; UP+S: Upper Primary & Secondary; SO: Secondary Only.

The taluka wise distribution of teachers reflects that Mahesana taluka shares maximum school teachers and Satlasana taluka shares least school teachers. Most of the talukas of Mahesana district has greater proportion of female teachers out of its total number of teachers and therefore, Mahesana district has 67.90% of female teachers and 32.10% of male teachers as compared to 55.79% of female teachers and 44.21% of male teachers in Gujarat in 2014-15. However, Becharaji, Kheralu, Vadnagar and Satlasana talukas has relatively more number of male teachers compared to other talukas as shown in Figure 3.10.

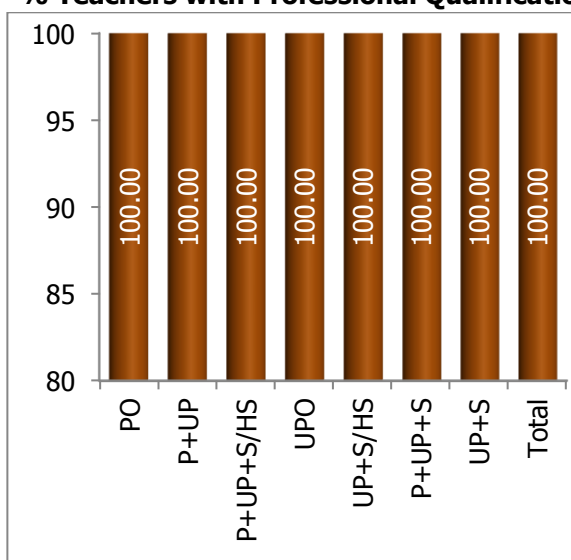
Figure 3.10: Taluka wise Distribution of Teachers in Mahesana (2015)
% of Male and Female Teachers **% of Total Teachers**



% Teachers with Professional Qualification



% Teachers with Professional Qualification



Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2015)

Not only availability of teacher is of great significance, but also professionally trained teachers are also essential for providing quality education. Mahesana has 100% of professionally qualified teachers during the year 2014-15.

3.6 Enrolment and Transition

Student enrolments in Mahesana depicts declining trend at primary level as well as in totality from Grade 1-7 between 2006-07 and 2014-15. However, the new enrolments in Grade 1 as at primary level as well as enrolment in Grade 6 at upper primary level has remained fluctuating between 2006-07 and 2014-15. Due to fluctuating enrolment, the CAGR of enrolment has been negative in Mahesana for Grade 1 and Grade 2 between 2006-07 and 2014-15 as shown in Table 3.6.

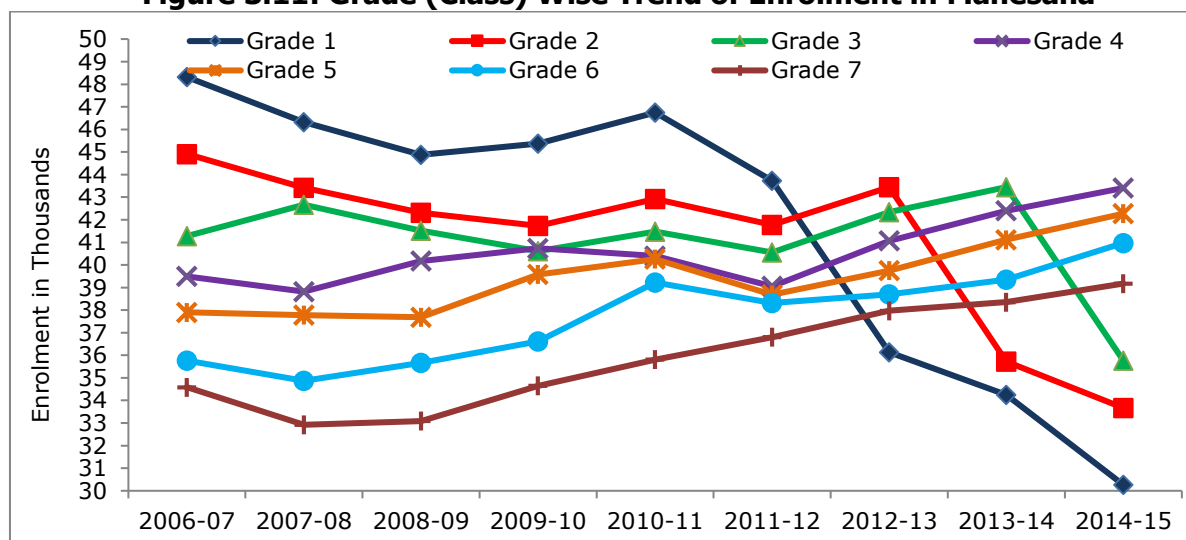
Table 3.6: Compound Annual Growth Rate (CAGR) of Enrolment in Mahesana

Enrolment In	2006-2007	2008-2009	2010-2011	2012-2013	2013-2014	2014-2015	CAGR 2006-11	CAGR 2010-15	CAGR 2006-15
Grade 1	48318	44874	46745	36138	34242	30265	-0.82	-10.30	-5.68
Grade 2	44911	42318	42924	43444	35720	33669	-1.12	-5.89	-3.54
Grade 3	41272	41524	41481	42334	43446	35767	0.13	-3.64	-1.77
Grade 4	39492	40178	40396	41071	42402	43406	0.57	1.81	1.19
Grade 5	37897	37685	40263	39747	41119	42269	1.53	1.22	1.37
Grade 6	35757	35670	39227	38703	39345	40971	2.34	1.09	1.72
Grade 7	34587	33086	35813	37971	38357	39174	0.87	2.27	1.57
Grade 1-7	282234	275335	286849	279408	274631	265521	0.41	-1.91	-0.76

Source: Computed from database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2015)

The Gross Enrolment Ratio (GER) at primary level for Mahesana has remained almost stagnant i.e 107.4 in 2006-07 and 107.2 in 2013-14, while GER at upper primary level has improved from 58.1 in 2006-07 to 97.0 in 2013-14. The Net Enrolment Ratio (NER) at primary level for Mahesana has improved from 84.8 in 2006-07 to 88.5 in 2013-14, while NER at upper primary level has improved from 45.3 in 2006-07 to 74.4 in 2013-14.

Figure 3.11: Grade (Class) Wise Trend of Enrolment in Mahesana



Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2006-15)

Gender wise review of enrolment depicts that scenario has not changed much in 2014-15 as compared to 2006-07. There has been hardly any major improvement in girls' enrolment in lower primary level, while there has been severe fluctuation in girls' enrolment at upper primary level between 2006-07 and 2014-15 in Mahesana as shown in Table 3.7.

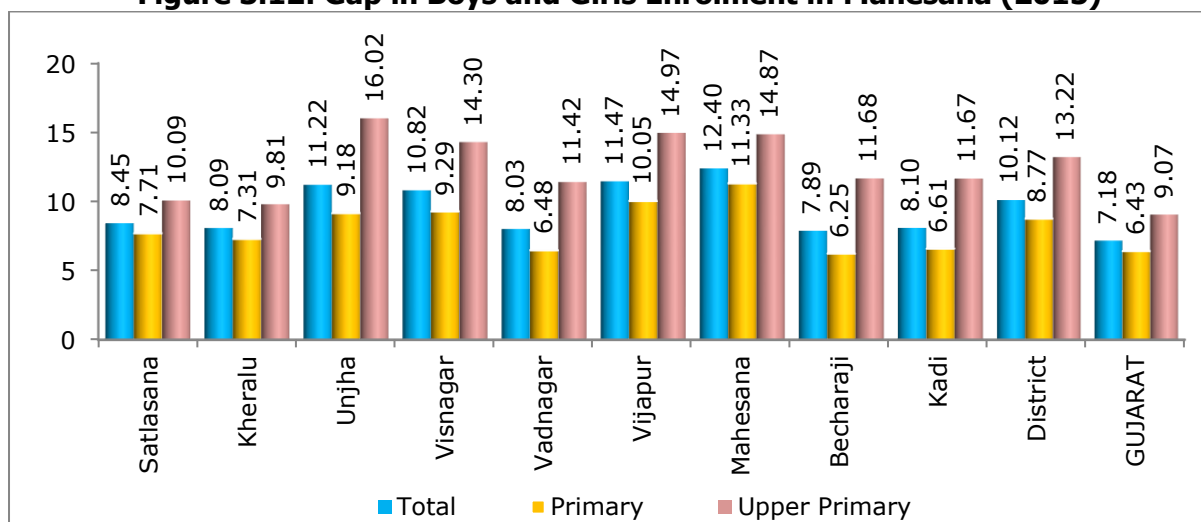
Table 3.7: Students Enrolment in Mahesana

Enrolment	2006-07		2008-09		2010-11		2012-13		2014-15	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Grade 1	26801	21517	24882	19992	25799	20946	19237	16901	16290	13975
Grade 2	24473	20438	23621	18697	23808	19116	23845	19599	17963	15706
Grade 3	22888	18384	23167	18357	23260	18221	23242	19092	19072	16695
Grade 4	21881	17611	22187	17991	22675	17721	22911	18160	23950	19456
Grade 5	21382	16515	21138	16547	22744	17519	22227	17520	23544	18725
Grade 6	20715	15042	20185	15485	22053	17174	21838	16865	23165	17806
Grade 7	20554	14033	19294	13792	20602	15211	21758	16213	22208	16966
Grade 1-7	158694	123540	154474	120861	160941	125908	155058	124350	146192	119329

Source: Computed from database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2006-15)

The enrolment of boys as well as girls in Mahesana has been fluctuating in absolute terms between 2006-07 and 2014-15. It has been noticed that at lower primary level as well as upper primary level, the girls' enrolment remained around 45% between 2006-07 and 2014-15. The gap between boys and girls enrolment at primary and upper primary level in Mahesana is higher than that of Gujarat. Amongst all the talukas, biggest gap between boys and girls enrolment at primary level and upper primary level prevail in Mahesana taluka and Unjha taluka respectively, while the smallest gap between boys and girls enrolment at primary prevails in Becharaji and smallest gap between boys and girls enrolment at upper primary prevails in Kheralu as depicted from Figure 3.12.

Figure 3.12: Gap in Boys and Girls Enrolment in Mahesana (2015)



Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2015)

The gender wise enrolment of students across the social groups in the talukas of Mahesana district depicts that girls' enrolment has been lower compared to boys' enrolment in case of SC, ST students and OBC students. SC girls' enrolment in Mahesana stood at 45.92% as compared to SC girls' enrolment in Gujarat which stood at 47.08% in 2014-15. ST girls' enrolment in Mahesana stood at 44.77% as compared to ST girls' enrolment in Gujarat that stood at 47.73% in 2014-15. OBC girls' enrolment in Mahesana stood at 45.87% as compared to OBC girls' enrolment in Gujarat that stood at 46.74% in 2014-15. Total girls' enrolment in Mahesana stood at 44.94% as compared to total girls' enrolment in Gujarat that stood at 46.41% in 2014-15 as shown in Table 3.8.

Table 3.8: Category Wise Students Enrolment in Mahesana (2015)

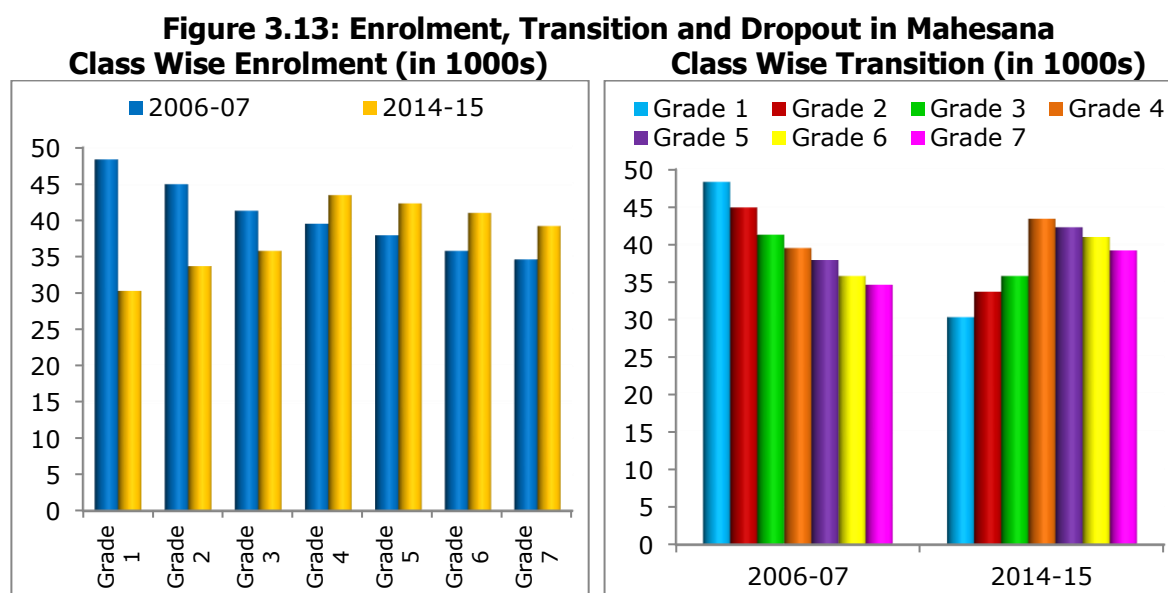
Taluka/ District	SC Enrolment		ST Enrolment		OBC Enrolment		Total Enrolment	
	% Boys	% Girls	% Boys	% Girls	% Boys	% Girls	% Boys	% Girls
Satlasana	51.49	48.51	42.08	57.92	54.38	45.62	54.22	45.78
Kheralu	52.57	47.43	47.66	52.34	54.00	46.00	54.05	45.95
Unjha	54.26	45.74	62.20	37.80	54.63	45.37	55.61	44.39
Visnagar	55.55	44.45	60.12	39.88	53.71	46.29	55.41	44.59
Vadnagar	51.82	48.18	50.72	49.28	53.97	46.03	54.01	45.99
Vijapur	54.56	45.44	58.56	41.44	52.46	47.54	55.73	44.27
Mahesana	55.89	44.11	58.46	41.54	55.31	44.69	56.20	43.80
Becharaji	51.09	48.91	33.33	66.67	53.93	46.07	53.95	46.05
Kadi	53.15	46.85	53.38	46.62	53.63	46.37	54.05	45.95
District	54.08	45.92	55.23	44.77	54.13	45.87	55.06	44.94
Gujarat	52.92	47.08	52.27	47.73	53.26	46.74	53.59	46.41

Source: Computed from database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2015)

The proportion of SC girls' enrolment has been highest (48.91%) in Becharaji taluka and lowest (44.11%) in Mahesana taluka. The proportion of ST girls' enrolment has been highest (66.67%) in Becharaji taluka and lowest (37.80%) in Unjha taluka. The proportion of OBC girls' enrolment has been highest (47.54%) in Vijapur and lowest (44.69%) in Mahesana taluka.

The proportion of total girls' enrolment has been highest (46.05%) in Becharaji taluka and lowest (43.80%) in Mahesana taluka. As far as SC girls' enrolment is concerned, Unjha, Visnagar, Vijapur and Mahesana talukas lags behind the district average of 45.92%, while as far as ST girls' enrolment is concerned, Unjha, Visnagar, Vijapur and Mahesana talukas lags behind the district average of 44.77%, where as OBC girls' enrolment is concerned, Mahesana, Satlasana and Unjha talukas lags behind the district average of 45.87%. As far as total girls' enrolment is concerned, Mahesana, Visnagar and Unjha lags behind the district average of 44.94%.

Class-wise enrolment in the elementary education in Mahesana in 2006-07 depicted that higher classes had lower enrolments i.e Class 2 enrolments are lower than Class 1, Class 3 enrolments are lower than Class 2 and so on. However, in 2014-15 it has been observed that higher classes had higher enrolments i.e Class 2 enrolments are more than Class 1, Class 3 enrolments are more than Class 2, but after that higher classes had lower enrolments i.e Class 4 enrolments are lower than Class 3, Class 5 enrolments are lower than Class 4 and so on as shown in Figure 3.13.



Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2006-15)

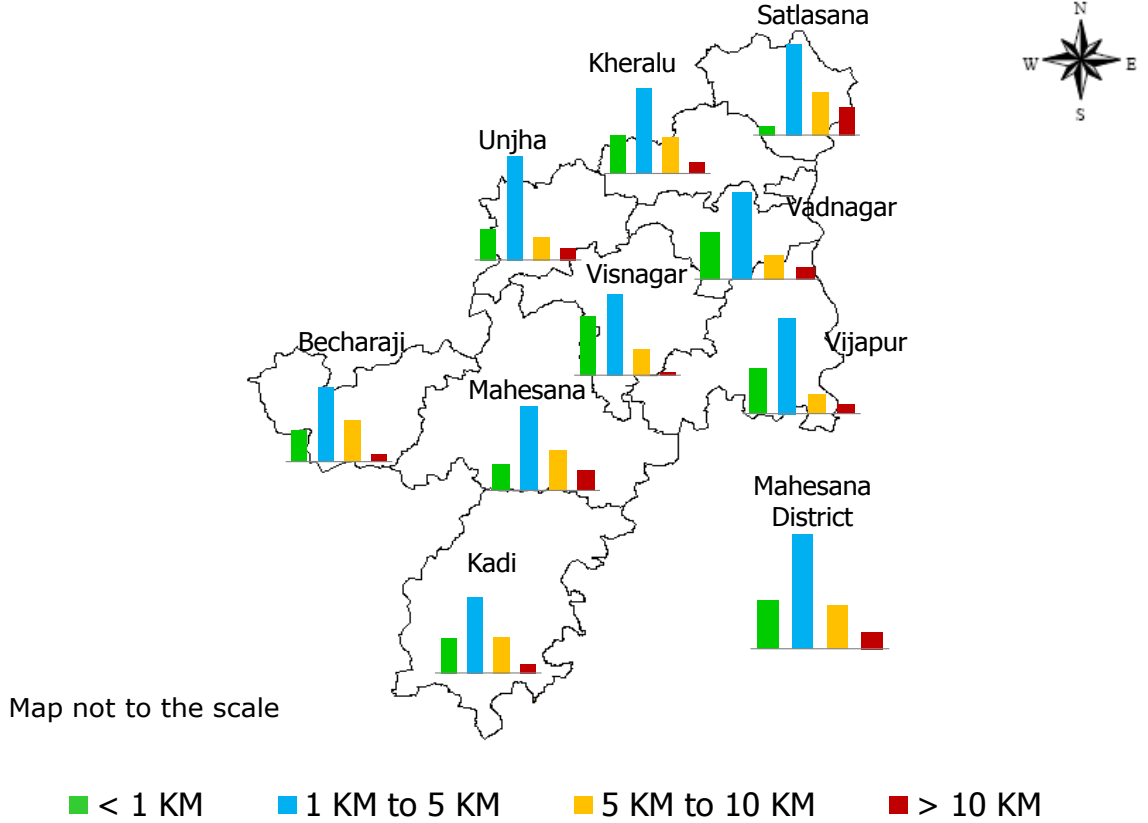
The students enrolled in class get reduced by almost 3.7% on an average of their initial strength as they transit to higher classes and so on. Further shrinkage occurs every successive year during transition of students, at every stage of higher classes. Such usual pattern in enrolments leads to decline during transition when large number of students initially enrolled drops out of school. Due to such dips in enrolment, the mass of students enrolled in Class 1 every year is downsized to fit the limited intake of the upper primary system. However, the flow rates (Repetition Rate, Dropout Rate, Promotion Rate, Transition Rate and Retention Rate) remained fluctuating in Mahesana as shown in Table 3.9.

Table 3.9: Trend in (Class 1 to 5) Flow Rate in Mahesana

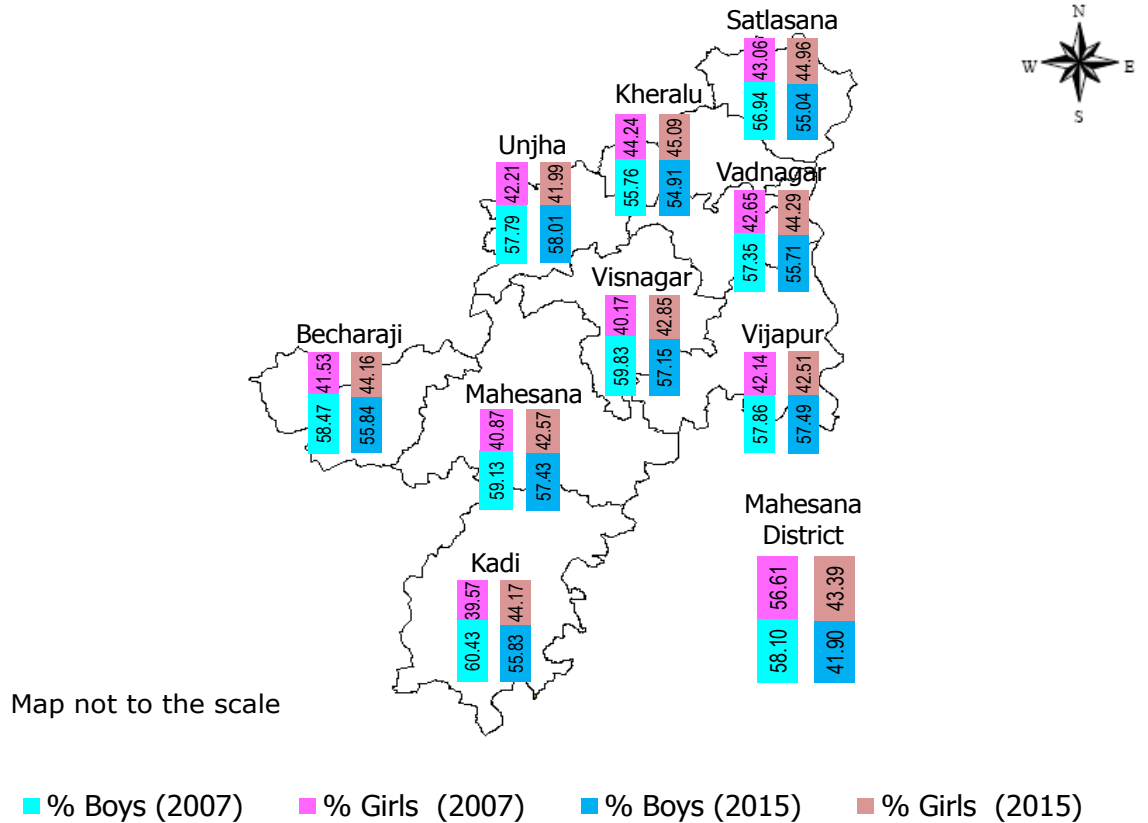
	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014
Repetition Rate	12.9	12.0	10.6	8.5	13.2	9.5	0.2	0.6
Dropout Rate	2.0	3.4	2.4	2.4	1.0	1.6	1.3	1.3
Promotion Rate	85.2	82.3	86.9	87.9	85.6	88.2	98.5	98.0
Transition Rate (P to UP)	88.8	88.2	91.3	94.3	91.9	91.8	99.7	98.5
Retention Rate	74.1	75.7	74.0	79.6	76.7	80.8	88.3	90.1
Gender Parity Index (GPI)	0.81	0.80	0.80	0.80	0.79	0.80	0.82	0.82

Source: Computed from database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2006-14)

Map 3.1: Taluka wise % of schools with distance from CRC in Mahesana (2015)



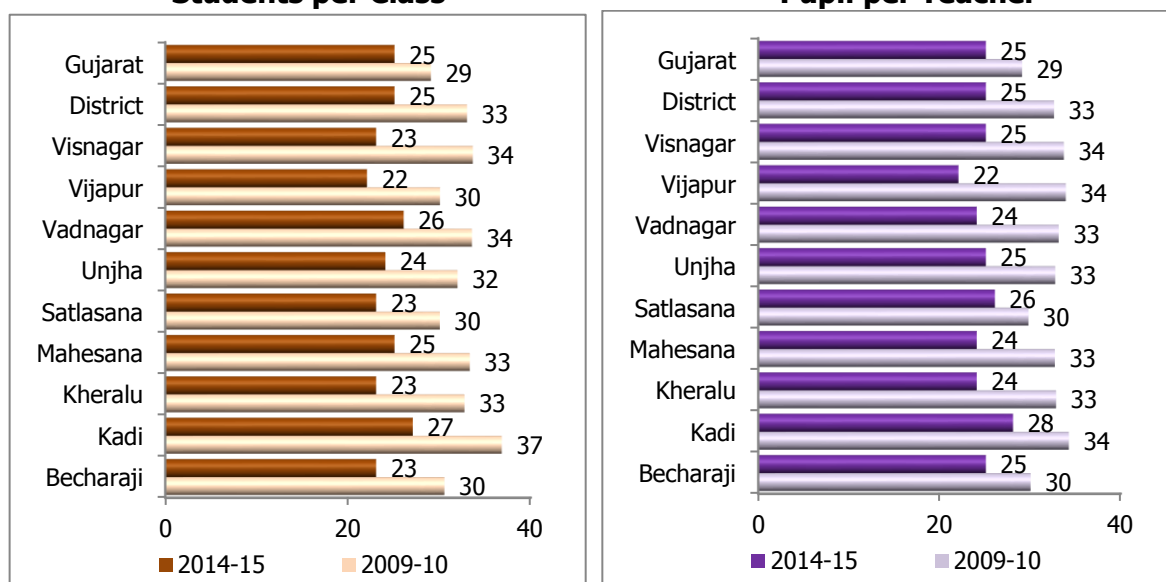
Map 3.2: Taluka wise Changes in % share in Upper Primary Enrolment of Mahesana



3.7 Teaching and Learning Environment

The Pupil-Teacher Ratio (PTR) and Student-Class Ratio (SCR) have direct bearing on the quality of instruction at schools. It represents the number of students the education system places in front of teacher and in a class at a point to enable effective learning and teaching. The smaller the number of students to a teacher and in class, the better can be the teachers’ attention to impart knowledge to the students. The PTR and SCR may differ in different regions, but the difference should not to be too large. The SCR in Mahesana district is as same as the state average and the PTR in Mahesana district is also as same as the state average. In Mahesana, the SCR ranges from 22:1 to 27:1 and PTR ranges from 22:1 to 28:1 with some difference across the talukas. As far as SCR is concerned, Vijapur has least SCR, while Kadi has highest SCR in 2014-15. As far as PTR is concerned, Vijapur has least PTR, while Kadi has highest PTR in 2014-15. However, most of the talukas have lower SCR and PTR than the state average as shown in Figure 3.14.

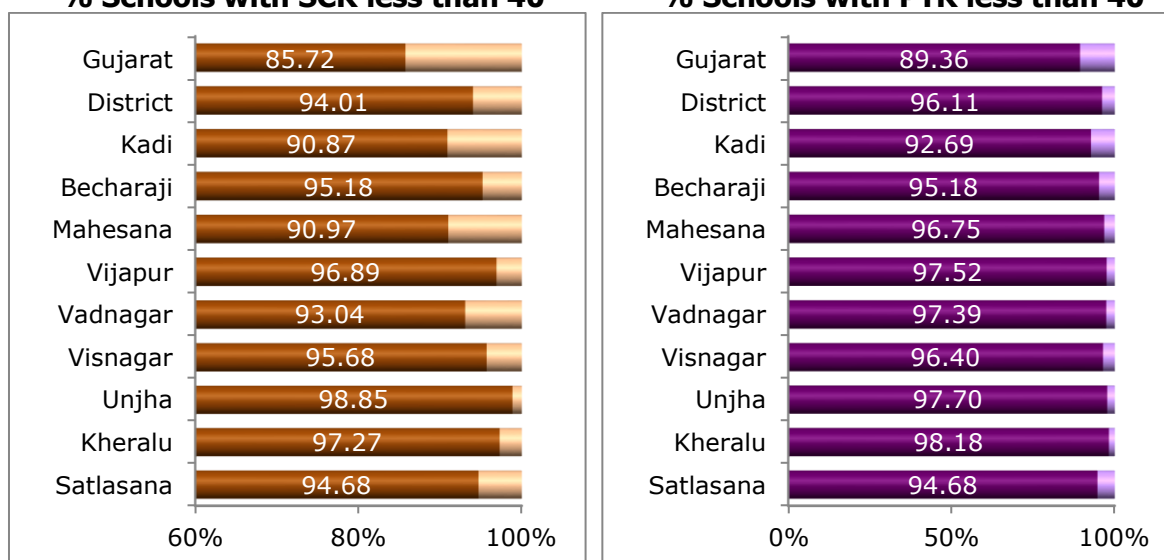
Figure 3.14: Taluka Wise Student-Class Ratio & Pupil-Teacher Ratio



Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2016)

Moreover, the SCR and PTR in Mahesana are reasonably good compared to the national norms specified in Model school criteria of 40:1 for SCR and 25:1 for PTR respectively. Moreover, when SCR and PTR of schools are analysed, it becomes apparent that out of total schools in Mahesana, almost 94% of schools have SCR lower than 40:1 and about 96.11% of schools have PTR lower than 40:1. Furthermore, out of total schools in Kheralu, Unjha, Visnagar, Vijapur and Becharaji taluka more than 95% of schools have SCR less than 40:1, while out of total schools in Kheralu, Unjha, Vadnagar and Vijapur taluka more than 97% of schools have PTR less than 40:1 in Mahesana district for the year 2014-15.

Figure 3.15: Taluka Wise Schools with SCR and PTR Less than 40 (2015)
% Schools with SCR less than 40 **% Schools with PTR less than 40**



Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2015)

Box 3.1: Infrastructure and Amenities in Schools of Mahesana

Taluka / District	Infrastructure and Amenities
Satlasana	Only Primary Schools: 22 (23.40%) Primary/U. Primary Schools: 68 (72.34%) Good Condition Classrooms: 476 (82.35%) Schools with Separate Girls Toilet: 92 (97.87%) Schools with Electricity: 94 (100%) Schools with Computers: 72 (76.60%) Schools with Library: 94 (100%) Schools with Drinking Water: 94 (100%)
Unjha	Only Primary Schools: 4 (4.60%) Primary/U. Primary Schools: 79 (90.80%) Good Condition Classrooms: 709 (87.10%) Schools with Separate Girls Toilet: 83 (95.40%) Schools with Electricity: 87 (100%) Schools with Computers: 87 (100%) Schools with Library: 86 (89.85%) Schools with Drinking Water: 87 (100%)
Vadnagar	Only Primary Schools: 36 (31.30%) Primary/U. Primary Schools: 72 (62.61%) Good Condition Classrooms: 677 (82.97%) Schools with Separate Girls Toilet: 111 (96.52%) Schools with Electricity: 115 (100%) Schools with Computers: 90 (78.26%) Schools with Library: 115 (100%) Schools with Drinking Water: 115 (100%)
Kadi	Only Primary Schools: 22 (10.05%) Primary/U. Primary Schools: 181 (83.11%) Good Condition Classrooms: 1737 (89.44%) Schools with Separate Girls Toilet: 192 (98.63%) Schools with Electricity: 219 (100%) Schools with Computers: 192 (87.67%) Schools with Library: 216 (100%) Schools with Drinking Water: 219 (100%)

Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2015)

Box 3.2: Requirement of Class Rooms in Mahesana (2014-15)

Taluka / District	Rooms	Taluka / District	Rooms
Becharaji	14	Unjha	18
Kadi	29	Vadnagar	48
Kheralu	27	Vijapur	19
Mahesana	45	Visnagar	7
Satlasana	19	Total	226

Source: Based on database of District Education Office, Mahesana (2014)

3.8 Access to School and Mid-Day Meal

As specified in Right to Education Act as well as in Rashtriya Madhyamic Shiksha Abhyan, the lower primary, upper primary, secondary and higher secondary schools to be within a distance of 1 km, 3 km, 5 km and 10 km respectively of the neighborhood, to facilitate access to schools. In this context, a school is identified as the Cluster Resource Centre (CRC) that is generally located near the school, which ensures better coordination of activities within the school and between schools falling under a CRC which is more specifically true for primary schools. In Mahesana, 21.15% of schools are located within the 1 km, while 48.85% of schools are located within 1 km to 5 km distance and 18.47% of schools are located within 5 km to 10 km, whereas 7.22% of schools are located beyond 10 km distance from CRC. In Satlasana taluka almost 15.63% of schools and in Mahesana taluka about 11.94% of schools are located beyond the 10 km distance from CRC as shown in Table 3.10.

Table 3.10: Access to School and Mid-Day Meal in Mahesana (2014-15)

Taluka / District	% schools with distance from CRC				Status of Mid Day Meal (Schools in %)		
	<1 KM	1-5 KM	5-10 KM	>10 KM	In School	Outside	Not Applicable
Satlasana	7.29	51.04	23.96	15.63	88.54	1.04	10.42
Kheralu	23.21	48.21	20.54	6.25	89.29	0.00	10.71
Unjha	14.81	49.07	11.11	5.56	68.52	0.00	31.48
Visnagar	36.30	49.63	14.81	2.22	83.70	0.74	15.56
Vadnagar	26.96	51.30	14.78	6.96	91.30	0.87	7.83
Vijapur	28.40	56.79	9.88	4.32	75.93	1.23	22.84
Mahesana	17.16	50.75	23.51	11.94	70.15	1.49	28.36
Becharaji	19.77	46.51	25.58	4.65	87.21	2.33	10.47
Kadi	17.62	40.61	19.92	5.75	67.05	1.92	31.03
District	21.15	48.85	18.47	7.22	77.29	1.19	21.52

Source: Computed from Sarva Siksha Abhiyan, GCEE, Gandhinagar (2015)

Mid-Day Meal Scheme offers children of poor and marginalized families mid-day meals to encourage them to be enrolled in schools. The mid-day meals are given to children studying in Government and aided schools and up to Class VII. The meal is cooked and is nutritious, taking care of the needs of the specific age-groups in the poor and marginalized families as well. The mid-day meal scheme is applicable to 86.61% of schools in Mahesana as other remaining schools are private schools. Out of the total schools, where it is applicable (to Govt schools only), 100% of schools provided mid-day meal either within school (98.48% of Govt. schools) or outside school (1.52% of Govt. schools). In Kheralu and Unjha taluka 100% of (applicable) schools provide mid-day meal within the school premises, while in Kadi taluka 97.22% of (applicable) schools provide mid-day meal within the school premises.

3.9 Schemes and Programs for Education

The Gujarat Government has initiated various measures to improve literacy rate, enrolment ratio, quality of education and retention rate in the primary schools.

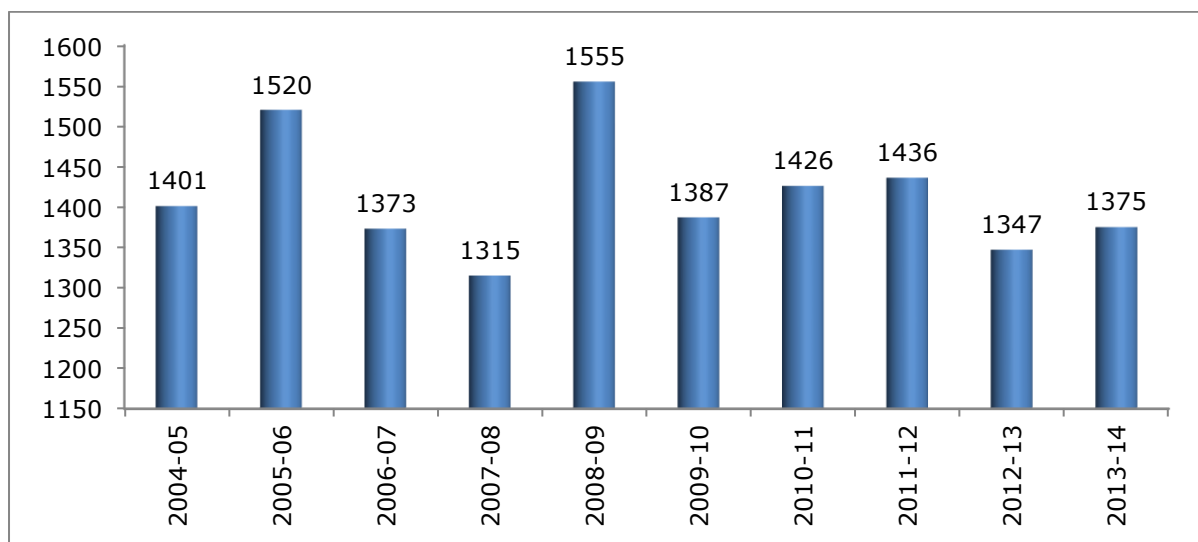
Box 3.3: Schemes and Programs for Education Sector

Scheme/Program	Brief Details of Scheme / Program
Sarva Shiksha Abhiyan	To open new schools in the habitations without school facilities. To strengthen existing school infrastructure. To provide computer education to bridge the digital divide. Special focus on girl's education and children with special needs.
National Program for Education of Girls at Elementary Level (NPEGEL)	To facilitate education of under privileged/disadvantaged girls from class I to VIII in educationally backward areas where the level of rural female literacy is less than the national average and the gender gap is above the national average.
Vidhya Laxmi Bond Yojna	To increase the education amongst the girl child and ensure that the girls continue education at least till Std. 7th. The villages with women literacy less than 35% are covered. The girls of B.P.L families in urban areas are also covered. The girls enrolled in Class 1 are given Bond worth Rs. 1000/-. When the girl passes out of Class 7th, the amount of the bond along with the interest is distributed to the girls.
Kanya Kelavani Nidhi	The Chief Minister's Kanya Kelavani Nidhi is formed to reduce the financial burden of female education in state. The finance for Kanya Kelavani Nidhi is raised by selling the gifts received by the Chief Minister on various occasions.
Vidhya Deep Yojna	In case of an unfortunate death of a child studying in the school, the parents or the guardians of the child are offered Rs. 25000/- as an insurance amount. The premium of the Vidhya Deep Yojna is paid by the state government.
Girl Child Education Program	Girl Child Education program is initiated in villages across Gujarat. It covers almost 18,000 villages especially where the literacy rate is below 20% and focus on identified suburbs of the urban areas to enhance the level of female education.
Computer Training at the Primary Educational level	To enhance computer literacy in primary level education. To promote computer aided learning by adopting technology oriented teaching learning approach in Government schools. It aims for education in rural places to set path of development with continuous power supply and broadband connectivity.
Teleconference for Students	With cooperation of BISAG the students of Class 10/12 are provided exam oriented guidance "Studies without Burden". With cooperation of ISRO the students of Class 8 are guided for Mathematics, Science and English on DD-1 and DD-11 Channel.
Mid Day Meal Scheme	To improve the nutritional/ health standard of growing children. To reduce drop-out rate and to increase attendance and to attract poorer children to come to the school.
School Health Check-Up	Under this program school going children are covered for health checkups by the state health department free of cost treatment. Children suffering from various diseases are treated and are referred for special treatment to hospitals, within state or outside.

Source: Compiled from database of Directorate of Primary Education, Gujarat (2014)

State Government provides Vidya Laxmi Bonds to the girls enrolled in Class 1 in rural areas and BPL girls in urban areas. The fluctuating trend is noticed in Vidya Laxmi Bonds in last decade. There has been gradual decrease in Vidya Laxmi Bonds from 2005-06 to 2007-08 and increase from 2009-10 to 2011-12. This indicates volatile trend in girls, enrolment in district. The details of Vidya Laxmi Bond Scheme in Mahesana are shown in Figure 3.16.

Figure 3.16: Achievements of Vidya Laxmi Bond Scheme in Mahesana



Source: Based on database of District Education Office, Mahesana (2014)

Gunotsav is the state education department's program aiming at improving the level of education in the primary schools by finding the drawbacks and rectify it to improve the quality of primary education. Executives spend the entire day in schools and evaluate the school on various criteria including infrastructure, mid-day meal, sanitation, etc besides interacting with the parents. The detail of Gunotsav is presented in Table 3.11.

Table 3.11: Gunotsav Grade of Schools in Mahesana

	Grade wise % Schools (2010)							Grade wise % Schools (2014)						
	A+	A	B	C	D	E	F	A+	A	B	C	D	E	F
Becharaji	0	0	0.00	57.89	39.47	2.63	0.00	2.60	29.87	61.04	5.19	1.30	0.00	0.00
Kadi	0	0	2.45	53.99	41.72	1.84	0.00	0.62	37.27	58.39	3.11	0.62	0.00	0.00
Kheralu	0	0	0.95	36.19	43.81	18.10	0.95	0.00	0.00	0.00	17.76	82.24	0.00	0.00
Mahesana	0	0	9.28	66.49	22.16	1.55	0.52	0.00	47.89	51.05	1.05	0.00	0.00	0.00
Satlasana	0	0	4.71	48.24	43.53	2.35	1.18	1.15	50.57	41.38	6.90	0.00	0.00	0.00
Unjha	0	0	10.53	57.89	28.95	2.63	0.00	2.60	54.55	41.56	0.00	1.30	0.00	0.00
Vadnagar	0	0	6.86	69.61	21.57	1.96	0.00	0.00	31.37	63.73	4.90	0.00	0.00	0.00
Vijapur	0	0	30.82	63.70	5.48	0.00	0.00	2.05	63.01	33.56	0.68	0.68	0.00	0.00
Visnagar	0	0	20.00	69.17	10.83	0.00	0.00	0.83	38.84	56.20	1.65	2.48	0.00	0.00
District	0	0	10.40	59.14	27.09	3.09	0.28	0.94	40.36	45.69	4.12	8.90	0.00	0.00

Source: Compiled from database of District Education Office, Mahesana (2014)

3.10 Success Stories

Box 3.4: Infrastructure and Amenities for Girls Education in Mahesana

Kasturba Gandhi Balika Vidyalay (KGBV): Vav (Satlasana)



Kasturba Gandhi Balika Vidyalaya (KGBV) is a scheme for free of cost residential schools at upper primary level for girls belonging to SC, ST, OBC & minority communities in educationally backward blocks where the female rural literacy is below the national average and gender gap in literacy is above the national average.



Established: July 2005
Enrolment: 104 (2014-15)
Education: Class 6 to 8
Teaching Staff: 8 Contractual

Infrastructure: New Building
No. of Rooms: 3
Sanitation: 7 Girls Toilets
Drinking Water: Tap Water

Smt. M.G.Patel Sainik School for Girls: Kherva (Ganpat Vidyanagar)

The school was established in 1999 and it is managed by the Private Unaided Management. It is located in rural area at a distance of about 8 km. from the BRC of Mahesana district. The school has modern infrastructure with all the class rooms in good condition, library, ramp and playground.



Established: 1999
Enrolment: 198 (2014-15)
Education: Class 6 to 10
Teaching Staff: 7

Infrastructure: New Building
No. of Class Rooms: 5
Sanitation: 8 Girls Toilets
Drinking Water: Tap Water

Source: Field Survey, (2015)

Table 3.12: School Health Check Up in Mahesana

Taluka / District	2010-11				2013-14			
	School Going Children	Children Covered	Children Served	Children Provided Referral Service	School Going Children	Children Covered	Children Served	Children Provided Referral Service
Becharaji	52437	48613	6084	61	51169	50488	5070	26
Kadi	93417	93023	8613	116	97472	98431	7217	47
Kheralu	38406	38193	3929	80	39095	37298	1770	16
Mahesana	113637	113212	10612	2769	112098	102112	5787	782
Satlasana	27239	26053	4004	78	27011	25546	1886	86
Unjha	45149	44812	9779	612	42879	43581	4386	50
Vadnagar	41144	41086	4435	185	42680	41560	3807	17
Vijapur	71096	70582	6580	141	67555	67187	4352	52
Visnagar	69157	69477	10840	182	58452	62038	6234	7
District	551682	545051	64876	4224	538411	528241	40509	1083

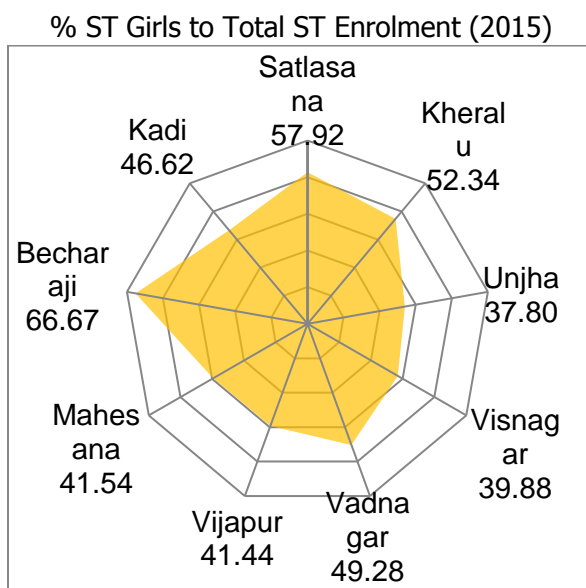
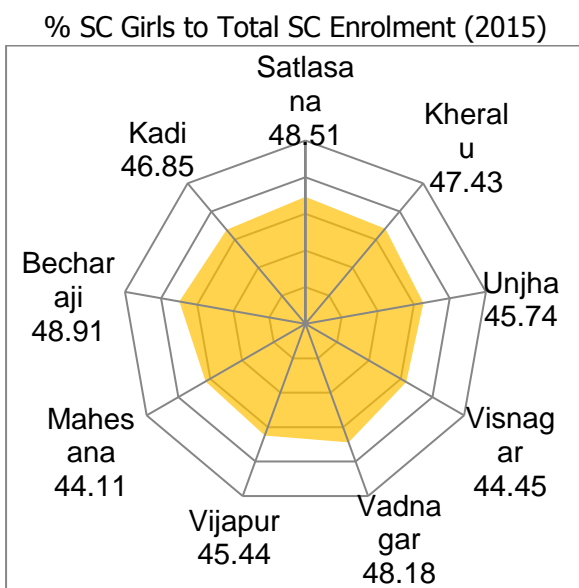
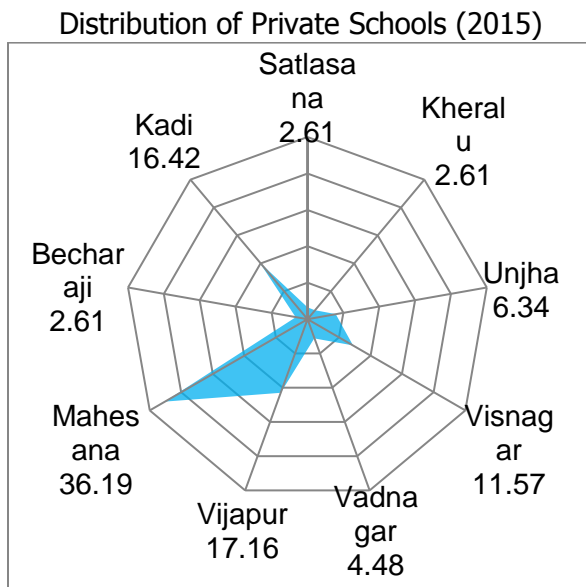
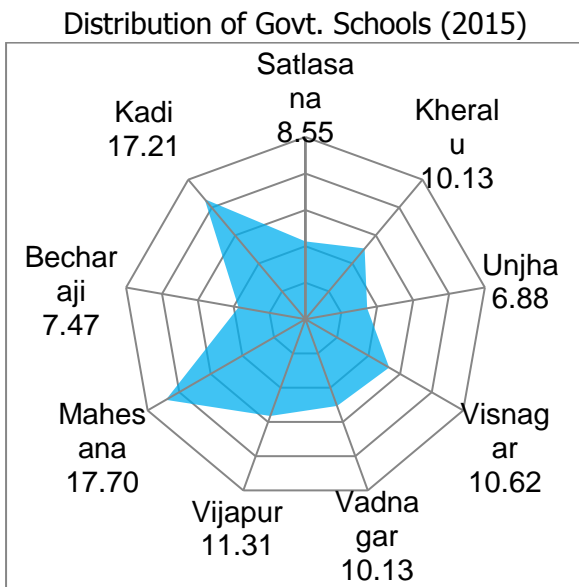
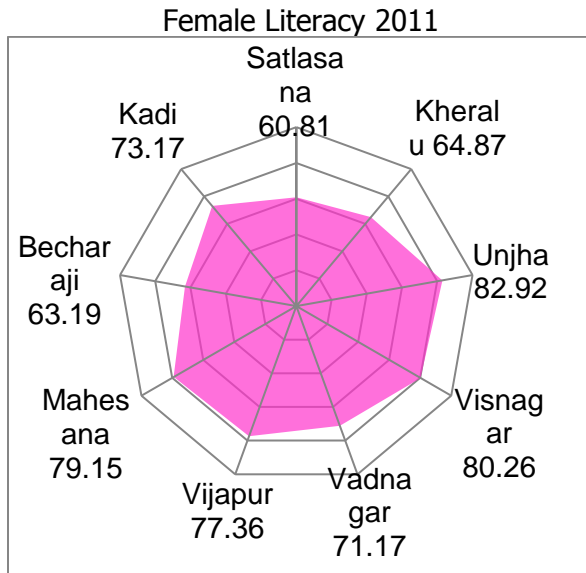
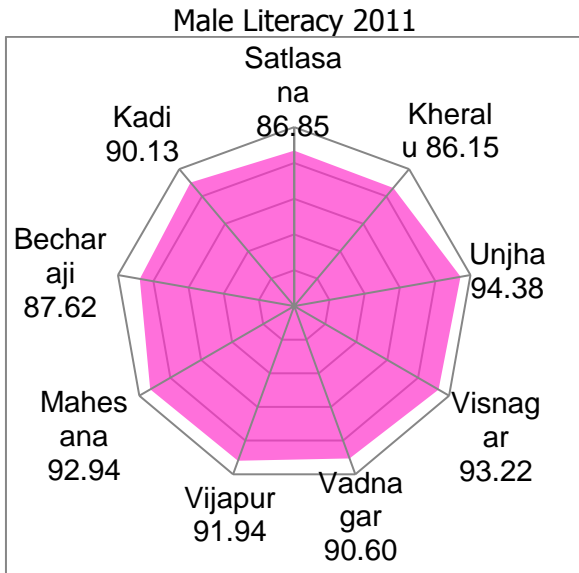
Source: Compiled from database of District Education Office, Mahesana (2014)

3.11 Summary

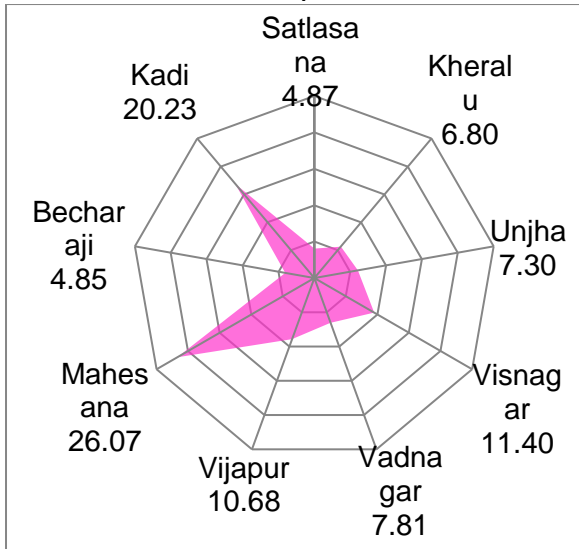
Box 3.5: SWOC Analysis for Education in Mahesana

Strengths	Weaknesses
<ul style="list-style-type: none"> • Male-Female Literacy gap as well as Rural-Urban Literacy Gap has declined between 2001 and 2011 in Mahesana. • Majority (85.45%) of the classrooms in schools are in good conditions. • More than 99% of schools in Mahesana are electrified. • Schools with separate girls toilet has increased to 97.67% in Mahesana. • More than 99% of schools in Mahesana are with drinking water facility. • 100% of teachers are professionally qualified in Mahesana. • ST Girls' enrolment in Satlasana, Kheralu and Becharaji Girls' enrolment is higher than Boys' enrolment. • Student-Classroom Ratio (SCR) and Pupil-Teacher Ratio (PTR) is lower in Mahesana as compared to Gujarat. 	<ul style="list-style-type: none"> • Despite decline in literacy gap, huge gap persist between Rural and Urban area as well as Male and Female in Mahesana. • Lack of Secondary and Higher Secondary schools in Mahesana. • Almost 14.5% of classrooms require major/minor repairs. • More than 15% of classrooms in Satlasana, Kheralu, Visnagar and Vadnagar require major/minor repairs. • More than 15% of schools require playground as well as computer facilities in Mahesana. • Boys' as well as Girls' enrolment has been declining consecutively every year in Mahesana. • More than 25% of schools are located at more than 5 KM distance from CRC in Mahesana.
Opportunities	Challenges
<ul style="list-style-type: none"> • Initiating of Secondary and Higher Secondary schools in Mahesana for better excess of higher education. • Recruitment of full time teachers (not contractual) in priority talukas facing teachers' retention problem. • Free transport (ST Bus Concession Pass) can be joined with Vidya Laxmi Bond Scheme to ensure the enrolment of girls is not cancelled after receiving the benefit of Vidya Laxmi Bond Scheme. 	<ul style="list-style-type: none"> • Decline in new enrolment and decline in number of students during transition leads to shrinkage in enrolment every successive year. • Major challenge to retain the teachers employed on contract basis as such teachers are in search of full time jobs. • Continuous fluctuation in the trend of Vidya Laxmi Bonds Scheme beneficiaries and dropout after benefiting from Vidya Laxmi Bond Scheme is a persistent phenomenon.

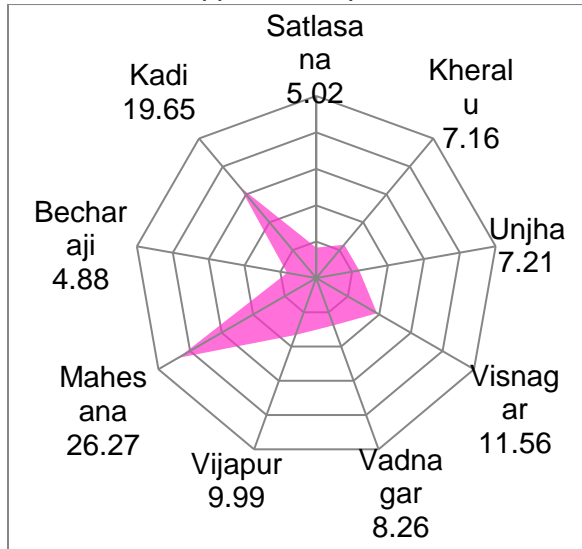
3.12 Literacy and Education: Taluka Wise Status of by Radars



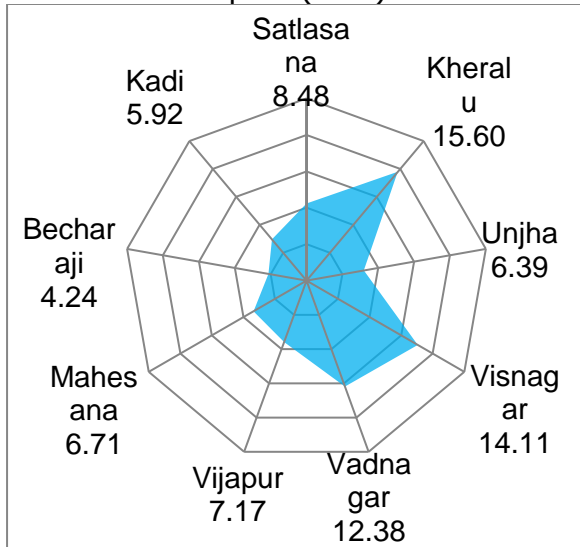
% Share in Primary Enrolment 2015



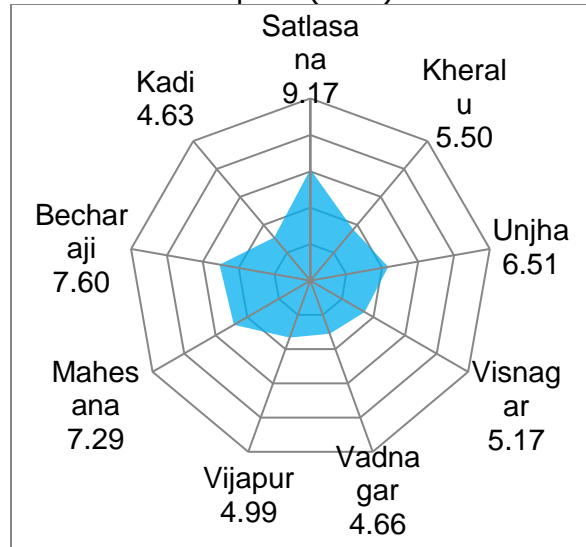
% Share in Upper Primary Enrolment 2014



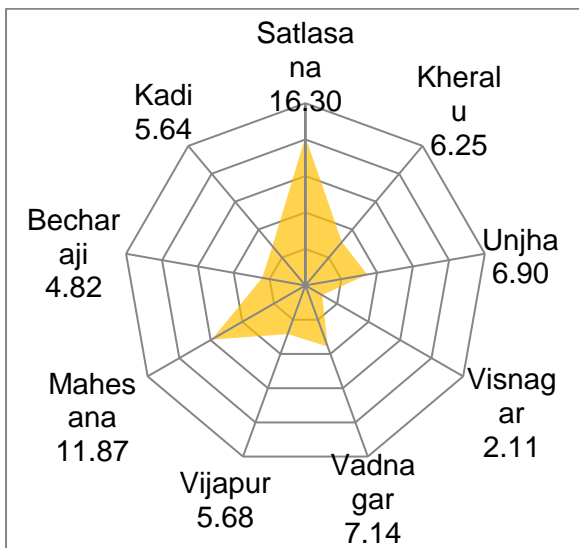
% of Total Classrooms that Require Major Repairs (2015)



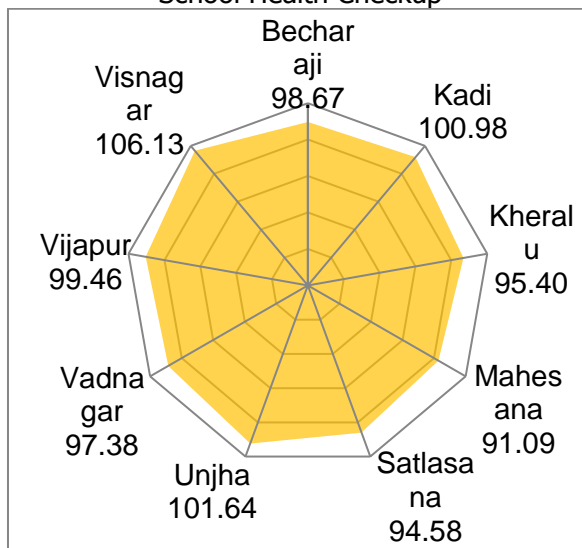
% of Total Classrooms that Require Minor Repairs (2015)



% of Schools Above 10 km distance from CRC



% School Going children covered under School Health Checkup



Chapter 4

Health, Nutrition and Sanitation

Chapter 4

HEALTH, NUTRITION AND SANITATION

4.1 Introduction

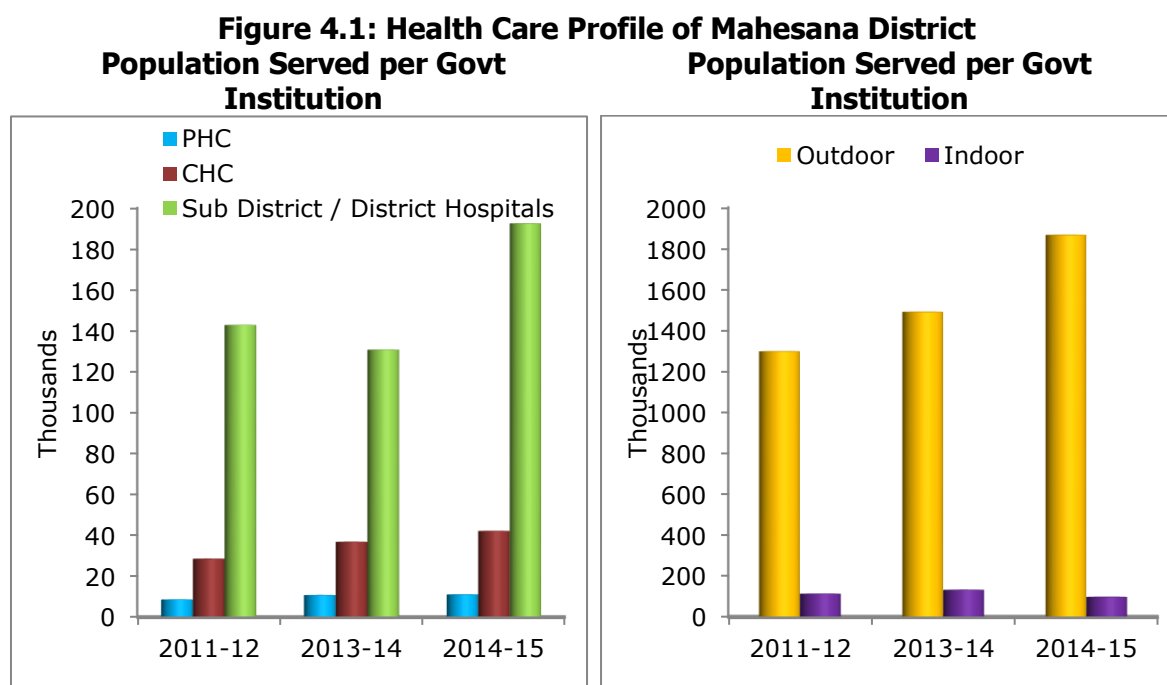
World Health Organization (WHO) defined health as “a state of complete physical, mental and social well-being” rather than just an absence of disease or infirmity. Health has intrinsic significance, instrumental importance at personal and social levels and promotes empowerment of people and therefore it is a direct measure of human well-being (Hirway and Mahadevia, 2004). Long and healthy life of people significantly depends on factors like adequate health infrastructure, accessibility of healthcare and ability to spend on healthcare interventions, apart from food habits and availability, economic and occupational factors, environmental and physical conditions. Moreover, health includes sanitation, a clean environment, access to basic amenities, access to adequate and safe drinking water, as well as access to proper and adequate nutrition.

Good nutrition not only gives adequate calories for functioning but also increases the ability to resist diseases and infections. People living below the poverty line lack resources to get adequate calories and live in unhygienic environmental conditions, which increase their vulnerability to infections and diseases. Nutritional deficiency in children, on the other hand, leads to irreversible and long-term disabilities such as blindness, reduction in cognitive functions, mental retardation, etc. Therefore, health and nutrition are closely linked to the livelihood issue since the man days loss due to poor nutrition leading to health problem has an impact on earnings. If the earning member of a family falls critically ill, the family is likely to be vulnerable to various economic problems.

The chapter discusses health care scenario in Mahesana, health care infrastructure accessibility, human resource availability in health care, health care services offered, prevalence of major diseases, women and child health care, nutrition, drinking water and sanitation, schemes and programs for health care and its performance in Mahesana, success stories and status of talukas pertaining to health, nutrition and sanitation in Mahesana.

4.2 Health Care Scenario

Mahesana district is characterized by scattered habitations in few talukas as well as concentrated habitations in few talukas, which makes it sometimes difficult to provide health care services available to the community in scattered areas. However, due to concentrated habitations in majority of district, the provision of health care facility is easy, while there are remote areas where accessibility is a challenge and therefore, health care is a major concern in this district. Several proximate factors contribute to the health status of a population including nutrition, hygiene, potable drinking water and sanitation apart from maternal and child health, accessibility to health care services, emergency services and health care awareness. Better health status of the people leads to higher life expectancy and reduction in mortality rate, ultimately enabling people to live long and healthy life. The health care profile of Mahesana district is presented in Figure 4.1.



Source: Based on database of (1) Commissionerate of Health, Medical Services, Medical Education and Research, Gujarat (2014); (2) Chief District Health Office, Mahesana (2015).

Nevertheless, there has been expansion in health care facilities in Mahesana during last decade, it has been observed that population served per Govt. institution (PHC, CHC, Sub-District Hospitals and District Hospital) has declined in 2013-014 and then increased in 2014-15 in Mahesana. Moreover, the outdoor patients have remained higher (with increasing trend) in Mahesana.

4.3 Health Care Infrastructure Accessibility

In the public health system, besides district hospital and sub divisional hospital, PHCs and CHCs have a crucial role to play as the secondary level of health care. PHC is a basic unit providing an integrated curative and preventive health services to the rural community with an emphasis on promoting services. A PHC functions as a referral unit for 6 sub-centres. It caters to 30,000 population in general areas and 20,000 population in tribal or desert areas and four to five PHCs are attached to each of the CHCs. The CHCs cater to the health needs of the rural masses by providing first referral curative as well as specialized health care in various areas. Generally one CHC covers about 80,000 population in tribal/hilly areas and 1,20,000 population in plain areas. The availability of various facilities at CHC level including diagnostic services and laboratory testing is very important along with curative and other services to deliver complete health care at the grassroots level. PHC refers out cases to a CHC and higher order public hospitals and sub-district hospitals.

Mahesana is at a disadvantaged position as compared to the state as a whole, both in terms of literacy rate and the extent of urbanisation and therefore, health care awareness and access to health care facilities holds significant position in Mahesana. The district has 288 sub centres, 56 PHCs, 14 CHCs, 3 Sub-Divisional Hospital and 1 District Hospital. There are 312, 596 and 160 beds available in PHCs, CHCs and District hospital respectively. There are 18 Ayurvedic and 10 Homeopathic institutions, 2 first referral units, 1 mobile medical units, no AYUSH health facilities and 39 Govt. ambulances as shown in Table 4.1.

Table 4.1: Health Infrastructure in Mahesana District (2014)

Health Infrastructure	In Nos. ¹	Health Infrastructure	In Nos. ²
Sub Centres	288	Beds Available in Hospitals	160
Public Health Centres	56	Ayurvedic Institutions	18
Community Health Centres	14	Homeopathic Institutions	10
Sub District Hospitals	3	First Referral Units	2
District Hospitals	1	Mobile Medical Units	1
Beds Available in PHC	312	AYUSH	0
Beds Available in CHC	596	Ambulance (Govt.)	39

Source: Compiled from database of (1) Commissionerate of Health, Medical Services, Medical Education and Research, Gujarat (2014); (2) Chief District Health Office, Mahesana (2015).

The provision of health care facilities has special emphasis in rural area viz. 14 CHCs, 56 PHCs and 288 sub centres are functional in Mahesana as shown in Table 4.2.

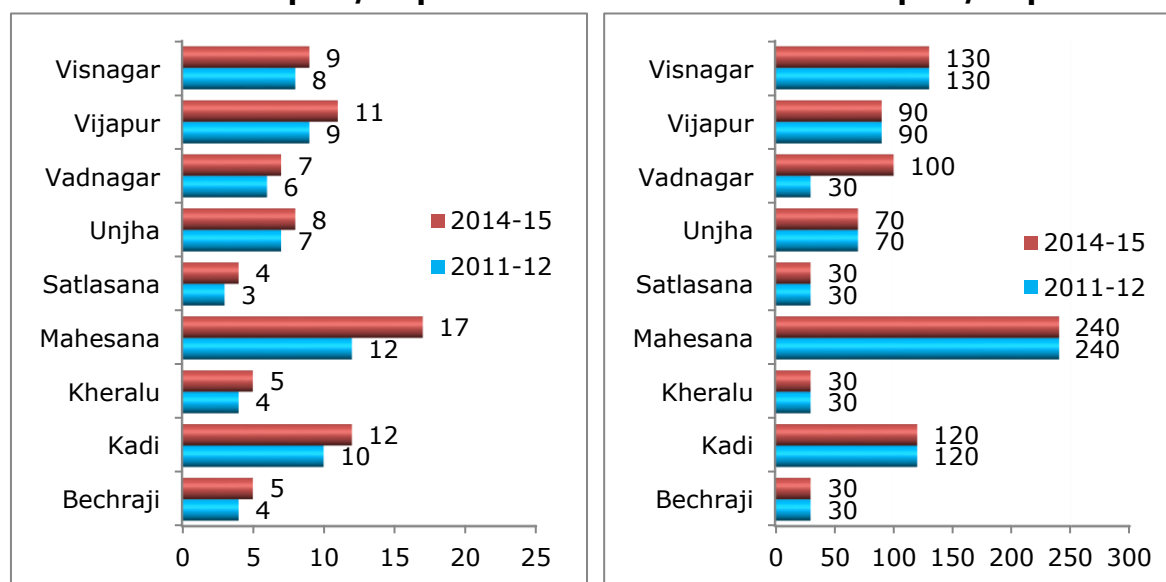
Table 4.2: CHCs, PHCs and Sub Centres in Mahesana (2014-15)

Taluka / District	CHCs	PHCs	Sub Centers
Bechraji	2	5	19
Kadi	4	9	47
Kheralu	1	4	20
Mahesana	1	11	60
Satlasana	1	3	15
Unjha	1	5	25
Vadnagar	0	5	22
Vijapur	3	7	45
Visnagar	1	7	35
Total	14	56	288

Source: Compiled from database of Chief District Health Office, Mahesana (2015).




Mahesana had 63 medical institutions (including Govt, Municipality, Grant-in-Aid other than Panchayat Clinics/Hospitals and Ayurvedic Clinics) in 2011-12, which has been reported to increase to 78 till 2014-15, while the total number of beds in the medical institutions (including Govt, Municipality, Grant-in-Aid other than Panchayat Clinics/Hospitals and Ayurvedic Clinics) in 2011-12 were 770, which has been reported to increase to 840 till 2014-15 as shown in Figure 4.2.

Figure 4.2: Taluka wise Medical Institutions and Beds Available in Mahesana



Source: Based on database of District Statistics Office, Mahesana (2015)

Box 4.1: Health Care Facilities at CHCs in Mahesana

	<table border="0"> <tr> <td>Community Health Center</td> <td>Becharaji</td> </tr> <tr> <td>Emergency services (24 Hrs)</td> <td>Yes</td> </tr> <tr> <td>24 Hrs delivery services</td> <td>Yes</td> </tr> <tr> <td>New-born care</td> <td>Yes</td> </tr> <tr> <td>Family planning services</td> <td>Yes</td> </tr> <tr> <td>Safe abortion services</td> <td>No</td> </tr> <tr> <td>Surgeries performed</td> <td>No</td> </tr> <tr> <td>Bed Occupancy Rate</td> <td>08 % to 10%</td> </tr> <tr> <td>Average daily OPD Attendance</td> <td>120</td> </tr> <tr> <td>No. of beds</td> <td>35</td> </tr> <tr> <td>Rooms</td> <td>34/Good</td> </tr> <tr> <td>Toilets</td> <td>05/Yes</td> </tr> <tr> <td>Staff against IPHS Norm of 40</td> <td>23</td> </tr> </table>	Community Health Center	Becharaji	Emergency services (24 Hrs)	Yes	24 Hrs delivery services	Yes	New-born care	Yes	Family planning services	Yes	Safe abortion services	No	Surgeries performed	No	Bed Occupancy Rate	08 % to 10%	Average daily OPD Attendance	120	No. of beds	35	Rooms	34/Good	Toilets	05/Yes	Staff against IPHS Norm of 40	23
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Source: Compiled from database of Chief District Health Office, Mahesana (2015).

4.4 Human Resource Availability in Health Care

The human resource dimension (medical officers and other staff) of the public health delivery system at Mahesana seems to be reasonable. The availability of human resources in the district shows that total number of sanctioned posts for class 1 staff and class 2 staff across medical divisions are 37 and 134 respectively. However, the problem of vacant posts is mainly evident in class 1 staff under certain medical divisions as compared to class 2 staff across medical divisions as shown in Table 4.3.

Table 4.3: Medical Staff (Class 1 & Class 2) Details of Mahesana (2015)

Medical Division	Class 1			Class 2		
	Sanctioned	Filled	Vacant	Sanctioned	Filled	Vacant
General Hospital Mahesana	19	14	5	22	18	4
CHC	14	3	11	43	40	3
DTO	1	0	1	2	2	0
Training Unit	0	0	0	1	1	0
PHC	0	0	0	56	50	6
Mobile Unit	0	0	0	1	1	0
District Panchayat Dispensary	0	0	0	4	1	3
District Panchayat Mahesana	3	2	1	5	4	1
	37	19	18	134	117	17

Source: Compiled from database of Chief District Health Office, Mahesana (2015)

Nonetheless, if the vacant posts in both the categories of staff are filled up on a priority basis, it would reinforce the system to meet the health needs of the masses efficiently and effectively. The adequate and trained human resources significantly contributes to the improvement in the health outcomes at various levels and is directly related to the increase in utilization of health services.

One of the functions of the district hospital is to provide effective, affordable Health care services i.e. curative (including specialist services), preventive and promoting care for a defined population. The key component for effective service provision by district hospital is adequate availability of qualified human resources. IPHS also lays down recommendation for medical and paramedical manpower as per the type of the health institute. It is evident from Table 4.4 that the availability of medical staff at Mahesana district hospital is acceptable. Out of the total 19 sanctioned posts of medical staff under different categories, about 14 posts are filled and about 5 positions are vacant. Furthermore, the availability of paramedical staff seems to be similarly discouraging. About 8 out of the total 87 sanctioned posts are vacant. If these vacant

posts are filled up at the earliest, it shall prevent other staff from being overburdened and efficient and effective service delivery can be ensured.

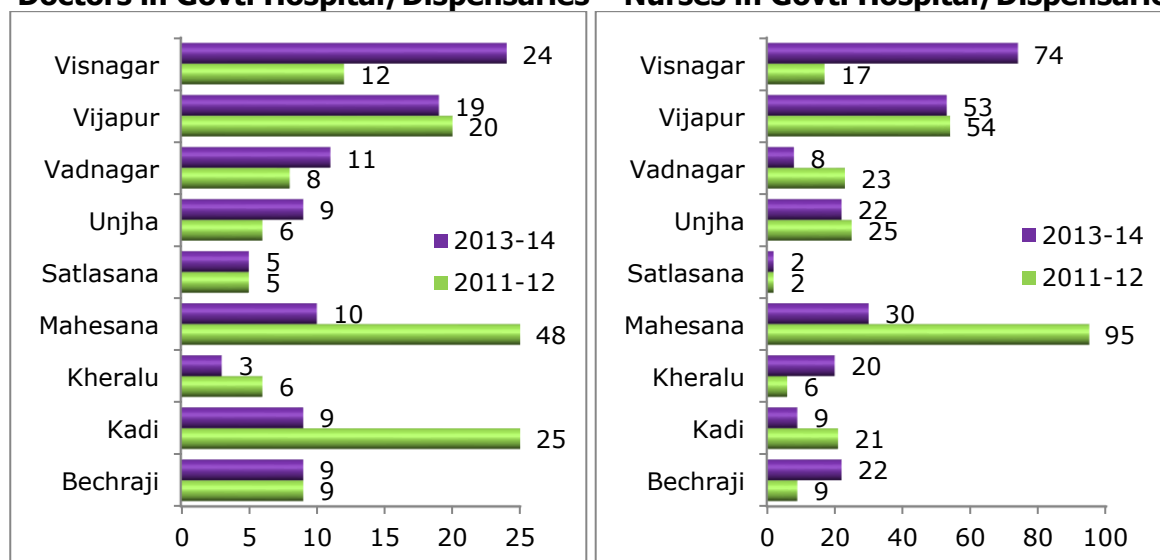
Table 4.4: Medical and Para-Medical Staff at General Hospital, Mahesana (2015)

Medical Staff	Sanctioned	Filled	Para-Medical Staff	Sanctioned	Filled
Civil Surgeon	1	1	Staff Nurse	64	59
Physician	1	0	Sanitary worker	1	0
Gynaecologist	1	1	Ophthalmic assistant	3	3
Anaesthetist	3	3	Social Worker	0	0
ENT Surgeon	2	1	Laboratory technician	3	3
Pathologists	1	1	Laboratory attendant	1	1
Surgery Specialist	1	1	ANM	3	2
Paediatrician	2	2	LHV	0	0
Orthopaedist	1	1	PHN	2	2
Eye Surgeon	1	1	Pharmacist	8	8
Resident Medical Officer	1	0	Matron	1	0
Microbiologist	1	1	Physiotherapist	1	1
Radiologist	1	0			
Psychiatrist	1	1			
Dental	1	1			
Total	19	14	Total	87	79

Source: Compiled from database of Chief District Health Office, Mahesana (2016)

Mahesana had 139 doctors in medical institutions (including Govt, Municipality, Grant-in-Aid other than Panchayat Clinics/Hospitals and Ayurvedic Clinics) in 2011-12, which has been reported to decline till 2013-14, while the total number of nurses in medical institutions (including Govt, Municipality, Grant-in-Aid other than Panchayat Clinics/Hospitals and Ayurvedic Clinics) in 2011-12 were 252, which has also been reported to decline till 2013-14 as shown in Figure 4.3.

Figure 4.3: Taluka wise details of Doctors and Nurses in Mahesana
Doctors in Govt. Hospital/Dispensaries **Nurses in Govt. Hospital/Dispensaries**



Source: Based on database of District Statistics Office, Mahesana (2014)

4.5. Health Care Services Offered

PHC, CHC and district hospital play vital role in provision of public health services especially in the backward region like Mahesana. Mahesana shares 52 PHCs out of 1158 PHCs of Gujarat in 2014 which accounts for 4.49% of PHCs of Gujarat. Mahesana shares 14 CHCs out of 318 CHCs of Gujarat in 2014, which accounts for almost 4.40% of CHCs of Gujarat. As far as PHCs are concerned, Mahesana shared 4.49% of PHCs of Gujarat, while it served 5.80% of outdoor patients, 3.59% of indoor patients and total 5.76% of patients coming to PHCs of Gujarat in 2013-14. As far as CHCs are concerned, Mahesana shared 4.40% of CHCs of Gujarat, while it served 4.41% of outdoor patients, 2.27% of indoor patients and total 4.14% of patients coming to CHCs of Gujarat in 2013-14. District and civil hospital in Mahesana served 3.30% of outdoor patients and 2.96% of indoor patients and total 4.19% of patients coming to district and civil hospitals of Gujarat as evident from Table 4.5.

Table 4.5: Indoor and Outdoor Patients Served (2014)

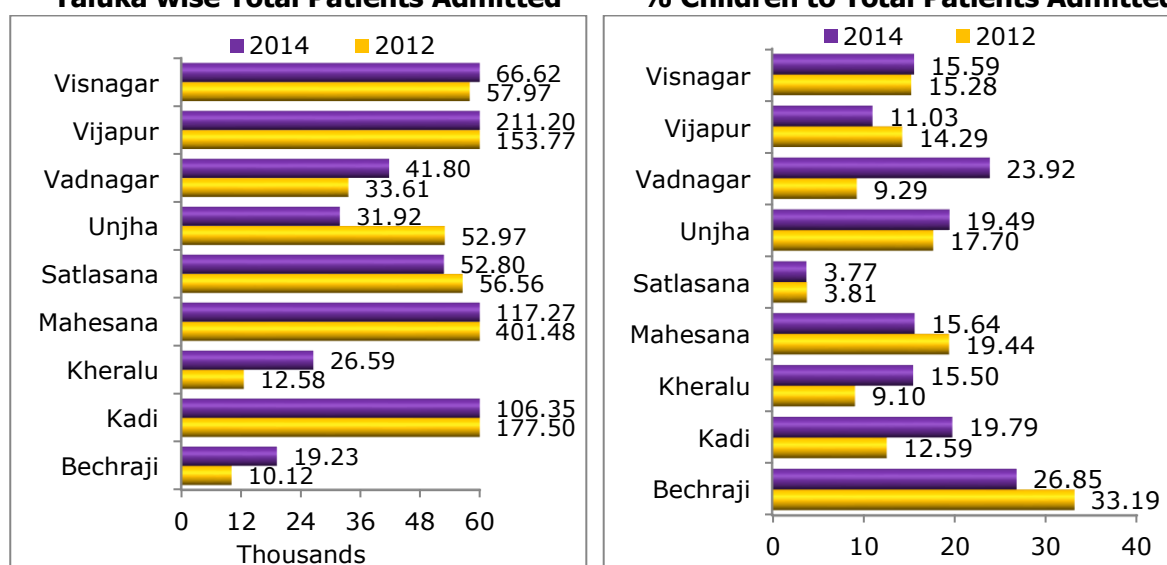
	PHC		CHC		Dist+Civil Hospital		Total	
	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor
Mahesana	580210	6121	476955	35465	430610	90787	1487775	132373
Gujarat	10005236	170590	10815119	1563903	13067506	3065527	33887861	4800020
Mahesana as % of Gujarat	5.80	3.59	4.41	2.27	3.30	2.96	4.39	2.76

Source: Computed from database of Commissionerate of Health, Medical Services, Medical Education and Research, Gujarat (2014)

However, out of total patients of Mahesana, 36.19% of patients were served by PHCs, while 31.63% of patients were served by CHCs and 32.18% of patients were served by civil and district hospitals in 2013-14, as compared to the fact that out of total patients of Gujarat, 26.30% of patients were served by PHCs, while 32.00% of patients were served by CHCs and 41.70% of patients were served by civil and district hospitals in 2013-14. This indicates that the patients have almost equal access to PHC, CHC and Sub District/District Hospital facilities in Mahesana. It reveals that PHC and CHC play a vital role in Mahesana and especially in rural areas. The development of required health care facilities at PHC and CHC will enhance the public health services in rural areas.

The flow of patients at various Govt. and Govt. aided medical institutions in Mahesana has declined by -16.07% CAGR between 2012 and 2014. The Taluka wise details of patients admitted in Govt. and Govt. aided medical institutions show that highest number of total patient (men, women and children together) were admitted in Mahesana taluka followed by Kadi taluka in 2012 and Vijapur taluka followed by Mahesana taluka in 2014. However, the highest CAGR in total patient (men, women, children together) has been noticed in Kheralu taluka (45.36%) and Becharaji taluka (37.89%) between 2012 and 2014 as shown in Figure 4.4.

Figure 4.4: Taluka wise Patients Admitted in Govt./Govt. Aided Hospitals
Taluka wise Total Patients Admitted **% Children to Total Patients Admitted**



Source: Based on database of District Statistics Office, Mahesana (2014)

The flow of children patients at various Govt. and Govt. aided medical institutions in Mahesana have declined by -18.22% CAGR between 2012 and 2014. The Taluka wise details of % of children patients out of total patients admitted in Govt. and Govt. aided medical institutions show that highest % of children patient were admitted in Becharaji followed by Mahesana in 2012 and in Becharaji followed by Vadnagar in 2014. However, the highest CAGR in children patients has been noticed in Kheralu (89.69%) between 2012 and 2014.

There has been decline in the number of Govt. and Govt. aided medical institutions, while, there has been increase in number of beds in these institutions, whereas there has been decline in number of doctors and nurses in these institutions and there has been decline in number of patients admitted in these institutions between 2012 and 2014.

4.6. Prevalence of Major Diseases

Major diseases prevailing in Mahesana are Acute Diarrheal Diseases, Acute Respiratory Infection, Enteric Fever, Malaria Vivax, Bacillary Dysentery and Fever of unknown origin. The cases suffering from Acute Respiratory Infection, Acute Diarrheal Diseases have major prevalence in Mahesana district. Moreover there has been increased in the cases reported for Acute Respiratory Infection and Acute Diarrheal Diseases over the years in Mahesana as shown in Table 4.6.

Table 4.6: Disease wise Cases Reported in Mahesana

Major Diseases	2010	2011	2012	2013	2014	2015
Acute Diarrhoeal Disease	24712	29497	32583	31708	31841	28644
Acute Respiratory Infection	42352	53015	64007	66804	49461	53704
Acute Viral Hepatitis	237	402	177	84	7	8
Measles	12	29	4	1	53	20
Malaria Falciparum	35	66	8	35	36	13
Enteric Fever	800	1055	558	406	717	556
Malaria Vivax	612	959	796	622	695	356
Bacillary Dysentery	196	376	725	306	475	126

Source: Computed from database of Chief District Health Office, Mahesana (2015)

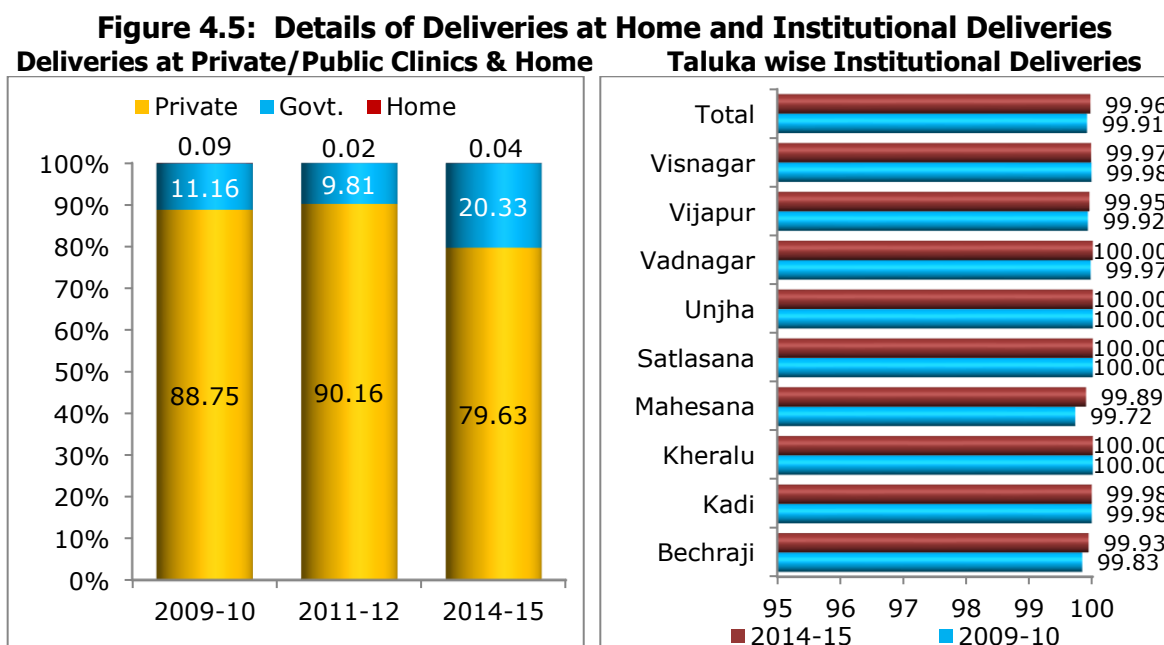
Although, the cases suffering from Enteric Fever, cases suffering from Malaria (Vivax) and the cases suffering from Bacillary Dysentery have also been noticed, but the number has been small compared to Acute Diarrheal Diseases, Acute Respiratory Infection in Mahesana district.

Nevertheless, further efforts are required for creating mass awareness and to educate the people regarding prevention of diseases. Not only that, but also the routine health, hygiene and cleanliness guidance on large scale will help creating health awareness in rural people.

4.7. Women and Child Health Care

To reduce the rate of maternal mortality, Mahesana has many constrains like low literacy rate. However, the district has put various activities to reduce maternal death. Encouraging the institutional delivery, the district has tried to reduce the maternal and infant death. In 2009-10, less than 1% of deliveries were performed at home since 2009-10.

The deliveries in Govt. Institutions have increased drastically. In 2009-10, about 11.16% of deliveries were performed in Govt. Institutions, which have increased to 20.33% in 2014-15. However, the deliveries in private clinic have slightly declined. In 2009-10, about 88.75% of deliveries were performed in private clinic, which declined to about 79.63% in 2014-15. The institutional (Govt. & Private) deliveries which were 99.91% in 2009-10, increased to 99.96 % in 2014-15 as shown in Figure 4.5.



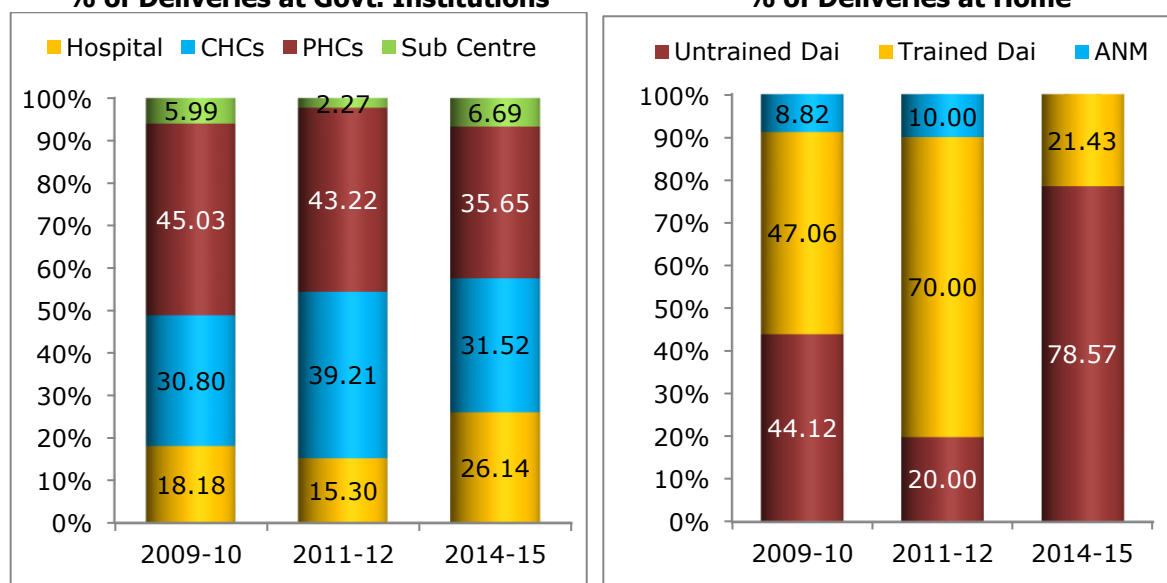
Source: Based on database of Chief District Health Office, Mahesana (2015)

Amongst all the talukas of Mahesana district, all the talukas except Becharaji taluka, Kadi taluka, Mahesana taluka, Vijapur taluka and Visnagar taluka have achieved the target of 100% institutional deliveries. Moreover, Vadnagar taluka have achieved the target of 100% institutional deliveries between 2009-10 and 2014-15.

The share of Govt. institutions in provision of maternal health care (especially deliveries) has increased from 11.16% in 2009-10 to 20.33% in 2014-15 as compared

to the share of private clinics in provision of maternal health care that increased from 88.75% in 2009-10 to 79.63% in 2014-15. Out of the total deliveries done in Govt. institutions in 2009-10, about 18.18% of deliveries were done in hospitals, nearly 30.80% of deliveries were done at CHCs, 45.03% of deliveries were done at PHCs and 5.99% of deliveries were done at sub centres, while in 2014-15, out of the total deliveries done in Govt. institutions, it is noticed that 26.14% of deliveries are done in hospitals, 31.52% of deliveries are done in CHCs, 35.65% of deliveries are done in PHCs and 6.69% of deliveries are done in sub centres. This indicates that CHCs and PHCs has played vital role in deliveries at Govt. Institutions in Mahesana as depicted in Figure 4.6.

Figure 4.6: Classification of Deliveries at Govt. Institutions and Deliveries at Home
% of Deliveries at Govt. Institutions **% of Deliveries at Home**



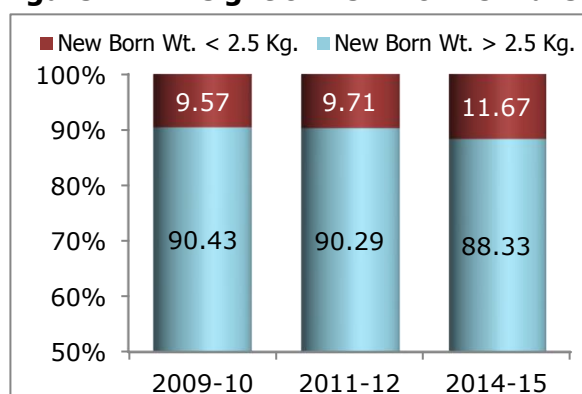
Source: Based on database of Chief District Health Office, Mahesana (2015)

On the other hand, it has been observed that the deliveries performed at home have significantly been low. The deliveries assisted by untrained dais declined from 44.12% in 2009-10 to 20.00% in 2011-12 and increased to 78.57% in 2014-15. This indicates that majority of deliveries that were assisted by trained dais and ANMs in 2009-10 are now assisted by untrained dais in 2014-15. The deliveries assisted by trained dais have increased from 47.06% in 2009-10 to 70% in 2011-12 and declined to 21.43% in 2014-15. However, the deliveries assisted by ANMs decreased from 8.82% in 2009-10 to 0% in 2014-15.

4.8 Nutrition

Nutrition is one of the significant indicators of human development. The nutrition care programs can reduce the burden of under-nutrition and deprivation and also play a vital role in living health and long life. Under-nutrition is substantially higher in rural than in urban areas as short birth intervals are associated with higher levels of under-nutrition. The proportion of children who are severely underweight is almost five times higher among children whose mothers have no education than among children whose mothers have 12 or more years of schooling (UNICEF, 2011). Under-nutrition is more common for children of mothers who are malnourished themselves than for children whose mothers are not malnourished. In Mahesana, prevalence of under nutrition is found in children from scheduled tribe having poor nutritional status as compared to the others.

Figure 4.7: Weight of New Born Children

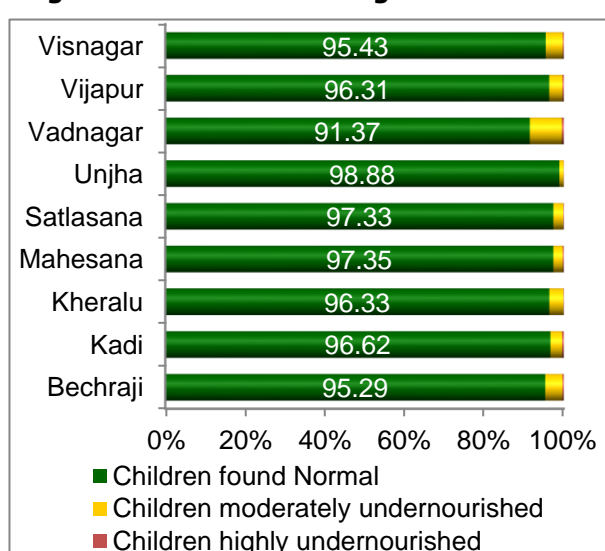


Source: Based on database of Chief District Health Office, Mahesana (2015)

The proportion of underweight new born babies has increased over the years in Mahesana. In 2009-10, just 9.57% of new born babies were reported to be under weight, while in 2011-12, nearly 9.71% of new born babies were reported to be under weight, whereas in 2014-15, about 11.67% of new born babies were reported to be under weight in Mahesana.

As far as nutrition in Anganwadi going children in Mahesana is concerned, about 3.7% children were reported as undernourished suffering from malnutrition in 2015. Highest proportion (8.6%) of Anganwadi going children were found to be under-nourished in Vadnagar, while lowest proportion (1.12%) of Anganwadi going children were found to be undernourished in Unjha. Provision of food supplement (Soyabean, Mug, Protein based items) to pregnant women helps improve weight of new born children.

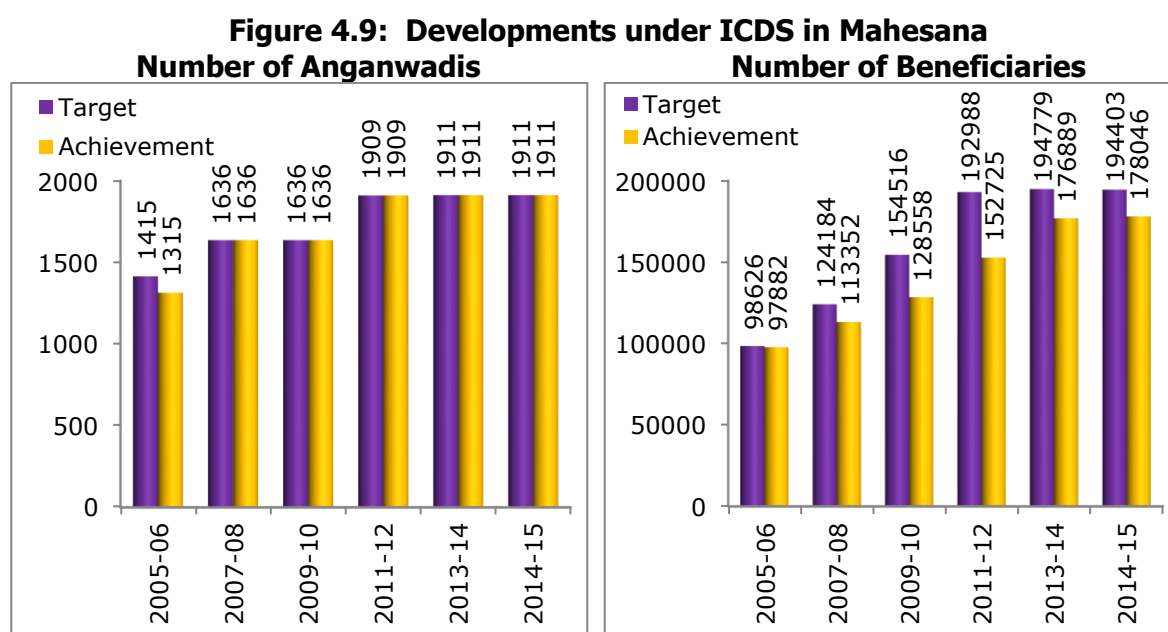
Figure 4.8: Nutrition in Anganwadi Children



Source: Based on database on Integrated Child Development Services, Mahesana (2015)

Integrated Child Development Services (ICDS) primarily aims at improving the nutritional and health status of children in the age-group 0-6 years for proper psychological, physical and social development of the child. It emphasizes on enhancing the capability of the mother to look after the normal health and nutritional needs of the child through proper nutrition and health education. In order to achieve the objectives, ICDS provides package of services comprising supplementary nutrition, health check-ups, referral services, nutrition and health education, etc. Anganwadi plays a vital role in fulfilling the nutrition needs of the target group. The ICDS team comprises the Anganwadi Workers, Anganwadi Helpers, Supervisors, Child Development Project Officers (CDPOs) and District Programme Officers (DPOs). Anganwadi Worker, a lady selected from the local community, is a community based frontline honorary worker of the ICDS. She is also an agent of social change, mobilizing community support for better care of young children, girls and women. Besides, the medical officers, Auxiliary Nurse Midwife (ANM) and Accredited Social Health Activist (ASHA) form a team with the ICDS functionaries to achieve convergence of different services.

ICDS scheme in Mahesana is operational in all the talukas. There are 1911 operational Anganwadi centers in Mahesana. Mahesana district has targeted construction of 1911 Anganwadi centers and serving 194403 beneficiaries till 2014-15 to fight the problem of malnutrition.

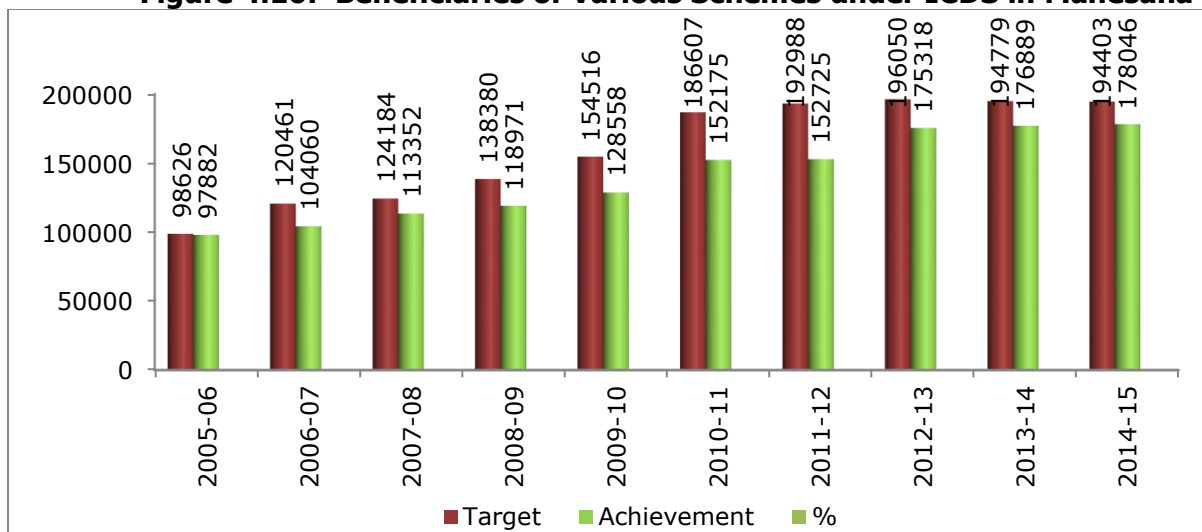


Source: Based on database on Integrated Child Development Services, Mahesana (2015)

In 2014-15 construction of 1911 Anganwadis was achieved against the target of 1911, i.e. 100% achievement. However, since 2007-08, 100% achievement of target has been achieved every year for construction of Anganwadis. On the other hand in 178046 beneficiaries were served against the target of 194403 in 2014-15, i.e. 91.81% achievement as compared to 83.20% achievement in 2009-10 and 99.25% achievement in 2005-06 in Mahesana as shown in Figure 4.9.

With the aim to improve the nutritional and health status of children in the age-group 0-6 years and to reduce the incidence of mortality, morbidity, malnutrition and school dropout, various schemes and project are implemented by ICDS viz. supplementary nutrition, immunization, health check-up, referral services, pre-school non-formal education. The target and achievement of number of various scheme beneficiaries is presented in Figure 4.10.

Figure 4.10: Beneficiaries of Various Schemes under ICDS in Mahesana



Source: Based on database on Integrated Child Development Services, Mahesana (2015)

As it has been noticed that out of total new born children, more and more number of children are reported as undernourished in last decade in Mahesana. The innovative scheme to link cooperative societies and Anganwadis can be worked out to provide milk to the Anganwadi going children in Mahesana. It has been reported in that milk being a rich nutrition supplement, when provided to undernourished children on continuous bases in Banaskantha district of Gujarat, there has been noticeable improvement in nourishment level (observed by weight) in the beneficiaries.

Most of the Anganwadis are located at the outer edge of the village, which hinder its access. The availability of electricity and safe drinking water are the major problems faced by the Anganwadis. The developmental activities of Anganwadis are highly

depended on the attitude of Sarpanchs, Medical Officers and Female Health Workers and therefore the integrated efforts by understanding of concerned demands and supplies play a vital role in activities of Anganwadies. As Anganwadi workers are required to visit the nearby villages for routine activities and the unavailability of state transportation frequencies, the workers avoid visiting the interior villages due to inadequate connectivity and frequencies of transport. Thus local transportation facilities highly influence the activity reach of Anganwadis and introducing circular route frequencies of public transport in interior villages are required.

Due to no uniformity in construction of buildings of Anganwadies, in some cases, construction of building is good, but the building is without sanitation facility, while in some cases, sanitation facilities are available, but the planning and construction of buildings is poor, whereas in few cases, if the building and sanitation facilities are available, the compound wall is not constructed. This obstructs optimum utilisation of available resources for Anganwadis. The buildings are constructed by BRGF schemes, ICDS schemes as well as by private organisations, etc and hence the criteria for model Anganwadi differ.

As far as contribution of milk for Anganwadi children is concerned, due to uncertain monsoons, increasing cost of fodder and other socio-economic problems faced by farmers, there has been volatility in the volume of milk contributed for Anganwadi children. However, despite several bottlenecks in operating activities of Anganwadis, several steps can be taken to achieve the goal of Anganwadis. School admissions and rationing cards can be linked with the vaccination of the children, i.e. those students willing to take admission in schools are required to undergo full vaccination (free of cost) before joining the school. This will enhance the health care of children, if school health programs also include vaccination of those students who are required to complete the vaccination.

Moreover, at fair price shops, the allotment of food grains has to be linked with the vaccination of children; this will ensure the health care of infants and children on regular basis. The full vaccination certificate from Anganwadi can be made essential for school admission and purchase of grains from fair price shops. Moreover, the activities of Anganwadis can be expanded by linking it with cottage and micro industrial activities to ensure that the needy women gets exposure and earning opportunities through Anganwadis and in return Anganwadi prosper.

4.9 Drinking Water and Sanitation

Access to safe drinking water, adequate sanitation and proper hygiene education can reduce illness and death from disease, leading to improved health, poverty reduction, and socio-economic development. Drinking water comes from a variety of sources including public water systems, private wells or bottled water. Ensuring safe and healthy drinking water is a matter of major concern for health and hygiene. Sanitation refers to the provision of facilities and services for the safe disposal of human waste and maintenance of hygienic conditions. Unsafe water and the lack of basic sanitation and adequate hygiene is a major cause of disease and improving sanitation is known to have a significant beneficial impact on health both in households and across communities (WHO, 2011).

Most rural water supply schemes in India use a centralized, supply-driven approach, i.e. a government institution designs a project that is built with little community consultation, often requiring no water fees to be paid for its subsequent operation. Rural water supply schemes are being framed, formulated and implemented by state government through Gujarat Water Supply and Sewerage Board (GWSSB), Gujarat Water Infrastructure Limited (GWIL) and Water And Sanitation Management Organization (WASMO). Taluka wise water supply status is exhibited in Table 4.7.

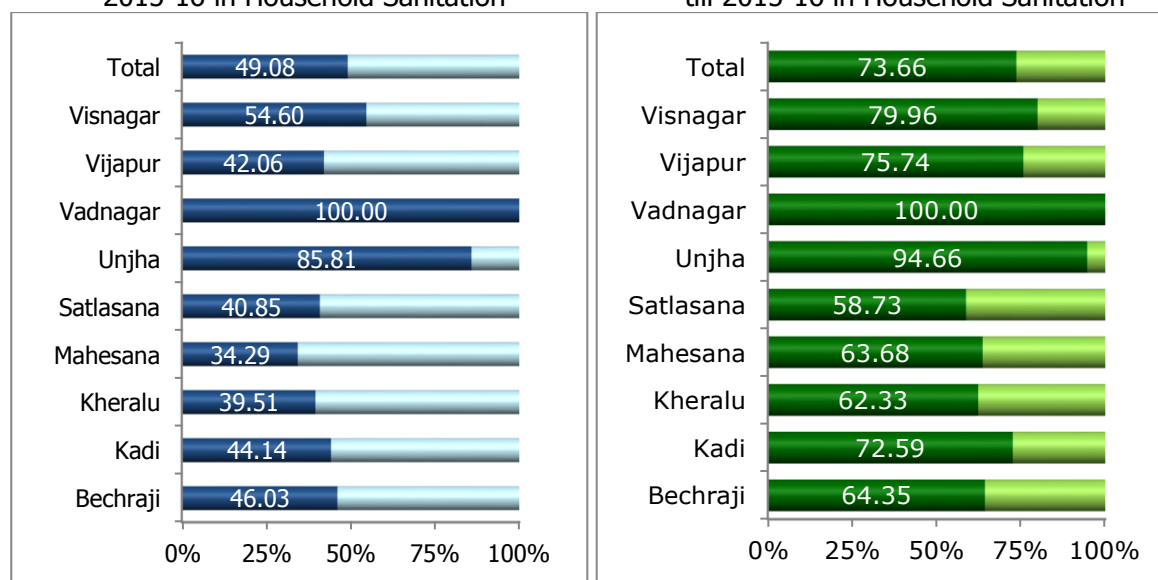
Table 4.7: Taluka wise Water Supply Status in Mahesana (2015)

Taluka / District	Habitation Covered With Public Water Supply Schemes			Water Supply in Habitations by Sources		
	Total	Ongoing	Completed	Water Sources	Delivery Points	Public & Private Sources
Bechraji	4	64	64	301	367	352
Gozariya	4	30	30	161	194	175
Jotana	4	44	44	187	211	312
Kadi	5	123	123	601	763	741
Kheralu	7	75	75	218	278	395
Mahesana	9	123	123	529	603	1031
Satlasna	5	75	75	162	188	341
Unjha	4	45	45	245	341	377
Vadnagar	4	71	71	215	267	412
Vijapur	6	79	79	343	402	709
Visnagar	8	69	69	321	440	636
Total	60	798	798	3283	4054	5481

Source: Compiled from database of National Rural Drinking Water Program, Ministry of Drinking Water and Sanitation, Government of India (2015).

On the basis of Base Line Survey conducted in 2012 under Total Sanitation Campaign (now known as Swachh Bharat Mission) of Govt. of India, it was found that about 48.27% of households in Mahesana did not had individual household sanitation facilities, while about 51.73% of households in Mahesana had individual household sanitation facilities. It was therefore targeted to develop the individual household sanitation facilities on priority basis. The households without individual household sanitation facilities are targeted under total sanitation campaign for providing the sanitation facilities. In Mahesana 49.09% of target has been achieved in provision of household sanitation facilities. Thus after achieving 49.09% of the target of the 48.73% of households without sanitation in Mahesana, nearly 73.66% of households has sanitation (individual household latrine) facility, while 26.34% of households are yet to be provided the sanitation facility as shown in Figure 4.11.

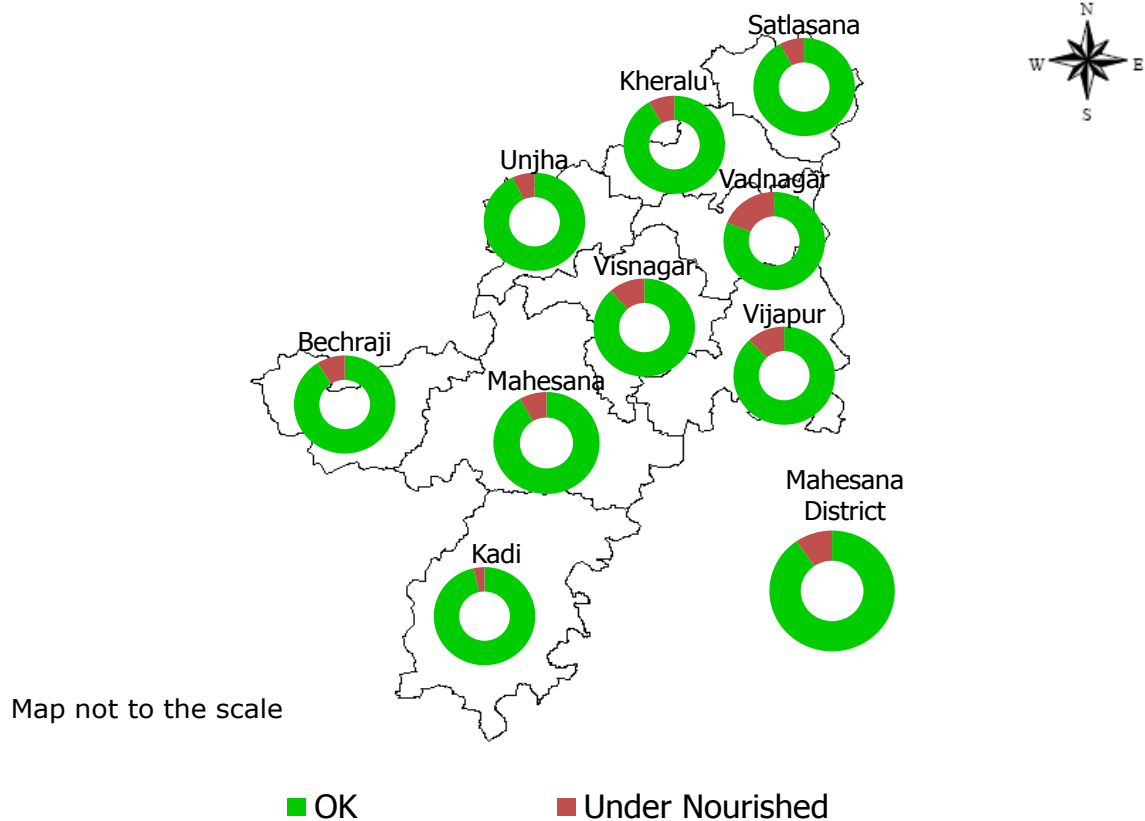
Figure 4.11: Taluka wise Sanitation Facility available in Households of Mahesana
 Base Line Survey 2012 Target Achieved till 2015-16 in Household Sanitation % Households with Sanitation Facility till 2015-16 in Household Sanitation



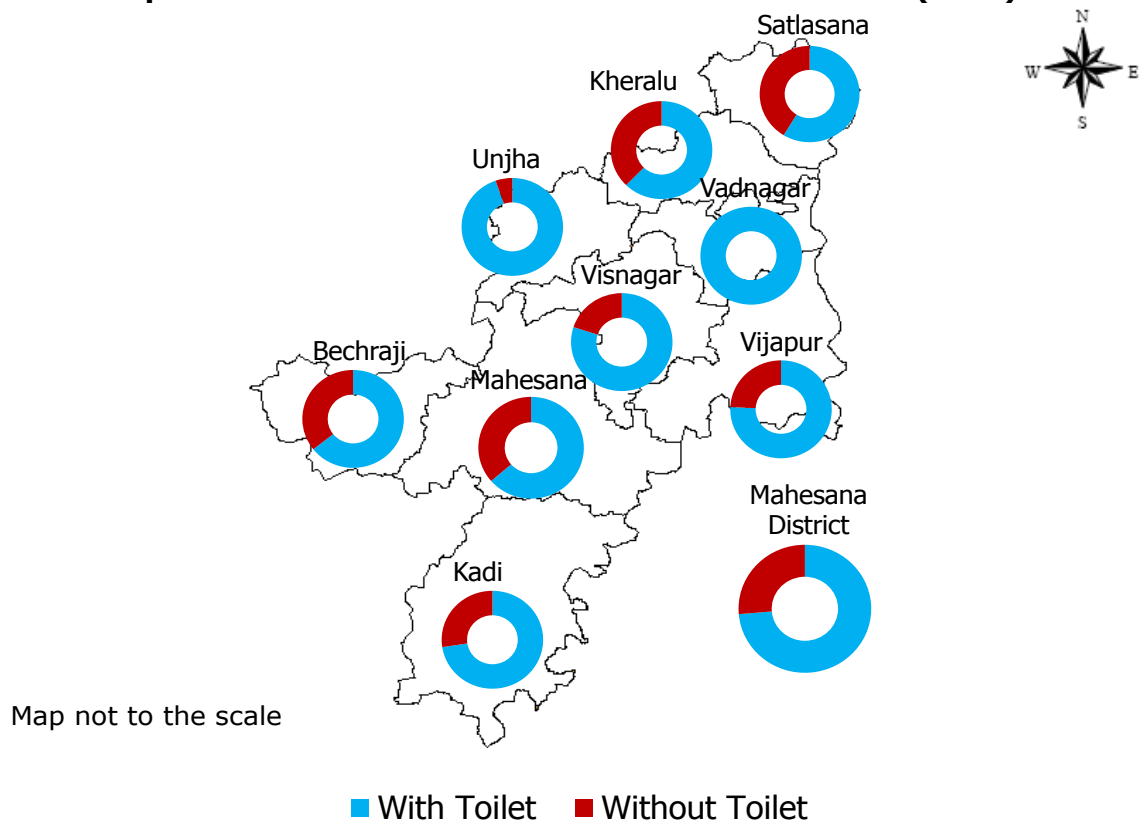
Source: Based on database of Swachh Bharat Mission, Ministry of Drinking Water and Sanitation, Government of India (2016).

Vadnagar taluka had about 44% of households with sanitation facility and Unjha had about 62% of households with sanitation facility during the baseline survey, while Vadnagar taluka achieved 100% target of providing households sanitation facility and Unjha taluka achieved 85.81% target of providing households sanitation facility till 2015-16. As a result in Vadnagar 100% of households and in Unjha 85.81% of households have sanitation facility. However, provision of households with sanitation facility needs to be prioritised in Satlasana, Kheralu, Mahesana and Becharaji talukas of Mahesana district.

Map 4.1: Taluka Wise Status of Nutrition in Anganwadi Children of Mahesana (2015)



Map 4.2: Taluka wise Status of Sanitation in Mahesana (2016)



4.10. Schemes and Programs for Health Care

Various programs and schemes for health care are being implemented with major focus on target groups. One of the major initiative is Reproductive and Child Healthcare program that deals with effective maternal and child health care, safe management of unwanted pregnancies, access to contraceptives, nutritional services to vulnerable groups, prevention and treatment of RTI/STI, reproductive health services for adolescents, treatment of gynecological problems, screening and treatment of uterine, cervical and breast cancers.

Box 4.2: Major Schemes and Programs for Health Care

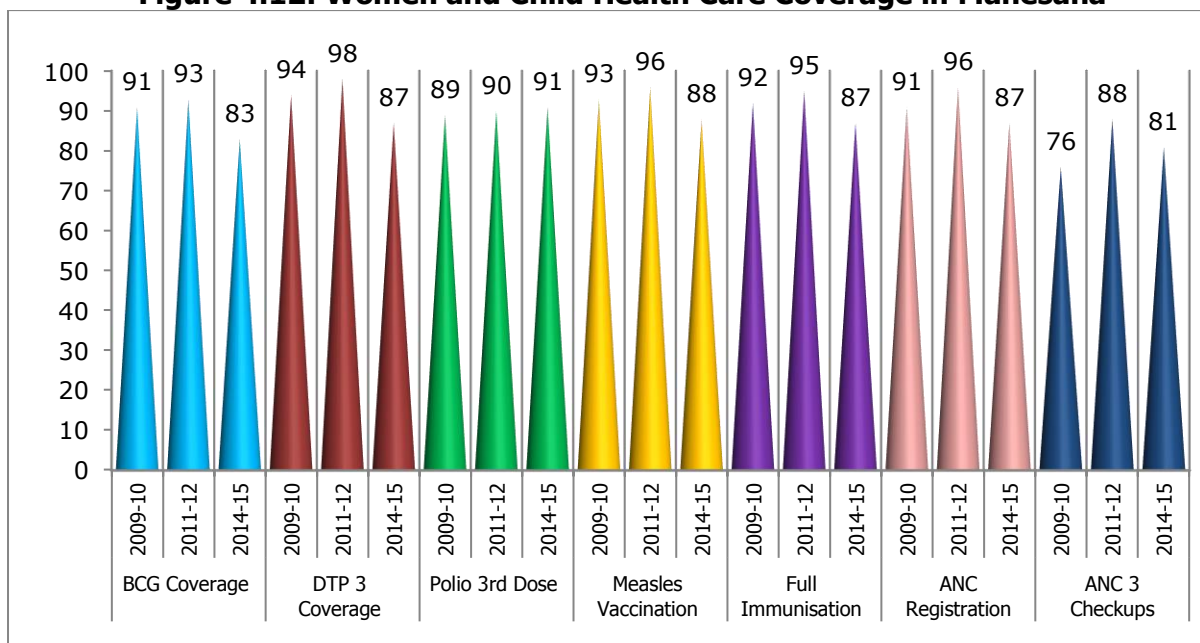
Schemes / Programs	Brief Details of Schemes / Programs
Chiranjivi Yojana	To provide maternity services to the BPL mothers at their nursing homes/Hospitals. It is a cashless scheme.
Janani Surksha Yojana	To facilitate pregnant women of BPL families and completed 19 years. The benefit is entitled for only two live births. For delivery in Govt. or Private Hospital, pregnant women of rural area is paid Rs. 500/- in cash and Rs. 200/- for transportation. For home delivery pregnant women is paid Rs. 500/- for supplementary nutrition.
Bal Sakha Scheme	To provide neonatal care to all babies born to BPL mothers by partnering pediatricians, including care in their Neonatal Intensive Care Unit (level 2) at no cost.
Mamta Taruni Abhiyan	To provide basic health care and counseling to the adolescents.
Kishori Shakti Yojana	To enroll and train the adolescent girls for nutrition awareness, personnel hygiene, health care, self employment, supplementary nutrition and micronutrient benefits.
Mamta Abhiyan	To strengthen comprehensive outreach of RCH Services, aims at preventive, promotive & curative services. It includes Mamta Divas (Health/Nutrition Day), Mamta Sandarbh (Referral Services), Mamta Mulakat (Post natal care visit), Mamta Nondh (Recordings)
Immunization for SHAP	To achieve universal immunization of children under one year of age against the six vaccine preventable diseases (tuberculosis, diphtheria, pertussis, tetanus, poliomyelitis, and measles) to reduce infant and child morbidity and mortality.
Rogi Kalyan Samiti	To help BPL patients with medical care for cardiac illness, neurological problems, nephrological problems, ophthalmological problems and others
108 EMRI Services	To ensure efficient delivery of emergency medical care service. The service has revolutionized the response to the people in distress and ensured access and affordability for the benefit of people

Source: Compiled from database of Commissionerate of Health, Medical Services, Medical Education and Research Gujarat (2014)

Other health care and nutrition programs are Mobile Health Services, National Tuberculosis Control Program, National Leprosy Eradication Program, National Vector Borne Disease Control Program, National AIDS Control Program, National Program for Blindness, Rastriya Swasthya Bima Yojana, Adolescent Anemia Program, Balika Samrudhi Yojana, etc.

Vaccination plays vital role in maternal and child health care is the process to make the person resistant to an infectious disease by the administration of a vaccine. It is one of the most cost-effective health investments that make it accessible to even the vulnerable populations. To achieve the goal of reducing the maternal and infant death, it is most important that all the expected mothers and new born children should be covered under various vaccinations. The performance of maternal and child health care activities vaccination in Mahesana is presented in Figure 4.12.

Figure 4.12: Women and Child Health Care Coverage in Mahesana



Source: Based on database of Chief District Health Office, Mahesana (2015)

It has been observed that BCG coverage ranged from 83% to 93%, while DTP 3 coverage hovered between 87% and 98% between 2009 and 2014. Polio 3rd Dose coverage lingered from 89% to 91%, while Measles vaccination coverage ranged from 88% to 96% and full immunisation coverage remained between 87% and 95%. ANC registration (% of early registration) remained between 87% and 96% of the early registration while ANC 3 checkups coverage ranged between 76% and 88% between 2009 and 2014 in Mahesana. However, the performance of women and child health care especially ANC registration and ANC 3 Checkups needs to be prioritised in Mahesana. Proper administering at micro level and monitoring the implementation is required, which shall improve the health care coverage in Mahesana.

4.11. Success Stories

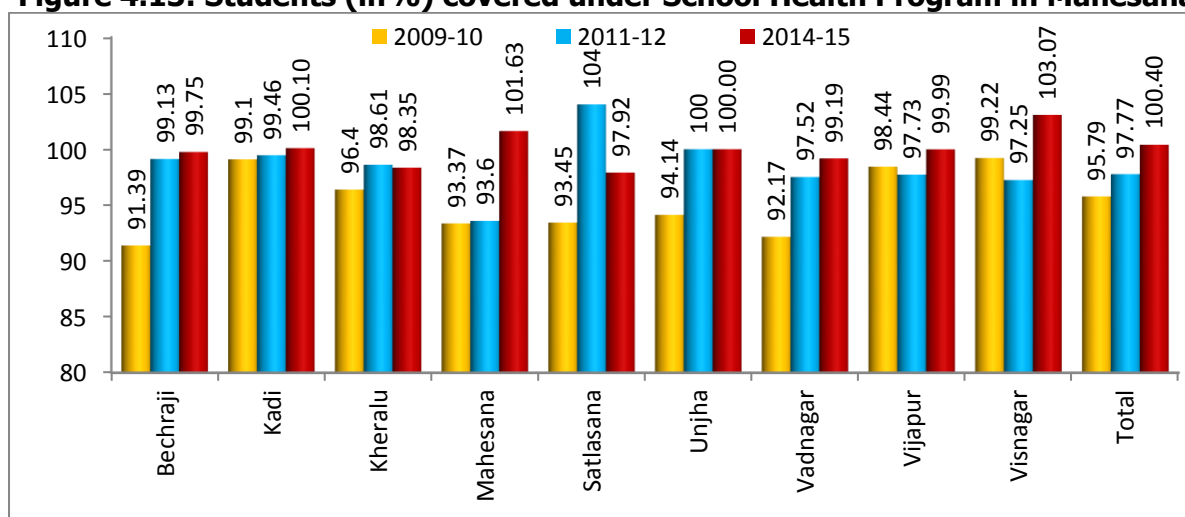
Box 4.3: Performance of Mahesana in Health Care Compared of Gujarat (2014)

Scheme	Indicator	Mahesana	Gujarat
Chiranjeevi Yojana	% of Normal Delivery	89.67	83.35
	% of LSCS	8.83	8.53
	% of Complicated	1.49	6.12
Bal Sakha Yojana	% Admitted To NICU-2	0.08	10.19
	% Referred To NICU-3	0.00	0.46
National Program for Control of Blindness	% cases served by Medical College	0.00	1.21
	% cases served by District Hospital	4.09	2.97
	% cases served by Sub-District Hospital	2.59	2.44
	% cases served by DMU / CMU	0.00	0.00
	% cases served by NGO	44.34	39.02
	% cases served by Private	48.97	53.25
	% cases served by Others	0.00	0.96
Performance of ANC Registration	% against Workload	314.65	101.38
	% of Early Registration to Total ANC	88.37	70.87
BCG Immunization	% against Workload	281.55	92.89
	% against Live Birth	92.94	107.13
DPT 3rd Dose Immunization	% against Workload	304.89	96.66
	% against Live Birth	96.68	107.11
Measles Vaccination	% against Workload	290.70	90.11
	% against Live Birth	92.18	99.86
Fully Immunized Children	% against Workload	279.19	88.13
	% against Live Birth	88.53	97.66
Performance of Sterilization	% against Workload	83.6	81.3
	% of NSV to total Sterilization	0.00	0.56

Source: Compiled from database of Commissionerate of Health, Medical Services, Medical Education and Research, Gujarat (2014)

School health Check Up program is organised by district administration in coordination with health department and education department in Mahesana. The School health Check Up campaign is propagated to cover the maximum number of students going to school. This has helped students by free of cost diagnosis of specific health problems and its treatment. The details of students treated for specific disease is given in Figure 4.13.

Figure 4.13: Students (in%) covered under School Health Program in Mahesana



Source: Based database of on Chief District Health Office, Mahesana (2014)

Kadi, Vijapur and Visnagar talukas had consistently better coverage (above 97%) from 2009 to 2014. The coverage of students in Mahesana taluka remained below 95% from 2009 to 2012, while the coverage in Kadi, Mahesana, Satlasana, Unjha and Visnagar also reached 100% in certain years. Overall it is noticed that school health program covered more than 95% of school going students in Mahesana between 2009 and 2014. In the program on the spot treatment is given and complex cases are referred to the speciality hospitals for free treatment. This has encouraged the parents to send their children to the schools and get them diagnosed, which has increased the response to the campaign.

Table 4.8: Students served under School Health Program in Mahesana (2014-15)

Taluka/District	Dental	Eye	ENT	Digestion	Skin	Respiratory
Bechraji	629	504	299	184	488	121
Kadi	856	1199	516	199	515	236
Kheralu	601	334	255	98	157	42
Mahesana	2140	4049	593	206	760	808
Satlasana	76	349	39	13	52	3
Unjha	497	925	214	30	265	46
Vadnagar	246	408	203	9	87	43
Vijapur	540	1227	339	88	375	72
Visnagar	801	1126	338	131	252	151
Total	6386	10121	2796	958	2951	1522

Source: Based database of on Chief District Health Office, Mahesana (2015).

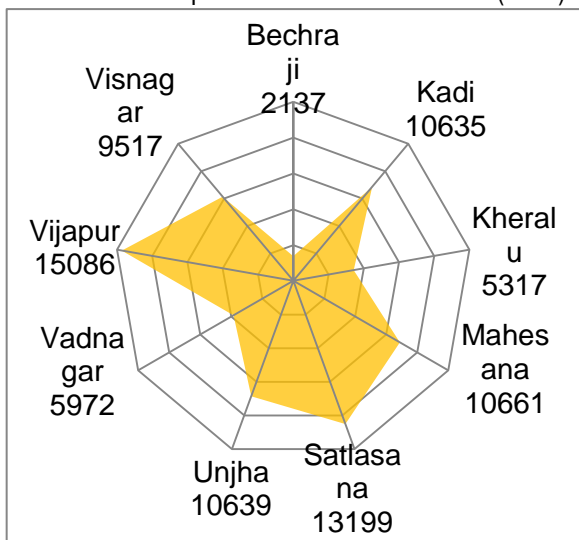
4.12 Summary

Box 4.4: SWOC Analysis for Health, Nutrition and Sanitation in Mahesana

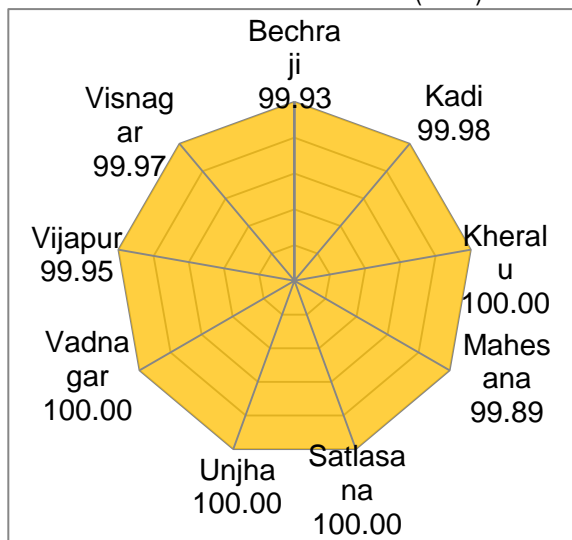
Strengths	Weaknesses
<ul style="list-style-type: none"> • Existence of 288 Sub Centers, 56 PHCs, 14 CHCs, 3 Sub-district Govt Hospitals & 1 District Govt Hospital. • The trend has shifted from home delivery towards institutional deliveries. • 100% target has been achieved for construction of Anganwadis • Nearly 68% of households have individual household sanitation facilities. • School health checkups and referral services have given good results in Mahesana. 	<ul style="list-style-type: none"> • Vast gap between demand and supply of health care infrastructure/ service. • Numbers of Health Care Institutions (including Govt, Municipality, Grant-in-Aid other than Panchayat Clinics/ Hospitals and Ayurvedic Clinics), Doctors and Nurses in these Health Care Institutions have not increased with the increasing number of Patients. • Medical and Para Medical staff positions vacant at various levels.
Opportunities	Challenges
<ul style="list-style-type: none"> • Chiranjvi Yojana, Janani Suraksha Yojana has played vital role in women and child health care and can be strengthened further to shower its benefits in deprived areas. • Vaccination and Immunisation schemes can be more effective provided there are regular follow ups. • All the Anganwadis can be covered under Milk Provision scheme to cover all the under nourished children going to Anganwadis. • Women and Child health care services in scattered areas to be strengthened for better results in such areas. 	<ul style="list-style-type: none"> • Spreading health care awareness in remote areas with scattered population and low literacy is a major challenge. • Lack of basic health care services in backward areas due to non availability of staff. • Acute Diarrhoeal Disease and Acute Respiratory Infection prone district. • To increase vaccination/immunisation in scattered areas. • Sanitation facility provision and awareness challenge in scattered habitations

4.13 Health, Nutrition and Sanitation: Taluka Wise Status of by Radars

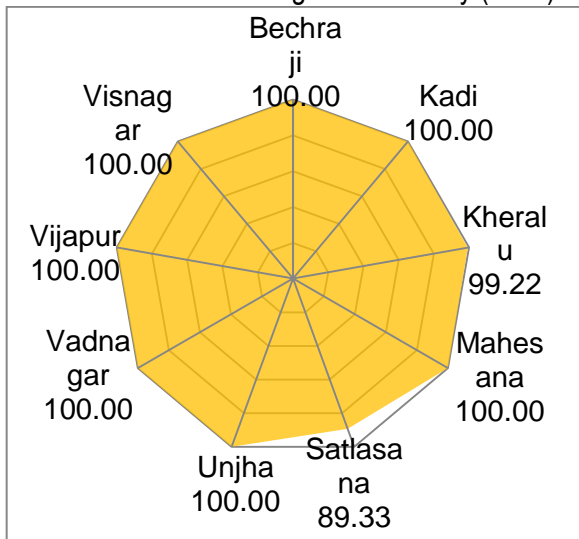
Patients Served per Govt. Medical Institution (2014)



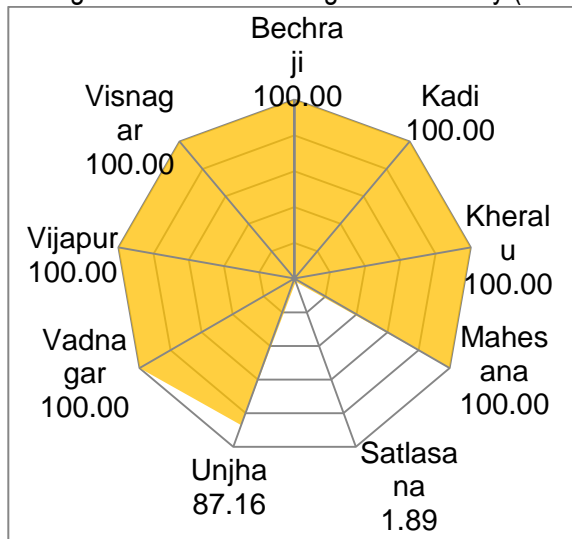
% of Institutional Deliveries (2014)



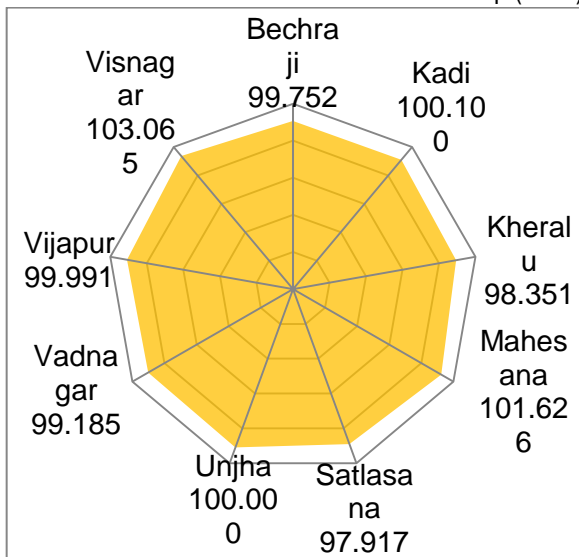
% Schools with Drinking Water Facility (2014)



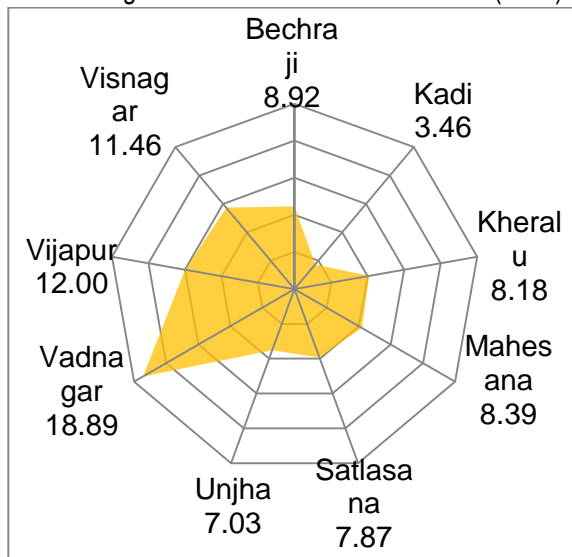
% Anganwadis with Drinking Water Facility (2014)



% of Students Covered Under Health Checkup (2014)



% of Anganwadi Children Undernourished (2014)



Chapter 5

Poverty, Food Security and Vulnerability

Chapter 5

POVERTY, FOOD SECURITY AND VULNERABILITY

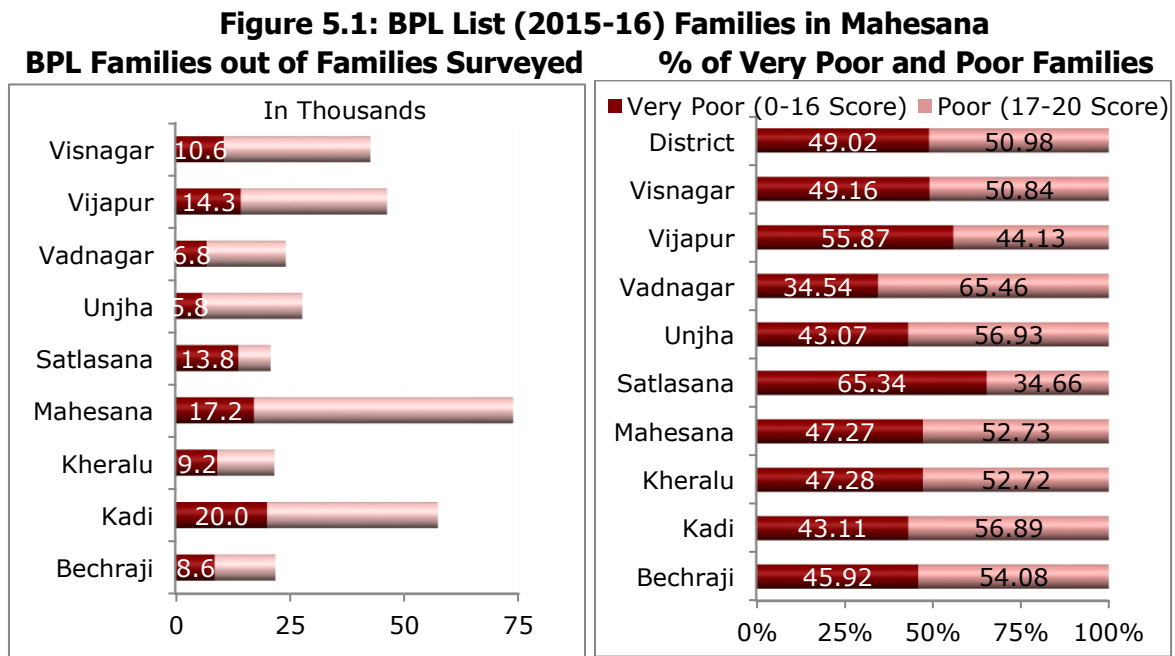
5.1 Introduction

Poverty is a social construct that varies from society to society and from time to time. It has subjective as well as objective dimensions. Perception about one's own position of being poor or not poor is not invariably related to having certain material possessions and such perception is not always metaphysical. More often than it is not constructed in context with social situation in which one lives and interacts (Shah Ghanshyam, 2004). Generally the poverty is reviewed in the context of socio-economic conditions, availability of resources and the goal that the society has set in to achieve at a given point of time. Moreover, the populations affected by poverty and food insecurity overlap, but they are not identical. However, poor and food insecure people are vulnerable due to deprivation from well being. Not all poor people are food insecure, and the risk of food insecurity also extends to people living above the poverty level. Food security is termed as access by people at all times to enough food for an active and healthy life, while food insecurity is termed as uncertain availability of nutritionally adequate and safe foods or uncertain ability to acquire acceptable foods in socially acceptable ways (John Cook and Frank Deborah Frank, 2008). There has been a conceptual broadening in the notions of well being and deprivation over a period of time and therefore, the notion of well being significantly incorporates the aspects pertaining to extent of vulnerability to assess the status of wellbeing.

In line with the Government of India's program of poverty eradication, the Commissioner of Rural Development, Government of Gujarat carried out Socio Economic Survey to estimate the BPL families and assess their status in terms of specified indicators. The survey was initiated in Gujarat in 2002-03 and later on add-on list was added in 2008-09. The chapter presents the aspects of poverty, food security and vulnerability. The programs for BPL and vulnerable groups, its performance, success stories are also presented in the chapter.

5.2 Poverty

In Mahesana, 336199 families were surveyed of which, almost 106332 (31.63%) families turned out to be poor, with the score of 20 or below. However, 229855 (68.37%) families turned out to be above BPL, with the score above 20. Out of total BPL families in Mahesana, 49.02% families turned out to be very poor with the score ranging from 0 to 16, while 50.98% of BPL families turned out to be less poor with the score ranging from 17 to 20. The taluka wise status of BPL families is presented in the Figure 5.1.



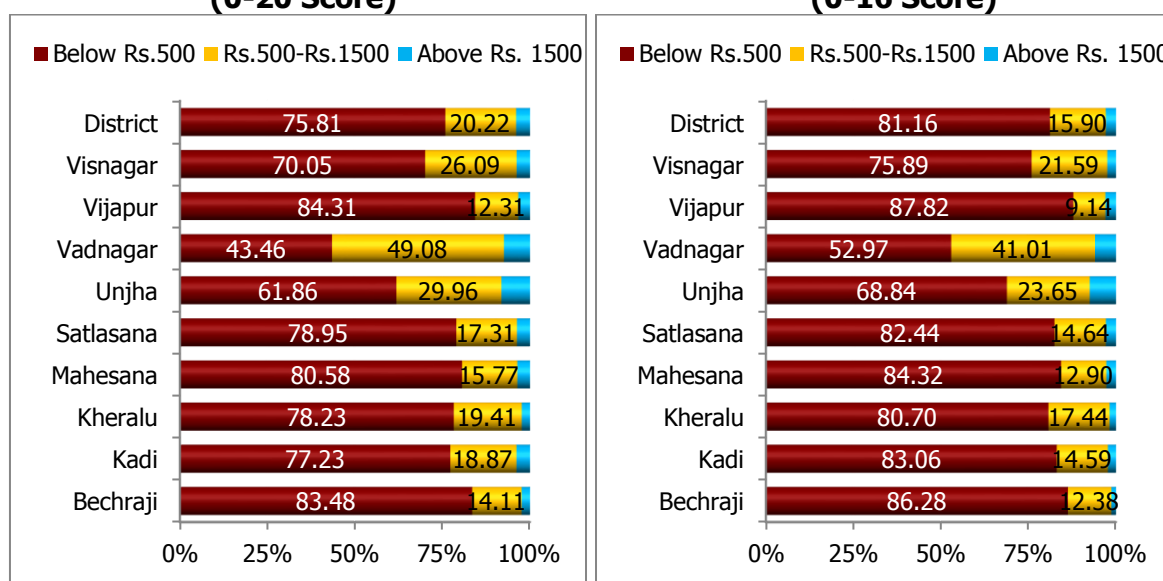
Source: Based on database of District Rural Development Agency, Mahesana (2016)

Amongst all the talukas of Mahesana, Kadi has highest number of BPL families out of its total families surveyed, while Satlasana has highest proportion of BPL families out of its total families surveyed. Amongst all the talukas of Mahesana district, Unjha has least number of BPL families as well as least proportion of BPL families out of its total families surveyed. In Satlasana and Kheralu talukas, almost 66.16% and 42.36% of families turned out to be BPL families out of the total families surveyed in these talukas. Moreover, amongst all the talukas of Mahesana, Satlasana has highest proportion (65.34%) of very poor families (score 0-16) out of its total BPL families, while Unjha has least proportion (43.07%) of very poor families (score 0-16) out of its total BPL surveyed.

5.2.1 Income Level

The income level of the BPL families (score 0-20) in Mahesana, depicts that 75.81% of families have average monthly income below Rs. 500, while 20.22% of families have average monthly income between Rs. 500 and Rs. 1500, whereas, 3.97% of families have average monthly income above Rs. 1500. However, out of total very poor families (score 0-16) in Mahesana, 81.16% of families have average monthly income below Rs. 500, while 15.90% of families have average monthly income between Rs. 500 and Rs. 1500, whereas, 2.94% of families have average monthly income above Rs. 1500. The average monthly income of BPL families in talukas of Mahesana is presented in the Figure 5.2.

Figure 5.2: Average Monthly Income of BPL List (2015-16) Families in Mahesana
Income (In Rs.) of BPL Families (0-20 Score) **Income (In Rs.) of BPL Families (0-16 Score)**



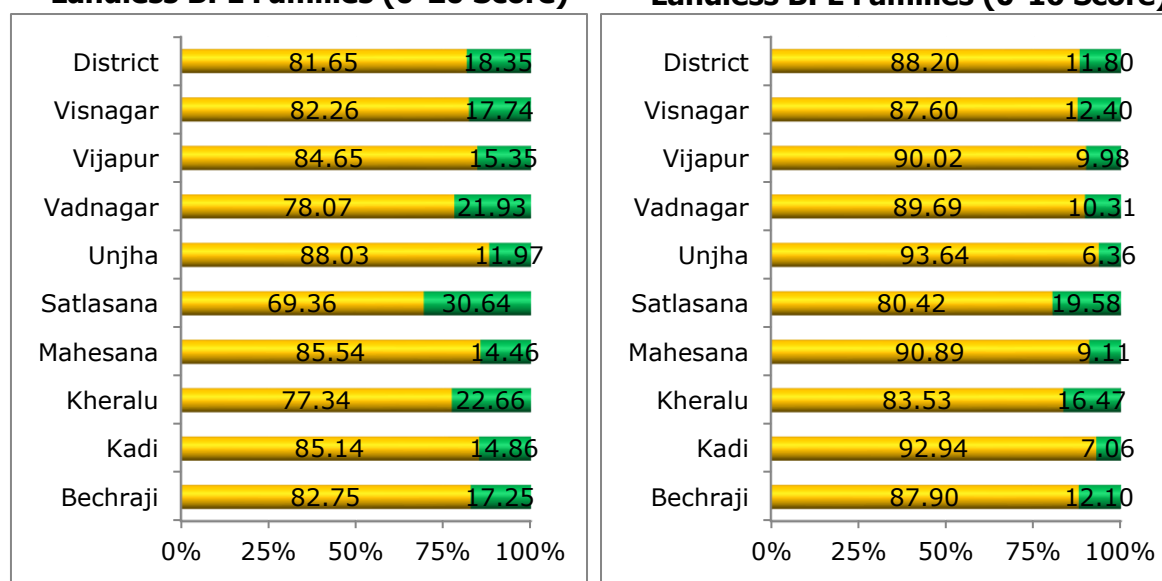
Source: Based on database of District Rural Development Agency, Mahesana (2016)

In Vijapur almost 84.31% of BPL families (score 0-20) and 87.82% of very poor (score 0-16) families earn average monthly income below Rs. 500. While, in Vadnagar, only 43.46% of BPL families (score 0-20) and 52.97% of very poor (score 0-16) families earn average monthly income below Rs. 500. In Vadnagar nearly 49.08% of BPL families (score 0-20) and 41.01% of very poor (score 0-16) families earn average monthly income between Rs. 500 and Rs. 1500. While, in Vijapur only 12.31% of BPL families (score 0-20) and 9.14% of very poor (score 0-16) families earn average monthly income between Rs. 500 and Rs. 1500. Moreover, in Unjha as much as 8.17% of BPL families (score 0-20) and 7.51% of very poor (score 0-16) families earn average monthly income above Rs. 1500. While, in Kheralu, 2.36% of BPL families (score 0-20) and in Becharaji 1.34% of very poor (score 0-16) families earn average monthly income above Rs. 1500.

5.2.2 Land Holding Features

The land holding features of BPL families (score 0-20) in Mahesana reveals that 81.65% of families do not possess land and only 18.35% of families possess land. Moreover, out of the total BPL families (score 0-20) who possess land, as much as 17.07% of family have less than 1 hectare of unirrigated and 0.5 hectare of irrigated land. On the other hand, out of total very poor families (score 0-16) in Mahesana, 88.20% of families do not possess land, while only 11.80% of families possess land. Moreover, out of the total very poor families (score 0-16) who possess land, as much as 11.22% of family have less than 1 hectare of unirrigated and 0.5 hectare of irrigated land. The taluka wise land holding features of BPL families in Mahesana is presented in the Figure 5.3.

Figure 5.3: Land Holding Features of BPL List (2015-16) Families in Mahesana
Landless BPL Families (0-20 Score) **Landless BPL Families (0-16 Score)**



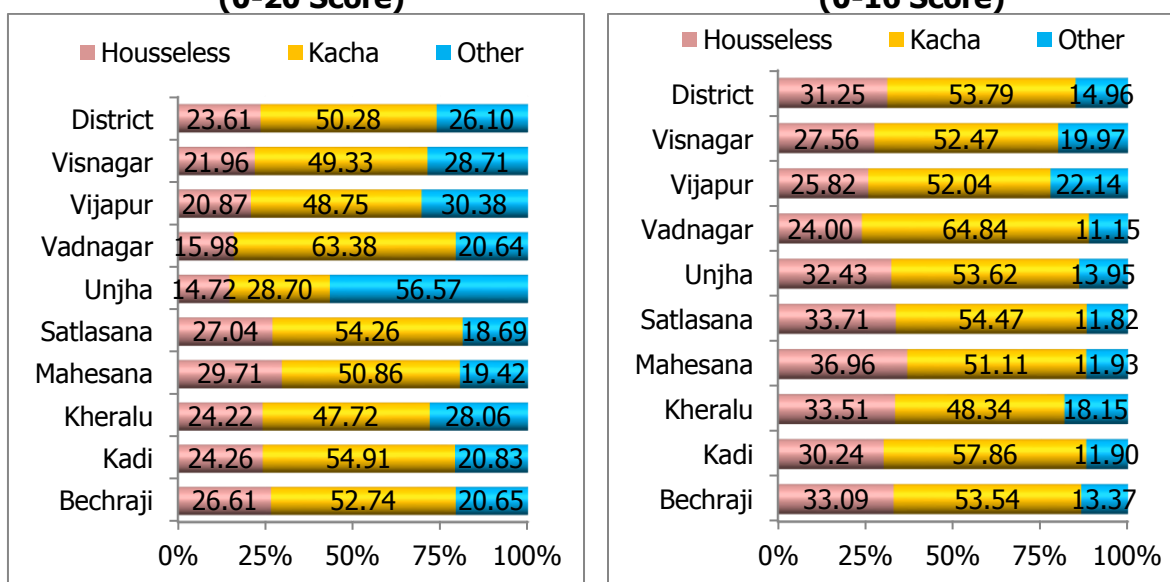
Source: Based on database of District Rural Development Agency, Mahesana (2016)

Unjha taluka possess highest fraction of landless BPL families to its total BPL families and Satlasana taluka possess lowest fraction of landless BPL families to its total BPL families. In Unjha, out of total BPL families (score 0-20), as many as 88.03% of families are landless and only 11.97% of families possesses land. In Satlasana, out of total BPL families (score 0-20), about 69.36% of BPL families are landless and nearly 30.64% of families possesses land. On the other hand out of total very poor families (score 0-16) in Unjha, almost 93.64% of very poor families are landless and 6.36% of very poor families posses land, while out of total very poor families (score 0-16) in Satlasana, nearly 80.42% of very poor families are landless and about 19.58% of very poor families posses land.

5.2.3 Housing Conditions

The housing condition of BPL families (score 0-20) in Mahesana shows that 23.61% of families do not possess housing facilities, while 50.28% of families possess kachha houses and 26.10% of families have half pakka, pakka and city type houses. However, out of total very poor families (score 0-16) in Mahesana, 31.25% of families do not possess housing facilities, while 53.79% of families possess kachha houses and 14.96% of families have half pakka, pakka and city type houses. The taluka wise housing condition of BPL families in Mahesana is shown in Figure 5.4.

Figure 5.4: Housing Condition of BPL List (2015-16) Families in Mahesana
Housing Condition BPL Families (0-20 Score) **Housing Condition BPL Families (0-16 Score)**



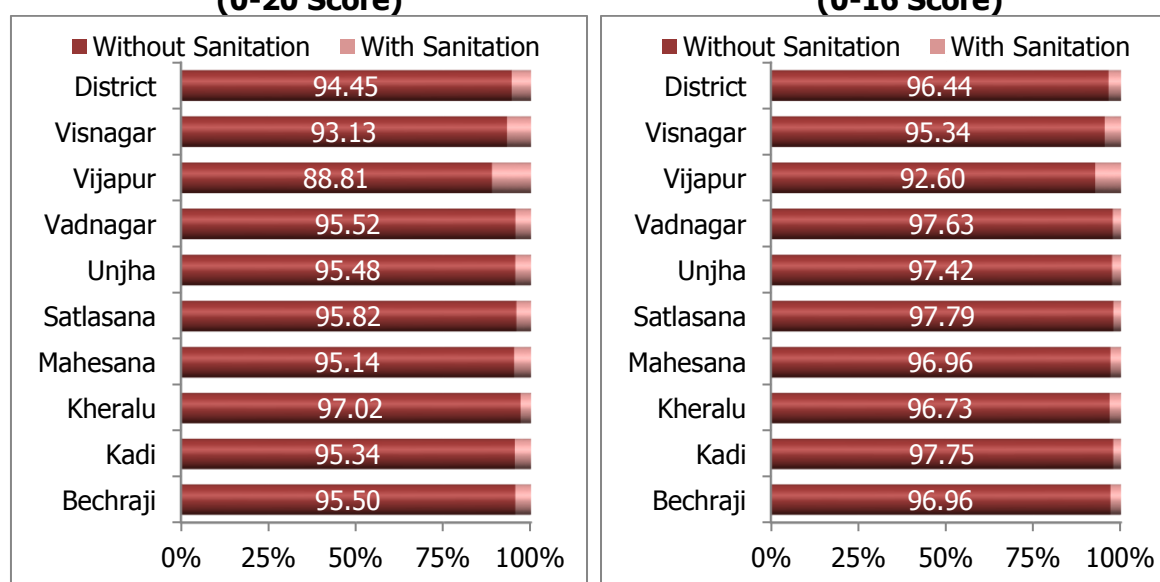
Source: Based on database of District Rural Development Agency, Mahesana (2016)

Mahesana taluka possess highest proportion of houseless families out of its total BPL families and Vadnagar taluka possess smallest proportion of houseless families out of its total BPL families. Vadnagar taluka possess highest percentage of BPL families living in kachha houses out of its total BPL families and Unjha taluka possess least percentage of BPL families living in kachha houses out of its total BPL families. However, Unjha taluka has highest portion of BPL families living in half pakka, pakka and city type houses out of its total BPL families, while Satlasana taluka has least portion of BPL families living in half pakka, pakka and city type houses out of its total BPL families. Furthermore, it is evident that most of the BPL families across the talukas of Mahesana are living in kachha houses. However, 23253 houses under Indira Awas Yojna since 2001 have been provided by district administration till 2015.

5.2.4 Sanitation Conditions

The sanitation conditions of BPL families (score 0-20) in Mahesana indicate that as many as 94.45% of families do not possess sanitation facilities, while 5.55% of families use group sanitation facilities and private sanitation facilities. However, the sanitation condition of very poor families (score 0-16) in Mahesana is worst, as many as 96.44% of families do not possess sanitation facilities, while 3.56% of families use group sanitation facilities and private sanitation facilities. The taluka wise sanitation condition of BPL families in Mahesana is shown in the Figure 5.5.

Figure 5.5: Sanitation Conditions of BPL List (2015-16) Families in Mahesana



Source: Based on database of District Rural Development Agency, Mahesana (2016)

In terms of sanitation condition of BPL families (score 0-20), the scenario is less unpleasant in Vijapur taluka and more unpleasant in Kheralu taluka, while in case of sanitation condition of very poor families (score 0-16), the scenario is less discouraging in Vijapur taluka and more discouraging in Satlasana taluka. Kheralu taluka possess highest proportion (97.02%) of families without sanitation facilities out of its total BPL families (score 0-20) and Vijapur taluka possess smallest proportion (88.81%) of families without sanitation facilities out of its total BPL families (score 0-20). On the other hand, as far as very poor families (score 0-16) are concerned, almost 97.79% of families in Satlasana taluka do not possess sanitation facilities, while almost 92.60% of families in Vijapur taluka do not possess sanitation facilities. However, 26697 sanitation facilities under Total Sanitation Campaign have been provided to BPL beneficiaries by district administration since 2004-05.

5.3 Food Security

The food security in BPL families (score 0-20) of Mahesana illustrate that 7.46% of families out of total BPL families can manage less than 1 square meal per day for major part of the year, while 15.98% of families out of total BPL families can manage 1 square meal per day, but less than 1 square meal occasionally, whereas 9.99% of families out of total BPL families can manage 1 square meal per day throughout the year, however, 36.01% of families out of total BPL families can manage 2 square meals per day, with occasional shortage. The food security in very poor families (score 0-16) of Mahesana illustrate that 13.27% of families out of total BPL families can manage less than 1 square meal per day for major part of the year, while 22.65% of families out of total BPL families can manage 1 square meal per day, but less than 1 square meal occasionally, whereas 11.41% of families out of total BPL families can manage 1 square meal per day throughout the year, however, 32.51% of families out of total BPL families can manage 2 square meals per day, with occasional shortage. The taluka wise food security aspect of BPL families of Mahesana is exhibited in Table 5.1.

Table 5.1: Food Security Status of BPL List (2015-16) Families in Mahesana

Taluka/ District	% of BPL Families (0-20 Score)					% of BPL Families (0-16 Score)				
	<1M/ DY	1M/D <1MO	1M/DY	2M/ DOS	EFY	<1M/ DY	1M/D <1MO	1M/DY	2M/ DOS	EFY
Bechraji	3.65	7.28	5.48	25.11	58.48	7.24	10.86	7.42	29.87	44.61
Kadi	5.82	6.11	5.71	43.16	39.21	12.10	9.15	7.34	43.77	27.65
Kheralu	6.29	14.15	11.44	52.28	15.92	11.80	18.36	14.76	40.26	14.97
Mahesana	7.66	19.23	6.74	33.87	32.65	13.73	29.04	6.89	34.14	16.46
Satlasana	10.78	40.13	16.94	27.47	4.71	15.13	46.64	15.41	20.56	2.31
Unjha	5.75	8.53	8.10	52.61	25.03	9.98	10.97	11.17	50.60	17.29
Vadnagar	2.05	2.89	3.93	23.01	68.14	5.22	5.89	6.66	28.67	53.56
Vijapur	13.25	18.52	15.09	30.32	22.90	20.44	22.22	13.95	23.73	19.75
Visnagar	6.59	15.74	14.82	38.75	24.10	11.31	20.06	16.87	33.90	17.87
Total	7.46	15.98	9.99	36.01	30.61	13.27	22.65	11.41	32.51	20.25

Source: Based on database of District Rural Development Agency, Mahesana (2016)

Note: <1M/DY: Less than 1 square meal per day for major part of the year, 1M/D<1MO: Normally 1 square meal per day, but less than 1 square meal occasionally, 1M/DY: 1 square meal per day throughout the year, 2M/DOS: 2 square meals per day with occasional shortage, EFY: Enough food throughout the year.

In Vijapur taluka almost 13.25% of families out of total BPL families (score 0-20) and as many as 20.44% of families out of total very poor families (score 0-16) have less than 1 square meal per day for major part of the year, while in Satlasana taluka almost 10.78% of families out of total BPL families (score 0-20) and as many as 15.13% of families out of total very poor families (score 0-16) have less than 1 square meal per day for major part of the year.

Distribution of fair price shops in Mahesana reveal that almost 74.67% of fair price shops are managed by private operators, while 25.33% of fair price shops are managed by cooperative societies and self help groups. Amongst all the talukas of Mahesana, in Vijapur taluka highest proportion of fair price shops out of total fair price shops are managed by cooperative societies and self help groups, while in Becharaji taluka highest proportion of fair price shops out of total fair price shops are managed by private operators as exhibited in Table 5.2.

Table 5.2: Fair Price Shops in Mahesana (2014-15)

Taluka/ District	Operator Wise Total Shops (%)		Category Wise Private Shops (%)				
	Cooperative / SHG	Private	SC	ST	OBC	Handicap	General
Becharaji	10.26	89.74	17.14	0.00	57.14	0.00	25.71
Kadi	17.72	82.28	20.00	0.00	60.00	0.00	20.00
Kheralu	20.00	80.00	0.00	20.00	45.00	0.00	35.00
Mahesana	25.84	74.16	1.52	14.39	68.18	0.00	15.91
Satlasana	14.29	85.71	4.17	0.00	62.50	8.33	25.00
Unjha	18.46	81.54	20.75	0.00	35.85	3.77	39.62
Vadnagar	27.42	72.58	44.44	13.33	22.22	0.00	20.00
Vijapur	44.55	55.45	0.00	0.00	0.00	0.00	100.00
Visnagar	25.84	74.16	19.70	0.00	42.42	3.03	34.85
Total	25.33	74.67	16.47	7.56	47.87	1.16	33.33

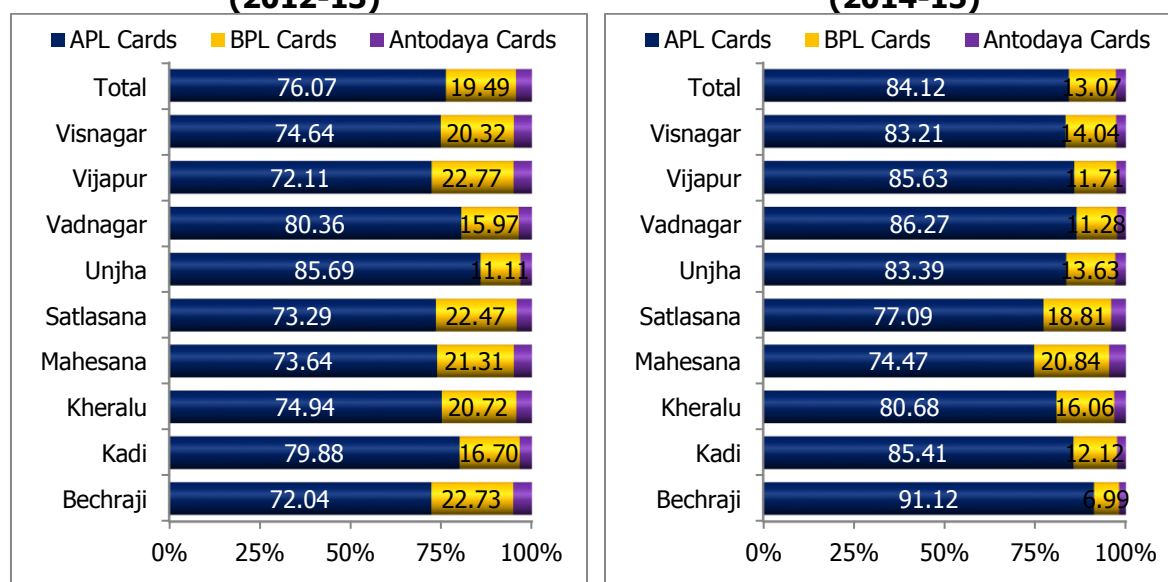
Source: Computed from database of District Supply Office, Mahesana (2015)

Note: SHG: Self Help Groups

Moreover, the distribution of fair price shops in Mahesana reveal that 16.47% of fair price shops are managed by SC operators, 7.56% fair price shops are managed by ST operators, 47.87% of fair price shops are managed by OBC operators, 1.16% of fair price shops are managed by handicap operators and 33.33% of fair price shops are managed by general operators. Amongst all the talukas of Mahesana district, Vadnagar taluka shares highest proportion of fair price shops managed by SC operators out of total fair price shops, Kheralu taluka shares highest proportion of fair price shops managed by ST operators out of total fair price shops, Mahesana taluka shares highest proportion of fair price shops managed by OBC operators out of total fair price shops, Satlasana taluka shares highest proportion of fair price shops managed by handicap operators out of total fair price shops and Vijapur taluka shares highest proportion of fair price shops managed by general category operators out of total fair price shops as exhibited in Table 5.2.

As far as APL, BPL and Antodaya cards are concerned in Mahesana, out of total ration card holders in 2012-13, 76.06% of card holders were APL card holders, 19.49% of card holders were BPL card holders and 4.44% of card holders were Antodaya card holders. While, out of total ration card holders in 2014-15, 84.12% of card holders were APL card holders, 13.07% of card holders were BPL card holders and 2.82% of card holders were Antodaya card holders as shown in Figure 5.6.

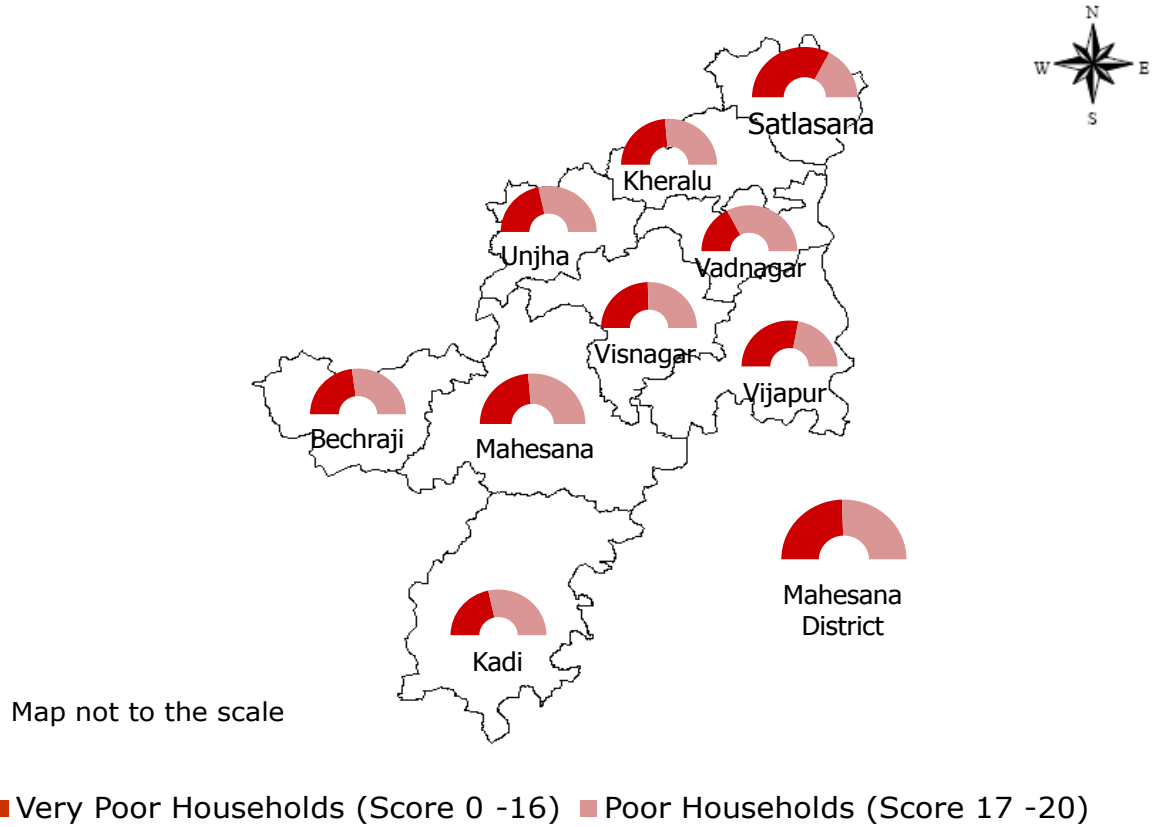
Figure 5.6: APL, BPL and Antodaya Cards in Mahesana
APL, BPL and Antodaya Card Holders (2012-13) **APL, BPL and Antodaya Card Holders (2014-15)**



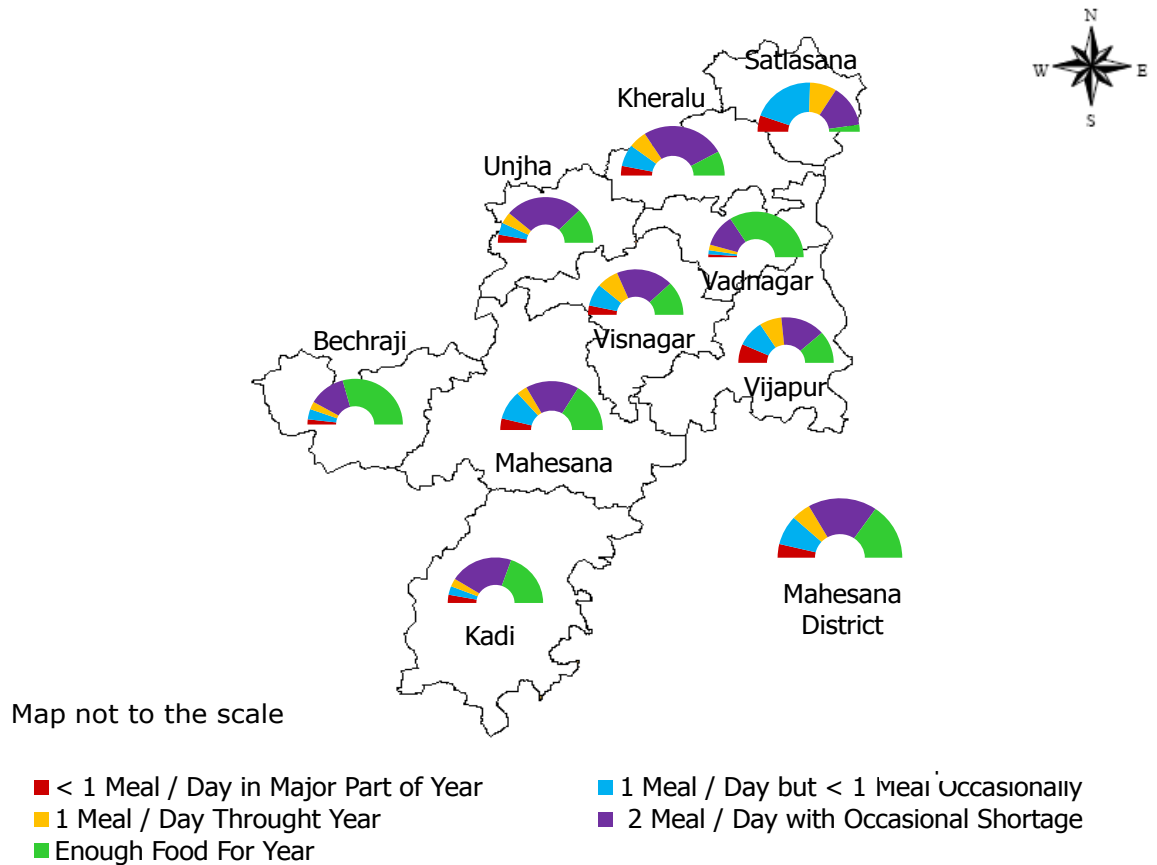
Source: Based on database of District Supply Office, Mahesana (2014)

Amongst all the talukas of Mahesana in 2012-13, Unjha was the taluka with highest proportion (85.69%) of APL cards holders out of its total ration cards holders, Vijapur was the taluka with highest proportion (22.77%) of BPL cards holders out of its total ration cards holders and Becharaji was the taluka with highest proportion (5.22%) of Antodaya cards holders out of its total ration cards holders; while in 2014-15, amongst all the talukas of Mahesana, Becharaji remained the taluka with highest proportion (91.12%) of APL cards holders out of its total ration cards holders, Mahesana was the taluka with highest proportion (20.84%) of BPL cards holders out of its total ration cards holders and Mahesana was the taluka with highest proportion (4.68%) of Antodaya cards holders out of its total ration cards holders. Moreover, it has been observed that proportion of APL card holders has increased in Unjha, while the proportion of BPL card holders has increased in Becharaji, Kadi, Kheralu, Mahesana, Satlasana, Vadnagar, Vijapur and Visnagar, whereas the proportion of Antodaya card holders has increased in all the talukas of Mahesana district between 2012 and 2015.

Map 5.1: Taluka wise BPL List (2015-16) Households in Mahesana



Map 5.2: Taluka wise Food Security in Mahesana (2015-16)



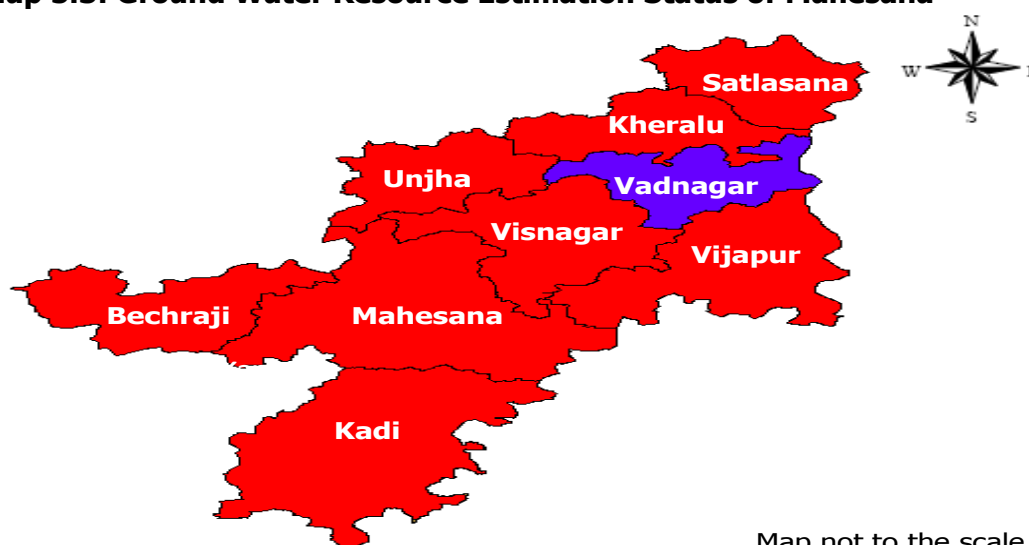
5.4 Vulnerability

Vulnerability is frequent for the rural poor in the backward region where livelihood uncertainty is a key component of human poverty. The vulnerable and marginalized groups are those which are deprived of the chance to equally participate in and benefit from the socioeconomic developments in the society. The vulnerability can be termed as deprivation from well-being, livelihood resilience, self protection, societal security and availability of resources. The Mahesana district is mainly vulnerable to water management and overexploitation of water. Moreover, the issues related to crime and violence and condition of migrants are also significant as far as livelihood of vulnerable groups is concerned.

5.4.1 Water Management

Geologically the Mahesana possesses varied features and therefore the ground water occurrence and distribution varies widely in space and time throughout the district. There is only 1 major project (Dharoi) in Mahesana. The problem of the water resources of Mahesana involves qualitative deterioration as well as quantitative shortages. Mahesana is a water scarce region and most of the available fresh water is used up. As a result, Mahesana region has no option but to rely on groundwater that is coming from ground water aquifers. In Mahesana, one of the major prevalent issues pertaining to water is overexploitation of ground water and its depletion. Out of 9 talukas of Mahesana almost 8 talukas fall under the category of 'Over Exploited' while 1 taluka fall under the category of 'Critical' as shown in Map 5.3.

Map 5.3: Ground Water Resource Estimation Status of Mahesana



Map not to the scale

Category	Talukas	Note
Over Exploited	Becharaji, Kadi, Kheralu, Mahesana, Satlasana, Unjha, Vijapur, Visnagar	Restricted for Groundwater Extraction
Critical	Vadnagar	Not advisable for Groundwater Extraction

Source: Based on Central Ground Water Board, Faridabad (2014)

5.4.2 Crime and Violence

As the elevated rate of crime and violence limits the choices of people and life chances, it deteriorates human development. Given the strong relationship between crime, insecurity and human development in the region, it is most appropriate that the problems of crime, violence and insecurity should demand the attention and review how crime and violence have negative impacts on human development. However, the backward regions are faced with high rates of violent crime and non-criminalized forms of social violence typically directed at members of vulnerable groups. Therefore the level of domestic violence, crimes in the community, extent of crime in the society, etc significantly affects the human development of people (UNDP, 2011). In Mahesana still there exists economic and social inequality and consequently there are people who remain vulnerable to various conditions. The overall extent of crime has increased in Mahesana as shown in Table 5.3.

Table 5.3: Incidence of Crimes Reported in Mahesana

Crimes	2010-11	2011-12	2012-13	2013-14	2014-15
Murder	24	32	27	25	15
Dacoity	9	7	13	15	18
Burglary	166	175	172	155	172
Theft	616	584	567	528	494
Robbery	23	31	38	56	71
Kidnapping	69	64	94	121	96
Riots	79	18	100	78	88
Culpable Homicide	2	1	2	1	1
Counterfeit Coins	6	15	7	5	7
Miscellaneous	13	94	13	1	6
Total Cognizable Crimes	4424	4256	6193	7030	2003

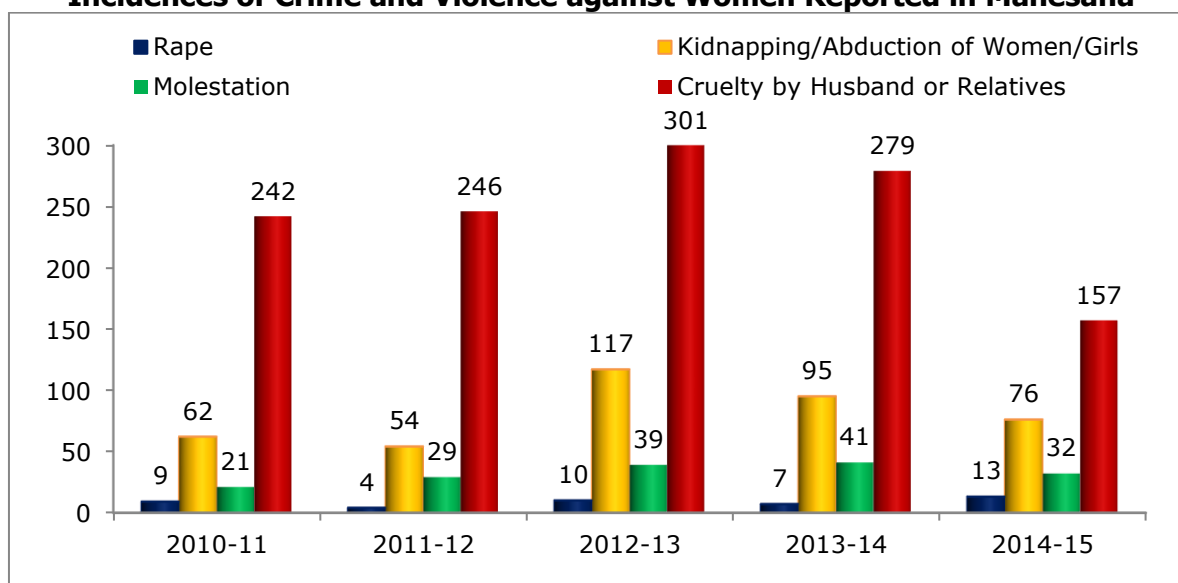
Source: Compiled from Office of State Crime Records Bureau, Gujarat (2015)

The reporting of total cognizable crime incidents in Mahesana declined at -0.98% CAGR between 2010-11 and 2014-15. The major incidents of burglary, theft, robbery, kidnapping and riots are noticed in Mahesana. The reporting of incidents of burglary, robbery, kidnapping and riots in Mahesana between 2010-11 and 2014-15 grew at 0.89% CAGR, 32.55% CAGR, 8.61% CAGR and 2.73% CAGR respectively. The reporting of incidents of murder and theft in Mahesana declined at 11.09% CAGR, 5.37% CAGR respectively.

In many areas of the district people live under the conditions of general insecurity. Mahesana being one of the most backward regions of Gujarat bounded by illiteracy, ignorance, superstition, inequality, poverty, deprivation, aggression and other

characteristics. Thus, violence against women is not a rare crime in this district. The social crimes that victimize women in the society occur in the form of non-cognizable violence against women because of the reasons practiced in the society and community and therefore women also fall prey to cognizable crimes. The crime and violence against women in Mahesana is depicted in Figure 5.7.

Figure 5.7:
Incidences of Crime and Violence against Women Reported in Mahesana



Source: Based on Office Database of State Crime Records Bureau, Gujarat (2015)

In Mahesana crimes pertaining to sexual harassment and dowry deaths have been reported to be negligible in last decade. The incidents reported for crime against women has declined at -4.77% CAGR from 2010-11 to 2014-15. In 2010-11, nearly 334 incidents of crime against women were reported in Mahesana, while in 2014-15 the incidents reported of crime against women has decreased to 278. There has been increase in reporting of crime against women in certain years, which also indicates increased awareness amongst women pertaining to social security and justice in Mahesana. It reflects the wakefulness of women towards dignity and right to live respectful life. It seems that incidents of crime and violence against women have increased in Mahesana, but as a matter of fact, such incidents of violence against women were not reported in past due to social bindings and lack of awareness amongst women. But over a period, the increased awareness amongst women has empowered women to fight against domestic violence and consequently, with the help of NGOs, SHGs and religious agencies, women are protesting against such crimes.

5.5 Schemes and Programs for Poor and Vulnerable Families

Box 5.1: Major Schemes and Programs for BPL Families

Schemes / Programs	Brief Details of Schemes / Programs
Swarnajayanti Gram Swarajgar Yojana (SGSY)	Centrally sponsored scheme emphasizing on self-employment. Covers aspect of self-employment like capacity building, subsidy, infrastructure facility, credit, skill upgrading, insurance and marketing. BPL/APL (80:20) of rural area are the target group. For the SHG's having grade-II, SHG can apply for loan.
Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)	Provides 100 days of employment in a financial year. Applicable to rural household whose adult members are willing to do unskilled manual work. Water conservation, tree plantation, irrigation works, renovation of traditional water bodies, Flood-control and protection works.
Indira Awas Yojana (IAY)	Provision of housing finance to the poor families based on BPL list. Rs. 45,000 in plain areas and Rs. 48,500 in hilly areas for new construction and Rs. 20,000 credit under DRI at 4% RoI per annum. Provision on the basis of 75:25 ratio to housing shortage & SC/ST. Sanctions in the name of women or jointly, 60% funds for SC/ST and 15% for minorities, 3% for physically handicapped.
Sardar Patel Awas Yojana (SPAY)	Provision of free plots to landless (farmers & artisans) rural poor families and financial assistance for housing based on BPL list. Out of unit price of Rs. 43,000, financial assistance of Rs. 36,000 is given by Govt. of Gujarat and Rs. 7,000 by beneficiaries.
Integrated Watershed Management Program (IWMP)	Aims to restore the ecological balance by harnessing, conserving and developing degraded natural resources such as soil, vegetative cover and water. This enables multi-cropping and the introduction of diverse agro-based activities, which help to provide sustainable livelihoods to the people residing in the watershed area.
Gokul Gram Yojana (GGY)	Provide basic amenities, Increase employment opportunities, Integrate various development schemes, Integrate people participation with the development process.
Backward Region Grant Fund (BRGF)	To redress regional imbalance in development by providing fund to supplement existing developmental inflows into identified districts. Bridge gaps in local infrastructure and development requirement that are not being adequately met through existing inflows.
Total Sanitation Campaign (TSC)	TSC aims to cover both BPL and APL families. But BPL families are eligible for subsidies (incentives), which are available for low cost basic unit and shared between Govt. of India, State Govt. and beneficiaries. There is no subsidy for APL families. TSC also covers school and anganwadi toilet constructions.
Sakhi Mandal Yojana (SMY)	Enable poor women in rural areas to access resources and strengthen livelihoods and quality of life. Formation of women self help groups based on thrift and credit principles and tracking and credit linkage of SM Groups through ICDS (85%) and NGOs (15%).
Antyodaya Anna Yojana	This is centrally sponsored scheme. The scheme is intended for the poorest of poor. The beneficiary families are entitled for 25 to 35 Kg. of Rice per month at a highly subsidized rate.

Source: Based on various Scheme Documents, Govt. of Gujarat (2015)

5.5.1 Provision of Employment, Housing and Sanitation

Under schemes like MNREGA, IAY, Sakhi Mandal and TSC, various developmental activities have been undertaken in Mahesana. Under MNREGA 4.31 lakh man days of wage employment has been provided since 2013-14. In IAY, since 2001, 23253 houses have been constructed and under Sakhi Mangal Yojana (Mission Mangalam), since 2007-08, the total cash credit benefits have been given to 7360 Sakhi Mandals, while under TSC, since 2004-05, 26697 BPL households have been assisted for developing sanitation facilities as shown in Table 5.4.

Table 5.4: Progress under Various Schemes & Programs in Mahesana (2014-15)

Taluka / District	MNREGA 2013-14 Wage Employment (Lakh Man Days)	IAY Since 2001 Houses	Sakhi Mandal Since 2007-08 Beneficiaries (Cash Credit)	TSC Since 2004-05 BPL Beneficiaries
Becharaji	0.38	1280	417	3083
Kadi	0.47	4020	888	4495
Kheralu	0.51	2466	495	2055
Mahesana	0.26	2174	1668	3136
Satlasana	0.44	5826	482	3332
Unjha	0.10	1030	534	2294
Vadnagar	0.78	1518	610	1445
Vijapur	1.06	2460	829	3208
Visnagar	0.31	2479	1437	3649
Total	4.31	23253	7360	26697

Source: Compiled from database of District Rural Development Agency, Mahesana (2015)

Taluka wise progress reveal that highest wage employment has been generated in Vijapur taluka and lowest wage employment has been generated in Unjha taluka under MNREGA, while, maximum number of houses have been constructed in Satlasana taluka and least number of houses have been constructed in Unjha taluka under IAY, whereas, under Sakhi Mandal Program, Mahesana taluka share highest number of Sakhi Mandal benefited by cash credit and Becharaji taluka share least number of Sakhi Mandal benefited by cash credit. Under TSC, Kadi taluka share highest number of BPL households benefited for sanitation development and Vadnagar taluka share least number of BPL households benefited for sanitation development.

5.5.2 Water Resource Developments

Reforms in the rural drinking water supply sector were adopted in 1999 in the country. The reform process started as a pilot project in 67 districts of the country, including three in Gujarat. The basic concepts of the reforms include community participation in the planning, implementation, operation and maintenance of the schemes of its choice. At present 13 districts (including Mahesana) of Gujarat are parts of the national Swajaldhara program. The institutional framework comprises the National Swajaldhara Monitoring Committee (NSMC), which is the national level monitoring agency. At the state level, Water and Sanitation Management Organization (WASMO) is the State Water and Sanitation Mission (SWSM) for Gujarat. WASMO coordinates the activities of the district level District Water and Sanitation Committees (DWSC) and the village level Village Water and Sanitation Committees (VWSC) or Pani Samitis (PS). The details of Swajaldhara program in Mahesana are given in Table 5.5.

Table 5.5: Swajaldhara / Sector Reform Scheme in Mahesana (2015)

Taluka / District	Total Villages	Pani Samitis Formed	VAP Approved by VWSC	Water Quality Teams Formed
Bechraji	52	52	3	52
Kadi	119	119	5	119
Kheralu	51	51	11	51
Mahesana	115	115	11	115
Satlasana	65	65	3	65
Unjha	31	31	0	31
Vadnagar	42	42	3	42
Vijapur	58	58	6	58
Visnagar	63	63	8	63
Total	596	596	50	596

Source: Water & Sanitation Management Organization, Gujarat (2015)

Note: VAP: Village Action Plan, VWSC: Village Water and Sanitation Committee, DWSC: District Water and Sanitation Committee;

Jotana Taluka details included in Kadi & Mahesana Taluka

The Swajaldhara scheme has facilitated empowerment of the rural community/women to participate in the planning, implementation and operation of water management programs. It is helping the project village to achieve the target of getting at least 40 litres per capita per day of safe drinking water. The scheme has encouraged establishment of water harvesting structures and revival of traditional drinking water sources in Mahesana.

5.6. Success Stories

Box 5.2: Mission Mangalam

Name of Group: Shri Mahakali Sakhi Mandal Village: Dediasan, Taluka: Mahesana
 Formed on 18th December 2008 having membership of 20 members. Group is savings 100 Rs. Per member on monthly basis. Group is strictly following Monthly meeting schedule on every 2nd Thursday. Average attendance of the meeting is about 18 members. Deposits are collected on 15th or 16th of every month and deposited in bank account before 20th of every month. Rules have been formed for meeting, deposits, loans, rate of interest, repayment etc and being followed.



17 of the 20 members have availed loans, the rest of 3 members have a small family and have not felt need for borrowing. Maximum amount of loan to an individual is Rs. 65000/- to repay loan availed from Money Lender @ 5% per month or 60% per annum.

Bank loan availed by Group: Rs. 10000/- on 14.11.2009; Rs. 15000/- on 29.04.2010; Rs. 85,000/- on 02.08.2011; Rs. 46000/- on 03.02.2012 and as on. It shows the frequency of cash credit utilization and discipline of repayment by SHG. This practice has improved their livelihood and reduced the poverty.

Source: Field Survey/DRDA, Mahesana (2015)

Box 5.3: Watershed Management

Village: Kuda Taluka: Kheralu
 Kuda village of Kheralu Taluka in Mahesana district is characterized by low rainfall and frequent drought. The topography of the land is terrain with slopes up to 10%. The most predominant problem has been the loss of upper fertile soil layer is washed away by intensity of rainfall. Most of the rainwater is lost as surface runoff and the majority of the water bodies dry for a long time, resulting in high agricultural costs and poor agricultural income. IWMP project mobilized local communities into water user group and assist them to build, revive and maintain micro water harvesting structures and carry out soil and water conservation measures to reserve land degradation, provide critical irrigation and raise agricultural productivity.

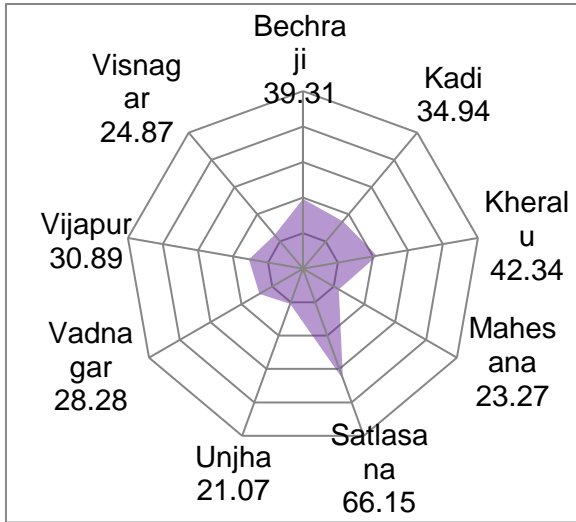


The existing village pond was inter linked via drainage line to a canal flowing through the Kuda village. It was done with respect to increase the water storage in the village ponds in order to avail the water for life saving irrigation. The 278 meter drainage line is constructed. farmers are irrigating a total 80 Ha of land with the available water through the canal which is stored in the village pond. There is a significant rise in the water levels of the wells adjacent to the village pond.

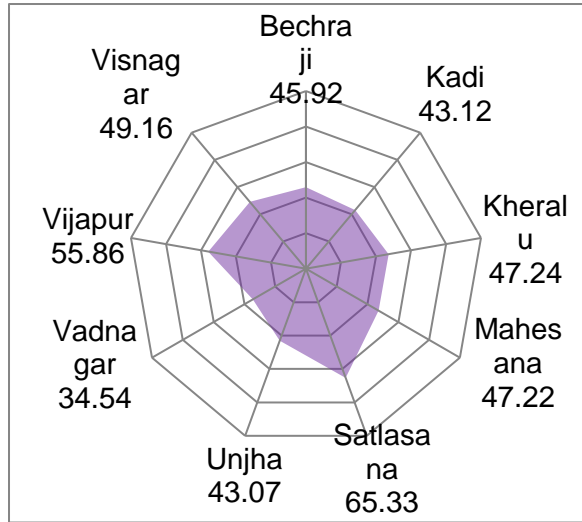
Source: Field Survey/DRDA, Mahesana (2015)

5.7 Poverty and Food Security: Taluka Wise Status of by Radars

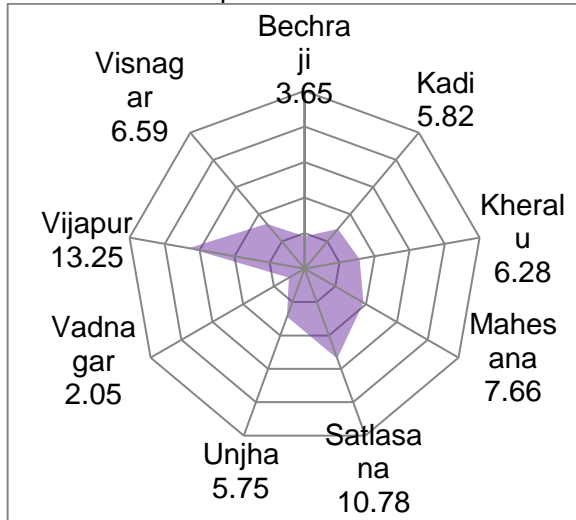
% of BPL Families out of total families surveyed



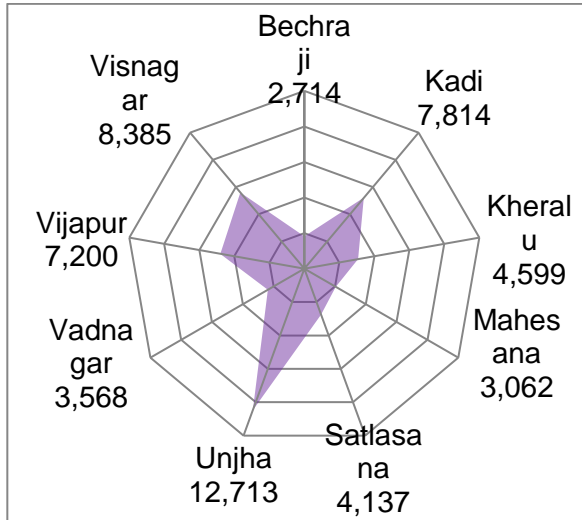
% of Very Poor Families out of total BPL families



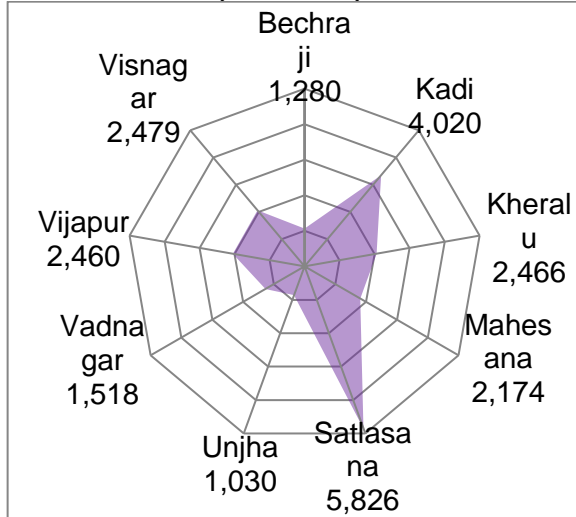
% of BPL Families with < 1 Meal/Day in Major part of Year



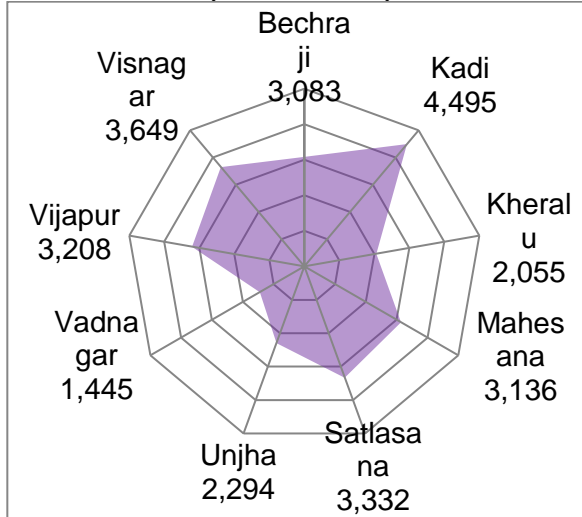
BPL Card Holders



Houses Provided under IAY (Since 2001)



Sanitation Provided to BPL Families under TSC (Since 2004-05)



Chapter 6

The Way Ahead

Chapter 6

THE WAY AHEAD

6.1 Introduction

According to the Gujarat State Human Development Report (2004), out of 25 districts of Gujarat, Mahesana district was ranked 17th with reference to Human Development Measures-1 (HDM-1), 15th with reference to Gender Development Measures-1 (GDM-1), 13th with reference to Gender Equality Index (GEI), 9th with reference to Human Development Measures-2 (HDM-2) and 17th with reference to overall Human Development Index (HDI) amongst all the 25 districts of Gujarat in 1991. While after a decade, out of 25 districts of Gujarat, Mahesana district ranked 14th with reference to Human Development Measures-1 (HDM-1), 13th with reference to Gender Development Measures-1 (GDM-1), 13th with reference to Gender Equality Index (GEI), 5th with reference to Human Development Measures-2 (HDM-2) and 18th with reference to overall Human Development Index (HDI) amongst all the 25 districts of Gujarat in 2001.

Mahesana district has made notable progress in certain sectors of human development in past. But there is still a long way to match with the (human) developments in other districts of Gujarat as well as districts of other states of India. The vision of Mahesana district should be realized and help achieving the desired level in human development. This necessitates strategic involvement of public, private and community entities in various areas related to human development. The all-inclusive human development is a long term process and consequently requires both short term and long term approaches.

Based on the findings and observations, the Mahesana district requires evolving a strategic action plan and corresponding policy practices to enhance the status of human development. To achieve these goals adequate resources are to be provided with appropriate monitoring of the programs, schemes and activities under implementation. With suitable planning and the participation of local authorities and communities, sustainable human development is possible in the district in the near future.

6.2 Issues in Agriculture, Animal Husbandry and Livelihood

Forest coverage is very less (just 1.6%) in Mahesana district. More and more agriculture land is being diverted for non-agriculture use due to fast growth of urbanization. Out of the total reported area of Mahesana, 79.55% of area is the net cropped area (under cultivation). The cropping pattern of the district remained almost similar in the years of last decade. It has been noticed that productivity (Yield in Kg per Hectare) of main food grain crops, oil seeds, cash crops, as well as vegetables has remained volatile in Mahesana during last decade.

Volatile cropping pattern and lopsided irrigation depict inter taluka disparity (in Satlasana and Vijapur more than 95% of its cropped area is irrigated, while in Becharaji and Kadi about 70% of its cropped area is irrigated). Indiscriminate use and over exploitation of canal and underground water for irrigation places risk of water scarcity. However, cropping pattern also impose criticality on food security on one hand and assured returns on other hand.

Provision of adequate irrigation facilities in water scarce areas of Mahesana would enhance multiple cropping as well as increase in cultivation of crops. The extension of drip/sprinkle irrigation in these talukas would provide the opportunity for multiple cropping and increased earnings to the farmers in these regions. Alternative of green house projects for fruits, vegetables and other suitable crops needs to be promoted and propagated as fresh water can be utilized through drip and sprinkle irrigation to increase the productivity and earning opportunities in these areas.

The soil fertility is required to be restored through rationalized integrated nutrient management practices. This soil fertility management practices can be linked with Soil Health Card where the nature of soil, suitable crops and corresponding manure/fertilizer usage is clarified to the farmers. The time table of cropping to harvesting for categories of crops can be adopted, which indicates the cultivation process (including which crop should be cultivated in what kind of soil and supplemented by which fertilizer, when to give water, when to give fertilizer and other farm care tips). This model can be incorporated with existing facilities offered by e-Gram schemes. The farmer can register him under the scheme and whenever he

requires cropping tips, the details of his soil health card can be entered in the software and output can be obtained which indicates various tips for suitable crops based on nature of soil. This will enhance the capacity of farmers to produce and earn.

There has been a strategic shift of workers towards primary sector. About 47.80% of workforce of Mahesana was engaged in agriculture and allied activities in 2001 which increased to 53.29% in 2011, which depicts more workforce has become depended on primary sector for livelihood. Moreover the workforce characteristics have undergone drastic change in a decade. In 2001, out of total population engaged in agriculture and allied activities in Mahesana, about 48.81% of people were cultivators (who owned land and were engaged in effective supervision or direction in cultivation) and 51.19% of people were agriculture labours (who work on another person's land for wages and does not own the land); while in 2011 out of total population engaged in agriculture and allied activities in Mahesana, only 43.85% of people were cultivators and 56.15% of people were agriculture labours, which depicts majority of people that became dependent on agriculture and allied activities are engaged as agriculture labour in primary sector for livelihood.

Increasing agriculture labour and declining cultivators have to be analysed with great cautious. If cultivators are being converted into agriculture labour, it depicts deterioration of livelihood and alternative sources of livelihood should be provided.

6.3 Challenges in Literacy and Education

The Millennium Development Goal emphasize on Universal Primary Education. To meet the goal great efforts are made through Sarva Shiksha Abhiyan (SSA), with priority of education to girl child. However, the overall literacy has increased to 83.61 in Mahesana, but the female literacy in 2011 was reported just 75.32 in Mahesana and the the gap between male and female literacy was reported to be 16.07 in 2011 despite the efforts of providing primary education. Moreover, as per the census 2011, the wide gap across the gender, across the social groups and across the region (rural/urban) was observed in Mahesana. Specific efforts for providing primary

education to social groups (especially SC and ST) and women in backward talukas should be given greater importance along with the measures to reduce the literacy gap between male and female in Mahesana.

The Gross Enrolment Ratio (GER) at primary level for Mahesana has remained almost stagnant i.e 107.4 in 2006-07 and 107.2 in 2013-14, while GER at upper primary level has improved from 58.1 in 2006-07 to 97.0 in 2013-14. The Net Enrolment Ratio (NER) at primary level for Mahesana has improved from 84.8 in 2006-07 to 88.5 in 2013-14, while NER at upper primary level has improved from 45.3 in 2006-07 to 74.4 in 2013-14. The gap between boys and girls enrolment at primary as well as upper primary level in Mahesana needs to be reduced. Class-wise enrolment in the elementary education in Mahesana from 2006-07 to 2014-15 shows tendency for Class 1 enrolments to decline over the years. Further shrinkage every successive year ranges between 2% and 7% of the remaining transited students, at every stage of higher classes. This simply indicates that students join the education system but do not continue further. However, the dropout rate is reported to be declining, but still during transition large number of students initially enrolled drops out of school. Such scenario replicates that special efforts should be made not only to enroll the students but to retain them and provide higher education.

Nearly 14.5% of classrooms in Mahesana require repairs. More than 15% of classrooms in Satlasana, Kheralu, Visnagar and Vadnagar require major/minor repairs. Prompt steps are required to repair the existing infrastructure to avoid accidents.

Though the provision of drinking water facilities at schools in Mahesana and provision of separate girls' toilet in schools of Mahesana has improved, the functionality, maintenance and hygiene aspects should be emphasized so that school going children can really benefit out of it rather than just facilitating by provision of infrastructure. Drinking water and sanitation being the matter of prime concern in education, availability of such facilities should be ensured by linking it with grants (school development funds) for strict implementation.

Although most of the schools possess essential facilities, there are still a few schools without adequate essential facilities. Despite considerable developments in school amenities, a good number of schools are to be provided with minimum essential physical, ancillary and teaching-learning facilities. It is expected that provisions made available under the SSA should be optimally utilized, as it has gained significance in view of the RTE provisions.

6.4 Problems in Health, Nutrition and Sanitation

Despite the expansion in health care facilities in Mahesana during last decade, still due to low literacy, the traditional practices to cure diseases prevail in some backward areas and are followed by the lower castes and the poor people. The prevailing misconceptions and ignorance of health care hamper the betterment in health and hygiene conditions of people in backward areas of Mahesana. Mass awareness for health care facilities and its accessibilities should be prioritised to create the responsiveness in the backward areas.

The health care system includes public as well as private health care institutions, but as far as availability of database of health sector at district level is concerned, most of the existing database covers the details of public health care institutions only; consequently, it becomes impractical to analyse and portray the health care scenario of the district. While analysing, planning and executing the health care services at district level, the existing data gap leads to lopsided efforts to fix and achieve the targets of health care at district level.

As far as manpower in health care sector is concerned in Mahesana, it is observed that few of the key positions are vacant. This has led to increased burden of workload on the existing staff. Prompt efforts are needed to fill up the key positions at various levels across the talukas of district to ensure the quality of health care services offered by the medical institutions.

Although, the cases suffering from Malaria (Falciparum) and the cases suffering from Malaria (Vivax) have also been noticed, but the number has been small compared to Acute Diarrheal Diseases, Acute Respiratory Infection and Fever of unknown origin. This indicates that the district is highly vulnerable to number of diseases and therefore regular campaigning of prevention of diseases, health care tips and hygiene instructions along with drinking water and sanitation guidelines are required to create the awareness amongst the people of Mahesana. This can be linked with existing work of PHCs and CHCs so as to ensure the large scale coverage.

As far as nutrition in Anganwadi going children in Mahesana is concerned, about 6% children were reported as undernourished suffering from malnutrition in 2013-14. Highest proportion (11.48%) of Anganwadi going children were found to be undernourished in Vadnagar followed by Kadi (8%). Rigorous efforts are required to tackle the under nourishment with parental counselling and continuous monitoring by ICDS and Health department together in Mahesana.

Despite several bottlenecks in operating activities of Anganwadis, several steps can be taken to achieve the goal of Anganwadis. School admissions and rationing cards can be linked with the vaccination of the children, i.e. those students willing to take admission in schools are required to undergo full vaccination (free of cost) before joining the school. This will enhance the health care of children, if school health programs also include vaccination of those students who are required to complete the vaccination. Moreover, at fair price shops, the allotment of food grains has to be linked with the vaccination of children; this will ensure the health care of infants and children on regular basis. The full vaccination certificate from Anganwadi can be made essential for school admission and purchase of grains from fair price shops.

6.5 Concerns in Poverty, Food Security and Vulnerability

In Mahesana, 31.67% of surveyed families turned out to be BPL families (with score 0-20) and out of the total BPL families, 68.38% turned out to be very poor families (with score 0-16). Despite various schemes for BPL families, huge poor mass is still to

be facilitated with various kinds of incentives to live the life in a better condition. The income level of the BPL families in Mahesana, depicts that 75.83% of families have average monthly income below Rs. 500, while 20.21% of families have average monthly income between Rs. 500 and Rs. 1500, whereas, 3.97% of families have average monthly income above Rs. 1500.

The land holding features of BPL families in Mahesana reveals that 81.64% of families do not possess land and only 18.36% of families possess land. Moreover, out of the total BPL families who possess land, as much as 17.08% of family have less than 1 hectare of unirrigated and 0.5 hectare of irrigated land. The housing condition of BPL families in Mahesana shows that 24.49% of families do not possess housing facilities, while 52.18% of families possess kachha houses. The sanitation conditions of BPL families in Mahesana indicate that as many as 94.45% of families do not possess sanitation facilities, while 5.55% of families use group sanitation facilities and private sanitation facilities.

The food security in BPL families of Mahesana illustrate that 7.45% of families out of total BPL families can manage less than 1 square meal per day for major part of the year, while 15.97% of families out of total BPL families can manage 1 square meal per day, but less than 1 square meal occasionally, whereas nearly 10% of families out of total BPL families can manage 1 square meal per day throughout the year, however, 35.98% of families out of total BPL families can manage 2 square meals per day, with occasional shortage.

This illustrate that many BPL households in the district live in hunger despite the efforts by food security schemes. There are many households which do not benefit from support schemes. Many families in the district do not have any safety-net in terms of past savings and during emergency; they opt for debt usually from informal sources to meet their daily needs. Therefore, it is evident that in order to cope with the challenge of food security, along with government schemes, adequate production of food grains is to be ensured, food grains at affordable prices are to be made available and purchasing power of the people is to be raised by integrated efforts that enhance the livelihood of BPL families.

The problem of the water resources of Mahesana involves qualitative deterioration as well as quantitative shortages. In Mahesana, one of the major prevalent issues pertaining to water is overexploitation of ground water and its depletion. Out of 9 talukas of Mahesana almost 8 talukas fall under the category of 'Over Exploited' while 1 taluka fall under the category of 'Critical'. Given the geological and hydrological

features of Mahesana, the continuous efforts with suitable technology and schemes are required besides existing schemes to constantly improve the water related crises in Mahesana.

In Mahesana still there exists economic and social inequality and consequently there are people who remain vulnerable to various conditions. The overall extent of crime is reported to be declining in Mahesana, but the total cognizable crimes such as burglary and theft seems to persist in Mahesana. In Mahesana the reporting of incidents pertaining to crime against women has increased between 2009 and 2015. Out of the total incidents of crime and violence against women in reported in Mahesana, the incidents reported against cruelty by husband and relatives and kidnapping are dominating crimes. The reporting of cases also reflects the wakefulness of women and society towards women dignity and right to live respectful life. In context of the initiatives being taken by victim women, it becomes essential to assist such vulnerable sections so as to promote better human development by implementing proper law and order. Given the strong relationship between crime, insecurity and human development in the region, it demands great attention to control such evils that have negative impacts on human development.

As far as planning for human development is concerned, the crucial aspect is to collect reliable data of the existing situation and prepare the action plan accordingly. Given the reliability of data at village, taluka and district level, proper monitoring to prepare accurate database is essentially required to form development strategies. Moreover, to provide the developmental services at the grass root level, the Gram Panchayats are the crucial points and thus the enhancement in governance for effective and efficient delivery of services play a vital role. The major challenges faced by the Gram Panchayats in this context are allocation of resources, absence of community interest and competence to govern. Therefore, unless Gram Panchayats are empowered in terms of finance and functions, the participatory good governance cannot be ensured, which has serious implications for delivery of essential services and ultimately for human development in the Mahesana.

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