



District Human Development Report

NARMADA



Gujarat Social Infrastructure Development Society (GSIDS)
General Administration Department (Planning)
Government of Gujarat
Sector-18, Gandhinagar

DISTRICT HUMAN DEVELOPMENT REPORT



NARMADA



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General Administration Department (Planning)
Government of Gujarat

DISTRICT HUMAN DEVELOPMENT REPORT: NARMADA

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Designed by Tejal Parmar, SPAC, GSIDS

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



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



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Date : - -20

17 MAY 2016



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 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.

Mangubhai
(Mangubhai Patel)

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. The data provided by the district & department offices has been used. The district authorities may update the data as required.

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

(S. Aparna)

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



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Preface

There had been concern about the socio-economic developments, particularly in backward areas of the district over the past few decades. To overcome the prevailing condition of the backward areas, special emphasis has been laid on the human development aspects very recently. Consequent upon the economic growth and development, the utmost importance is given to the aspects for living people a long and healthy life and acquire knowledge to have access to the resources needed for a decent standard living. The rationale is to observe how economic growth can be made for the overall development of the society.

The first Human Development Report was launched by the United Nations Development Programme (UNDP) in 1990 with a 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 in 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.

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.

Narmada being one of the backward 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, Narmada district ranked 10th with reference to overall Human Development Index (HDI) amongst all the 25 districts of Gujarat in 1991. While after a decade, Narmada district ranked 14th 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 Narmada DHDR.

The Narmada DHDR aims to assist process of district planning through the human development prism. It does so by analyzing the status of human development attainment and key human development challenges faced with a special focus on efficiency of delivery systems. The Narmada 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
Narmada


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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 has been started. Now-a-days the Gujarat State is on the fast track of development. Planning Commission- Government of India and UNDP had partnered Strengthening State Plan for Human Development (SSPHD) Programme, under which the Government of Gujarat had initiated the process of integrating Human Development in planning and policy documents.

Human Development is increasingly becoming an area of concern and priority is given to development 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 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 Narmada 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 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.

Sujal
Sujal Jayantibhai Mayatra

ACKNOWLEDGEMENTS

The Narmada 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 Narmada 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, General Administration Department (Planning), Government of Gujarat (Chairman, GSIDS) and the 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, Narmada 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 Narmada district administration, Consultants of 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 Narmada 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 Narmada district and facilitate strategies for the future.

Dr. K. M. Chudasama
Ganpat University

District Human Development Report: NARMADA

Core Committee

- Chairperson : District Collector, Narmada
- Co-Chairperson : District Development Officer, Narmada
- Members : Resident Additional Collector, Narmada
Director, District Rural Development Agency (DRDA), Narmada
Project Administrator, (ITDP), Narmada
Deputy Conservator of Forest, Rajpipla
Executive Engineer (Water Supply), Narmada
District Statistical Officer, Narmada
District Education Officer, Narmada
District Primary Education Officer, Narmada
District Agricultural Officer, Narmada
Chief District Health Officer, Narmada
Deputy Director, Animal Husbandry, Narmada
Deputy Director, Horticulture, Narmada
District Employment Officer, Narmada
District Supply Officer, Narmada
District Registrar (Cooperation) , Narmada
District Superintendent of Police, Narmada
General Manager, District Industry Centre (DIC), Narmada
Program Officer, Integrated Child Development Scheme (ICDS), Narmada
Executive Engineer, Road & Building (State), Narmada
Executive Engineer, Road & Building (Panchayat), Narmada
Mamlatdar, Disaster Management, Narmada
District Backward Class Welfare Officer, Narmada
District Social Welfare Officer, Narmada
District Social Defense Officer, Narmada
Vigilance Officer, Narmada
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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 Board 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. Narmada District Human Development Report is the outcome of the series of the initiatives.

Narmada 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, Narmada district ranked 10th with reference to overall Human Development Index amongst all the 25 districts of Gujarat in 1991. While after a decade, Narmada district ranked 14th with reference to overall Human Development Index amongst all the 25 districts of Gujarat in 2001. Thus, the Narmada District Human Development Report aims to assist process of district planning through the human development prism. The Narmada 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 Narmada. Almost 85.09% of working population of Narmada is engaged in agriculture sector and more than 80% of workforce in Dediapada, Sagbara and Nandod depend on agriculture and allied activities. Agriculture in Narmada is dominated by small farmers (owning 1 to 2 hectares of land), that shares 32.57% 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 Narmada.

The land use pattern in the district has been stagnant over last decade, where nearly 44.37% of area is under cultivation. Out of the total reported area of the district almost 43.09% of area falls under net cropped area and has remained stagnant during last decade, but the cropping pattern of the district has been volatile, shifting sometimes towards cultivation of non food crops and sometimes towards cultivation of food crops. 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, pulses as well as fruit has remained volatile in Narmada during last decade. Moreover cropping intensity has increased in Dediapada and Sagbara talukas, while the cropping intensity has decreased in Nandod and Tilakvada talukas. Out of the total geographical area of district, about 17.83% of area is irrigated, accounting nearly 40.67% of the total cropped area. Dediapada and Sagbara have more than half of its cropped area that is unirrigated. The major cause of concern is that despite various schemes for farmers in all the talukas, the farmers in Dediapada and Sagbara bear lower standard of living compared to other talukas like Nandod and Tilakvada.

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 Narmada. Animal husbandry can generate gainful employment in the rural Narmada, 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 Narmada 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 Narmada stood at 72.31, while the male literacy and female literacy stood at 81.19 and 63.09 respectively in 2011. Moreover, the overall gap between male and female literacy has been 18.10 in 2011, while the gap between male and female literacy in rural area has been 19.09 in 2011, whereas the gap between male and female literacy in urban area has been 9.93 in 2011. In Narmada, 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 Narmada, 87.22% of schools are managed by local bodies and 92.15% of schools possess government buildings. The network of schools in Narmada indicate that majority (96.84%) of schools are in rural area. Narmada has 57.72% of schools with primary/upper primary sections and 40.00% of school are into only primary education.

In Narmada, most of the schools have pucca buildings with classrooms in good condition. Nearly 18% of classrooms in Dediapada, Sagbara and Tilakvada require major and Minor repair. However, new class rooms are required in almost all talukas of Narmada. Moreover, Narmada needs to prioritize the provision of computers. Narmada has improved on construction of separate girls' toilets. As far as taluka wise scenario is concerned, almost all the schools in all the talukas except a very few schools in Sagbara and Nandod are yet to provide separate girls' toilets. However, in

Nandod and Tilakvada almost all the schools have separate girls' toilet. In Narmada, most of the schools have drinking water facilities. Provision of drinking water facilities shows improvement in 2013-14 as compared to 2006-07 in all sections and categories of schools in Narmada.

Student enrolments in Narmada 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 Narmada has declined from 120 in 2006-07 to 95.1 in 2013-14, while GER at upper primary level has improved from 68.3 in 2006-07 to 79.3 in 2013-14. The Net Enrolment Ratio (NER) at primary level for Narmada has declined from 98.7 in 2006-07 to 79.9 in 2013-14, while NER at upper primary level has improved from 53.5 in 2006-07 to 60.7 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 Narmada. The gap between boys and girls enrolment at primary and upper primary level ranges between 2.89% to 3.56% in Narmada.

Class-wise enrolment in the elementary education in Narmada 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 3.5% 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 7% 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 Narmada. 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 Narmada, the PTR ranges from 18:1 to 24:1 and SCR ranges from 20:1 to 24:1, which is better than the national norms specified in Model school criteria. However, almost 93.29% of schools have SCR lower than 40:1 and about 95.57% of schools

have PTR lower than 40:1. Furthermore, out of total schools in Dediapada, Nandod and Tilakvada taluka more than 90% of schools have SCR less than 40:1, while out of total schools in Nandod and Tilakvada more than 93% of schools have PTR less than 40:1 in Narmada for the year 2014-15.

In Narmada, 11.90% of schools are located within the 1 km, while 55.44% of schools are located within 1 km to 5 km distance and 22.53% of schools are located within 5 km to 10 km, where 10.13% of schools are located beyond 10 km distance from CRC. In Dediapada almost 42% of schools, in Nandod about 37% of schools, in Sagbara nearly 12% of schools and in Tilakvada nearly 18% of schools are located beyond the 5 km distance from CRC. Moreover, Mid –Day meal is provided in almost all the schools of Narmada.

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 2003-04 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 Narmada and regular school health checkups has facilitated better monitoring of school going children in Narmada.

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 Narmada. Special efforts should be made not only to enrol 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

Narmada district has 174 sub centres and 25 PHCs and 3 CHCs. There are 135, 180 and 81 beds available in PHCs, CHCs and District hospital respectively. Moreover, there are 1 district hospital, 15 Ayurvedic and 2 Homeopathic institutions, 4 first referral units, 2 mobile medical units, 11 AYUSH health facilities, 40 Govt. ambulances.

As far as health care institutions (Govt, municipality and grant in aid other than panchayat) are concerned in Narmada, the number of clinics, the number of beds, number of doctors and number of nurses has remained stagnant between 2009 and 2014. This depicts the lopsided growth in health sector leading to bottleneck in provision of health care services in Narmada. 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 Narmada. Moreover, large number of the medical and paramedical positions in Narmada are yet to be filled. Prompt efforts are required to fill up the key positions at various levels across the talukas of Narmada to ensure the quality of health care services offered in district.

Major diseases prevailing in Narmada 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 and Fever of unknown origin have major prevalence in Narmada district. Moreover there has been increased in the cases reported for Acute Respiratory Infection over the years with a CAGR of 18.05% in Narmada. 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 Narmada. The institutional (Govt. & Private) deliveries have increased from 38.32% in 2007-08 to 90.98 % in 2013-14, while the deliveries at home have declined in Narmada between 2007-08 and 2013-14. Moreover it has been observed that CHCs and Govt. Hospital has played vital role in deliveries at Govt. institutions, but CHCs has performed

remarkably well in serving patients for maternal health care. The deliveries assisted by untrained dais have remarkably gone down and majority of deliveries are assisted by trained dais indicating better environment for maternal health care in Narmada.

Significant proportion of underweight new born babies persists in Narmada between 2006-07 and 2010-11, indicating that prevalence of malnutrition in Narmada. As far as nutrition in Anganwadi going children in Narmada is concerned, nearly 30.24% of children were reported undernourished suffering from malnutrition in 2013-14. ICDS scheme in Narmada is operational in all the 4 talukas having more than 950 operational Anganwadi centers in Narmada, 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 Narmada.

As far as sanitation of households in Narmada is concerned nearly 59.62% of households has sanitation (individual household latrine) facility, while 40.38% 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 Narmada 72.56% of target is achieved in provision of household sanitation facilities.

It has been observed that BCG coverage ranged from 99% to 140%, while DTP 3 coverage hovered between 117% and 130% between 2009 and 2014. OPV booster lingered from 70% to 115%, while Measles vaccination coverage ranged from 36% to 121% and full immunisation coverage remained between 109% and 121%. ANC registration (% of early registration) remained between 69% and 88% of the early registration while ANC 3 checkups coverage ranged between 70% and 84% between 2009 and 2014 in Narmada. Proper administering at micro level and monitoring the implementation is required, which shall improve the health care coverage in Narmada. 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 Narmada, out of the total families covered under socio-economic survey 2002-03 and successive add-on lists 2008-09 and 20013-14, almost 72.13% families turned out to be poor, with the score of 20 or below. Out of total BPL families in Narmada, 64.34% families turned out to be very poor with the score ranging from 0 to 16, while 35.66% of BPL families had the score ranging from 17 to 20. Dediapada taluka had more than 70% of BPL families with the score between 0 and 16 (very poor families).

The food security in BPL families (score 0-20) of Narmada illustrate that 10.37% of families out of total BPL families can manage less than 1 square meal per day for major part of the year, while 20.20% of families out of total BPL families can manage 1 square meal per day, but less than 1 square meal occasionally, whereas 8.44% of families out of total BPL families can manage 1 square meal per day throughout the year, however, 52.53% 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 Narmada illustrate that 14.71% of families out of total BPL families can manage less than 1 square meal per day for major part of the year, while 24.66% of families out of total BPL families can manage 1 square meal per day, but less than 1 square meal occasionally, whereas 9.48% of families out of total BPL families can manage 1 square meal per day throughout the year, however, 46.79% of families out of total BPL families can manage 2 square meals per day, with occasional shortage. In Dediapada and Nandod talukas, more than 10% of BPL families can manage less than 1 square meal per day for major part of the year, while in Dediapada and Nandod talukas, more than 20% of BPL families can manage 1 square meal per day, but less than 1 square meal occasionally. Out of total ration card holders in 2008-09, 36.95% of card holders were APL card holders, 36.85% of card holders were BPL card holders and 26.20% of card holders were Antodaya card holders, whereas, out of total ration card holders in 2013-14, 32.58% of card holders were APL card holders, 43.16% of card holders were BPL card holders and 24.26% of card holders were Antodaya card holders, which indicates that proportion of BPL and Antodaya card holders has increased compared to APL card holders between 2008-09 and 2013-14 in Narmada. There are 2 small dams (Chopadvav and Kakdi-Amba), 1 major project (Karjan) and the Mega Project Sardar Sarovar Dam in Narmada along with more than 2800 check

dams in Narmada. The 2 projects (Chopadvav and Kakdi-Amba) of Narmada are located in the southern part of Narmada and its command area extends up to the Sagbara taluka only, while 1 project (Karjan) is located in the north western part of Narmada and mostly serves Nandod taluka. Consequently, Dediapada taluka totally depend on ground water for irrigation and other purposes. The prevailing distribution of irrigation projects depicts that only few of the villages in Narmada are under the command area of these projects.

In Narmada still there exists economic and social inequality and consequently there are people who remain vulnerable to various conditions. The overall extent of crime incidents reported in Narmada has increased. The total cognizable crime incidents recorded in Narmada declined at -3.18% CAGR between 2009-10 and 2013-14. The major increase in reporting is noticed in the incidents for burglary, theft and kidnapping in Narmada between 2009-10 and 2013-14. The reporting of incidents pertaining to crime against women in Narmada has increased between 2009 and 2014. This also reflects that due to increasing awareness and literacy the reporting of crime and violence against women have increased in Narmada. 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: NARMADA

Demographic	Narmada		Gujarat	
	2001	2011	2001	2011
Population	514404	590297	50671017	60439692
% Decadal Growth in Population	14.47	14.75	22.66	19.27
% Rural Population	89.87	89.51	62.64	57.40
% Male	51.32	51.01	52.07	52.10
% Female	49.68	48.99	47.93	47.90
% Male (0-6)	8.09	6.81	7.89	6.81
% Female (0-6)	7.65	6.41	6.97	6.06
Sex Ratio (Over All)	949	961	920	919
Sex Ratio (0-6)	945	941	883	890
% Scheduled Cast (SC) Population	1.95	1.48	7.1	6.7
% Scheduled Tribe (ST) Population	78.08	81.55	14.8	14.8
Sex Ratio (SC)	938	956	925	931
Sex Ratio (ST)	966	969	974	981
Male Literacy	72.44	81.19	79.66	85.75
Female Literacy	46.61	63.09	57.8	69.68
Total Literacy	59.86	72.31	69.14	78.03
Male-Female Literacy Gap	25.83	18.10	21.86	16.07
Rural-Urban Literacy Gap	30.15	17.20	20.55	14.60
Population Density	187	210	258	308
Work Participation Ratio	50.37	49.94	41.9	41.0

Agriculture	Narmada		Gujarat	
	2002-03	2007-08	2002-03	2007-08
% Area under Forest	40.99	40.99	9.85	9.75
% Area not available for cultivation	14.14	14.03	19.95	23.31
% Other Uncultivated Area	4.39	4.18	15.09	14.97
% Fallow Land	0.86	1.57	5.00	2.81
% Net Sown Area	39.63	39.24	50.10	52.98
% Net Sown Area more than once	0.79	1.39	6.10	11.94
% Gross Cropped Area	40.41	40.63	56.51	64.92
Per Capita Net Sown Area	0.22		0.19	
Cropping Intensity	101.98	103.55	112.79	122.53
% Net Irrigated Area	9.25	11.00	16.19	22.51
% Gross Irrigated Area	10.67	12.50	19.33	29.85
% Net Irrigated Area to Net Sown Area	22.16	28.03	32.32	42.48
% Gross Irrigated Area to Gross Cropped Area	21.73	30.76	34.21	45.97
Irrigation Intensity	100.00	113.64	119.40	132.62

Animal Husbandry	Narmada		Gujarat	
	2007	2012	2007	2012
Total Livestock	272492	337148	23793513	27128200
% Cattle (Cross Breed)	1.55	1.37	4.80	7.10
% Cattle (Indigenous)	50.14	50.54	28.72	29.70
% Buffaloes	21.63	23.67	36.87	38.28
% Goat	26.38	24.21	19.50	18.28

Education	Narmada			Gujarat		
	2005-06	2009-10	2013-14	2005-06	2009-10	2013-14
Total Schools	754	769	789	37256	39939	43176
Government Schools (%)	92.31	95.84	94.30	87.59	83.69	78.08
Private Schools (%)	7.69	4.16	5.70	12.41	16.31	21.92
Rural Government Schools (%)	90.32	94.41	93.03	78.70	76.09	71.05
Rural Private Schools (%)	9.68	2.99	3.93	6.41	7.48	9.72
Schools with Common Toilet (%)	61.14	41.87	94.70	57.26	32.80	5.73
Schools with Separate Girls Toilet (%)	38.99	59.17	98.86	50.17	42.90	98.27
Schools with drinking water facility (%)	94.43	95.45	99.20	80.92	96.74	99.98
Total Classrooms	2679	2805	3683	186090	229586	307929
Classrooms in Good Condition (%)	75.48	71.37	79.34	82.24	82.56	87.84
Total Enrolment	88537	84010	87668	7155000	7814391	9228029
Total Enrolment Government (%)	88.61	91.74	89.64	84.77	75.26	68.53
Total Enrolment Private (%)	11.39	8.26	10.36	15.23	24.74	31.45
Rural Enrolment Government (%)	85.50	89.29	87.85	70.68	63.23	56.65
Rural Enrolment Private (%)	8.81	4.62	5.54	5.77	8.71	14.34
% Girls to Total Enrolment	48.13	48.33	48.48	46.31	46.41	46.05
Gross Enrolment Ratio (Primary)	98.50	111.60	95.10	100.3	109	101.1
Gross Enrolment Ratio (Upper Primary)	99.60	69.70	79.30	49.91	59.7	90.9
Net Enrolment Ratio (Primary)	97.00	93.80	79.90	78.89	85.8	82.0
Net Enrolment Ratio (Upper Primary)	48.80	53.70	60.70	36.64	42.4	68.4
Teachers Total	2739	2878	3451	206693	243342	309755
Teachers Government School (%)	88.90	92.74	90.00	83.71	76.88	68.38
Teachers Private School (%)	11.10	7.26	10.00	16.29	23.12	31.68
Pupil Teacher Ratio	1:32	1:29	1:25	1:35	1:32	1:26
Student Classroom Ratio	1:33	1:30	1:24	1:38	1:34	1:27
Drop Out Rate (I-V)	0.6	1.7	1.8	4.3	3.9	0.7

Health		Narmada			Gujarat		
		2008-09	2010-11	2013-14	2008-09	2010-11	2013-14
Number of CHCs		4	4	4	273	305	318
Number of PHCs		21	22	22	1084	1114	1158
Chiranjeevi Yojana	% of Normal Delivery	92.95	90.88	84.36	48.82	89.10	85.35
	% of LSCS	5.34	3.42	10.40	48.82	6.37	8.52
	% of Complicated	1.71	5.68	5.22	2.36	4.53	6.12
National Program for Control of Blindness	% cases served by District Hospital	4.00	2.83	0.95	3.12	3.18	2.97
	% cases served by Sub-District Hospital	3.45	00	00	2.72	2.72	2.44
	% cases served by DMU / CMU	00	00	00	0.39	0.37	0.13
	% cases served by NGO	82.88	78.04	59.64	37.96	38.76	39.02
	% cases served by Private	9.65	10.02	39.41	54.89	52.86	53.25
	% cases served by Others	00	0.09	00	0.93	1.05	2.16
Performance of ANC Registration	% against Workload	73.3	90.66	39.09	87.60	93.11	101.38
	% of Early Registration to Total ANC	62.36	79.33	87.07	60.60	66.21	70.87
BCG Immunization	% against Workload	80.73	91.50	31.52	90.67	91.81	92.89
	% against Live Birth	106.67	132.65	99.79	106.09	103.64	107.13
DPT 3rd Dose Immunization	% against Workload	77.42	96.62	38.58	84.48	93.13	96.66
	% against Live Birth	102.30	132.81	117.30	98.85	99.69	107.11
Measles Immunization	% against Workload	68.14	87.11	36.28	81.36	90.09	90.11
	% against Live Birth	90.04	119.74	110.31	95.20	96.43	99.86
Fully Immunized Children	% against Workload	68.00	86.57	36.03	79.14	88.70	88.13
	% against Live Birth	89.86	118.99	109.57	92.60	94.94	97.66
Performance of Sterilization	% against Workload	119.17	95.92	75.6	92.89	85.72	81.3
	% of NSV to total Sterilization	0.44	0.35	0.20	3.55	2.12	0.56

Incidents of Crime / Violence Registered	Narmada			Gujarat		
	2009-2010	2010-2011	2013-2014	2009-2010	2010-2011	2013-2014
Total Cognizable Crimes	816	754	717	115183	123371	157435
% Incidents of Murder	1.83	2.51	1.81	0.89	0.91	0.71
% Incidents of Dacoity	0.36	0	0	0.21	0.18	0.18
% Incidents of Burglary	1.71	0.92	2.23	3.90	3.65	3.16
% Incidents of Theft	3.79	3.84	7.25	17.08	13.00	9.73
% Incidents of Robbery	0.24	0.26	0.13	1.23	1.11	0.91
% Incidents of Kidnapping	0.49	0.26	2.37	1.17	1.31	1.69
% Incidents of Riots	1.10	0.92	1.39	1.34	1.31	1.09
% Incidents of Culpable Homicide	0.24	0.13	0	0.03	0.03	0.03
% Incidents of Counterfeit Coins	0.12	0.13	0.13	0.21	0.21	0.09
% of Miscellaneous Incidences	90.07	90.98	84.65	52.75	56.57	63.92

Living Condition	Narmada	Gujarat
	2011	2011
Total number of households	122039	12181718
Households by Main Source of Drinking Water (%)		
Tap water from treated source	12.37	39.85
Tap water from untreated source	21.52	29.18
Covered well	1.24	2.30
Un-covered well	1.29	4.79
Hand pump	56.22	11.62
Tube well/Borehole	4.56	9.60
Spring/ River/Canal	2.36	0.43
Tank/Pond/Lake	0.17	0.22
Other sources	0.24	2.00
Households by the Condition of Houses Occupied (%)		
Good	55.84	67.26
Liveable	42.79	31.21
Dilapidated	1.36	1.54
Households by Predominant Material of Roof of Houses Occupied (%)		
Grass/Thatch/Bamboo/Wood/Mud etc.	1.78	1.53
Plastic/Polythene	0.29	0.49
Handmade Tiles	32.24	8.94
Machine made Tiles	30.65	22.55
Burnt Brick	0.19	0.52
Stone/Slate	0.79	3.10
G.I./Metal/Asbestos sheets	23.43	18.89
Concrete	10.53	43.89
Any other material	0.06	0.10
Households by Availability of Bathing Facility & Drainage (%)		
Households having bathing facility within the premises	53.40	67.43
Households having Bathroom	17.21	56.46
Households having Enclosure without roof	36.19	10.97
Households not having bathing facility within the premises	46.58	32.57
Waste water outlet connected to Closed drainage	5.23	37.29
Waste water outlet connected to Open drainage	8.89	9.44
Waste water outlet without drainage	85.87	53.27
Households by Main Source of Lighting (%)		
Electricity	83.58	90.41
Kerosene	11.97	8.08
Solar energy	3.20	0.13
Other oil	0.11	0.21
Any other	0.28	0.21
No lighting	0.88	0.96

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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
BT(COTTON)	: Bacillus Thuringiensis Cotton
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

I NTRODUCTION



Chapter 1

INTRODUCTION IN BRIEF

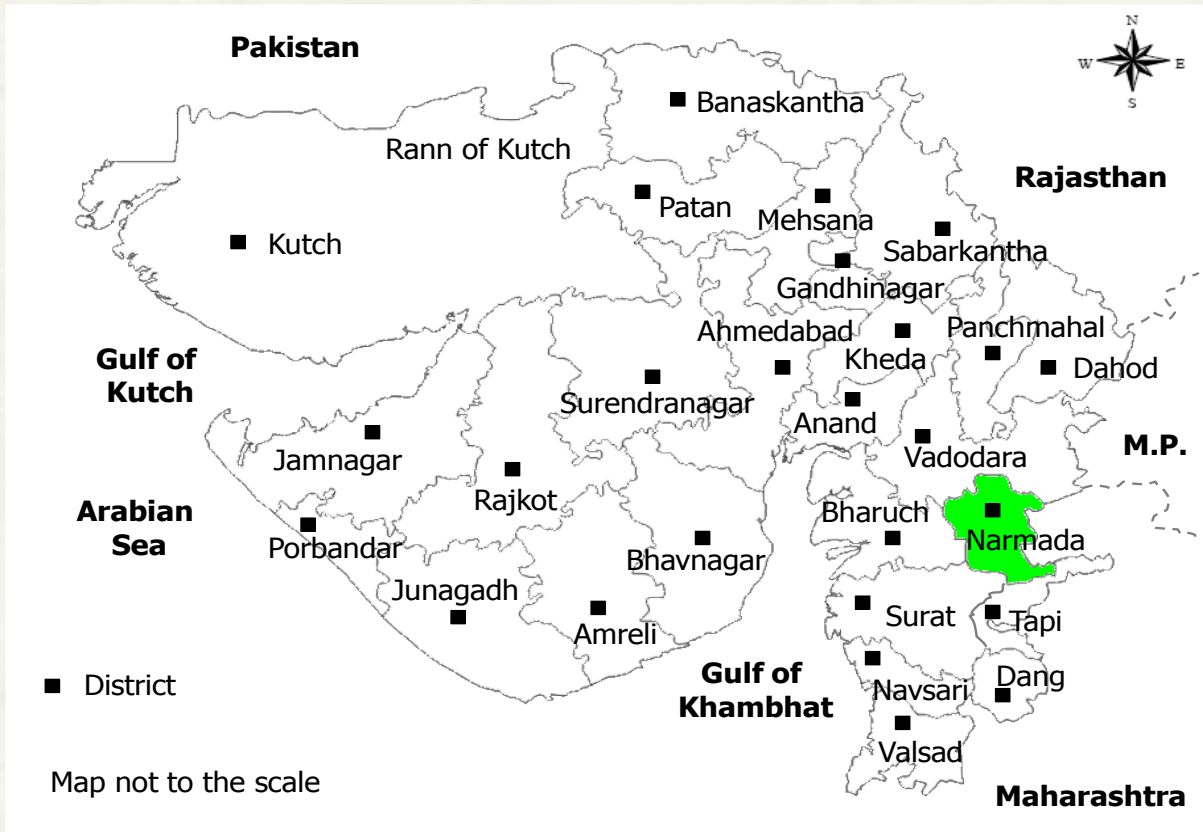
1.1 Historical Overview

Narmada district obtained its name from river Narmada as it is placed in the catchment area of river Narmada. Narmada district came into existence in 1997, till then three talukas viz. Nandod, Sagbara, and Dediapada were part of the Bharuch district and one taluka viz. Tilakvada was under the Vadodara district. The district headquarter is Rajpipla. Earlier, this place was known as Nandipur, which is now known as Nadod region. Narmada region was ruled by several Kings and Navabs in ancient times and happened to be the princely state. Narmada region witnessed the rulers like Guptas, Mugals, Marathas (Gaikwad), Rajputs (Gohil) and British. After the independence of India, the princely state of Rajpipla (as a part of Bharuch) region was incorporated in the Indian union and it became the integral part of the Mumbai state. Since 1st May 1960, on separation of Gujarat from Mumbai state, Narmada region became an integral part (of Bharuch district) of Gujarat state. In 1997, Bharuch and Vadodara districts were restructured and Narmada district was carved out from the Bharuch and Vadodara district (Census of India, 2001).

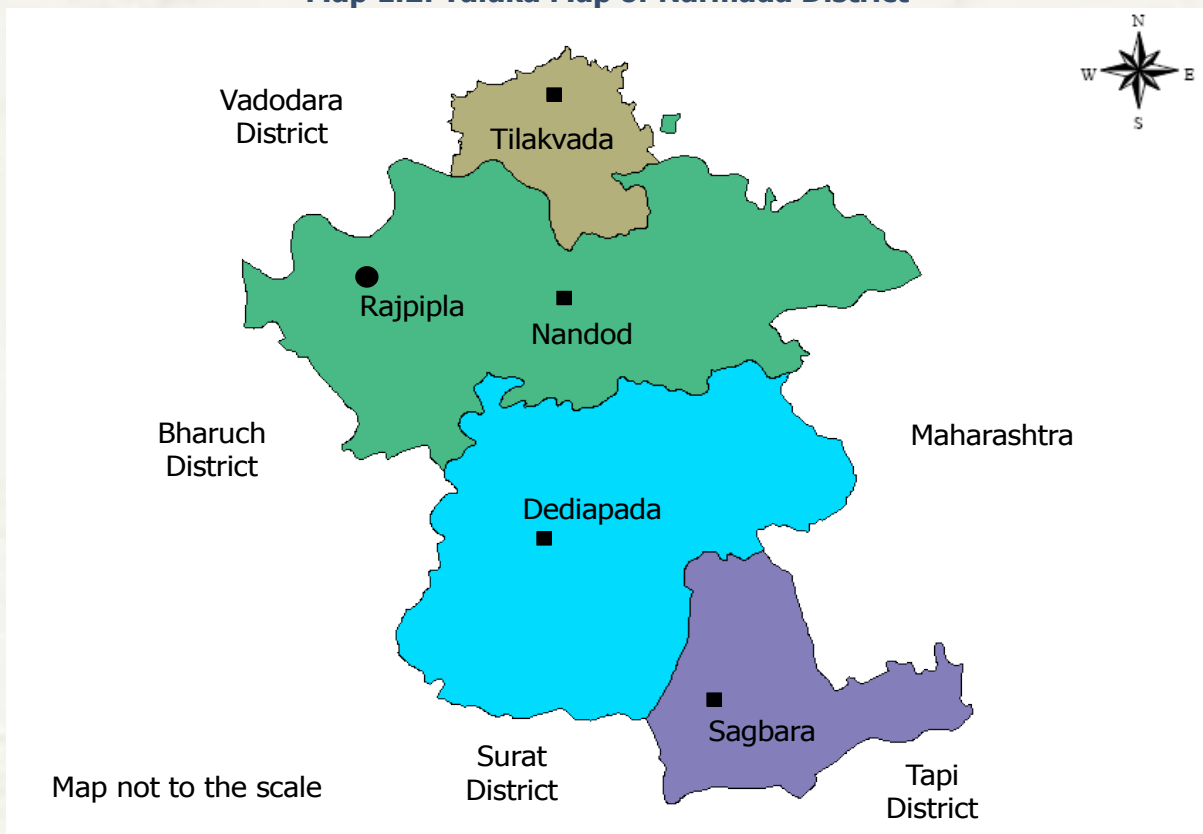
1.2 Location

The Narmada district is located between the parallels of 21°. 24' and 22°. 4' North Latitude and the meridians of 73°.17' and 73°.59' East Longitude situated in the eastern part of Gujarat. The Narmada district covers the geographical area of 2755 sq. km. The district is bounded by Vadodara in the north and Surat district in the south. On the west it is bounded by the Bharuch district and on the east by the Maharashtra state. The major rivers that flow through the Narmada district are Narmada, Karjan, Kim, Terav, Kaveri and Mohan. State Highway 160, 63, 159, 5 connects the district to Vadodara district, while State Highway 64, 13, 5 connects the district to Bharuch district, whereas State Highway 65, 174 connects the district to Surat. Rajpipla is the only railway station in the district and connects it to the Mumbai-Ahmedabad-Jaipur-Delhi corridor.

Map 1.1: Location of Narmada District in Gujarat



Map 1.2: Taluka Map of Narmada 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 Bharuch and Vadodara districts and created new district Narmada. Thus the new district Narmada had four talukas namely Tilakvada, Nandod, Dediapada and Sagbara. Out of them Tilakvada was transferred from Vadodara district and Dediapada, Sagbara and Nandod were transferred from Bharuch district (Census of India, 2001). However in 2014, Garudeshwar taluka was carved out of Nandod taluka, but Garudeshwar taluka has been considered as a part of Nandod taluka in this report. Thus the district has 4 talukas (considering Garudeshwar taluka as a part of Nandod taluka) all together consists of 612 villages, 221 gram Panchayats, 121 group Panchayats, 100 independent Panchayat and 1 Municipal Town. 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	
Dediapada	166	48	38	8	46	
Nandod	196	7	34	69	103	Rajpipla
Sagbara	93	5	21	10	31	
Tilakvada	97	0	28	13	41	
Narmada	552	60	121	100	221	

Source: District Statistics Office, Narmada (2015)

Nandod taluka has highest number of inhabited villages (196) and independent Panchayats (69), while Dediapada taluka has highest number of uninhabited villages (48) and group Gram Panchayats (38). Sagbara taluka has least number of inhabited villages (93) and group Gram Panchayats (21), while Dediapada taluka has least number of independent Panchayats (8), whereas Tilakvada taluka has no uninhabited villages. Moreover, there is 1 Statutory Town viz. Rajpipla with Municipality and 4 Census Towns viz. Kevadiya Colony, Dediapada, Sagbara and Selamba in Narmada district. Furthermore, Dediapada seat of Narmada region falls under the Bharuch Lok Sabha (parliamentary) constituency and there are two Vidhan Sabha (legislative assembly) segments in Narmada viz. Nandod and Dediapada.

1.4 Physical Characteristics

This district is the region of hills in the north-east and south-east directions. The regions in district can be divided in the three main divisions viz. (1) Narmada Gorge, (2) Satpura Hills, (3) Tapi Basin. The region of Narmada Gorge spreads over the north-eastern part of the district, occupying parts of Nandod and Dediapada talukas. It makes its limits with lower Narmada Valley in the north, Maharashtra State in the east and Satpura Hills in the South. The region of Satpura hills occupies the eastern part of the district and extends over the talukas of Nandod, Dediapada and Sagbara. Maharashtra state bounds it in the east, Surat district in the south, Lower Narmada Valley in the west and Narmada Gorge in the North. The region of Tapi Basin extends over the south-eastern part of the district and occupies the eastern portion of Sagbara taluka. It is surrounded by Satpura Hills from west and north by Maharashtra State from east and by Surat district from south.

The rivers of the district are Narmada, Kim, Karjan, Terav, Kaveri and Mohan. The source of the Narmada is in the hills of Amarkantak in the Bilaspur district of Madhya Pradesh, 3500 feet above the sea level. The Kim river, with a course seventy miles in length and a drainage area estimated at 700 square miles, falls into the Gulf of Cambay about ten miles south of the estuary of the Narmada. The Karjan rises in the highest part of the Rajpipla hills, hardly ten miles from the Tapi course in the south and flowing north drains the Rajpipla uplands and the Nandod plain. The Mohan river rises in the south and joins the Karjan at Thava. The Terav, a more important stream, rises in the heights near chick Amti and after a course of about 30 miles joins the Karjan on the right bank, a few miles west of the fort of Rajpipla. The Kaveri is an important river of the Narmada district. The river flows from the Rajpipla hills and enters the Narmada river nearly opposite of Shuklatirth.

Generally in the district rainfall is regular. The average annual rainfall of Narmada district is 800 to 1000 mm. The southern and western area of Rajpipla is the rainiest part of the district. The soil in Narmada district can be classified into (i) rocky soils (ii) alluvial soil in low-lying area (iii) medium soil. The rocky soils are found in Dediapada, Sagbara and Rajpipla's minor area of Narmada district. Alluvial soil in low-lying areas found in Dediapada and Sagbara taluka of this district. The medium soil is found in the river side belt of Tilakvada.

The Sardar Sarovar Project dam on river Narmada at Kevadia colony is one of the largest water resources projects of India offering benefits to four major states- Maharashtra, Madhya Pradesh, Gujarat and Rajasthan. Narmada district comes in Seismic Zone- III.

1.5 Basic Demographics

As per the abstracts of Census of India (2011) the total population of Narmada increased from 514,404 in 2001 to 590,297 in 2011 reporting a decadal growth of 14.77%. In 2001, Narmada shared 1.01% of population of Gujarat; whereas in 2011, Narmada shared 0.97% 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 Narmada

	% Decadal Growth 2001-2011			Sex Ratio		Urbanisation		Work Participation	
	Population	Male	Female	2001	2011	2001	2011	2001	2011
Dediapada	21.50	21.00	22.02	969	977	0.00	5.17	53.55	50.85
Nandod	4.29	3.31	5.36	917	935	22.54	17.27	45.61	46.07
Sagbara	32.63	33.61	31.68	1028	1013	0.00	10.11	55.82	56.94
Tilakvada	13.94	13.44	14.47	916	924	0.00	0.00	53.73	49.91
Narmada	14.75	14.05	15.49	949	961	10.13	10.48	50.37	49.94

Source: Census of India (2011)

The sex ratio in Narmada has marginally improved from 949 females per 1000 males in 2001 to 961 females per 1000 males in 2011, while the sex ratio in rural area has improved from 952 females per 1000 males in 2001 to 961 females per 1000 males in 2011, whereas the sex ratio in urban area has improved from 916 females per 1000 males in 2001 to 953 females per 1000 males in 2011. However, the sex ratio (0-6 age group) in the district worsened from 945 females per 1000 males in 2001 to 941 females per 1000 males in 2011. Furthermore, the urbanization has marginally increased from 10.13% in 2001 to 10.48% in 2011. The overall literacy rate has increased from 59.86 in 2001 to 72.31 in 2011, while male literacy rate increased from 72.44 in 2001 to 81.19 in 2011, whereas female literacy rate increased from 46.61 in 2001 to 63.09 in 2011. The gender wise demographic features of Narmada are presented in Table 1.3.

Table 1.3: Gender wise Demographic Features of Narmada

% Male		% Female		% Male (0-6)		% Female (0-6)		Male Literacy		Female Literacy	
2001	2011	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
51.32	51.01	48.68	48.99	8.09	6.82	7.65	6.42	72.44	81.19	46.61	63.09

Source: Census of India (2011)

The density of population in Narmada has increased from 187 to 210 per square kilometer from 2001 to 2011 respectively.

1.6 Narmada 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. Narmada was placed at a lower rank of human development. The HDI value and Gender Development Index (GDI) value of Narmada turned out to be 0.473 and 0.457 respectively and ranked 14th and 20th 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, Narmada ranked 15th in Income with the index value 0.061, while it ranked 17th in Education with the index value 0.637, whereas it ranked 9th in Health and 21st in Housing with the index values 0.722 and 0.184 respectively. However, Narmada ranked 2nd in Participation with the index value 0.508. The overall HDM-1 rank of district was 19th with the index value 0.422. This indicates that Narmada lags far behind other districts in terms of HDM-1 indicators except participation. Moreover, it is revealed from the Table 1.4 that the index values for Income, Education and Housing in Narmada district are much lower than the state average indices pertaining to HDM-1.

Table 1.4: Human Development Indices (HDM-1) and Ranking at a Glance

Indicators	Income	Education	Health	Housing	Participation	HDM-1	HDI
Narmada Index 2001	0.061	0.637	0.722	0.184	0.508	0.422	0.473
Gujarat Index 2001	0.241	0.744	0.710	0.266	0.434	0.479	0.565
Narmada Rank 2001	15	17	9	21	2	19	14
Gujarat Rank 2001	6	6	9	2	10	6	6

Source: Hirway and Mahadevia (2004)

In terms of GDM-1, Narmada was ranked 24th in Income with the index value 0.037, while it ranked 17th in Education with the index value 0.624, whereas it ranked 9th in Health and 21st in Housing with the index values 0.709 and 0.184 respectively. However, Narmada ranked 2nd in Participation with the index value 0.452. The

overall GDM-1 rank of Narmada was 20th with the index value 0.401. This depicts that Narmada lags much behind other districts in terms of GDM-1 indicators except Participation. Moreover, it is revealed from the Table 1.5 that the index values for Income, Education and Housing in Narmada district are much lower than the state average indices pertaining to GDM-1.

Table 1.5: Human Development Indices (GDM-1) and Ranking at a Glance

Indicators	Income	Education	Health	Housing	Participation	GDM-1	GDI
Narmada Index 2001	0.037	0.624	0.709	0.184	0.452	0.401	0.457
Gujarat Index 2001	0.208	0.736	0.710	0.266	0.348	0.454	0.551
Narmada Rank 2001	24	17	9	21	2	20	20
Gujarat Rank 2001	4	6	9	2	12	6	6

Source: Hirway and Mahadevia (2004)

In terms of GEI, Narmada was ranked 2nd in Income with the index value 1.005, while it ranked 15th in Education with the index value 0.756, whereas it ranked 18th in Health with the index values 0.848 and it ranked 3rd in Participation with the index value 0.437. The overall GEI rank of Narmada was 7th with the index value 0.762. This reveals that Narmada lags behind other districts in terms of GEI indicators except Income and Participation. Table 1.6 shows the index and rank of Narmada and Gujarat for indicators of GDM-1.

Table 1.6: Human Development Indices (GEI) and Ranking at a Glance

Indicators	Income	Education	Health	Participation	GEI
Narmada Index 2001	1.005	0.756	0.848	0.437	0.762
Gujarat Index 2001	0.509	0.804	1.055	0.358	0.682
Narmada Rank 2001	2	15	18	3	7
Gujarat Rank 2001	4	9	8	10	8

Source: Hirway and Mahadevia (2004)

In terms of HDM-2, Narmada was ranked 1st in Environment, 8th in Basis Services, 3rd in Regional Equality and 1st in Patriarchy with the index values 1.000, 0.487, 0.806 and 0.675 respectively. The overall HDM-2 rank of Narmada was 1st with the index value 0.742. This exhibits that Narmada lags behind other districts in terms of GEI indicators pertaining to Basic Services and Regional Equality. Table 1.7 presents the index and rank of Narmada and Gujarat for indicators of HDM-2.

Table 1.7: Human Development Indices (HDM-2) and Ranking at a Glance

Indicators	Environment	Basic Services	Regional Equality	Patriarchy	HDM-2
Narmada Index 2001	1.000	0.487	0.806	0.675	0.742
Gujarat Index 2001	0.315	0.692	0.769	0.563	0.585
Narmada Rank 2001	1	8	3	1	1
Gujarat Rank 2001	13	2	9	9	6

Source: Hirway and Mahadevia (2004)

1.7 District Human Development Report: Narmada

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. Narmada district (as a part of Bharuch district) in south 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 4 talukas of Narmada district (in 1966 Tilakvada was in Vadodara district and Dediapada, Nandod and Sagbara were in Bharuch district) were declared as backward. While on the basis of selected indicators Hathi Committee (GoG, 1972) and Dr. I. G. Patel Committee (GoG, 1984) declared 3 talukas (Dediapada, Sagbara and Tilakvada) 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 4 talukas of Narmada district, 2 talukas (viz. Dediapada and Sagbara) were included amongst the 50 most backward talukas of state. This depicts that over a period of past 5 decades, Narmada region have remained backward with reference to various indicators. It implies that not only the poor socio-economic conditions but also the poor human development conditions 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 Narmada district.
- To study the major challenges pertaining to human development in talukas of Narmada district.
- To discover the inter taluka gaps pertaining to human development aspects in Narmada district.
- To identify the constraints and propose remedy to translate the development programs into action in Narmada district.
- To understand the priority area of development in Narmada 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 Narmada, 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 Narmada 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 Narmada 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 Narmada district. It discusses the historical, location, administrative, physical and demographic features of Narmada. The chapter highlights the position of Narmada in human development ladder of Gujarat.

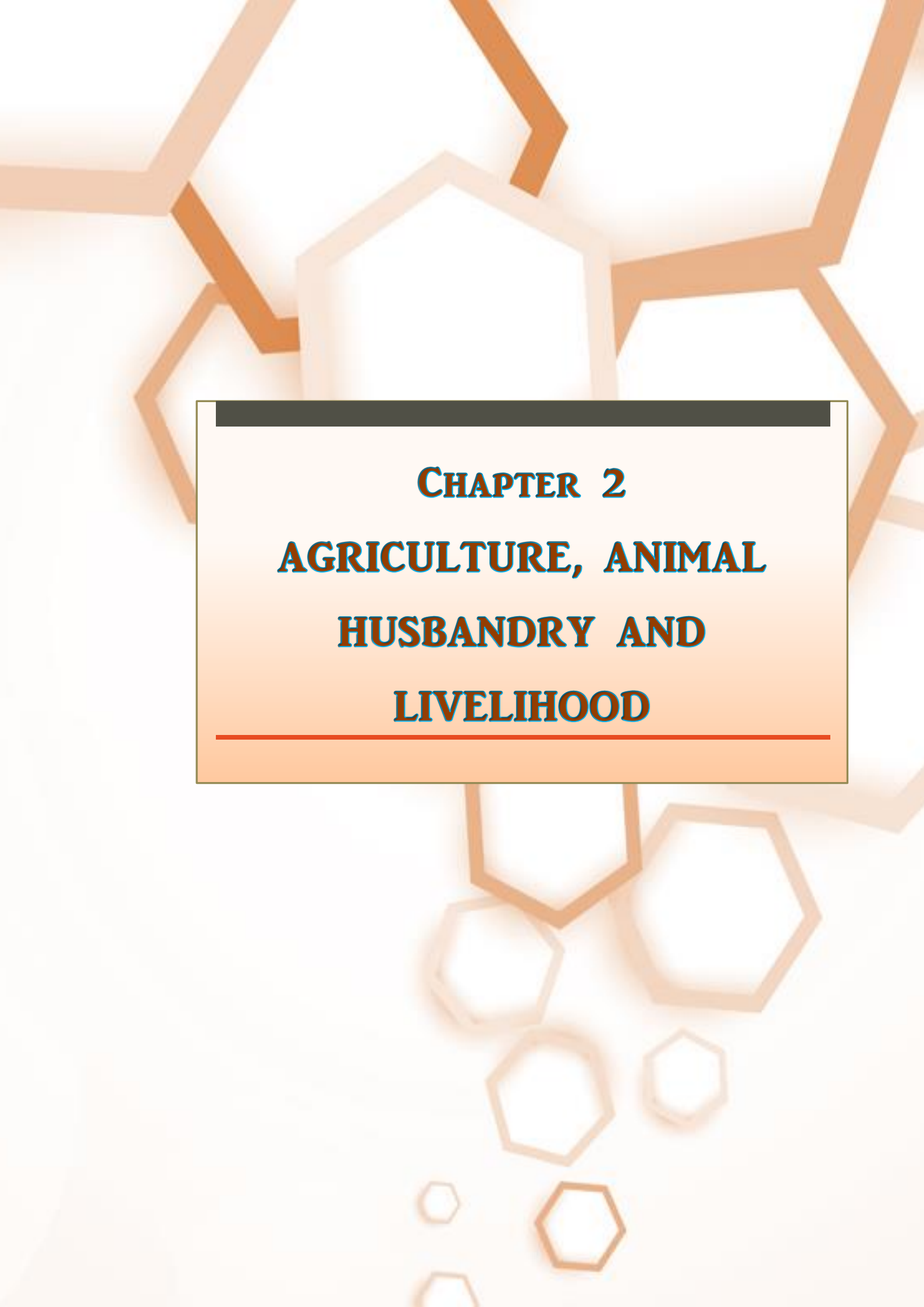
Chapter 2: Agriculture, Animal Husbandry and Livelihood; discusses land use pattern, land holding features, cropping pattern, major crops and productivity, livestock in Narmada, livelihood by agriculture and animal husbandry, schemes and programs for agriculture and animal husbandry, success stories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

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 Narmada.

Chapter 4: Health, Nutrition and Sanitation; deals with health care scenario in Narmada. 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 Narmada.

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 Narmada.

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

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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 Narmada 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 Narmada. Almost 85.09% of working population is engaged in agriculture sector out of which 25.04% are cultivators and 74.96% are agricultural labourers. Almost 77.60% of cultivators and 50.13% of the agricultural labourers are male. The land use pattern in the district depicts that nearly 44.37% of area is under cultivation. The average size of the operational holdings of the district is 2.19 hectare. Agriculture in Narmada is dominated by small farmers (owning 1 to 2 hectares of land), which shares 32.57% of total operational holdings. However, semi-medium farmers (owning 2 to 4 hectares of land) are equally dominant, which shares 30.90% of hectares of operational holdings. Out of total cropped area 53.08% of area is irrigated and 52.33% of irrigation is shared by food crops and 47.67% 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 Narmada, 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 Narmada.

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 backward agrarian area like Narmada where majority of working population is dependent on agriculture.

The total reported area of Narmada is 275536 hectares, of which 36.69% is forest, 3.57% is barren land, 7.06% is under non agricultural use, 44.37% is cultivable land, 3.48% is grazing land and 4.84% is uncultivable land. However, 43.09% of total reported area is net cropped area and 17.83% of total reported area is irrigated. Geographically, Nandod (including Garudeshwar taluka) has been the biggest taluka sharing 38.94% of district area, while Tilakvada has been the smallest taluka sharing 9.24% of area of district. Dediapada shares maximum forest area (64.43%) of the district, while Tilakvada shares minimum forest area (0.95%) of the district. Nandod shares largest area (64.82%) under non-agricultural use and Sagbara shares least area (2.87%) under non agricultural use of the district. Nandod shares maximum area (41.85%) under cultivation and Sagbara shares least area (15.47%) under cultivation of the district. Nandod shares largest (42.31%) net cropped area, while Sagbara shares least (15.77%) of net cropped area of the district. Nandod shares highest portion (57.61%) of net irrigated area, while Sagbara shares least portion (8.87%) of net irrigated area of 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 %	
Dediapada	64.43	60.71	21.00	3.81	25.75	29.35	24.57	27.19	6.16	2.82	38.94
Nandod	24.70	23.28	64.82	11.75	41.85	47.70	42.31	46.85	57.61	26.39	38.92
Sagbara	9.91	28.19	2.87	1.57	15.47	53.20	15.77	52.68	7.76	10.72	12.90
Tilakvada	0.95	3.79	11.30	8.63	16.93	81.32	17.35	80.92	28.47	54.93	9.24
Narmada	100	36.69	100	7.06	100	44.37	100	43.09	100	17.83	100

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

Majority of area in Dediapada is forest region, while majority of area in all other talukas is cropped area. About 45% to 55% of area in Nandod and Sagbara talukas is under cultivation and more than 80% of area in Tilakvada is under cultivation. Moreover, more than 57% of land in Tilakvada is irrigated area. However, all the talukas except Dediapada shares greater proportion of net cropped 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 Narmada, 1.48% belongs to SC, 81.55% belongs to ST and 16.97% belongs to other categories, while out of total operational holdings (in numbers) 2.11% belongs to SC, 65.62% belongs to ST and 32.27% belongs to other categories, whereas out of total operational holdings (in hectares) 1.25% belongs to SC, 73.42% belongs to ST and 25.33% belongs to other categories in Narmada as exhibited in Table 2.2.

Table 2.2: Taluka wise Operational Holdings

Taluka / District	Total Holdings		Average Size (Ha)	SC Holdings		ST Holdings		Other Holdings	
	(No)	(Ha)		(%No)	(%Area)	(%No)	(%Area)	(%No)	(%Area)
Dediapada	11203	38647	3.45	0.44	0.20	96.68	96.63	2.88	3.16
Nandod	26840	47128	1.76	2.56	1.80	55.79	60.79	41.65	37.41
Sagbara	7138	17508	2.45	0.35	0.37	93.61	94.52	6.04	5.11
Tilakvada	10397	18514	1.78	3.94	2.87	38.32	37.17	57.74	59.97
Narmada	55578	121797	2.19	2.11	1.25	65.62	73.42	32.27	25.33

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

On the other hand Nandod and Sagbara shares 64.64% and 22.50% of SC population of the district respectively and shares 58.67% and 35.01% of SC holdings of the district respectively. On the other hand, Nandod and Dediapada shares 36.70% and 34.94% of ST populations of the district respectively and shares 41.06% and 29.70% of ST holdings of the district respectively. Moreover, it is noticed that out of total population of Dediapada, 96.41% are ST, while out of total holdings of Dediapada, 96.68% are ST holdings. Out of total population of Sagbara, 91.19% are ST, while out of total holdings of Sagbara, 93.61% are ST holdings. However, out of total population of Nandod and Tilakvada, 73.29% and 55.42% respectively are ST, while out of total holdings of Nandod and Tilakvada only 55.79% and 38.32% respectively are ST holdings. Agriculture being a major source of livelihood in Narmada, the landholding share significantly impacts the standard of living of people in Narmada.

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 Narmada, about 43.09% of area is the net cropped area (under cultivation). About 27.19%, 46.85%, 52.68% and 80.92% of area respectively in Dediapada, Nandod, Sagbara and Tilakvada is 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 58.51%, which increased to 59.49% in 2011-12 and further increased to 60.24% in 2013-14. Correspondingly, in 2009-10 the share of area under non food crops was 41.49%, which decreased to 40.51% in 2011-12 and further decreased to 39.76% in 2013-14. However, it has been noticed that more than 60% of cropped area in Dediapada and more than 70% of cropped area in Sagbara remained under the cultivation of food crops, while more than 40% of cropped area in Nandod and more than 60% of cropped area in Tilakvada have remained under the cultivation of non food crops. Moreover, cropping pattern in Dediapada and Nandod depicted increase in area under food crop cultivation during last decade, while the cropping pattern in Tilakvada depicted increase in area under non food crop cultivation during last decade. However, cropping pattern in Sagbara depicted increase in area under food crop cultivation till 2011-12, which later declined till 2013-14 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 2013-14	
	Food Crops	Non Food Crops	Food Crops	Non Food Crops	Food Crops	Non Food Crops
Dediapada	67.14	32.86	67.57	32.43	73.87	26.13
Nandod	53.81	46.19	54.41	45.59	59.39	40.61
Sagbara	76.05	23.95	78.02	21.98	77.63	22.37
Tilakvada	39.99	60.01	38.54	61.46	27.38	72.62
Narmada	58.51	41.49	59.49	40.51	60.24	39.76

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

This scenario indicate relatively stable trend in area under food crops and non food crops in Narmada during last decade. Nandod and Tilakvada have better irrigation availability compared to other talukas 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 Narmada are Wheat, Jowar and Maize, while major oil seeds grown in the district are Groundnut and Castor, whereas the main fruit crop cultivated in Narmada is Banana. It has been noticed that productivity (Yield in Kg per Hectare) of main food grain crops, oil seeds, pulses as well as fruit has remained volatile in Narmada during last decade. Narmada is one of the major players in production of Banana, but the productivity of Banana in the district has declined between 2010 and 2012 as shown in Table 2.4.

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

Major Crops	Narmada				Gujarat			
	2010-11	2011-12	2012-13	2013-14	2010-11	2011-12	2012-13	2013-14
Wheat	3300	3186	3000	3165	3156	3015	2876	3143
Rice	875	821	1103	814	2061	2142	2136	2126
Juwar	1267	1222	1325	1024	1105	1127	1348	1429
Bajra	2400	2529	3000	2817	1720	1861	1743	2032
Maize	1798	1761	1721	1574	1730	1525	1727	1501
Gram	1380	1139	978	1251	1138	1139	978	1273
Tuwer	879	928	965	737	986	1054	1185	995
Sugarcane	7680	7040	7661	7685	7240	6314	7141	7215
Cotton	489	497	483	428	637	587	343	662
Groundnut	1762	1920	2287	1884	1860	1611	593	2957
Soyabean	809	840	940	809	810	793	779	796
Castor	2008	2055	1988	2171	2010	2055	1989	2190
Banana	68409	62521	64931	65220	70308	71856	71575	71591

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

Moreover, as the larger area in Narmada is under the cultivation of food crops, the earnings are largely unpredictable as they are directly associated with the uncertain productivity.

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 Narmada has remained stagnant in last decade which indicates less possibility to make any appreciable increase. Thus; raising the cropping intensity is the only viable option left. Cropping intensity refers to rising of a number of crops from the same field during one agriculture year. It can be expressed as $\text{Cropping Intensity} = (\text{Gross Cropped Area} / \text{Net Cropped Area}) \times 100$. 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 Narmada is shown in Table 2.5.

Table 2.5: Taluka wise Cropping Intensity

Taluka / District	Cropped Area (Hectares) (2009-10)		Cropping Intensity (2009-10)	Cropped Area (Hectares) (2011-12)		Cropping Intensity (2011-12)
	Net	Total		Net	Total	
Dediapada	28884	29894	103.50	31575	34961	110.72
Nandod	39649	46451	117.16	48521	51465	106.07
Sagbara	16145	18616	115.31	18271	21503	117.69
Tilakvada	20453	22197	108.53	27373	29503	107.78
Narmada	105131	117158	111.44	125740	137432	109.30

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

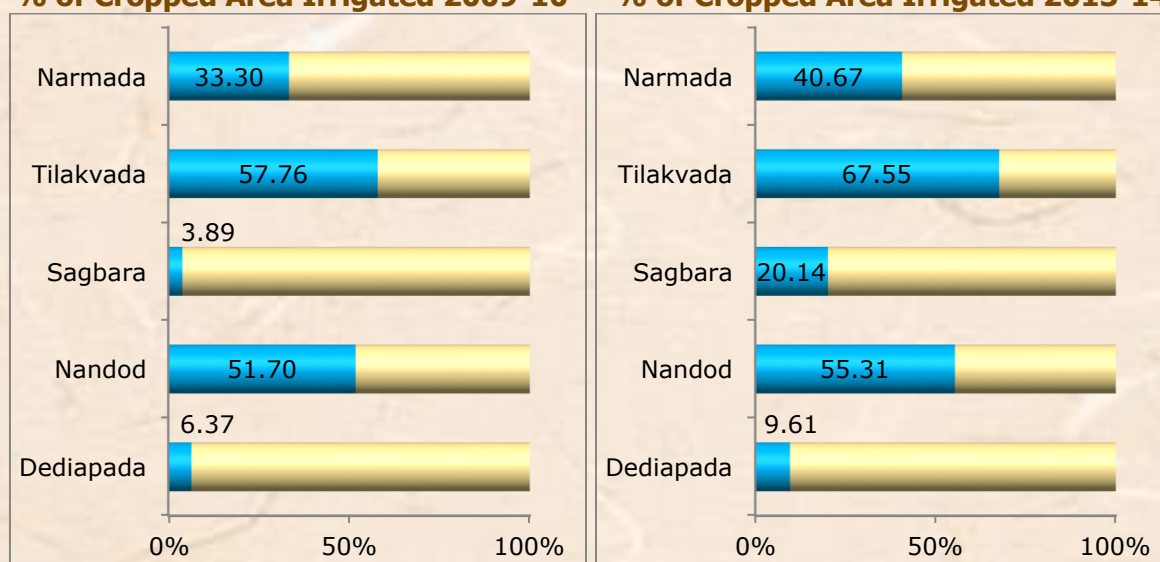
Over a period of time the area cropped more than once has declined but net cropped area has increased in Narmada, therefore the total cropped area has increased and the overall cropping intensity in Narmada seems to have declined from 111.44 to 109.30 between 2009 and 2012. However it has been noticed that cropping intensity has increased in Dediapada and Sagbara talukas, while the cropping intensity has decreased in Nandod and Tilakvada talukas.

If the cropping intensity increases, the farmers perceive 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 17.83% of area is irrigated, accounting for nearly 40.67% of the total cropped area irrigated. It has been noticed that the share of irrigated area as compared to the total cropped area in Narmada has increased during last decade. Nandod and Tilakvada has more than half of its cropped area that is irrigated, while Dediapada and Sagbara has more than half of its cropped area that is unirrigated as shown in Figure 2.1.

Figure 2.1: Taluka Wise Irrigated Area as a % of Cropped Area in Narmada
% of Cropped Area Irrigated 2009-10 % of Cropped Area Irrigated 2013-14



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

Proportion of irrigated area to the cropped area has marginally increased in all the talukas in last decade. However, Sagbara and Tilakvada witnessed major increase in proportion of irrigated area to the cropped area, while Dediapada and Nandod witnessed minor increase in irrigated cropped area. Moreover, it is noticed that out of total area under cultivation of food crops, only 28.67% of area under cultivation of food crops availed irrigation in 2009-10 and out of total area under cultivation of non food crops, about 39.84% of area under cultivation of non food crops availed irrigation in 2009-10. Over a period of time in 2013-14, out of total area under cultivation of food crops, about 35.33% of area under cultivation of food crops availed irrigation, while out of total area under cultivation of non food crops, about 48.75% of area under cultivation of non food crops availed irrigation in 2013-14. 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

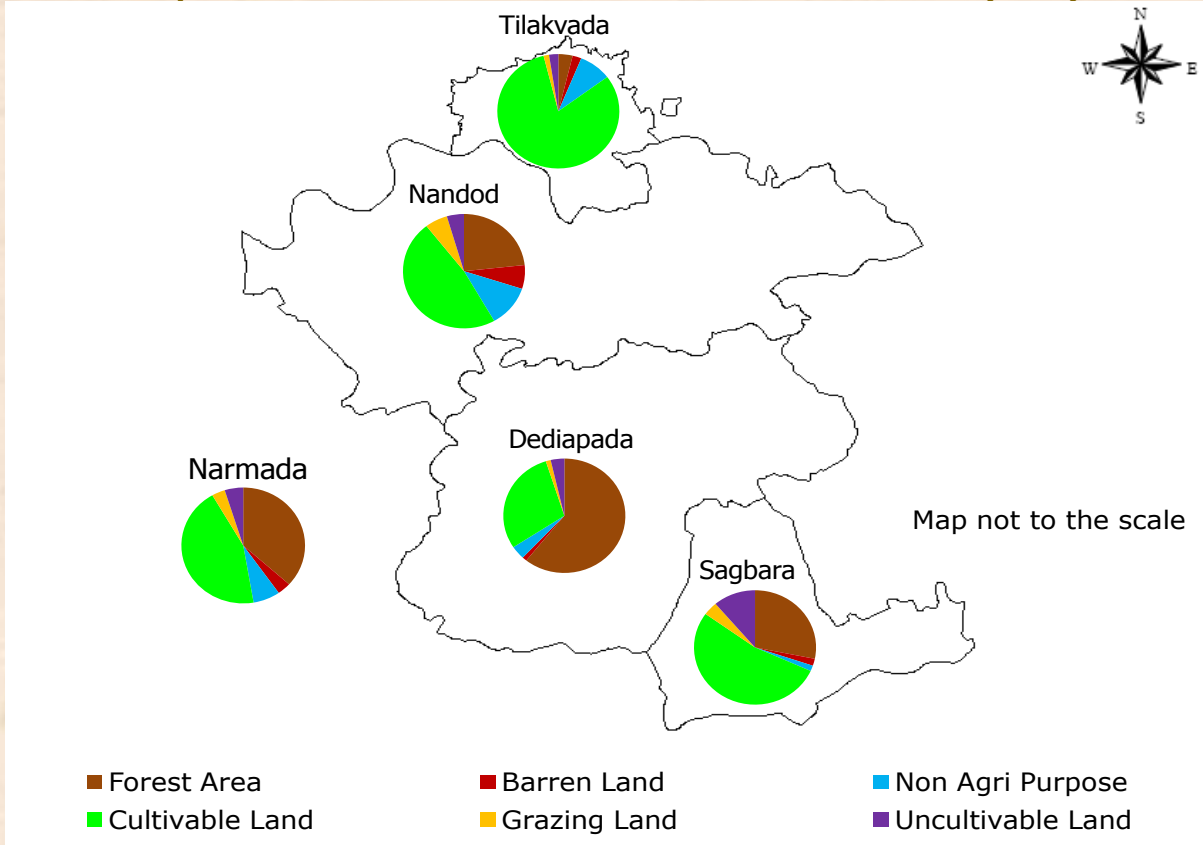
Taluka / District	Food Crops + Non Food Crops Area under Cultivation (Hectare)		Food Crops + Non Food Crops Area under Irrigation (Hectare)		Irrigation Status (% Food Crops + Non Food Crops Area Irrigated)		Scope of Irrigation (% Food Crops + Non Food Crops Area Unirrigated)	
	2009-10	2013-14	2009-10	2013-14	2009-10	2013-14	2009-10	2013-14
	Dediapada	30747	31055	1960	2984	6.37	9.61	93.63
Nandod	52260	53775	27018	29742	51.70	55.31	48.30	44.69
Sagbara	25550	20950	995	4219	3.89	20.14	96.11	79.86
Tilakvada	25256	22584	14589	15255	57.76	67.55	42.24	32.45
Narmada	133813	128364	44562	52200	33.30	40.67	66.70	59.33

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

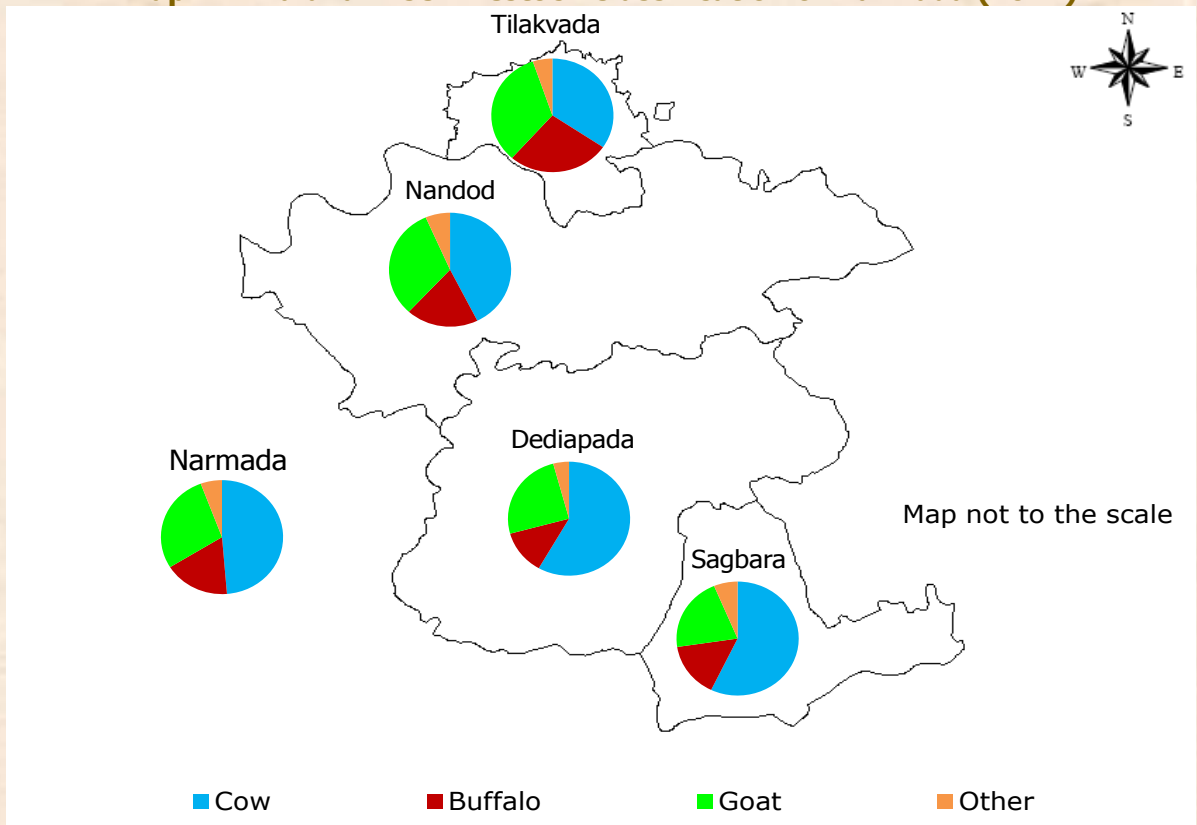
As far as Narmada is concerned, only 33.30% of cultivated (food crops + non food crops) area was irrigated in 2009-10, while almost 66.70% of cultivated (food crops + non food crops) area had scope for further irrigation by various sources in 2009-10. However, about 40.67% of cultivated (food crops + non food crops) area was irrigated in 2013-14, while nearly 59.33% of cultivated (food crops + non food crops) area still have scope for further irrigation by various sources in 2013-14.

Highest (96.11%) scope of irrigation was noticed in Sagbara taluka followed by Dediapad (93.63%) in 2009-10. Consequently, there has been noticeable improvement in irrigation availability in Sagbara and the scope of irrigation has declined to almost 79.86% indicating more than 16% of improvement in irrigation status between 2009 and 2014. However, still more than 90% of cropped area in Dediapada is unirrigated, which needs to be provided irrigation facility by various sources. Furthermore, due to hilly area and limited feasibility pertaining to provision of irrigation, the expansion of irrigation is faced by major challenge despite the huge scope of irrigation in Narmada. However, apart from irrigation from Sardar Sarovar Narmada Project the Chopadvav Project, Kakdiamba Project and Karjan Project (high level recharge canal) play a vital role in provision of irrigation facility to Narmada.

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



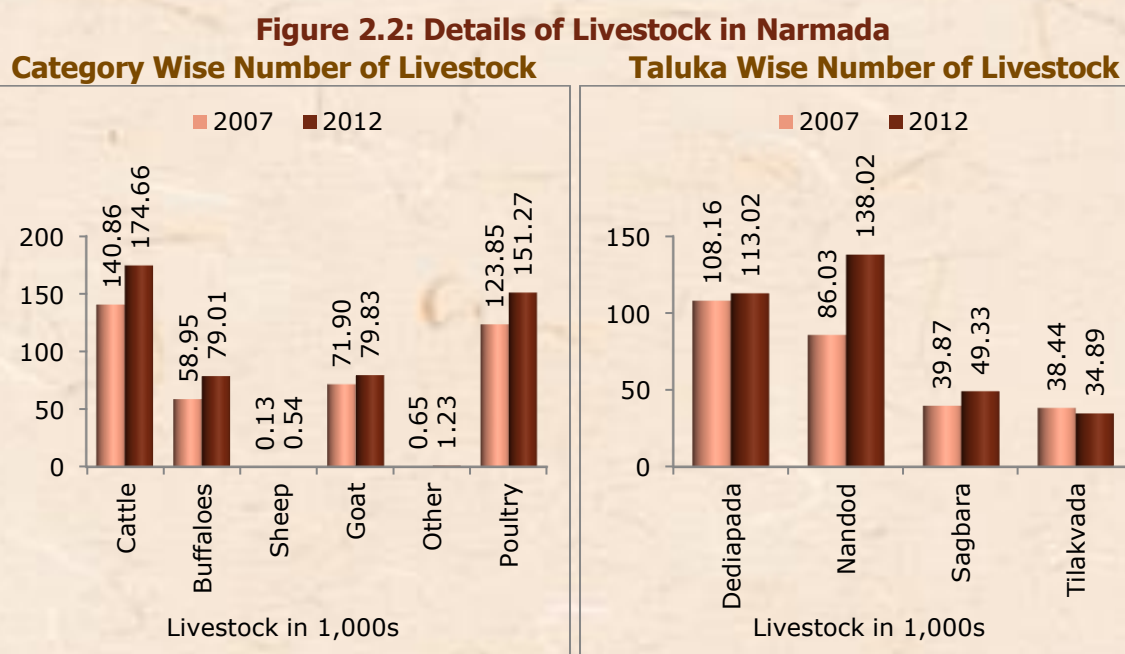
Map 2.2: Taluka wise Livestock Classification of Narmada (2012)



2.7 Livestock in Narmada

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 Narmada during last decade. There has been expansion in the volume of cattle, buffaloes, sheep, goat, other animals and poultry. Interestingly, the volume of cattle has grown at 4.39% CAGR, the volume of buffalo has grown at 6.03% CAGR, while sheep and goat has grown at 32.85% and 2.11% CAGR respectively, where as other animals like donkey, dog, etc together have grown at 13.53% CAGR. However, poultry has grown by 4.08% CAGR. Nevertheless, the total volume of livestock grew at 4.23% CAGR, while total livestock including poultry grew at 4.19% CAGR between 2007 and 2012 in Narmada as shown in Figure 2.2.



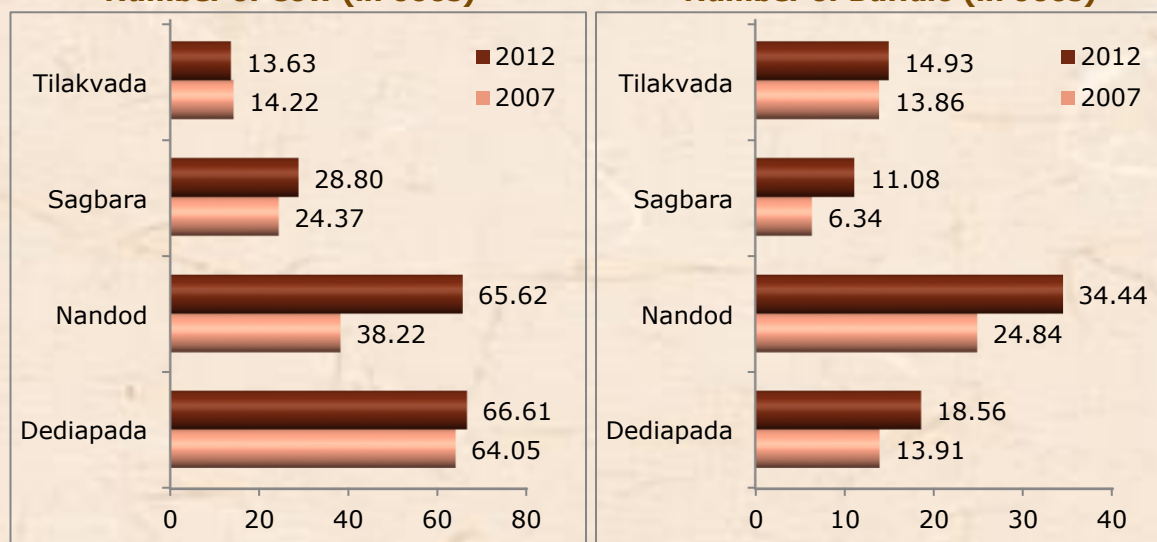
Source: Based on database of District Statistics Office, Narmada (2014)

Taluka wise review of livestock shows that Dediapada possessed highest volume of livestock in 2007, while Nandod possessed highest volume of livestock in 2012.

However, Tilalvada possessed least volume of livestock amongst all the talukas of Narmada in 2007 as well as 2012. The CAGR of livestock in Nandod and Sagbara has been 9.92% and 4.35% between 2007 and 2012, whereas the CAGR of livestock in Dediapada and Tilakvada has been 0.88% and -1.92% between 2007 and 2012.

Taluka wise trend in volume of cow show that number of cow has increased in Dediapada, Nandod and Sagbara talukas in last decade. Nandod recorded highest (11.42% CAGR) increase in volume of cow between 2007 and 2012, followed by Sagbara that recorded (3.40% CAGR) increase in volume of cow between 2007 and 2012, followed by Dediapada that recorded (0.79% CAGR) increase in volume of cow between 2007 and 2012. However, Tilakvada talukas recorded (-0.85% CAGR) decline in volume of cow between 2007 and 2012 as shown in Figure 2.3.

Figure 2.3: Taluka Wise Livestock in Narmada
Number of Cow (in 000s) **Number of Buffalo (in 000s)**



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

Taluka wise trend in volume of buffalo show that the number of buffalo has increased in all the talukas last decade. Sagbara recorded highest (11.83% CAGR) increase in volume of buffalo between 2007 and 2012, followed by Nandod that recorded (6.75% CAGR) increase in volume of buffalo between 2007 and 2012, followed by Dediapada that recorded (5.93% CAGR) increase in volume of buffalo between 2007 and 2012, followed by Tilakvada that recorded (1.50% CAGR) increase in volume of buffalo between 2007 and 2012. The decline in volume of cow has to be supported by alternative sources of earning as Narmada is agrarian district with limited resources of earning to maintain livelihood.

2.8 Livelihood in Narmada

Out of total population of Narmada, almost 50.37% of population was working population (workers) in 2001, while in 2011; about 49.94% of population was working population (Census, 2011). The proportion of working population has declined in Narmada and especially in Dediapada and Tilakvada talukas. However, the proportion of working population has marginally increased in Nandod and Sagbara talukas.

In 2001, out of total workers in Narmada, almost 68.07% of workers were main workers (who generally works for more than 6 months in the year) and 31.93% of workers were marginal workers (who generally works for less than 6 months in the year), while in 2011, out of total workers in Narmada, almost 65.78% of workers were main workers and 34.22% of workers were marginal workers. This depicts that proportion of marginal workers who gets work for less than 6 months in the year has increased during last decade. The proportion of main workers has declined in Narmada and especially in Dediapada and Nandod talukas. However, the proportion of main workers has slightly increased in Sagbara taluka and the proportion of main workers has noticeably increased in Tilakvada taluka as shown in Figure 2.7.

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

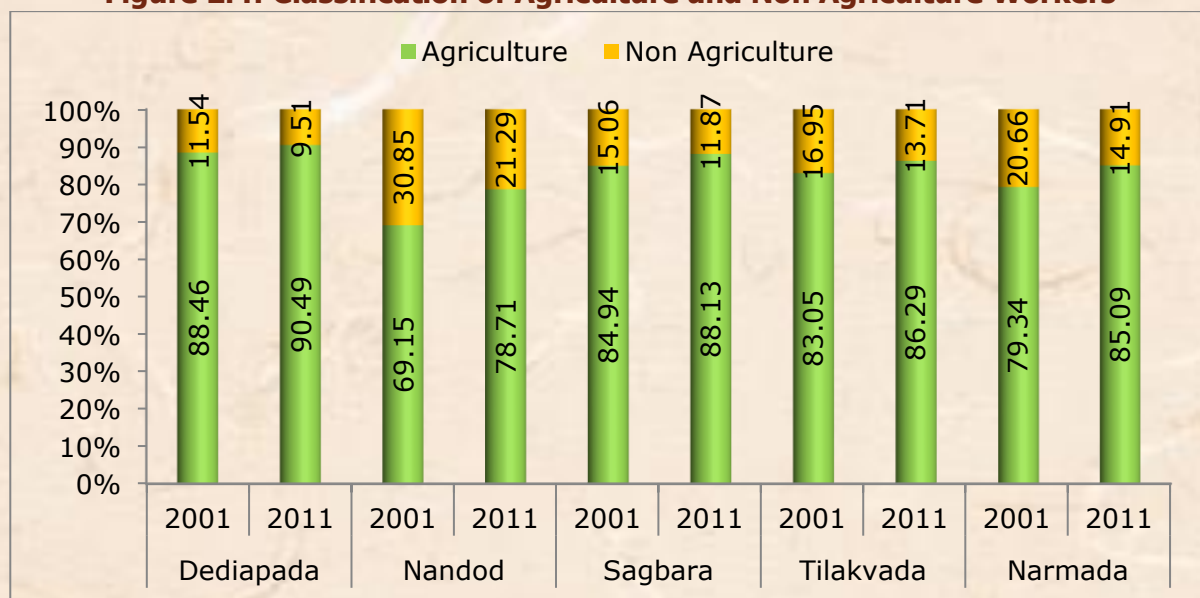
District	% Total Workers out of Total Population		% Main Workers out of Total Workers		% Marginal Workers out of Total Workers	
	2001	2011	2001	2011	2001	2011
Dediapada	53.55	50.85	67.28	58.30	32.72	41.70
Nandod	45.61	46.07	72.97	68.73	27.03	31.27
Sagbara	55.82	56.94	63.74	68.22	36.26	31.78
Tilakvada	53.73	49.91	59.63	71.50	40.37	28.50
Narmada	50.37	49.94	68.07	65.78	31.93	34.22

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

In 2001, about 79.34% of workforce of Narmada was engaged in agriculture and allied activities (Cultivators + Agriculture Labours), while in 2011, almost 85.09% of workforce of Narmada was engaged in agriculture and allied activities, which depicts major workforce depend on primary sector for livelihood. In Dediapada, almost 88.46% of workforce in 2001 and 90.49% of workforce in 2011 seems to be dependent on agriculture and allied activities, while more than 85% of workforce in

all the talukas except Nandod appears to be engaged in agriculture and allied activities. However, in Nandod taluka, almost 69.15% of workforce in 2001 and 78.71% of workforce in 2011 has been found to be dependent on agriculture and allied activities, recording the change of almost 9.55% towards 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)

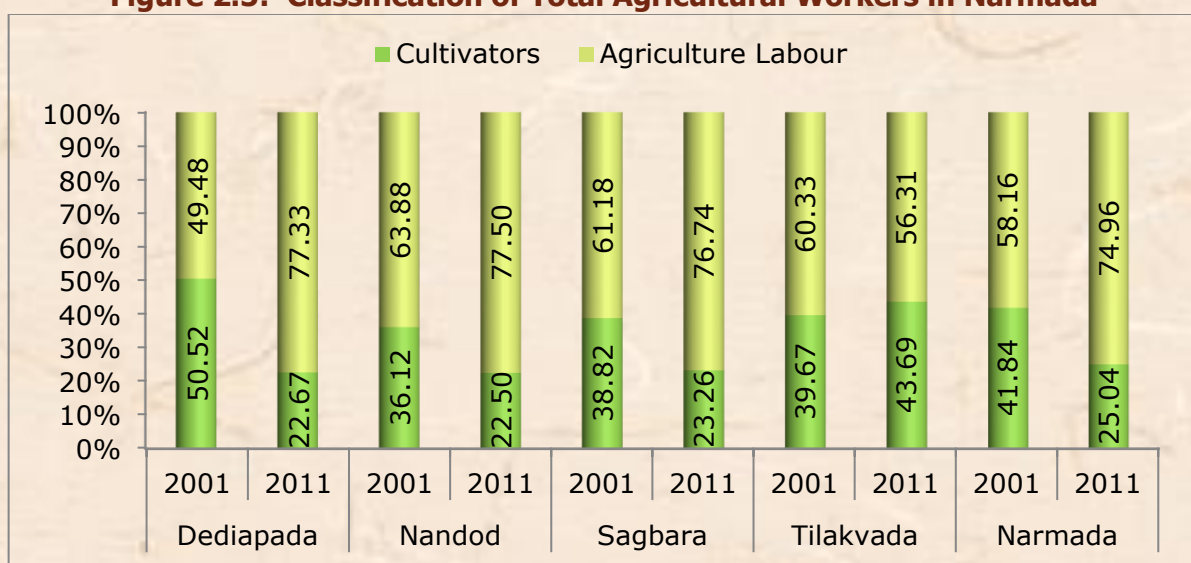
In 2001, out of total population engaged in agriculture and allied activities in Narmada, about 41.84% of people were cultivators (who owned land and were engaged in effective supervision or direction in cultivation) and 58.16% of people were agriculture labours (who work on another person's land for wages and does not own the land); while in 2011 out of total population engaged in agriculture and allied activities in Narmada, only 25.04% of people were cultivators and 74.96% of people were agriculture labours, which depicts majority of people dependent on agriculture and allied activities are engaged as agriculture labour in primary sector for livelihood.

In Dediapada, out of the total population engaged in agriculture and allied activities, almost 50.52% of people were cultivators and 49.48% of people were agriculture labour in 2001, while in 2011, out of the total population engaged in agriculture and allied activities, only 22.67% of people were cultivators and 77.33% of people were agriculture labour in Dediapada.

In Nandod, out of the total population engaged in agriculture and allied activities, almost 36.12% of people were cultivators and 63.88% of people were agriculture labour in 2001, while in 2011, out of the total population engaged in agriculture and allied activities, only 22.50% of people were cultivators and 77.50% of people were agriculture labour in Nandod.

In Sagbara, out of the total population engaged in agriculture and allied activities, almost 38.82% of people were cultivators and 61.18% of people were agriculture labour in 2001, while in 2011, out of the total population engaged in agriculture and allied activities, only 23.26% of people were cultivators and 76.74% of people were agriculture labour in Sagbara as shown in Figure 2.5.

Figure 2.5: Classification of Total Agricultural Workers in Narmada



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

In Tilakvada, out of the total population engaged in agriculture and allied activities, almost 39.67% of people were cultivators and 60.33% of people were agriculture labour in 2001, while in 2011, out of the total population engaged in agriculture and allied activities, about 43.69% of people were cultivators and 56.31% of people were agriculture labour in Tilakvada.

In Narmada, almost 16.79% of cultivators have declined and corresponding increase has been recorded in the proportion of agriculture labour in last decade. Furthermore, in Dediapada, Nandod and Sagbara almost 27.85%, 13.62% and 15.57% of cultivators have declined and corresponding increase is recorded in the proportion of agriculture labour in last decade. However, Tilakvada recorded 4.02% increase in cultivators and corresponding decline in agriculture labour in last decade.

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 Narmada depict that number of societies and the membership in these societies has also remained relatively stagnant between 2009 and 2014.

The number of agriculture credit societies has remained stagnant in Dediapada, Sagbara and Tilakvada between 2009 and 2014, while number of agriculture credit society members has remained stagnant in Sagbara and Tilakvada between 2009 and 2014. There has been marginal decline in the number of agriculture credit societies in Nandod between 2009 and 2014, while there has been marginal increase in the number of agriculture credit society members in Dediapada and Nandod between 2009 and 2014 as shown in Table 2.8.

Table 2.8: Developments in Agricultural Activities

Taluka / District	Agricultural Credit				Lift Irrigation			
	Societies		Members		Societies		Members	
	2009-10	2013-14	2009-10	2013-14	2009-10	2013-14	2009-10	2013-14
Dediapada	16	16	8945	8975	21	21	1218	1218
Nandod	35	34	12760	12785	42	41	1576	1575
Sagbara	9	9	7460	7460	14	14	861	861
Tilakvada	20	20	9545	9545	42	42	1217	1217
Narmada District	80	79	38710	38765	119	118	4872	4871

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

The number of lift irrigation societies has remained stagnant in Dediapada, Sagbara and Tilakvada between 2009 and 2014, while number of lift irrigation society members has remained stagnant in Dediapada, Sagbara and Tilakvada between 2009 and 2014. There has been marginal decline in the number of lift irrigation societies as well as the number of lift irrigation society members in Nandod between 2009 and 2014 as shown in Table 2.8.

This portrays a stagnant scenario in terms of agricultural development between 2009 and 2014. The developments in cooperative societies enable agriculturists / farmers to facilitate the agriculture activities. Such developments needs to be prioritized as more than 85% of working people in Narmada 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 Narmada exhibits that number of societies as well as membership in these societies has also increased between 2009 and 2015 in Narmada. The milk cooperative societies in Narmada have grown by 5.32% CAGR and its members have grown by 18.44% CAGR between 2009 and 2015. Nandod shared highest number of milk cooperative societies and highest number of members in milk cooperative societies in Narmada between 2009 and 2015.

Highest growth in number of milk cooperative societies is observed in Sagbara (9.55% CAGR) and lowest growth in number of milk cooperative societies is observed in Nandod (2.64% CAGR) between 2009 and 2015. Highest growth in number of milk cooperative society members is noticed in Tilakvada (27.97% CAGR) and lowest growth in number of milk cooperative society members is observed in Nandod (13.74% CAGR) between 2009 and 2015 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	2014-15	2009-10	2014-15	2009-10	2014-15
Dediapada	51	79	2584	6514	16.52	24.32
Nandod	122	139	6344	12078	62.05	71.85
Sagbara	45	71	2631	5205	18.11	25.87
Tilakvada	56	66	2856	9803	53.43	60.45
Narmada District	274	355	14415	33600	150.11	182.49

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

The milk production/collection in Narmada has grown by 3.98% CAGR between 2009 and 2015. Nandod shared highest volume of milk production/collection amongst all the talukas of Narmada. Highest growth in number of milk production/collection is observed in Dediapada (8.04% CAGR) and lowest growth in number of milk production/collection is observed in Tilakvada (2.50% CAGR) between 2009 and 2015. Backward and forward strategies linking agriculture and animal husbandry could offer more livelihood options, help in poverty alleviation and promote socioeconomic development in Narmada.

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.

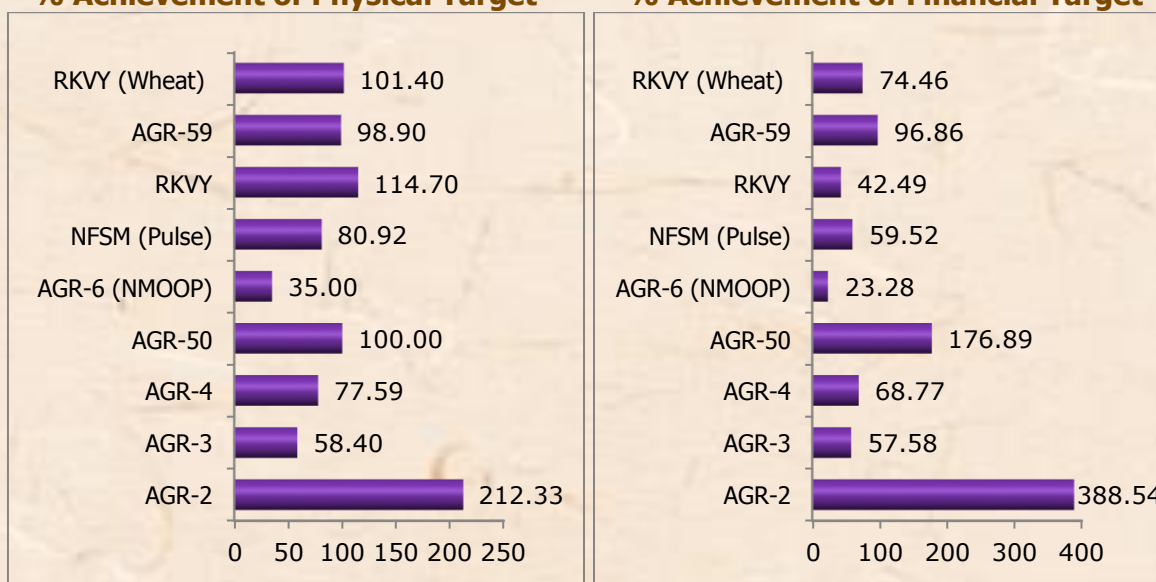
Box 2.1: Major Schemes and Programs for People in Agriculture Sector

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-3 Seed Village, AGR-5 (Technology Mission on Cotton), AGR-6 (Technology Mission on Oilseeds, Pulses & Maize), AGR-6 (NMOOP) National Mission on Oilseeds and Oil Palm, AGR-9 (Work Plan–Macro Management), AGR-17 (National Project on Organic Farming), AGR-18 (AGRISNET), AGR-50, Rastriya Krushi Vikash Yojna (RKVY), National Food Security Mission (NFSM), Kisan Credit Card, etc. In Narmada, some schemes have achieved more physical targets in less finance, while other schemes have achieved less physical targets in more finance. The RKVY (INSIMP), AGR-50, AGR-6 (Maize), AGR-6 (Oil Seeds), AGR-3 Seed Village and AGR-2 Seed Village has been outstanding compared to other schemes. It is noticed that RKVY (Wheat) achieved 101.40% of physical target with 74.46% of targeted finance, while AGR-59 achieved 98.90%) of physical target with 96.86% of targeted finance, whereas, RKVY achieved 114.70% of physical target with 42.49% of targeted finance and NFSM (Pulse) achieved 80.92 of physical target with 59.52% of targeted finance as shown in Figure 2.6.

Figure 2.6: Achievements of Agriculture Schemes in Narmada (2015)
% Achievement of Physical Target **% Achievement of Financial Target**



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

However, AGR-6 (NMOOP) achieved 35.00 of physical target with 23.28% of targeted finance and AGR-50 achieved 1000% of physical target with 176.89% of targeted finance. While, AGR-4 achieved 77.59% of physical target with 68.77% of targeted finance, whereas AGR-3 achieved 58.40% of physical target with 57.58% of targeted finance and AGR-2 achieved 212.33% of physical target with 388.54% of targeted finance.

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

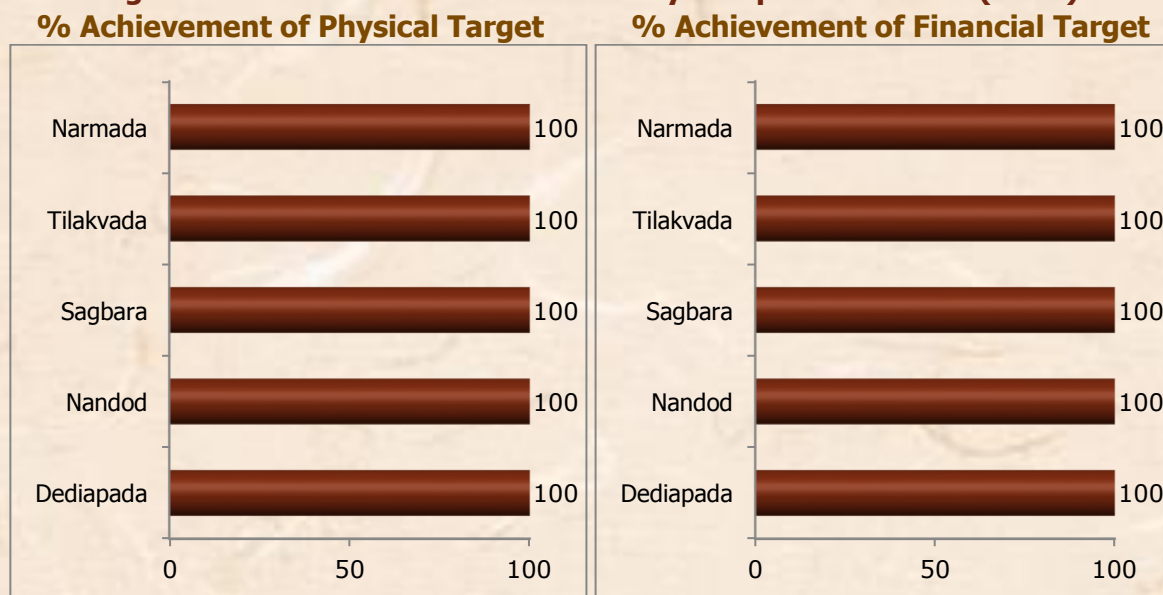
Schemes / Programs	Brief Details of Schemes / Programs
Intensive Cattle Development Program	To facilitate pure-breeding and cross-breeding to preserve and improve genetic potentiality of cattle and buffalo breed. To produced and supply elite breeding bulls to the institutes at nominal cost.
Sankalpa 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 Narmada is presented in Figure 2.7.

Figure 2.7: Achievements of Veterinary Camps in Narmada (2014)



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

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

Table 2.10: Animal Husbandry Infrastructure in Narmada

	2006-07	2013-14
Intensive cattle Development Project Sub Center	7	28
Village Milk Producer Cooperative Society	207	344
Veterinary Service Centre Run By Dairy	3	4
Mobile Veterinary Dispensary	2	4
First Aid Veterinary Centers	17	17
Veterinary Dispensary	7	14
Gaushalas	2	2
Cattle Feed Factories	1	1
A.I. Centre Run By Dairy	15	35

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

However, Animal Husbandry College, Rural Primary Veterinary Health Care Centers, Animal Disease Investigation Center, Poultry Extension Centre, Cattle Breeding Farm, Artificial Insemination Center needs to be developed in Narmada.

2.10 Success Stories

Box 2.3: Agri-Business Management in Narmada

Name of Firm: Prem Sarita Agri Biotech

Place: GIDC Phase 2, Rajpipla,

Owner: Mr. Bharat Sing Sisodiya

Taluka: Nandod, District: Narmada



Prem Sarita Agri Biotech has been established by Mr. Bharat Singh Sisodiya, who obtained his Masters Degree in Science from Sukhadiya University, Rajasthan and later on pursued his Ph.D. in the field of Science. Mr. Sisodiya initiated the project for developing tissue culture products at GIDC Rajpipla with the Govt. Subsidy of almost half the proportion of the total investment of approximately 2.5 Crores. With this background he identified the demand of product in the region and over a period of time pioneered in developing tissue culture plants of Banana, Sugarcane, Papaya, Chilli, Tomato, Brinjal, Cauliflower etc.

Approximately 25 employees are working at Prem Sarita Agri Biotech with implementing standards for safety and quality. Instruments, laboratory and shades for Prem Sarita Agri Biotech have been developed in line with scientific requirement pertaining to tissue culture. The Prem Sarita Agri Biotech facilitates nearby farmers by means of seminars, workshops, trainings, farm visits for agricultural development. Water testing and soil testing facilities with mobile van have been developed that facilitates regional farmers. Prem Sarita Agri Biotech has been a success story for Agri-Business initiative in Narmada.



Source: Field Survey, Narmada (2014)

Box 2.4: Providing Livelihood to Tribal People: Forest Right Act in Narmada

The Forest Rights Act (FRA)-2006, an Act by the Government of India, Ministry of Tribal Affairs, is being implemented in the state of Gujarat. The Act envisages registering & conferring the traditional habitat, social, economic and livelihood rights of the ST & Other Traditional Forest Dwellers in Scheduled as well as Non-Scheduled forest areas of the state. The FRA-2006 provides for Individual, Community and Infrastructure facility Rights. The Act is confined to those who "primarily reside in forests" and who depend on forests and forest land for a livelihood. Further, either the claimant must be a member of the Scheduled Tribes in that area or must have been residing in the forest for 75 years.

The FRA focuses on the following:

Title Rights - i.e. ownership - to land that is being farmed by tribal or forest dwellers, subject to a maximum of 4 hectares; ownership is only for land that is actually being cultivated by the concerned family as on that date, meaning that no new lands are granted

Use Rights - to minor forest produce (also including ownership), to grazing areas, to pastoralist routes, etc.

Relief and Development Rights - to rehabilitation in case of illegal eviction or forced displacement; and to basic amenities, subject to restrictions for forest protection.

Forest Management Rights - to protect forests and wildlife.

Status of Individual Rights Claims			Status of Community Rights Claims		
Taluka	Claims Accepted	Approx. Area (Ha.)		Claims Accepted	Approx. Area (Ha.)
Dediapada	1436	1283	Dediapada	50	19932
Nandod	5130	4311	Nandod	105	37660
Sagbara	762	609	Sagbara	27	7189
Tilakvada	35	18	Tilakvada	8	476
Narmada	7363	6221	Narmada	190	65257

Box 2.5: Integrated Dairy Development Program: Providing Livelihood Opportunity

The vision behind the Integrated Dairy Development Project (IDDP) is to transform dairying into dynamic income-generating enterprise for BPL tribal household of Gujarat. The Project aims at creating a unit of at least four animals in each participant's house by the end of the project period so as to make dairying into a viable full time activity. Two of these cattle are to be provided under the project and two cattle are to be developed at the beneficiaries' home through project support in better cattle management and rearing practices. IDDP is being implemented in Dediapada, Saagbara, Nandod, Tilakwada.

Name: Vasava Kamlaben Ramsinghbhai Village: Nani Devroopan Taluka: Sagbara District: Narmada	Family: Total 7 Family Members Total No. of Buffalo: 5 Agriculture Income: Rs. 1,00,000/- Year Income from Milk: Rs. 20,000/- Month
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2.11 Summary

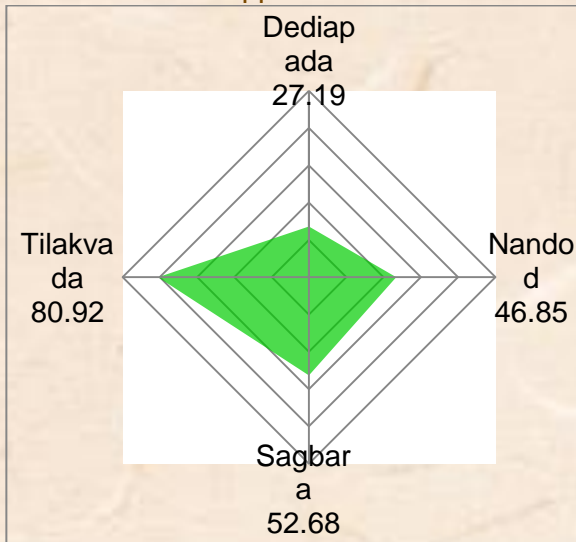
Box 2.6: SWOC Analysis for Agriculture and Animal Husbandry in Narmada

Strengths	Weaknesses
<ul style="list-style-type: none"> • More than 36% of the reported area is covered under forest. • Nearly 40.64 % of cropped area is irrigated. • 3 of 4 (Nandod, Sagbara, Tilakvada) taluka share greater portion of cropped area as compared to district average. • 2 of 4 (Nandod, Tilakvada) taluka share greater portion of irrigated area as compared to district average. • 96.41% and 91.19% of population in Dediapada & Sagbara respectively is ST, which share 96.68% and 93.61% of operational holdings respectively. • Area under cultivation of food crops has increased over a period of time in Nandod and Sagbara. • The volume of livestock has increased in Narmada between 2007 and 2012 • Proportion of working population has increased in Nandod and Sagbara while the proportion of main workers has increased in Sagbara and Tilakvada between 2001 and 2011. 	<ul style="list-style-type: none"> • Large area due to forest is not under cultivation. • Merely 17.83% of the reported area is irrigated. • Volatile cropping pattern and lopsided irrigation depict inter taluka disparity (in Tilakvada 80.92% area cropped and 54.93% area irrigated; in Dediapada 27.19% area cropped and 2.82% area irrigated) • 81.55% of population in Narmada is ST, which share 65.62% of operational holdings (in numbers) and 73.42% of operational holdings (in hectares). • Volatile shift from cultivation of food crops to non food crops places the challenge for food security. • Non availability of green fodder for livestock throughout the year in non irrigated area. • Proportion of non-working population has increased in Dediapada & Tilakvada while the proportion of marginal workers has increased in Dediapada and Nandod between 2001 and 2011. • Proportion of cultivators in Narmada has declined and the proportion of agriculture labour has increased in Narmada between 2001 and 2011.
Opportunities	Challenges
<ul style="list-style-type: none"> • Area not under cultivation, can be utilized for cultivation. • More and more area can be covered under micro irrigation system. • Increase in awareness campaigns of Govt. schemes to facilitate people in agriculture, horticulture, organic farming and animal husbandry. • With development of irrigation facility, development of Dairy sector to foster livelihood for people can offer more income and employment opportunities by backward and forward linkages. • 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. 	<ul style="list-style-type: none"> • 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. • A large tribal population does not have proper land records and entitlements to their rightful land deeds and due to this problem the tribal farmers fail to put their land parcels as collaterals for bank loans.

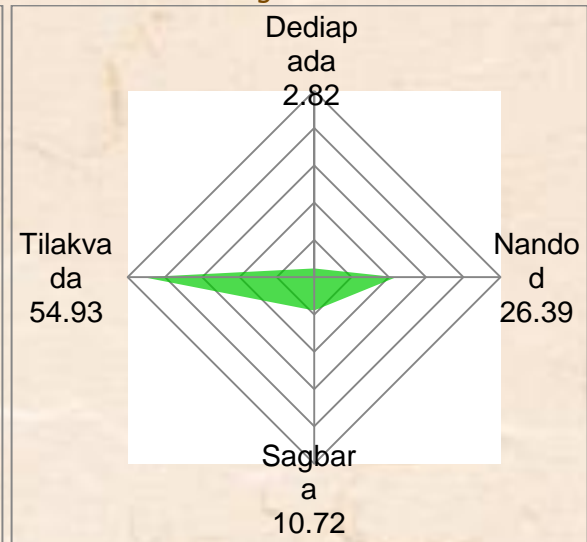


2.12 Agriculture and Animal Husbandry: Taluka Wise Status of by Radars

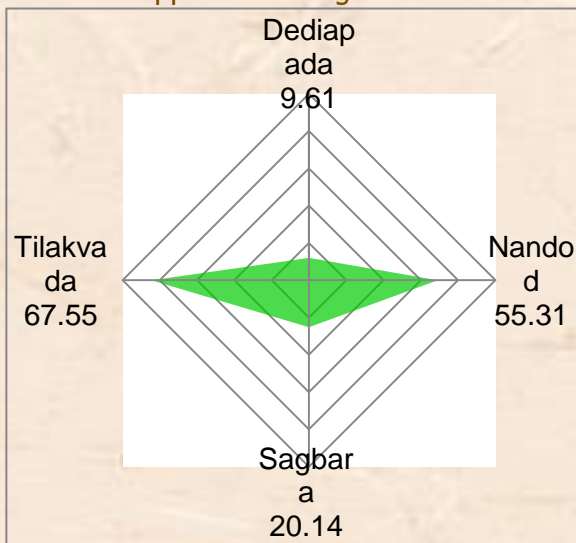
% of Net Cropped Area in Taluka



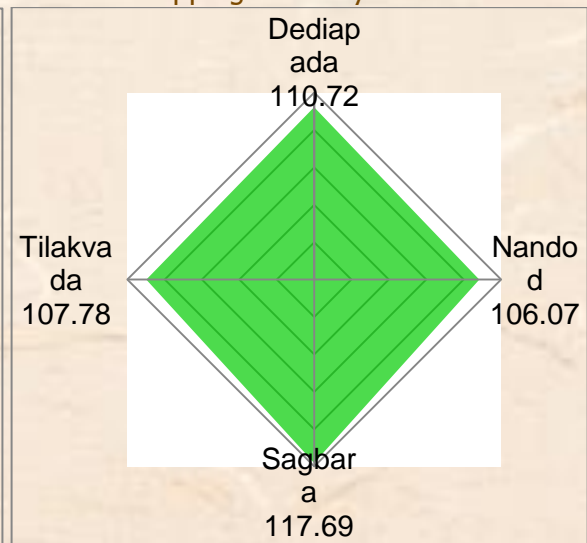
% of Net Irrigated Area in Taluka



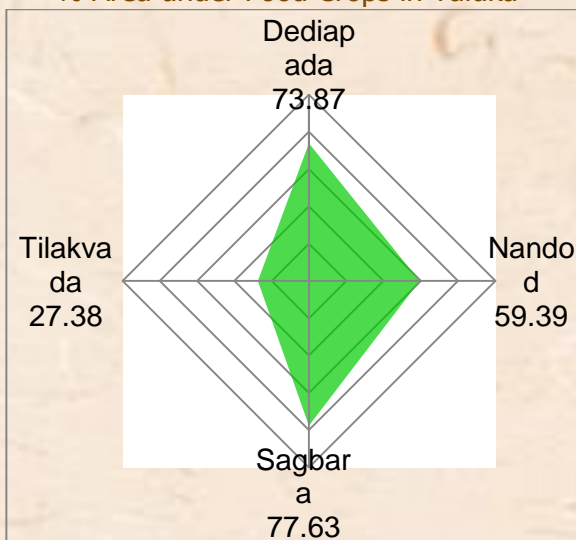
% of Cropped Area Irrigated in Taluka



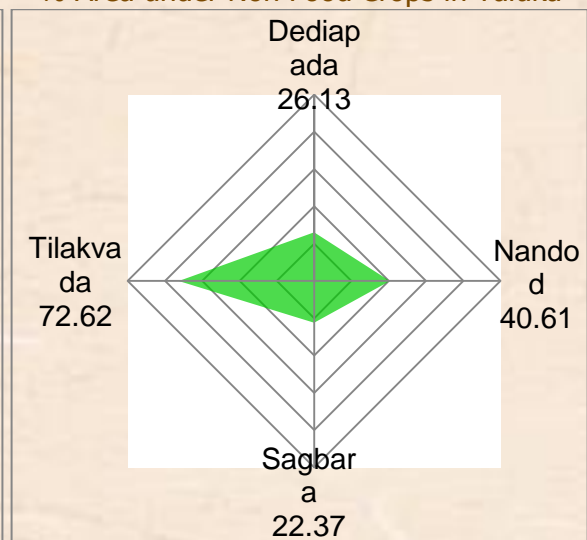
Cropping Intensity in Taluka



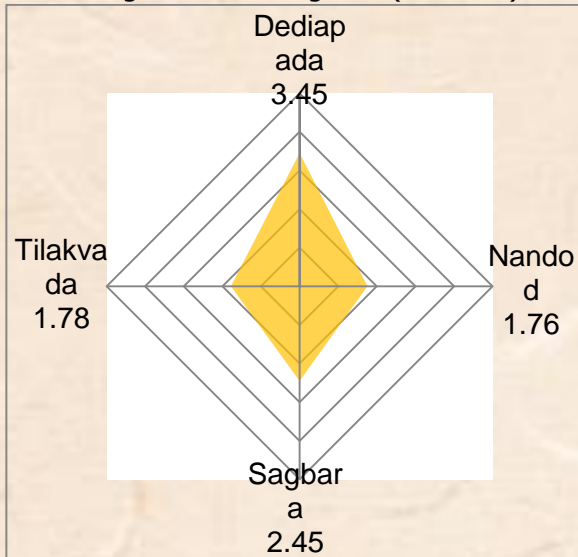
% Area under Food Crops in Taluka



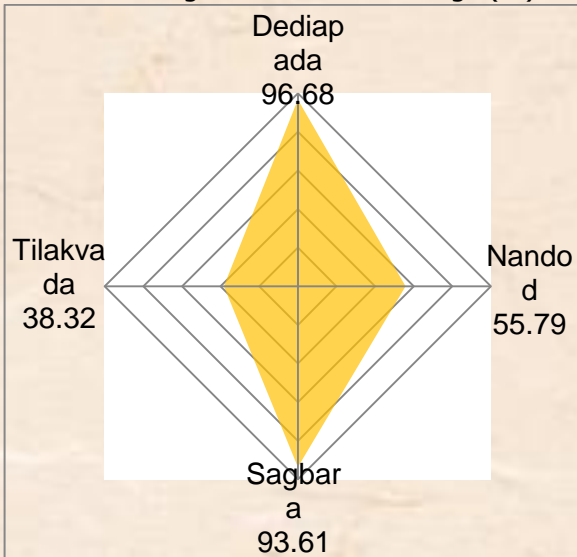
% Area under Non Food Crops in Taluka



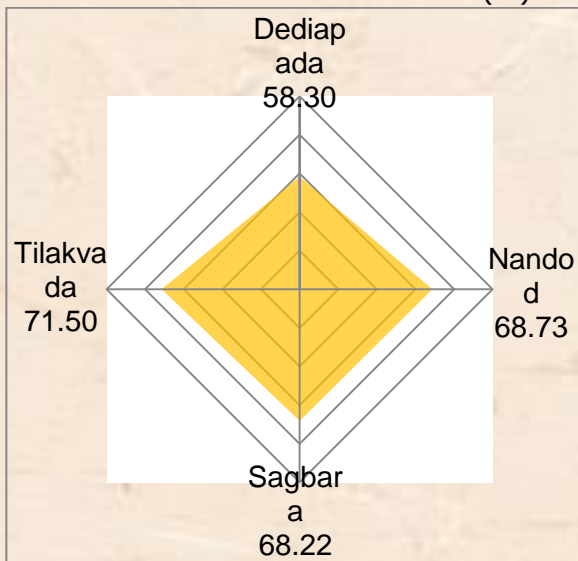
Average Land Holding Size (Hectares)



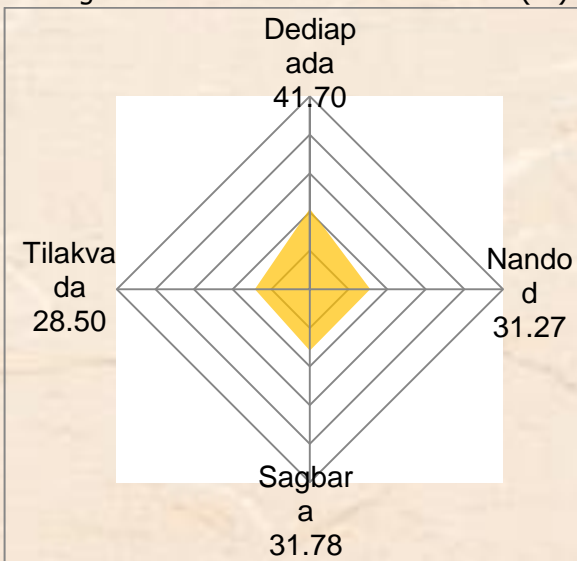
ST Holdings out of Total Holdings (%)



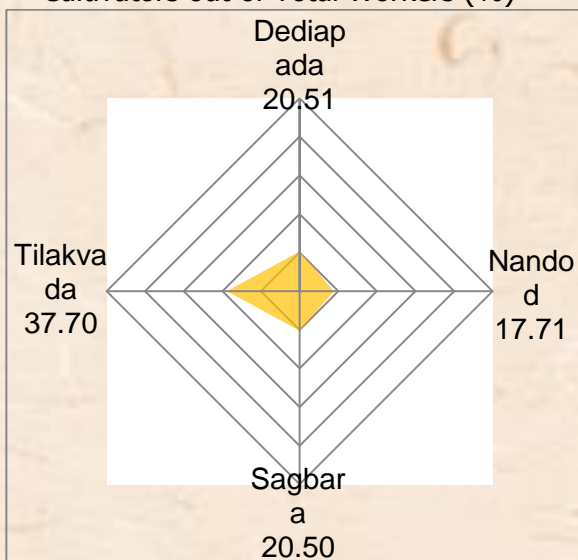
Main Workers out of Total Workers (%)



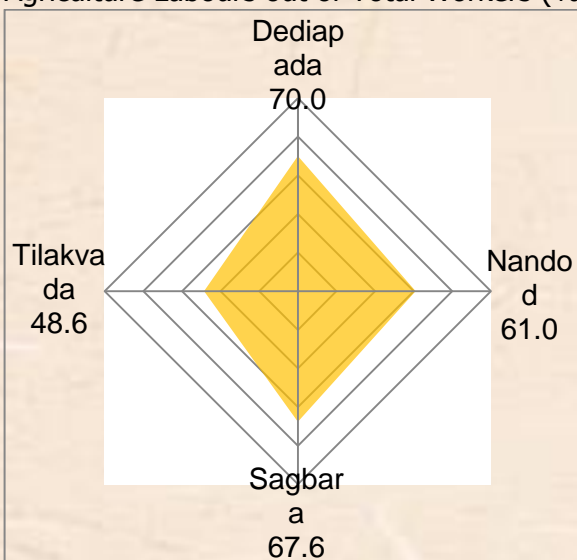
Marginal Workers out of Total Workers (%)



Cultivators out of Total Workers (%)



Agriculture Labours out of Total Workers (%)



The background of the page is a light pink color with a pattern of overlapping, irregular geometric shapes in shades of pink and purple. These shapes resemble stylized outlines of buildings or abstract architectural forms. A central white rectangular box with a thin yellow border contains the chapter title. The box has a dark green horizontal bar at the top and a thin green horizontal line at the bottom.

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 Narmada 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 Narmada, 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 Narmada.

3.2 Status of Literacy

The overall literacy in Narmada was 59.86 in 2001, which increased to 72.31 in 2011. The male literacy increased from 72.44 in 2001 to 81.19 in 2011, whereas the female literacy increased from 46.61 in 2001 to 63.09 in 2011 as shown in Table 3.1.

Table 3.1: Status of Literacy in Narmada

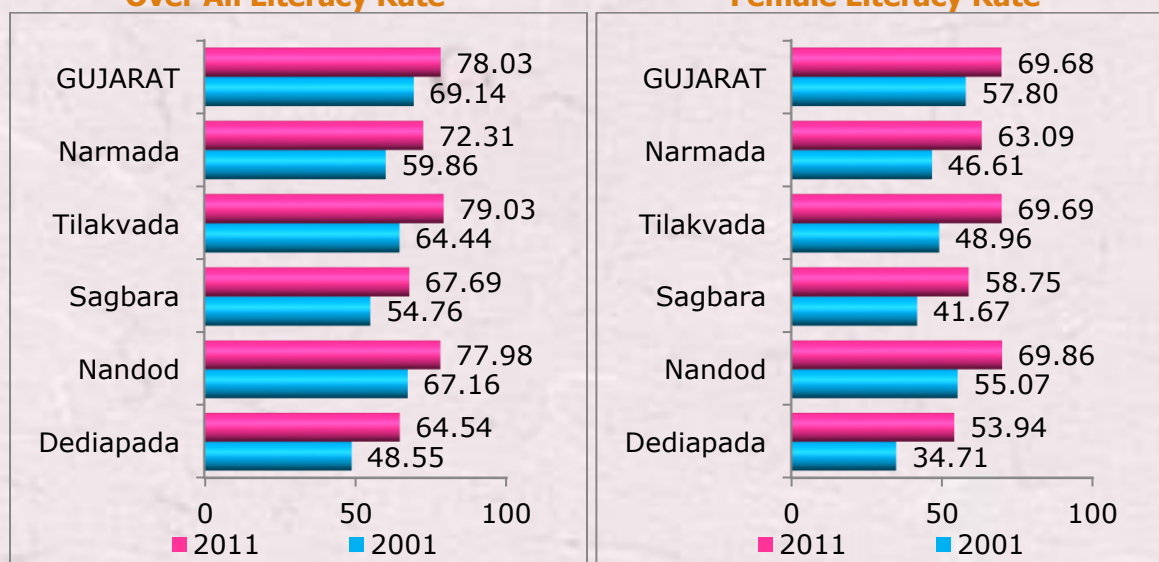
	2001				2011			
	Total	Rural	Urban	Regional Gap	Total	Rural	Urban	Regional Gap
Person	59.86	56.62	86.77	30.15	72.31	70.46	87.48	17.02
Males	72.44	69.91	93.14	23.23	81.19	79.83	92.34	12.52
Female	46.61	42.67	79.86	37.19	63.09	60.74	82.41	21.67
Gender Gap	25.83	27.24	13.28		18.10	19.09	9.93	

Source: Census of India (2001, 2011)

Moreover, the overall gap between male and female literacy that was 25.83 in 2001, which decreased to 18.10 in 2011, while the gap between male and female literacy in rural area that was 27.24 in 2001, which decreased to 19.09 in 2011, whereas the gap between male and female literacy in urban area that was 13.28 in 2001, which decreased to 9.93 in 2011.

Taluka wise status of literacy exhibits that literacy rate has been highest in Nandod in and lowest in Dediapada in 2001, while literacy rate has been highest in Tilakvada in and lowest in Dediapada in 2011. However, Dediapada and Sagbara talukas reported noticeable improvement in literacy between 2001 and 2011 as shown in Figure 3.1.

Figure 3.1: Status of Literacy in Narmada
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 Nandod and lowest in Dediapada in 2001 and 2011. However, Tilakvada, Sagbara and Dediapada 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 Narmada has considerably declined between 2001 and 2011. However, with the emergence of urbanization in Dediapada, Sagbara and Tilakvada talukas between 2001 and 2011, the gap in rural and urban literacy has come into existence and the gap in rural and urban literacy in Dediapada is higher than that of the district average as shown in Table 3.2.

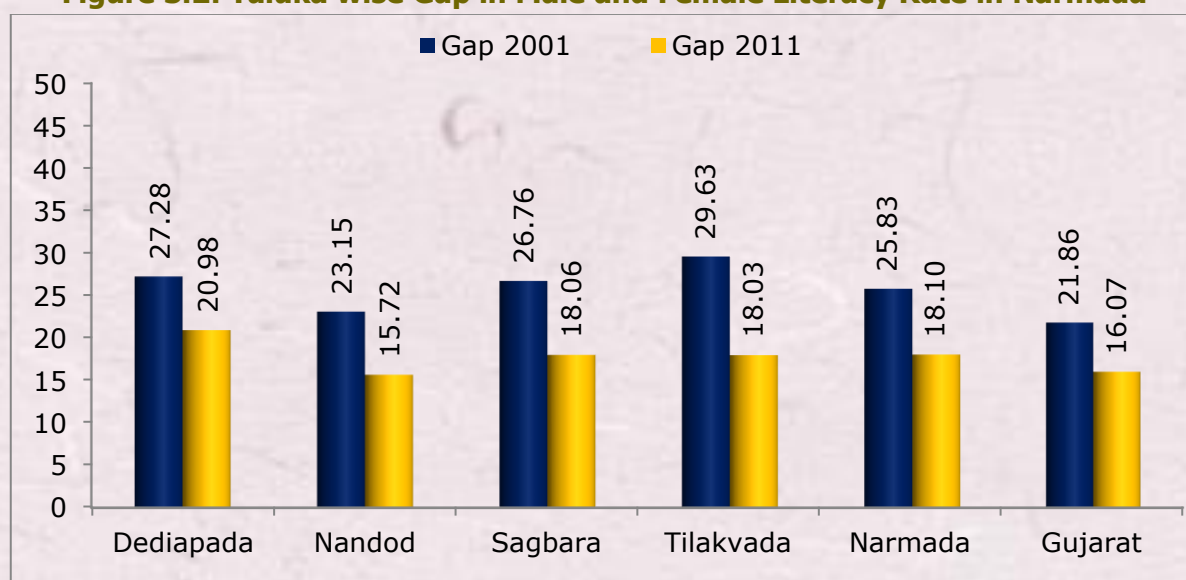
Table 3.2: Taluka wise Rural and Urban Literacy Rate in Narmada

Taluka/District	Literacy Rate 2001			Literacy Rate 2011		
	Rural	Urban	Gap	Rural	Urban	Gap
Dediapada	48.55			63.37	84.99	21.62
Nandod	61.16	86.76	25.60	75.50	89.47	13.97
Sagbara	54.76			66.08	81.83	15.75
Tilakvada	64.44			79.03		
Narmada	56.62	86.77	30.15	70.46	87.48	17.02
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 Narmada has declined from 25.83 in 2001 to 18.10 in 2011. The male-female literacy gap has noticeably declined in Tilakvada and Sagbara talukas as shown in Figure 3.2.

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



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 Narmada, 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. remained almost stagnant from 2008-09 to 2012-13, while the private aided/unaided schools marginally increased between 2008-09 and 2012-13 in Narmada. However, between 2012-13 and 2014-15, schools managed by Govt. increased noticeably, while the private aided/unaided schools increased marginally between 2012-13 and 2014-15 in Narmada as shown in Table 3.3.

Table 3.3: Number of Schools with Elementary Education in Narmada

School Category	2008-09		2010-11		2012-13		2013-14		2014-15	
	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.
OP	322	6	249	4	294	9	301	10	306	10
P+ UP	413	12	488	24	441	22	437	25	429	27
P+UP+S/HS	1	7	0	0	0	3	0	2	0	2
OUP	0	2	0	4	1	5	1	3	0	4
UP+S/HS	0	2	0	0	0	1	1	0	1	0
P+UP+S	0	0	0	0	1	3	1	3	1	3
UP+S	0	0	0	0	0	2	3	2	6	1
Sub Total	736	29	737	32	737	45	744	45	743	47
Total	765		769		782		789		790	

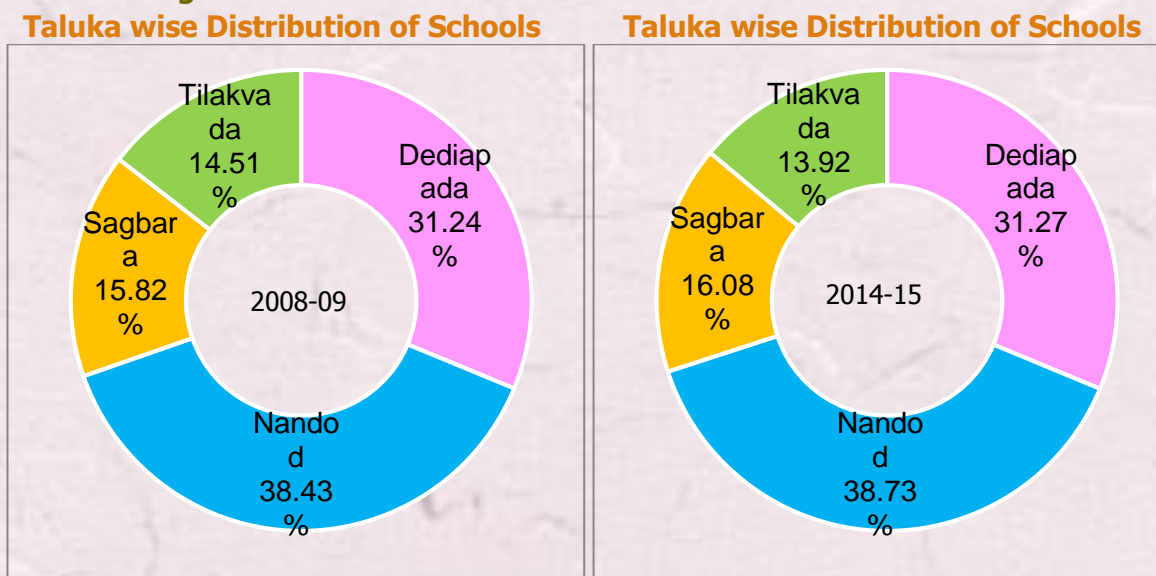
Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2008-15)

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 Narmada.

As recorded by GCEE, Narmada had 765 schools in 2008-09, which accounted for 1.95% of total schools of Gujarat in 2008-09. The number of schools in Narmada increased to 790 in 2014-15, which accounted for 1.81% of schools of Gujarat. Between 2008-09 and 2014-15 Narmada recorded the increase of 25 schools which accounted for 0.55% of increase in schools of Gujarat state between 2008-09 and 2014-15. The distribution of schools in Narmada reveal that Nandod shared highest proportion of schools in 2008-09 (38.43%) as well as in 2014-15 (38.73%) in Narmada, while Tilakvada shared least proportion of schools in 2008-09 (14.51%) as well as in 2014-15 (13.92%) in Narmada. Out of the total increase of schools (25 Schools) in Narmada between 2008-09 and 2014-15, major increase in schools is found in Nandod (12 out of 25 schools, 48% of increase), followed by Dediapada (8 out of 25 schools, 32% of increase) and Sagbara (6 out of 25 schools, 24% of increase). However, the share of schools in Nandod, Dediapada, Sagbara has increased marginally, while the share of schools in Tilakvada has declined marginally between 2008-09 and 2014-15 as shown in Figure 3.3.

Figure 3.3: Taluka wise distribution of Schools in Narmada

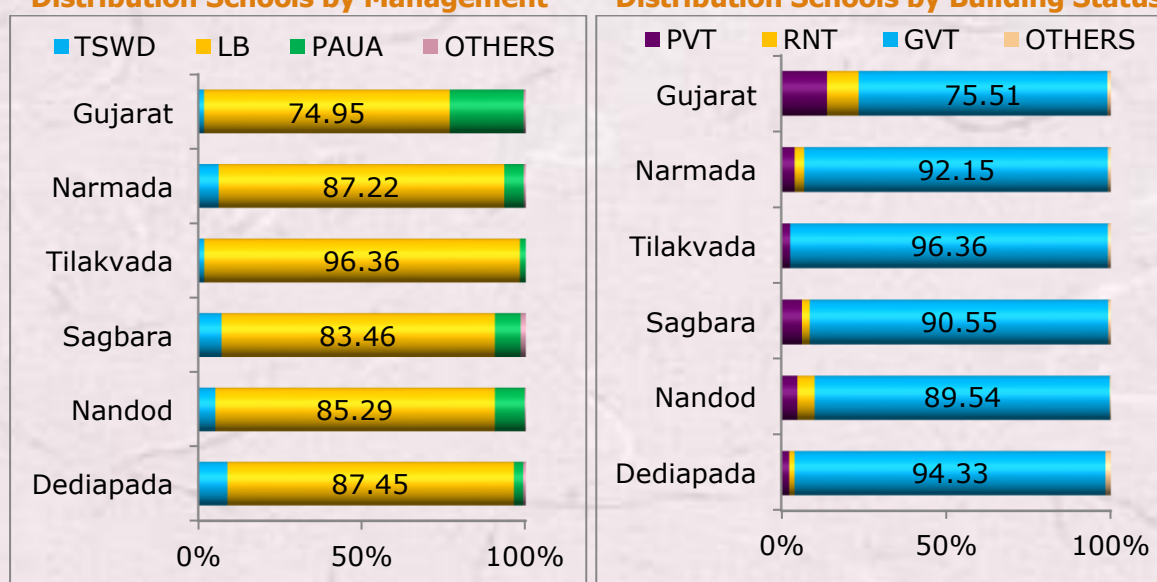


Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2008-15)

It has been observed that Govt. schools have grown at 0.15% CAGR between 2008-09 and 2014-15 in Narmada as compared to the public schools in Gujarat that has grown at 0.28% CAGR between 2008-09 and 2014-15. The private schools have grown at 8.38% CAGR between 2008-09 and 2014-15 in Narmada as compared to private schools in Gujarat that has grown at 8.89% CAGR between 2008-09 and 2014-15, which indicates major reliance of basic education on public schools in Narmada despite its low growth.

In Narmada, 87.22% 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. Narmada being a tribal area, about 6.20% schools are managed by tribal/social welfare department, wherein Dediapada and Sagbara talukas possess 8.91% and 7.09% of schools managed by tribal/social welfare department. In Narmada, 5.95% schools are managed by private management wherein Sagbara and Nandod talukas possess 7.87% and 9.15% 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 Sagbara and Nandod have private and rented buildings. However, the share of private and rented buildings of schools in Narmada is about 4.05% and 2.91% respectively as compared to 13.91% and 9.55% respectively at State level. Amongst all the talukas of Narmada, highest numbers of private schools with private buildings are in Nandod as Rajpipla is the district head quarter and urban area. On the other hand, in Tilakvada taluka more than 96% 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 Narmada indicate that majority of schools are in rural area because of the highly rural nature of the district. As much as 96.84% of schools in Narmada are located in rural areas as compared to 80.28% of schools in rural localities in Gujarat. Except Nandod taluka all the schools are located in rural areas. The school network of Narmada 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, Narmada has 57.72% of schools in primary with upper primary section. However, 40.00% of schools in Narmada are only primary schools as compared to 26.79% in Gujarat. Furthermore, in Nandod and Sagbara more than 65% of schools have primary with upper primary section, while in Dediapada and Tilakwada more than 50% of schools have only primary sections. Majority of primary to higher secondary combination schools are only located in Nandod and Sagbara talukas, while there are no schools with primary to higher secondary combination in Dediapada and Tilakwada talukas as shown in Table 3.4.

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

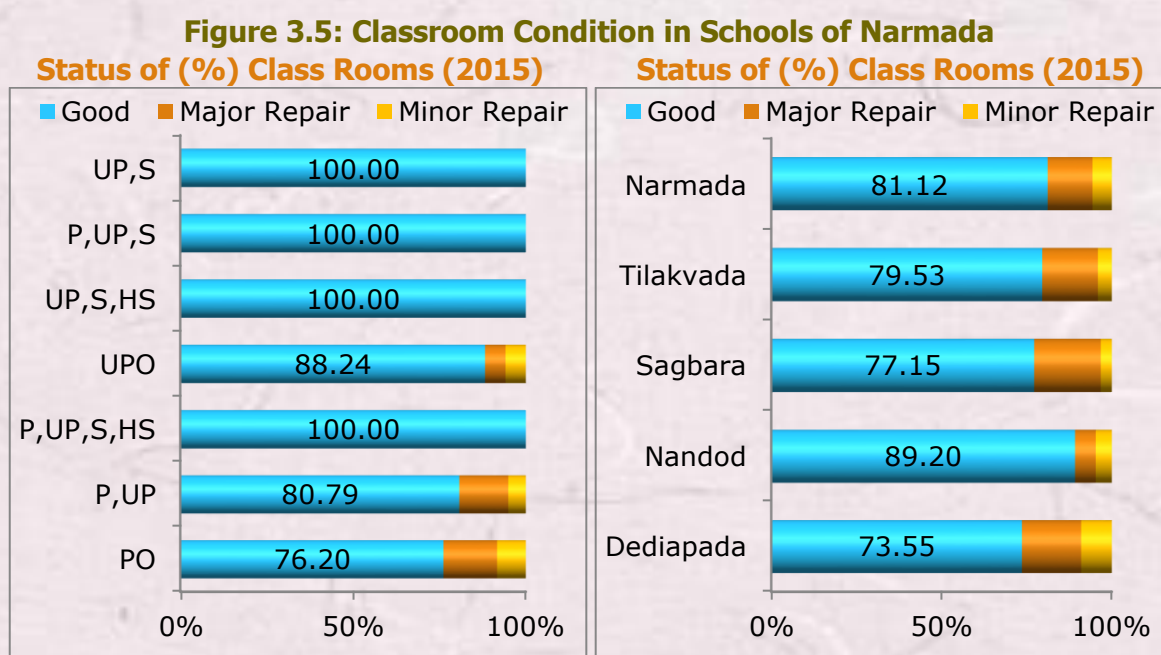
	Rural	Urban	PO	P+UP	P+UP+S /HS	UPO	UP+S /HS	P+UP+S	UP+S
Dediapada	100	0.00	50.61	47.37	0.00	0.81	0.00	0.40	0.81
Nandod	91.83	8.17	31.37	65.69	0.33	0.33	0.00	0.98	1.31
Sagbara	100	0.00	29.13	68.50	0.79	0.79	0.00	0.00	0.79
Tilakwada	100	0.00	52.73	46.36	0.00	0.00	0.91	0.00	0.00
Narmada	96.84	3.16	40.00	57.72	0.25	0.51	0.13	0.51	0.89
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 Narmada 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 Narmada, the possibility of progressing through the given institutional network stage-after-stage places constraint and hence access to secondary and higher secondary schools should be emphasized to enhance availability of secondary and 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 Narmada, most of the schools have buildings with classrooms in good condition. Out of total classrooms in school imparting only primary education, about 76.20% of classrooms are in good condition, while out of total classrooms in school having primary and upper primary sections, nearly 80.79% of classrooms are in good condition, whereas out of total classrooms in school having only upper primary section, almost 88.24% of classrooms are in good condition. However, all other categories of schools have all the classrooms in good conditions as shown in Figure 3.5.

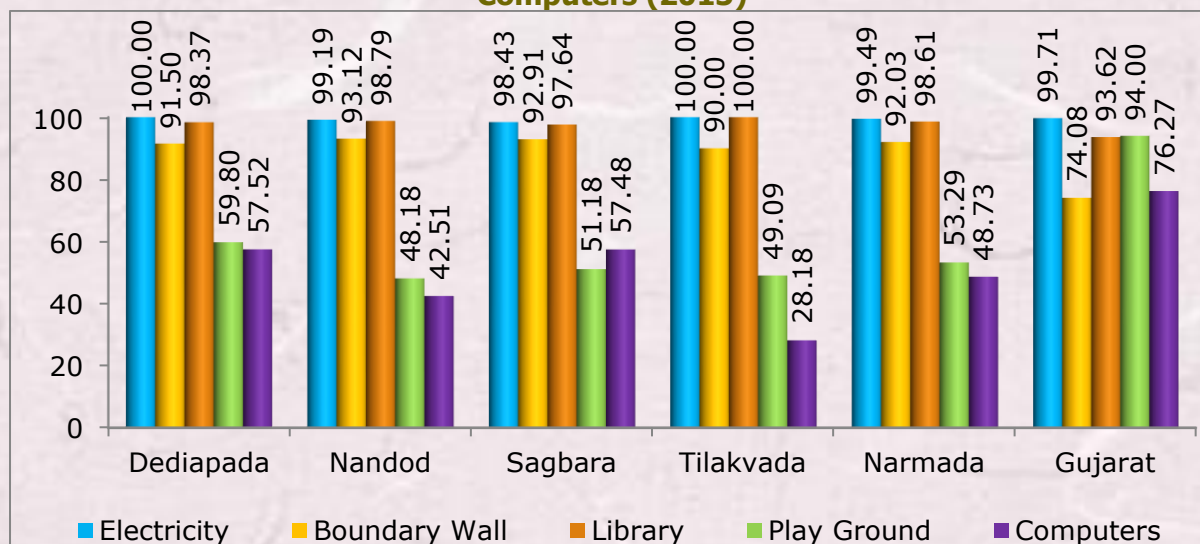


Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2015)
Note: OP: Only Primary; P,UP: Primary with Upper Primary; P,UP,S,HS: Primary with Upper Primary, Secondary & Higher Secondary; OUP: Only Upper Primary; UP,S,HS: Upper Primary with Secondary & Higher Secondary; P,UP,S: Primary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

Moreover, in Narmada almost 81.12% of class rooms are in good condition. Almost 17.45%, 6.08%, 19.58% and 16.37% of classrooms in Dediapada, Nandod, Sagbara and Tilakvada talukas respectively require major repair, while nearly 9.01%, 4.72%, 3.26 and 4.09% of classrooms in Dediapada, Nandod, Sagbara and Tilakvada 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 Narmada.

Basic infrastructure like electricity, boundary wall, library, playground and computers are essential for effective teaching-learning transaction and to enhance the teaching and learning environment. Most of the schools in Narmada have electricity connectivity and is functional. Most of the schools in Narmada have boundary wall and Library facility, but as far as playground and computers are concerned, Narmada lags behind when compared to the status of Gujarat. However, due to geographically hilly characteristics of the region, the development of playground is a challenge.

Figure 3.6: Schools with Electricity, Boundary Wall, Library, Play Ground and Computers (2015)



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

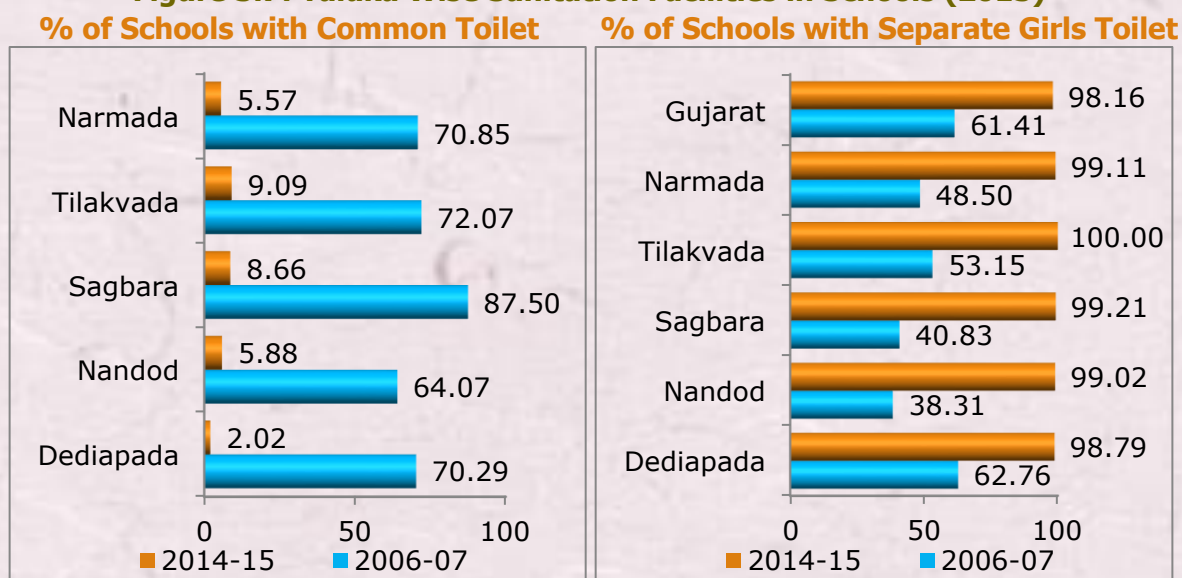
It is evident from Figure 3.6 that all the schools in Nandod and Tilakvada talukas have electricity connectivity, while 99.19% of schools in Dediapada and 98.43% schools in Sagbara have electricity connectivity. However, 99.49% of schools have electricity in Narmada as compared to 99.71% of schools with electricity connectivity in Gujarat. Almost 98.79% of schools in Dediapada, 98.37% of schools in Nandod, 97.64% of schools in Sagbara and 100% schools in Tilakvada talukas have library facilities. However, 98.61% of schools have library facility in Narmada as compared to 93.62% of schools with library facility in Gujarat. Nearly 42.51% of schools in Dediapada, 57.52% of schools in Nandod, 57.48% of schools in Sagbara and 28.18% of schools in Tilakvada talukas have computer facility. However, 48.73% of schools have computers in Narmada as compared to 76.27% of schools with computers in Gujarat.

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 70.85% of schools in Narmada had common toilets, while till 2014-15 only 5.57% of schools had common toilets. In 2006-07 nearly 70.29% of schools in Dediapada, 64.07% of schools in Nandod, 87.50% schools in Sagbara and 72.07% schools in Tilakvada had common toilets, while till 2014-15 only 2.02% of schools in Dediapada, 5.88% of schools in Nandod, 8.66% schools in Sagbara and 9.09% schools in Tilakvada had common toilets. In 2006-07 only 48.50% of schools in Narmada had separate girls toilets, while till 2014-15 almost 99.11% of schools had separate girls toilets. In 2006-07 nearly 62.75% of schools in Dediapada, 38.31% of schools in Nandod, 40.83% schools in Sagbara and 53.15% schools in Tilakvada had separate girls toilets, while till 2014-15 about 98.79% of schools in Dediapada, 99.02% of schools in Nandod, 99.21% schools in Sagbara and 100% schools in Tilakvada had separate girls toilets as shown in Figure 3.7.

Figure 3.7: Taluka Wise Sanitation Facilities in Schools (2015)

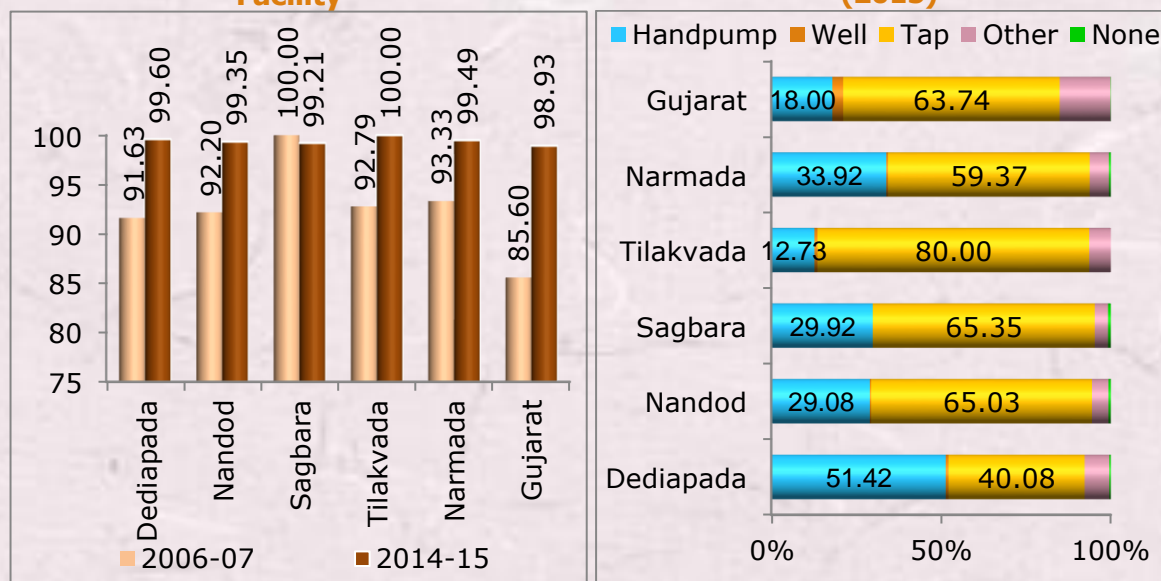


Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2006-15)

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 Narmada.

In Narmada, most of the schools have drinking water facilities. The percentage of schools with drinking water facilities shows improvement from 93.33% of schools with drinking water facility in 2006-07 as compared to 99.49% of schools with drinking water facility in 2014-15. In 2006-07 atleast 91% of schools in talukas of Narmada had drinking facility, while till 2014-15 more than 99% of schools had drinking water facilities. Highest growth in provision of drinking water facilities in schools has been noticed in Dediapada taluka followed by Nandod and Tilakvada talukas. However, in Sagbara all the schools had drinking water facility in 2006-07, but with emergence of new schools in Sagbara taluka, till 2014-15, there is just 1 school which is yet to be provided drinking water facility as shown in Figure 3.8.

Figure 3.8: Drinking Water Facilities in Schools of Narmada
 % 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 Narmada 0.5% of schools do not have access to drinking water, while for the schools having access to drinking water, the major source (59.37%) of drinking water is tap water, while in almost 33.92% of schools the source of drinking water is hand pump, whereas about 5.70% of schools avail drinking water facility from other sources in Narmada. However in Dediapada, major source of drinking water in schools is hand pump, while in more than 60% of schools in Nandod, Sagbara and Tilakvada, the major source of drinking water is tap water. Overall, the coverage rate for provision of drinking water in all the talukas of Narmada has been on an average more than 99% indicating reasonably good achievement.

3.5 School Staffing Pattern

The number of teachers in Narmada has increased till 2012-13 but depicts decline in 2013-14 and again marginal increase in 2014-15. The same pattern of increase is noticed in Govt. and Private school teachers in Narmada.

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

School Category	2008-09		2010-11		2012-13		2013-14		2014-15	
	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.	Govt.	Pvt.
OP	778	36	542	17	686	39	671	45	696	53
P+UP	1715	100	2496	194	2505	189	2394	202	2355	211
P+UP+S/HS	5	64	0	0	0	54	0	29	0	29
UPO	0	5	0	17	8	24	6	10	0	12
UP+S/HS	0	12	0	0	0	9	9	0	13	0
P+UP+S	0	0	0	0	1	32	4	47	4	40
UP+S	0	0	0	0	0	10	22	12	46	6
Sub Total	2498	217	3038	228	3200	357	3106	345	3114	351
Total	2715		3266		3557		3451		3465	

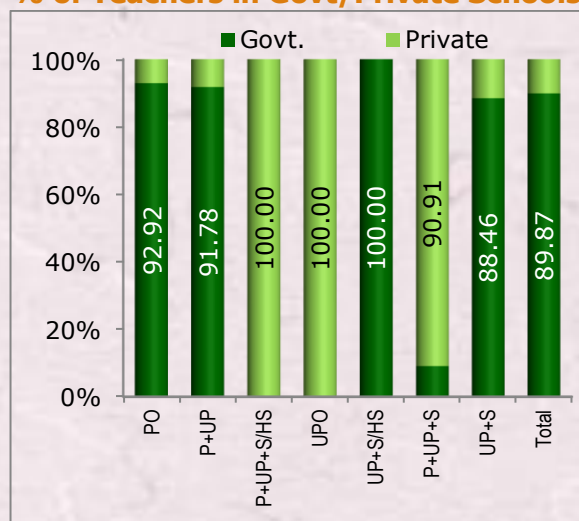
Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2008-15)

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

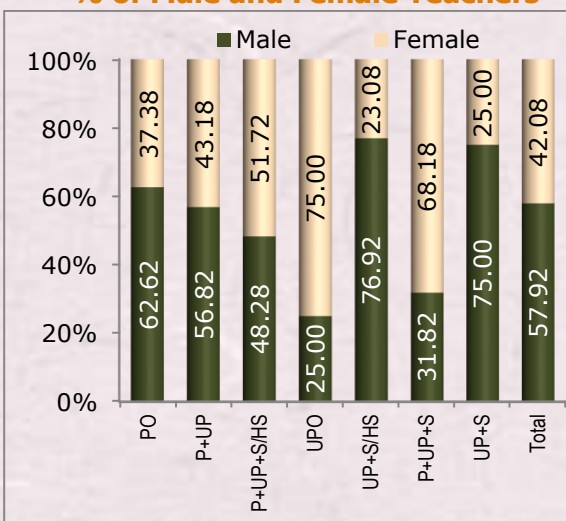
The distribution of teachers across the categories of school reveals that as all other schools except OP and P+UP are dominated by private management, more private teachers are found in such schools of Narmada. However, Narmada has more number of male teachers except in P+UP+S/HS, UPO and P+UP+S categories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

Figure 3.9: Classification of Teachers in Narmada (2015)

% of Teachers in Govt/Private Schools



% of Male and Female Teachers

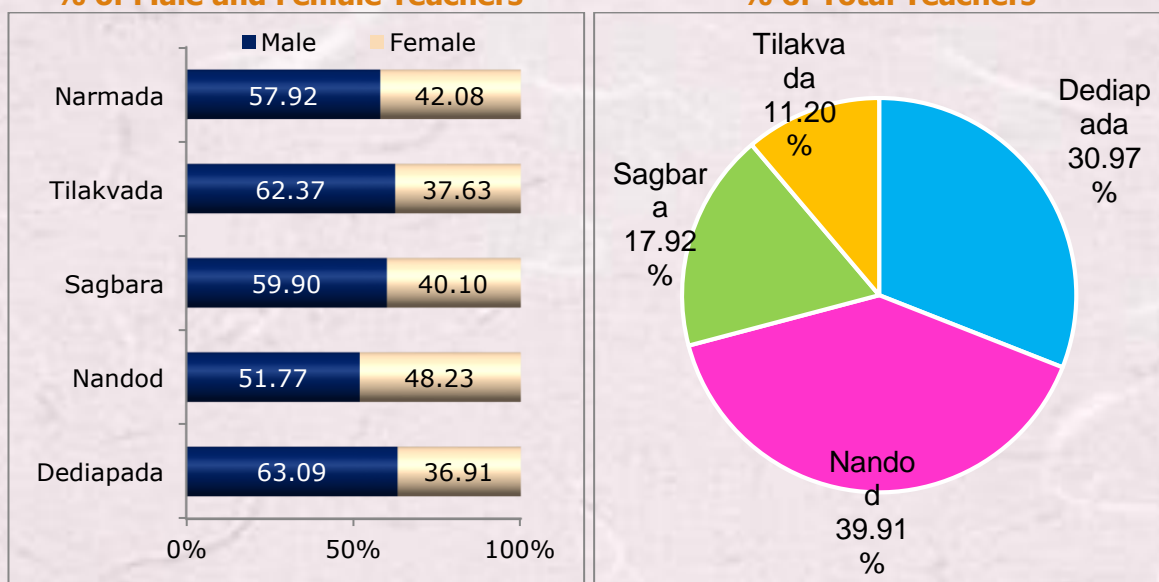


Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2015)

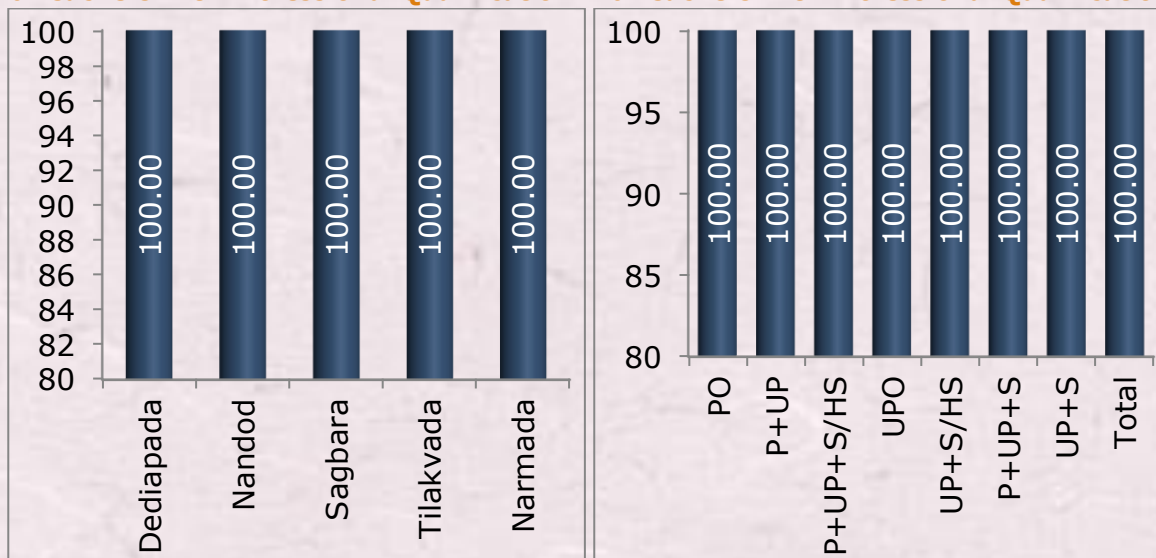
Note: PO: Primary Only; P+UP: Primary with Upper Primary; P+UP+S/HS: Primary with Upper Primary, Secondary & Higher Secondary; UPO: Upper Primary Only; UP+S/HS: Upper Primary with Secondary & Higher Secondary; P+UP+S: Primary, Upper Primary & Secondary; UP+S: Upper Primary & Secondary; SO: Secondary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

The taluka wise distribution of teachers reflects that Nandod shares maximum school teachers and Tilakvada shares least school teachers. All the talukas of Narmada has greater proportion of male teachers out of its total number of teachers and therefore, Narmada district has 57.92% of male teachers and 42.08% of female teachers in 2014-15. However, Nandod taluka has relatively more number of female teachers compared to other talukas as Nandod is more urbanized and more suitable for female teachers as shown in Figure 3.10.

Figure 3.10: Taluka wise Distribution of Teachers in Narmada (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. Narmada has all 100% of professionally qualified teachers during the year 2015.

3.6 Enrolment and Transition

Student enrolments in Narmada 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 well as enrolment in Grade 6 at upper primary level has remained fluctuating between 2006-07 and 2014-15. Due to declining enrolment successively, the CAGR of enrolment has been negative in Narmada between 2006-07 and 2014-15 as shown in Table 3.6.

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

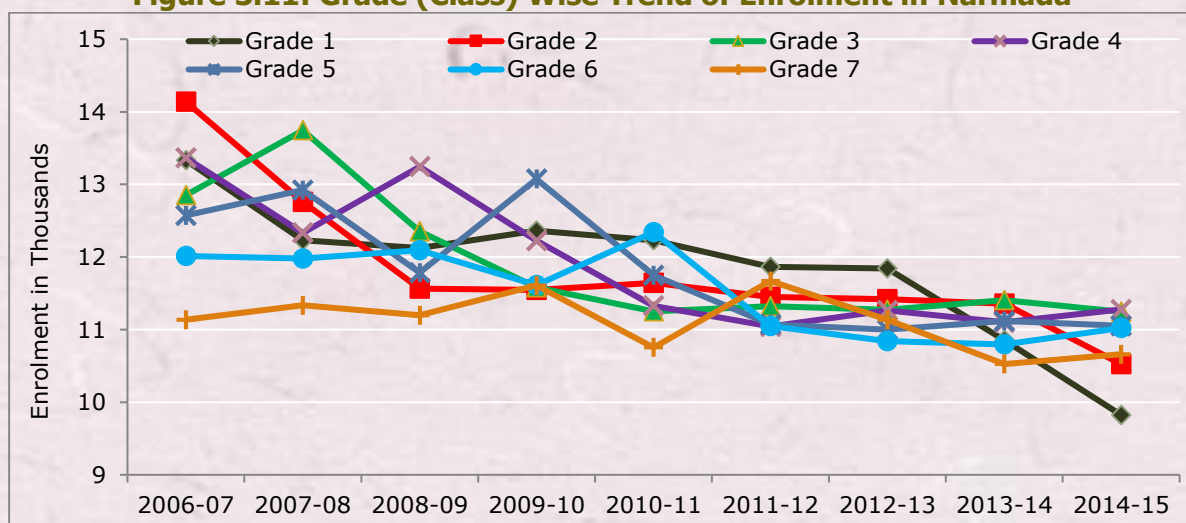
Enrolment In	2006-2007	2008-2009	2010-2011	2012-2013	2013-2014	2014-2015	CAGR 2006-10	CAGR 2010-15	CAGR 2006-15
Grade 1	13333	12124	12231	11844	10855	9824	-2.134	-5.331	-3.746
Grade 2	14138	11564	11642	11420	11359	10525	-4.740	-2.490	-3.622
Grade 3	12850	12356	11253	11275	11408	11247	-3.263	-0.013	-1.652
Grade 4	13366	13246	11328	11263	11100	11276	-4.052	-0.115	-2.103
Grade 5	12573	11785	11748	11000	11119	11053	-1.682	-1.513	-1.598
Grade 6	12014	12092	12342	10841	10796	11024	0.676	-2.784	-1.069
Grade 7	11135	11198	10754	11137	10526	10660	-0.867	-0.219	-0.543
Grade 1-7	89409	84365	81298	78780	77163	75609	-2.349	-1.797	-2.074

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

However, it has been noticed that over a decade, the proportion of 0-6 population has declined and resultant declined has also been noticed in enrolment.

The Gross Enrolment Ratio (GER) at primary level for Narmada has declined from 120 in 2006-07 to 95.1 in 2013-14, while GER at upper primary level has improved from 68.3 in 2006-07 to 79.3 in 2013-14. The Net Enrolment Ratio (NER) at primary level for Narmada has declined from 98.7 in 2006-07 to 79.9 in 2013-14, while NER at upper primary level has improved from 53.5 in 2006-07 to 60.7 in 2013-14.

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



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 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 Narmada as shown in Table 3.7.

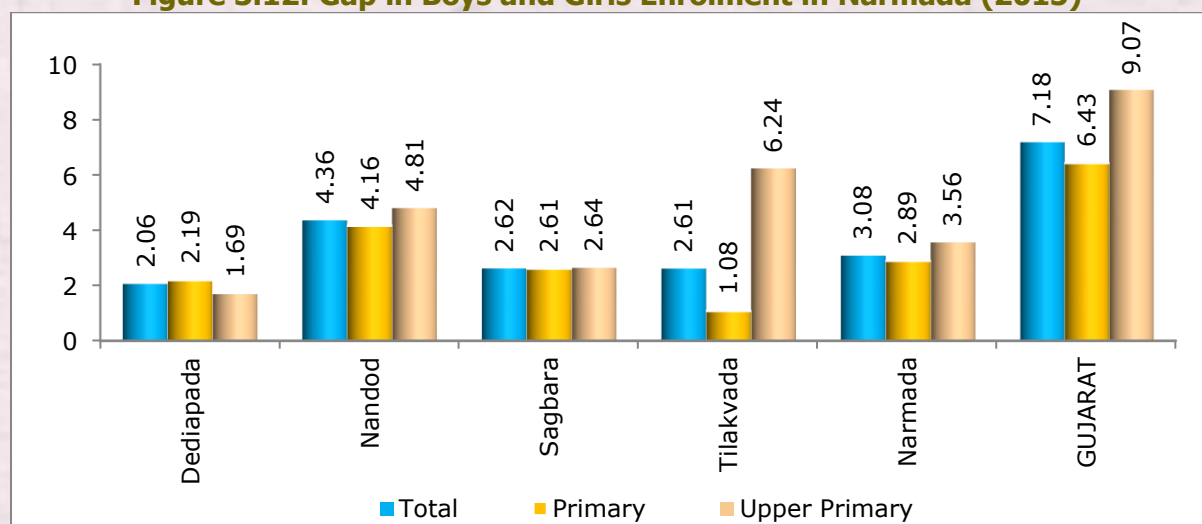
Table 3.7: Students Enrolment in Narmada

Enrolment	2006-07		2008-09		2010-11		2012-13		2014-15	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Grade 1	6968	6365	6425	5699	6363	5868	6129	5715	5142	4682
Grade 2	7182	6956	5983	5581	6008	5634	5917	5503	5368	5157
Grade 3	6642	6208	6444	5912	5878	5375	5791	5484	5732	5515
Grade 4	6976	6390	6714	6532	5809	5519	5803	5460	5836	5440
Grade 5	6201	6372	6039	5746	6015	5733	5710	5290	5664	5389
Grade 6	6196	5818	6281	5811	6229	6113	5593	5248	5684	5340
Grade 7	5969	5166	5511	5687	5509	5245	5694	5443	5544	5116
Grade 1-7	46134	43275	43397	40968	41811	39487	40637	38143	38970	36639

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

Despite the fact, the enrolment of boys as well as girls in Narmada has been declining 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 hovered around 48% between 2006-07 and 2014-15. The gap between boys and girls enrolment at primary level and upper primary level in Narmada is less as compared to Gujarat. Amongst all the talukas, biggest gap between boys and girls enrolment at primary level prevails in Nandod and biggest gap between boys and girls enrolment at upper primary level prevails in Tilakvada. The smallest gap between boys and girls enrolment at primary prevails in Tilakvada and smallest gap between boys and girls enrolment at upper primary prevails in Dediapada as depicted from Figure 3.12.

Figure 3.12: Gap in Boys and Girls Enrolment in Narmada (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 Narmada depicts that girls’ enrolment has been lower compared to boys’ enrolment in case of SC, ST students and OBC students. SC girls’ enrolment in Narmada stood at 48.83% as compared to SC girls’ enrolment in Gujarat which stood at 47.08% in 2014-15. ST girls’ enrolment in Narmada stood at 48.60% as compared to ST girls’ enrolment in Gujarat that stood at 47.73% in 2014-15. OBC girls’ enrolment in Narmada stood at 47.75% as compared to OBC girls’ enrolment in Gujarat that stood at 46.74% in 2015-16. Total girls’ enrolment in Narmada stood at 48.46% 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 Narmada (2015)

Taluka/ District	SC Enrolment		ST Enrolment		OBC Enrolment		Total Enrolment	
	% Boys	% Girls	% Boys	% Girls	% Boys	% Girls	% Boys	% Girls
Dediapada	51.92	48.08	50.98	49.02	54.60	45.40	51.03	48.97
Nandod	51.51	48.49	51.87	48.13	53.25	46.75	52.18	47.82
Sagbara	44.44	55.56	51.25	48.75	51.32	48.68	51.31	48.69
Tilakvada	53.52	46.48	51.87	48.13	50.53	49.47	51.31	48.69
Narmada	51.17	48.83	51.40	48.60	52.25	47.75	51.54	48.46
Gujarat	52.92	47.08	52.27	47.73	53.26	46.74	53.59	46.41

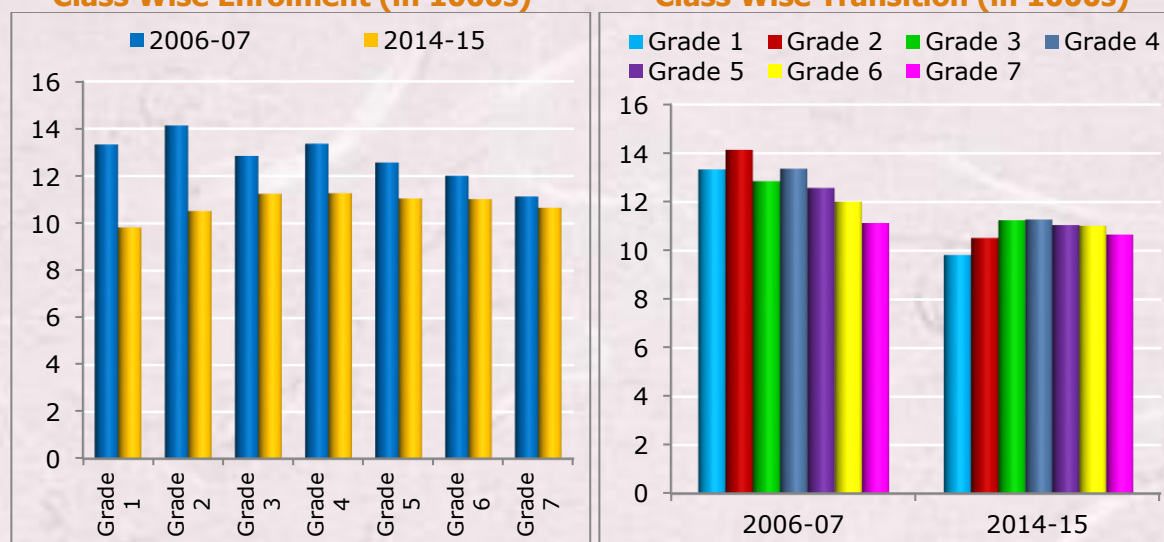
Source: Based on database of Sarva Siksha Abhiyan, GCEE, Gandhinagar (2015)

The proportion of SC girls’ enrolment has been highest (55.56%) in Sagbara taluka and lowest (46.48%) in Tilakvada taluka. The proportion of ST girls’ enrolment has been highest (49.02%) in Dediapada taluka and lowest (48.13%) in Nandod and Tilakvada talukas. The proportion of OBC girls’ enrolment has been highest (49.47%) in Tilakvada and lowest (45.40%) in Dediapada taluka.

The proportion of total girls’ enrolment has been highest (48.97%) in Dediapada taluka and lowest (47.82%) in Nandod taluka. As far as SC girls’ enrolment is concerned, Tilakvada lags behind the district and state average of 48.83% and 47.08% respectively, while as far as ST girls’ enrolment is concerned, Nandod and Tilakvada lags behind the district average of 48.60%, where as OBC girls’ enrolment is concerned, Dediapada and Nandod lags behind the district average of 47.75%. As far as total girls’ enrolment is concerned, Nandod lags behind the district average of 48.46%.

Class-wise enrolment in the elementary education in Narmada 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 as shown in Figure 3.13.

Figure 3.13: Enrolment, Transition and Dropout in Narmada
Class Wise Enrolment (in 1000s) **Class Wise Transition (in 1000s)**



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

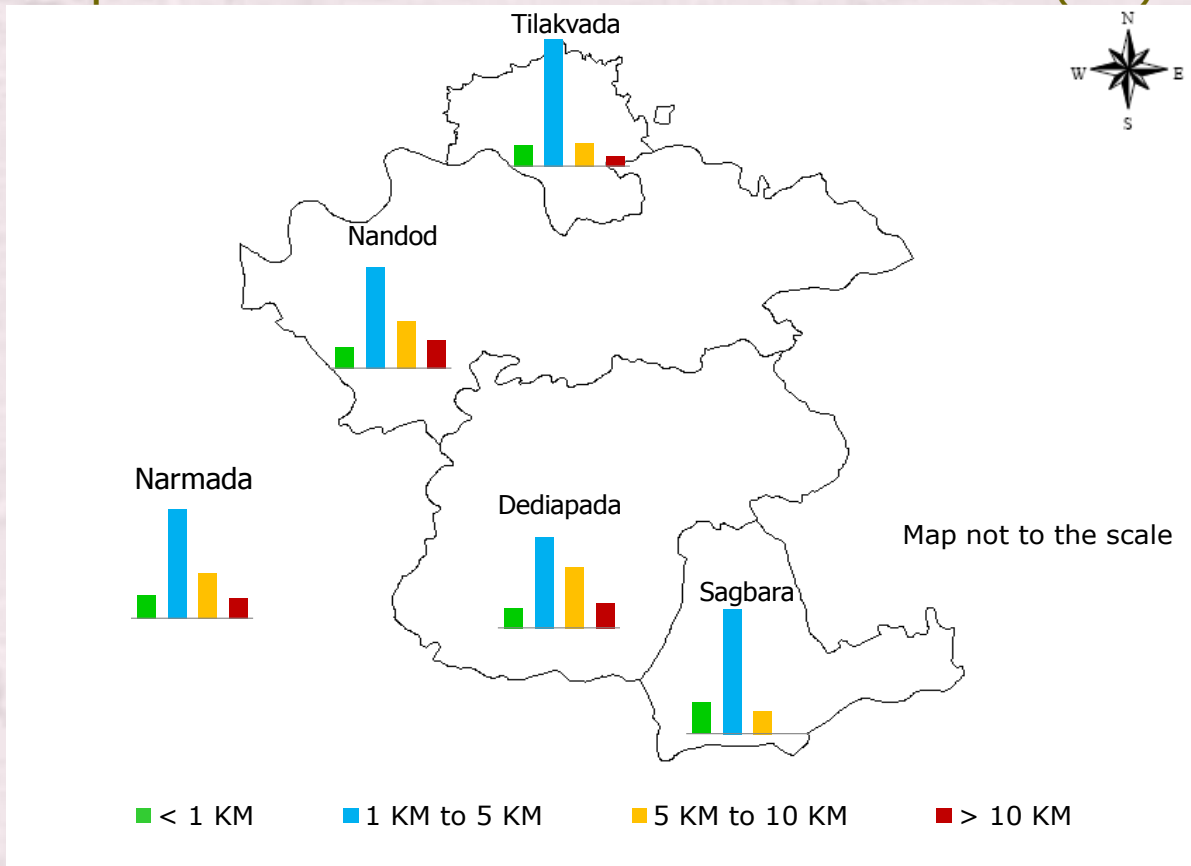
Class 1 students enrolled in 2006-07 reduced by almost 3.5% on an average of their initial strength as they transit to Class 2 in 2007-08 and so on. Further shrinkage every successive year ranges between 2% and 7% of the remaining transitioned students, at every stage of higher classes. Such usual pattern 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, Drop Out Rate, Promotion Rate, Transition Rate and Retention Rate) remained fluctuating in Narmada as shown in Table 3.9.

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

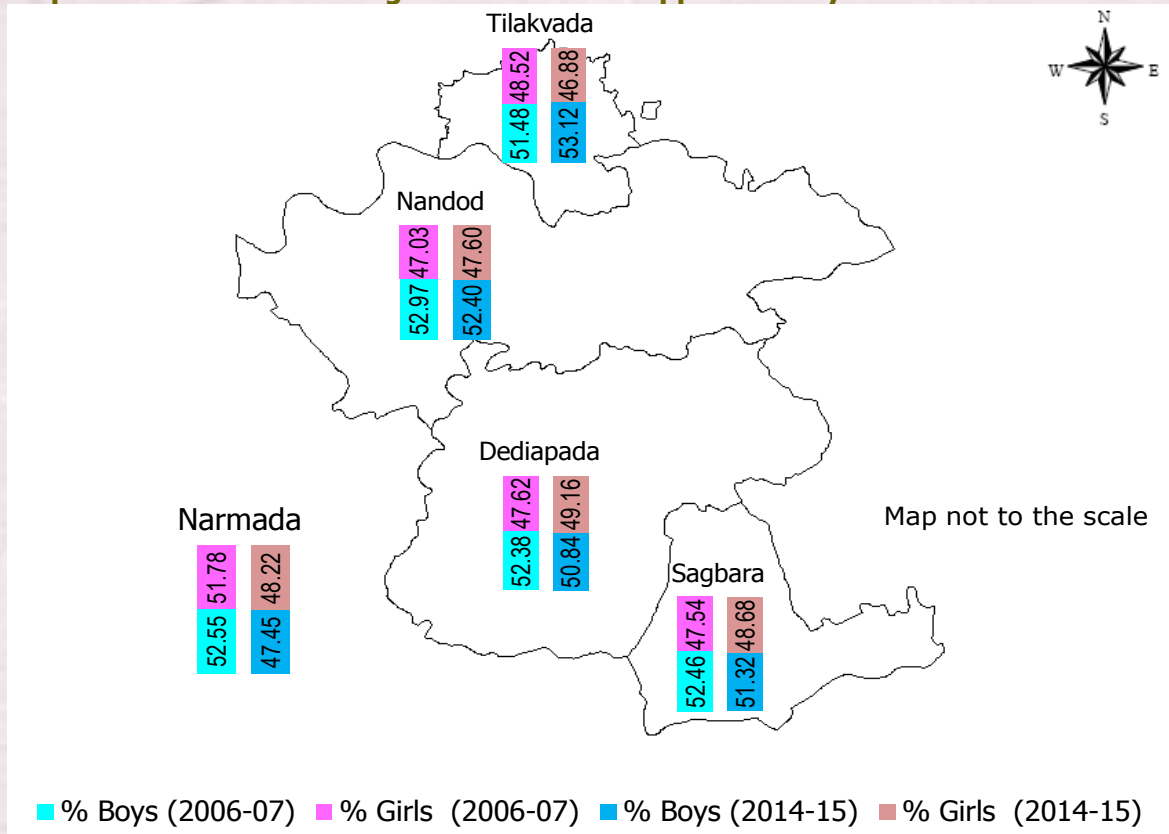
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Repetition Rate	3.0	2.4	2.4	1.6	4.2	2.8	0.2	0.1
Drop Out Rate	3.0	3.6	4.4	1.7	3.9	3.4	1.7	1.8
Promotion Rate	94.1	93.9	93.1	96.7	91.8	93.8	98.2	98.1
Transition Rate (Primary to Upper Primary)	94.1	94.2	92.7	97.0	90.3	92.0	97.8	98.0
Retention Rate	86.7	91.0	87.0	90.2	87.7	87.7	90.5	89.9
Gender Parity Index (GPI)	0.93	0.94	0.93	0.93	0.94	0.93	0.94	0.94

Source: Computed from database of District Information System for Education, NUEPA (2006-14)

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



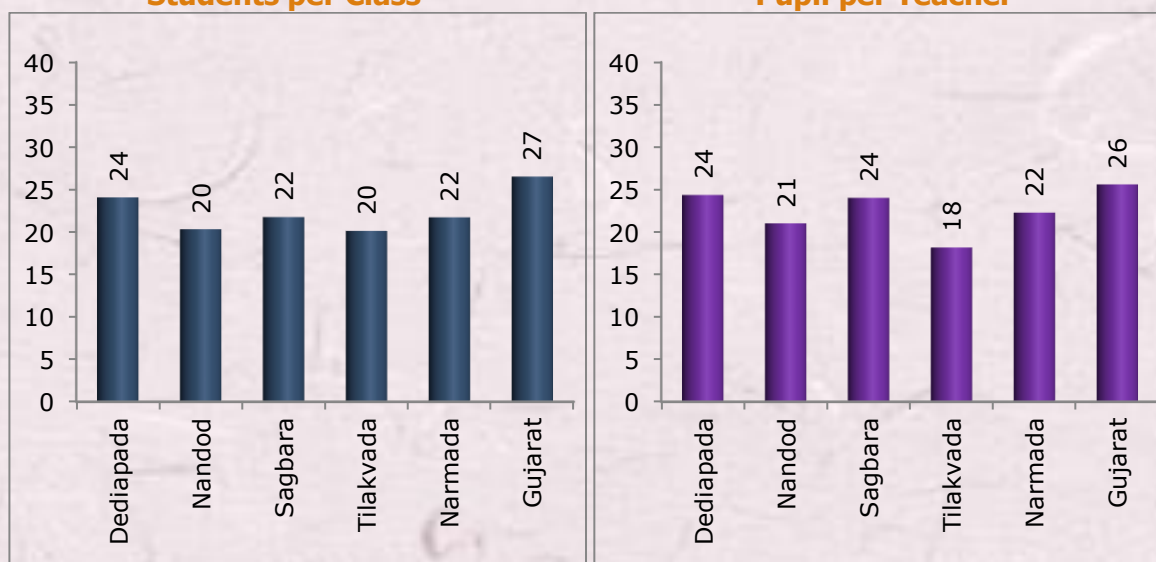
Map 3.2: Taluka wise Changes in % share in Upper Primary Enrolment of Narmada



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 and PTR in Narmada are lower than the state average. In Narmada, the SCR ranges from 20:1 to 24:1 and PTR ranges from 18:1 to 24:1 and hence has some there has been difference across the talukas. As far as SCR is concerned, Tilakvada and Nandod has least SCR, while Sagbara and Dediapada has higher SCR in 2014-15. As far as PTR is concerned, Tilakvada has least PTR, while Dediapada and Sagbara has highest PTR in 2014-15. However, all the talukas have lower SCR and PTR than the state average as shown in Figure 3.14.

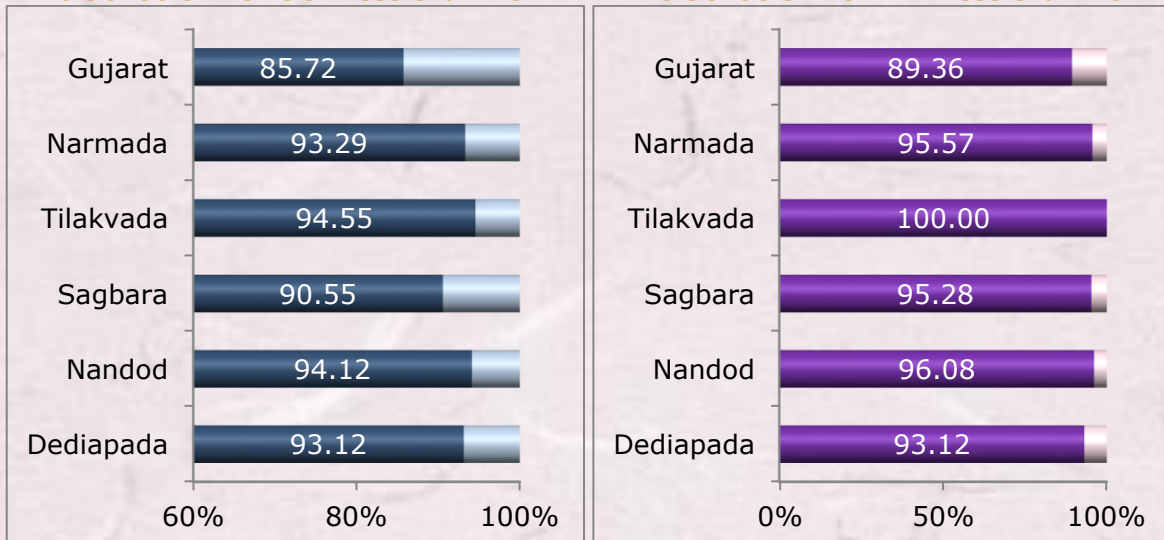
Figure 3.14: Taluka Wise Student-Class Ratio & Pupil-Teacher Ratio (2015)
Students per Class Pupil per Teacher



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

Moreover, the SCR and PTR in Narmada 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 Narmada, almost 93.29% of schools have SCR lower than 40:1 and about 95.57% of schools have PTR lower than 40:1. Furthermore, out of total schools in Dediapada, Nandod and Tilakvada taluka more than 90% of schools have SCR less than 40:1, while out of total schools in Nandod and Tilakvada more than 93% of schools have PTR less than 40:1 in Narmada 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 Narmada

Dediapada	Only Primary Schools: 125 (50.81%) Primary/U. Primary Schools: 117 (47.56%) Good Condition Classrooms: 852 (72.88%) Schools with Separate Girls Toilet: 245 (99.59%) Schools with Electricity: 243 (98.78%) Schools with Computers: 119 (48.37%) Schools with Library: 241 (97.97%) Schools with Drinking Water: 246 (100%)	Sagbara	Only Primary Schools: 94 (30.82%) Primary/U. Primary Schools: 202 (66.23%) Good Condition Classrooms: 1322 (88.37%) Schools with Separate Girls Toilet: 301 (98.69%) Schools with Electricity: 305 (100%) Schools with Computers: 183 (60.00%) Schools with Library: 295 (96.72%) Schools with Drinking Water: 302 (99.02%)
Nandod	Only Primary Schools: 36 (28.35%) Primary/U. Primary Schools: 89 (70.08%) Good Condition Classrooms: 488 (73.38%) Schools with Separate Girls Toilet: 123 (96.85%) Schools with Electricity: 125 (98.43%) Schools with Computers: 74 (58.27%) Schools with Library: 124 (97.64%) Schools with Drinking Water: 126 (99.21%)	Tilakvada	Only Primary Schools: 56 (50.45%) Primary/U. Primary Schools: 54 (48.65%) Good Condition Classrooms: 268 (73.83%) Schools with Separate Girls Toilet: 111 (100%) Schools with Electricity: 111 (100%) Schools with Computers: 33 (29.73%) Schools with Library: 111 (100%) Schools with Drinking Water: 109 (98.20%)

Box 3.2: Requirement of Class Rooms in Narmada (2014)

	Taluka	Classroom	
	Dediapada	256	
	Nandod	228	
	Sagbara	151	
	Tilakvada	121	
Total		756	

Source: Based on database of District Primary Education Office, Narmada (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 neighbourhood, 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 Narmada, 11.90% of schools are located within the 1 km, while 55.44% of schools are located within 1 km to 5 km distance and 22.53% of schools are located within 5 km to 10 km, where 10.13% of schools are located beyond 10 km distance from CRC. In Dediapada more than 42% of schools, in Nandod about 37% of schools, in Sagbara nearly 18% of schools and in Tilakvada nearly 12% of schools are located beyond the 5 km distance from CRC as shown in Table 3.10.

Table 3.10: Access to School and Mid Day Meal in Narmada (2015)

Taluka / District	% schools with distance from CRC				Status of Mid Day Meal (Schools in %)		
	<1 KM	1-5 KM	5-10 KM	>10 KM	Not Provided	Provided In School	Provided Outside
Dediapada	10.53	46.15	30.77	12.55	0.93	98.61	0.46
Nandod	11.11	51.31	23.53	14.05	0.38	99.23	0.38
Sagbara	10.91	70.91	12.73	5.45	0.00	98.11	1.89
Tilakvada	17.32	70.08	12.60	0.00	0.00	100.00	0.00
Narmada	11.90	55.44	22.53	10.13	0.44	91.00	8.56

Source: Based on database of 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 87.21% of schools in Narmada (as other schools are private/residential). Out of the total schools, where it is applicable, about 99.56% of schools provided mid-day meal either within school (91%) or outside school (8.56%).

In Dediapada 99.07% of schools provide mid-day meal, while in Nandod 99.61% of schools provide mid-day, whereas in Sagbara and in Tilakvada all 100% schools provide mid-day meal.

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 (2011)

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 increase in Vidya Laxmi Bonds from 2006-07 to 2009-10 and decline in 2010-11. However, it increased in 2011-12, but declined till 2013-14. This indicates volatile trend in girls, enrolment in district. The details of Vidya Laxmi Bond Scheme in Narmada are shown in Figure 3.16.

Figure 3.16: Achievements of Vidya Laxmi Bond Scheme in Narmada



Source: Based on database of District Education Office, Narmada (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 Narmada

	Grade 2010-11						Grade 2012-13						Grade 2014-15					
	A	B	C	D	E	F	A	B	C	D	E	F	A+	A	B	C	D	E
Dediapada	0	45	153	32	2	0	47	148	38	4	0	0	6	74	110	39	10	0
Nandod	1	50	200	25	5	0	29	195	49	9	0	0	5	73	133	54	17	0
Sagbara	0	24	77	14	0	0	15	78	23	1	0	0	0	50	60	5	0	0
Tilakvada	2	47	55	4	0	0	23	68	16	3	0	0	2	43	49	8	7	0
Narmada	3	166	485	75	7	0	114	489	126	17	0	0	13	240	352	106	34	0

Source: Compiled from database of District Education Office, Narmada (2015)

3.10 Success Stories

Box 3.4: Infrastructure and Amenities for Girls Education in Narmada

Kasturba Gandhi Balika Vidyalaya (KGBV): Dediapada



Established: July 2005
 Enrolment: 102 (2013-14)
 Education: Class 1 to 8
 Teaching Staff: 7

Kasturba Gandhi Balika Vidyalaya (KGBV) is a scheme for free of cost residential schools at upper primary level for girls belonging to the SC, ST, OBC and 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. In Narmada there are 10 KGBV

Infrastructure: New Building
 No. of Class Rooms: 10
 Sanitation: 10 Girls Toilets
 Drinking Water: Hand Pump

Eklavya (Low Literacy) Girls Residential School: Rajpipla

Eklavya Girls Residential schools (EGRS) are the residential schools exclusive for tribal girls and are running under the scheme of strengthening education among ST girls of Ministry of Tribal Affairs, Govt. of India. Eklavya Girls' Residential Schools run for Std. VIII to X. These schools aim to bridge the gap in literacy levels between the general female population and tribal women and reduce drop out ratio in low literacy blocks of Gujarat state.

Established: July 2009
 Enrolment: 60 (2013-14)
 Education: Class 8 to 10
 Teaching Staff: 4



Infrastructure: New Building
 No. of Class Rooms: 3
 Sanitation: 6 Girls Toilets
 Drinking Water: Tap Water

Source: Field Survey, Dediapada, Rajpipla (2014)

Table 3.12: School Health Check Up in Narmada

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
Dediapada	53859	51851	7542	446	57244	50386	3539	104
Nandod	63960	63221	4647	551	59710	56113	6542	299
Sagbara	29695	28007	6074	166	31946	22070	784	90
Tilakvada	16370	15251	2434	94	15381	14803	1788	160
Narmada	163884	158330	20700	1257	164281	143374	12653	653

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

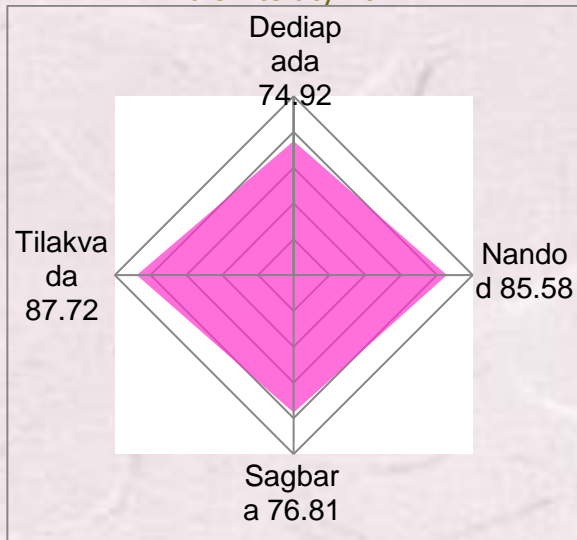
3.11 Summary

Box 3.5: SWOC Analysis for Education in Narmada

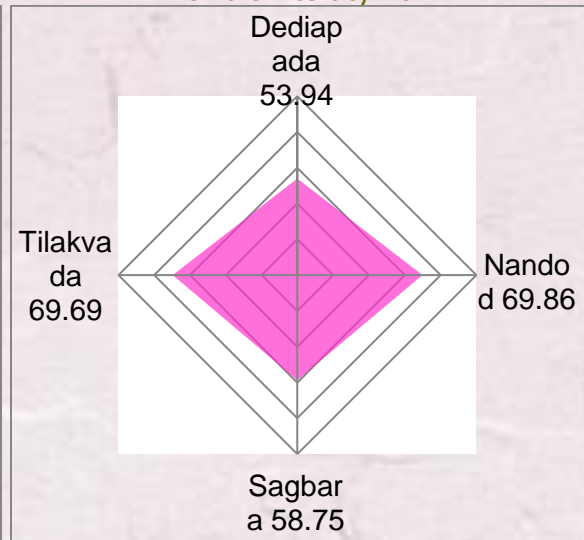
Strengths	Weaknesses
<ul style="list-style-type: none"> • Male-Female Literacy gap as well as Rural-Urban Literacy Gap has declined between 2001 and 2011 in Narmada. • Majority (81.12%) of the classrooms in schools are in good conditions. • More than 99% of schools in Narmada are electrified. • Schools with separate girls toilet has increased to 99.11% in Narmada. • Schools with drinking water facility have increased to 99.49% in Narmada. • All 100% of teachers are professionally qualified in Narmada. • SC Girls' enrolment in Sagbara is higher than Boys' enrolment. • Student-Classroom Ratio (SCR) and Pupil-Teacher Ratio (PTR) is lower in Narmada 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 Narmada. • Lack of Secondary and Higher Secondary schools in Narmada. • Almost 12% of classrooms require major/minor repairs. • More than 20% of classrooms in Dediapada, Sagbara and Tilakvada require major/minor repairs. • More than 50% of schools require playground as well as computer facilities in Narmada. • Boys' as well as Girls' enrolment has been declining consecutively every year in Narmada. • More than 20% of schools are located at more than 5 KM distance from CRC in Narmada.
Opportunities	Challenges
<ul style="list-style-type: none"> • Initiating of Secondary and Higher Secondary schools in Narmada by private sector. • Recruitment of full time teachers (not contractual) in priority talukas facing teachers' retention problem. • The coverage of Mid -Day meal scheme is almost 99% in Narmada and can be further improved. • 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. • Increasing coverage of School health checkups in scattered tribal habitation linking education and health care.

3.12 Literacy and Education: Taluka Wise Status of by Radars

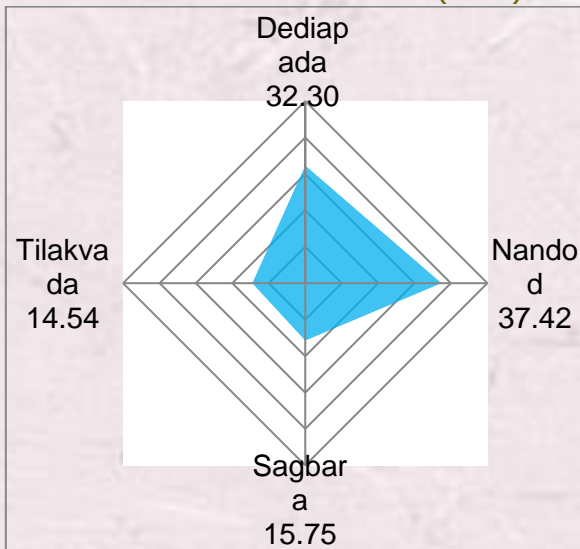
Male Literacy 2011



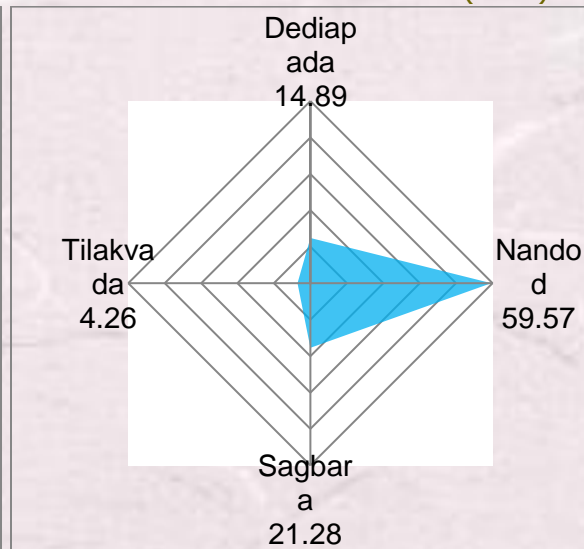
Female Literacy 2011



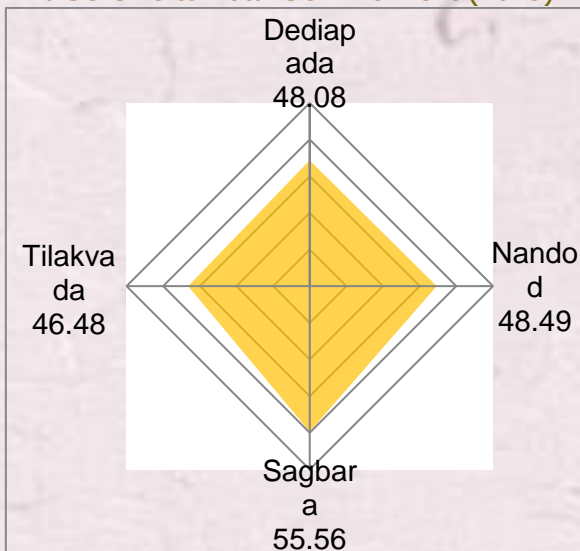
Distribution of Govt. Schools (2015)



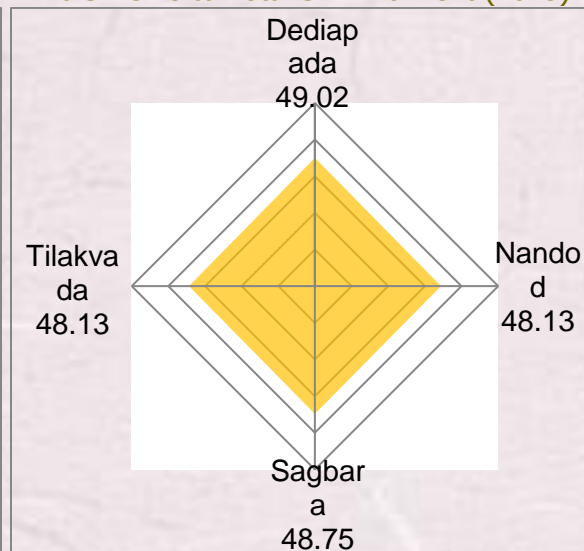
Distribution of Private Schools (2015)



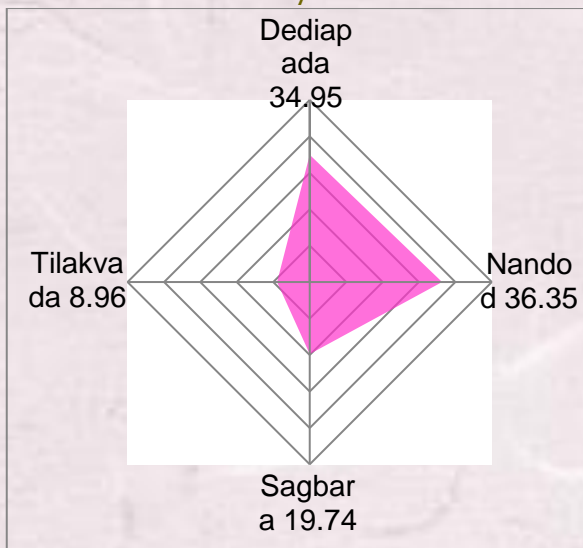
% SC Girls to Total SC Enrolment (2015)



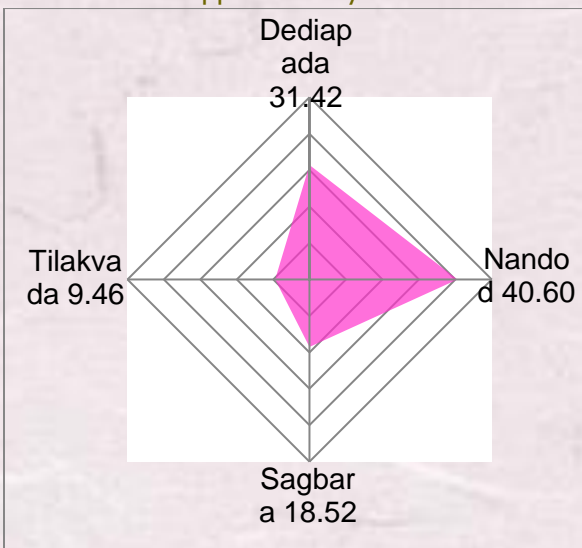
% ST Girls to Total ST Enrolment (2015)



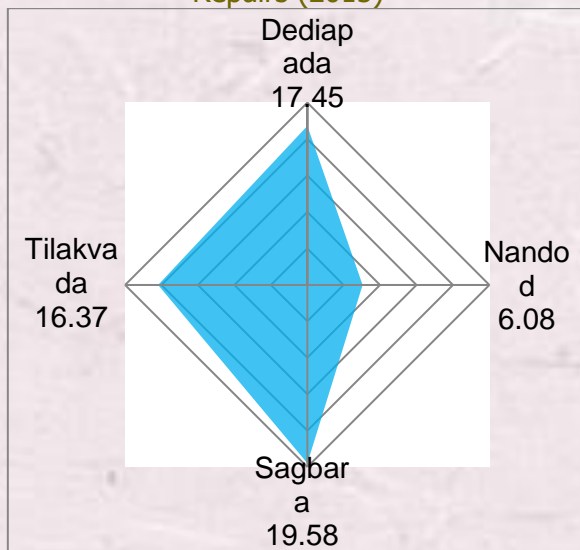
% Share in Primary Enrolment 2015



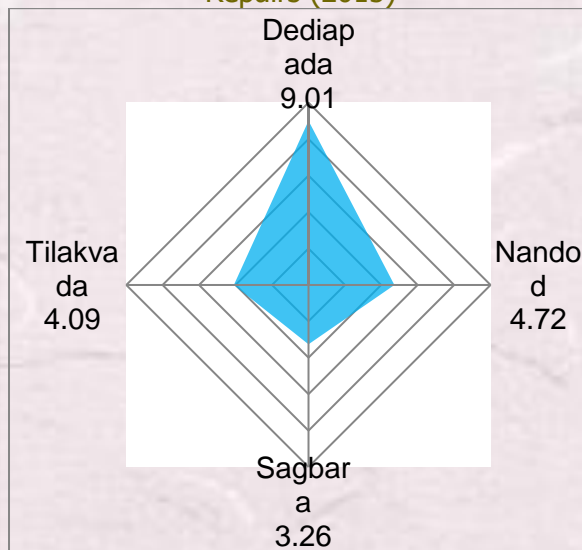
% Share in Upper Primary Enrolment 2015



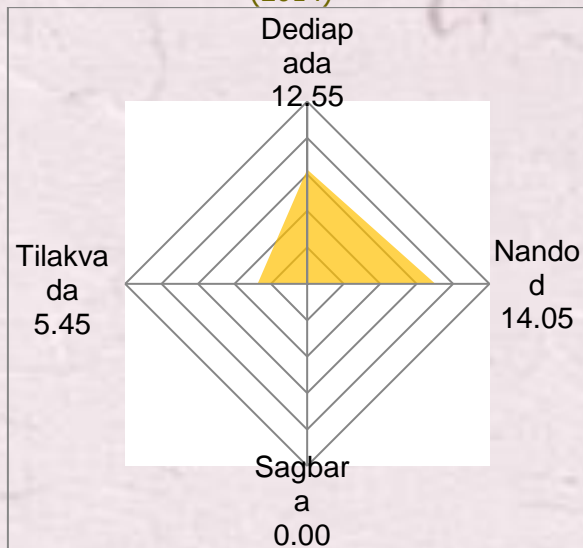
% of Total Classrooms that Require Major Repairs (2015)



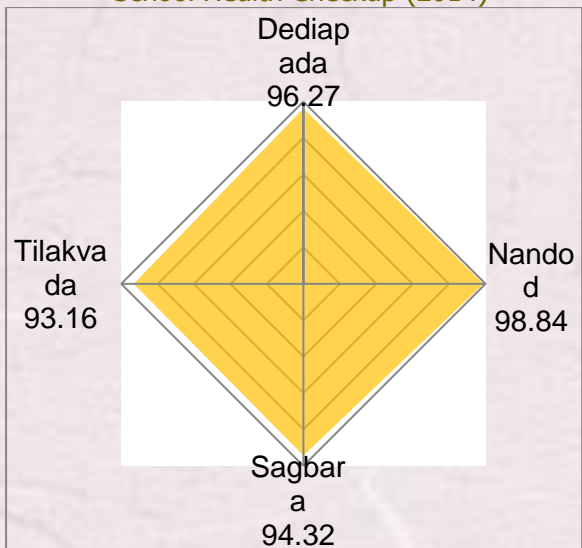
% of Total Classrooms that Require Minor Repairs (2015)



% of Schools Above 10 km distance from CRC (2014)



% School Going children covered under School Health Checkup (2014)



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CHAPTER 4

HEALTH, NUTRITION AND SANITATION



Chapter 4

HEALTH, NUTRITION AND SANITATION

4.1 Introduction

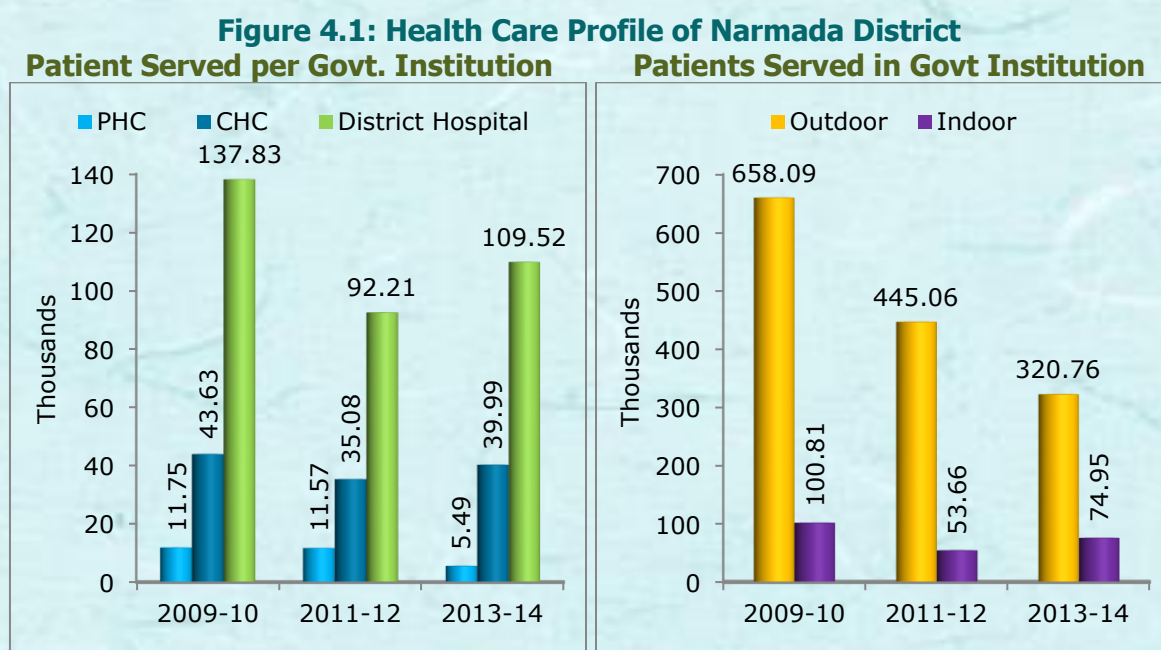
World Health Organization (WHO) defined health as “a state of complete physical, mental and social well-being” rather than just an absence of disease or infirmity. Health has intrinsic significance, instrumental importance at personal and social levels and promotes empowerment of people and therefore 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 Narmada, 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 Narmada, success stories and status of talukas pertaining to health, nutrition and sanitation in Narmada.

4.2 Health Care Scenario

Narmada district is characterized by scattered habitations, which makes it quite difficult to provide health care services available to the community. There are remote areas where accessibility is also 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 Narmada district is presented in Figure 4.1.



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

Due to low literacy the traditional common practices to cure diseases prevail in some backward areas and are followed by the lower castes and the tribal people. *Jhar-Phunk* (exorcism by blowing on the face of the person), *Jantra* (magic), *Tantra* (charms), *Dora* (tying a piece of thread round the wrist), etc. Nevertheless, there has been expansion in health care facilities in Narmada during last decade, but it has been observed that population served per Govt. institution (PHC, CHC and District Hospital) has remained fluctuating over the years in Narmada. Moreover, the outdoor patients have remained higher (with declining trend) in Narmada.

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.

Narmada 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 Narmada. The district has 174 sub centres, 25 PHCs, 3 CHCs, 1 Sub-Divisional Hospital and 1 District Hospital. There are 135, 180 and 81 beds available in PHCs, CHCs and District hospital respectively. There are 15 Ayurvedic and 2 Homeopathic institutions, 4 first referral units, 2 mobile medical units, 11 AYUSH health facilities, 40 Govt. ambulances as shown in Table 4.1.

Table 4.1: Health Infrastructure in Narmada District (2014-15)

Health Infrastructure	In Nos.	Health Infrastructure	In Nos.
Sub Centres	174	Beds Available in Hospitals	81
Public Health Centres	25	Ayurvedic Institutions	15
Community Health Centres	3	Homeopathic Institutions	2
Sub District Hospital	1	First Referral Units	4
District Hospitals	1	Mobile Medical Units	2
Beds Available in PHC	135	AYUSH	11
Beds Available in CHC	180	Ambulance (Govt.)	40

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

All four talukas viz. Dediapada, Nandod, Sagbara and Tilakvada are tribal talukas in Narmada, characterised by low literacy and low awareness of health care. The provision of health care facilities has special emphasis in tribal area viz. 3 CHCs, 25 PHCs and 174 sub centres are functional in Narmada as shown in Table 4.2.

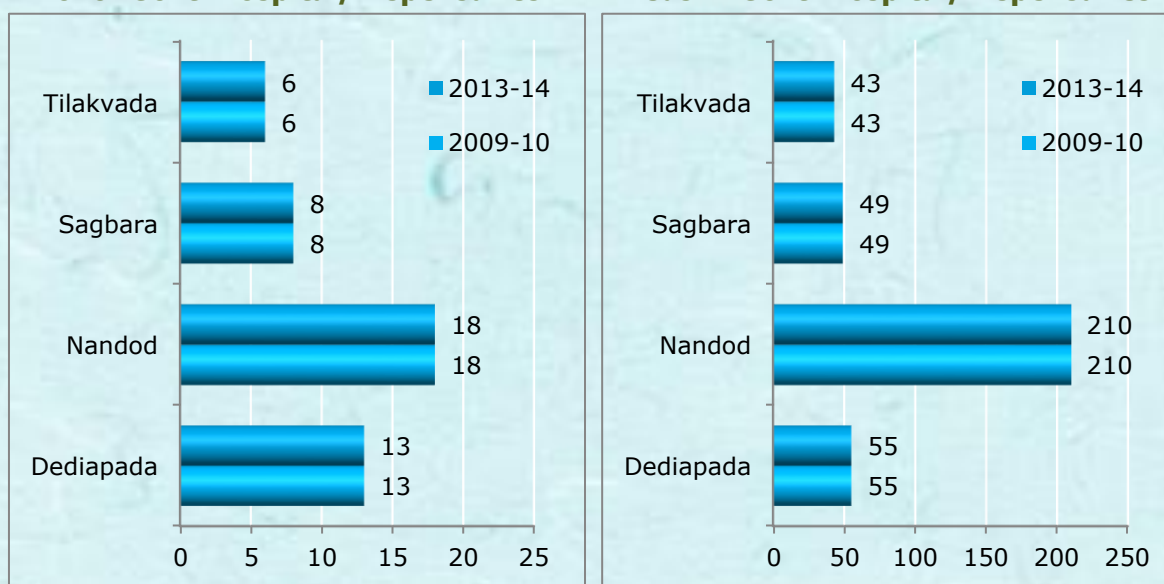
Table 4.2: CHCs, PHCs and Sub Centres in Narmada (2014)

Taluka / District	CHCs	PHCs	Sub Centers
Dediapada	0	8	55
Nandod	1	10	66
Sagbara	1	4	33
Tilakvada	1	3	20
Narmada	3	25	174

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

Narmada had 45 medical institutions (including Govt, Municipality, Grant-in-Aid other than Panchayat Clinics/Hospitals and Ayurvedic Clinics) in 2009-10, which has been reported to remain stagnant till 2013-14, 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 2009-10 were 357, which has also been reported to remain stagnant till 2013-14 as shown in Figure 4.2.

Figure 4.2: Taluka wise Medical Institutions and Beds Available in Narmada
No. of Govt. Hospital/Dispensaries **Beds in Govt. Hospital/Dispensaries**



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

Box 4.1: Health Care Facilities at CHCs in Narmada



Community Health Center	Dediapada
Emergency services (24 Hrs)	Yes
24 Hrs delivery services	Yes
New-born care	Yes
Family planning services	Yes
Safe abortion services	No
Surgeries performed	Lap TC in Camp
Bed Occupancy Rate	40% to 60%
Average daily OPD Attendance	100
No. of beds	30
Rooms	Good
Toilets	Yes
Staff against IPHS Norm of 40	15

Community Health Center	Sagbara
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	50% to 60%
Average daily OPD Attendance	90
No. of beds	50
Rooms	Good
Toilets	Yes
Staff against IPHS Norm of 40	20



Community Health Center	Tilakvada
Emergency services (24 Hrs)	Yes
24 Hrs delivery services	Yes
New-born care	Yes
Family planning services	No
Safe abortion services	No
Surgeries performed	Lap TC in Camp
Bed Occupancy Rate	50% to 60%
Average daily OPD Attendance	105
No. of beds	30
Rooms	Good
Toilets	Yes
Staff against IPHS Norm of 40	18

4.4 Human Resource Availability in Health Care

The human resource dimension (medical officers and other staff) of the public health delivery system at Narmada seems to be not so encouraging. The availability of human resources in the district shows that the total number of sanctioned posts for class 1 staff and class 2 staff across medical divisions are 42 and 68 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 evident from Table 4.3.

Table 4.3: Medical Staff (Class 1 & Class 2) Details of Narmada (2014)

Medical Division	Class 1			Class 2		
	Sanctioned	Filled	Vacant	Sanctioned	Filled	Vacant
Civil	25	3	22	10	4	6
CHC	13	0	13	16	10	6
DTO	0	0	0	1	0	1
PHC	0	0	0	22	9	13
Mobile Unit	0	0	0	5	0	5
District Panchayat	3	1	2	14	5	9
	42	5	37	68	28	40

Source: Compiled from database of District Statistics Office, Narmada (2014)

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 Narmada district hospital is not much remarkable. Out of the total 25 sanctioned posts of medical staff under different categories, only 6 posts are filled and about 75% of the positions are vacant. Furthermore, the availability of paramedical staff seems to be similarly discouraging. About 69 out of the total 99 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.

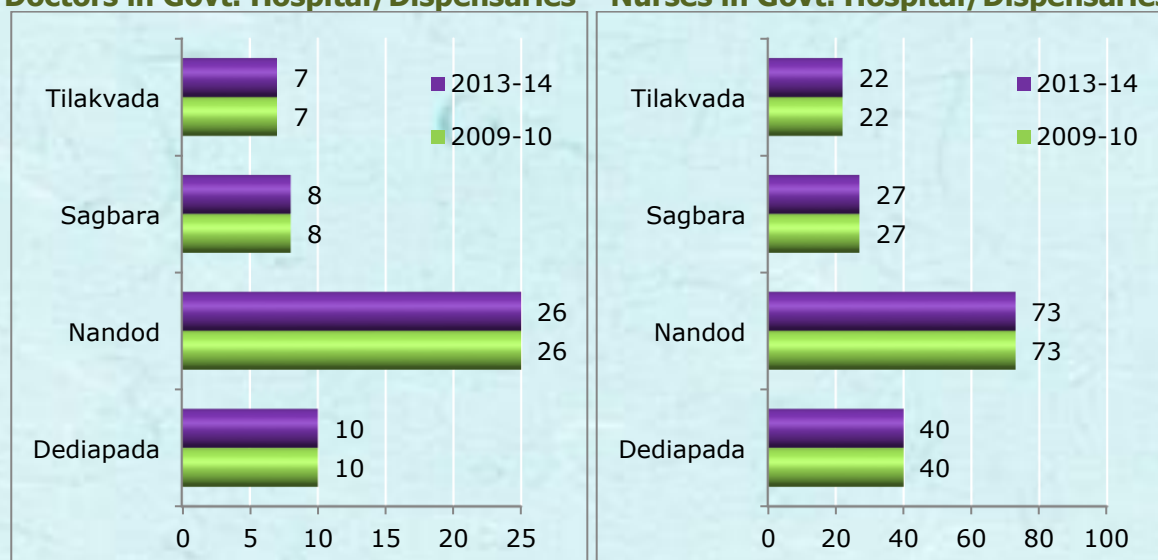
Table 4.4: Medical and Para-Medical Staff at District Hospital, Narmada (2014)

Medical Staff	Sanctioned	Filled	Para-Medical Staff	Sanctioned	Filled
Hospital Superintendent	1	0	Staff Nurse	80	24
Medical Specialist	7	3	Ophthalmic assistant	2	1
Surgery Specialist	2	0	Laboratory technician	4	1
Gynaecologist	4	0	Laboratory attendant	2	0
Paediatrician	2	0	ANM	1	0
Anaesthetist	2	0	LHV	1	0
Pathologists	1	1	Pharmacist	5	3
Psychiatrist	1	0	Matron	2	0
ENT Surgeon	2	1	Physiotherapist	2	1
Ophthalmologist	1	1			
Orthopaedist	1	0			
Dental Surgeon	1	0			

Source: Compiled from database of Chief District Health Office, Narmada (2014)

Narmada had 51 doctors in medical institutions (including Govt, Municipality, Grant-in-Aid other than Panchayat Clinics/Hospitals and Ayurvedic Clinics) in 2009-10, which has been reported to remain stagnant 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 2009-10 were 162, which has also been reported to remain stagnant till 2013-14 as shown in Figure 4.3.

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



Source: Based on database of District Statistics Office, Narmada (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 Narmada. Narmada shares 23 PHCs out of 1158 PHCs of Gujarat in 2014 which accounts for 1.98% of PHCs of Gujarat. Narmada shares 4 CHCs out of 318 CHCs of Gujarat in 2014, which accounts for almost 1.25% of CHCs of Gujarat. As far as PHCs are concerned, Narmada shared 1.98% of PHCs of Gujarat, while it served 1.25% of outdoor patients, 1.35% of indoor patients and total 1.24% of patients coming to PHCs of Gujarat in 2013-14. As far as CHCs are concerned, Narmada shared 1.25% of CHCs of Gujarat, while it served 1.10% of outdoor patients, 2.63% of indoor patients and total 1.29% of patients coming to CHCs of Gujarat in 2013-14. District and civil hospital in Narmada served 0.60% of outdoor patients and 1.03% of indoor patients and total 0.68% of patients coming to district and civil hospitals of Gujarat. However, public health facilities (PHCs, CHCs and district/civil hospitals) in Narmada served 40.95% of outdoor patients, 1.56% of indoor patients and 1.02% of the total patients served by public health facilities in Gujarat in 2013-14 as evident from Table 4.5.

Table 4.5: Indoor and Outdoor Patients Served (2014)

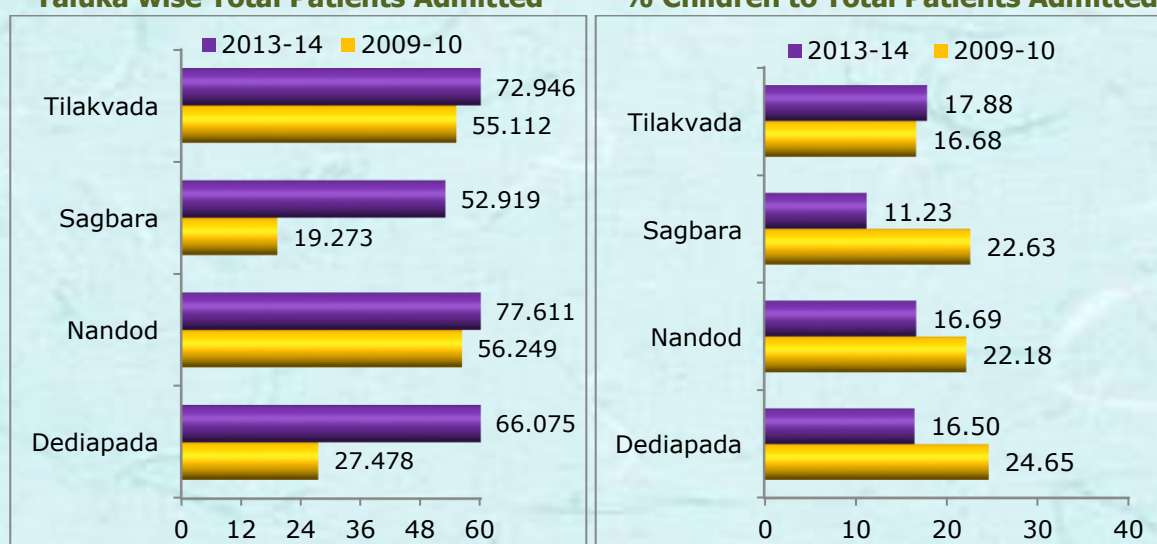
	PHC		CHC		Dist+Civil Hospital		Total	
	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor	Outdoor	Indoor
Narmada	123910	2302	118861	41118	77993	31525	320764	74945
Gujarat	10005236	170590	10815119	1563903	13067506	3065527	33887861	4800020
Narmada as % of Gujarat	1.24	1.35	1.10	2.63	0.60	1.03	0.95	1.56

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

However, out of total patients of Narmada, 31.90% of patients were served by PHCs, while 40.43% of patients were served by CHCs and 27.68% 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 most of the patients utilise PHC and CHC facilities in Narmada. It reveals that PHC and CHC play a vital role in Narmada 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 Narmada have grown by 14.27% CAGR between 2009-10 and 2013-14. 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 Nandod followed by Tilakvada in 2009-10 as well as in 2013-14. However, the highest CAGR in total patient (men, women and children together) has been noticed in Sagbara (28.73%) and Dediapada (24.53%) between 2009 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, Narmada (2014)

The flow of children patients at various Govt. and Govt. aided medical institutions in Narmada have grown by 6.90% CAGR between 2009-10 and 2013-14. 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 Dediapada followed by Sagbara in 2009-10 and in Tilakvada followed by Nandod in 2013-14. However, the highest CAGR in children patients has been noticed in Dediapada (12.64%) between 2009 and 2014.

On one hand there has been significant growth in the number of patients admitted in Govt. and Govt. aided medical institutions between 2009 and 2014, on the other hand, the number of Govt. and Govt. aided medical institutions, the number of beds, doctors and nurses in the Govt. and Govt. aided medical institutions have remained stagnant. Such situations lead to deterioration of health services.

4.6. Prevalence of Major Diseases

Major diseases prevailing in Narmada 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 and Fever of unknown origin have major prevalence in Narmada district. Moreover there has been increased in the cases reported for Acute Respiratory Infection over the years with a CAGR of 18.05% in Narmada as shown in Table 4.6.

Table 4.6: Disease wise Cases Reported in Narmada

Major Diseases	2009	2010	2011	2012	2013	2014
Acute Diarrhoeal Disease	8190	6496	5647	5267	6337	6028
Acute Respiratory Infection	7425	8343	10198	10911	12868	17026
Acute Viral Hepatitis	238	107	64	52	56	12
Bacillary Dysentery	823	697	1034	761	699	421
Malaria Vivax	317	545	677	457	235	161
Malaria Falciparum	198	455	155	63	51	28
Enteric Fever	201	109	228	323	397	271
Fever of unknown origin	24727	30045	20124	13928	10531	1055

Source: Computed from database of Chief District Health Office, Narmada (2014)

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.

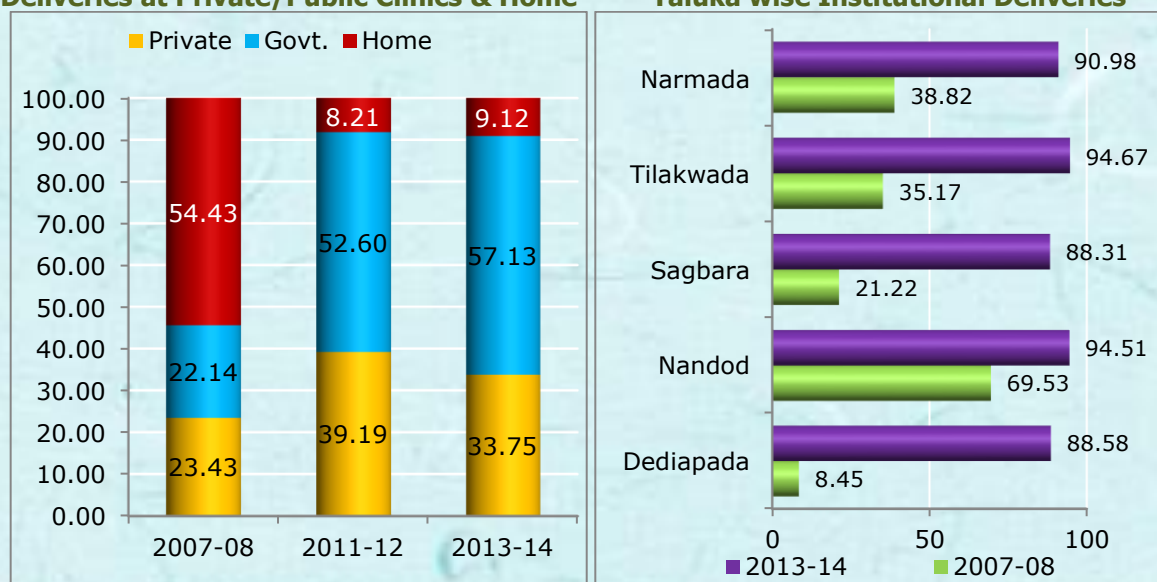
However, the huge number of the cases falls under the category of Fever of unknown origin in Narmada, but such cases have declined over a period of time in Narmada between 2009 and 2014. Moreover, cases of Acute Viral Hepatitis and Malaria (Falciparum) have declined over the years in Narmada due to awareness campaigns and health care counselling at various health check-up camps.

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, Narmada 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. During last decade, significant change is noticed in maternal health care in Narmada. In 2007-08, nearly 54.43% of deliveries were performed at home, which has decreased to almost 9.12% in 2013-14. The deliveries in Govt. Institutions have increased drastically. In 2007-08, about 22.14% of deliveries were performed in Govt. Institutions, which have increased to almost 57.13% in 2013-14. However, the deliveries in private clinic have also increased moderately. In 2007-08, about 23.43% of deliveries were performed in private clinic, which increased to about 33.75% in 2013-14. The institutional (Govt. & Private) deliveries which were 45.57% in 2007-08, increased to 90.88 % in 2013-14 as shown in Figure 4.5.

Figure 4.5: Details of Deliveries at Home and Institutional Deliveries
Deliveries at Private/Public Clinics & Home **Taluka wise Institutional Deliveries**

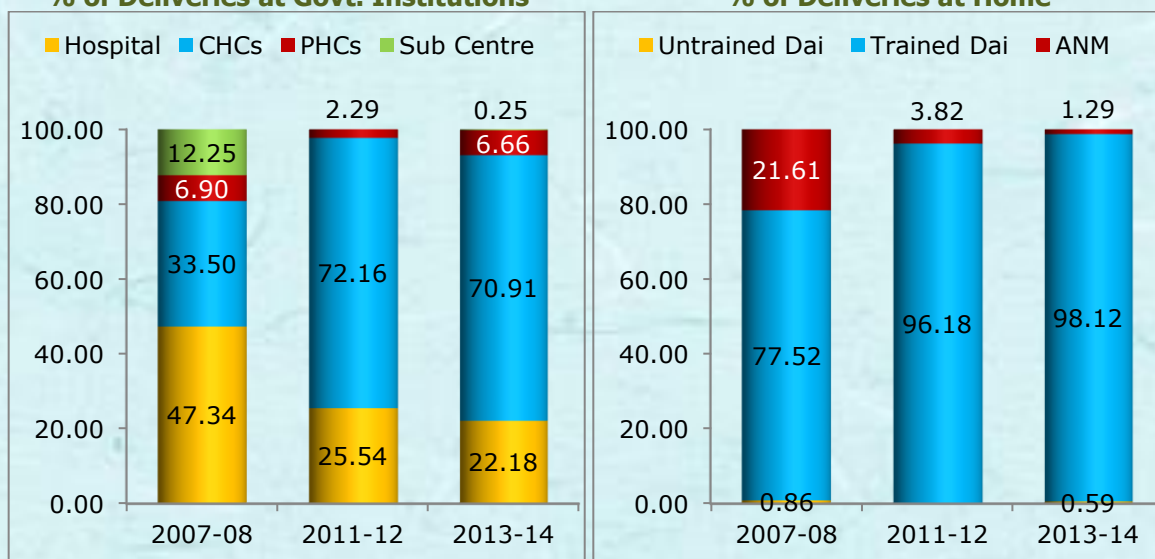


Source: Based on database of Commissionerate of Health, Medical Services, Medical Education and Research, Gujarat (2014)

The lowest institutional delivery was noticed in Dediapada, while the highest institutional delivery was noticed in nandod in 2007-08. The lowest institutional delivery was noticed in Sagbara, while the highest institutional delivery was noticed in Tilakvada in 2013-14. The highest improvement in Institutional deliveries is noticed in Dediapada, while lowest improvement in Institutional deliveries is noticed in Nandod. Narmada being a tribal area with strange socio-culture beliefs, the delivery is conducted by the father-in-law. This poises the risk of maternal death as well as infant death due to delivery assisted by non skill person.

The share of Govt. institutions in provision of maternal health care (especially deliveries) has increased from 22.14% in 2007-08 to 57.13% in 2013-14 as compared to the share of private clinics in provision of maternal health care that increased from 23.43% in 2007-08 to 33.75% in 2013-14. Out of the total deliveries done in Govt. institutions in 2007-08, about 47.34% of deliveries were done in hospitals, nearly 33.50% of deliveries were done at CHCs, 6.90% of deliveries were done at PHCs and 12.25% of deliveries were done at sub centres, while in 2013-14, out of the total deliveries done in Govt. institutions, it is noticed that 22.18% of deliveries are done in hospitals, 70.91% of deliveries are done in CHCs, 6.66% of deliveries are done in PHCs and 0.25% of deliveries are done in sub centres. This indicates that CHCs and Hospitals has played vital role in deliveries at Govt. Institutions in Narmada as depicted in Figure 4.6.

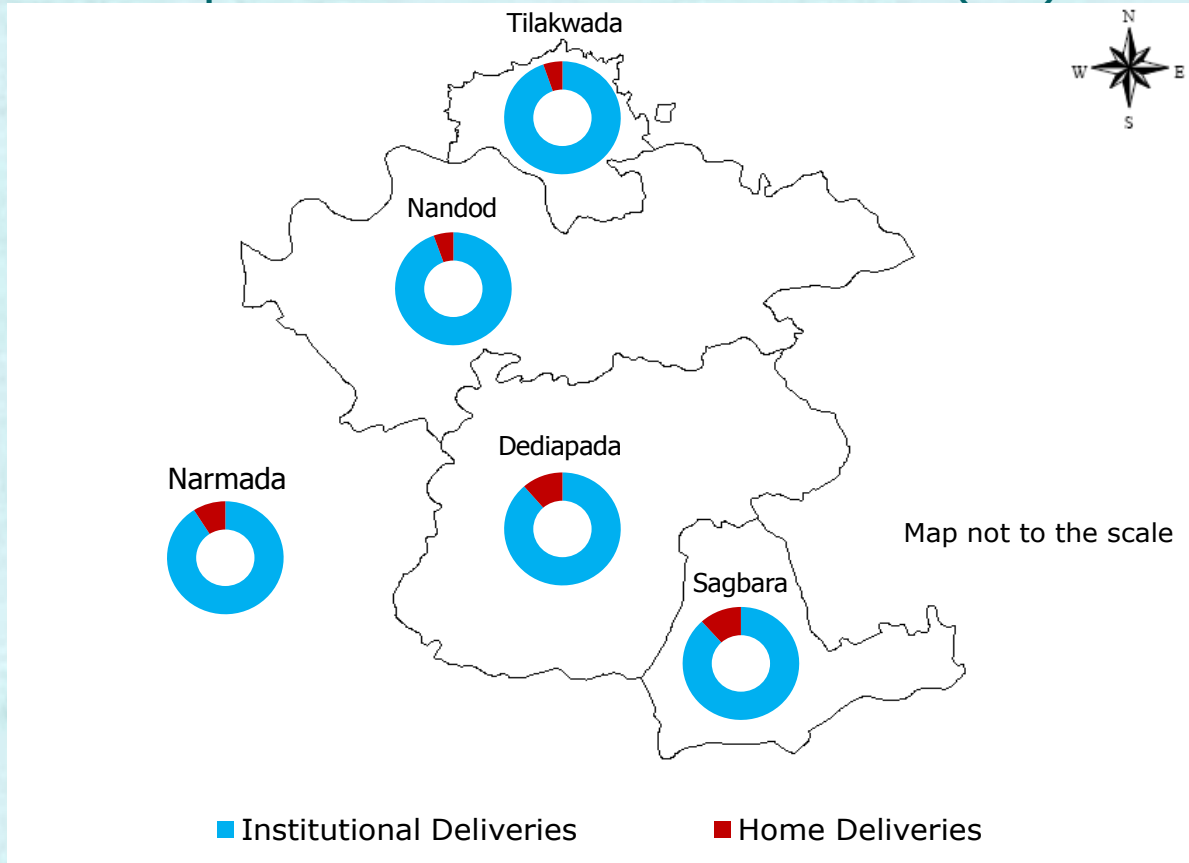
Figure 4.6: Classification of Deliveries at Govt. Institutions and Deliveries at Home



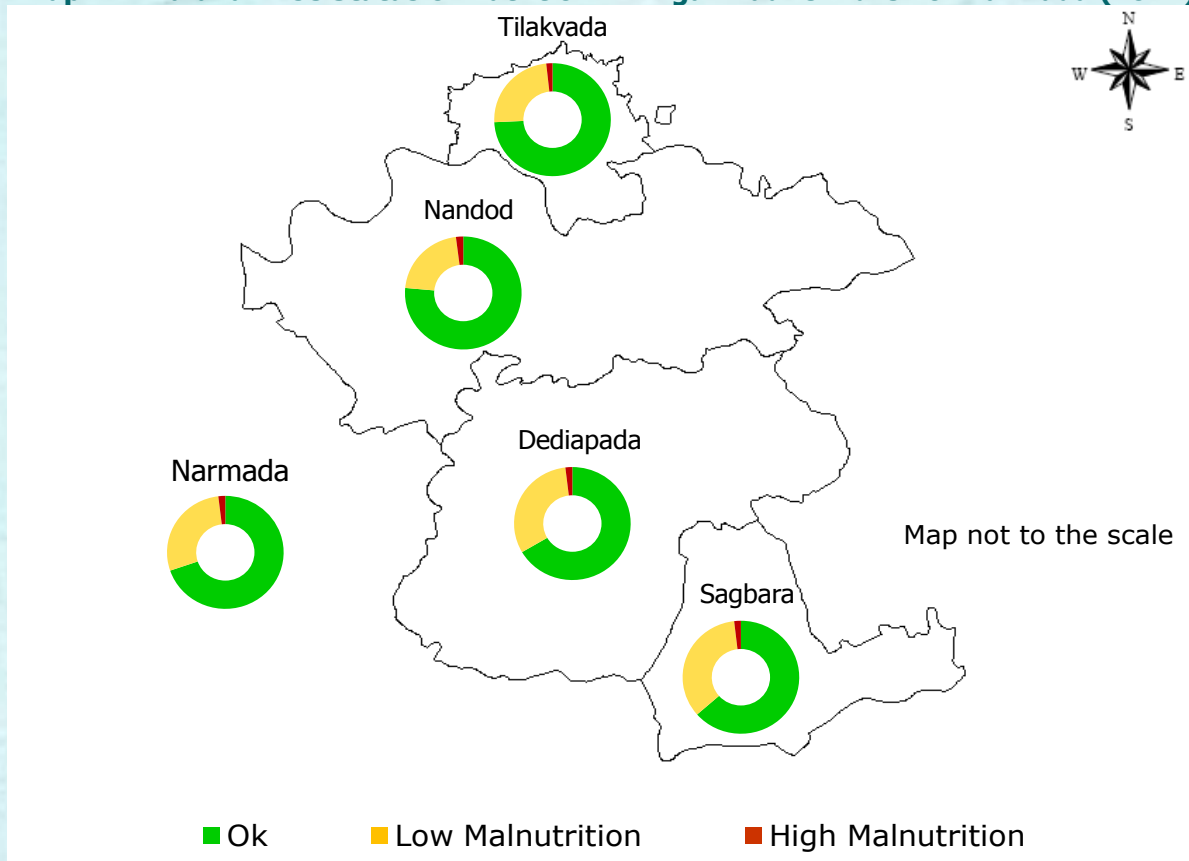
Source: Based on database of Chief District Health Office, Narmada (2014)

On the other hand, it has been observed that the trend in deliveries performed at home has significantly changed during last decade. The deliveries assisted by untrained dais have remained low hovering from 0.86% to 0.59% between 2007-08 and 2013-14. This indicates that majority of deliveries are assisted by trained dais and ANMs. The deliveries assisted by trained dais have hovered between 77.52% and 98.12% between 2007-08 and 2013-14. However, the deliveries assisted by ANMs decreased from 21.61% in 2007-08 to 1.29% in 2013-14. The trend of deliveries in Narmada reflects that deliveries at home have declined and there has been a shift in deliveries in favour of private/public institutions due to increased women and child health care facilities, various schemes, programs and campaigns.

Map 4.1: Taluka wise Status of Deliveries in Narmada (2014)



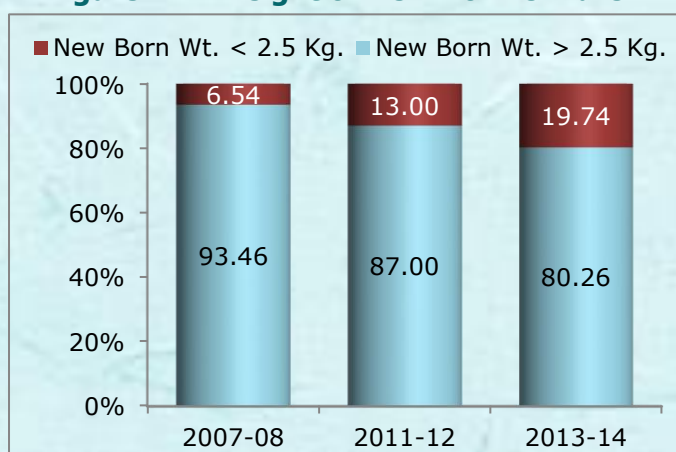
Map 4.2: Taluka Wise Status of Nutrition in Anganwadi Children of Narmada (2014)



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 Narmada, 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

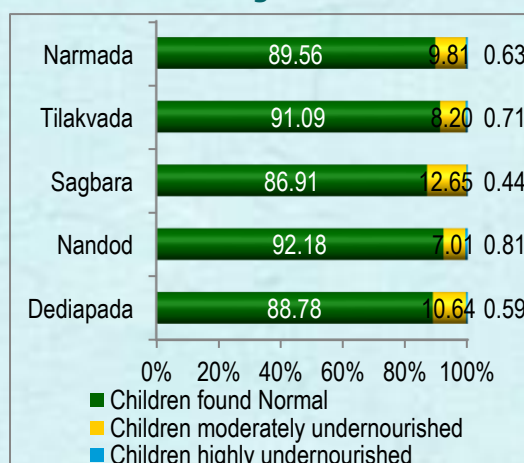


Source: Based on database of Chief District Health Office, Narmada (2014)

The proportion of underweight new born babies has increased over the years in Narmada. In 2007-08, just 6.54% of new born babies were reported to be under weight, while in 2011-12, nearly 13% of new born babies were reported to be under weight, whereas in 2013-14, about 19.74% of new born babies were reported to be under weight in Narmada.

As far as nutrition in Anganwadi going children in Narmada is concerned, about 10.44% children were reported as undernourished suffering from malnutrition in 2015. Highest proportion (13.09%) of Anganwadi going children were found to be under-nourished in Sagbara, while lowest proportion (7.82%) of Anganwadi going children were found to be undernourished in Nandod. 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

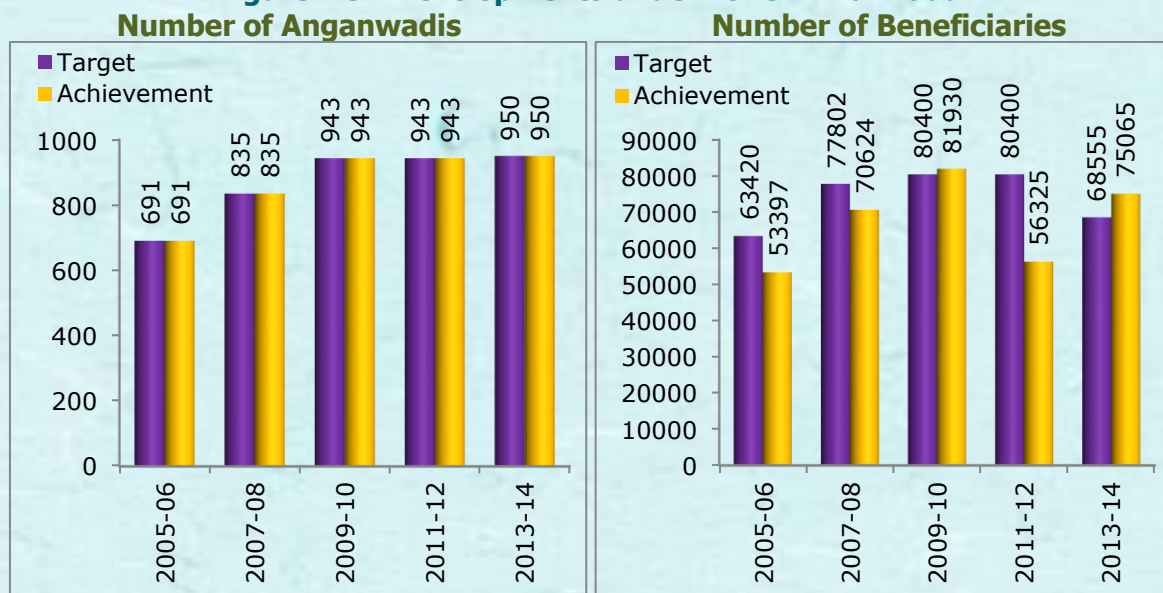


Source: Based on database of Integrated Child Development Services, Narmada (2015)

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 Narmada is operational in all the 4 talukas. There are 950 operational Anganwadi centers in Narmada. Narmada district has targeted construction of 950 Anganwadi centers and serving 68555 beneficiaries till 2013-14 to fight the problem of malnutrition.

Figure 4.9: Developments under ICDS in Narmada

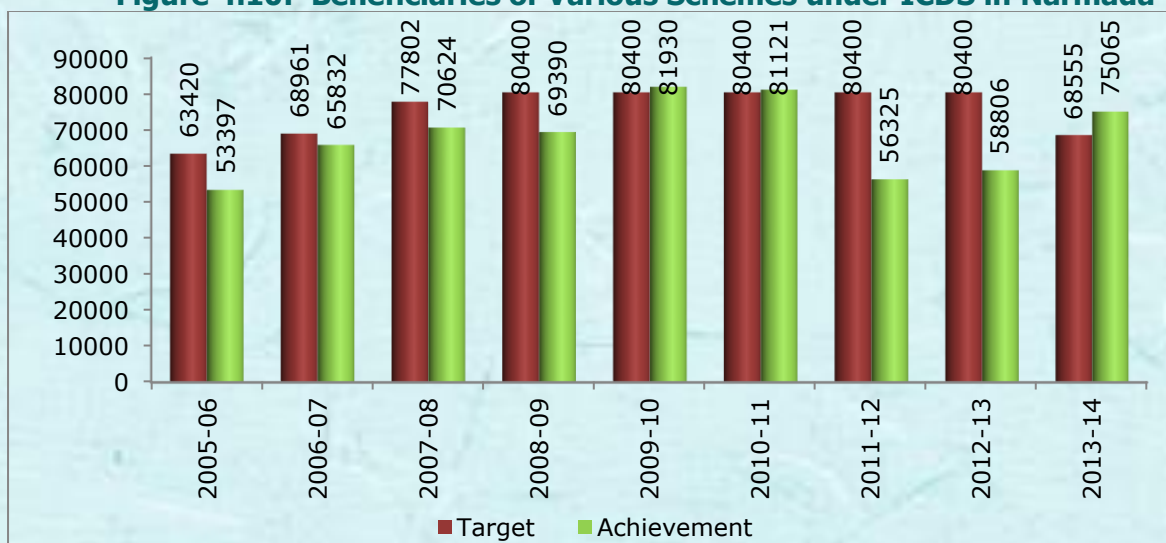


Source: Based on database of Integrated Child Development Services, Narmada (2014)

In 2013-14 construction of 950 Anganwadis was achieved against the target of 950, i.e. 100% achievement. However, in last decade, 100% achievement of target has been achieved every year for construction of Anganwadis. On the other hand in 75065 beneficiaries were served against the target of 68555 in 2013-14, i.e. 109.50% achievement as compared to 73.14% achievement in 2012-13 and 70.06% achievement in 2011-12 in Narmada 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 Narmada



Source: Based on database of Integrated Child Development Services, Narmada (2014)

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 Narmada. The innovative scheme to link cooperative societies and Anganwadis can be worked out to provide milk to the Anganwadi going children in Narmada. It has been reported in Banaskantha district of Gujarat that milk which is a rich nutrition supplement, when provided to undernourished children on continuous bases, 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 Narmada

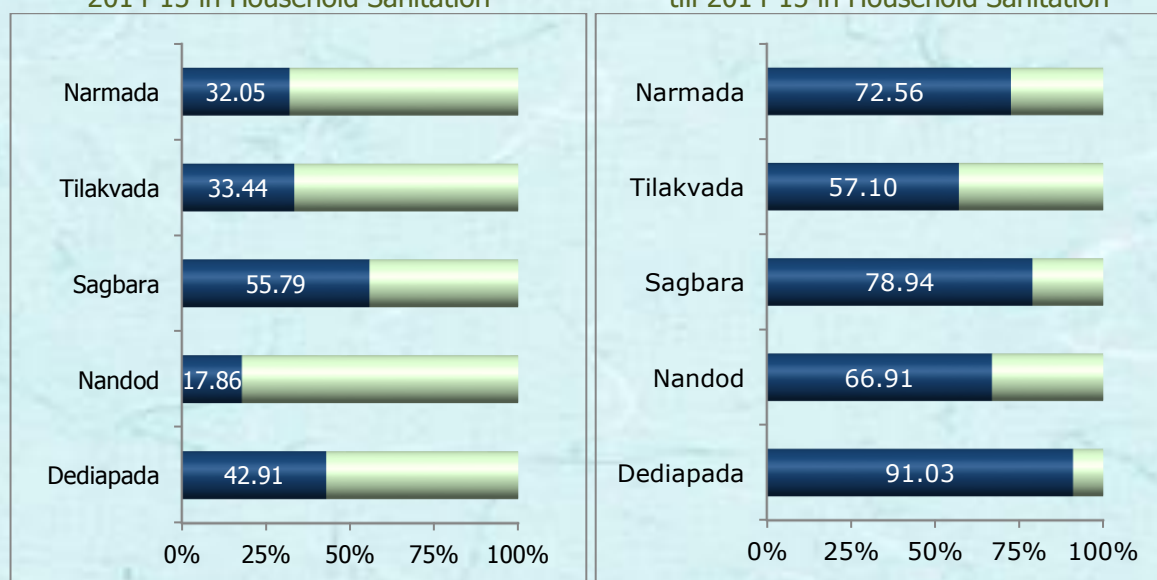
Taluka / District	Habitation Covered With Public Water Supply Schemes			Water Supply in Habitations by Sources		
	Total	Ongoing	Completed	Water Sources	Delivery Points	Public & Private Sources
Dediapada	273	22	251	593	645	1802
Nandod	108	11	97	743	795	2404
Sagbara	221	26	195	276	338	1141
Tilakvada	120	15	105	216	278	1924
Narmada	722	74	648	1828	2056	7271

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 40.38% of households in Narmada did not had individual household sanitation facilities, while 59.62% of households in Narmada 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 Narmada 32.05% of target has been achieved in provision of household sanitation facilities. The target achieved for household sanitation facilities and proportion of households with sanitation facilities. Thus as far as sanitation in Narmada is concerned nearly 72.56% of households has sanitation (individual household latrine) facility, while 27.44% of households lack the sanitation facility as shown in Figure 4.11.

Figure 4.11: Taluka wise Sanitation Facility available in Households of Narmada
 Base Line Survey 2012 Target Achieved till 2014-15 in Household Sanitation % Households with Sanitation Facility till 2014-15 in Household Sanitation



Source: Based on database of Swachh Bharat Mission, Ministry of Drinking Water and Sanitation, Government of India (2015).

Till the year 2014-15, about 32.05% of target (40.38%) has been achieved and as a result total 72.56% of households have individual household sanitation facilities till the year 2014-15 as compared to 59.62% of households in Narmada that had individual household sanitation facilities in 2011-12. Highest proportion of households with sanitation facility out of total households is noticed in Dediapada, while lowest proportion of households with sanitation facility out of total households is noticed in Tilakvada. Highest target of providing households with sanitation facility is achieved in Sagbara, while lowest target of providing households with sanitation facility is achieved in Nandod. However, provision of households with sanitation facility needs to be prioritised in Nandod.

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

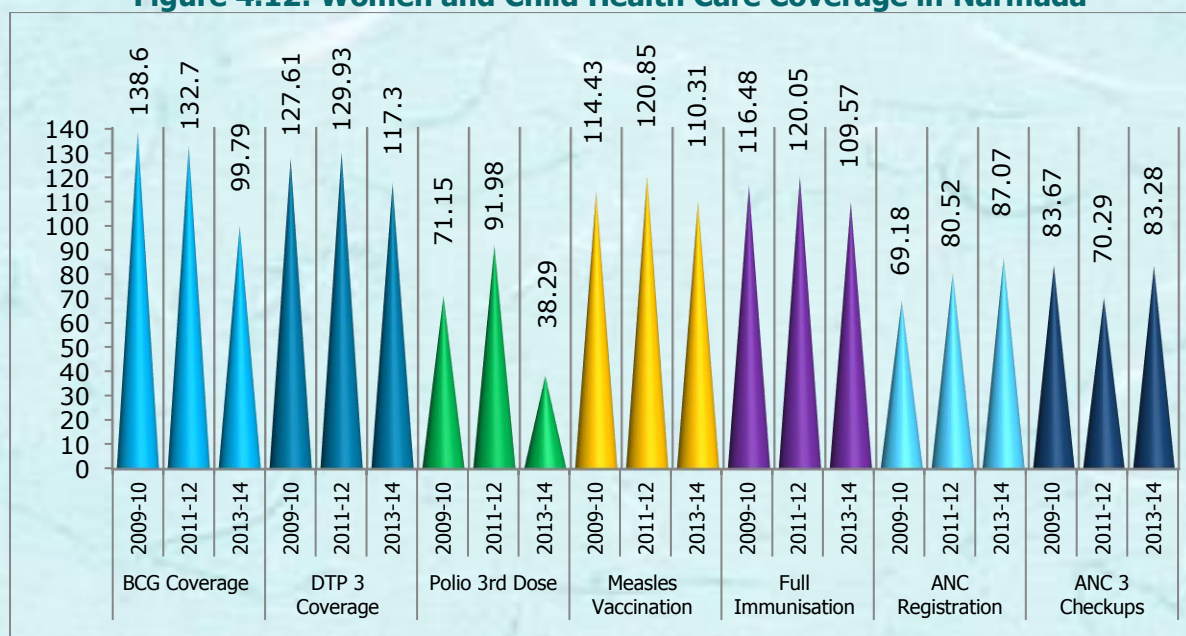
Schemes / Programs	Brief Details of Schemes / Programs
Chiranjivi Yojana	To provide maternity services to the BPL mothers at their nursing homes/Hospitals. It is a cashless scheme.
Janani Surksha Yojana	To facilitate pregnant women of BPL families and completed 19 years. The benefit is entitled for only 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 Born Disease Control Program, National AIDS Control Program, National Program for Blindness, Rastriya Swasthya Bima Yojana, Adolescent Anemia Program, Balika Samrudhi Yojana, etc. Moreover, the plan to integrate 108 service of Health and wireless service of Forest departments of Narmada is under preparation as it is to be implemented shortly in the Narmada district.

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 Narmada is presented in Figure 4.12.

Figure 4.12: Women and Child Health Care Coverage in Narmada



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

It has been observed that BCG coverage ranged from 99% to 140%, while DTP 3 coverage hovered between 117% and 130% between 2009 and 2014. Polio 3rd Dose coverage lingered from 38% to 92%, while Measles vaccination coverage ranged from 110% to 121% and full immunisation coverage remained between 109% and 121%. ANC registration (% of early registration) remained between 69% and 88% of the early registration while ANC 3 checkups coverage ranged between 70% and 84% between 2009 and 2014 in Narmada. However, the performance of women and child health care especially ANC registration and ANC 3 Checkups needs to be prioritised in Narmada. Proper administering at micro level and monitoring the implementation is required, which shall improve the health care coverage in Narmada.

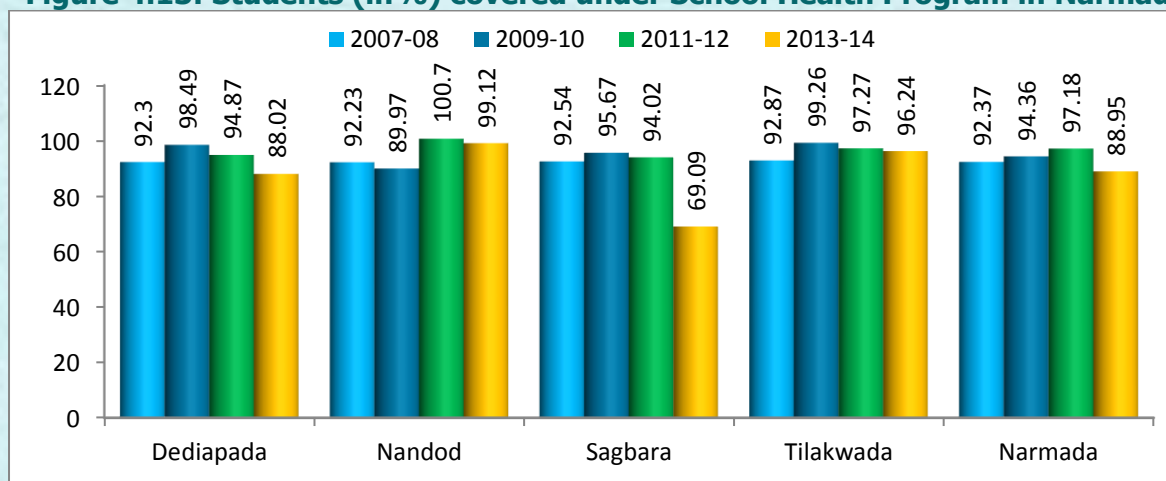
4.11. Success Stories

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

Scheme	Indicator	Narmada	Gujarat
Chiranjeevi Yojana	% of Normal Delivery	84.36	85.35
	% of LSCS	10.41	8.53
	% of Complicated	5.23	6.12
Bal Sakha Yojana	% Admitted To NICU-2	58.98	10.19
	% Referred To NICU-3	0.09	0.46
National Program for Control of Blindness	% cases served by Medical College	0.00	1.35
	% cases served by District Hospital	0.92	3.32
	% cases served by Sub-District Hospital	0.00	2.72
	% cases served by DMU / CMU	0.00	0.00
	% cases served by NGO	57.44	43.49
	% cases served by Private	37.95	59.34
Performance of ANC Registration	% against Workload	39.09	101.38
	% of Early Registration to Total ANC	87.07	70.87
BCG Immunization	% against Workload	31.52	92.89
	% against Live Birth	99.79	107.13
DPT 3rd Dose Immunization	% against Workload	38.58	96.66
	% against Live Birth	117.30	107.11
Measles Vaccination	% against Workload	36.28	90.11
	% against Live Birth	110.31	99.86
Fully Immunized Children	% against Workload	36.03	88.13
	% against Live Birth	109.57	97.66
Performance of Sterilization	% against Workload	75.6	81.3
	% of NSV to total Sterilization	0.20	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 Narmada. 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 Narmada

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

Dediapada, Nandod and Tilakwada talukas had consistently better coverage (above 88%) from 2007 to 2014. The coverage of students in Tilakwada taluka remained above 92% from 2007 to 2014, while the coverage in Sagbara taluka remained above 92% (except in 2013-14). Overall it is noticed that school health program covered more than 92% of school going students in Narmada (except 2013-14) between 2007 and 2014.

Table 4.8: Students served under School Health Program in Narmada (2014)

Taluka/District	Dental	Eye	ENT	Skin	Respiratory
Dediapada	211	253	207	631	106
Nandod	566	234	573	1132	93
Sagbara	68	33	0	69	2
Tilakwada	30	74	28	186	121
Narmada	875	594	808	2018	322

Source: Based database of on Chief District Health Office, Narmada (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 4.9: Swine Flu Public Awareness Campaign in Narmada (2015)

Taluka/District	Villages	Houses Contacted	Population Contacted	Pamphlet Distributed	Swine Flu Positive Cases	Patients with Cold, Cough, Fever
Dediapada	163	27014	117702	33110	0	1776
Nandod	217	42348	187319	47574	0	2344
Sagbara	114	11074	54852	20791	0	1455
Tilakwada	103	21448	109325	14654	0	787
Narmada	597	101884	469198	116129	0	6362

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

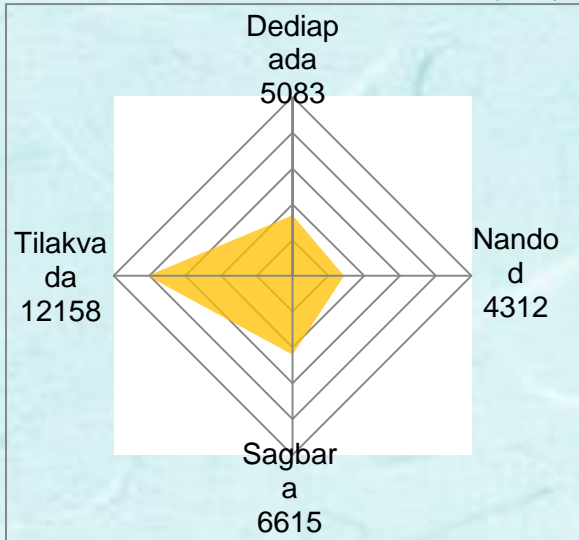
4.12 Summary

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

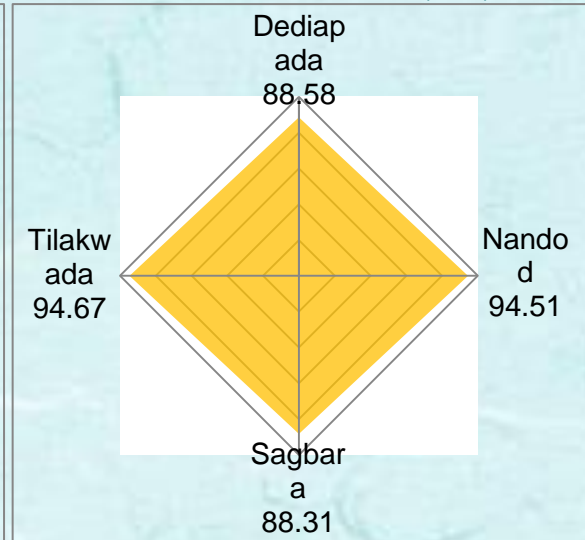
Strengths	Weaknesses
<ul style="list-style-type: none"> • Existence of 174 Sub Centers, 25 PHCs, 3 CHCs, 1 Sub District Hospital and 1 District Hospital. • The trend has shifted from home delivery towards institutional deliveries. • The most of the home deliveries are assisted by trained dais/ANMs. • 100% target has been achieved for construction of Anganwadis • Nearly 72.56% of households have individual household sanitation facilities. • School health checkups and referral services have given good results in Narmada. 	<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, Beds and Nurses in these Health Care Institutions have remained stagnant against the increasing number of Patients. • Medical and Para Medical staff positions vacant at various levels. • About 30.25% of Anganwadi going children in Narmada are noticed under nourished in 2013-14.
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 Tribal areas to be strengthened for better results in such areas. • Increase in health check up camps for specific diseases in specific seasons. • Increase in mobile medical units for better coverage of scattered tribal 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. • Tribal habitations and BPL families are located scattered, so it is challenging to provide service to these groups. • Respiratory Infection prone district. • To increase vaccination/immunisation in scattered and tribal areas. • Sanitation facility provision and awareness challenge in Tribal habitations

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

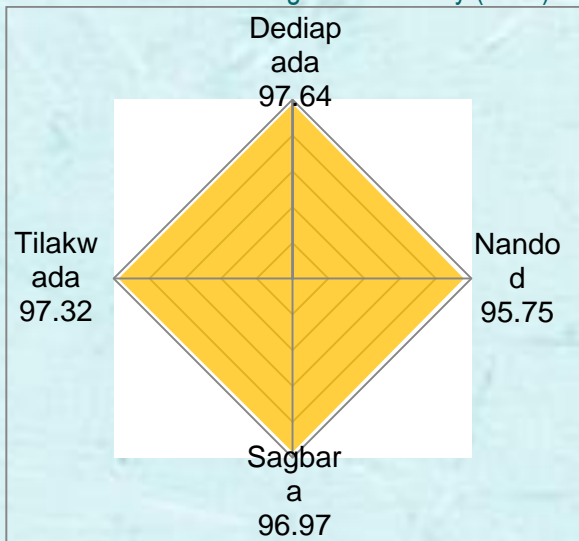
Patients Served per Govt. Medical Institution (2014)



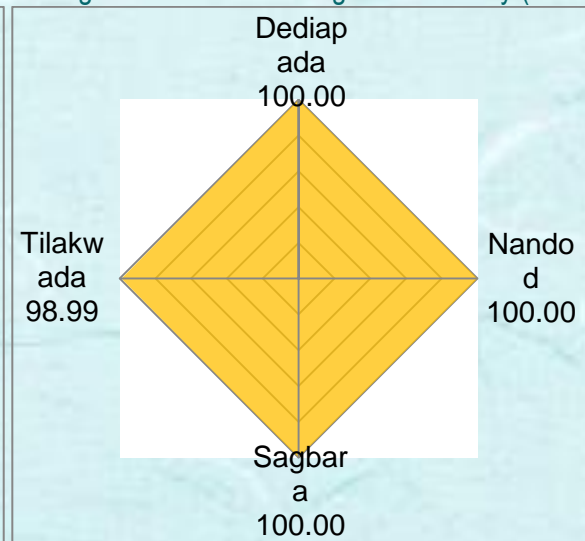
% of Institutional Deliveries (2014)



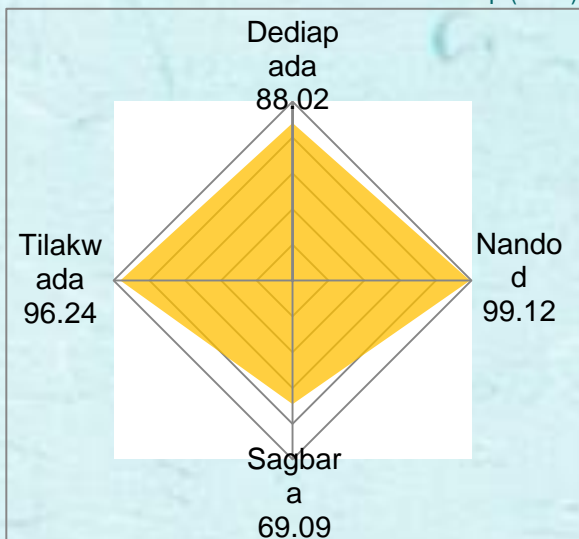
% Schools with Drinking Water Facility (2014)



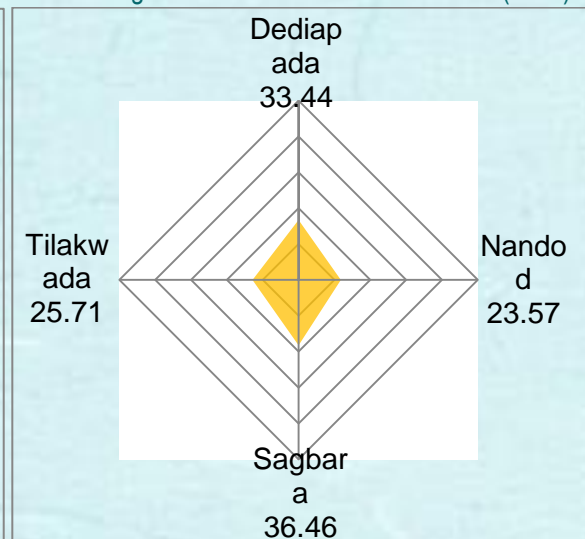
% Anganwadis with Drinking Water Facility (2014)



% 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

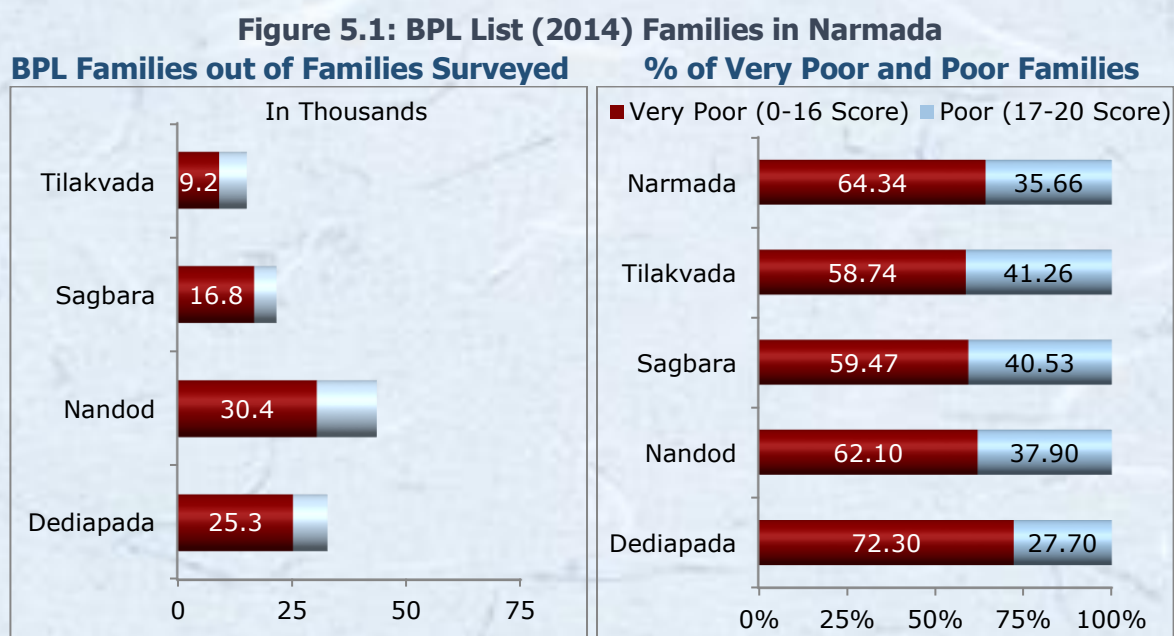
5.1 Introduction

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 Narmada, 113195 families were surveyed of which, almost 81645 (72.13%) families turned out to be poor, with the score of 20 or below. However, 31550 (27.87%) families turned out to be above BPL, with the score above 20. Out of total BPL families in Narmada, 64.34% families turned out to be very poor with the score ranging from 0 to 16, while 35.66% 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, Narmada (2015)

Amongst all the talukas of Narmada, Nandod has highest number of BPL families out of its total families surveyed, while Sagbara has highest proportion of BPL families out of its total families surveyed. Amongst all the talukas of Narmada, Tilakvada has least number of BPL families as well as least proportion of BPL families out of its total families surveyed. In Dediapada, Nandod, Sagbara and Tilakvada, almost 77.07%, 69.90%, 77.45% and 60.27% of families turned out to be BPL families out of the total families surveyed in these talukas. Moreover, amongst all the talukas of Narmada, Dediapada has highest proportion (72.30%) of very poor families (score 0-16) out of its total BPL families, while Tilakvada has least proportion (58.74%) of very poor families (score 0-16) out of its total BPL surveyed, whereas Nandod and Sagbara has 62.10% and 59.47% of very poor families (score 0-16) out of its total BPL families respectively.

5.3 Food Security

The food security in BPL families (score 0-20) of Narmada illustrate that 10.37% of families out of total BPL families can manage less than 1 square meal per day for major part of the year, while 20.20% of families out of total BPL families can manage 1 square meal per day, but less than 1 square meal occasionally, whereas 8.44% of families out of total BPL families can manage 1 square meal per day throughout the year, however, 52.53% 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 Narmada illustrate that 14.71% of families out of total BPL families can manage less than 1 square meal per day for major part of the year, while 24.66% of families out of total BPL families can manage 1 square meal per day, but less than 1 square meal occasionally, whereas 9.48% of families out of total BPL families can manage 1 square meal per day throughout the year, however, 46.79% 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 Narmada is exhibited in Table 5.1.

Table 5.1: Food Security Status of BPL List (2014) Families in Narmada

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
Dediapada	15.48	27.06	7.73	44.71	5.01	20.72	31.47	8.21	36.79	2.81
Nandod	11.92	21.64	10.18	43.25	13.02	16.74	26.11	11.21	39.81	6.13
Tilakwada	3.26	10.09	6.91	75.91	3.83	4.94	12.94	8.40	71.68	2.04
Sagbara	3.56	14.11	7.48	63.11	11.74	5.28	18.18	9.72	59.17	7.65
Narmada	10.37	20.20	8.44	52.53	8.46	14.71	24.66	9.48	46.79	4.35

Source: Computed from database of Commissionerate of Rural Development, Gujarat (2014)

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.

Out of all the talukas of Narmada, in Dediapada taluka almost 15.48% of families out of total BPL families (score 0-20) and as many as 20.72% 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 Narmada reveal that almost 80.54% of fair price shops are managed by private operators, while 19.46% of fair price shops are managed by cooperative societies and self help groups. Amongst all the talukas of Narmada, in Nandod taluka highest proportion of fair price shops out of total fair price shops are managed by cooperative societies and self help groups, while in Dediapada 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 Narmada (2014)

Taluka/ District	Operator Wise Total Shops (%)		Category Wise Private Shops (%)				
	Cooperative / SHG	Private	SC	ST	OBC	Handicap	General
Dediapada	12.07	87.93	5.88	84.31	3.92	1.96	3.92
Nandod	28.57	71.43	1.43	52.86	8.57	0.00	37.14
Tilakwada	0.00	100.00	3.70	37.04	22.22	0.00	37.04
Sagbara	21.05	78.95	0.00	83.33	3.33	3.33	10.00
Narmada	19.46	80.54	2.81	64.61	8.43	1.12	23.03

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

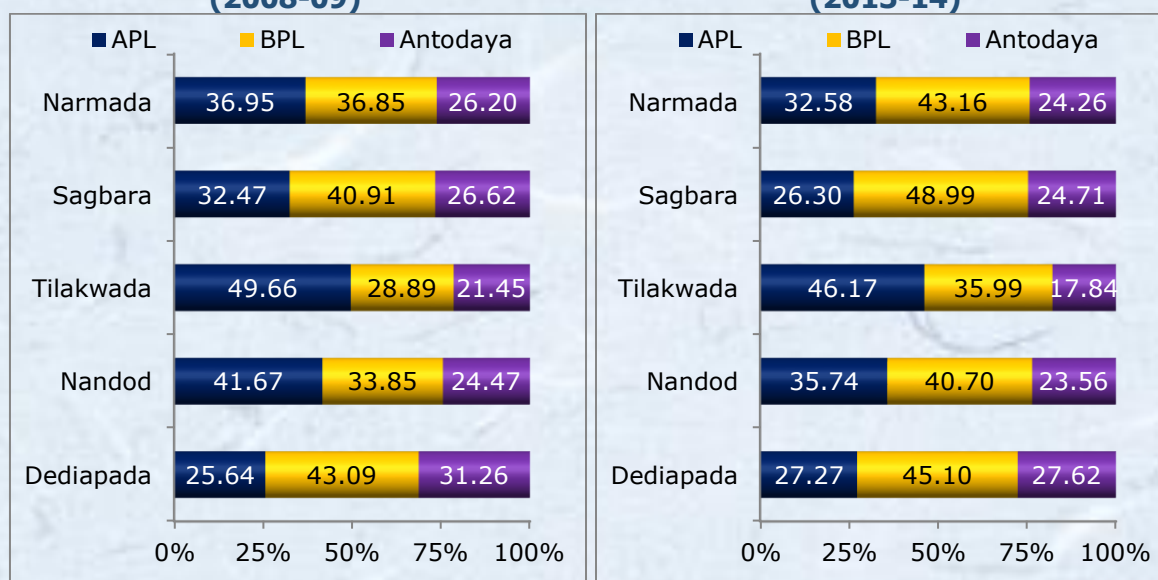
Note: SHG: Self Help Groups

Moreover, the distribution of fair price shops in Narmada reveal that 2.81% of fair price shops are managed by SC operators, 64.61% of fair price shops are managed by ST operators, 8.43% of fair price shops are managed by OBC operators, 1.12% of fair price shops are managed by handicap operators and 23.03% of fair price shops are managed by general operators. Amongst all the talukas of Narmada, Dediapada taluka shares highest proportion of fair price shops managed by SC operators as well as ST operators out of total fair price shops, Tilakwada taluka shares highest proportion of fair price shops managed by OBC operators out of total fair price shops, Sagbara taluka shares highest proportion of fair price shops managed by handicap operators out of total fair price shops and Tilakwada 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 Narmada, out of total ration card holders in 2008-09, 36.95% of card holders were APL card holders, 36.85% of card holders were BPL card holders and 26.20% of card holders were Antodaya card

holders. Whereas, out of total ration card holders in 2013-14, 32.58% of card holders were APL card holders, 43.16% of card holders were BPL card holders and 24.26% of card holders were Antodaya card holders as depicted in Figure 5.2.

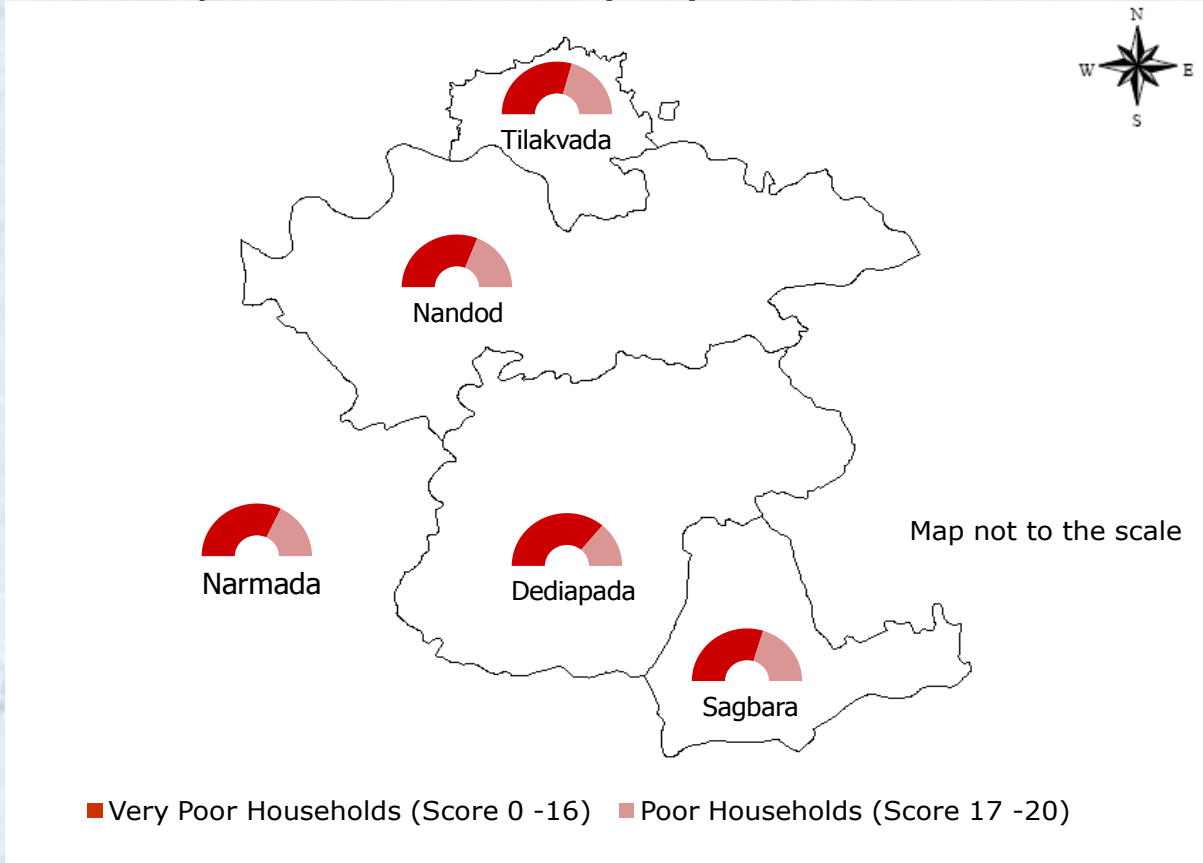
Figure 5.2: APL, BPL and Antodaya Cards in Narmada
APL, BPL and Antodaya Card Holders (2008-09) **APL, BPL and Antodaya Card Holders (2013-14)**



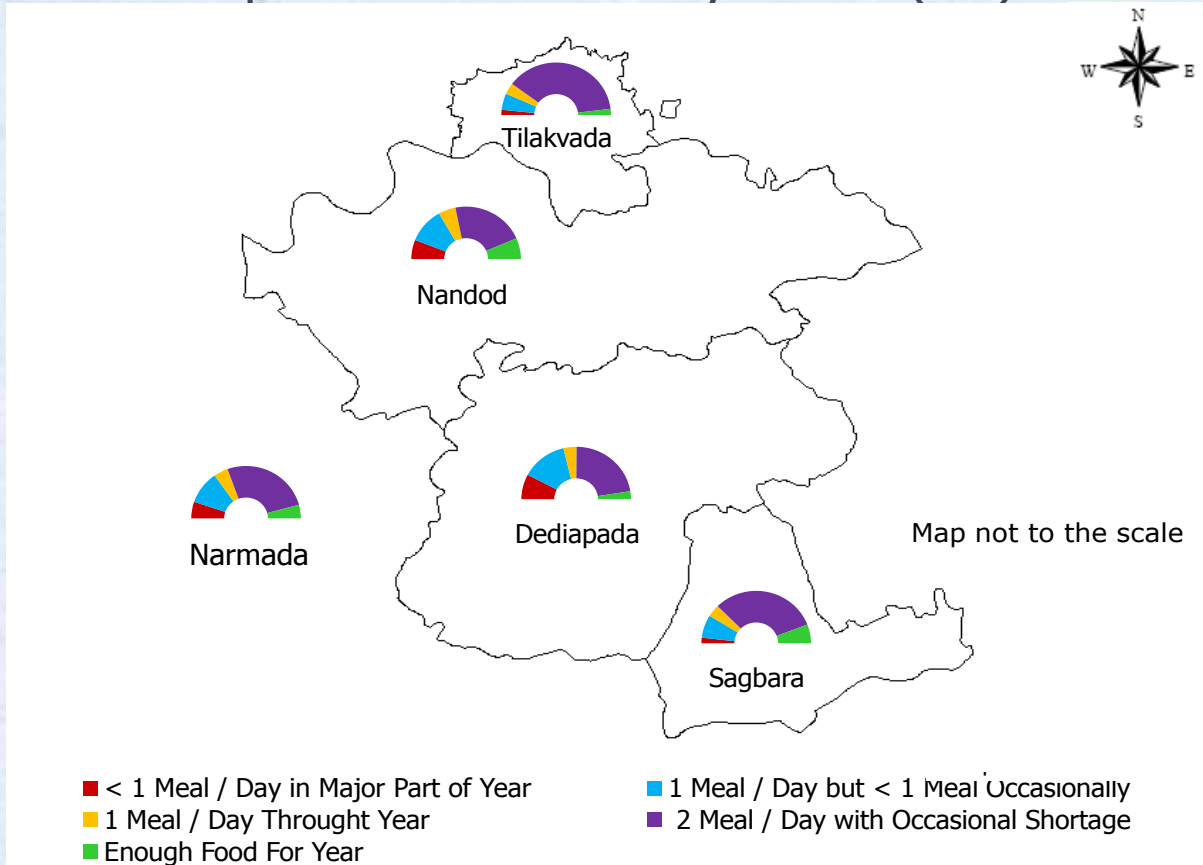
Source: Based on database of District Supply Office, Narmada (2014)

Amongst all the talukas of Narmada in 2008-09, Tilakwada was the taluka with highest proportion (49.66%) of APL cards holders out of its total ration cards holders, Dediapada was the taluka with highest proportion (43.09%) of BPL cards holders out of its total ration cards holders and Dediapada was the taluka with highest proportion (31.26%) of Antodaya cards holders out of its total ration cards holders; while in 2013-14, amongst all the talukas of Narmada, Tilakwada remained the taluka with highest proportion (46.17%) of APL cards holders out of its total ration cards holders, Sagbara was the taluka with highest proportion (48.99%) of BPL cards holders out of its total ration cards holders and Dediapada was the taluka with highest proportion (27.62%) of Antodaya cards holders out of its total ration cards holders. Moreover, it has been observed that proportion of APL card holders has decreased in all the talukas except Dediapada between 2008-09 and 2013-14, while, the proportion of BPL card holders has increased in all the talukas between 2008-09 and 2013-14, whereas, the proportion of Antodaya card holders has decreased in all the talukas between 2008-09 and 2013-14.

Map 5.1: Taluka wise BPL List (2014) Households in Narmada



Map 5.2: Taluka wise Food Security in Narmada (2014)



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 Narmada district is mainly vulnerable to water management and desertification. 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 Narmada possesses varied features and therefore the ground water occurrence and distribution varies widely in space and time throughout the district. There are 2 small dams (Chopadvav and Kakdi-Amba), 1 major project (Karjan) and the Mega Project Sardar Sarovar Dam in Narmada along with more than 2800 check dams in Narmada. Chopadvav dam on river Doman (tributary of river Tapi) is located near Chopadvav village of Sagbara taluka and occupies 1.74 Km² of area. The command area of Chopadvav dam consists of 19 villages of Sagbara taluka of Narmada district. Kakdi-Amba dam on river Waghti is located near Nana Kakdi-Amba village of Sagbara taluka and occupies 1.46 Km² of area. The command area of Kakdi-Amba project consists of 15 villages of Sagbara taluka of district. Karjan dam on river Karjan (Tributary of river Narmada) is located near Jitgadh village of Nandod taluka and occupies 36.77 Km² of area. The command area of Karjan project consists of 94 villages of Nandod taluka of Narmada district and 115 villages of Bharuch district.

Table 5.3: Water Storage Details (2014)

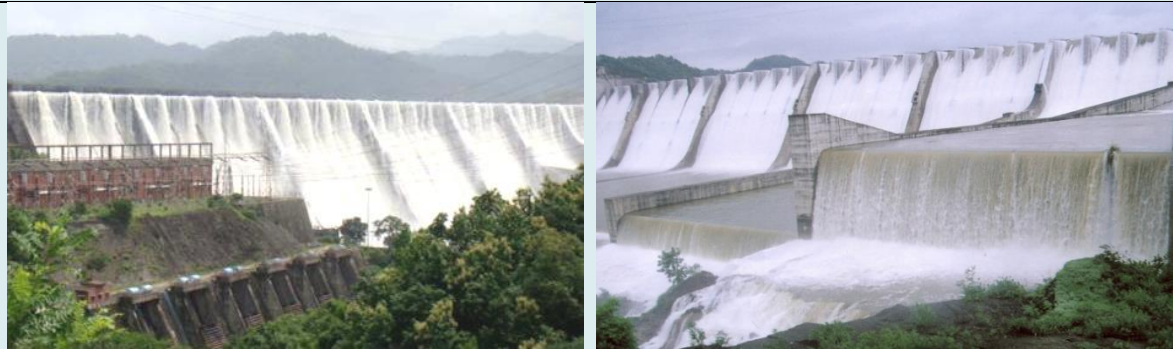
Irrigation Projects	Designed Storage in MM ³			Present Storage in MM ³			% Filling	
	Gross	Live	Dead	Gross	Live	Dead	Gross	Live
Karjan	545.39	522.76	22.63	465.41	442.78	22.63	85.34	84.70
Chopadvav	12.05	11.30	0.75	7.23	6.48	0.75	60.00	57.35
Kakdi-Amba	9.37	8.72	0.65	4.21	3.56	0.65	44.93	40.83
Narmada District	566.81	542.78	24.03	476.85	452.82	24.03	84.13	83.43
Sardar Sarovar Dam	5265.84	1565.84	3700.00	4812.30	1112.30	3700.00	91.39	71.04
South Gujarat	8631.42	7870.78	760.64	6609.57	5848.93	760.64	76.58	74.31
Gujarat	21014.9	16101	4913.98	15622.3	10736.6	4885.71	74.34	66.68

Source: Computed from Narmada Water Resource, Water Supply and Kalpsar Dept., Gujarat (2014)

The 2 projects (Chopadvav and Kakdi-Amba) of Narmada are located in the southern part of Narmada and its command area extends up to the Sagbara taluka only, while 1 project (Karjan) is located in the north western part of Narmada and mostly serves Nandod taluka. Consequently, Dediapada taluka totally depend on ground water for irrigation and other purposes. The prevailing distribution of irrigation projects depicts that only few of the villages in Narmada are under the command area of these projects.

Box 5.1: Sardar Sarovar Narmada Dam

Sardar Sarovar Dam located near Kevadia Colony is one of the largest water resources project of India covering 4 states viz. Maharashtra, Madhya Pradesh, Gujarat and Rajasthan. Dam's spillway discharging capacity (30.7 lakhs cusecs) would be third highest in the world. With 40,000 cusecs capacity at the head regulator, and 532 km. length, the Narmada Main Canal would be the largest irrigation canal in the World. The reservoir would occupy an area of 37,000 hectares and would have a linear stretch of 214 km. of water and an average width of 1.77 km. The Full Reservoir Level of the dam is fixed at 455 feet. With a total length of 3.65 km., Wadia branch canal supplies water to the Narmada district. The starting point of canal is Nandod and end point is Koliary.



Main Dam: 1,210 Mtr long, 163 Mtr high. Designed Live Storage Capacity of the Reservoir: 5860 MCM (4.75 million acre feet). Drinking Water: 9633 villages and 131 towns (29 million people). Irrigation: 1.905 Million Ha. (1.8 million Ha. in Gujarat benefitting 1 Million farmers). Hydropower: 1,450 MW installed capacity (1 billion kWh /year). Canal Network: 75,000 km length in Gujarat.



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 Narmada 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 Narmada as shown in Table 5.4.

Table 5.4: Incidence of Crimes Reported in Narmada

Crimes	2009-10	2010-11	2011-12	2012-13	2013-14
Murder	15	19	13	17	13
Dacoity	3	0	1	3	0
Burglary	14	7	6	15	16
Theft	31	29	21	39	52
Robbery	2	2	0	0	1
Kidnapping	4	2	6	14	17
Riots	9	7	11	15	10
Culpable Homicide	2	1	1	0	0
Counterfeit Coins	1	1	3	0	1
Miscellaneous	735	686	566	607	607
Total Cognizable Crimes	816	754	628	710	717

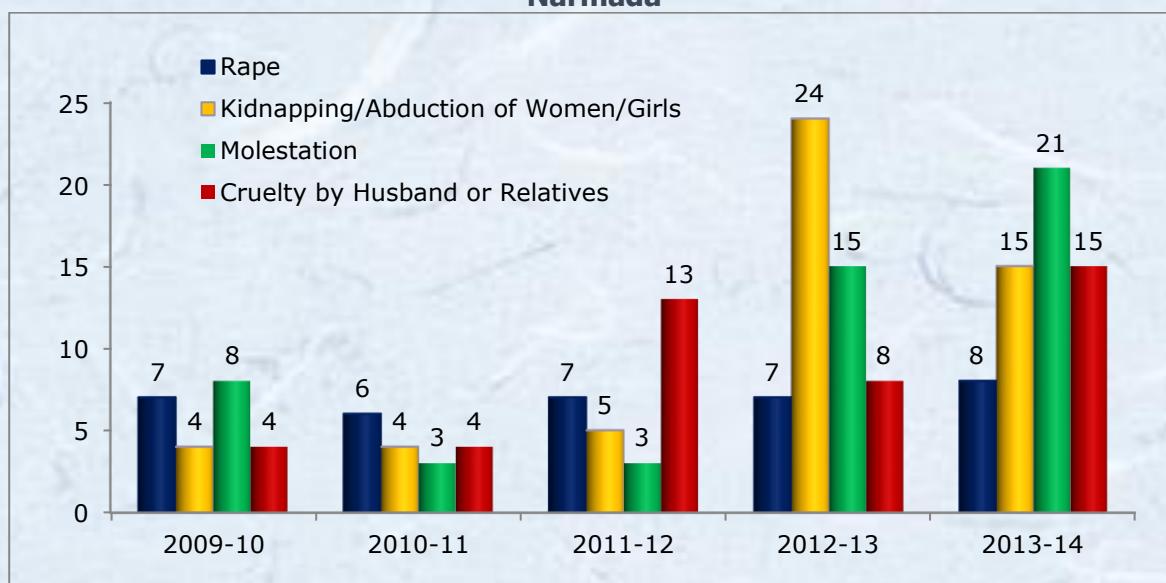
Source: Compiled from Office of State Crime Records Bureau, Gujarat (2015)

The total cognizable crime incidents recorded in Narmada declined at -3.18% CAGR between 2009-10 and 2013-14. The major incidents of murder, burglary, theft, kidnapping and miscellaneous crimes are noticed in Narmada. The incidents of burglary, theft and kidnapping in Narmada between 2009-10 and 2013-14 grew at 3.39% CAGR, 13.80% CAGR and 43.58% CAGR respectively. The incidents of murder, robbery and miscellaneous crimes in Narmada declined at -3.51% CAGR, -15.91% CAGR and 4.67% CAGR respectively.

In many areas of the district people live under the conditions of general insecurity. Narmada 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 Narmada is depicted in Figure 5.3.

Figure 5.3: Incidences of Crime and Violence against Women Reported in Narmada



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

In Narmada no crimes pertaining to sexual harassment and dowry deaths have been reported in last decade. The incidents reported for crime against women has increased at 26.58% CAGR between 2009-10 and 2013-14. In 2009-10, nearly 23 incidents of crime against women were reported in Narmada, while in 2013-14 the incidents reported of crime against women has increased to 59. The increased reporting of crime against women also indicates increased awareness amongst women pertaining to social security and justice in Narmada. 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 Narmada, but as a matter of fact, such incidents of violence against women were not reported in past due to high illiteracy, 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 5.2: Major Schemes and Programs for BPL Families

Schemes / Programs	Brief Details of Schemes / Programs
Swarnajayanti Gram Swarojgar 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.

5.5.1 Developments in Tribal Areas

Van Bandhu Kalyan Yojna

Government of Gujarat initiated the Chief Minister's Ten Point Programme for the Development of Tribal Areas in 2007. This programme seeks to enable the Schedule Tribe regions to merge with mainstream development by bridging the gaps between Integrated Tribal Development Project (ITDP) blocks and other parts of Gujarat.

Vanbandhu Kalyan Yojana VKY was launched as a part of Chief Minister's Ten Point Programme in 2007 for speedy development of tribal areas of the State. The package envisages re-engineering the processes of existing interventions which focus on livelihood development, provision of quality education and development of infrastructure in these areas.

The focus areas of intervention under VKY were as follows:

1. Quality & sustainable employment for tribal families

Creation of more employment through productivity enhancement in agriculture sector.

Increase in animal husbandry and dairy based activities.

Quality skill training for tribal youth.

2. Emphasis on quality education and higher education

Higher Secondary Schools for science in each taluka.

Navodaya or Eklavya type residential schools in each tribal taluka making them comparable with quality urban schools.

Establishment of additional hostels for college students.

Establishment of Arts, Science and Commerce colleges to cover remote and left out talukas.

Establishment of engineering and medical colleges, polytechnics, nursing colleges and ITIs.

3. Accelerated economic development of tribal areas

Annual allocation of Rs. 1 crore per taluka for development of identified economic activities through cluster based approach and market linkage

Linking remote Scheduled Tribe areas to nearby economic centres through development of basic infrastructure and facilities such as roads, water supply, irrigation and continuous power supply in all tribal areas

Value addition to local natural resources for higher returns to ST families

4. Health for all

Benefits of Chiranjivi Yojana to all ST families
Annual Health check-up programme for all ST families
Financial assistance to BPL families in case of heart surgery
Special drive for tackling endemic diseases, etc.
Removal of malnutrition in pregnant and lactating mothers as well as children under the age of 6 through effective implementation of the schemes.

5. Housing for all

Housing for all ST families within the next five years.

6. Safe drinking water to all

All ST families to get safe, assured and adequate drinking water.
At least 25% of the ST population to get access to piped water supply.

7. Irrigation

Emphasis on group irrigation schemes.
Creation of water conservation structures on watershed basis.
Creation of more check dams in tribal areas.
Subsidy to BPL families for individual facilities such as oil engines etc.
Financial and technical assistance for promoting drip irrigation.
Survey of about 5 high rain fall talukas for Right to Irrigation Campaign
Undertaking drinking water cum irrigation projects in the upstream of major and minor dams.
Identification of new medium and minor irrigation projects
Emphasis on scientific water use and water management

8. All weather roads

Improvements in the quality of roads in tribal areas
All hamlets with population of less than 250 to be connected by roads.
Special drive for repairing existing roads in tribal areas.

9. Universal availability of electricity

Electrification to all hitherto uncovered hamlets
Alternate arrangements through solar energy for remote and dispersed hamlets
Free electrification to all BPL families

10. Urban development

Development of 13 tribal towns to act as growth engines
Increase in animal husbandry and dairy based activities

5.5.2 Provision of Employment, Housing and Sanitation

Under schemes like MGNREGA, IAY, Sakhi Mandal and TSC, various developmental activities have been undertaken in Narmada. Under MNREGA 13781 wage employment has been provided since 2010-11. In IAY, since 2001, 44488 houses have been constructed and under Sakhi Mangal Yojana (Mission Mangalam), since 2007-08, the total cash credit benefits have been given to 663 Sakhi Mandals, while under TSC, since 2004-05, 81268 BPL households have been assisted for developing sanitation facilities as shown in Table 5.5.

Table 5.5: Progress under Various Schemes & Programs in Narmada (2014)

Taluka / District	MGNREGA 2010-11 Wage Employment	IAY Since 2001 Houses	Sakhi Mandal Since 2007-08 Beneficiaries (Cash Credit)	TSC Since 2004-05 BPL Beneficiaries
Dediapada	6433	15853	115	26685
Nandod	4270	16451	218	24156
Sagbara	2250	8459	313	20831
Tilakvada	765	3725	17	9597
Narmada	13718	44488	663	81268

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

Taluka wise progress reveal that highest wage employment has been generated in Dediapada, and lowest wage employment has been generated in Tilakvada under MNREGA, while, maximum number of houses have been constructed in Nandod and least number of houses have been constructed in Tilakvada under IAY, whereas, under Sakhi Mandal Program, Sagbara share highest number of Sakhi Mandal benefited by cash credit and Tilakvada share least number of Sakhi Mandal benefited by cash credit. Under TSC, Dediapada share highest number of BPL households benefited for sanitation development and Tilakvada share least number of BPL households benefited for sanitation development.

5.5.3 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 Narmada) 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 Narmada are given in Table 5.6.

Table 5.6: Swajaldhara / Sector Reform Scheme in Narmada (2015)

Taluka / District	Total Villages	Pani Samitis Formed	VAP Approved by VWSC	Water Quality Teams Formed
Dediapada	273	196	139	196
Nandod	108	97	58	97
Sagbara	221	166	184	166
Tilakvada	120	93	112	93
Narmada	722	552	493	552

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

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

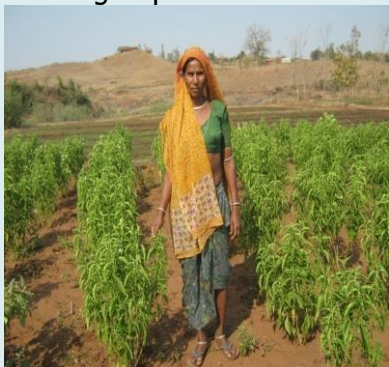
The Swajaldhara scheme has facilitated empowerment of the rural community/ women to participate in the planning, implementation and operation of water management programs. It is helping the project village to achieve the target of getting at least 70 litres per capita per day of safe drinking water. The scheme has encouraged establishment of water harvesting structures and revival of traditional drinking water sources in Narmada.

5.6. Success Stories

Box 5.3: Innovation from Tradition: Aadi Aushadhi Group

Name of Self Help Group: Aadi Aushadhi Group Village: Nivalda, Taluka: Dediapada

Aadi Aushadhi Group was formed in 2007 by women of Nivalda village of dediapada taluka in Narmada district. As the group consisted of Scheduled tribe women having knowledge of medicinal herbs, the group started cultivation of medicinal herbs in their farms. For collection of various products from forest, men were also included in the group. Training pertaining to collection, cultivation, harvesting, storage, etc was provided to the group members as a means of Nursery Management.



Following medicinal herbs are cultivated by Aadi Aushadhi Group

Asparagus racemosus	Adhatoda, Aloe vera	Boerhavia diffusa
Bacopa monnieri	Tinospora cordifolia	Chlorophytum borivalianum
Ocimum sanctum	Hemidesmus indicus	Vitex negundo

Following products are made by Aadi Aushadhi Group

Brahmi Biscuits	Herbal Hair Oil	Brahmi Khakhara
Ashwagandha Biscuits	Herbal Massage Oil	Brahmi Bhujiya
Khati Bhindi Sharbat	Tea powder	Chawanprash
Amla Sharbat	Mahuda Ice Cream	Satavari Biscuits

Box 5.4: Educational Rehabilitation of Children working at Brickyards

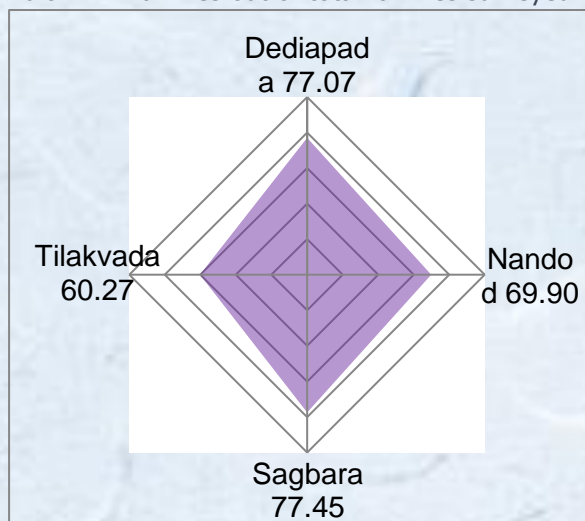
Place: Junakot Area, Rajpipla, Taluka: Nandod

Brickyard workers (migrants) staying and working at brickyard in Junakot area of Rajpipla town of Nandod taluka in Narmada district were approached by social worker (Varshaben Makwan and outreach worker (Mahendra Vasava). It was observed that children from two families (migrated) from Maharashtra and Madhya Pradesh were not going to school. Information on importance of education, Government assistance for education and Juvenile Justice Act information was shared with the parents so as to send the children to schools. 3 children for these families were consequently admitted to Chandrashekhar Aazad School No. 8 located in Junakot Area, Rajpipla.

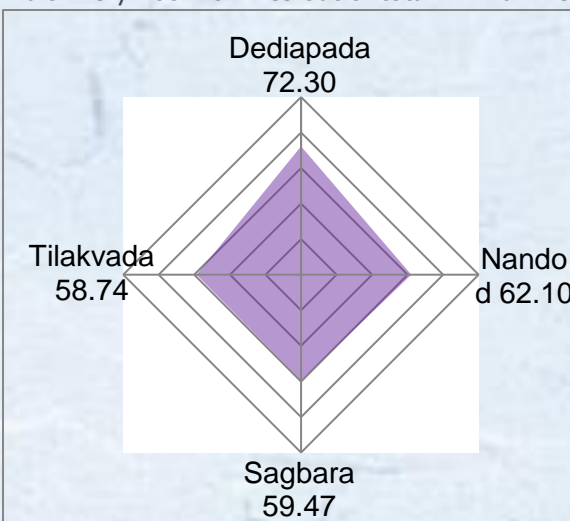


5.7 Poverty and Food Security: Taluka Wise Status of by Radars

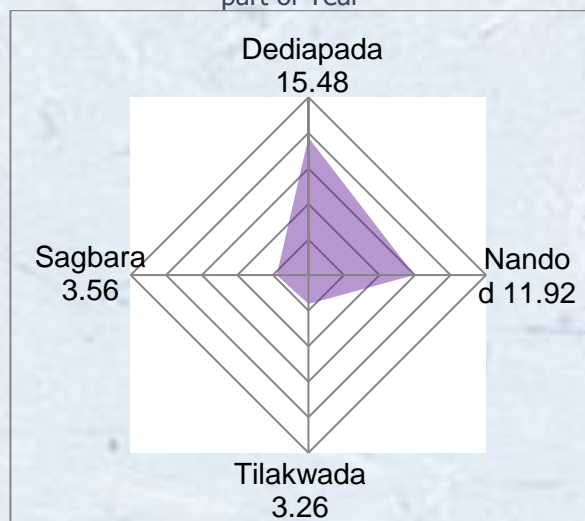
% of BPL Families out of total families surveyed



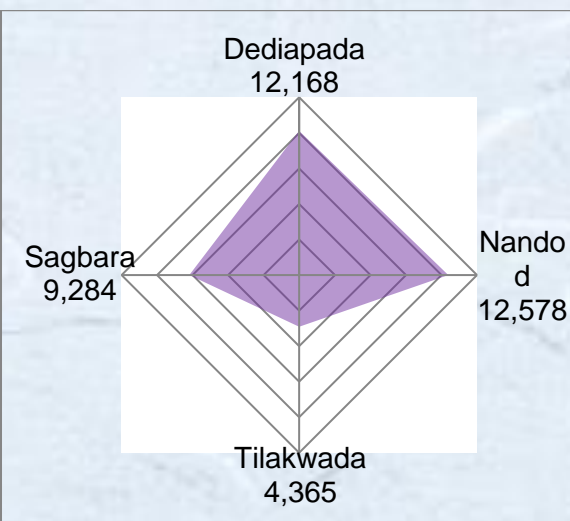
% of Very Poor Families out of total BPL families



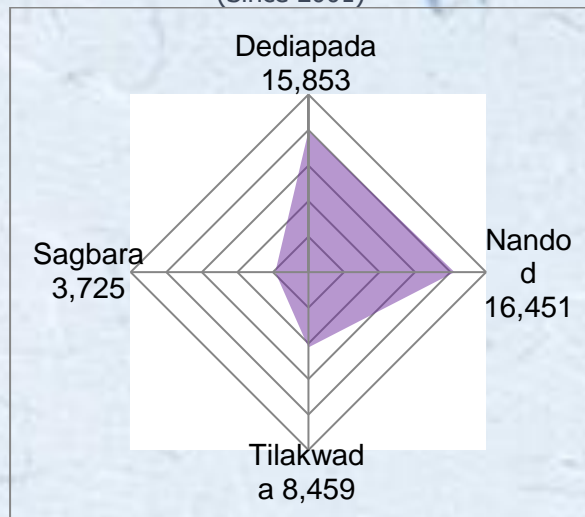
% of BPL Families with < 1 Meal/Day in Major part of Year



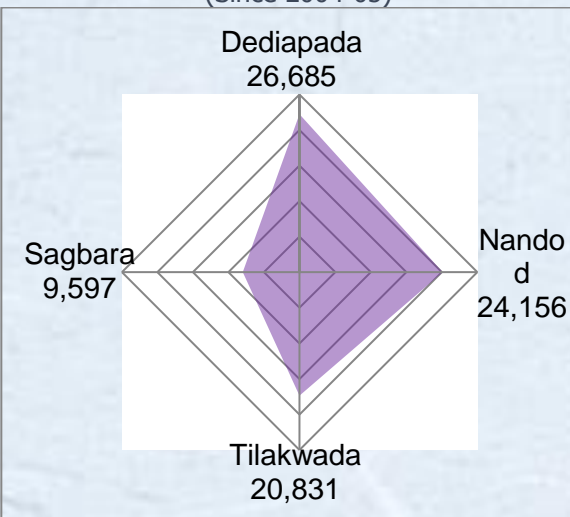
BPL Card Holders



Houses Provided under IAY (Since 2001)



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



The background of the slide features a pattern of green, irregular geometric shapes, primarily hexagons and pentagons, arranged in a somewhat chaotic but rhythmic fashion. The shapes vary in size and are rendered with a slight 3D effect, appearing to float or be attached to a light-colored surface. The overall color palette is a range of greens, from light lime to a darker olive green.

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, Narmada district was ranked 9th with reference to Human Development Measures-1 (HDM-1), 20th with reference to Gender Development Measures-1 (GDM-1), 18th with reference to Gender Equality Index (GEI), 2nd with reference to Human Development Measures-2 (HDM-2) and 10th 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, Narmada district ranked 19th with reference to Human Development Measures-1 (HDM-1), 20th with reference to Gender Development Measures-1 (GDM-1), 7th with reference to Gender Equality Index (GEI), 1st with reference to Human Development Measures-2 (HDM-2) and 14th with reference to overall Human Development Index (HDI) amongst all the 25 districts of Gujarat in 2001.

Narmada 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 Narmada 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 Narmada 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

Out of the total reported area of Narmada, just 43.09% 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, pulses as well as fruit has remained volatile in Narmada during last decade. Narmada is one of the major players in production of Banana, but the productivity of Banana in the district has declined between 2009 and 2012. Over a period of time the overall cropping intensity in Narmada seems to have declined from 111.44 to 109.30 between 2009 and 2012.

Volatile cropping pattern and lopsided irrigation depict inter taluka disparity (in Tilakvada 80.92% of its area is cropped and 54.93% of its area is irrigated; in Dediapada 27.19% of its area is cropped and 2.82% of its area is irrigated). Out of the total geographical area of district, only 17.83% of area is irrigated, accounting for merely 40.67% of the total cropped area irrigated. It has been observed that Nandod and Tilakvada have better irrigation availability compared to other talukas 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.

Provision of adequate irrigation facilities in Dediapada and Sagbara areas of Narmada 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.

The proportion of main workers has declined in Narmada and especially in Dediapada and Nandod talukas. There has been a strategic shift of workers towards primary sector. About 79.34% of workforce of Narmada was engaged in agriculture and allied activities in 2001 which increased to 85.09% 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 Narmada, about 41.84% of people were cultivators (who owned land and were engaged in effective supervision or direction in cultivation) and 58.16% 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 Narmada, only 25.04% of people were cultivators and 74.96% 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 in Narmada, but the female literacy in 2011 was reported just 63.09 in Narmada and the the gap between male and female literacy was reported to be 18.10 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 Narmada. 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 Narmada.

The Gross Enrolment Ratio (GER) at primary level for Narmada has declined from 120 in 2006-07 to 95.1 in 2013-14, while GER at upper primary level has improved from 68.3 in 2006-07 to 79.3 in 2013-14. The Net Enrolment Ratio (NER) at primary level for Narmada has declined from 98.7 in 2006-07 to 79.9 in 2013-14, while NER at upper primary level has improved from 53.5 in 2006-07 to 60.7 in 2013-14. The gap between boys and girls enrolment at primary as well as upper primary level in Narmada needs to be reduced. Class-wise enrolment in the elementary education in Narmada 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 18% of classrooms in Narmada require repairs. More than 22% of classrooms in Dediapada, Sagbara and Tilakvada 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 Narmada and provision of separate girls' toilet in schools of Narmada 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 Narmada 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 tribal people. The prevailing misconceptions and ignorance of health care hamper the betterment in health and hygiene conditions of people in backward areas of Narmada. 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 Narmada, it is observed that few of the key positions (especially doctors and nurses) 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 of Malaria are reported to be declining over the years in Narmada, but the cases suffering from Acute Respiratory Infection, Acute Diarrheal Diseases and Fever of unknown origin have major prevalence in Narmada district. Moreover there has been increased in the cases reported for Acute Respiratory Infection over the years with a CAGR of 18.05% in Narmada. 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 Narmada. This can be linked with existing work of PHCs and CHCs so as to ensure the large scale coverage.

The proportion of institutional (Govt. and private) deliveries out of total (institutional and home) deliveries has increased overtime in last few years in Narmada. But, still in tribal areas with strange socio-culture beliefs, the delivery is conducted by the father-in-law. This poses the risk of maternal death as well as infant death due to delivery assisted by non skill person. Considerable efforts are required through community groups, NGOs, religious institutions and other suitable agencies to handle such socio-cultural practices and opt for better health care.

As far as nutrition in Anganwadi going children in Narmada is concerned, about 30.24% children were reported as undernourished suffering from malnutrition in 2013-14. Highest proportion (36.46%) of Anganwadi going children were found to be under-nourished in Sagbara, while lowest proportion (23.57%) of Anganwadi going children were found to be undernourished in Nandod. Rigorous efforts are required to tackle the under nourishment with parental counselling and continuous monitoring by ICDS and Health department together in Narmada.

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 Narmada, 72.13% of surveyed families turned out to be BPL families (with score 0-20) and out of the total BPL families, 64.34% 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 food security in BPL families of Narmada reveal that 10.37% of BPL families can manage less than 1 square meal per day for major part of the year, while 20.20% of BPL families can manage 1 square meal per day, but less than 1 square meal occasionally, whereas 8.44% of BPL families can manage 1 square meal per day throughout the year and 52.53% of BPL families can manage 2 square meals per day, with occasional shortage. This illustrate that only 8.46% of BPL families can manage enough food for livelihood and many of the 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.

In Narmada 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 relatively stagnant in Narmada. The total cognizable crimes such as burglary, theft and kidnapping seem to have grown in Narmada. In Narmada the reporting of incidents pertaining to crime against women has increased between 2009 and 2014. Out of the total incidents of crime and violence against women reported in Narmada, the incidents reported against cruelty by husband and relatives, molestation and kidnapping have been drastically noticed greater than before. 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 Narmada.

Bibliography

Census of India (2001), District Census Handbook: Narmada, Series 25 Gujarat, Directorate of Census Operations, Gujarat.

Census of India (2011), Provisional Population Totals: Gujarat, Series 25 Gujarat, Directorate of Census Operations, Gujarat.

Chief District Health Office (2014), Health Statistics: Narmada 2009-14, District Panchayat Narmada, Rajpipla.

Commissionerate of Health, Medical Services, Medical Education and Research (2011), Health Statistics: Gujarat 2009-10, Government of Gujarat.

Commissionerate of Health, Medical Services, Medical Education and Research (2014), Health Statistics: Gujarat 2013-14, Government of Gujarat.

Commissionerate of Rural Development (2011), Proposed Add-On List of BPL Families 2008-09, Socio-Economic Survey 2002-03, Government of Gujarat.

Directorate of Agriculture (2006), Agriculture Statistics: Gujarat 2005-06, Government of Gujarat.

Directorate of Agriculture (2011), Agriculture Statistics: Gujarat 2010-11, Government of Gujarat.

Directorate of Agriculture (2014), Documents on Schemes and Programs, Government of Gujarat.

Directorate of Animal Husbandry (2014), Documents on Schemes and Programs, Government of Gujarat.

Directorate of Horticulture (2006), Horticulture Statistics: Gujarat 2005-06, Government of Gujarat.

Directorate of Horticulture (2011), Horticulture Statistics: Gujarat 2010-11, Government of Gujarat.

Directorate of Primary Education (2011), Documents on Schemes and Programs, Government of Gujarat.

District Agriculture Office (2014), Documents on Schemes and Programs, District Panchayat Narmada, Rajpipla.

District Animal Husbandry Office (2014), Animal Husbandry Statistics: Narmada 2014, District Panchayat Narmada, Rajpipla.

District Education Office (2014), Education Statistics: Narmada 2014, District Panchayat Narmada, Rajpipla.

District Information System for Education (2014), Database on District Report Cards 2005-14, National University of Educational Planning and Administration, New Delhi.

District Rural Development Agency (2014), Database on BPL List 2013-14, District Panchayat Narmada, Rajpipla.

District Rural Development Agency (2014), Documents on Schemes and Programs, District Panchayat Narmada, Rajpipla.

District Statistics Office (2009), Statistical Outline of Narmada District 2008-09, District Panchayat Narmada, Rajpipla.

District Statistics Office (2010), Statistical Outline of Narmada District 2009-10, District Panchayat Narmada, Rajpipla.

District Statistics Office (2011), Statistical Outline of Narmada District 2010-11, District Panchayat Narmada, Rajpipla.

District Statistics Office (2012), Statistical Outline of Narmada District 2011-12, District Panchayat Narmada, Rajpipla.

District Statistics Office (2013), Statistical Outline of Narmada District 2012-13, District Panchayat Narmada, Rajpipla.

District Statistics Office (2014), Statistical Outline of Narmada District 2013-14, District Panchayat Narmada, Rajpipla.

District Supply Office (2014), Supply Statistics: Narmada 2014, District Panchayat Narmada, Rajpipla.

Gujarat Council of Elementary Education (2014), Education Statistics 2013-14, Sarva Siksha Abhiyan, Gandhinagar.

Government of Gujarat (1971), Hathi Committee Report on Balanced Development, General Administration Department (Planning), Gandhinagar.

Government of Gujarat (1984), I G Patel Committee Report for the Development of Backward Areas, General Administration Department (Planning), Gandhinagar.

Government of Gujarat (2005), Report of the Committee to Study Backwardness of Talukas of Gujarat, General Administration Department (Planning), Gandhinagar.

Hirway and Mahadevia (2004), Gujarat Human Development Report 2004, Mahatma Gandhi Labour Institute, Ahmedabad.

Integrated Child Development Services (2014), Nutrition Statistics: Narmada 2010-14, District Panchayat Narmada, Rajpipla.

John Cook and Deborah Frank (2008), "Food Security, Poverty, and Human Development in the United States", Annals of the New York Academy of Sciences, Vol. 1136, 193-209.

Narmada, Water Resource, Water Supply and Kalpsar Department (2014), Statistical Abstracts 2014, Reservoir Operation, Water Supply Division, Government of Gujarat

National Rural Drinking Water Program (2014), Block Wise Household Sanitation Database, Ministry of Drinking Water and Sanitation, Government of India

National Rural Drinking Water Program (2014), Blockwise Drinking Water Facility in Schools and Anganwadis, Block Wise Database, Ministry of Drinking Water and Sanitation, Government of India

Shah Ghanshyam (2004), "Growth, Poverty and Human Development in India", Conference Paper, 18th European Conference on Modern South Asian Studies, , Sweden, 6-9 July, 1-27.

State Crime Records Bureau (2014), Crime Statistics: Gujarat 2005-2014, Government of Gujarat.

Tribal Development Department (2014), Van Bandhu Kalyan Yojna, Documents of Scheme & Program, Government of Gujarat.

UNDP (2011), Caribbean Human Development Report on Citizen Security, Press Release, September 5, Port of Spain.

UNICEF (2011), 'Nutrition', Fast Facts, available online <http://www.unicef.org/india/nutrition.html> (accessed on 5-11-2011)

Water and Sanitation Management Organization (2014), Taluka wise Progress Statistics 2014, Swajaldhara / Sector Reform Scheme Program, Government of Gujarat

WHO (2011), 'Sanitation', Health Topics, available online <http://www.who.int/topics/sanitation/en/> (accessed on 5-11-2011)



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