COMPREHENSIVE DISTRICT AGRICULTURE PLAN (C-DAP)

DISTRICT SURENDRANAGAR






सत्यमेव जयते

Department of Agriculture & Co-operation
Government of Gujarat
Gandhinagar

COMPREHENSIVE DISTRICT AGRICULTURE PLAN SURENDRANAGAR DISTRICT

JUNAGADH AGRICULTURAL UNIVERSITY
JUNAGADH-362 001

SEPTEMBER, 2012

COMPREHENSIVE- DISTRICT AGRICULTURE PLAN
SURENDRANAGAR DISTRICT

PROJECT TEAM

Overall Coordination : Dr. C. J. Dangaria
Director of Research,
JAU, Junagadh

Nodal Officer : Dr. I. U. Dhruj
Associate Director of Research,
JAU, Junagadh

Convener : Dr. G.R.Sharma
Research Scientist (Agri. Engg),
JAU, Targhadia (Rajkot)

Coordinator :
1. Dr. P. Mohnot
Associate Director of Research, JAU, Junagadh
2. Dr. V. V. Rajani,
Research Scientist, Directorate of Research,
JAU, Junagadh

Members :
1. Dr. J. N. Nariya, Training Organiser,
KVK, JAU, Nana-kandasar
2. Dr. R. M. Javia, SMS, , KVK, Nanakandasar
3. Dr. B.C. Bhochalya, SMS, KVK, Nanakandasar
4. Dr. H.M.Bhuva, SMS, KVK, Nanakandasar,

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M. : 98252 68641

Narendra Modi
Chief Minister, Gujarat State

Dt. 01-08-2012

MESSAGE

Gujarat agriculture has recorded the fastest growth about 11 per cent amongst all Indian states, since 2000, which is more than three times agricultural growth at all India level (2.9 per cent per annum during 2000-01 to 2007-08). In the last decade the agriculture income of state farmers increased from Rs. 9,000 cores to Rs. 80,000 cores. Agriculture in Gujarat is a success story for other states to emulate. An important question facing Indian policy makers at the centre as well as states is how to promote faster and more inclusive agricultural growth. Due to significant regional disparity in agricultural growth across the state, it became imperative to prepare micro level planning and understand the drivers of this high growth in agricultural sector in Gujarat.

In spite of increase in cropping intensity, crop production and productivity in the post green revolution period, there exists ample scope to enhance the production by interventions of modern technologies and capacity building of the farmers. Planning receives equal importance in the process of development with that of investment and execution. An appropriate planning has several advantages such as adequate capital investments, less gestation period, better flow control and farmers friendly. Therefore, ways and means need to be planned at micro level to augment the resources is highly essential to increase crop productivity and farm income. Hence, in order to implement the State and Central Government schemes by formulation of action plans and utilizing the resources efficiently, the **Comprehensive-District Agriculture Plans** (C-DAP) have been prepared for each district of Gujarat State.

The task of preparing the C-DAP of all districts of Gujarat state has been given to State Agricultural Universities of Gujarat. In this context, **Junagadh Agricultural University, Junagadh** has prepared the plans for seven districts of Saurashtra region. I appreciate Dr. N. C. Patel, Vice Chancellor and the team of Junagadh Agricultural University for putting their inclusive efforts in preparing the C-DAP.

In my opinion, these Comprehensive District Agriculture Plans are unique Endeavour for reducing the yield gap in important crops and increase production and productivity in agriculture and allied sectors through focused and holistic initiatives. The C-DAPs also suggesting way forward to various government agencies working for the benefit of the farmers in using the resources judiciously to enhance farm productivity and income.

(Narendra Modi)

To,
Dr. C. J. Dangariya, The Research Director,
Office Of The Director Research,
Junagadh Agricultural University, Junagadh.
Email : dr@jau.in

Narendra Modi
Chief Minister, Gujarat State

Minister for Agriculture, Co-operation,
Animal Husbandry, Fisheries,
Cow-breeding, Prison, Law and Justice,
Legislative and Parliamentary Affairs
Government of Gujarat.

Date : 31 JUL 2012

Dileep Sanghani

Message

In India, with the green revolution period from the mid-1960s to 1991, the agricultural sector grew at 3.2 per cent, but despite the changes in the macro-economic policy frame work and trade liberalisation, Indian agricultural sector did not experience any significant growth subsequent to the initiation of economic reforms in 1991; nor has the new macro-economic policy frame work resulted in accelerating agricultural growth. In fact, Gujarat agriculture has a record growth of about 11 per cent since 2000 in spite of 2.9 per cent per annum growth at all India level and in last decade the agricultural income of state farmers' increased by ten times, which has presented a role model for others to follow.

Government of Gujarat has launched various innovative schemes to accelerate the growth in the agriculture and allied sectors and to implement this, formulation of action plans by means of developing Comprehensive-District Agriculture Plans (C-DAP) have been undertaken. Junagadh Agricultural University, Junagadh has prepared the C-DAP for seven districts of Saurashtra region, which comes under its jurisdiction. I convey my hearty congratulations to Dr.N.C. Patel, Vice Chancellor; Dr.C.J. Dangariya, Director of Research and Dean, P.G.Studies and their team for their deterministic approach in preparing the C-DAP.

Comprehensive District Agriculture Plans will become a torch bearer for the implementing agencies in the field of agricultural education, research and programme execution by utilizing the resources effectively. Saurashtra agriculture sector will get faster and more inclusive agricultural growth, which helps in increasing farm income and up gradation of livelihood of the farmers in the region.

Dileep Sanghani

(Dileep Sanghani)

To,
DR. N. C. PATEL
Vice-Chancellor,
Junagadh Agricultural University
JUNAGADH-362 001.

Office : 1, Sardar Patel Bhavan, 7th Floor, Sachivalaya, Gandhinagar-382 010.

A. K. JOTI, *IAS*
Chief Secretary

GOVERNMENT OF GUJARAT
Block No. 1, 3rd Floor,
New Sachivalaya, Gandhinagar-382 010.
Phone : 079-23250301, 23250303
Fax : 079-23250505
E-mail : csguj@gujarat.gov.in

Dt.: 08/08/2012

Message

The Gujarat government envisages agricultural production through focused and innovative agricultural development programmes which resulted in extra ordinary average agricultural growth rate of above 10 per cent during last decade and presented a role model in the field of agricultural development in India. However, instead of saying how much Gujarat has done, we shall see how much remains to be done. We are at important stage of agricultural transformation and looking at 12th plan as an opportunity for making appropriate change and formulate winning strategy to make agriculture more rewarding and remunerative.

As per directives of the National Development Council, the State agricultural plan should be based on district plans, subject to all available resources from its own plan and adding those available from the Central Government, aimed at achieving the State's Agricultural growth objective, keeping in view the sustainable management of natural resources and technological possibilities in each district. Accordingly, Gujarat has prepared micro level planning in the form of a document entitled Comprehensive District Agriculture Plan (C-DAP). During the last decade a silent agricultural revolution has emerged in Gujarat, with a shift from traditional subsistence to modernized/ mechanized farming, which stove to inject technology lead diversification within agriculture. The major areas of focus in the C-DAP are integrated development of major food crops, agricultural mechanization, strengthening of market infrastructure and marketing development, activities relating to enhancement of horticultural production and popularization, micro irrigation systems and development activities in sector of animal husbandry and fisheries. The State Agricultural Universities (SAU) of Gujarat have worked as nodal agencies for preparation of the C-DAPs. For seven districts of Saurashtra region, Junagadh Agricultural University, Junagadh has prepared the plans. I complement the efforts made by JAU to come up with C-DAP of districts having potential to transform Gujarat agriculture towards sustainable and remunerative agriculture.

I am sure that the forward looking approach and proposed strategies presented for each district of Saurashtra by Junagadh Agricultural University would bring a substantial change in agriculture to further accelerate the agricultural growth of Gujarat.

(A. K. Joti)

Dr. N. C. Patel

Vice Chancellor
Junagadh Agricultural University
Junagadh

Date: August 20, 2012

Message

Gujarat has recorded the highest decadal agricultural growth rate of 10.97 % in the period 2000-01 to 2009-10. Gujarat has the highest productivity in the country for the crops grown in Saurashtra such as cotton and castor and second highest productivity in groundnut and bajra. To enhance the agricultural productivity further, a comprehensive planning is required. The task of preparing the Comprehensive-District Agriculture Plan (C-DAP) for 7 districts of Saurashtra region had been given to Junagadh Agricultural University, Junagadh by the Government of Gujarat. The C-DAP focused on integrated development of major food crops, cereals, oilseeds, fiber crops, horticultural crops, vegetables and spices. It also included the agricultural mechanization, use of micro irrigation systems, watershed development activities, protected cultivation, infrastructure and development in animal husbandry & fisheries sector, market infrastructure & marketing development.

The Comprehensive-District Agriculture Plan for Surendranagar District is very well prepared. It is an outcome of fruitful discussions at different levels and valuable directives given by Shri R. K. Tripathi, Principal Secretary (Agriculture), Government of Gujarat. I extend my hearty congratulations to Dr. C. J. Dangaria, Director of Research and Dean, P.G. Studies, Dr. I. U. Dhruj, Dr. G. R. Sharma, Dr. P. Mohnot, members of the committee and all the concerned scientists for their contribution in preparing the Comprehensive District Agriculture Plan (C-DAP) of Surendranagar district. This document will provide the guidelines to all the officials working for the development of agriculture and rural sector. With the proper execution of C-DAP in 12th five year plan, the Saurashtra region of Gujarat will get the benefit to increase its crop production, productivity and ultimately the income of farmers.

(N. C. Patel)

Dr. C. J. Dangaria
Director of Research & Dean, P. G. Studies
Junagadh Agricultural University
JUNAGADH - 362 001

FOREWORD

The District Agriculture Plan indentifies the problems, needed interventions and the financial requirement for the developments in Agriculture and allied sectors viz. Horticulture, Agricultural Engineering, Animal husbandry, Fisheries and Agricultural marketing and Agricultural business. The plan documents have identified the major thrust areas in agriculture and allied sectors for achieving the envisioned growth in the district and also in Gujarat state. The task of preparing the Comprehensive-District Agriculture Plan (C-DAP) for seven districts of Saurashtra region had been given to Junagadh Agricultural University, Junagadh by the Government of Gujarat. The Saurashtra area is divided in four agro climatic zones *viz*. North Saurashtra Agro-climatic zone, South Saurashtra Agro-climatic zone, part of North-West Agro-climatic zone and part of Bhal & Coastal Agro-climatic zone.

State level meeting of SAUs of Gujarat was held at AAU, Anand under the chairmanship of Shri R. K. Tripathi, IAS, Principal Secretary, Department of Agriculture & Co-operation, Government of Gujarat who provided valuable guidance and direction in bringing out this plan document. Subsequently several meetings were held at Junagadh Agricultural University during the last few months. Coordination committee, district plan preparation committee and plan finalizing team of JAU made concerted efforts in shaping up the District Agriculture Plans. Hon'ble Vice Chancellor, Junagadh Agricultural University, Dr. N. C. Patel has played active role in the sensitising the meetings held at JAU.

I congratulate Dr. G.R.Sharma, Dr. I U. Dhruj, Dr. P. Mohnot, the members of committee and all the scientists of Junagadh Agricultural University who have contributed for preparing the Comprehensive District Agriculture Plan (C-DAP) of Surendranagar district. I appreciate the officials from line departments for extending the help to the university scientists in bringing out the valuable action plans for each district. The C-DAP document narrates key challenges and opportunities in making the agriculture more remunerative and sustainable and provides solid basis of appropriate strategies to articulate role of all the stakeholders in achieving sustainable agricultural growth. It is envisaged that all the stakeholders, viz., line departments, government institutes, co-operatives, private sectors, NGOs and farmers will implement the plan with zeal and required thrust to achieve a still better growth in agriculture and allied sectors during XII plan in Gujarat State.

Dangaria
(C. J. Dangaria)

Junagadh
August 9, 2012

PREFACE

The Comprehensive District Agriculture Plan (C-DAP) of Surendranagar district is brought out for the developments in Agriculture and allied sectors viz. Horticulture, Agricultural Engineering, Animal husbandry, Fisheries and Agricultural marketing and Agricultural business based on the details provided by the scientists of Junagadh agricultural University, Junagadh and the line department officials of the district. The Government sponsored various on-going schemes and programmes in the development of agriculture have also been dovetailed in the preparation of plan. Keeping in view, the Government of Gujarat approach of Apno Taluko Vibrant Taluko (ATVT), the taluka-wise plans were prepared and subsequently, a Comprehensive District Agriculture Plan (C-DAP) was prepared by integrating these taluka plans.

My sincere thanks and profound gratitude are due to Shri R. K. Tripathi, I.A.S., Principal Secretary, Department of Agriculture and Cooperation, Government of Gujarat, Gandhinagar who is instrumental in integrating the multi-level functionaries and providing valuable directives and guidance in bringing out this plan document. It is my privilege to express the deep sense of gratitude to Dr. N. C. Patel, Hon'ble Vice Chancellor, Junagadh Agricultural University, Junagadh for his valuable guidance and wise advice for the completing this work successfully. I express my thanks to Dr. B. R. Shah, Director of Agriculture, Dr. B. S. Patel, Director Department of Horticulture and Dr. A. J. Kachhiya, Director Department of Animal Husbandry, GoG, Gandhinagar for supplying the required information for the district plan. I express my deep sense of gratitude to Dr. T. P. Singh, Director BISAG, Gandhinagar and his colleagues for providing the thematic maps and other geo-information support for the plan.

I am thankful to Shri P.H.Shah, District Collector, Surendranagar, who has been instrumental in providing the felt needs of the farmers and other stakeholders. The help and full cooperation rendered by the Shri C.P.Patel, District Development Officer, Zilla Panchayat Surendranagar, Shri Bachubhi Ramjibhai Patel, President Zilla Panchayat Surendranagar, Shri R.M.Sundarva, District Agriculture Officer and the line department officials of the district is highly appreciable. Without their assistances, the formulation of the plan would not have materialised.

My sincere thanks to Dr. C. J. Dangaria, Director of Research and Dean, P.G. Studies, both ADRs Dr. I. U. Dhruj & Dr. P. Mohnot, Dr. V. V. Rajani and Dr. B. B. Ramani as well as all the professors and research scientists of Junagadh Agricultural University for their technical support, supply of needed inputs without which the time schedule in preparing the document could not have been adhered to. Sincere thanks to all the Principals and Deans of the colleges, Agril. Engg. & Tech., Agriculture, Veterinary Science & Animal Husbandry, Fisheries and PG Institute of Business Management and Research Scientist(Dry Farming) Junagadh Agricultural University for their cooperation and valuable support in preparation of plan documents.

Special thanks are due to all committee members of C-DAP district Surendranagar Dr.J.N.Naria, Dr. R.M.Javia, Dr. B.C.Bhochaliya, Dr. H.M.Bhuva, KVK, JAU, Nana-kandasar for their sustained support in the preparation and documentation of the district plan.

Date: 11.08.2012
Place: Junagadh

(G.R.Sharma)
Convener and Research Scientist (Agril. Engg.)
Main Dry Farming Research Station,
Junagadh Agricultural University, Targhadia-360003

EXECUTIVE SUMMARY

An important question facing Indian policy makers at the centre as well as states is how to promote faster and more inclusive agricultural growth. Gujarat agriculture has recorded the fastest growth (about 11 percent) amongst all Indian states, since 2000, which is more than three times agricultural growth at all India level (2.9 percent per annum during 2000-01 to 2007-08). Agriculture in Gujarat is a success story for other states to emulate. Due to significant regional disparity in agricultural growth across the state, it became imperative to prepare micro level planning and understand the drivers of this high growth in agricultural sector in Gujarat.

Planning receives equal importance in the process of development with that of investment and execution. An appropriate planning has several advantages such as adequate capital investments, less gestation period, better flow control and farmers' friendly. Therefore, ways and means need to be planned at micro level to augment the resources is highly essential to increase crop productivity and farm income. In spite of increase in cropping intensity, crop production and productivity in the post green revolution period, there exists ample scope to enhance the production by interventions of modern technologies and capacity building of the farmers. Hence, in order to implement the State Government and central Government schemes by formulation of action plans and utilizing the resources efficiently, Comprehensive-District Agriculture Plans (C-DAP) have been prepared for each district of Gujarat State.

The task of preparing the Comprehensive District Agricultural Plan (C-DAP) of all districts of Gujarat state has been given to State Agricultural Universities of Gujarat. In this context, Junagadh Agricultural University has prepared the plans for seven districts of Saurashtra region. To prepare the comprehensive District Agriculture Plan (C-DAP) for Surendranagar district the major areas of focus were integrated development of major food crops like Groundnut, wheat, cotton, coarse cereals, millets, pulses & oilseeds; Agriculture mechanization; Strengthening of Market Infrastructure & Marketing Development; Activities relating to enhancement of Horticultural Production & Popularization of Micro Irrigation Systems and Animal Husbandry & Fisheries Development activities.

Several meetings were held at various Talukas of Surendranagar district to discuss the various components of the DAP in the presence of stakeholders viz., Taluka Panchayat Officials, Line Department Officials, Panchayat leaders and progressive farmers. The feedback received in the Meetings was incorporated before finalization of the District Agriculture Plan.

District Agriculture Plan for Surendranagar District

The Surendranagar district mainly falls in North Saurashtra Agro-Climatic Zone. The total geographical area of the district is 10.46 lakh hectares. The district has been divided into 10 talukas consisting of 654 villages for administrative convenience. The agriculture and animal husbandry are the main source of live hood for the rural people of the district.

Geographically, the district is marked by low hills in the South-West, gradually merging into undulating central part. Northern portion, adjoining Kutch district, which is arid, is barren and saline. Chotila is one of the land marks in Saurashtra peninsula. The district lies between 22.0° to 23.45° North latitude and 69.45° to 72.15° East longitudes. Surendranagar district is bounded in North by Gulf of Kutch and Mehsana district on the East by part of Ahmedabad and West by Rajkot district and South by Bhavnagar district.

Average annual rainfall in Surendranagar district is 744 mm. with 29 rainy days. In this District, total area is 10.46 lakh ha among it the net sown area is 7.04 lakh ha and 0.53 lakh ha of land is covered by forest. The barren, uncultivable, degraded and waste lands which are present in the district to the extent of 1.64 lakh ha of the total geographical area have to be reclaimed so that the net sown area could be increased.

Strategies to Achieve the Objectives of DAP for Surendranagar District

- Development of suitable technologies such as varietal improvement, input management supported by a strong institutional arrangements for the supply of inputs like seed, fertilizers, plant protection chemicals, credit, etc, price support system favourable to farmers and market infrastructure for major crops like groundnut, cotton, wheat, bajra, horticultural crops, vegetables, spices and fodder crops.
- Development of minor irrigation with drip irrigation system.
- Mechanization of farms with tractor operated implements, combined harvester, cotton picker, ground nut decorticator, etc.
- Strengthening water harvesting structures like farm ponds and check dams.
- Reclamation of salt affected soils & degraded lands.
- Training and exposure visit to the farmers, traders, and other stakeholders on grading, post harvest technologies, value addition and market intelligence.
- Establishment of food parks to create necessary infrastructure for value addition in agricultural products.
- Strengthening of rural markets with storage facilities.
- Strengthening of farmers' market with additional storage facilities.
- Establishment of cool chains for better distribution of milk.
- Establishment of cattle feed units.
- Inland fisheries development in major tanks and reservoirs.
- Strengthening the extension machinery for effective dissemination of technology.

District Agricultural Plan

In order to dovetail the components and magnitude of the ongoing schemes implemented by the line departments as far as agriculture was concerned, in Part I scheme, schemes like Procurement of cumin, sesame, wheat, cotton, millet, pulses, green manure seeds, integrated cotton development, increasing the production of oilseeds, production and distribution of micro nutrient mixtures and bio-fertilizers were taken up. Under Part II, schemes like conducting Crop Cutting Experiment, kits for Taluka level. Centrally sponsored schemes, purchase of improved/ hybrid seeds, subsidizing foundation and certified seeds, conducting demonstration and farmers' training, distribution of bio fertilizers and bio control agents and Seed Village Programme were taken up.

Agricultural development of a district can be well represented by composite indices which are used as yardsticks not only to gauge the development of each district but also to compare its performance in relation to other districts. The analysis was performed to highlight the Strength, Weakness, Opportunities and Threats (SWOT) of Surendranagar district.

Surendranagar District is very near to Rajkot, Ahmedabad, Surat and Mumbai cities and this has resulted in the large scale migration of farm labourers and in turn has resulted in a demand for agricultural labourers. Surendranagar district is known for the presence of cotton ginning based industries. Improved breed *Zalawadi* and *Gohilwadi* breed of goat most suitable for stalk feeding and good for milk production.

As regards to availability of infrastructures, the district has 2 soil testing laboratory each in Vadhawan, and halvad taluka. There are 82 net houses in the district. The maximum number of net houses are in Desada (45) followed by Halvad (29). There exists one poly house in Dhangadhra taluka. There are 2 training institutes each in Vadhavan(FTC) and Chotila (KVK). Total number of rural godowns is 100 in the district. Out of which 20,17 and 15 are in Vadhawan, Halvad and Dhangadhra. Only one cold storage having capacity of 300 tonne exists in the district. Thre are 30 package houses. Out of which 27 are in Halvad and 3 are in Muli. There are nine APMCs (Agriculture Produce Marketing Committees) and eleven Rural Mandi/ Haats in the district. There is no office of the nodal agency i.e. Gujarat State Marketing Board for development of market yards in the district. Functioning of market yards is fragmented without any uniform approach. Govt. may help APMCs to prepare project reports and avail loans for development of market yards. There should be plan for revival of activities as well as plan for remedial action for financial sickness being suffered by some of the market yards. The grading and other post harvest handling may be developed at each yard.

The existing marketing infrastructure also needs to be strengthening with the facilities like roads, godowns etc. Availability of inadequate input supply and irrigation lacks agriculture motivation and on value addition and post harvest storage facilities, which is essential to fetch better price realization. To supplement the need of various aspects to boost the agriculture production, the villages are being provided with more infrastructures like irrigation, all weather roads connecting the villages (mainly the remotest ones) to the main hub.

The line departments like Agricultural University, Agriculture, Horticulture, Animal Husbandry, Fisheries, NABARD, DRDA and Agricultural Marketing have proposed the developmental projects to be taken up under various agriculture and allied sectors during XII five Plan Period in Surendranagar district and the total financial outlay of the C-DAP of Surendranagar district is Rs. 97482.5 lakhs for XII five Plan. The details of financial outlay are given in the following table.

Sector wise budget Proposal of the Comprehensive District Agriculture Plan of Surendranagar District for 12th plan **(Rs. in lakh)**

Budget proposal head-wise	2012-13	2013-14	2014-15	2015-16	2016-17	TOTAL
Agriculture	20451.8	21104.1	20684.9	21029.6	21156.1	104426.3
Horticulture	1339.36	1322.36	1361.76	1341.76	1341.76	6724.65
Animal Husbandry	798.6	788.6	784.2	778.6	769.2	3919.2
Forestry	28.1	28.6	31.2	32.5	35.1	155.5
Fisheries	38	37	37	29	24	180
Employment Generation Activities	89.88	89.88	74.88	89.88	74.88	419.4
New Innovative Projects	2817.5	1059.5	934.5	944.5	949.5	6655.5
Grand Total	**25563.24**	**24430.04**	**23908.4**	**24245.84**	**24350.54**	**122480.55**

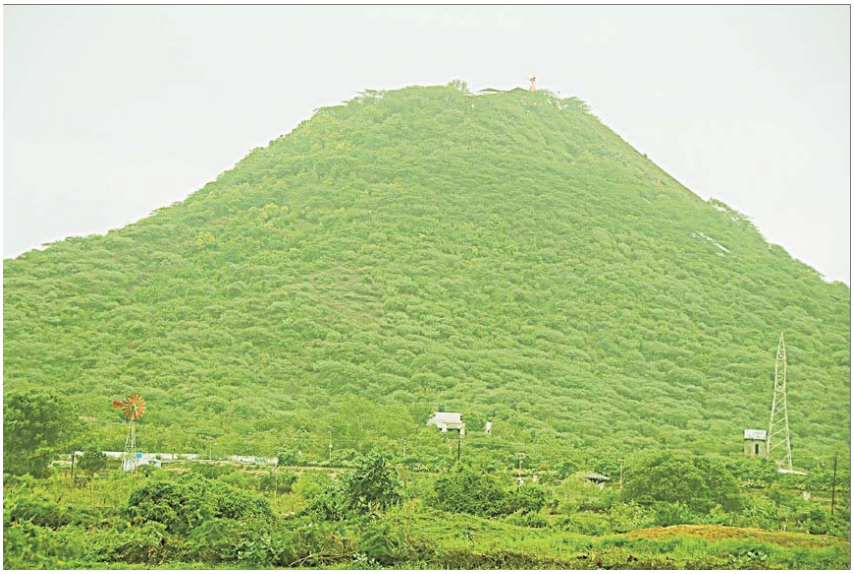
A brief account of SWOT of agricultural sector is discussed below:

Surendranagar District is well connected by rail and bus routes to major towns of the states like Rajkot, Ahmedabad, Vadodara, Surat and Gandhinagar. There is a good network of the roads within the district and its towns and villages. Nearest airport is situated at Ahmedabad, located on the National Highway connecting Surendranagar and Ahmedabad. A vast area (about 70% of geographical area) is under cultivation with a large area under cotton crop during *kharif* and cumin in *rabi*. The district has total of 2,11,000 land holders out of which 11786 (5.59%) and 1978 (0.94%) are scheduled caste and scheduled tribe, 32.64 %, 24.70 % and 3.97 % of land holding are owed by semi-medium (2 to 4 ha.) , medium (4 to 9.99 ha) and large farmers (above 10 ha.) having 26.42 %, 42.85 % and 16.96% of total area, respectively. There is abundance of solar energy round the year and availability of wind energy is also round the year.

In Surendranagar district the over exploitation of ground water through open wells and deep bore wells. The percentage distribution of water samples in different EC classes a.i. C-1 (permissible), C-2 (Moderately safe), C-3 (Moderately unsafe) and C-4 (unsafe) were 0, 10.98, 31.10 and 57.93 % respectively. About 38.5, 20, 3.5 and 38.0 % soil samples are found saline, saline-sodic, sodic and normal, respectively.

Available nitrogen and phosphorous status for the district was low. Wide spread deficiency of Sulphur was found in the district (90 soil samples out of 100). The available Zn status of the district was low to medium. In general, the soils of the district are low to medium in O.C. status. Out of 10 taluka, Limbadi, Lakhatar and Dasada is having 3054.54 ha, 2203.71ha and 4683.3 ha under salt affected area, respectively.

The specific opportunities for the district are good scope for export of processed seeds of sesame and cumin, productivity enhancement, farm mechanization; improve water use efficiency (MIS), expansion of inland aquaculture, lemon and mango processing industries, availability of non conventional energy sources like solar and wind.



Chotila Hill

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CHAPTER I

INTRODUCTION

1.1 General:

India's policies should be shaped to take the full advantage of present emerging realignment of economic power; the slowdown of industrialized countries and gaining weight of emerging market economies, were the directives emerged from the Prime Minister's inaugural address in the National Development Council (NDC) held at New Delhi in 2011. Therefore, our policies in the 12th five year plan must stands to gain on both counts. Seventy per cent of the Gujarat State population is either wholly or significantly dependent for their livelihoods on agriculture, horticulture, animal husbandry or fisheries. The Gujarat Government envisages agriculture promotion through focused agricultural research, and technological interventions. Government of Gujarat has planned several initiatives in the back drop to achieve the current agricultural growth rate of about 11% and have carved a niche in the field of agricultural development in India, when the country's growth rate is less than 3%. Agricultural income of state farmers' risen from Rs. 9000 crores to Rs. 80,000 crores in last 10 years, not denying the fact that the state received normal rains during last decade, which also holds true for most of the states of the country.

As per the agenda- VII of the 5th meeting of Gujarat State Level Steering Committee (SLSC) held on May 26, 2011, it was directed to prepare the Comprehensive District Agriculture Plan (XII five year plan) by the Agricultural Universities for all the districts under their jurisdiction. These plans present the vision for agriculture and allied sectors within the overall development perspective of the district apart from financial requirement and the sources of financing agriculture development plan in a comprehensive way, in order to revive the agriculture during XII plan with a growth rate of more than 4 per cent per annum has to be achieved (as per NDC commitment). The DAP, therefore could integrate multiple programmes that are in operation in the district concerned, include the resources and activities indicated by the state, combine the resources available from the other programmes.

1.2 Objectives and Expected Outcomes:

Keeping above points in view, the present database/information systems were developed with the following objectives:

- Analysis on the existing farming practices to identify the development opportunities and potentialities for employment generation in agriculture and allied sector.
- Collection and analysis of secondary data on agriculture and allied sectors and documentation of existing marketing pattern.
- Identification of production constrains and technological gap for understanding prevailing agricultural and allied situations in the district.
- Formulation of strategies and action plan for different agricultural production systems to increase productivity, production and farm income.

1.3 Agricultural Scenario of Gujarat State:

Gujarat has geographical area of 19.6 M ha, out of which 55.10 per cent is under agriculture land i.e.10.8 Mha. The major Crops grown in the state are wheat, bajra, rice, maize, groundnut, mustard, sesame, pigeon pea, green gram, gram, cotton and sugarcane. **Gujarat is the largest producer of**

castor, fennel, tobacco and isabgul (psyllium) whereas it is second largest producer of sesame seeds, cotton and groundnut in the country. Gujarat has highest productivity in mustard, castor and cotton, also has second highest productivity in groundnut and bajra, records third highest productivity in gram and guar in the country. Horticultural crops are grown in about 14.04 lakh ha, the major crops are mango, banana, sapota, lime, guava, tomato, potato, onion, cumin, garlic, isabgul and fennel. In the country, Gujarat has highest productivity in guava, potato, onion, cumin and fennel and third highest productivity in banana and isabgul. In 2001, Gujarat produced 23 lakh bales of cotton, but today the figure stands at 123 lakhs bales (one bale equals 170 kg).

Gujarat State Horticulture Mission (GSHM) has been set up for implementation of National Horticulture Mission (NHM) in the state. The area and production of horticultural crops was 14.04 lakh ha (5.1 % of total cropped area) and 180.16 lakh MT respectively in 2010-11. The production of fruits, vegetables and spices & flowers were 74.73 lakh MT, 93.79 lakh MT and 11.64 lakh MT respectively during year 2010-11. Gujarat state is leading in the production of banana, mango, sapota, onion, potato & seed spices (cumin & fennel) in the country. Gujarat ranks 2nd among the states in India, for the export of banana with exports of 1430 tonnes to Middle East in April-June 2009. In social forestry Gujarat has achieved a benchmark of 14 trees per hectare.

Gujarat has total livestock of 199.39 lakh with cattle population of 67.49 lakh. It has 72.36 lakh poultry. In dairy sector, Gujarat has 12 District Milk Producers' Union, 10,725 Milk Cooperative Societies, 20.84 lakh members of milk cooperative. In last decade the Gujarat's milk production has risen by 68 per cent and reached to 150 lakh litres/day. Gujarat has 1600 km long coastal belt and occupies first position in production of marine fish (6.71 lakh MT/year) with a share of 24 % in total quantity of the country. Value of fish production is Rs. 1200 crore per annum and export worth Rs. 390 crore. In inland fisheries katla, rohu, mrigral are the major fish varieties.

In Gujarat, under 'Jyoti Gram Yojna' villages are getting round the clock uninterrupted electricity supply that covers 18,065 villages and 9,680 suburbs. The farmers are getting 8 hour per day assured 3 phase power supply for irrigation. Gujarat is the first state who has issued Soil Health Card to the farmers, till now the soils of 42 lakh farmers have been tested and 31 lakh soil health cards have been distributed, which is a record in itself. The State has strong cooperative credit & marketing structure, along with 213 cold storages having 9.50 lakh MT storage capacities. About 42 Fruit & Vegetable Co-operative Marketing Societies and 197 Agriculture Produce Market Committees (APMCs) dealing with selling & buying of horticulture produce in the State. Gujarat's advancement in the field of solar energy is also coming up; the state has dedicated 600 MW of solar energy to the national grid, while the rest of the country is producing only 120 MW of solar energy. The solar park set up at Charanka will be the Asia's largest, the innovative canal-top solar power project was beneficial in saving about one crore litres of water per kilometre from evaporation annually and would save 16 per cent of electricity and land for farmers.

Gujarat Government has created history in water conservation, by launching a drive for blue revolution, constructing more than 3.5 lakh check dams, boribunds and khet talavadies (farm ponds). The water conservation work was carried out by various state Govt. departments in cooperation with NGOs and the private sector in last 10 years, which has brought up the ground water level throughout the state and increased the Agriculture income by four folds. On behalf of Government of Gujarat (GoG), GGRC as an implementing agency is aimed to promote Micro Irrigation System (MIS) to the farmers to bring 2nd green revolution. MIS saves water and energy, besides multiple

benefits to improve agricultural productivity and farmer's prosperity at large, till now more than 35 lakh ha area is brought under MIS in the state.

For comprehensive development of tribe community, improve their standard of living, empower them through education and social initiatives the State Government has initiated the 'Vanbandhu Kalyan Yojana' and allocated a huge sum of Rs. 15,000 crores, however already Rs. 17,000 crores has been spent in four years and it may reach to Rs. 20,000 crores by the end of five years. There is no parallel scheme to compare in the entire country with these inclusive initiatives.

Hon'ble Chief Minister of Gujarat State Mr. Narendra Modi has initiated a mega event *Krishi Mahotasav* for dissemination of agricultural and allied field technology to the farmers in Gujarat. In a month long *Krishi Mahotasav,* the government officials, agro-scientists and experts from SAUs are visiting all the villages of the state with informative *Krushi Rath* to give helpful information about farming to the farmers. During Krishi Mahotsav-2012, an intensive animal vaccination and animal health camps programmes were launched in all the villages so as to focus on disease management and the rearing of healthy livestock.

Fig. 1.3.1 Hon'ble Chief Minister, GoG Shri Narendra Modi inaugurated month-long Krishi Mahotsav-2012 at Manavadar Taluka in Junagadh district.

1.4. Saurashtra region of Gujarat State:

The total geographical area of Saurashtra is 6.43 million hectares representing 32.82 per cent area of the state out of which 3.70 million hectares (61%) is cropped area. The Saurashtra area is divided in two agro climatic zone viz. North Saurashtra Agro-climatic zone (Bhavnagar, Jamnagar, Surendranagar, part of Amreli and Rajkot) and South Saurashtra Agro-climatic zone (Junagadh, Porbandar, part of Bhavnagar, Amreli and Rajkot). It is flanked by Arabian Sea on the south and west side, the Gulf of Kutch in the north and Gulf of Khambhat in east. The total population of Saurashtra region is 15.44 million as per 2011 census with a density of 240 people per km^2 living in 4767 villages spread over in seven districts. The overall literacy percentage in the Saurashtra is 77.17. Saurashtra

receives precipitation through the south west monsoon with average annual rainfall varies widely from 400 mm in the northern part to 1000 mm in the southern part. In Saurashtra region, the major field crops are groundnut, cotton, wheat, bajra, sesame & cumin, while mango, coconut, citrus, sapota, guava & ber are the major fruit crops, and onion, brinjal, okra, tomato & cluster bean are the major vegetable crops. Among the major crops, oilseeds (groundnut, sesame and castor) occupy 47.42 per cent of the gross cropped area followed by cotton (31.64%) and total food grains (20.28%). Other important crops grown in the region are spices (1.96%), fruits (mango 0.66% & sapota 0.17%) and vegetables (brinjal 0.50% & okra 0.24%).

As per the 2007 census, there is 238 lakh total livestock population in Gujarat State in which sharing of Saurashtra region is about 26.71 per cent with population of 64 lakh. Saurashtra is the home of famous breed of cattle (*Gir*), buffalo (*Jafrabadi*), goat (*Zalawadi*) and horse (*Kathiavadi*). Saurashtra has a long coastal-line, and the area available for fishing activities extends from Okha to Bhavnagar. Important commercial varieties of fish namely pomfret, jew fish, bombay duck, shrimp, lobster, squid, cuttle fish, silver bar, shark, catfish, mullets, etc. are caught in large quantities in these areas. Some ports like Okha, Sikka, Porbandar, Veraval and Pipavav are located in Saurashtra region.

1.4.1 Major Issues and Areas of Focus:

The major part of the Saurashtra region, falls under semi arid and arid types with varying climatic as well as soil conditions, has been divided into two Agro-climatic zones. The major issues and areas to be focused in the plan are:

i. In Saurashtra about 70 per cent of total area is rainfed, needs an integrated development of crop varieties and cultivation practices for major cereals, food, cash, fruits, vegetables and spices crops.

ii. Activities related to enhancement of soil health, integrated nutrient management, use of organic and bio-fertilizers. Integrated pest management schemes.

iii. In the adjoining areas of 788 km long coastal belt, sea water ingress and inland salinity caused soil health/fertility problems needs integrated watershed development, water harvesting, groundwater recharge and more area to be brought under MIS.

iv. Development of mechanization by introducing improved tractors, machines, implements, equipments and tools. Increasing use of renewable energy i.e. solar, wind and bio energy in agriculture.

v. Activities relating to enhancement of horticultural production, high density cultivation and popularization of micro irrigation systems. Food processing and value addition of produce; cold storage, handling, packaging, transportation and marketing of perishable produce (fruits and vegetables).

vi. Good local breed of cattle (Gir) and Buffalo (Jafrabadi) are reared, but needs breed establishment and increased involvement of various farming communities in animal rearing. Proper clinical care of animals, increased fodder production and feed management for increasing milk production.

vii. Modernization of marine fish processing units and quality control as per HACCP norms for accelerating export at Veraval, Mangrol and Sutrapada. Development of cage culture of commercial marine fauna. Development of inland fisheries by utilizing salt affected land and water by introducing diversified fish and shrimp fauna.

viii. Strengthening of Market Infrastructure and Marketing Development.

ix. Strengthening of infrastructure to promote extension services for farmers.

x. Innovative schemes.

1.5 Methodology Adopted for Preparation of District Agriculture Plan:

The C-DAP was prepared adopting participatory appraisal mode. Junagadh Agricultural University, Junagadh, Gujarat was identified as Technical Support Institute (TSI). The TSI, under the guidance of Director of Research, provided all necessary technical help to planning units and support groups for preparation of this plan through participatory bottom-up process. The TSI trained the Planning Units/ Groups in designed formats for data collection, guided in data collection and analysis and conducted regular workshops and meetings for plan preparation. In coordination with Scientists/ Professors from JAU, Junagadh and officials from Department of Agriculture, Horticulture, Animal Husbandry and Fisheries, District Panchayat, DRDA, BISAG, NABARD, ATMA, PGVCL, Dept. of Disaster Management, Dept. of Irrigation, etc. the task is fulfilled.

1.5.1 Collection of Data:

The preparation of district level plan involved basically collection of base line and bench mark details. So a template is developed to collect these particulars from the different districts under the jurisdiction of JAU, Junagadh. The district level scientist's teams from JAU were formed for the collection and compilation of the information. The Taluka wise information was collected with the help of Taluka Development Officer (TDO) and his team, officers from Animal Husbandry, officers from Agriculture Department, Jilla Panchayat, Taluka Panchayat, Village Panchayat, NGOs, BISAG, NABARD, ATMA, DRDA, Watershed development agency, etc.

1.5.2 Formulation of District Planning Unit:

To facilitate the involvement of local representatives in the preparation of plans, planning units in each district was formulated. The composition of the district planning units is as follows:

a) Director of Research & Dean PG studies, Dean, College of Agricultural Engg., Dean College of Agriculture, Dean College of Veterinary Sciences, Dean College of Fisheries and one scientist for every 2 talukas.

b) Coordinating staff from Directorate of Research.

c) Officials of Line Departments from Agriculture, Horticulture, Animal Husbandry, Fisheries, District Panchayat and DRDA.

Numbers of meetings were held at state and University level with authorities and concerned officials of C-DAP. The current priorities discussed with scientists of the JAU, officers of the line departments, NGOs and farmers. During the meetings of stakeholders discussed about the proposed design, trials, Front line demonstration (FLDs) and other activities in a farming system approach. The group identified the farmers' needs and constraints and subsequent changes proposed in management practices. The time frame of various activities and expected out comes of five year plan were incorporated. The following meetings were arranged.

Sr. No.	Date	Meeting
1	12-11-11	To discuss the guideline of C-DAP
2	27-01-12	Review meeting to prepare C-DAP
3	28-03-12	Regarding to prepare C-DAP of seven districts of Saurashtra
4	April, 2012	Various stakeholders meeting at different talukas
5	05-04-12	Presentation of Report at AAU, Anand
6	10-04-12	To discuss the future line of action for collection of Talukawise information
7	04-05-12	Review of C-DAP under the chairmanship of the Vice Chancellor, JAU, Junagadh.
8	23-05-12	Discuss future planning regarding various aspects of C-DAP with HoDs of the university and committee members of C-DAP
9	13-07-12	A meeting with Taluka leader to prepare taluka level plan
10	07-07-12	C-DAP presentation at JAU, Junagadh
11	19-07-12	Presentation of final report at Gandhinagar
12	27-7-12	Final meeting with all concerns to modify the report as per the directions of Gandhinagar's meeting

1.5.3 An indicative outline for the preparation of C-DAP:

1: A brief introduction to the District, its location, features, etc.
2: Main points of SWOT of the District
3: Areas/ Sectors which need to be addressed in the district
4: Various on- going programmes in the district- a brief contextual gist
5: The District Plan at a Glance.

C-DAP Meetting with Line Department

CHAPTER II

GENERAL DESCRIPTION OF SURENDRANAGAR DISTRICT

2.1 Brief History of Surendranagar:

No significant information is available about the past history of this District. But it is but possible that this region was under the control of the other traditional dynasties ruling over the other regions of the Gujarat state. After the mobilization of the states the now Surendranagar district was called Jhalawad. The present district which is called Surendranagar, was the head quarter of the British political agent. Political agents left from the Wad van camp and returned it to the ruler of Wad van in the year 1946 A. D. There after it was named Surendranagar again in 1947 as per the name of the past king of Wad van, Surendrasinhji. Since 1948, Surendranagar has remained as the main centre of the district. Surendranagar is one of the districts of the Saurashtra sub state. Architectural research has been done on a small scale in the district and some places of pre historical habitation are found. In the year 1957 – 58 some equipments of the era after the stone-age are found from Sejakpur in Sayala taluka. This depicts the culture of the era after the stone-age which had the economy, principally, of the hunters and fishers. The equipments used by the people at the start of the mythological era are also found from this district.It will be very interesting to analyze the rulers' history of some of the village regions of this district. Surendranagar district was made up of the states and Jagirs like Dhangadhra, Wad van, Lakhtar, Sayala, Chuda, Mulee, Bajana, Patadi etc. and the centres like Vanod, Vitthalgarh, Jainabad, Rajpura, Anandpur, Chotila, Bhoika, Jhinjhuwada, Dasada and Raysankali. All these states and Jagirs were included in the earlier Saurashtra state and became the part of the Jhalawad district.

2.2 Surendranagar District at a Glance:

The Surendranagar district mainly falls in North Saurashtra Agro-Climatic Zone. The total geographical area of the district is 10.46 lakh hectares. The district has been divided into 10 talukas consisting of 654 villages for administrative convenience. The agriculture and animal husbandry are the main source of live hood for the rural people of the district.

Geographically, the district is marked by low hills in the South-West, gradually merging into undulating central part. Northern portion, adjoining Kutch district, which is arid, is barren and saline. Chotila is one of the land marks in Saurashtra peninsula. The district lies between 22.3° to 23.45° North latitude and 71° to 72.15° East longitudes. Surendranagar district is bounded in North by Gulf of Kutch and Mehsana district on the East by part of Ahmedabad and West by Rajkot district and South by Bhavnagar district.

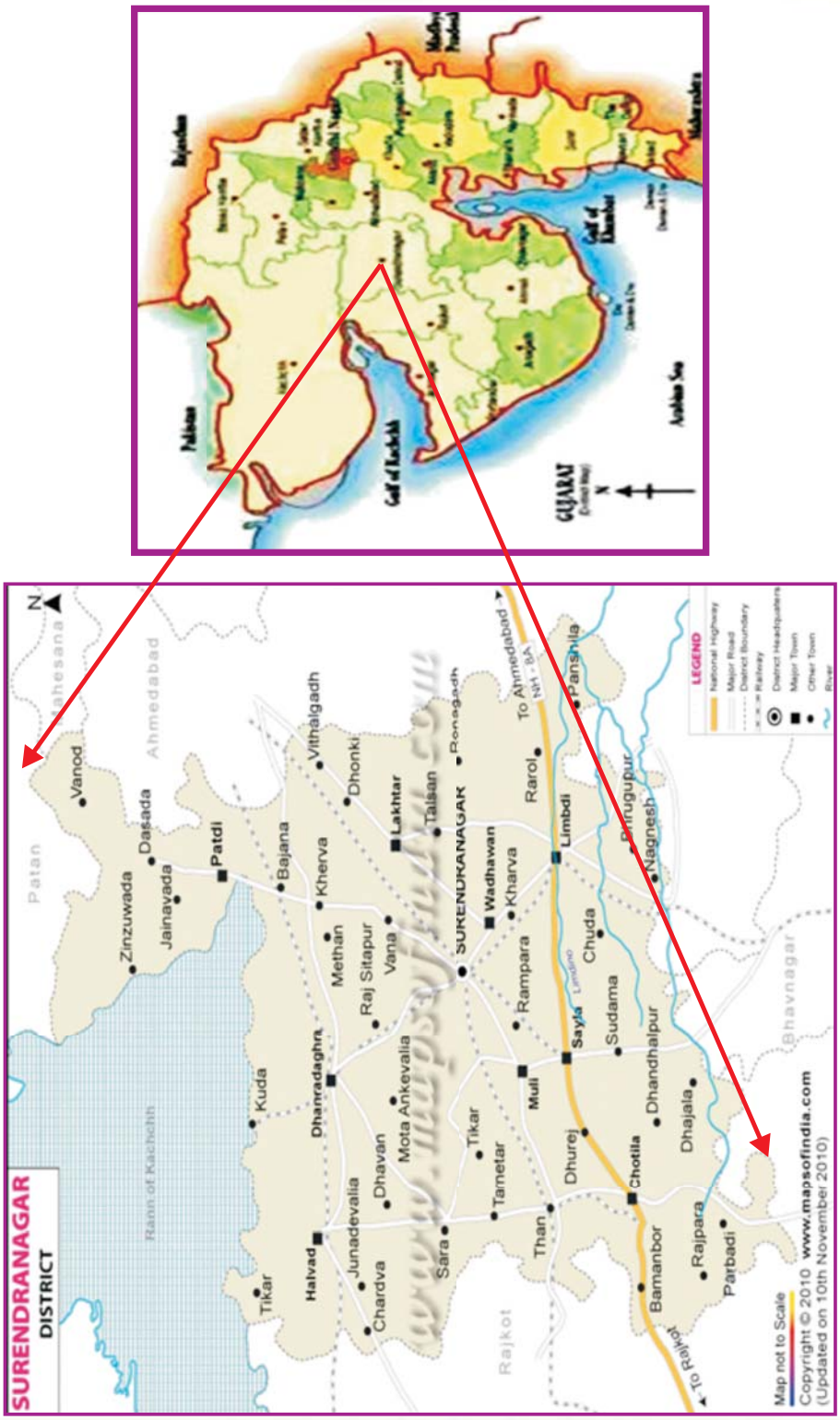


Fig. 2.2.1: Location Map of Surendranagar district

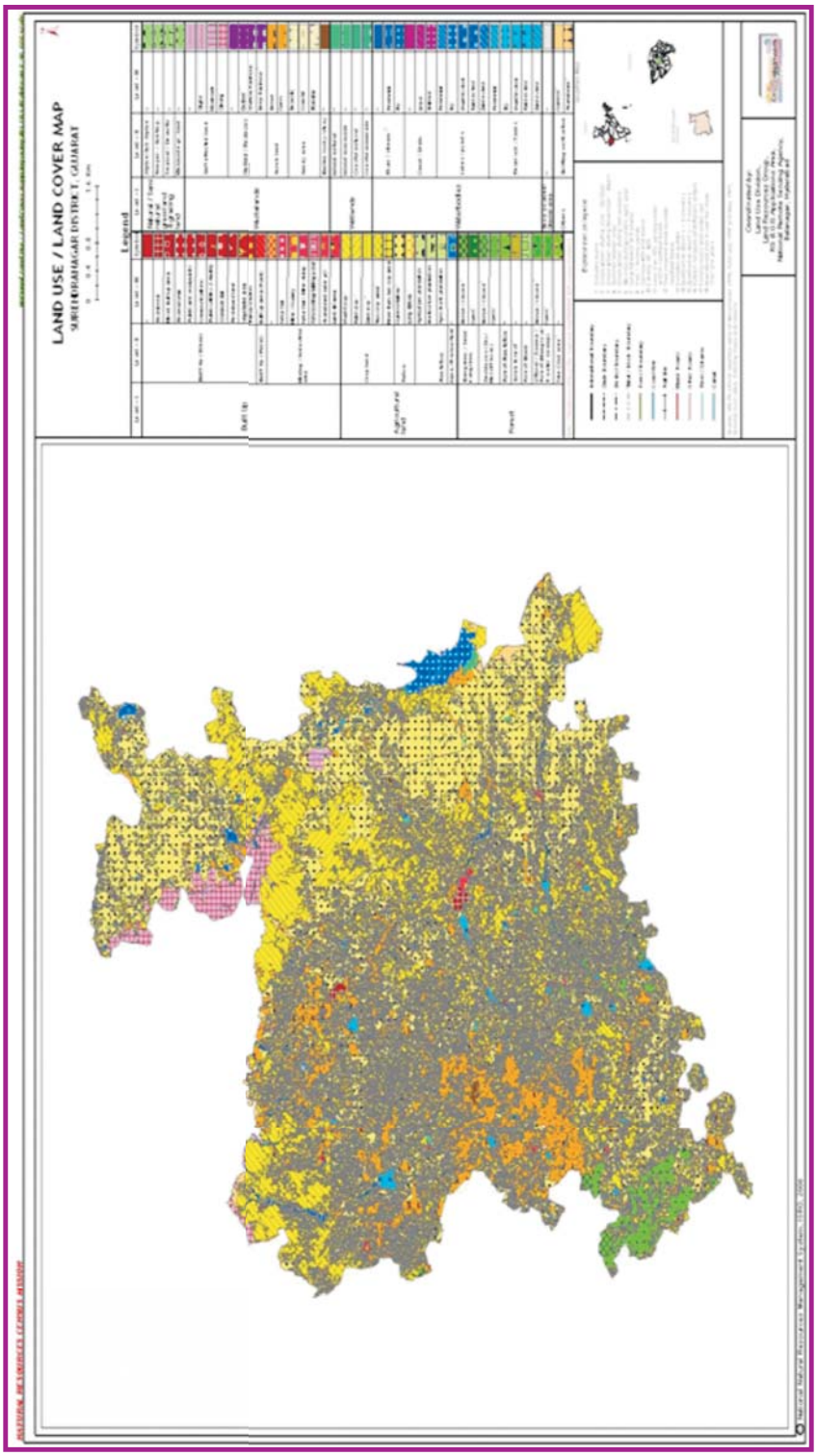


Fig. 2.2.2: Map of Surendranagar district Source: BISAG, Gandhinagar

2.3 Demographic Profile:

The Directorate of Census Operations in Gujarat has released the Census 2001 details of Surendranagar district. Surendranagar had population of 1,515,148 of which male and female were 787,650 and 727,498 respectively. The rural and urban area contributes 1,112,700 and 402,448, respectively. Similarly the population of scheduled caste and scheduled tribe are 199211 and 14338, respectively. The total literacy percentage is only 52.4 per cent, out of which 62.80 % and 41.15 % male and female, respectively. An official census 2011 detail of Surendranagar, a district of Gujarat has been released by directorate of census operations in Gujarat. In 2011, Surendranagar had population of 1,755,873 of which male and female were 910,266 and 845,607 respectively. There was change of 15.89 percent in the population compared to population as per 2001. In the previous census of India 2001, Surendranagar district record increase of 25.34 percent to its population compared to 1991. The initial provisional data suggest a density of 167 in 2011 compared to 144 of 2001. Total area under Surendranagar district is of about 10,489 sq.km. Average literacy rate of Surendranagar in 2011 were 73.19 compared to 61.61 of 2001. If things are looked out at gender wise, male and female literacy were 83.47 and 62.20 respectively. For 2001 census, same figures stood at 74.19 and 48.10 in Surendranagar district. Total literate in Surendranagar district were 1,113,674 of which male and female were 656,290 and 457,384 respectively. With regards to sex ratio in Surendranagar, it stood at 929 per 1000 male compared to 2001 census figure of 924. The general information of the Surendranagar district is shown in Table 2.3.1

Table: 2.3.1: Area, population density, habitat, in habitat villages of Surendranagar district

Sr.	Name of Taluka	Area in Sq.km.	Population Density/ Sq.km.	Total Villages			No. of Gram Panch.
				Habitat	Un-inhabitated	Total	
1	Halwad	1218.18	118.46	67	0	67	68
2	Dhangadhra	1369.78	142.42	63	0	63	64
3	Desada	1630.11	103.75	88	0	88	87
4	Lakhatar	741.77	93.76	43	0	43	42
5	Vadhavan	797.39	396.29	45	0	45	45
6	Muli	935.76	108.54	58	0	58	55
7	Chotila	1058.23	162.94	112	1	113	93
8	Sayala	972.92	103.98	76	0	76	65
9	Chuda	512.78	171.51	38	0	38	38
10	Limbadi	1200.96	131.54	60	3	63	58
		10489	**144.45**	**650**	**4**	**654**	**615**

Source: Taluka Ankadakiya Ruprekha 2010-11, District Panchayat, Surendranagar

Table 2.3.2: Demographic changes in Surendranagar district from 2001 to 2011.

Description	2001	2011
Actual Population	**1515148**	**1755873**
Male	787650	910266
Female	727498	845607
Population Growth	**25.34%**	**15.89%**
Area Sq. km.	10,489	10,489
Density/sq.km	**144**	**167**
Proportion to Gujarat Population	2.99 %	2.91 %

Source: Census 2011 from Website

2.4 Educational Facilities:

There are 989 primary school, 285 Secondary school and 12 colleges in the district which includes one medical , engineering college and one agriculture school at Halvad. Keeping in view the that during XII five year plan, there will be a great boost to agriculture and animal husbandry due to increased irrigation facility by Saurashtra branch canal of Narmada which will cover 4.27 lakh ha area in various blocks of the district except Muli, Chotila and Sayala. Establishment of Agriculture college in Surendranagar district will definitely foster the research as well as educational components on these aspects. The centre will take up priority areas of scientific research to be taken up on five year plan basis. The statistics related to school and educational facilities available in the talukas of the district are furnished in Table 2.4.1.

Table: 2.4.1 Taluka-wise educational facility (nos.)

Taluka	Primary school	Secondary schools	Higher Sec. Schools
Halwad	118	30	1
Dhangadhra	102	40	1
Desada	111	24	0
Lakhatar	49	12	1
Vadhavan	105	90	7
Muli	82	13	0
Chotila	181	23	0
Sayala	116	16	1
Chuda	45	12	0
Limbadi	80	25	1
Total	**989**	**285**	**12**

Source: Taluka Ankadakiya Ruprekha 2010-11, District Panchayat, Surendranagar

2.5 Agricultural and allied sectors:

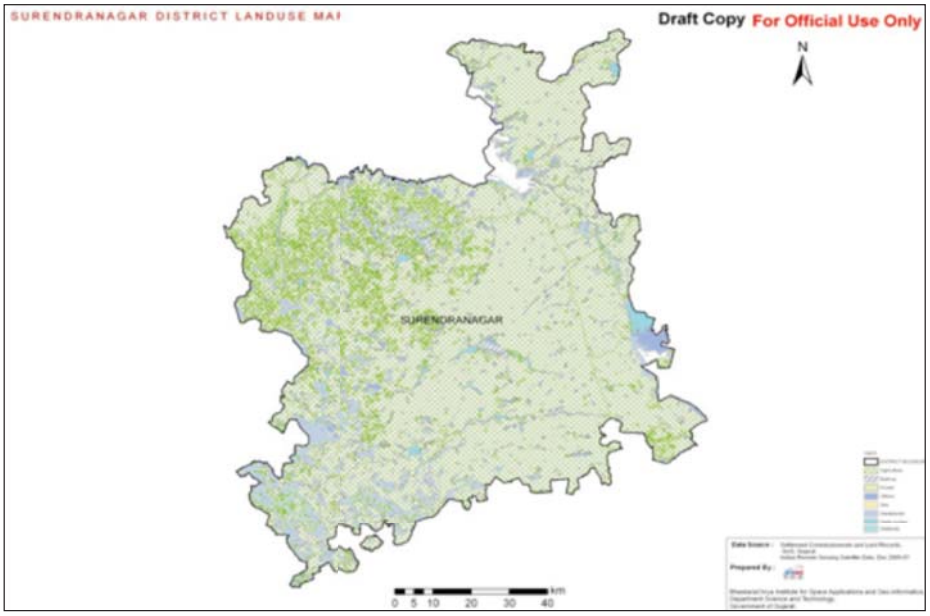
Agriculture sector is the main occupation in the district. The Taluka wise Land Utilisation Statistics is presented in Table 2.5.1; it shows that the gross cropped area is about 70% of the total geographical area of the district. There are total 2,11,000 farmers in the district who have total 7,33,822 ha of land; out of which the marginal farmers are 25,231 with 17,647 ha of land, small farmers are 51,772 with 76,671 ha of land and Semi-med. to large Farmers are 1,29,369 with 632818 ha of land. Based on the productivity, the land of various talukas of the district are categorized. Limbadi Lakhatar, Vadhavan,Muli, Chotila and Sayala talukas are under land class-V.

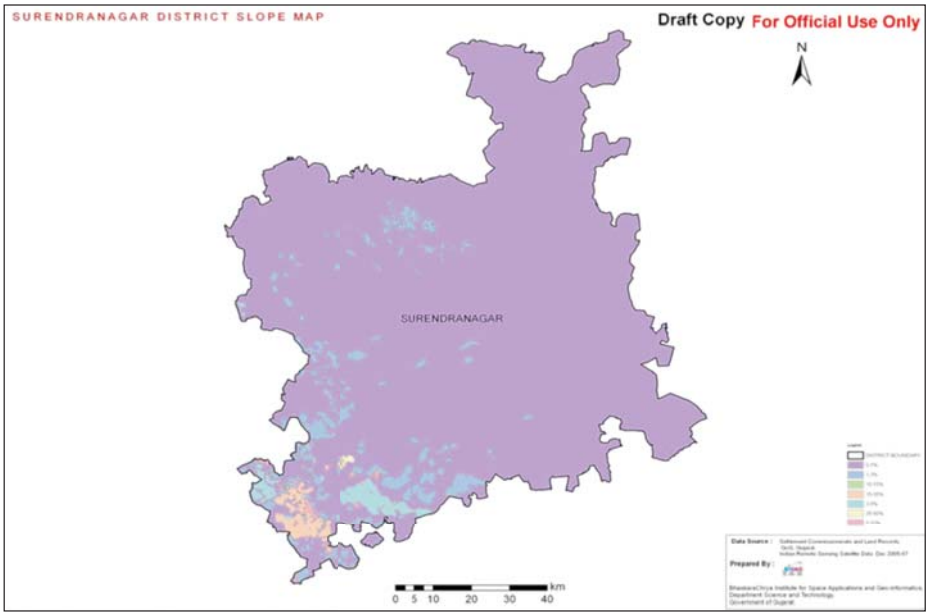
Table 2.5.1: The land use statistics of Surendranagar district (ha)

Taluka	Geographical area ("00 ha)	Forest Area	Net cultivable area	Land Under Non- agril. Use	Cultivable waste	Permanent pastures	Current Fallows	Other Fallows	Gross cropped area	Cropping intensity (%)
Halwad	1232	8288	80379	3833	1446	5037	5139	480	85455	106.3
Dhangadhraa	1369	12779	98120	6975	1015	3483	1082	450	107090	109.1
Desada	1646	8724	101581	8821	2601	6012	19708	430	101581	100.0
Lakhatar	735	883	57276	3233	872	2393	3665	340	57976	101.2
Vadhavan	794	456	62569	5410	266	3393	1454	100	63584	101.6
Muli	936	3470	62468	4553	410	4671	460	110	67001	107.3
Chotila	1058	8344	65092	7718	1836	10320	346	380	72092	110.8
Sayala	973	8696	58871	6953	1710	4439	2198	780	60017	101.9
Chuda	513	699	41700	1200	1832	1090	473	100	42062	100.9
Limbadi	1201	770	76257	5992	3664	5194	10037	240	77257	101.3
Total	10457	53109	704313	54688	15652	46032	44562	3410	734115	104.2

Source: Taluka Ankadakiya Ruprekha 2010-11, District Panchayat, Surendranagar.

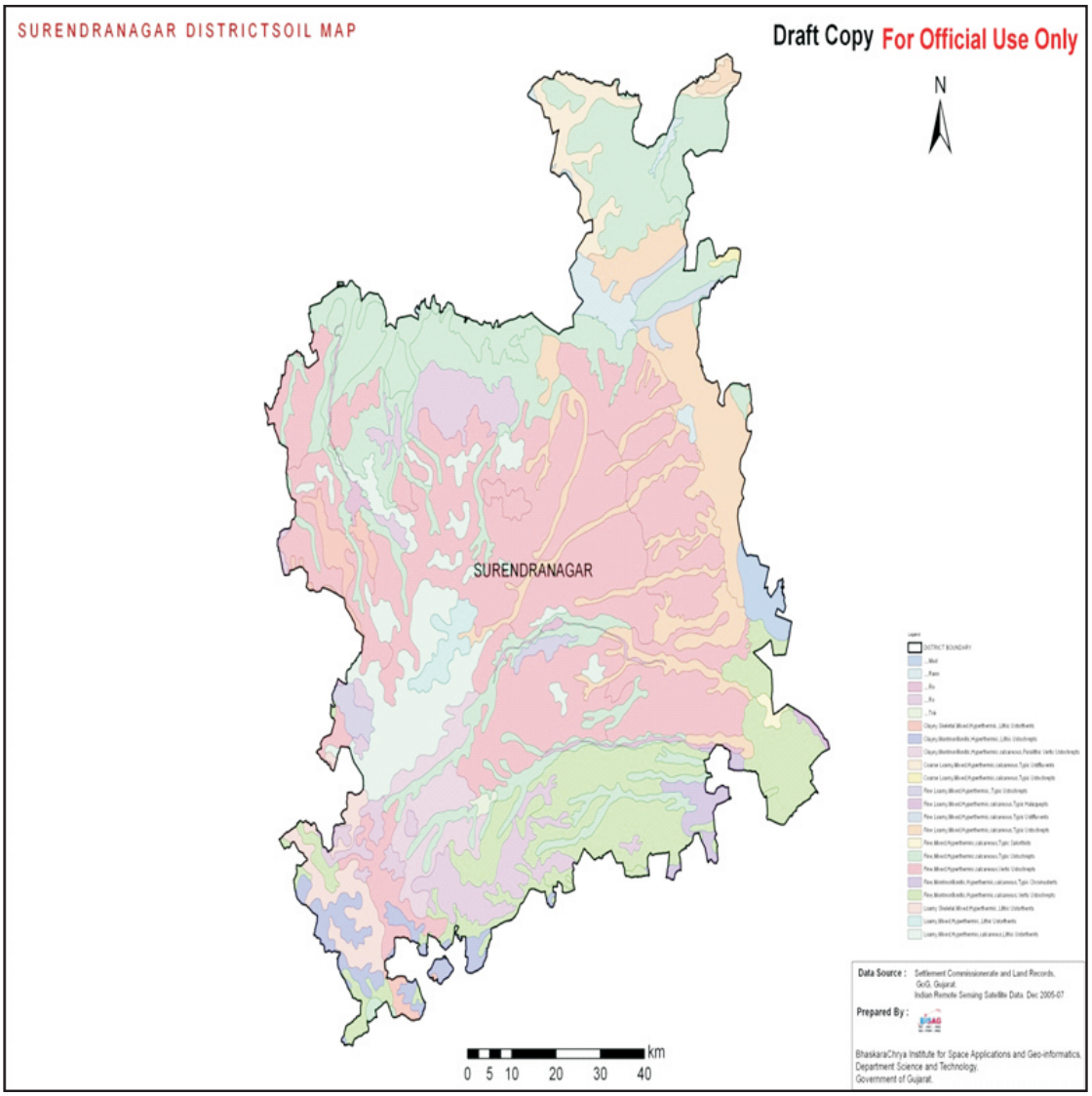
Cotton Cultivation





Source: BIASAG, Gandhinagar

Fig.2.5.1: Land use and slop map of Surendranagar district



Source: BISAG, Gandhinagar

Fig: 2.5.2: Soil map

2.5.1 Agriculture

The Surendranagar district agricultural dominated district. Out of total geographical area of 10,45,700 ha the forest area is 53109 ha, land under non agricultural use 54,688 ha, cultivable waste is 15,652, permanent pasture is 46032 ha, current fallow is 44,562 ha , other fallow is 34,100 ha, net sown area is 7,04,313 ha. The taluka wise land holding is sown in table 2.5.2.

The district has total of 211000 land holders out of which 11786(5.59%) and 1978 (0.94%) are scheduled caste and scheduled tribe, having 4.65% and 0.6% of the total area, respectively. Thirty eight per cent of land holding in the district account for marginal (11.96%) and small (26.73%) farmers having land less than two hectares, whereas 32.64 %, 24.70 % and 3.97 % of land holding are owed by semi-medium (2 to 4 ha.) , medium (4 to 9.99 ha) and large farmers (above 10 ha.) having 26.42 %, 42.85 % and 16.96% of total area, respectively. Halvad block is having maximum 12.7 per cent Marginal and small farmers having land less than two hectares followed by Dhangadhra (12.1%) and Chotila (12%). Minimum 5.4 per cent Marginal and small farmers having land less than two hectares are in Dasada block.

Cotton, cumin, wheat, bajra, sesamum, castor, groundnut, gram, sorghum and pulses are the major field crops grown in the district. The major horticultural crops are mango, lemon and ber. The major vegetable crops are brinjal, okra, onion and chilli. The maldharis, bharwads and some of the members of other communities also depend on raring of cattle, sheep, goats for additional income. Farmers of the district also adopt mixed farming. Apart from this, there is an additional involvement of farmers for processing of groundnut for oil and oil cakes, and cotton for ginning on group cooperative basis. Milk production is the prime and important aspects of the farmers of rural area of the district for sufficient part of earning which is instrument in socio-economic changes. The marginal and small farmers raise dairy animals for increasing their economic gains. The number of indigenous milch cattle is maximum in Chotila block (20107) followed by Dhangadhra (11215) and Sayala (10440). The number of cross breed milch cattle is maximum in Halwad block (257) followed by Chotila(238). The number of milch buffalow is maximum in Chotila block (21935) followed by Dhangadhra (12271) and Halwad (11165).

The district is poor in farm mechanization with little availability of farm machines. The farmers are still using bullock drawn traditional wooden implements and the hand tools used are also traditional. Recently the use of rotavators, combine harvester, low horse power tractor (mini tractors), seed drill and tractor drawn sprayer is increasing. The farmers have adopted micro irrigation system like drip irrigation, sprinkler irrigation etc. to save the scarce water resources. Still there is long gap in development of agricultural engineering in the district.

Table 2.5.2: Land Holdings (Agriculture Census 2005-06)

Taluka	Marginal Farmers (Below 1.0 ha)		Small Farmers (1.0 to 2.0 ha)		Others farmers (More than 2.0 ha)		Total	
	No.	Area	No.	Area	No.	Area	No.	Area
Halavad	3029	2253	6787	10024	15040	72434	25137	85110
Dhangadhra	2910	2049	6374	9504	17333	84102	27389	96765
Dasada	1469	1103	4233	6322	19726	110020	26225	118603
Lakhatar	1123	853	3062	4638	10863	54598	15478	60715
Wadhavan	3094	1939	5888	8629	11756	53175	21056	64192
Muli	2422	1502	4474	6577	10608	52831	17877	61453
Chotila	3355	2399	5881	8586	9784	45699	19336	57136
Sayala	2369	1753	4909	7337	10729	51333	18215	60732
Chuda	2400	1636	4121	6125	7969	34989	14734	43111
Limbadi	3060	2160	6043	8930	15561	73637	25553	86004
Total	25231	17647	51772	76671	129369	632818	211000	733822

2.5.2 Animal Husbandry and Fisheries:

The livestock population of Surendranagar district was 9,64,019 according to census 2007. There is increase in number of cross breed milch cattle from 166 in 2003 to 1137 in 2007. There is increase in number of cattle from 293758 in 2003 to 346861 in 2007 indicating 18.08 per cent increase in population in four years. Similarly buffalo population is also increased from 202939 in 2003 to 290113 in 2007 indicating 42.96 per cent increase in population in four years in the district. There is increase in number of milch buffaloes from 71909 in 2003 to 94872 in 2007. Sheep and Goat rearing is one of the best subsidiary occupations for the area like Sayala, Dhrangadhra and Halwad.

The development of Livestock as an economic activity it is important to focus on intensive management of dairy animals *viz*. cattle (indigenous and crossbreed) and buffaloes in the district. Another area which needs attention is to increase the Poultry and Duck sector on the large scale as the population of the Poultry and Duck is decreased from 5374 during 2003 to 4835 in 2007. With intervention of bigger integrators in the field of poultry small unit does not give much return to farmers. Also due to lack of sufficient infrastructural support for poultry market, the district has not reached to its potential.

The district does not have any sea coast; hence there is no scope for brackish water fishery and Marine Fishery. Inland fisheries or capture aquaculture is possible in ponds, reservoirs and rivers. This activity has not picked up in the district in view of non-availability of infrastructure as well as social bonding. However, there is some scope to establish fresh water fishery activities which include reservoir fish catching and also lease of village ponds for the fishery. No hatchery or feed meal factory is available in the district but same can be availed from Bhuj-Kutch. The district has large number of village ponds which can be converted for such activities. Total number of fisherman is 13151 in the

district including 114 full time and 2572 part time fishermen engaged in fishing activities. A fleet of 464 non-mechanised boats and 17602 fishing nets are at the service of the fishermen, whose catch is registered as 3950 tonnes in 2010-11. There are 2 fish market each in Surendranagar and Dhangadhra. To have fishing in all these ponds the department has recommended suggestive measure which includes deepening of ponds, connected to canal water to maintain the water level-flow of fresh water, repairing of bunds etc.

2.6 Natural Resources:

2.6.1 Soil Type:

Assessment of soil and water resources of Surendranagar district is our prime object. For this purpose, 200 surface (0-15cm) soil samples (20 samples from each taluka) were collected from cultivated field. The soil fertility and micro nutrient status of different taluka were presented in table 2.6.1 and 2.6.2.

Table 2.6.1 Soil Fertility Indices

Sr. No	Taluka	pH	EC (dS/m)	Organic carbon (%)		
				Low	Medium	High
1	Halavad	8.03	1.47	3	11	6
2	Dhangadhra	8.07	2.0	2	4	14
3	Dasada	8.12	1.45	5	10	5
4	Lakhatar	7.87	1.16	13	6	1
5	Wadhavan	8.04	1.58	12	6	2
6	Muli	7.81	1.30	12	7	1
7	Chotila	7.93	1.72	3	9	8
8	Sayala	7.87	1.09	8	10	2
9	Chuda	7.99	1.38	8	8	4
10	Limbadi	7.92	1.76	10	5	5
11	Total	**7.965**	**1.49**	76	76	48

Note: For each taluka, 20 samples were analysed

Soils of Surendranagar District

Continue... (Table 2.6.1)

Sl. No.	Taluka	Available Nitrogen (kg/ha)			Available Phosparus (kg/ha)			Available Potash (kg/ha)		
		Low	Medium	High	Low	Medium	High	Low	Medium	High
1	Halavad	20	0	0	17	2	1	1	8	11
2	Dhangadhra	19	1	0	16	4	0	0	8	12
3	Dasada	20	0	0	16	4	0	0	2	18
4	Lakhatar	20	0	0	18	2	0	0	5	15
5	Wadhavan	20	0	0	17	3	0	0	2	18
6	Muli	20	0	0	19	1	0	10	7	3
7	Chotila	17	3	0	14	5	1	3	4	13
8	Sayala	19	1	0	18	2	0	1	4	15
9	Chuda	19	1	0	10	9	1	0	0	20
10	Limbadi	20	0	0	19	1	0	0	2	18
11	Total	194	6	0	164	33	3	15	42	143

(For each taluka, 20 samples were analysed)

Source: Patel C A "Evolution of Soil Fertility and Underground Water Quality of Surendranagar District of Gujarat", M.Sc. (Agri) Thesis (Unpublished)

Table 2.6.2: Micronutrient Status

Taluka	Copper (Cu)			Iron (Fe)			Sulphur (S)			Zinc (Zn)		
	L	M	H	L	M	H	L	M	H	L	M	H
Halavad	4	2	14	1	6	13	18	2	0	11	4	5
Dhangadhra	3	2	15	0	12	8	19	1	0	14	2	4
Dasada	4	4	12	0	9	11	16	4	0	9	5	6
Lakhatar	4	3	13	0	2	18	19	1	0	10	6	4
Wadhavan	4	2	14	0	0	20	16	4	0	11	5	4
Muli	2	2	16	0	5	15	19	1	0	9	6	5
Chotila	8	7	5	0	6	14	17	3	0	10	3	7
Sayala	3	1	16	0	10	10	18	2	0	11	3	6
Chuda	4	0	16	0	2	18	18	2	0	10	4	6
Limbadi	3	0	17	0	0	20	20	0	0	8	7	5
Total	39	23	138	1	52	147	180	20	0	103	45	52

Note: L- Low, M-Medium, H-High (Total 20 samples were analysed from each taluka)

Source: Patel C A "Evolution of Soil Fertility and Underground Water Quality of Surendranagar District of Gujarat", M.Sc. (Agri) Thesis (Unpublished)

2.6.2 Salinity / Sodicity indices of soils

Out of 200 samples tested (20 from each taluka) 77, 40, 7 and 76 samples were found saline, saline-sodic, sodic and normal, respectively. About 38.5, 20, 3.5 and 38.0 % soil samples are found saline, saline-sodic, sodic and normal, respectively.

Table: 2.6.3 Taluka-wise percentage distribution of soil samples into different categories of salt affected soils

Name of Taluka	Percentage distribution			
	Saline	Saline Sodic	Sodic	Normal
Halvad	60	30	0	10
Dhangadhra	45	30	0	25
Dasada	35	25	5	35
Lakhtar	20	10	5	65
Wadhvan	45	20	0	35
Muli	35	20	5	40
Chotila	40	5	15	40
Sayla	35	15	5	45
Chuda	30	20	0	50
Limbadi	40	25	0	35
Overall	**38.5**	**20**	**3.5**	**38**

Source : Patel C A "Evolution of Soil Fertility and Underground Water Quality of Surendranagar District of Gujarat", M.Sc. (Agri) Thesis (Unpublished)

2.6.3 Agro Climate Characteristics:

Based on important features of Agro-Climatic Zones and other important aspects like edaphic factors (soil texture, structure and depth), climatic factors at micro level (rainfall, temperature variation and relative humidity), source of irrigation, altitude and topography and existing farming system, the entire district is divided into five Agri-Ecological Situation (AES). The average rainfall and rainy days (2004 – 2010) in different talukas are given in Table 2.6.4. Area under various agro-ecological situation of Surendranagar district is given in Table 2.6.5

Table 2.6.4 : Taluka wise Rainfall (mm) of Surendranagar District (2004-2010)

Sr. No.	Taluka	2004	2005	2006	2007	2008	2009	2010	Average mm	Average rainy days
1.	Halvad	494	539	641	985	916	319	685	654	25
2.	Dhangadhra	491	839	763	716	910	314	917	707	29
3.	Dasada	717	996	721	798	303	763	1064	766	28
4.	Lakhtar	561	757	501	837	1263	235	641	685	29
5.	Wadhvan	493	919	733	985	1006	243	921.5	757	34
6.	Muli	595	932	598	875	1002	320	605	704	28
7.	Chotila	632	1113	643	982	1149	440	903	837	32
8.	Sayla	706	1100	621	877	907	377	637	746	30
9.	Chuda	560	1230	516	777	851	188	584	672	25
10.	Limbadi	648	1245	777	1087	1071	286	1252	909	32
Average Rainfall		589.7	967	651.4	891.9	937.8	348.5	820.95	744	**29**

Source: Taluka Ankadakiya Ruprekha 2010-11, District Panchayat, Surendranagar.

Table 2.6.5: Area under various Agro-Ecological Situation of Surendranagar district

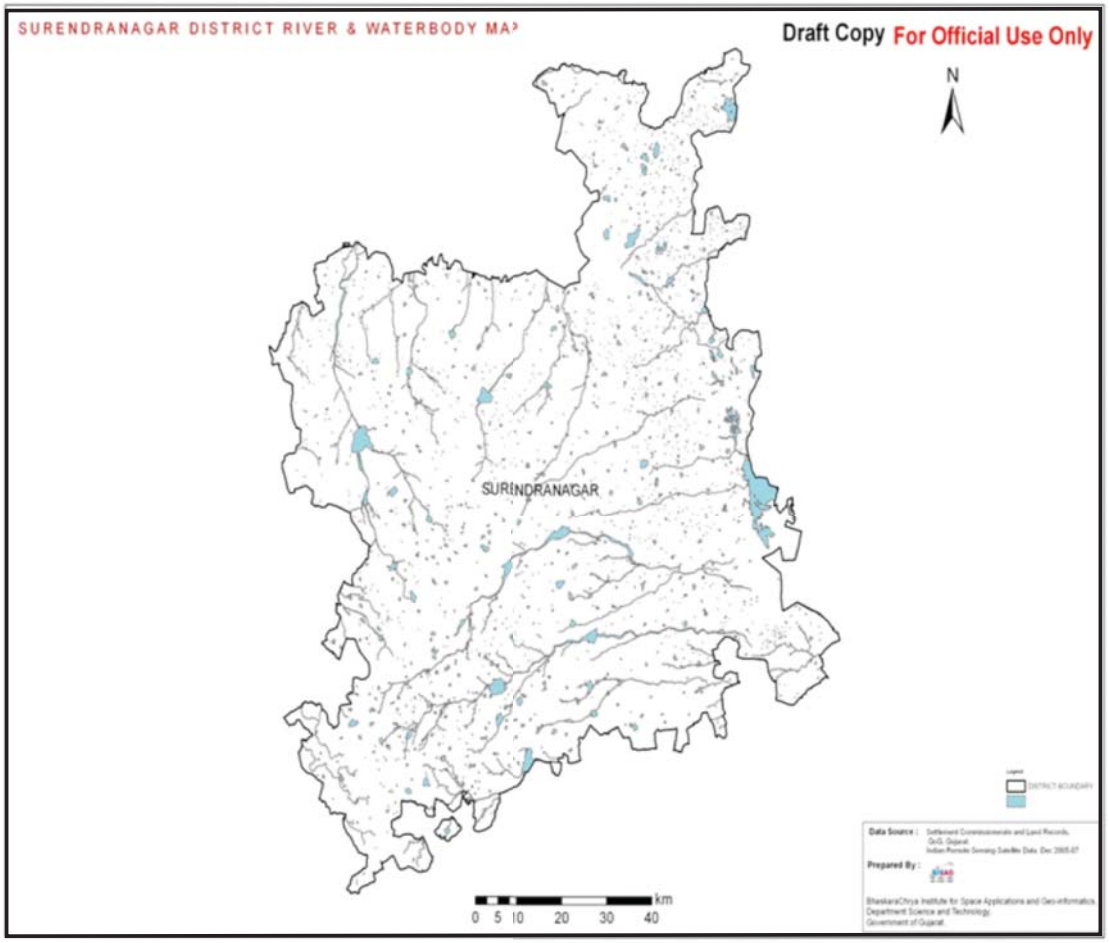
Taluka	Area (00ha)	Special Features	AES	Soil Texture	Rainfall (mm)
Chotila	1058	Medium calcareous, Moderate erosion, Moderate drain, MHC,AMC,CEC	Shallow black	Silty loam	700 -800
Muli	936	Sloppy shallow, Highly erosive, Well drain, MHC,PHC & CEC	Shallow sandy loam	Sandy loam	700 -800
Sayala	973				
Halavad (south)	862.4				
Vadhavan	794	Silty loam, Moderate drainage, High MHC, AMC& CEC	Medium black	Medium Black , Silty loam	700 -800
Limbadi (west part)	420.4				
Chuda	513				
Dhangadhra (south)	821.4				
Limbadi (east part)	780.65	Clay loam, Poor drainage High MHC, AMC &CEC Water- logged, Saline ground water	low lying black	Medium Black , Clay loam	700 -800
Lakhatar	735				
Dasada	658.4				
Halwad (north part)	369.6	Medium deep, Sandy loam, Arid condition, saline, Water logged, Low MHC, AMC &CEC	Saline sandy loam	Sandy loam	700 -800
Dhangadhra (north part)	547.6				
Dasada (north part)	987.6				
Bhal and coastal area*	Part of Limbdi	Salt affected, poor drainage, water logging in monsoon			700 -800

*** Very limited area covered under *bhal* so this situation is not considered**

Source: SREP report, Surendranagar

2.6.4 Water Resources:

The surface and groundwater available in the district is utilised for agriculture, animal husbandry, domestic and industrial uses. The gross groundwater recharge in the district is 545.34 MCM/Year and out of this 95% is available groundwater recharge i.e. about 518.07 MCM/Year as per the GWRE-2002 report. At present about 60% of available groundwater recharge i.e. about 306.2 MCM/Year is gross groundwater draft for all uses including agriculture, animal husbandry, domestic and industrial uses. Overall the district falls under safe category.



Source: BISAG, Gandhinagar

Fig. 2.6.1: River & water bodies map of Surendranagar district

2.6.4.1 Irrigation Facilities:

The important irrigation projects in the districts are Khari and sundari in Halvad, Chandrabhaga, kankavati, satapar in Dhanghadhra, vinod, navarangpara in Dasada, Saraghara and sakar in Lakhatar, Khodiyar in vadhavan, Ranipat in Muli,Gadhechi, bandiyabeli, Mevasa, bamaanbore in Chotila, nanamatra, ori and goraiya in Sayala, Chanchaka in chuda and Mulbavla , ranagadh in Limadi are the major scheme in district. At present overall canal irrigation potential in the district is 7945 ha. Sprinkler and drip irrigation aided by liberal subsidy scheme of the State Government, are gaining acceptance. During 12th five year plan 4.27 lakh ha cultivable command area of the district will be irrigated under Sardar Sarovar Project. Area irrigated by different sources is given in Table 2.6.6.

Table 2.6.6: Area Irrigated by different sources (hectares)

Taluka	Net irrigated area	Net irrigated area (%)	Canal		Pond	Well		Other Sources	Area irrigated more than once
			Length (Km)	Area		Nos.	Area		
Halwad	33910	42.19	124	2500	0	1691	33049	0	1800
Dhangadhra	24693	25.17	16	990	0	1026	31143	0	7550
Desada	3106	3.06	0	0	0	1429	3106	0	0
Lakhatar	1868	3.26	0	0	50	801	1768	100	0
Vadhavan	11617	18.57	23	450	0	2694	10949	0	582
Muli	18707	29.95	22	530	160	3405	22465	0	4288
Chotila	20047	30.80	10	325	156	5374	21422	60	1700
Sayala	14886	25.29	15	2440	500	4910	13007	0	761
Chuda	2476	5.94	6	200	0	2013	2309	100	88
Limbadi	4597	6.03	27	510	300	3715	4203	0	116
Total	**135907**	**19.30**	**243**	**7945**	**1155**	**27058**	**143421**	**260**	**16885**

Source: Taluka Ankadakiya Ruprekha 2010-11, District Panchayat, Surendranagar.

The tube well / bore well is important sources of irrigation. The maximum irrigated area (42.19%) of cultivated area is observed in Halvad taluka followed by Chotila (30.80%) & Muli (29.95%), where as minimum net irrigated area is observed in Dasada (3.06%). There are 107 irrigation projects in the district.

In order to presence a water quality appraisal 164 underground water / tube well water samples (20 samples from each taluka) were collected from the fields from where soil samples collected. Only 13, 13, 7 and 11 water samples are collected from Limbadi, Wadhwan, Lakhtar and Dasada taluka, respectively, due to aridity of these talukas. In general, the water of this district is of alkaline in reaction. The percentage distribution of water samples are given in Table 2.6.7.

Table 2.6.7 Taluka-wise percentage distribution of water samples into different EC

Name of Taluka	EC (dS m^{-1})			
	Permissible C – 1	Moderately Safe C – 2	Moderately unsafe C – 3	Unsafe C – 4
Halvad	00	00	35	65
Dhangadhra	00	00	35	65
Dasada	00	00	00	100
Lakhtar	00	00	14.3	85.7
Wadhvan	00	00	15.4	84.6
Muli	00	15	50	35
Chotila	00	05	65	30
Sayla	00	15	50	35
Chuda	00	55	00	45
Limbadi	00	00	7.7	92.3
Overall	00	11	31.1	57.9

Source : Patel C A "Evolution of Soil Fertility and Underground Water Quality of Surendranagar District of Gujarat", M.Sc. (Agri) Thesis (Unpublished)

2.7 Natural calamities:

The information on natural calamities in the district is as below.

Flood September-2008: Flood water has created havoc in surrounding villages of the district.

Heavy Rain-June 2010: 2 Rain related deaths were reported

2.8 Infrastructure:

2.8.1 Railways:

There is 214 km railway track connecting Surendranagar with other important railway station, like Ahmedabad, Rajkot and Bhuj. The sayala taluka is not connect with the railway service.

2.8.2 Road:

The district has 2453 km road connecting various villages. The total length of the road is 2453 km under Panchayat Road & building department consisting 2329 pacca road and 124 kaccha road. All the villages are connected by the state transport bus services. As against the total network of the road in the district State highway is 834.98 km and other rural roads are 2645.12 km.

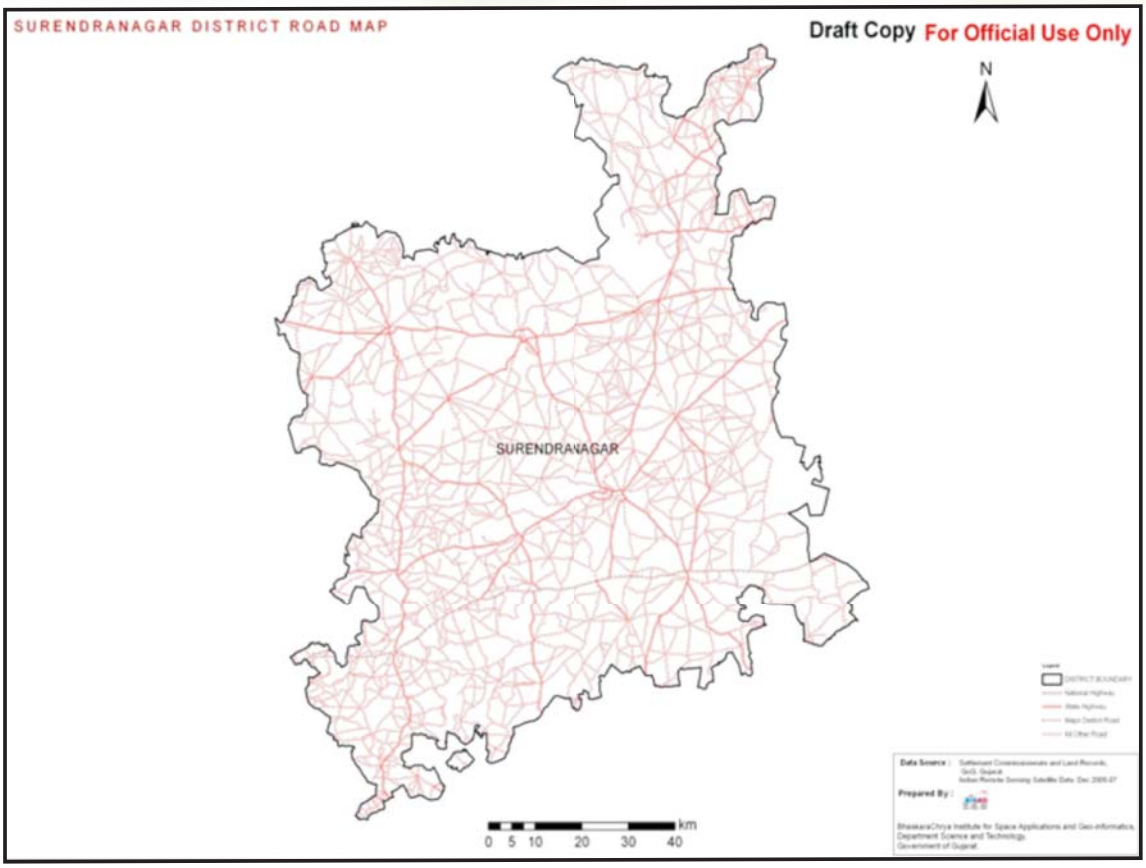


Fig. 2.8.1 Surendranagar district Road map

2.8.3 Post and telegraph facilities:

There are 293 post and sub post offices covering 310 villages in the district. There is no telegraph office in the district.

2.8.4 Airport:

There is no airport situated in the district. The nearest airport is Ahmedabad.

2.8.5 Milk procurement & Marketing facilities:

The chilling centers of Surendranagar Dairy at Wadhwan, Patadi, Halvad and Dhrangadhra have started functioning again. Now, Surendranagar dairy receives 100% milk to its procuring capacity of 3.50 lakh litres. District Co-op. Milk Producers' Union has started procurement of milk from 120 active milk societies and on average 13500 litres of milk per day is sent to Mother Dairy, Gandhinagar without processing. The capacity of chilling center of District Co-op. Milk Union at GDDC, Wadhwan is 20000 litres. Future plan of the union envisages selling milk locally in pouches. Milk Production (kg) and Number of milk cooperatives are given in Table 2.6.8.

Table: 2.8.1 Milk Production (kg) and Number of milk cooperatives

Sr. No	Taluka	Number of milk cooperatives	No of members	Milk Production (kg)
1	Halwad	73	8000	12688909
2	Dhangadhra	74	10049	14099781
3	Dasada	82	9693	11751300
4	Lakhatar	42	3931	5577031
5	Vadhavan	55	4743	9025939
6	Muli	60	5410	9261725
7	Chotila	111	8280	15775675
8	Sayala	73	6589	13027340
9	Chuda	35	2750	6294129
10	Limbadi	58	4539	8210694
Total		663	63984	105712523

Source: Taluka Ankadakiya Ruprekha 2010-11, District Panchayat, Surendranagar.

2.8.6: Power:

Out of 7 towns and 650 inhabitant villages in the district all villages and towns have been electrified officially. There is no any village remained to be electrified of the district.

2.8.7 Industries:

The district has been declared as industrially backward area by the Govt. of India. Industries set up in the district are, therefore, eligible for many incentives. As on 31-12-2011, there are 8723 SSI units having investment of Rs. 22510 lakhs providing employment to 104676 persons. There are also 33 large scale industries established in the district. There are 23890 cottage/House-hold industries as on 31/12/2011 comprising handlooms, cotton, spinning, leather works, carpentry, village pottery etc. There are 341 Industrial Co. op. Societies as on 31/12/2010. GIDC has also set up 8 industrial Estates. The Handloom/Khadi and village industry is also one of the major activities aimed at providing employment to thousands of people in the district, There were 372 Handloom weavers Co-op. societies producing varieties of products such as Bharwadi Pachhedi, Kangaliya, cotlen-pan design of Bed-sheets, towels Khadi terry cottons, woollen carpets etc. However, 20% of Handloom weavers have been brought under co-op. sector. There is wide scope for various activities under KVIC fold Necessary arrangements for training, project formulation & appraisal and marketing are made by the NABARD/ Government and banks.

2.8.8 Marketing and APMCs:

Remunerative price for agricultural produce is an essential incentive for sustaining agricultural production. Agricultural Produce Marketing Committees (APMCs) have been constituted at taluka level under Agricultural Produce Marketing Act, 1963.

There are nine APMCs (Agriculture Produce Marketing Committees) and eleven Rural Mandi/ Haats in the district. There is no office of the nodal agency i.e. Gujarat State Marketing Board for development of market yards in the district. Functioning of market yards is fragmented without any uniform approach. Govt. may help APMCs to prepare project reports and avail loans for development of market yards. There should be plan for revival of activities as well as plan for remedial action for financial sickness being suffered by some of the market yards. The grading and other post harvest handling may be developed at each yard.

2.9 Bank Net Work and Co-Operatives:

2.9.1 Bank Network:

At the end of Dec' 2011, there are 85 bank branches of 15 commercial banks in the district. Out of which 50 Branches are located in rural areas. State Bank of India, being the Lead Bank of the district, has a network of 41 branches. The Saurashtra Gramin Bank, sponsored by State Bank of India, has 31 branches in the district as at the end of Dec'2011. There are 6 private sector banks in the district. The district has 125 bank branches cater to the credit requirement for crop loans. The banking service has Rs.288033 lakhs as reserve fund for credit support to the farmers. Till March, 2011, banks has dispersed Rs. 128454 lakhs loan to the cultivators.

2.9.2 Co-Operatives:

Marketing societies have been registered in the district handling sale of fertilisers, seeds, insecticides, cement, pesticides, sprayers, dusters, other agricultural equipment's etc. Also 289 fertiliser stores of co-operative societies have been established in the district as on 30/09/2010. The district has a total of 1539 co-operatives for 17 kinds of sectors, among them dairy co-operatives run by Sursagar Dairy, Surendranagar is fairy in good numbers (667 dairy cooperatives) followed by primary agricultural credit societies (372), Industrial co-op. Societies (462), joint farming societies(41) and Labour cooperatives (153). Strengthening of various o-operative is one of the best ways for developing agriculture and related sectors. Co-operative societies functioning in the district are given in Table 2.9.1

Table 2.9.1. Co-operative societies functioning in the district

Types of society	Halwad	Dhangadhra	Dasada	Lakhtar	Vadhavan	Muli	chotila	Sayala	Chuda	Limbadi	Total
Middle cooperative bank	0	0	0	0	1	0	0	0	0	0	1
Primary agricultural credit	39	39	50	30	25	29	23	27	12	25	299
Urban bank	0	1	1	0	0	0	0	0	0	1	3
Govt. employees credit	4	8	6	3	33	1	6	1	3	2	67
Marketing society	1	0	1	0	2	1	0	0	0	0	5
Transformed society	5	4	9	9	17	3	2	2	0	3	54
Milk cooperative society	73	74	82	42	56	60	111	75	38	56	667
Live stock society	6	2	6	0	2	0	7	0	2	1	26
Cooperative society	7	2	11	3	2	3	1	3	2	8	42
Fish industry society	0	1	1	3	0	2	0	0	0	14	21
District Consumer society	0	3	2	0	10	1	0	0	1	1	18
Builders societies	0	18	3	0	99	0	8	1	1	7	137
Labour societies	12	20	15	12	28	7	19	18	6	16	153
Irrigation societies	10	0	10	1	7	2	2	2	0	2	36
Transport society	0	0	2	0	0	0	1	2	0	1	6
Tree plantation	0	0	1	1	1	0	0	0	0	0	3
District cooperative union	0	0	0	0	1	0	0	0	0	0	1
Total	**157**	**172**	**200**	**104**	**284**	**109**	**180**	**131**	**65**	**137**	**153**

Group of FIG's

CHAPTER III

SWOT ANALYSIS

3.1 Introduction

SWOT analysis is a strategic planning method used to evaluate the Strengths, Weaknesses, Opportunities, and Threats involved in a project or in a business venture. Analysis of SWOT is a basic and straight forward tool that gives direction and serves as a basis for the development of an enterprise or organization. It accomplishes this by assessing an enterprise or organization Strengths (what it can do) and Weaknesses (what it cannot do) in addition to Opportunities (potential favorable conditions for it) and Threats (potential unfavorable conditions for it). The role of SWOT analysis is to take the information from the concerned agencies and separate it into internal issues (strengths and weaknesses) and external issues (opportunities and threats). In applying the SWOT analysis in agriculture, it is necessary to minimize both weaknesses and threats. Weaknesses should be looked at in order to convert them into strengths. Likewise, threats should be converted into opportunities. The strengths and opportunities should be matched to optimize the potential production. Applying SWOT in this fashion can generate income for the farmers in sustainable manner.

3.2 SWOT analysis of the Surendranagar District (With focus separately on the Agricultural and Allied Sectors)

3.2.1 Strength:

Surendranagar the head-quarters of Surendranagar district, is well connected by rail and bus routes to major towns of the states like Rajkot, Ahmedabad, Vadodara, Surat and Gandhinagar. There is a good network of the roads within the district and its towns & villages. The major strengths of the district are:

- Majority of geographical land area (69.16%) is under cultivation.
- The average rainfall is good between 654-909 mm (based on last 5 years). About 88% of the cultivated area is covered in kharif season. Among them 69% is covered by cotton.
- Abundance of solar and wind energy round the year
- Traditional farming
- Potash content is high.
- Bore well and open well is the major source of irrigation for about 90% of irrigated area.
- During 12th Five year Plan , 4.27 lakh hectares area will be irrigated through Sardar Sarovar Project.
- Large number of land holders is having more than 2 ha land.
- Major Talukas have their own APMC except Chuda and their marketing yards.
- Productivity of the groundnut is highest in the Halwad *taluka* because of medium texture.
- Improved breed of Zalawadi & Gohilwadi goat is available which can be reared by stall feeding and give good milk production.

3.2.2 Weaknesses:

- Out of 723239 ha of cultivable area, 135907 ha (19.3%) is irrigated and remaining area (80.7%) is rainfed.
- Hilly and undulating land holdings in some talukas.
- 76 soil samples out of 200 are having low organic carbon.
- Wide spread deficiency of Sulphur was found in the district (90 soil samples out of 100)
- Out of 10 taluka, Limbadi, Lakhatar and Dasada is having 3054.54 ha, 2203.71ha and 4683.3 ha under salt affected area, respectively s.
- The soil in some talukas is having poor drainage condition.
- Nitrogen (194 out of 200 soil samples) and Phosphorous (164 out of 200 soil samples) content of soil is low.
- The percentage distribution of water samples in different EC classes a.i. C-1 (permissible), C-2 (Moderately safe), C-3 (Moderately unsafe) and C-4 (unsafe) were 0, 10.98, 31.10 and 57.93 % respectively
- Cropping intensity is only 104.2 per cent.
- Only 2 soil testing laboratories are in the district.
- Training facility for farmers is not proper.
- Improper management of farm crop residue and poor adoption level of FYM.
- Critical technological gaps in specific area of crop like seed treatment, balanced use of fertilizers and insect pest and disease management in major crops.
- Less area under vegetables, floriculture and horticulture.
- Inadequate processing and cold chain facilities for horticultural produces.
- Low availability of inputs and quality planting material in time.
- Non- availability of sufficient labours at time of harvesting especially of cotton.
- Livestock with poor genetic makeup.
- Higher incidence of reproductive problems in animals *viz*. anoestrus, repeat breeding, long calving interval, higher age at first calving, long service period
- Lack of scientific knowledge/management about animal husbandry.
- Low availability of quality fodder throughout the year.
- Lack of soil and water management practices.
- High rate of soil erosion in some of the talukas.
- Poor infrastructure facilities like farm approach roads, rural godowns *etc.*
- Lack of awareness about credit utilization facilities by financial institutions.
- High weed problem.
- Apathy towards poultry and inland fisheries.
- Lack of awareness about Govt. schemes at grass root level.

3.2.3 Opportunities:

The specific opportunities for the district are:

- To raise the energy use at farm from present level of 1 kWh/ha to 3 kWh/ha through increasing the farm mechanization.
- Improve water use efficiency from 60% to 90% through micro irrigation system (MIS) along with mulching and productivity enhancement of more than 30%.
- Protected cultivation in green house and shed net (low cost) for off season vegetable cultivation.
- Export quality of wheat and sesame.
- Value added products from agriculture waste. fruit processing industries.
- Pack houses for vegetables and establishment of vegetables markets.
- Scope for dairy enterprises.
- Scope for export of processed value added products.
- Utilization of non conventional energy sources solar in agriculture.
- Biomass and agricultural wastes utilization through Gobar gas and Gasifires.
- Scope for hydroponic in green houses for raising nursery in salt affected soils.
- Improving salt affected soil through green manuring.
- Growing *triticum dicocum* wheat which is good for the diabetic and hyper tension patients.

3.2.4 Threats:

- Deforestation
- Introduction of chemicals
- Soil erosion
- Scanty of water for irrigation
- Deterioration in quality of irrigation water.
- Increasing area under problematic soil due to application of poor quality water.
- Indiscriminate breeding practices (use of non- descript, poor graded bulls used for natural matting)
- Low/ shrinking pasture land
- Allowing animals for grazing

3.2.5 Reasons for backwardness and issues impeding growth:

The major obstacles affecting the progress and productivity of different crops and enterprises of the district as identified by participatory approach are listed hereunder.

General problems:

- Undulating lands and soil erosion in some talukas
- Erratic rainfall distribution in monsoon
- Weed problem
- Poor farm mechanization
- Non availability of farm labour
- Poor infrastructure and marketing facility

3.3 SWOT Analysis of farming situation of major crops or commodities and the research and extension gaps emerged and the strategies to bridge the gaps

On the basis of primary and secondary information collected by the team members from representative Talukas, SWOT analysis was carried out with respect to existing farming systems. The details of SWOT analysis are given in table.

Table 3.3.1 Farming System: Agriculture

Crop : Cotton (B.T.)	AES : I to V
Strength	**Weakness**
a. Cotton is highly remunerative cash crop as it restrict plant protection against ball warm b. Higher production of B.T. cotton c. Knowledge of cultivation of the crop d. Organic cotton	a. Lack of B.T. variety from JAU and Govt. institution b. Limited irrigation facilities c. Less risk bearing ability d. Higher skill and Knowledge are required e. Required higher cost of inputs
Opportunities	**Threats**
a. Very congenial atmosphere for this crop b. One of the best cash crop for higher income c. Providing huge quantity of cotton stalk for fuel and energy d. Intercropping is one of the important agriculture practices for minimizing the risk	a. Longer duration crop, it required soil moisture for the longer time b. Irregular rain restrict the crop growth and yield c. Problems of sucking pests d. Fluctuating in market price
Crop : Cotton (Rainfed)	AES : I to V
Strength	**Weakness**
a. Harbaceum cotton is best suited under all AES b. Minimum problem of pests c. Comparatively remunerative for the poor and middle income group of farmer e. Less requirement of inputs	a. Irregular rain restrict the yield and income b. Longer duration c. Lower productivity d. Short staple length
Opportunities	**Threats**
a. Congenial atmosphere for this crop b. One of the best cash crop for higher income under this situation c. Intercropping is one of the important agriculture practices for minimizing the risk d. Cotton stalk can be used for composting for manure	a. Longer duration crop, it required soil moisture for the longer time b. Lower price c. Fluctuating in market price d. Harvesting / picking is difficult and it is more laborious

Crop : Groundnut	AES : I to V
Strength	**Weakness**
a. Groundnut is one of the best suited oil seed crop for *kharif* and *summer* crop b. Congenial atmosphere of soil & climate c. Knowledge of cultivation of the crop d. Grow under limited irrigation facilities e. Groundnut is more suitable crop for intercropping system for minimize the risk of aberrant weather. f. Provide fodder	a. Lack of drought tolerant, early maturing, high yielding variety b. Adoption of traditional practices / varieties c. Limited irrigation facility restrict the yield d. Less risk bearing ability e. High incidence of stem rot
Opportunities	**Threats**
a. Provides high income and provides oil b. Groundnut is well suitable in the crop sequence i.e. groundnut - wheat c. Improve the soil health in legume cereal sequence	a. Erratic and uncertainty of rain restrict the yield b. Fluctuating in market price d. Pest, disease and weed problem affect the soil health

Crop : Wheat	AES : I to V
Strength	**Weakness**
a. Wheat is one of the best crops for rabi season b. Congenial atmosphere of soil & climate c. Knowledge of cultivation of the crop e. Grow under saline soil f. Grow under limited irrigation facilities	a. Lack of early maturity, high yielding variety b. Adopting traditional practices/ varieties c. Limited irrigation facility restrict the yield d. Less risk bearing ability
Opportunities	**Threats**
a. Provides early income and provides food to the people b. Wheat suit very well in the crop sequence i.e. groundnut - wheat c. Improve the soil health in legume cereal sequence d. Quality of wheat grain is comparatively higher than the fully irrigated wheat	a. Lack of adequate knowledge about scientific cultivation b. Static market price c. Weed problem

Crop : Cumin	AES : I to V
Strength	**Weakness**
a. Climate is most favorable for quality production **b.** Highly remunerative spice crop within short period **c.** High yield potential **d.** Grow under saline soil **e.** Low cost of cultivation	**a.** Lack of disease resistance, high yielding variety **b.** Risky crop under aberrant weather condition
Opportunities	**Threats**
a. Well suited in any dry farming cropping sequence **b.** Cumin suit very well in the crop sequence i.e. bajra/jowar-cumin **c.** High yield in row sowing method	**a.** Lack of adequate knowledge of efficient use of water **b.** Static market price **c.** Weed problem
Cropping sequence : Groundnut + Wheat	
Strength	**Weakness**
a. Groundnut–Wheat is the best cropping sequence in all AES. **b.** Congenial atmosphere of soil and climate for this sequence. **c.** Traditional knowledge of cultivation of these crops. **d.** Wheat yield potentiality / day is very high.	**a.** Limited irrigation facility restrict the yield **b.** Traditional practices are followed. **c.** Fluctuating in market price may affect the sustainability. **d.** Labour intensive harvesting, labour problem during peak seasons.
Opportunities	**Threats**
a. Groundnut–Wheat is the best Legume-cereal sequence which provides better soil health condition. **b.** Very good quality of Groundnut kernels and Wheat grains under this situation.	**a.** Erratic and uncertainty of rain restricts the yield. **b.** Fluctuating in market price may affect the sustainability. **c.** Pest and diseases especially in groundnut that affects the soil health and ultimately the entire sequence.

Table 3.3.2 Farming system : Agriculture + Animal Husbandry AES : I to V

Strength	Weakness
a. Experience in management of animal husbandry and dairy **b.** Knowledge of agricultural farming and feed, fodder to cattle **c.** Higher remunerative farming system as compared to only agriculture / animal husbandry **d.** Farmer family background well suits to this farming system **e.** Co-operative activities certainly encourage this system **g.** Constantly provides income to the farmer	**a.** Low market price **b.** No availability of pure breeds of cows and buffaloes **c.** Negligence toward the maintenance of cattle **d.** Risk bearing ability is low **e.** Not well established of milk dairy
Opportunities	**Threats**
a. Availability of pure breed of cows (Gir cow) and buffaloes (Jafarabadi) **b.** These two milch animals are very famous for higher milk production **c.** Risk is minimizing under this farming system **d.** Finance can easily available from banks **e.** All member of family can be involved **f.** Minimize the rural unemployment	**a.** Veterinary facilities may be limited **b.** Pure breed of these animals can difficult to get easily **c.** Disease infective **d.** Market facilities for dispersed of milk **e.** Availability of sufficient water during the entire year may be difficult under arid and semi-arid climate, where rain is the limiting factor

Table 3.3.3 Farming system : Animal husbandry

Strength	Weakness
a. Animal husbandry is the only source of supplementary income to the farmers. **b.** The cooperative milk societies are started their functioning. **c.** Establishment of chilling centre help in storage of milk **d.** Good network of milk collection centre. **e.** Goat keeping is important source of supplementary income to the small farmers. **f.** Hilly & undulating topography and waste land is better suited for goat rearing. **g.** Improved breed of Zalawadi & Gohilwadi goat is available which can be reared by stall feeding and give good milk production	**a.** More than 90% livestock owners are sending their animals for grazing. **b.** Large number of animals with low production capacity and health problems **c.** Poor housing and health management **d.** Lack of scientific calf rearing **e.** Poor green fodder availability in *Rabi* and summer in rain fed area **f.** Poor supplementation of mineral mixture and balanced ration (cattle feed) **g.** Problem of sexual health: anoestrus, repeat breeding, metritis, cervicitis, *etc* **h.** Higher age at first calving, longer calving interval and service period.
Table 3.3.3 Farming system : Animal husbandry	
Opportunities	**Threats**
a. Ample scope for breed improvement. **b.** The milk production can be increased substantially through better health and feed management. **c.** The strengthening of milk producers' cooperatives may provide good marketing facilities. **d.** Pasture development programs should be encouraged	**a.** Most of the geographical area is cultivated and rest is under forest, there is very limited area under pasture and there is very limited scope for bring area under pasture development. **b.** Increasing milk production through breed improvement is a very long process. **c.** Reducing large numbers of low yielding animals is also a bigger threat.

3.4 Sectoral / Regional Growth Drivers of the District

3.4.1 Agriculture:

- The economy of Surendranagar is mainly based on agriculture. Increasing area under hybrids/ high yielding varieties in cotton, castor, sesame, cumin and improved variety in wheat.
- Seed treatment and enhancing seed replacement rate.
- Resource conservation technologies for sustaining and improving the productivity levels.
- Groundwater recharge and increasing water use efficiency using MIS.
- Demonstration and capacity building of field functionary and farmers for implementation of IPM, INM and IWM.
- Training the farmers, traders, and other stakeholders on micro irrigation, protected cultivation, grading, post harvest technologies, soil reclamation, value addition and market intelligence.
- Establishment of rural godown.
- Formation of commodity groups for groundnut, cotton and wheat crops; as well as for cattle breeding.
- Encouraging contract farming and increasing cropping intensity through mechanization.
- Increasing in the use of Trichodarma for management of soil born diseases in groundnut.
- Manufacturing and repairing units of agriculture equipments/ implements and agricultural machine parts.

3.4.2 Soil Health:

- Prevention of degradation of soil fertility using biomass available from livestock, crop & farm.
- Reclamation of salinity and sodicity.

3.4.3 Horticulture:

- Increasing area under fruits and vegetable crops by providing improved planting material.
- Implementation of IPM and INM.
- Demonstrations and trainings including farmers and field officials.
- Hightech green house for floriculture development.
- Hydroponic nursery raising in soil affected area.
- Export oriented unit for cotton and sesame crops.
- Harvesting and post harvesting techniques for fruit crops.
- Improvement in the processing and transportation technologies.

3.4.4 Forestry:

- Increasing area under forests through plantation in community lands.
- Increasing area under agro-forestry and plantation on farm bunds for wind breaks.
- Demonstrations and trainings including farmers and field officials
- Fodder and pasture land development.

3.4.5 Animal Husbandry:

- Breed improvement through community bulls and A.I. centers.
- Balanced feed and mineral mixture feeding.
- Demonstration and capacity building of field functionary and farmers.
- Animal feed industry.
- Improvement in the fodder availability.
- Modernization of cattle rearing.

3.4.6 Fisheries:

- Renovation of village/town ponds for fisheries and making availability of good quality fish seed (Rearing unit/hatcheries)
- Capacity building of fish farmers and field functionary.

Pomagranate

Coconut

CHAPTER IV

DEVELOPMENT OF AGRICULTURE SECTOR

4.1: Introduction

In this chapter, issues relating to utilization of natural resources available in the district and input management for the development of agriculture sector are discussed. The district is covered under Nouth Saurashtra Agro-Climatic Zone. The soil topography, resource availability is varying in all the 10 talukas of the district. There is tremendous potentiality for increasing growth of the district by diversifying the farming system, in favour of vegetables and fruits and efficient management of inputs. The chapter covers the development of agriculture and agricultural engineering sector.

4.2: Land Use

In this District, total geographical area is 10.46 lakh ha out of which net sown area is 67.35% (7.04 lakh ha) and 0.53 lakh ha of land is covered by forest. The fallow and degraded lands which are present in the district to the extent of 15.72 per cent of the total geographical area have to be reclaimed so that the net sown area in the district will be increased.

4.3: Soil type and Soil Health Management:

Halwad block is having 70 % area under shallow sandy loam which is good for groundnut cultivation. The soil of Chotila block is shallow black due to undulating topography. These soils are well suited for shallow rooted as well as low water requirement crops. In Dasada block majority of the soil is saline sandy loam followed by low lying black due to which the productivity of crop like cotton is very low. 65%, 100% and 40% soils of Limbadi. Lakhatar and Dasada blocks respectively are low lying with poor drainage condition having low productivity. Also 40%, 30% and 60% soils of Dhangadhra, Halwad and Dasada blocks respectively are problematic and need greater attention for their use. Major soils(common names) of the district is given in Table 4.3.1.

Table 4.3.1: Major soils (common names) of different Talukas of Surendranagar district

Taluka	Type of Soil	Area ("00 Ha.)	Percentage
Halwad	Shallow sandy loam	862	70
	Saline sandy loam	370	30
Dhangadhra	Medium black	822	60
	Saline sandy loam	547	40
Desada	Saline sandy loam	987	60
	Low lying black	658.4	40
Lakhatar	Low lying black	735	100
Vadhavan	Medium black	794	100
Muli	Shallow sandy loam	936	100
Chotila	Shallow black	1058	100
Sayala	Shallow sandy loam	973	100
Chuda	Medium black	513	100
Limbadi	Low lying black	780	65
	Medium black	421	35

Available nitrogen and phosphorous status for the district was low. Wide spread deficiency of Sulphur was found in the district (90 soil samples out of 100). The available Zn status of the district was low to medium. In general, the soils of the district are low to medium in O.C. status. Application of nutrients based on soil testing, use of bio-fertilizers, crop residue management, use of organic fertilizers, green manuring in irrigated area, use of zinc based fertilizer or gypsum and crop rotation will help in restoration of soil health.

4.4 Water Resources

Out of 7, 04,313 hectares of net cultivable area of the district, net irrigated area is 1, 35,907 hectares (19.3%) among different sources of irrigation. The remaining area (80.7%) is rainfed. The major sources are ground water (1,43,421 ha.) followed by canals (7,945 ha) and other sources (260 ha.). As per ground water survey carried out by Gujarat State Ground Water Resources Development Corporation (GWRDC) and taking into account subsequent ground water development through institutional resources, talukas viz. Chotila, Halvad, Muli & Sayla are in safe category, Dhangadhra, Wadhavan and Chuda are in semi-critical category and Dasada, Lakhtar and Limbadi are in saline category. Overall the district falls under safe category.

The district is receiving fairly good amount of mean rainfall (654-909 mm) but due to lack of adoption of water harvesting practices and topography of land, limited area is under irrigation. The scarcity of irrigation water is major hurdle in the growth of agriculture. The major scope for the development of agriculture in irrigated area is by increasing gross sown area and by adopting micro irrigation system particularly in horticultural, spices and vegetable crops. The area under drip and sprinkler irrigation is 13206 ha and 5981 ha, respectively in the district. There are 5991 drip sets and 2404 sprinkler sets. Only 2.72 % area of cultivable area is under MIS in the district. During 2010-11, 1915 farmers have installed the drip and sprinkler sets covering an area of 4442.56 hectares (Table 4.4.1).

Table 4.4.1: Information on drip and sprinkler system installed during 2010-11

Taluka	No. of farmers	Area (ha.)
Halwad	485	1081.3
Dhangadhra	301	740.42
Desada	112	449.00
Lakhatar	90	29.48
Vadhavan	519	1040.38
Muli	268	640.35
Chotila	37	65.40
Sayala	170	239.59
Chuda	37	63.80
Limbadi	30	93.11
Total	1915	4442.56

The Sardar Sarovar Project was first conceived in the late 1940s by India's first Prime Minister, Jawaharlal Nehru, but the project did not begin to become a reality until 1979. The goal of the project is to create irrigation facilities to surendranagar district covering an area of 4.27 lakh hacters. The network of the canal system is under progress and it will be completed during 12th Five year plan. So this aspect is considered by planning District agriculture plan. Specific extension activities are also proposed on these important aspects in the plan.

Table 4.4.2: Cultivable Command Area of Sardar Sarovar Project in Surendranagar

Sr.No	Taluka	C.C.A (ha)
1	Halwad	48150
2	Dhangadhra	151661
3	Desada	72559
4	Lakhatar	41828
5	Vadhavan	26685
6	Chuda	21297
7	Limbadi	64725
	Total	426905

4.5 Land reclamation in the district

Soil and water being the two basic factors of agricultural production need to be conserved well and used carefully to ensure sustained level of production and productivity. The poor land management practices have led to a situation of rapid soil fertility deterioration, soil loss, declining / stagnating crop yields, depletion of water sources, deforestation, destruction of natural pasture and diminishing bio mass production, resulting in degradation of land and its productive capacity. Land development includes various activities like land leveling, bunding, terracing, water management, dry land farming, construction and use of Water Harvesting Tanks (WHTs), watershed management, land reclamation and compost / vermi composting. Land development is essential to improve the fertility of the soil and to increase the production and productivity. Surendranagar district faces the problem of water erosion, moisture stress, salinity & alkalinity. Surendranagar district has 9941.35 ha. under salt affected area i.e. saline/alkali soils.

Table 4.5.1: Salt affected area

Taluka	Salt affected area (ha)	Area treated (ha) up to 2011-12	Balance Area to be treated (ha)
Desada	7683.3	3000	4683.30
Lakhatar	7203.71	5000	2203.71
Limbadi	3054.34	-	3054.34
Total	17941.35	8000	9941.35

Source: BISAG, Gandhinagar

There is a need for development activities like land leveling, bunding/soil conservation, water management etc. in the district. More than 75% area of the district is dependent on rainfed farming. On farm development through watershed basis and dry land farming assumes importance for the district.

4.6 Major crops and varieties in the district

The major field crops cultivated in kharif season are cotton, groundnut, pulses, bajra, castor, and sesame. Wheat, gram, cumin and vegetables are the important rabi crops of the area. There is need to evaluate and monitor the performance of released varieties and hybrids of field crops and vegetables. The measures to bridge the gaps in productivity have been suggested. Common varieties of major crops grown in Surendranagar district are given Table 4.5.1.

Table 4.6.1: Major crops and their varieties cultivated in district

S. No.	Major crops	Varieties
	Groundnut	Bunch variety GG-2, GG-7, TAG-37A, TPG-41 Semi spreading variety GG-20, Spreading Variety GAUG-10, GG-11, GG-13
	Cotton	Bt. Cotton hybrids
	Cotton desi/Hybrid	V-797,G-Cot 13,21
	Wheat	Lok-1, GW-496, GW-366
	Bajra (Pearl Millet)	GHB-558, GHB-538
	Gram	Gujarat Gram -1, Gujarat Gram - 2, Gujarat Gram - 3
	Green gram	Guj. Mug-4, K-851
	Black gram	Guj. Urd-1, T-9
	Sesame	GT-2, GT-3, GT-10
	Castor	GAU-CH-1, GCH-6, GCH-7
	Sorghum	GFS-4. GFS-5, Gundhari, S-1049 (Fodder)
	Onion	Junagadh Local (Pilipatti), Gujarat White Onion-1, AFLR, AFDR
	Tomato	G.Tomato-1, Junagadh Tomato-3, Junagadh Ruby, Pvt. Hybrids.
	Brinjal	GBL-1, GBGR-1, GJB-2, GJB-3, Pvt. Hybrids.
	Okra	GO-2, GO-3, Parbhani Kranti, Pvt. Hybrids.
	Isabgul	Gujarat Isabgul-1, Gujarat Isabgul-2
	Fenugreek	Gujarat Methi-2
	Cumin	GC-4
	Mango	Kesar
	Sapota(Chiku)	Kalipatti, Cricket ball
	Lemon	Kagji Lime
	Ber	Umran, Gola, Seb, Mehrun
	Papaya	Madhu Bindu, Taiwan-786

4.7 Cropping pattern

Major Cropping sequences in vogue in the district are given below:

Groundnut - Wheat

Cotton – Fallow

Sesame - Gram

Sesame - Cumin

Sesame - Wheat

Pulses - Bajari

Castor – Sorghum

Groundnut – Cumin

Bajari – Vegetables

Castor – Bajari

4.8 Input Management

Besides improved seeds, the integrated nutrient, weed and pest management is essential to accelerate agricultural growth. At present, a gap exists between the actual productivity and the attainable /achievable / potential productivity of the crops grown in the district. The proper and timely management of following inputs for crops is essential to fill this gap.

4.8.1 Quality seed

Quality seed is the most critical input in crop production. The government agencies are trying their level best for assured supply of quality seeds through state seed program, mega seed project and university seed program. For high yielding varieties like cotton and bajra, the seed replacement ratio (SRR) should be 100% and for major crop groundnut and wheat, it is 15% and 35% respectively. Series of steps have been suggested in this plan to overcome the situation.

4.8.2 Fertilizers

Next to irrigation, fertilizer is second most important input for the cultivation of high yielding varieties. The timely availability of fertilizer is a major constrain. The reason is not the short supply, due to poor economic condition of farmers the farmers rush to purchase at time of sowing. Further, the co-operative structure is very weak in the district. If it is being strengthened and purchase of the fertilizers is done well in advance, the problem can be solved. Due to mono cropping system of growing cotton continuously in same field led to deficiencies in micronutrients like Zn and Fe. Therefore, location specific integrated nutrient management, use of bio-fertilizers, FYM, green manuring and vermi-composting is required to be popularized for wider adoption.

There are 718 fertilizer sale points in the district (Table 4.7.1). Maximum sale points are private. The maximum sale points are in Dhanghdhra (122), followed by Wadhvan (121), Halvad (111). Limbadi taluka is having 10.83 % of total cultivated area of the district, but the number of sale points in this taluka is 49.

Table 4.8.1 Taluka wise fertilizer Sale point as on 31-3-2012

No.	Talukas	Private	Co-operative	GSFC	GNFC	GAIC -Self	GAIC-ASC/ABC	Other Fedre	Total
1	Chuda	13	7	0	0	0	01	2	23
2	Dhagdhra	70	34	1	1	0	10	6	122
3	Muli	39	20	0	0	0	09	0	68
4	Limbadi	23	16	1	0	0	06	3	49
5	Wadhavan	71	33	1	1	1	11	3	121
6	Lakhatar	26	25	0	0	0	06	3	60
7	Sayala	33	08	1	0	0	02	0	44
8	Halawad	64	34	1	1	0	08	3	111
9	Chotila	52	12	1	0	0	04	2	71
10	Desada	19	21	0	0	0	04	5	49
Total		**410**	**210**	**6**	**3**	**1**	**61**	**27**	**718**

Source: Deputy Director FTC, Surendranagar

The data on consumption of fertilizers in Surendranagar district clearly shows that fertilizer consumption (Table 4.7.2) is following decreasing trend since kharif 2007, whereas in rabi decreasing trend was obtained after 2008. It may be due to non availability of chemical fertilizers. The increase in consumption in 12-32-16, 10-26-26, CAN and A/S is observed during 2010 and that of DAP during rabi 2009.

Table 4.8.2 Fertilizer consumption in the district:

Fertilizer		Year wise consumption of Fertilizer (tonnes)								
		Kharif					Rabi			
		K-06	K-07	K-08	K-09	K-10	R-06	R-07	R-08	R-09
UREA		40134	54532	54968	49763	43953	32804	45075	49661	43310
DAP		18960	21855	25619	26563	20784	11702	21167	18792	19441
Complex	20-20-0	5208	6408	3272	3482	2084	2843	4197	3918	3833
	12-32-16	1829	3666	1055	188	1178	1178	776	118	369
	10-26-26	0	0	643	146	210	0	0	0	131
	15-15-15	0	0	0	371	642	0	0	196	226
MOP		980	1327	1618	2471	1132	723	245	1839	3787
CAN		888	569	520	699	703	550	604	530	972
A/S		1691	1018	191	847	1543	567	441	274	295
SSP		602	520	338	57	914	782	88	1151	216
Total		70292	89895	88224	84587	73143	51149	72593	76479	72580

Source: Deputy Director FTC, Surendranagar

4.8.3 Plant protection chemicals

The crop diseases, insect pests and weeds are other major problems in realizing optimum yield for all the crops in the district. The improper management of these control measures often results into increased cost of cultivation without much benefit in yield. In Bt cotton, Jassids and other sucking pests including mealy bugs are major threat. Farmers are mainly depending on chemical control method with higher doses of chemicals. In vegetables, the farmers are depending mainly on chemical control with higher doses of chemicals. Hence, integrated measures for control of insect/pests, diseases and weeds, which required to be adopted for sustainability and profitability of crops are suggested. Amongst the plant protection chemicals, the major proportion is contributed by insecticides. Fungicide consumption is the lowest. The total pesticide consumption of the district in the year 2008 was 162 MT. Planning of plant protection chemical requirements during XII Five year plan is given in Table 4.7.3.

Table 4.8.3: Planning of plant protection chemical requirements (MT)

Taluka	No of outlets	Quantity of Pesticide (MT)	2012-13	2013-14	2014-15	2015-16	2016-17
Chuda	10	05	4.9	4.8	4.7	4.6	4.5
Dhagdhra	15	20	19.6	19.2	18.8	18.4	18.1
Muli	18	18	17.6	17.3	16.9	16.6	16.3
Limbadi	25	30	29.4	28.8	28.2	27.7	27.1
Wadhavan	40	28	27.4	26.9	26.4	25.8	25.3
Lakhatar	20	05	4.9	4.8	4.7	4.6	4.5
Sayala	15	10	9.8	9.6	9.4	9.2	9.0
Halawad	15	15	14.7	14.4	14.1	13.8	13.6
Chotila	25	21	20.6	20.2	19.8	19.4	19.0
Desada	10	10	9.8	9.6	9.4	9.2	9.0
Total	193	162	158.8	155.6	152.5	149.4	146.4

Source: SREP report-2008, Surendranagar

4.9 Integrated Weed Management (IWM)

Weed is a major problem in the rainfed farming situation. If continuous rain exists for several days, the farmers are unable to remove weed with help of human labour. Further, shortage of labours and high wages of labour makes weeding costlier. It is also observed that farmers are using poor spraying techniques thereby low efficiency of applied herbicides is achieved. Hence, it is proposed to train farmers by organizing trainings on spraying techniques and integrated weed management techniques as proposed in this chapter.

4.10 Existing Institutional Mechanism

The present institutional mechanism in Government sector is centralized in nature with Top-down approach. This approach focuses on individual commodities / enterprises rather than on a holistic / integrated approach. The involvement of stakeholders is rather restricted in this ad-hoc mechanism where farmers are considered as receivers of benefits rather than as responsible persons who can influence the productions process. The public extension system is supply driven rather than demand driven.

The institutional mechanism and conceptual frame work of Government sector extension is being gradually transformed under the aegis of Agricultural Technology Management Agency (ATMA) in the district. The impact of this transformation is yet to be seen in the actual working of different Government departments and others involved in it.

Krishi Vigyan Kendra is one of the important institution in the district, which involved in transfer of technology related to agriculture and related occupations. At present Surendranagar KVK is under Junagadh Agriculture University at Nana kandhasar.

4.10.1 Krishi Vigyan Kendra

The following area the objectives and activities of KVK:

- Conducting the "On farm testing" for identifying technologies in terms of location specific sustainable land use systems.
- Organize training to update the extension personnel with emerging advances in agricultural research on regular basis.
- Organize short and long term vocational training courses in agriculture and allied vocations for the farmers and rural youth with emphasis on "Learning by doing" for higher production and generating self employment.
- Organize the front line demonstration on various crops for generating production data and feedback information.

KVK should work as Knowledge power centre for the district

4.11 Special projects / programmes on going in the district

State as well as central sponsored schemes in the district are for the farmers of weaker sections i.e., small, marginal and backward farmers. The schemes are composed of component like adding of organic manures and bio-fertilizers, seed supply, pesticides and its appliances, distribution of improved implements, creation of irrigation facilities, harvesting etc,. are included to help individual farmers at subsidize rates. The efficacy of these schemes is limited to certain groups of farmers. There is lacking of benefit to the other big farmers. So, there is a need to introduce schemes for the large farmers comprehensively. The details of ongoing schemes are listed below:

Groundnut

Sesame

ON-GOING SCHEMES IN THE DISTRICT-2011-12 Name of the department : Agriculture (DAO)				
No	**Name of Scheme/Component**	**Financial Provision Rs. In Lakhs**	**Expenditure Rs.In Lakhs**	**Activities**
1	2	3	4	5
1	AGR-2 IPM	134.26	154.21	Biofertilizer,IPM, Tarpoline, Pipeline, pumpsets, storage bin,
2	AGR-3 (TASP)	0.38	0.38	Input kits, equipment,
3	AGR-4 (SCSP)	193.44	193.44	Input kits , Bio fertilizer, IPM, Tarpoline, Pipeline, pumpsets, storage bin
4	AGR-5 (Cotton)	54.91	51.83	FFS, Bioagent, certified seed, feromen trap
5	AGR-6 (Oil Seed)	164.74	155.18	Weedicide, Gypsum, Micronutrient, Training
6	AGR-9	62.30	60.89	Package of practice, FFS, Gypsum, Seed distribution, Tractor,
7	AGR-10	92.4	92.4	Krushi Kits
8	AGR 50	382.20	387.30	Tractor
9	NFSM	129.82	94.68	Gypsum, seed drill, rotavator, FFS, IPM
10	R.K.V.Y			
	Farm Mechanization	595.13	615.79	Rotavator, Pumpset, Thresher
	Livelihood Improvement of Agril Labour	0.00	0.00	Housing Structure
	Improvement of Productivity of Paddy, Bajra, Mung & Maize	28.75	28.75	Enhancement of productivity in Bajra, Mung
	Rainfed Area Development Programme	160.80	70.21	Value addition , INM
	Accelerated Fodder Dev Programme	4.67	4.56	Fodder kits
	Total	2003.80	1909.62	

Cont.

Name of the department : Horticulture (DOH)				
No	**Name of Scheme/Component**	**Financial Provision Rs. In Lakhs**	**Expenditure Rs.In Lakhs**	**Activities**
1	Training	0.12	0.10	Horticultural Training
2	HRT-1 Directorate of Horticulture	19.42	19.25	official
3	HRT-2,Fruits Nurseries	243.12	242.96	Fruits Nurseries, processing unit, pipeline, shibir
4	HRT-4, Sub plan Horticulture Scheme for S.C. Farmers	45.87	45.86	Sub plan Horticulture Scheme for S.C. Farmers
5	HRT-5, Establishment of Kitchen Garden and canning centre	1.60	1.44	Establishment of Kitchen Garden and canning centre
6	HRT-7, Flower culture subsidy scheme	3.69	3.59	Flower culture subsidy scheme
7	AGR-43, RKVY open category	89.65	89.65	Seed, nursery, IPM,INM, FFS,FLDs
8	RKVY for SC Farmers	1.39	1.39	Seed, nursery, IPM,INM, FFS,FLDs
	Total	404.86	404.24	
ATMA				
1	Developing SREP	0	0	Developing SREP
2	Training	11.08	11.08	Training inter- State, within- State, within dist.
3	Demonstration	20.75	20.75	Demonstration, Farmer to Farmer technology dessimination
4	Exposure Visit	7.29	7.29	Exposure Visit- inter- State, within- State, within dist
5	Mobilization of farmer Group	2.50	2.50	Mobilization of farmer Group
6	Rewards & Incentives	3.50	3.50	Rewards & Incentives
7	Farmers awards block level	0	0	Farmers awards block level
8	District level Exhibition, Krushi Mela	2.00	2.00	District level Exhibition, Krushi Mela
9	Printed leaflets etc.	2.00	2.00	Printed leaflets etc.
10	e-technology packages	0	0	e-technology packages
11	Farmers Scientist Interaction	0.40	0.40	Farmers Scientist Interaction

Cont.

No	Name of Scheme/Component	Financial Provision Rs.Lakhs	Expenditure Rs.In Lakhs	Activities
12	Organizing Of Field day	2.25	2.25	Organizing Of Field day
13	Assessment refinement and validation technology	0	0	Assessment refinement and validation technology
14	Recuuring cuntigency	5.90	5.90	TA,DA,POL etc.
15	Farm Information Advisory centre	0	0	Farm Information Advisory centre
16	Farm School	16.71	16.71	Farm School
17	Support for District level Training Institute	5.00	5.00	Support for District level Training Institute
	Total	79.37	79.37	
Name of the department : Animal Husbandary				
1	ANH-1	0	2.29	
2	ANH-2	69.57	60.79	Veternarary dispensary, Animal health camp
3	ANH-5	10.26	7.85	AI,Infertility camps
4	ANH-8	4.00	4.00	Health package for milk animals of SC,Subsidy for Milchunit
5	ANH-9	8.91	8.71	Integrated fodder and Gauchar Development (SC),Fodder mini kits'Chaff cutter,Cattle shed etc.
6	ANH-12	3.00	3.00	Subsidy for Goat in ScC and open category
7	ANH-14	3.0	1.79	
8	ANH-15	0.80	0.83	Horse breeding
9	DSM-1	2.40	2.17	Cattle insurance for SC, health package general
Total		101.94	91.43	
Name of the department : Fisheries				
1	FSH-2 : (101/02) Fish seed production	5.72	5.72	Rearing, storage, boat, net, cage pan, other inputs
2	FSH-2 : (800/1) Special project	6.81	6.79	Purchase of fish seeds, storage, sell, boat/net, training etc.
3	FSH-4 : (101/6) Development of fisherman	7.20	7.2	Pond improvement, rearing of fish, training
4	FSH-10 : Training to staff	0.88	0.77	Training to staff members
Total		20.61	20.41	

Cont.

Name of the department : District Rural Development Agency				
Sr. No.	**Activity**	**Fund allotment (Rs.Lakh)**	**Expenditure incurred (Rs.Lakh)**	**No. of beneficiaries covered**
1	Swarn Jayanti Gram Swarozgar Yojana (S.G.S.Y.)	145.47	123.40	722
2	Indira Awaas Yojana (IAY) (New Awaas)	975.80	921.65	2801
3	Indira Awaas Yojana (IAY) (Up-gradation)	14.70	26.88	204
4	National Rural Employment Guarantee Act. (N.R.E.G.A.)	913.16	110.06	7433
5	Total Sanitation Components Yojana (T.S.C.)	214.15	138.67	53731
6	Gokul Gram Yojana (G.G.Y.)	109.40	110.40	25 villages
7	Sakhi Mandal Yojana	140.72	67.43	Sakhi Mandal

4.12: Constraint Analysis

The reasons for the yield gaps are identified and the requisite interventions are planned using participatory processes involving stakeholders. The major constraints leading to yield gaps are limited irrigation facility, poor economic condition of the farmers, use of poor quality of irrigation water, use of inferior quality seeds of local varieties, lack of knowledge regarding scientific cultivation of crops. Lack of proper management of water and non adoption of water saving system like drip irrigation is not possible. Another important issue is the post harvest processing and the marketing of the produce. Availability of seeds and other inputs in time is also one of the important constraints in the district. The poor farm mechanization even with the small farm implements is also important constraint for higher cost of cultivation. The analysis of sustainability issues and reasons for gaps in the productivity of major crops grown in the district are presented in following pages.

4.12.1 Constraints in Agricultural Progress

The major obstacles affecting the progress and productivity of the district, as identified by participatory approach are listed here under:

- Undulating fragmented land in some blocks of the district.
- Irrigation facility is for 19.3% area, remaining is rainfed farming.
- Ground water which is the major source of irrigation is of poor quality (moderate to saline water).
- Inadequate availability of quality seeds in time.
- Soil is low in organic carbon (157.5kg N ha-1) and phosphorus(18.62 5kg P ha-1)
- Cropping intensity is low (104.2%).
- Rainfed area is 80.7% and suffers with weed problem.
- Post harvest losses are 20 to 30% due to poor management and marketing.

Sustainability issues and gap analysis of productivity of different crops and resources are presented in Table 4.12.1. Bridging the gaps for realizing the vision- agriculture sector is presented in Table 4.12.2. Taluka-wise yield gap analysis of major crops of the district is given in the Table. 4.12.3.

Table 4.12.1: Sustainability issues and gap analysis of productivity of different crops and resources

Sr. No	Factors/ Constraints leading to gap	Strategies	Approach and methodology	Performance indicators/ outputs
1.	**Cotton**			
a.	Imbalance use of fertilizer due to lack of knowledge	To popularize the integrated nutrient management practices	Creating awareness and adoption of INM through demonstrations, training, shibir, literature etc.	Improvement in soil health and 9-12% productivity enhancement
b.	Weed problem due to lack of knowledge about scientific weed management	To popularize Integrated weed management	Creating awareness and adoption of INM through demonstrations, training, shibir, literature etc.	Reduction in weed menace and 10-15% increase in productivity
c	Insect pest problem due to lack of knowledge of insect and their management options	Integrated Pest management	Creating awareness and adoption of INM through demonstrations, training, shibir, literature etc.	Management of insect pests leads to 5-7% increased yield
d	Reddening of cotton due to micronutrient deficiency	Spraying of potassium nitrate and other micronutrients	Creating awareness and adoption of INM through demonstrations, training, shibir, literature etc	10-15% increase in productivity
e	Non availability of quality seed in time	Establishment of seed selling counters by Gujarat State seed certification Agency at taluka level or strengthening co-operative structures	Creating awareness for quality seeds and establishment of seed selling counters	Timely sowing of quality seeds leads to 3-5% increased yield
2.	**Groundnut**			
a.	Imbalance use of fertilizer due to lack of knowledge	To popularize the integrated nutrient management practices	Creating awareness and adoption of INM through demonstrations, training, etc.	Improvement in soil health and 8 - 10% productivity enhancement

Sr. No	Factors/ Constraints leading to gap	Strategies	Approach and methodology	Performance indicators/ outputs
b.	Weed problem due to lack of knowledge about scientific weed management	To popularize Integrated weed management	Creating awareness and adoption of IWM through demonstrations, training, shibir, literature etc.	Reduction in weed menace, labour saving, 15- 20% increase in productivity
c.	Non availability of improved varieties of seeds	Establishment of seed selling centres	Creating awareness for quality seeds	Timely sowing of quality seeds leads to 10-12% increased yield
3.	**Gram**			
a.	Use of inferior quality seeds of local variety due to lack of awareness Low SRR	Increase seed replacement ratio and quality seed production through seed village. Create awareness for proper storage of seeds	Create awareness about the importance of improved variety as worthiness of variety through demonstration. Supplying seeds as mini kits. Innovate the progressive farmers for seed production at village level	Increased area under improved variety and leads to 5-7% increased yield
b.	Less adoption of seed treatment due to lack of awareness and non-availability of seed treatment material leading to wilt problem	Popularize the importance of seed treatment with fungicides/ bio-pesticides for managing wilt diseases	Educating and motivating farmers about importance of seed treatment and adoption through demonstrations, training, shibirs and field days,	Reduction in seed borne diseases and leads to 10-15% increased yield
4.	**Sorghum**			
a.	Use of inferior quality seeds of local variety due to lack of awareness	Increase seed replacement ratio and quality seed production through seed village. Create awareness for proper storage of seeds	Create awareness about the importance of improved variety through demonstration. Supplying seeds as mini kits. Innovate the progressive farmers for seed production at village level	Increased area under improved variety
5.	**Green gram**			
	Problem of viral diseases due to use of susceptible local seeds, poor management practices	Popularize tolerant varieties of green gram and management practices	Creating awareness and increase adoption of tolerant varieties of green gram and disease management practices through demonstrations,	Increased production of pulses

Sr. No	Factors/ Constraints leading to gap	Strategies	Approach and methodology	Performance indicators/ outputs
			training, shibir	
6.	**Sesame**			
a	Low germination due to improper placement of seed and lack of knowledge about proper placement of seed	To popularize scientific package of practices	Creating awareness through demonstrations, training, shibir, literature etc.	Proper practices leads to 5-8% increased yield
b	Low adoption of improved package practices due to lack of awareness	To popularize scientific package of practices	Creating awareness and adoption of scientific package of practices through demonstrations, training, field days, shibir, literature etc	10-12% increase in the production
c	Insect pest and disease problem due to lack of knowledge	Integrated Pest and disease management	Creating awareness and adoption of IPM through demonstrations, training, shibir, literature etc.	Management of insect pests and diseases leads to 20-25% increased yield
d	Maintain plant population and land configuration High seed rate and sowing in flat land	Thinning and sowing on ridge and furrow	Creating awareness and adoption thinning and land configuration through demonstrations, training, shibir, literature etc	2-5% increase in yield
7.	**Bajra**			
a	Low adoption of improved package of practices due to lack of awareness	To popularize scientific package of practices	Creating awareness and adoption of scientific package of practices through demonstrations, training, field days, shibir, literature etc	4 -5% increase in the production
b	Insect pest and disease problem due to lack of knowledge	Integrated Pest and disease management	Creating awareness and adoption of IPM through demonstrations, training, shibir, literature etc.	Management of insect pests and diseases leads to 3-5% increased yield
c	Maintain plant population and land configuration High seed rate and sowing on flat land	Thinning and sowing on ridge and furrow	Creating awareness and adoption thinning and land configuration through demonstrations, training, shibir, literature	10-12% increase in yield

Sr. No	Factors/ Constraints leading to gap	Strategies	Approach and methodology	Performance indicators/ outputs
8.	**Wheat**			
a	Use of inferior quality seeds due to Lack of awareness	Increase seed replacement ratio & quality seed production through seed village. Create awareness for proper storage of seeds	Create awareness about the importance of improved variety through demonstration. Innovate the progressive farmers for seed production at village level	Increased area under improved variety and leads to 3-5% increased yield
b	Limited irrigation facility due to lack of knowledge of critical stages	Application of water at critical stages	Create awareness about critical stages through demonstration	10-12% increase in yield
c	Weed problem due to lack of knowledge about scientific weed management	To popularize Integrated weed management	Creating awareness through demonstrations, training, shibir, literature etc.	Reduction in weed menace and 5-7% increase in productivity
9.	**Cumin**			
a	Problem of germination due to proper placement of seed	To popularize scientific package of practices	Creating awareness through demonstrations, training, shibir, literature etc.	leads to 3-5% increased yield
b	Blight and wilt problem due to lack of knowledge of diseases	To popularize scientific package of practices	Creating awareness through demonstrations, training, shibir, literature etc.	leads to 18-20% increased yield

Cumin

Table 4.12.2: Bridging the gaps for realizing the Vision

No	Program	Activities
1	**Thrust Areas/ Issues: Increase availability of quality seeds /Seed Production**	
	Seed planning and production	Identification of potential areas, Farmers led Participatory seed production of improved varieties
		Motivating farmers to produce the seed of best Varieties. through Seed village programmes, capacity building of farmers and extension functionaries and exposure visits
	Seed distribution and seed storage	Establishment of seed selling units for timely distribution
		Construction of godowns at village and taluka level
2.	**Increase in seed replacement rate**	
	Production of quality seeds as per area sown	Create awareness about the production of quality seeds of improved varieties
		Strengthen the linkage between supply agencies and the farmers
3.	**Soil health management**	
	Soil testing	Establishment of soil and water testing laboratory at taluka level and mobile soil testing laboratory
		Create awareness about the importance of soil testing
	Bio fertilizer	Popularize the use of bio-fertilizer through capacity building and demonstrations
	Green manuring	Popularize the green manuring practices through capacity building and demonstrations
	Enrichment of FYM	Popularize the methods of preparation of good quality FYM and vermi-compost
	INM	Educating farmers about the use of balanced fertilizer
	Micronutrient	Identification of micronutrient deficient areas and Educating farmers about their importance
	Soil erosion	Land leveling and bund formation Growing cover crops and vertiver grasses
	Recycling of crop residues	Converting of crop residue in small pieces through shredders and using it for composting
	Crop-rotation	Suggesting suitable crop rotation for improving soil health
	IWM	Educate the farmers about integrated weed management practices
	Soil Reclamation	Identification of salt affected areas, create awareness among farmers about the crops to be grown and reclamation measures to be adopted in such areas, hydroponic agriculture

No	Program	Activities
4.	**Water management**	
	Water harvesting	Establishment of rain water harvesting units and deepening of well and its recharging Khet talavadi/ village pond
	Water use efficiency	Popularize the micro irrigation systems, scheduling of irrigation and capacity building
		Introduction of the participatory irrigation management approach
		Moisture conservations through organic and plastic mulch
5.	**Plant health management**	
	Plant health clinic	Establishment of plant health clinic at KVK and mobile health clinic at taluka level
	IPM/IDM	Educating the farmers about various insect pest and diseases of crops and their IPM/IDM through demonstrations and trainings
	Proper use of plant protection equipments	Educate the farmers about proper use of plant protection equipments, provide necessary inputs to the farmers
6.	**Farm mechanization**	
	Improved hand tools and small implements	Survey for drudgery reduction Educating farmers for use of machines/ implements.
	Hand rotary weeder, Power tiller Shredder tractors, Mechanical harvesters, Oil engines, pumps, Laser leveler, Bullock cart	Educate the farmers and providing units on co-operative basis and educate farmers for custom hiring
7.	**Value addition**	
	Processing Units, establishment of mini Dal mill/ oil extractor /cotton ginning/ grading and packaging units	Create awareness for value addition and educate farmers, provide units on co-operative basis, marketing awareness
8.	**Marketing**	
	Strengthening APMC and construction of ware houses at cluster and taluka levels	Establishment of ware house at cluster and taluka level
	Market linkage	Strengthening market linkage through AGMARK net
	Collection van	Units and monitoring

Table 4.12.3: Yield gap analysis of Surendranagar district

Crop	Average Yield in kg/ha (2008-11)		Yield gap in kg/ha
	District	State	
Cotton (Lint)	397	554	-157
Groundnut	1613	1414	199
Sesame	463	387	76
Bajra	999	1464	-465
Castor	2341	1983	358
Cumin	545	556	-11
Wheat	2812	2799	13
Gram	793	1038	-245

Source: District-wise Area, Production and Yield of Important Food & Non-food Crops in Gujarat State, Year: 2008-09, 2009-10 and 2010-11, Directorate of Agriculture, Gujarat State, Krishi Bhavan,Sector-10/A, Gandhinagar

4.12. 2 Area, Production &Productivity and Crop Diversification Plan

The Area, production and productivity of main crops of the district with the projected planning for 12th five year planning, Crop diversification plan and seed quantity required with estimated cost for next 5 years are presented in Table. 4.12.4, Table 4.12.5 and Table 4.12.6 respectively. During year 2010-11 major area was under *kharif* cotton as 500000 ha followed by castor as 81400 ha. In *rabi* season major area was under cumin crop (73100 ha) followed by wheat as 45800 ha.

Gum Guar

Table 4.12.4: Projection of Area, Production and Yield of Agricultural crops in Surendranagar district

(A: Area in'00ha. , P: Production in '00 MT, Y: Yield in kg/ha)

	Normal 2010-11			2012-13 (Projected)			2013-14 (Projected)			2014-15 (Projected)			2015-16 (Projected)			2016-17 (Projected)		
Crop	A	P	Y	A	P	Y	A	P	Y	A	P	Y	A	P	Y	A	P	Y
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Bajara	125	126	1005	125	126	1005	110	143	1300	110	149	1350	100	140	1400	100	150	1500
Wheat (Irrigated)	390	1170	3000	380	1140	3000	400	1200	3000	402	1246	3100	404	1293	3200	405	1337	3300
Wheat (unIrrig.)	68	55	815	68	55	815	50	41	817	45	37	820	42	35	825	40	33	830
Gram	155	157	1010	250	275	1100	275	413	1500	276	442	1600	278	472	1700	279	502	1800
Groundnut	170	187	1100	175	210	1200	180	225	1250	190	257	1350	195	293	1500	197	315	1600
Sesame	379	284	750	385	241	625	380	247	650	365	246	675	360	252	700	355	284	800
Castor	814	2035	2500	830	1909	2300	850	2380	2800	850	2423	2850	860	2494	2900	860	2580	3000
Cotton	5000	7500	1500	4965	8441	1700	4950	10890	2200	4975	11442	2300	4995	11988	2400	5000	12500	2500
Cumin	731	482	660	740	444	600	745	447	600	748	468	625	748	486	650	748	524	700
Pulses	101	49	489	100	49	489	100	49	489	100	49	489	100	49	489	100	49	489
Sum.G'nut	4.6	8	1782	690	1242	1800	725	1312	1810	760	1379	1815	798	1456	1825	838	1676	2000
Sum.sesame	0	0	0	208	229	1100	220	246	1120	230	259	1125	242	274	1135	254	292	1150
Sum.pulses	0	0	0	63	63	1000	66	67	1010	70	71	1015	73	75	1025	75	79	1050
Vegetables	181	3182	17581	190	3363	17700	200	3550	17750	205	3644	17775	207	3680	17778	210	3734	17780
Kharif Sorghum	542.4	708	1306	542.4	708	1306	542.4	708	1306	542.4	708	1306	550	718	1306	550	718	1306
Rabi Sorghum	6.2	12	1870	8	15	1875	8.5	16	1875	8.6	16	1880	8.65	16	1885	8.7	16	1890

Source: District Agriculture Officer

Table 4.12.5 Crop Diversification Plan in next 5 years

Existing cropping pattern 2011-12		Crop Diversification proposed (Area in ha)									
Crop	Area ('00 ha) (11-12)	2012-13 (projected)		2013-14 (projected)		2014-15 (projected)		2015-16 (projected)		2016-17 (projected)	
		Area under crop ('00 ha)	Change in area with reference to 11-12 (+/-)	Area under crop ('00 ha)	Change in area with reference to 11-12 (+/-)	Area under crop ('00 ha)	Change in area with reference to 11-12 (+/-)	Area under crop ('00 ha)	Change in area with reference to 11-12 (+/-)	Area under crop ('00 ha)	Change in area with reference to 11-12 (+/-)
Bajara	125	125	0	110	-15	110	-15	100	-25	100	-25
Wheat (Irrigated)	390	380	-10	400	10	402	12	404	14	405	15
Wheat (unIrrig.)	68	68	0	50	-18	45	-23	42	-26	40	-28
Gram	155	250	95	275	120	276	121	278	122.8	279	124.1
Groundnut	170	175	5	180	10	190	20	195	25	197	27
Sesame	379	385	6	380	1	365	-14	360	-19	355	-24
Castor	814	830	16	850	36	850	36	860	46	860	46
Cotton	5000	4965	-35	4950	-50	4975	-25	4995	-5	5000	0
Cumin	731	740	9	745	14	748	17	748	17	748	17
Pulses	101	100	-1	100	-1	100	-1	100	-1	100	-1
Sum.G'nut	4.6	690	685.4	725	720.4	760	755	798	793.4	837.9	833.3
Sum.sesame	0	208	208	220	220	230	230	241.5	241.5	253.6	253.6
Sum.pulses	0	63	63	66	66	70	70	73	73	75	75
Vegetables	181	190	9	200	19	205	24	207	26	210	29
Kharif Sorghum	542.4	542.4	0	542.4	0	542.4	0	550	7.6	550	7.6
Rabi Sorghum	6.2	8	1.8	8.5		8.6	2	8.65	2.45	8.7	2.5

Table 4.12.6 Seed quantity required with SRR and estimated cost

Crop	Seed quantity Req. (tonne) /year	SRR	Estimated cost on seed (Rs.lakhs) /year	Year (Rs. In Lakh)				
				2012-13	2013-14	2014-15	2015-16	2016-17
Bajara	40.88	100	24.5	28.1	24.8	24.8	22.5	22.5
Wheat (Irri.)	1394	35	836.2	798.0	840.0	844.2	848.4	850.5
Wheat (unIrri.)	85.75	35	51.5	71.4	52.5	47.3	44.1	42.0
Gram	244.5	15	146.7	135.0	148.5	149.2	150.0	150.7
Groundnut	281.1	15	168.7	157.5	162.0	171.0	175.5	177.3
Sesame	46.13	50	27.7	28.9	28.5	27.4	27.0	26.6
Castor	595	100	357.0	348.6	357.0	357.0	361.2	361.2
Cotton	995.4	100	597.2	595.8	594.0	597.0	599.4	600.0
Cumin	417.6	35	250.6	248.6	250.3	251.3	251.3	251.3
Pulses	70	35	42.0	42.0	42.0	42.0	42.0	42.0
Sum.G'nut	1372	15	823.2	745.2	783.0	820.8	861.8	904.9
Sum.sesame	28.83	50	17.3	15.6	16.5	17.3	18.1	19.0
Sum.pulses	48.58	35	29.1	26.5	27.7	29.4	30.7	31.5
Vegetables	20.24	100	12.1	11.4	12.0	12.3	12.4	12.6
Kharif sorghum	1636	50	981.8	976.3	976.3	976.3	990.0	990.0
Rabi sorghum	25.47	50	15.3	14.4	15.3	15.5	15.6	15.7

Groundnut Seed

Cumin Seed

4.13 Activities for Development of Agriculture Sector

Under the Development of Agriculture Sector different activities pertaining to training of agriculture staff, farmers, demonstrations on different latest technologies like IPM, IWM, INM, etc are given with financial planning for XII five year plan. Capacity Building of Agriculture Staff and farmers on different technologies is proposed as presented in Table 4.13.1 and Table 4.13.3. During 2012-13 and 2013-14, trainings are proposed at Vadhavan and Chotila because in other in other talukas training facilities are not available. Farmers field School Projection in next 5 years with 39 numbers of FFS and 111 villages to be cover in one year (Table 4.13.2).

Table 4.13.1: Training for capacity building of agriculture staff

(Phy. - No. of staff, Fin. - Rs. in Lakhs)

Sr. No.	Name of Taluka	Number of staff and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	-	15	-	-	50	0.1	50	0.1	50	0.1	150	15.3
2	Dhangadhra	-	15	-	-	50	0.1	50	0.1	50	0.1	150	15.3
3	Dasada	-	15	-	-	50	0.1	50	0.1	50	0.1	150	15.3
4	Lakhatar	-	15	-	-	50	0.1	50	0.1	50	0.1	150	15.3
5	Vadhavan	250	0.5	250	0.5	50	0.1	50	0.1	50	0.1	650	1.3
6	Muli	-	-	-	15	50	0.1	50	0.1	50	0.1	150	15.3
7	Chotila	250	0.5	250	0.5	50	0.1	50	0.1	50	0.1	650	1.3
8	Sayala	-	-	-	15	50	0.1	50	0.1	50	0.1	150	15.3
9	Chuda	-	-	-	15	50	0.1	50	0.1	50	0.1	150	15.3
10	Limbadi	-	-	-	15	50	0.1	50	0.1	50	0.1	150	15.3
	Total	**500**	**61**	**500**	**61**	**500**	**1**	**500**	**1**	**500**	**1**	**2500**	**125**

Note: Name of Department : Agriculture, Cooperative & NGOs, PRI staff & others,
Training facilities are available at FTC Vadhavan and at KVK in Chotila
Training equipments: Computer, LCD and audio visual accessories.
One training hall is proposed in 8 talukas except Vadhavan and Chotila
Each training consists of 25 trainees @Rs 200 per trainee including literature

Dairy Products & Bakery Items prepared during Vocational Training Programme

Table 4.13.2: Farmers Field School (FFS) projection in next 5 years

Name of Taluka	2012-13		2013-14		2014-15		2015-16		2016-17	
	No of FFS	No of Villages	No of FFS	No of Villages	No of FFS	No of Villages	No of FFS	No of Villages	No of FFS	No of Villages
Halwad	4	12	4	12	4	12	4	12	4	12
Dhangadhra	4	12	4	12	4	12	4	12	4	12
Dasada	5	15	5	15	5	15	5	15	5	15
Lakhatar	3	8	3	8	3	8	3	8	3	8
Vadhavan	4	10	4	10	4	10	4	10	4	10
Muli	4	12	4	12	4	12	4	12	4	12
Chotila	5	15	5	15	5	15	5	15	5	15
Sayala	4	11	4	11	4	11	4	11	4	11
Chuda	2	6	2	6	2	6	2	6	2	6
Limbadi	4	10	4	10	4	10	4	10	4	10
Total	**39**	**111**	**39**	**111**	**39**	**111**	**39**	**111**	**39**	**111**

4.13.1 Training Proposal for capacity building of farmers on different technologies

Table 4.13.3.1: Training proposal for capacity building of farmers at Taluka level on seed production / seed replacement

(Phy. - No. of farmers, Fin. - Rs. in Lakhs)

Sr. No.	Name of Taluka	Number of farmers and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	140	0.4	140	0.4	140	0.4	140	0.4	140	0.4	700	2
2	Dhangadhra	135	0.4	135	0.4	135	0.4	135	0.4	135	0.4	675	2
3	Dasada	100	0.3	100	0.3	100	0.3	100	0.3	100	0.3	500	1.5
4	Lakhatar	55	0.2	55	0.2	55	0.2	55	0.2	55	0.2	275	1
5	Vadhavan	90	0.3	90	0.3	90	0.3	90	0.3	90	0.3	450	1.5
6	Muli	100	0.3	100	0.3	100	0.3	100	0.3	100	0.3	500	1.5
7	Chotila	140	0.4	140	0.4	140	0.4	140	0.4	140	0.4	700	2
8	Sayala	120	0.4	120	0.4	120	0.4	120	0.4	120	0.4	600	2
9	Chuda	60	0.2	60	0.2	60	0.2	60	0.2	60	0.2	300	1
10	Limbadi	60	0.2	60	0.2	60	0.2	60	0.2	60	0.2	300	1
	Total	**1000**	**3.0**	**1000**	**3.0**	**1000**	**3.0**	**1000**	**3.0**	**1000**	**3.0**	**5000**	**15**

Training cost @Rs 300 per trainee including literature

Table 4.13.3.2: Training proposal for capacity building of farmers at Taluka level on seed treatment.

(Phy. - No. of farmers, Fin. - Rs. in Lakhs)

Sr. No	Name of Taluka	Number of farmers and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	65	0.2	65	0.2	65	0.2	65	0.2	65	0.2	325	0.975
2	Dhangadhra	70	0.2	70	0.2	70	0.2	70	0.2	70	0.2	350	1.05
3	Dasada	50	0.2	50	0.2	50	0.2	50	0.2	50	0.2	250	0.75
4	Lakhatar	25	0.1	25	0.1	25	0.1	25	0.1	25	0.1	125	0.375
5	Vadhavan	45	0.1	45	0.1	45	0.1	45	0.1	45	0.1	225	0.675
6	Muli	55	0.2	55	0.2	55	0.2	55	0.2	55	0.2	275	0.825
7	Chotila	70	0.2	70	0.2	70	0.2	70	0.2	70	0.2	350	1.05
8	Sayala	60	0.2	60	0.2	60	0.2	60	0.2	60	0.2	300	0.9
9	Chuda	30	0.1	30	0.1	30	0.1	30	0.1	30	0.1	150	0.45
10	Limbadi	30	0.1	30	0.1	30	0.1	30	0.1	30	0.1	150	0.45
	Total	**500**	**1.5**	**500**	**1.5**	**500**	**1.5**	**500**	**1.5**	**500**	**1.5**	**2500**	**7.5**

Training cost @Rs 300 per trainee including literature

Table 4.13.3.3: Training proposal for capacity building of farmers at Taluka level on INM/ micronutrient.

(Phy. - No. of farmers, Fin. - Rs. in Lakhs)

Sr. No	Name of Taluka	Number of farmers and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	65	0.2	65	0.2	65	0.2	65	0.2	65	0.2	325	0.975
2	Dhangadhra	70	0.2	70	0.2	70	0.2	70	0.2	70	0.2	350	1.05
3	Dasada	50	0.2	50	0.2	50	0.2	50	0.2	50	0.2	250	0.75
4	Lakhatar	25	0.1	25	0.1	25	0.1	25	0.1	25	0.1	125	0.375
5	Vadhavan	45	0.1	45	0.1	45	0.1	45	0.1	45	0.1	225	0.675
6	Muli	55	0.2	55	0.2	55	0.2	55	0.2	55	0.2	275	0.825
7	Chotila	70	0.2	70	0.2	70	0.2	70	0.2	70	0.2	350	1.05
8	Sayala	60	0.2	60	0.2	60	0.2	60	0.2	60	0.2	300	0.9
9	Chuda	30	0.1	30	0.1	30	0.1	30	0.1	30	0.1	150	0.45
10	Limbadi	30	0.1	30	0.1	30	0.1	30	0.1	30	0.1	150	0.45
	Total	**500**	**1.5**	**500**	**1.5**	**500**	**1.5**	**500**	**1.5**	**500**	**1.5**	**2500**	**7.5**

Training cost @Rs 300 per trainee including literature

Table 4.13.3.4: Training proposal for capacity building of farmers at Taluka level on soil health management / bio – fertilizer / green manuring.

(Phy. - No. of farmers, Fin. - Rs. in Lakhs)

Sr. No	Name of Taluka	Number of farmers and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	390	1.2	390	1.2	390	1.2	390	1.2	390	1.2	1950	6
2	Dhangadhra	415	1.2	415	1.2	415	1.2	415	1.2	415	1.2	2075	6
3	Dasada	300	0.9	300	0.9	300	0.9	300	0.9	300	0.9	1500	4
4	Lakhatar	150	0.4	150	0.4	150	0.4	150	0.4	150	0.4	750	2
5	Vadhavan	265	0.8	265	0.8	265	0.8	265	0.8	265	0.8	1325	4
6	Muli	325	1.0	325	1.0	325	1.0	325	1.0	325	1.0	1625	5
7	Chotila	425	1.2	425	1.2	425	1.2	425	1.2	425	1.2	2125	6
8	Sayala	350	1.1	350	1.1	350	1.1	350	1.1	350	1.1	1750	5
9	Chuda	175	0.5	175	0.5	175	0.5	175	0.5	175	0.5	875	3
10	Limbadi	205	0.6	205	0.6	205	0.6	205	0.6	205	0.6	1025	3
	Total	**3000**	**9.0**	**3000**	**9.0**	**3000**	**9.0**	**3000**	**9.0**	**3000**	**9.0**	**15000**	**45**

Training cost @Rs 300 per trainee including literature

Table 4.13.3.5: Training proposal for capacity building of farmers at Taluka level on NRM

(Phy. - No. of farmers, Fin. - Rs. in Lakhs)

Sr. No.	Name of Taluka	Number of farmers and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	65	0.2	65	0.2	65	0.2	65	0.2	65	0.2	325	0.975
2	Dhangadhra	70	0.2	70	0.2	70	0.2	70	0.2	70	0.2	350	1.05
3	Dasada	50	0.2	50	0.2	50	0.2	50	0.2	50	0.2	250	0.75
4	Lakhatar	25	0.1	25	0.1	25	0.1	25	0.1	25	0.1	125	0.375
5	Vadhavan	45	0.1	45	0.1	45	0.1	45	0.1	45	0.1	225	0.675
6	Muli	55	0.2	55	0.2	55	0.2	55	0.2	55	0.2	275	0.825
7	Chotila	70	0.2	70	0.2	70	0.2	70	0.2	70	0.2	350	1.05
8	Sayala	60	0.2	60	0.2	60	0.2	60	0.2	60	0.2	300	0.9
9	Chuda	30	0.1	30	0.1	30	0.1	30	0.1	30	0.1	150	0.45
10	Limbadi	30	0.1	30	0.1	30	0.1	30	0.1	30	0.1	150	0.45
	Total	**500**	**1.5**	**500**	**1.5**	**500**	**1.5**	**500**	**1.5**	**500**	**1.5**	**2500**	**7.5**

Training cost @Rs 300 per trainee including literature

Table 4.13.3.6: Training proposal for capacity building of farmers at Taluka level on farm waste management/ enrichment of compost / vermin-compost

(Phy. - No. of farmers, Fin. - Rs. in Lakhs)

Sr. No.	Name of Taluka	Number of farmers and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	140	0.4	140	0.4	140	0.4	140	0.4	140	0.4	700	2
2	Dhangadhra	135	0.4	135	0.4	135	0.4	135	0.4	135	0.4	675	2
3	Dasada	100	0.3	100	0.3	100	0.3	100	0.3	100	0.3	500	1.5
4	Lakhatar	55	0.2	55	0.2	55	0.2	55	0.2	55	0.2	275	1
5	Vadhavan	90	0.3	90	0.3	90	0.3	90	0.3	90	0.3	450	1.5
6	Muli	100	0.3	100	0.3	100	0.3	100	0.3	100	0.3	500	1.5
7	Chotila	140	0.4	140	0.4	140	0.4	140	0.4	140	0.4	700	2
8	Sayala	120	0.4	120	0.4	120	0.4	120	0.4	120	0.4	600	2
9	Chuda	60	0.2	60	0.2	60	0.2	60	0.2	60	0.2	300	1
10	Limbadi	60	0.2	60	0.2	60	0.2	60	0.2	60	0.2	300	1
	Total	**1000**	**3.0**	**1000**	**3.0**	**1000**	**3.0**	**1000**	**3.0**	**1000**	**3.0**	**5000**	**15**

Training cost @Rs 300 per trainee including literature

Table 4.13.3.7 Training proposal for capacity building of farmers at Taluka level organic farming

(Phy. - No. of farmers, Fin. - Rs. in Lakhs)

Sr. No.	Name of Taluka	Number of farmers and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	65	0.2	65	0.2	65	0.2	65	0.2	65	0.2	325	0.975
2	Dhangadhra	70	0.2	70	0.2	70	0.2	70	0.2	70	0.2	350	1.05
3	Dasada	50	0.2	50	0.2	50	0.2	50	0.2	50	0.2	250	0.75
4	Lakhatar	25	0.1	25	0.1	25	0.1	25	0.1	25	0.1	125	0.375
5	Vadhavan	45	0.1	45	0.1	45	0.1	45	0.1	45	0.1	225	0.675
6	Muli	55	0.2	55	0.2	55	0.2	55	0.2	55	0.2	275	0.825
7	Chotila	70	0.2	70	0.2	70	0.2	70	0.2	70	0.2	350	1.05
8	Sayala	60	0.2	60	0.2	60	0.2	60	0.2	60	0.2	300	0.9
9	Chuda	30	0.1	30	0.1	30	0.1	30	0.1	30	0.1	150	0.45
10	Limbadi	30	0.1	30	0.1	30	0.1	30	0.1	30	0.1	150	0.45
	Total	**500**	**1.5**	**500**	**1.5**	**500**	**1.5**	**500**	**1.5**	**500**	**1.5**	**2500**	**7.5**

Training cost @Rs 300 per trainee including literature

Table 4.13.3.8: Training proposal for capacity building of Farmers at Taluka level on reclamation of problematic soils

(Phy. - No. of farmers, Fin. - Rs. in Lakhs)

Sr. No.	Name of Taluka	Number of farmers and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	30	0.09	30	0.09	30	0.09	30	0.09	30	0.09	150	0.45
2	Dasada	75	0.225	75	0.225	75	0.225	75	0.225	75	0.225	375	1.125
3	Lakhatar	50	0.15	50	0.15	50	0.15	50	0.15	50	0.15	250	0.75
4	Limbadi	45	0.135	45	0.135	45	0.135	45	0.135	45	0.135	225	0.675
	Total	**200**	**0.6**	**200**	**0.6**	**200**	**0.6**	**200**	**0.6**	**200**	**0.6**	**1000**	**3**

Training cost @Rs 300 per trainee including literature

Table 4.13.3.9: Training proposal for capacity building of farmers at Taluka level on IPM

(Phy. - No. of farmers, Fin. - Rs. in Lakhs)

Sr. No	Name of Taluka	Number of farmers and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	195	0.59	195	0.59	195	0.59	195	0.59	195	0.59	975	2.9
2	Dhangadhra	210	0.63	210	0.63	210	0.63	210	0.63	210	0.63	1050	3.2
3	Dasada	150	0.45	150	0.45	150	0.45	150	0.45	150	0.45	750	2.3
4	Lakhatar	75	0.23	75	0.23	75	0.23	75	0.23	75	0.23	375	1.1
5	Vadhavan	135	0.41	135	0.41	135	0.41	135	0.41	135	0.41	675	2.0
6	Muli	165	0.50	165	0.50	165	0.50	165	0.50	165	0.50	825	2.5
7	Chotila	210	0.63	210	0.63	210	0.63	210	0.63	210	0.63	1050	3.2
8	Sayala	180	0.54	180	0.54	180	0.54	180	0.54	180	0.54	900	2.7
9	Chuda	90	0.27	90	0.27	90	0.27	90	0.27	90	0.27	450	1.4
10	Limbadi	90	0.27	90	0.27	90	0.27	90	0.27	90	0.27	450	1.4
	Total	**1500**	**4.50**	**1500**	**4.50**	**1500**	**4.50**	**1500**	**4.50**	**1500**	**4.50**	**7500**	**22.5**

Training cost @Rs 300 per trainee including literature

Table 4.13.3.10: Training proposal for capacity building of farmers at Taluka level on IWM

(Phy. - No. of farmers, Fin. - Rs. in Lakhs)

Sr. No	Name of Taluka	Number of farmers and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	195	0.59	195	0.59	195	0.59	195	0.59	195	0.59	975	2.9
2	Dhangadhra	210	0.63	210	0.63	210	0.63	210	0.63	210	0.63	1050	3.2
3	Dasada	150	0.45	150	0.45	150	0.45	150	0.45	150	0.45	750	2.3
4	Lakhatar	75	0.23	75	0.23	75	0.23	75	0.23	75	0.23	375	1.1
5	Vadhavan	135	0.41	135	0.41	135	0.41	135	0.41	135	0.41	675	2.0
6	Muli	165	0.50	165	0.50	165	0.50	165	0.50	165	0.50	825	2.5
7	Chotila	210	0.63	210	0.63	210	0.63	210	0.63	210	0.63	1050	3.2
8	Sayala	180	0.54	180	0.54	180	0.54	180	0.54	180	0.54	900	2.7
9	Chuda	90	0.27	90	0.27	90	0.27	90	0.27	90	0.27	450	1.4
10	Limbadi	90	0.27	90	0.27	90	0.27	90	0.27	90	0.27	450	1.4
	Total	**1500**	**4.50**	**1500**	**4.50**	**1500**	**4.50**	**1500**	**4.50**	**1500**	**4.50**	**7500**	**22.5**

Training cost @Rs 300 per trainee including literature

Table 4.13.3.11: Training proposal for capacity building of farmers at Taluka level on micro irrigation system

(Phy. - No. of farmers, Fin. - Rs. in Lakhs)

Sr. No	Name of Taluka	Number of farmers and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	325	0.98	325	0.98	325	0.98	325	0.98	325	0.98	1625	4.9
2	Dhangadhra	350	1.05	350	1.05	350	1.05	350	1.05	350	1.05	1750	5.3
3	Dasada	250	0.75	250	0.75	250	0.75	250	0.75	250	0.75	1250	3.8
4	Lakhatar	125	0.38	125	0.38	125	0.38	125	0.38	125	0.38	625	1.9
5	Vadhavan	225	0.68	225	0.68	225	0.68	225	0.68	225	0.68	1125	3.4
6	Muli	275	0.83	275	0.83	275	0.83	275	0.83	275	0.83	1375	4.1
7	Chotila	350	1.05	350	1.05	350	1.05	350	1.05	350	1.05	1750	5.3
8	Sayala	300	0.90	300	0.90	300	0.90	300	0.90	300	0.90	1500	4.5
9	Chuda	150	0.45	150	0.45	150	0.45	150	0.45	150	0.45	750	2.3
10	Limbadi	150	0.45	150	0.45	150	0.45	150	0.45	150	0.45	750	2.3
	Total	**2500**	**7.50**	**2500**	**7.50**	**2500**	**7.50**	**2500**	**7.50**	**2500**	**7.50**	**12500**	**37.5**

Training cost @Rs 300 per trainee including literature

Table 4.13.3.12: Training proposal for capacity building of farmers at Taluka level on farm mechanization

(Phy. - No. of farmers, Fin. - Rs. in Lakhs)

Sr. No	Name of Taluka	Number of farmers and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	39	0.12	39	0.12	39	0.12	39	0.12	39	0.12	195	0.6
2	Dhangadhra	42	0.13	42	0.13	42	0.13	42	0.13	42	0.13	210	0.6
3	Dasada	30	0.09	30	0.09	30	0.09	30	0.09	30	0.09	150	0.5
4	Lakhatar	15	0.05	15	0.05	15	0.05	15	0.05	15	0.05	75	0.2
5	Vadhavan	27	0.08	27	0.08	27	0.08	27	0.08	27	0.08	135	0.4
6	Muli	33	0.10	33	0.10	33	0.10	33	0.10	33	0.10	165	0.5
7	Chotila	42	0.13	42	0.13	42	0.13	42	0.13	42	0.13	210	0.6
8	Sayala	36	0.11	36	0.11	36	0.11	36	0.11	36	0.11	180	0.5
9	Chuda	18	0.05	18	0.05	18	0.05	18	0.05	18	0.05	90	0.3
10	Limbadi	18	0.05	18	0.05	18	0.05	18	0.05	18	0.05	90	0.3
	Total	**300**	**0.90**	**300**	**0.90**	**300**	**0.90**	**300**	**0.90**	**300**	**0.90**	**1500**	**4.5**

Training cost @Rs 300 per trainee including literature

Table 4.13.3.13: Training proposal for capacity building of farmers at Taluka level on value addition processing oil /dal mill / cotton / vegetables

(Phy. - No. of farmers, Fin. - Rs. in Lakhs)

Sr. No.	Name of Taluka	Number of farmers and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	65	0.2	65	0.2	65	0.2	65	0.2	65	0.2	325	0.975
2	Dhangadhra	70	0.2	70	0.2	70	0.2	70	0.2	70	0.2	350	1.05
3	Dasada	50	0.2	50	0.2	50	0.2	50	0.2	50	0.2	250	0.75
4	Lakhatar	25	0.1	25	0.1	25	0.1	25	0.1	25	0.1	125	0.375
5	Vadhavan	45	0.1	45	0.1	45	0.1	45	0.1	45	0.1	225	0.675
6	Muli	55	0.2	55	0.2	55	0.2	55	0.2	55	0.2	275	0.825
7	Chotila	70	0.2	70	0.2	70	0.2	70	0.2	70	0.2	350	1.05
8	Sayala	60	0.2	60	0.2	60	0.2	60	0.2	60	0.2	300	0.9
9	Chuda	30	0.1	30	0.1	30	0.1	30	0.1	30	0.1	150	0.45
10	Limbadi	30	0.1	30	0.1	30	0.1	30	0.1	30	0.1	150	0.45
	Total	**500**	**1.5**	**500**	**1.5**	**500**	**1.5**	**500**	**1.5**	**500**	**1.5**	**2500**	**7.5**

Training cost @Rs 300 per trainee including literature

Table 4.13.3.14: Training proposal for capacity building of farmers at Taluka level on on marketing intellegence /co- operative / association / groups

(Phy. - No. of farmers, Fin. - Rs. in Lakhs)

Sr. No	Name of Taluka	Number of farmers and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	33	0.10	33	0.10	33	0.10	33	0.10	33	0.10	165	0.50
2	Dhangadhra	35	0.11	35	0.11	35	0.11	35	0.11	35	0.11	175	0.53
3	Dasada	25	0.08	25	0.08	25	0.08	25	0.08	25	0.08	125	0.38
4	Lakhatar	12	0.04	12	0.04	12	0.04	12	0.04	12	0.04	60	0.18
5	Vadhavan	22	0.07	22	0.07	22	0.07	22	0.07	22	0.07	110	0.33
6	Muli	28	0.08	28	0.08	28	0.08	28	0.08	28	0.08	140	0.42
7	Chotila	35	0.11	35	0.11	35	0.11	35	0.11	35	0.11	175	0.53
8	Sayala	30	0.09	30	0.09	30	0.09	30	0.09	30	0.09	150	0.45
9	Chuda	15	0.05	15	0.05	15	0.05	15	0.05	15	0.05	75	0.23
10	Limbadi	15	0.05	15	0.05	15	0.05	15	0.05	15	0.05	75	0.23
	Total	**250**	**0.75**	**250**	**0.75**	**250**	**0.75**	**250**	**0.75**	**250**	**0.75**	**1250**	**3.75**

Training cost @Rs 300 per trainee including literature

4.13.2 Varietal Demonstrations on different crops

Varietal Demonstrations on different crops in next five years are presented in Table 4.13.4. Total 16925 demonstrations of different crops in district with an area of 0.4 hectare per demonstration is proposed with financial requirement of Rs. 5690 Lakhs.

Table 4.13.4.1 Varietal demonstration on cotton (Phy-Area covered in ha, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	42	1.68	53	2.12	53	2.12	53	2.12	53	2.12	254	10.16
Dhangadhra	47	1.88	58	2.32	58	2.32	58	2.32	58	2.32	279	11.16
Dasada	69	2.76	86	3.44	86	3.44	86	3.44	86	3.44	413	16.52
Lakhatar	47	1.88	59	2.36	59	2.36	59	2.36	59	2.36	283	11.32
Vadhavan	32	1.28	40	1.6	40	1.6	40	1.6	40	1.6	192	7.68
Muli	36	1.44	45	1.8	45	1.8	45	1.8	45	1.8	216	8.64
Chotila	26	1.04	33	1.32	33	1.32	33	1.32	33	1.32	158	6.32
Sayala	33	1.32	41	1.64	41	1.64	41	1.64	41	1.64	197	7.88
Chuda	29	1.16	37	1.48	37	1.48	37	1.48	37	1.48	177	7.08
Limbadi	39	1.56	49	1.96	49	1.96	49	1.96	49	1.96	235	9.4
Total	**400**	**16**	**500**	**20**	**500**	**20**	**500**	**20**	**500**	**20**	**2400**	**96**

Area of Demonstration = 0.4 ha

Demonstration cost @Rs 4000 per demonstration

Table 4.13.4.2 Varietal Demonstration on pearlmillet

(Phy-Area covered in ha, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	22	0.66	34	1.02	45	1.35	56	1.68	56	1.68	213	6.39
Dhangadhra	45	1.35	68	2.04	90	2.7	113	3.39	113	3.39	429	12.87
Dasada	25	0.75	37	1.11	50	1.5	62	1.86	62	1.86	236	7.08
Lakhatar	3	0.09	4	0.12	6	0.18	7	0.21	7	0.21	27	0.81
Vadhavan	4	0.12	6	0.18	8	0.24	10	0.3	10	0.3	38	1.14
Muli	21	0.63	31	0.93	42	1.26	52	1.56	52	1.56	198	5.94
Chotila	40	1.2	60	1.8	80	2.4	100	3	100	3	380	11.4
Sayala	23	0.69	35	1.05	46	1.38	58	1.74	58	1.74	220	6.6
Chuda	10	0.3	15	0.45	20	0.6	25	0.75	25	0.75	95	2.85
Limbadi	7	0.21	10	0.3	14	0.42	17	0.51	17	0.51	65	1.95
Total	**200**	**6**	**300**	**9**	**400**	**12**	**500**	**15**	**500**	**15**	**1900**	**57**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 3000 per demonstration

Table 4.13.4.3 Varietal Demonstration on wheat

(Phy-Area covered in ha, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	60	2.4	60	2.4	75	3	90	3.6	105	4.2	390	15.6
Dhangadhra	70	2.8	90	3.6	100	4	120	4.8	140	5.6	520	20.8
Dasada	4	0.16	45	1.8	60	2.4	70	2.8	80	3.2	259	10.36
Lakhatar	4	0.16	30	1.2	50	2	60	2.4	70	2.8	214	8.56
Vadhavan	5	0.2	25	1	30	1.2	35	1.4	40	1.6	135	5.4
Muli	21	0.84	15	0.6	15	0.6	20	0.8	20	0.8	91	3.64
Chotila	43	1.72	25	1	30	1.2	35	1.4	40	1.6	173	6.92
Sayala	30	1.2	20	0.8	30	1.2	35	1.4	40	1.6	155	6.2
Chuda	4	0.16	25	1	30	1.2	40	1.6	50	2	149	5.96
Limbadi	59	2.36	65	2.6	80	3.2	95	3.8	115	4.6	414	16.56
Total	**300**	**12**	**400**	**16**	**500**	**20**	**600**	**24**	**700**	**28**	**2500**	**100**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 4000 per demonstration

Table 4.13.4.4 Varietal Demonstration on pulses

(Phy-Area covered in ha, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	10	0.3	15	0.45	20	0.6	30	0.9	30	0.9	105	3.15
Dhangadhra	10	0.3	25	0.75	25	0.75	50	1.5	60	1.8	170	5.1
Dasada	10	0.3	15	0.45	20	0.6	30	0.9	35	1.05	110	3.3
Lakhatar	5	0.15	10	0.3	15	0.45	10	0.3	10	0.3	50	1.5
Vadhavan	5	0.15	10	0.3	15	0.45	10	0.3	10	0.3	50	1.5
Muli	10	0.3	15	0.45	20	0.6	25	0.75	30	0.9	100	3
Chotila	20	0.6	25	0.75	35	1.05	40	1.2	50	1.5	170	5.1
Sayala	15	0.45	15	0.45	25	0.75	30	0.9	35	1.05	120	3.6
Chuda	10	0.3	10	0.3	15	0.45	15	0.45	20	0.6	70	2.1
Limbadi	5	0.15	10	0.3	10	0.3	10	0.3	20	0.6	55	1.65
Total	**100**	**3**	**150**	**4.5**	**200**	**6**	**250**	**7.5**	**300**	**9**	**1000**	**30**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 3000 per demonstration

Table 4.13.4.5 Varietal Demonstration on groundnut

(Phy-Area covered in ha, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	120	3.6	140	4.2	161	4.83	181	5.43	201	6.03	803	24.09
Dhangadhra	19	0.57	22	0.66	25	0.75	29	0.87	32	0.96	127	3.81
Vadhavan	5	0.15	5	0.15	6	0.18	7	0.21	8	0.24	31	0.93
Muli	35	1.05	41	1.23	47	1.41	53	1.59	59	1.77	235	7.05
Chotila	99	2.97	116	3.48	132	3.96	149	4.47	165	4.95	661	19.83
Sayala	21	0.63	25	0.75	28	0.84	32	0.96	35	1.05	141	4.23
Total	**300**	**9**	**350**	**10.5**	**400**	**12**	**450**	**13.5**	**500**	**15**	**2000**	**60**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 3000 per demonstration

Table 4.13.4.6 Varietal Demonstration on gram

(Phy-Area covered in ha, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	30	0.9	40	1.2	50	1.5	55	1.65	60	1.8	235	7.05
Dhangadhra	30	0.9	40	1.2	50	1.5	55	1.65	60	1.8	235	7.05
Dasada	60	1.8	70	2.1	70	2.1	80	2.4	85	2.55	365	10.95
Lakhatar	30	0.9	35	1.05	40	1.2	45	1.35	55	1.65	205	6.15
Vadhavan	20	0.6	25	0.75	30	0.9	35	1.05	40	1.2	150	4.5
Muli	15	0.45	15	0.45	20	0.6	20	0.6	20	0.6	90	2.7
Chotila	15	0.45	15	0.45	20	0.6	20	0.6	20	0.6	90	2.7
Sayala	15	0.45	15	0.45	20	0.6	20	0.6	20	0.6	90	2.7
Chuda	15	0.45	20	0.6	25	0.75	30	0.9	40	1.2	130	3.9
Limbadi	70	2.1	75	2.25	75	2.25	90	2.7	100	3	410	12.3
Total	**300**	**9**	**350**	**10.5**	**400**	**12**	**450**	**13.5**	**500**	**15**	**2000**	**60**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 3000 per demonstration

Table 4.13.4.7 Varietal Demonstration on sesame

(Phy-Area covered in ha, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	47	1.41	70	2.1	94	2.82	117	3.51	140	4.2	468	14.04
Dhangadhra	41	1.23	62	1.86	82	2.46	103	3.09	123	3.69	411	12.33
Dasada	11	0.33	16	0.48	21	0.63	26	0.78	32	0.96	106	3.18
Lakhatar	11	0.33	16	0.48	22	0.66	27	0.81	33	0.99	109	3.27
Vadhavan	13	0.39	20	0.6	26	0.78	33	0.99	39	1.17	131	3.93
Muli	25	0.75	37	1.11	49	1.47	62	1.86	74	2.22	247	7.41
Chotila	12	0.36	18	0.54	25	0.75	31	0.93	37	1.11	123	3.69
Sayala	21	0.63	31	0.93	42	1.26	52	1.56	62	1.86	208	6.24
Chuda	8	0.24	13	0.39	17	0.51	21	0.63	25	0.75	84	2.52
Limbadi	12	0.36	17	0.51	23	0.69	29	0.87	35	1.05	116	3.48
Total	**200**	**6**	**300**	**9**	**400**	**12**	**500**	**15**	**600**	**18**	**2000**	**60**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 3000 per demonstration

Table 4.13.4.8 Varietal Demonstration on castor

(Phy-Area covered in ha, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	10	0.4	10	0.4	15	0.6	25	1	25	1	85	3.4
Dhangadhra	10	0.4	10	0.4	15	0.6	25	1	25	1	85	3.4
Dasada	60	2.4	60	2.4	60	2.4	70	2.8	70	2.8	320	12.8
Lakhatar	50	2	60	2.4	60	2.4	60	2.4	60	2.4	290	11.6
Vadhavan	10	0.4	10	0.4	15	0.6	20	0.8	20	0.8	75	3
Muli	10	0.4	10	0.4	10	0.4	20	0.8	20	0.8	70	2.8
Chotila	10	0.4	10	0.4	10	0.4	20	0.8	20	0.8	70	2.8
Sayala	10	0.4	10	0.4	10	0.4	20	0.8	20	0.8	70	2.8
Chuda	10	0.4	10	0.4	10	0.4	20	0.8	20	0.8	70	2.8
Limbadi	10	0.4	20	0.8	20	0.8	20	0.8	20	0.8	90	3.6
Total	**190**	**7.6**	**210**	**8.4**	**225**	**9**	**300**	**12**	**300**	**12**	**1225**	**49**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 4000 per demonstration

Table 4.13.4.9 Varietal Demonstration on cumin

(Phy-Area covered in ha, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	40	1.2	50	1.5	70	2.1	85	2.55	85	2.55	330	9.9
Dhangadhra	25	0.75	60	1.8	65	1.95	80	2.4	80	2.4	310	9.3
Dasada	40	1.2	50	1.5	70	2.1	85	2.55	85	2.55	330	9.9
Lakhatar	15	0.45	30	0.9	50	1.5	60	1.8	60	1.8	215	6.45
Vadhavan	15	0.45	20	0.6	25	0.75	40	1.2	40	1.2	140	4.2
Muli	15	0.45	10	0.3	15	0.45	20	0.6	20	0.6	80	2.4
Chotila	10	0.3	10	0.3	15	0.45	20	0.6	20	0.6	75	2.25
Sayala	10	0.3	10	0.3	20	0.6	25	0.75	25	0.75	90	2.7
Chuda	15	0.45	15	0.45	20	0.6	25	0.75	25	0.75	100	3
Limbadi	15	0.45	45	1.35	50	1.5	60	1.8	60	1.8	230	6.9
Total	**200**	**6**	**300**	**9**	**400**	**12**	**500**	**15**	**500**	**15**	**1900**	**57**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 3000 per demonstration

The demonstrations on plant health management like seed treatment with bio-pest, soil health management like use of bio fertilizers and bio compost for different crops are proposed to create the awareness among the farmers are presented in Table 4.13.5 and 4.13.6. The total number of demonstrations in all taluka of the district is proposed as 17000 with total financial requirement of Rs.340 lakhs for the major crops of the district.

4.13.3 Demonstrations on plant health management for different crops

Table 4.13.5.1: Demonstrations on plant health management including seed treatment with bio pesticides for pearlmillet

(Phy-Number of demonstrations, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	22	0.44	22	0.44	22	0.44	22	0.44	22	0.44	110	2.2
Dhangadhra	45	0.9	45	0.9	45	0.9	45	0.9	45	0.9	225	4.5
Dasada	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	125	2.5
Lakhatar	3	0.06	3	0.06	3	0.06	3	0.06	3	0.06	15	0.3
Vadhavan	4	0.08	4	0.08	4	0.08	4	0.08	4	0.08	20	0.4
Muli	21	0.42	21	0.42	21	0.42	21	0.42	21	0.42	105	2.1
Chotila	40	0.8	40	0.8	40	0.8	40	0.8	40	0.8	200	4
Sayala	23	0.46	23	0.46	23	0.46	23	0.46	23	0.46	115	2.3
Chuda	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1
Limbadi	7	0.14	7	0.14	7	0.14	7	0.14	7	0.14	35	0.7
Total	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**1000**	**20**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

Table 4.13.5.2: Demonstrations on plant health management including seed treatment with bio-pesticides for wheat (Phy-Number of demonstrations, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	60	1.2	60	1.2	60	1.2	60	1.2	60	1.2	300	6
Dhangadhra	70	1.4	70	1.4	70	1.4	70	1.4	70	1.4	350	7
Dasada	4	0.08	4	0.08	4	0.08	4	0.08	4	0.08	20	0.4
Lakhatar	4	0.08	4	0.08	4	0.08	4	0.08	4	0.08	20	0.4
Vadhavan	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Muli	21	0.42	21	0.42	21	0.42	21	0.42	21	0.42	105	2.1
Chotila	43	0.86	43	0.86	43	0.86	43	0.86	43	0.86	215	4.3
Sayala	30	0.6	30	0.6	30	0.6	30	0.6	30	0.6	150	3
Chuda	4	0.08	4	0.08	4	0.08	4	0.08	4	0.08	20	0.4
Limbadi	59	1.18	59	1.18	59	1.18	59	1.18	59	1.18	295	5.9
Total	**300**	**6**	**300**	**6**	**300**	**6**	**300**	**6**	**300**	**6**	**1500**	**30**

Table 4.13.5.3: Demonstrations on plant health management including seed treatment with bio-pesticides for gram

(Phy-Number of demonstrations, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	50	1	50	1	50	1	50	1	50	1	250	5
Dhangadhra	50	1	50	1	50	1	50	1	50	1	250	5
Dasada	70	1.4	70	1.4	70	1.4	70	1.4	70	1.4	350	7
Lakhatar	40	0.8	40	0.8	40	0.8	40	0.8	40	0.8	200	4
Vadhavan	30	0.6	30	0.6	30	0.6	30	0.6	30	0.6	150	3
Muli	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2
Chotila	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2
Sayala	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2
Chuda	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	125	2.5
Limbadi	75	1.5	75	1.5	75	1.5	75	1.5	75	1.5	375	7.5
Total	**400**	**8**	**400**	**8**	**400**	**8**	**400**	**8**	**400**	**8**	**2000**	**40**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

Table 4.13.5.4: Demonstrations on plant health management including seed treatment with bio-pesticides for groundnut

(Phy-Number of demonstrations, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	100	2	100	2	100	2	100	2	100	2	500	10
Dhangadhra	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2
Dasada	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Lakhatar	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Vadhavan	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1
Muli	35	0.7	35	0.7	35	0.7	35	0.7	35	0.7	175	3.5
Chotila	80	1.6	80	1.6	80	1.6	80	1.6	80	1.6	400	8
Sayala	30	0.6	30	0.6	30	0.6	30	0.6	30	0.6	150	3
Chuda	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1
Limbadi	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Total	**300**	**6**	**300**	**6**	**300**	**6**	**300**	**6**	**300**	**6**	**1500**	**30**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

Table 4.13.5.5: Demonstrations on plant health management including seed treatment with bio-pesticides sesame

(Phy-Number of demonstrations, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2
Dhangadhra	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2
Dasada	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Lakhatar	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Vadhavan	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1
Muli	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Chotila	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Sayala	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1
Chuda	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Limbadi	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Total	**100**	**2**	**100**	**2**	**100**	**2**	**100**	**2**	**100**	**2**	**500**	**10**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

Table 4.13.5.6: Demonstrations on plant health management including seed treatment with bio-pesticides for castor (Phy-Number of demonstrations, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Dhangadhra	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1
Dasada	60	1.2	60	1.2	60	1.2	60	1.2	60	1.2	300	6
Lakhatar	50	1	50	1	50	1	50	1	50	1	250	5
Vadhavan	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1
Muli	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1
Chotila	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1
Sayala	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1
Chuda	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1
Limbadi	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Total	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**1000**	**20**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

Table 4.13.5.7: Demonstrations on plant health management including seed treatment with bio-pesticides cotton

(Phy-Number of demonstrations, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	21	0.42	21	0.42	21	0.42	21	0.42	21	0.42	105	2.1
Dhangadhra	23	0.46	23	0.46	23	0.46	23	0.46	23	0.46	115	2.3
Dasada	34	0.68	34	0.68	34	0.68	34	0.68	34	0.68	170	3.4
Lakhatar	24	0.48	24	0.48	24	0.48	24	0.48	24	0.48	120	2.4
Vadhavan	16	0.32	16	0.32	16	0.32	16	0.32	16	0.32	80	1.6
Muli	18	0.36	18	0.36	18	0.36	18	0.36	18	0.36	90	1.8
Chotila	13	0.26	13	0.26	13	0.26	13	0.26	13	0.26	65	1.3
Sayala	16	0.32	16	0.32	16	0.32	16	0.32	16	0.32	80	1.6
Chuda	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Limbadi	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2
Total	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**1000**	**20**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

Table 4.13.5.8: Demonstrations on plant health management including seed treatment with bio-pesticides cumin

(Phy-Number of demonstrations, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	35	0.7	35	0.7	35	0.7	35	0.7	35	0.7	175	3.5
Dhangadhra	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	125	2.5
Dasada	35	0.7	35	0.7	35	0.7	35	0.7	35	0.7	175	3.5
Lakhatar	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2
Vadhavan	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1
Muli	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Chotila	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1
Sayala	30	0.6	30	0.6	30	0.6	30	0.6	30	0.6	150	3
Chuda	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1
Limbadi	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1
Total	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**1000**	**20**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

4.13.4 Demonstrations on soil health management for different crops

Table 4.13.6.1: Demonstrations on soil health management use of bio fertilizers and bio compost for wheat

(Phy – Number of demonstarions, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	35	0.7	35	0.7	35	0.7	35	0.7	35	0.7	175	3.5
Dhangadhra	35	0.7	35	0.7	35	0.7	35	0.7	35	0.7	175	3.5
Dasada	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2.0
Lakhatar	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Vadhavan	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Muli	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Chotila	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Sayala	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Chuda	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Limbadi	35	0.7	35	0.7	35	0.7	35	0.7	35	0.7	175	3.5
Total	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**1000**	**20.0**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

Table 4.13.6.2: Demonstrations on soil health management use of bio fertilizers and bio compost for gram

(Phy – Number of demonstarions, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	30	0.6	30	0.6	30	0.6	30	0.6	30	0.6	150	3.0
Dhangadhra	30	0.6	30	0.6	30	0.6	30	0.6	30	0.6	150	3.0
Dasada	60	1.2	60	1.2	60	1.2	60	1.2	60	1.2	300	6.0
Lakhatar	30	0.6	30	0.6	30	0.6	30	0.6	30	0.6	150	3.0
Vadhavan	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2.0
Muli	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Chotila	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Sayala	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Chuda	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Limbadi	70	1.4	70	1.4	70	1.4	70	1.4	70	1.4	350	7.0
Total	**300**	**6**	**300**	**6**	**300**	**6**	**300**	**6**	**300**	**6**	**1500**	**30.0**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

Table 4.13.6.3: Demonstrations on soil health management use of bio fertilizers and bio compost for groundnut

(Phy – Number of demonstarions, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	95	1.9	95	1.9	95	1.9	95	1.9	95	1.9	475	9.5
Dhangadhra	30	0.6	30	0.6	30	0.6	30	0.6	30	0.6	150	3.0
Dasada	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2.0
Lakhatar	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2.0
Vadhavan	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	125	2.5
Muli	45	0.9	45	0.9	45	0.9	45	0.9	45	0.9	225	4.5
Chotila	95	1.9	95	1.9	95	1.9	95	1.9	95	1.9	475	9.5
Sayala	30	0.6	30	0.6	30	0.6	30	0.6	30	0.6	150	3.0
Chuda	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2.0
Limbadi	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2.0
Total	**400**	**8**	**400**	**8**	**400**	**8**	**400**	**8**	**400**	**8**	**2000**	**40.0**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

Table 4.13.6.4: Demonstrations on soil health management use of bio fertilizers and bio compost for castor

(Phy – Number of demonstarions, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Dhangadhra	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2.0
Dasada	65	1.3	65	1.3	65	1.3	65	1.3	65	1.3	325	6.5
Lakhatar	45	0.9	45	0.9	45	0.9	45	0.9	45	0.9	225	4.5
Vadhavan	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Muli	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Chotila	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Sayala	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Chuda	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Limbadi	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Total	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**1000**	**20.0**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

Table 4.13.6.5: Demonstrations on soil health management use of bio fertilizers and bio- compost for cotton.

(Phy – Number of demonstarions, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	30	0.6	30	0.6	30	0.6	30	0.6	30	0.6	150	3.0
Dhangadhra	35	0.7	35	0.7	35	0.7	35	0.7	35	0.7	175	3.5
Dasada	50	1	50	1	50	1	50	1	50	1	250	5.0
Lakhatar	35	0.7	35	0.7	35	0.7	35	0.7	35	0.7	175	3.5
Vadhavan	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	125	2.5
Muli	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	125	2.5
Chotila	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2.0
Sayala	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2.0
Chuda	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	125	2.5
Limbadi	35	0.7	35	0.7	35	0.7	35	0.7	35	0.7	175	3.5
Total	**300**	**6**	**300**	**6**	**300**	**6**	**300**	**6**	**300**	**6**	**1500**	**30.0**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

Table 4.13.6.6: Demonstrations on soil health management use of bio fertilizers and bio compost for cumin

(Phy – Number of demonstarions, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Dhangadhra	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Dasada	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Lakhatar	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Vadhavan	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Muli	2	0.04	2	0.04	2	0.04	2	0.04	2	0.04	10	0.2
Chotila	2	0.04	2	0.04	2	0.04	2	0.04	2	0.04	10	0.2
Sayala	2	0.04	2	0.04	2	0.04	2	0.04	2	0.04	10	0.2
Chuda	2	0.04	2	0.04	2	0.04	2	0.04	2	0.04	10	0.2
Limbadi	2	0.04	2	0.04	2	0.04	2	0.04	2	0.04	10	0.2
Total	**50**	**1**	**50**	**1**	**50**	**1**	**50**	**1**	**50**	**1**	**250**	**5.0**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

Table 4.13.6.7: Demonstrations on soil health management use of bio fertilizers and bio compost for crop diversification

(Phy – Number of demonstrations, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Dhangadhra	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Dasada	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Lakhatar	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Vadhavan	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Muli	2	0.04	2	0.04	2	0.04	2	0.04	2	0.04	10	0.2
Chotila	2	0.04	2	0.04	2	0.04	2	0.04	2	0.04	10	0.2
Sayala	2	0.04	2	0.04	2	0.04	2	0.04	2	0.04	10	0.2
Chuda	2	0.04	2	0.04	2	0.04	2	0.04	2	0.04	10	0.2
Limbadi	2	0.04	2	0.04	2	0.04	2	0.04	2	0.04	10	0.2
Total	**50**	**1**	**50**	**1**	**50**	**1**	**50**	**1**	**50**	**1**	**250**	**5.0**

Area of Demonstration = 0.4 ha

Demonstration cost @Rs 2000 per demonstration

The demonstrations on soil reclamation to be conducted in salt affected area of the district during XII five year plan are presented in Table 4.13.7 The total number of proposed demonstrations are 1000 with the total financial requirement of Rs. 40 lakhs with 0.4 ha demonstration area.

Table 4.13.7 Demonstrations on soil reclamation

(Phy – Number of demonstrations, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	20	0.8	20	0.8	20	0.8	20	0.8	20	0.8	100	4
Dasada	70	2.8	70	2.8	70	2.8	70	2.8	70	2.8	350	14
Lakhatar	50	2	50	2	50	2	50	2	50	2	250	10
Limbadi	60	2.4	60	2.4	60	2.4	60	2.4	60	2.4	300	12
Total	**200**	**8**	**200**	**8**	**200**	**8**	**200**	**8**	**200**	**8**	**1000**	**40**

Area of Demonstration = 0.4 ha

Demonstration cost @Rs 4000 per demonstration

The demonstrations on IWM to be conducted during XII five year plan are presented in Table 4.13.8. The total number of proposed demonstrations is 5875 with the total financial requirement of Rs. 117.5 for different crops with 0.4 ha demonstration area.

Table 4.13.8.1: Demonstrations on IWM (Integrated weed management) for wheat

(Phy – Number of demonstrations, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	70	1.4	70	1.4	70	1.4	70	1.4	70	1.4	350	7.0
Dhangadhra	75	1.5	75	1.5	75	1.5	75	1.5	75	1.5	375	7.5
Dasada	30	0.6	30	0.6	30	0.6	30	0.6	30	0.6	150	3.0
Lakhatar	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	125	2.5
Vadhavan	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2.0
Muli	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	125	2.5
Chotila	35	0.7	35	0.7	35	0.7	35	0.7	35	0.7	175	3.5
Sayala	30	0.6	30	0.6	30	0.6	30	0.6	30	0.6	150	3.0
Chuda	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2.0
Limbadi	70	1.4	70	1.4	70	1.4	70	1.4	70	1.4	350	7.0
Total	**400**	**8**	**400**	**8**	**400**	**8**	**400**	**8**	**400**	**8**	**2000**	**40.0**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

Table 4.13.8.2: Demonstrations on IWM (Integrated weed management) for gram

(Phy – Number of demonstrations, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Dhangadhra	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Dasada	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Lakhatar	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Vadhavan	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Muli	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Chotila	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Sayala	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Chuda	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Limbadi	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	125	2.5
Total	**75**	**1.5**	**75**	**1.5**	**75**	**1.5**	**75**	**1.5**	**75**	**1.5**	**375**	**7.5**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

Table 4.13.8.3: Demonstrations on IWM (Integrated weed management) for groundnut

(Phy – Number of demonstrations, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	30	0.6	30	0.6	30	0.6	30	0.6	30	0.6	150	3.0
Dhangadhra	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Dasada	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Lakhatar	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Vadhavan	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Muli	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Chotila	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2.0
Sayala	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Chuda	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Limbadi	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Total	**100**	**2**	**100**	**2**	**100**	**2**	**100**	**2**	**100**	**2**	**500**	**10.0**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

Table 4.13.8.4: Demonstrations on IWM (Integrated weed management) for castor

(Phy – Number of demonstrations, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Dhangadhra	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Dasada	60	1.2	60	1.2	60	1.2	60	1.2	60	1.2	300	6.0
Lakhatar	45	0.9	45	0.9	45	0.9	45	0.9	45	0.9	225	4.5
Vadhavan	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Muli	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Chotila	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Sayala	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Chuda	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Limbadi	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Total	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**1000**	**20.0**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

Table 4.13.8.5: Demonstrations on IWM (Integrated weed management) for cotton

(Phy – Number of demonstrations, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2.0
Dhangadhra	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	125	2.5
Dasada	35	0.7	35	0.7	35	0.7	35	0.7	35	0.7	175	3.5
Lakhatar	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	125	2.5
Vadhavan	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Muli	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Chotila	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Sayala	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Chuda	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Limbadi	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2.0
Total	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**1000**	**20.0**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

Table 4.13.8.6: Demonstrations on IWM (Integrated weed management) for cumin

(Phy – Number of demonstrations, Fin – Rs. in lakhs)

Taluka	Number of demonstrations and financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	40	0.8	40	0.8	40	0.8	40	0.8	40	0.8	200	4.0
Dhangadhra	25	0.5	25	0.5	25	0.5	25	0.5	25	0.5	125	2.5
Dasada	35	0.7	35	0.7	35	0.7	35	0.7	35	0.7	175	3.5
Lakhatar	20	0.4	20	0.4	20	0.4	20	0.4	20	0.4	100	2.0
Vadhavan	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Muli	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
Chotila	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Sayala	30	0.6	30	0.6	30	0.6	30	0.6	30	0.6	150	3.0
Chuda	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
Limbadi	10	0.2	10	0.2	10	0.2	10	0.2	10	0.2	50	1.0
Total	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**200**	**4**	**1000**	**20.0**

Area of Demonstration = 0.4 ha
Demonstration cost @Rs 2000 per demonstration

4.13.5 Seed production enhancement:

Seed planning/ Seed village programme (Seed production enhancement) , the seed storage at University /Panchayat level and taluka level and seed storage godown are proposed as given in Table 4.13.9,Table 4.13.10 and Table 4.13.11 respectively. Seed planning/ Seed village programme (Seed production enhancement) is proposed with the total financial requirement of Rs 458.4 Lakhs which will cover 12000 ha area. The seed storage at university farms, Panchayat level and taluka level are proposed as 50 with total financial requirement of Rs. 70.00 Lakh. Seed storage godown at panchayat level in 225 villages are proposed with total financial requirement of Rs.675 lakhs.

Table 4.13.9.1: Seed planning/ Seed village programme for pearlmillet

(Phy – No. of villages, Fin – Rs. in lakhs)

Taluka	No. of villages and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	3	0.06	3	0.06	3	0.06	3	0.06	3	0.06	15	0.3
Dhangadhra	5	0.10	5	0.10	5	0.10	5	0.10	5	0.10	25	0.5
Dasada	3	0.06	3	0.06	3	0.06	3	0.06	3	0.06	15	0.3
Muli	2	0.04	2	0.04	2	0.04	2	0.04	2	0.04	10	0.2
Chotila	5	0.10	5	0.10	5	0.10	5	0.10	5	0.10	25	0.5
Sayala	3	0.06	3	0.06	3	0.06	3	0.06	3	0.06	15	0.3
Total	**20**	**0.40**	**20**	**0.40**	**20**	**0.40**	**20**	**0.40**	**20**	**0.40**	**100**	**2**

Area of seed village = 10 ha
Cost of per seed village program @ 0.02 lakhs

Table 4.13.9.2: Seed planning/ Seed village programme for wheat

(Phy – No. of villages, Fin – Rs. in lakhs)

Taluka	No. of villages and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	10	2.4	10	2.4	10	2.4	10	2.4	10	2.4	50	12
Dhangadhra	12	2.88	12	2.88	12	2.88	12	2.88	12	2.88	60	14.4
Dasada	1	0.24	1	0.24	1	0.24	1	0.24	1	0.24	5	1.2
Lakhatar	1	0.24	1	0.24	1	0.24	1	0.24	1	0.24	5	1.2
Vadhavan	1	0.24	1	0.24	1	0.24	1	0.24	1	0.24	5	1.2
Muli	4	0.96	4	0.96	4	0.96	4	0.96	4	0.96	20	4.8
Chotila	7	1.68	7	1.68	7	1.68	7	1.68	7	1.68	35	8.4
Sayala	5	1.2	5	1.2	5	1.2	5	1.2	5	1.2	25	6
Chuda	1	0.24	1	0.24	1	0.24	1	0.24	1	0.24	5	1.2
Limbadi	10	2.4	10	2.4	10	2.4	10	2.4	10	2.4	50	12
Total	**50**	**12**	**50**	**12**	**50**	**12**	**50**	**12**	**50**	**12**	**250**	**60**

Area of seed village = 10 ha
Cost of per seed village program @ 0.24 lakhs

Table 4.13.9.3: Seed planning/ Seed village programme for gram

(Phy – No. of villages, Fin – Rs. in lakhs)

Taluka	No. of villages and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	5	2.1	5	2.1	5	2.1	5	2.1	5	2.1	25	10.5
Dhangadhra	5	2.1	5	2.1	5	2.1	5	2.1	5	2.1	25	10.5
Dasada	10	4.2	10	4.2	10	4.2	10	4.2	10	4.2	50	21
Lakhatar	5	2.1	5	2.1	5	2.1	5	2.1	5	2.1	25	10.5
Vadhavan	5	2.1	5	2.1	5	2.1	5	2.1	5	2.1	25	10.5
Muli	2	0.84	2	0.84	2	0.84	2	0.84	2	0.84	10	4.2
Chotila	2	0.84	2	0.84	2	0.84	2	0.84	2	0.84	10	4.2
Sayala	2	0.84	2	0.84	2	0.84	2	0.84	2	0.84	10	4.2
Chuda	4	1.68	4	1.68	4	1.68	4	1.68	4	1.68	20	8.4
Limbadi	10	4.2	10	4.2	10	4.2	10	4.2	10	4.2	50	21
Total	**50**	**21**	**50**	**21**	**50**	**21**	**50**	**21**	**50**	**21**	**250**	**105**

Area of seed village = 10 ha
Cost of per seed village program @ 0.42 lakhs

Table 4.13.9.4: Seed planning/ Seed village programme for groundnut

(Phy – No. of villages, Fin – Rs. in lakhs)

Taluka	No. of villages and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	20	19.2	20	19.2	20	19.2	20	19.2	20	19.2	100	96
Dhangadhra	3	2.88	3	2.88	3	2.88	3	2.88	3	2.88	15	14.4
Dasada	1	0.96	1	0.96	1	0.96	1	0.96	1	0.96	5	4.8
Lakhatar	1	0.96	1	0.96	1	0.96	1	0.96	1	0.96	5	4.8
Vadhavan	2	1.92	2	1.92	2	1.92	2	1.92	2	1.92	10	9.6
Muli	5	4.8	5	4.8	5	4.8	5	4.8	5	4.8	25	24
Chotila	10	9.6	10	9.6	10	9.6	10	9.6	10	9.6	50	48
Sayala	5	4.8	5	4.8	5	4.8	5	4.8	5	4.8	25	24
Chuda	2	1.92	2	1.92	2	1.92	2	1.92	2	1.92	10	9.6
Limbadi	1	0.96	1	0.96	1	0.96	1	0.96	1	0.96	5	4.8
Total	**50**	**48**	**50**	**48**	**50**	**48**	**50**	**48**	**50**	**48**	**250**	**240**

Area of seed village = 10 ha
Cost of per seed village program @ 0.96 lakhs

Table 4.13.9.5: Seed planning/ Seed village programme for sesame

(Phy – No. of villages, Fin – Rs. in lakhs)

Taluka	No. of villages and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	7	0.28	7	0.28	7	0.28	7	0.28	7	0.28	35	1.4
Dhangadhra	6	0.24	6	0.24	6	0.24	6	0.24	6	0.24	30	1.2
Dasada	2	0.08	2	0.08	2	0.08	2	0.08	2	0.08	10	0.4
Lakhatar	2	0.08	2	0.08	2	0.08	2	0.08	2	0.08	10	0.4
Vadhavan	2	0.08	2	0.08	2	0.08	2	0.08	2	0.08	10	0.4
Muli	4	0.16	4	0.16	4	0.16	4	0.16	4	0.16	20	0.8
Chotila	2	0.08	2	0.08	2	0.08	2	0.08	2	0.08	10	0.4
Sayala	3	0.12	3	0.12	3	0.12	3	0.12	3	0.12	15	0.6
Chuda	1	0.04	1	0.04	1	0.04	1	0.04	1	0.04	5	0.2
Limbadi	2	0.08	2	0.08	2	0.08	2	0.08	2	0.08	10	0.4
Total	**30**	**1.2**	**30**	**1.2**	**30**	**1.2**	**30**	**1.2**	**30**	**1.2**	**150**	**6**

Area of seed village = 10 ha
Cost of per seed village program @ 0.04 lakhs

Table 4.13.9.6: Seed planning/ Seed village program for cumin

(Phy – No. of villages, Fin – Rs. in lakhs)

Taluka	No. of villages and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	5	1.25	5	1.25	5	1.25	5	1.25	5	1.25	25	6.25
Dhangadhra	3	0.75	3	0.75	3	0.75	3	0.75	3	0.75	15	3.75
Dasada	4	1	4	1	4	1	4	1	4	1	20	5
Lakhatar	3	0.75	3	0.75	3	0.75	3	0.75	3	0.75	15	3.75
Vadhavan	1	0.25	1	0.25	1	0.25	1	0.25	1	0.25	5	1.25
Muli	2	0.5	2	0.5	2	0.5	2	0.5	2	0.5	10	2.5
Chotila	2	0.5	2	0.5	2	0.5	2	0.5	2	0.5	10	2.5
Sayala	4	1	4	1	4	1	4	1	4	1	20	5
Chuda	1	0.25	1	0.25	1	0.25	1	0.25	1	0.25	5	1.25
Limbadi	1	0.25	1	0.25	1	0.25	1	0.25	1	0.25	5	1.25
Total	**25**	**6.25**	**25**	**6.25**	**25**	**6.25**	**25**	**6.25**	**25**	**6.25**	**125**	**31.25**

Area of seed village = 10 ha
Cost of per seed village program @ 0.25 lakhs

Table 4.13.9.7: Seed planning/ Seed village programme for pulses

(Phy – No. of villages, Fin – Rs. in lakhs)

Taluka	No. of villages and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	2	0.38	2	0.38	2	0.38	2	0.38	2	0.38	10	1.9
Dhangadhra	3	0.57	3	0.57	3	0.57	3	0.57	3	0.57	15	2.85
Muli	2	0.38	2	0.38	2	0.38	2	0.38	2	0.38	10	1.9
Chotila	4	0.76	4	0.76	4	0.76	4	0.76	4	0.76	20	3.8
Sayala	2	0.38	2	0.38	2	0.38	2	0.38	2	0.38	10	1.9
Chuda	2	0.38	2	0.38	2	0.38	2	0.38	2	0.38	10	1.9
Total	**15**	**2.85**	**15**	**2.85**	**15**	**2.85**	**15**	**2.85**	**15**	**2.85**	**75**	**14.25**

Area of seed village = 10 ha
Cost of per seed village program @ 0.19 lakhs

Table 4.13.10.1: Modernization of University Farm

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Vadhavan (Kukda farm)	-	-	-	-	1	10	-	-	-	-	1	10
Chotila(KVK)	-	-	-	-	-	-	1	10	-	-	1	10
Total	**-**	**-**	**-**	**-**	**1**	**10**	**1**	**10**	**-**	**-**	**2**	**20**

Table 4.13.10.2: Seed storage at taluka level

(Phy – No of units, Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	1	10	-	-	-	-	-	-	-	-	1	10
Dasada	-	-	1	10	-	-	-	-	-	-	1	10
Sayala	-	-	-	-	1	10	-	-	-	-	1	10
Chuda	-	-	-	-	-	-	1	10	-	-	1	10
Limbadi	-	-	-	-	-	-	-	-	1	10	1	10
Total	**1**	**10**	**1**	**10**	**1**	**10**	**1**	**10**	**1**	**10**	**5**	**50**

Table 4.13.11: Seed storage godowns at panchayat level

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of godawns and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	5	15.00	5	15.0	5	15.00	5	15.0	5	15.00	25	75
Dhangadhra	5	15.00	5	15.0	5	15.00	5	15.0	5	15.00	25	75
Dasada	6	18.00	6	18.0	6	18.00	6	18.0	6	18.00	30	90
Lakhatar	3	9.00	3	9.00	3	9.00	3	9.00	3	9.00	15	45
Vadhavan	3	9.00	3	9.00	3	9.00	3	9.00	3	9.00	15	45
Muli	4	12.00	4	12.0	4	12.00	4	12.0	4	12.00	20	60
Chotila	7	21.00	7	21.0	7	21.00	7	21.0	7	21.00	35	105
Sayala	5	15.00	5	15.0	5	15.00	5	15.0	5	15.00	25	75
Chuda	3	9.00	3	9.00	3	9.00	3	9.00	3	9.00	15	45
Limbadi	4	12.00	4	12.0	4	12.00	4	12.0	4	12.00	20	60
Total	**45**	**135.00**	**45**	**135.0**	**45**	**135.0**	**45**	**135.0**	**45**	**135.0**	**225**	**675**

The soil and water testing laboratory and mobile plant health clinic and strengthening of existing university / government laboratory are proposed in Table 4.13.12 with the total financial requirement of Rs. 375.00 lakhs. The taluka wise soil testing programme to test the general soil samples (5,35,400 samples), micronutrient soil samples (4,575 samples) and water samples (9,150 samples) are planned with Rs. 871.70 Lakh (Table 4.13.13).

Table 4.13.12.1: Establishment of soil and water testing laboratory

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No. of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Dhangadhra	-	-	1	25	-	-	-	-	-	0.5	1	25.5
Dasada	1	25	-	-	-	-	-	-	-	0.5	1	25.5
Lakhatar	-	-	-	-	1	25	-	-	-	0.5	1	25.5
Muli	-	-	-	-	1	25	-	-	-	0.5	1	25.5
Sayala	-	-	-	-	-	-	1	25	-	0.5	1	25.5
Chuda	-	-	-	-	-	-	1	25	-	0.5	1	25.5
Limbadi	1	25	-	-	-	-	-	-	-	0.5	1	25.5
Misc Expenses										1.0	-	1.0
Total	**2**	**50**	**1**	**25**	**2**	**50**	**2**	**50**		**5**	**7**	**180**

Table 4.13.12.2: Strenghening & upgrading of existing laboratories

(Phy – No. and Fin – Rs. in lakhs)

Talukas	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	-	-	1	50	-	-	-	-	-	-	-	50
Vadhavan	-	-	-	-	-	50	-	-	-	-	-	50
Chotila	-	-	-	-	-	-	-	50	-	-	-	50
Misc Expenses	-	-	-	-	-	-	-	-	-	5	-	5
Total	**-**	**-**	**1**	**50**	**1**	**50**	**1**	**50**		**5**		**155**

Table 4.13.12.3: Establishment of mobile soil testing and plant health clinic van

(Phy – No. of unit Fin – Rs. in lakhs)

Talukas	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Muli	-	-	1	25	-	-	-	-	-	-	1	25
Dasada	-	-	-	-	1	25				-	1	25
Limbadi	-	-	-	-	-	-	1	25	-	5	1	30
Total	**-**	**-**	**1**	**25**	**1**	**25**	**1**	**25**		**5**	**3**	**80**

Table 4.13.13: Planning for soil testing programme (2012-13 to 2016-17)

Sr. No.	Taluka	Item	No. of land holders	Total sample to be analysed	Amount Rs. In lakh for 5 years
1	Halwad	General soil sample	25137	12500	18.75
		Micronutrient soil sample		220	2.20
		Water sample		450	1.13
2	Dhangadhra	General soil sample	27389	13600	20.40
		Micronutrient soil sample		125	1.25
		Water sample		250	0.63
3	Dasada	General soil sample	26225	13200	19.80
		Micronutrient soil sample		180	1.80
		Water sample		360	0.90
4	Lakhatar	General soil sample	15478	7740	11.61
		Micronutrient soil sample		100	1.00
		Water sample		200	0.50
5	Vadhavan	General soil sample	21056	10550	15.83
		Micronutrient soil sample		340	3.40
		Water sample		680	1.70
6	Muli	General soil sample	17877	8950	13.43
		Micronutrient soil sample		425	4.25
		Water sample		850	2.13

Cont.

Sr. No.	Taluka	Item	No. of land holders	Total sample to be analysed	Amount Rs. In lakh for 5 years
7	Chotila	General soil sample	19336	9700	14.55
		Micronutrient soil sample		650	6.50
		Water sample		1300	3.25
8	Sayala	General soil sample	18215	9100	13.65
		Micronutrient soil sample		615	6.15
		Water sample		1230	3.08
9	Chuda	General soil sample	14734	7400	11.10
		Micronutrient soil sample		250	2.50
		Water sample		500	1.25
10	Limbadi	General soil sample	25553	12700	19.05
		Micronutrient soil sample		465	4.65
		Water sample		930	2.33
	Total	General soil sample	211000	105440	158.16
		Micronutrient soil sample		3370	33.70
		Water sample		6750	16.88
		Grand Total of all samples		115560	208.74

	Year wise soil testing programme (Rs. in lakhs)					
	2012-13	2013-14	2014-15	2015-16	2016-17	Total
Amount Rs. in lakh	**41.75**	**41.75**	**41.75**	**41.75**	**41.75**	**208.75**

To establish the better marketing facilities, the strengthening of APMC through e-connectivity and the creation of new APMC is necessary in the district. Therefore the planning and the financial requirement are presented in Table 4.13.14 and Table 4.13.15.

Table 4.13.14**: Establishment of new APMC and financial requirements**

(Phy – No. of units, Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Chuda	-	-	1	500	-	-	-	-	-	-	1	500
Total	**-**	**-**	**1**	**500**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**500**

Table 4.13.15**: Establishment of e-connectivity and financial requirements**

(Phy – No. of units, Fin – Rs. in lakhs)

Taluka	No of godawns and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	1	2	-	-	-	-	-	-	-	-	1	2
Dhangadhra	1	2	-	-	-	-	-	-	-	-	1	2
Dasada	1	2	-	-	-	-	-	-	-	-	1	2
Lakhatar	-	-	1	2	-	-	-	-	-	-	1	2
Vadhavan	-	-	1	2	-	-	-	-	-	-	1	2
Muli	1	2	-	-	-	-	-	-	-	-	1	2
Chotila	-	-	1	2	-	-	-	-	-	-	1	2
Sayala	1	2			-	-	-	-	-	-	1	2
Chuda	-	-	1	2	-	-	-	-	-	-	1	2
Limbadi	-	-	1	2	-	-	-	-	-	-	1	2
Total	**5**	**10**	**5**	**10**	**-**	**-**	**-**	**-**	**-**	**-**	**10**	**20**

4.14 Farm Mechanization/Farm Equipments

Farm mechanization is important as it leads to increased production and productivity, better utilization of irrigation potential, adoption of multiple cropping pattern, etc. Available Farm machinery is used with an objective of minimizing costs, increasing income, minimizing losses, reducing drudgery in operations, increasing cropping intensity etc., as also the benefits derived. The farmers are still using bullock drawn traditional wooden implements The farmers are still winnowing their crops with traditional methods employing 5 to 6 person to winnow little amount of harvest. The hand tools used are also traditional. The district is having 22596 tractors & 15278 trailers (Source: RTO), 15244 seed drill, 15675 iron plough 3910 chaff cutters. There is an immense scope for farm mechanization in the district. There is need to introduce lesser leveler in the district for presion farming. . Farm equipment and machinery in Surendranagar district is presented in Table 4.14.1. The requirement of farm mechanization in the district for XII five year plan is given in Table 4.14.2. There is an immense scope for farm mechanization in the district.

Rotavetor

Lacer Leveller

Table 4.14.1 Agricultural Implements and animal drawn implements of Surendranagar

Taluka	Tractors	Wooden Plough	Iron Plough	Cultivator	Harrow	Seed drill	Leveller	Cart	Oil miler	Grass cutter	Chaff cutter
Halwad	1200	139	1838	58	33	2179	877	1306	0	0	56
Dhangadhra	3780	187	394	0	0	421	0	276	0	24	0
Desada	1492	386	187	126	0	923	40	293	3	125	1722
Lakhatar	N.A	363	108	341	20	602	283	276	31	89	76
Vadhavan	1638	183	345	246	16	208	154	218	0	789	208
Muli	1050	635	1415	932	154	1682	934	800	2	58	236
Chotila	765	2252	5615	2647	522	4541	1326	3572	3	429	113
Sayala	750	1214	3899	1587	646	2625	178	1314	0	0	0
Chuda	N.A	788	892	767	173	671	459	611	134	448	571
Limbadi	935	1199	982	766	229	1392	508	825	38	389	928
Total	**11610**	**7346**	**15675**	**7470**	**1793**	**15244**	**4759**	**9491**	**211**	**2351**	**3910**

4.14.2: Requirement of farm mechanization (implements/equipments) in the district

Table 4.14.2.1: Requirement of mini tractor including implement

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	5	15.00	5	15.0	5	15.00	5	15.0	5	15.00	25	75
Dhangadhra	5	15.00	5	15.0	5	15.00	5	15.0	5	15.00	25	75
Dasada	4	12.00	4	12.0	4	12.00	4	12.0	4	12.00	20	60
Lakhatar	3	9.00	3	9.00	3	9.00	3	9.00	3	9.00	15	45
Vadhavan	3	9.00	3	9.00	3	9.00	3	9.00	3	9.00	15	45
Muli	4	12.00	4	12.0	4	12.00	4	12.0	4	12.00	20	60
Chotila	7	21.00	7	21.0	7	21.00	7	21.0	7	21.00	35	105
Sayala	6	18.00	6	18.0	6	18.00	6	18.0	6	18.00	30	90
Chuda	6	18.00	6	18.0	6	18.00	6	18.0	6	18.00	30	90
Limbadi	4	12.00	4	12.0	4	12.00	4	12.0	4	12.00	20	60
Total	**47**	**141**	**47**	**141**	**47**	**141**	**47**	**141**	**47**	**141**	**235**	**705**

Unit cost Rs.3.00 lakhs

Table 4.14.2.2: Requirement of power tiller in the district

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	10	22.5	10	22.5	10	22.5	10	22.5	10	22.5	50	113
Dhangadhra	15	33.75	15	33.75	15	33.75	15	33.75	15	33.75	75	169
Dasada	15	33.75	15	33.75	15	33.75	15	33.75	15	33.75	75	169
Lakhatar	9	20.25	9	20.25	9	20.25	9	20.25	9	20.25	45	101
Vadhavan	9	20.25	9	20.25	9	20.25	9	20.25	9	20.25	45	101
Muli	9	20.25	9	20.25	9	20.25	9	20.25	9	20.25	45	101
Chotila	9	20.25	9	20.25	9	20.25	9	20.25	9	20.25	45	101
Sayala	8	18	8	18	8	18	8	18	8	18	40	90
Chuda	6	13.5	6	13.5	6	13.5	6	13.5	6	13.5	30	68
Limbadi	10	22.5	10	22.5	10	22.5	10	22.5	10	22.5	50	113
Total	**100**	**225**	**100**	**225**	**100**	**225**	**100**	**225**	**100**	**225**	**500**	**1125**

Unit cost Rs.2.25 lacks

Table 4.14.2.3: Requirement of rotavator

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	10	6.0	10	6.0	10	6.0	10	6.0	10	6.0	50	30
Dhangadhra	13	7.8	13	7.8	13	7.8	13	7.8	13	7.8	65	39
Dasada	13	7.8	13	7.8	13	7.8	13	7.8	13	7.8	65	39
Lakhatar	7	4.2	7	4.2	7	4.2	7	4.2	7	4.2	35	21
Vadhavan	8	4.8	8	4.8	8	4.8	8	4.8	8	4.8	40	24
Muli	8	4.8	8	4.8	8	4.8	8	4.8	8	4.8	40	24
Chotila	8	4.8	8	4.8	8	4.8	8	4.8	8	4.8	40	24
Sayala	8	4.8	8	4.8	8	4.8	8	4.8	8	4.8	40	24
Chuda	5	3.0	5	3.0	5	3.0	5	3.0	5	3.0	25	15
Limbadi	10	6.0	10	6.0	10	6.0	10	6.0	10	6.0	50	30
Total	**90**	**54.0**	**90**	**54.0**	**90**	**54.0**	**90**	**54.0**	**90**	**54.0**	**450**	**270**

Unit cost Rs 0.60 lakhs

Table 4.14.2.4: Requirement of mobile chopper

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	20	25.0	20	25.0	20	25.0	20	25.0	20	25.0	100	125
Dhangadhra	20	25.0	20	25.0	20	25.0	20	25.0	20	25.0	100	125
Dasada	35	43.8	35	43.8	35	43.8	35	43.8	35	43.8	175	219
Lakhatar	25	31.3	25	31.3	25	31.3	25	31.3	25	31.3	125	156
Vadhavan	15	18.8	15	18.8	15	18.8	15	18.8	15	18.8	75	94
Muli	20	25.0	20	25.0	20	25.0	20	25.0	20	25.0	100	125
Chotila	15	18.8	15	18.8	15	18.8	15	18.8	15	18.8	75	94
Sayala	15	18.8	15	18.8	15	18.8	15	18.8	15	18.8	75	94
Chuda	15	18.8	15	18.8	15	18.8	15	18.8	15	18.8	75	94
Limbadi	20	25.0	20	25.0	20	25.0	20	25.0	20	25.0	100	125
Total	**200**	**250.0**	**200**	**250.0**	**200**	**250.0**	**200**	**250.0**	**200**	**250.0**	**1000**	**1250**

Unit cost Rs.1.25 lakhs

Table 4.14.2.5: Requirement of shredder (tractor PTO operated)

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	5	5.00	5	5.00	5	5.00	5	5.00	5	5.00	25	25.00
Dhangadhra	5	5.00	5	5.00	5	5.00	5	5.00	5	5.00	25	25.00
Dasada	5	5.00	5	5.00	5	5.00	5	5.00	5	5.00	25	25.00
Lakhatar	5	5.00	5	5.00	5	5.00	5	5.00	5	5.00	25	25.00
Vadhavan	5	5.00	5	5.00	5	5.00	5	5.00	5	5.00	25	25.00
Muli	5	5.00	5	5.00	5	5.00	5	5.00	5	5.00	25	25.00
Chotila	5	5.00	5	5.00	5	5.00	5	5.00	5	5.00	25	25.00
Sayala	5	5.00	5	5.00	5	5.00	5	5.00	5	5.00	25	25.00
Chuda	5	5.00	5	5.00	5	5.00	5	5.00	5	5.00	25	25.00
Limbadi	5	5.00	5	5.00	5	5.00	5	5.00	5	5.00	25	25.00
Total	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**50**	**250**	**250.0**

Unit cost Rs.1.00 lakhs

Table 4.14.2.6: Requirement of reversible MB plough

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	10	5.00	10	5.00	10	5.00	10	5.00	10	5.00	50	25.00
Dhangadhra	5	2.50	5	2.50	5	2.50	5	2.50	5	2.50	25	12.50
Dasada	10	5.00	10	5.00	10	5.00	10	5.00	10	5.00	50	25.00
Lakhatar	10	5.00	10	5.00	10	5.00	10	5.00	10	5.00	50	25.00
Vadhavan	10	5.00	10	5.00	10	5.00	10	5.00	10	5.00	50	25.00
Muli	5	2.50	5	2.50	5	2.50	5	2.50	5	2.50	25	12.50
Chotila	5	2.50	5	2.50	5	2.50	5	2.50	5	2.50	25	12.50
Sayala	5	2.50	5	2.50	5	2.50	5	2.50	5	2.50	25	12.50
Chuda	5	2.50	5	2.50	5	2.50	5	2.50	5	2.50	25	12.50
Limbadi	10	5.00	10	5.00	10	5.00	10	5.00	10	5.00	50	25.00
Total	**75**	**37.5**	**75**	**37.5**	**75**	**37.5**	**75**	**37.5**	**75**	**37.5**	**375**	**187.5**

Unit cost Rs.0.50 lakhs

Table 4.14.2.7: Requirement of chisel plough (Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	5	1.50	5	1.50	5	1.50	5	1.50	5	1.50	25	7.50
Dhangadhra	5	1.50	5	1.50	5	1.50	5	1.50	5	1.50	25	7.50
Dasada	5	1.50	5	1.50	5	1.50	5	1.50	5	1.50	25	7.50
Lakhatar	10	3.00	10	3.00	10	3.00	10	3.00	10	3.00	50	15.00
Vadhavan	5	1.50	5	1.50	5	1.50	5	1.50	5	1.50	25	7.50
Chuda	10	3.00	10	3.00	10	3.00	10	3.00	10	3.00	50	15.00
Limbadi	10	3.00	10	3.00	10	3.00	10	3.00	10	3.00	50	15.00
Total	**50**	**15**	**50**	**15**	**50**	**15**	**50**	**15**	**50**	**15**	**250**	**75**

Unit cost Rs.0.30 lakhs

Table 4.14.2.8: Requirement of groundnut decorticator (Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	20.0	10	20.0	10	20.0	10	20.0	10	20.0	10	100	50
Dhangadhra	5.0	2.5	5.0	2.5	5.0	2.5	5.0	2.5	5.0	2.5	25	12.5
Muli	6.0	3	6.0	3	6.0	3	6.0	3	6.0	3	30	15
Chotila	20.0	10	20.0	10	20.0	10	20.0	10	20.0	10	100	50
Sayala	4.0	2	4.0	2	4.0	2	4.0	2	4.0	2	20	10
Total	**55**	**27.5**	**55**	**27.5**	**55**	**27.5**	**55**	**27.5**	**55**	**27.5**	**275**	**137.5**

Unit cost Rs.0.50 lakhs

Table 4.14.2.9: Requirement of manual drawn automatic seed drill

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	50	1.25	50	1.25	50	1.25	50	1.25	50	1.25	250	6.25
Dhangadhra	50	1.25	50	1.25	50	1.25	50	1.25	50	1.25	250	6.25
Dasada	80	2	80	2	80	2	80	2	80	2	400	10
Lakhatar	50	1.25	50	1.25	50	1.25	50	1.25	50	1.25	250	6.25
Vadhavan	80	2	80	2	80	2	80	2	80	2	400	10
Muli	50	1.25	50	1.25	50	1.25	50	1.25	50	1.25	250	6.25
Chotila	50	1.25	50	1.25	50	1.25	50	1.25	50	1.25	250	6.25
Sayala	80	2	80	2	80	2	80	2	80	2	400	10
Chuda	50	1.25	50	1.25	50	1.25	50	1.25	50	1.25	250	6.25
Limbadi	80	2	80	2	80	2	80	2	80	2	400	10
Total	**620**	**15.5**	**620**	**15.5**	**620**	**15.5**	**620**	**15.5**	**620**	**15.5**	**3100**	**77.5**

Unit cost Rs.0.025 lakhs

Table 4.14.2.10: Requirement of bullock drawn automatic seed drill

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	35	1.75	35	1.75	35	1.75	35	1.75	35	1.75	175	9
Dhangadhra	45	2.25	45	2.25	45	2.25	45	2.25	45	2.25	225	11
Dasada	40	2.00	40	2.00	40	2.00	40	2.00	40	2.00	200	10
Lakhatar	20	1.00	20	1.00	20	1.00	20	1.00	20	1.00	100	5
Vadhavan	25	1.25	25	1.25	25	1.25	25	1.25	25	1.25	125	6
Muli	30	1.50	30	1.50	30	1.50	30	1.50	30	1.50	150	8
Chotila	30	1.50	30	1.50	30	1.50	30	1.50	30	1.50	150	8
Sayala	25	1.25	25	1.25	25	1.25	25	1.25	25	1.25	125	6
Chuda	20	1.00	20	1.00	20	1.00	20	1.00	20	1.00	100	5
Limbadi	30	1.50	30	1.50	30	1.50	30	1.50	30	1.50	150	8
Total	**300**	**15.0**	**300**	**15.0**	**300**	**15.0**	**300**	**15.0**	**300**	**15.0**	**1500**	**75**

Unit cost Rs.0.05 lakhs

Table 4.14.2.11: Requirement of automatic seed drill tractor drawn

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	10	4	10	4	10	4	10	4	10	4	50	20
Dhangadhra	15	6	15	6	15	6	15	6	15	6	75	30
Dasada	15	6	15	6	15	6	15	6	15	6	75	30
Lakhatar	10	4	10	4	10	4	10	4	10	4	50	20
Vadhavan	10	4	10	4	10	4	10	4	10	4	50	20
Muli	8	3.2	8	3.2	8	3.2	8	3.2	8	3.2	40	16
Chotila	8	3.2	8	3.2	8	3.2	8	3.2	8	3.2	40	16
Sayala	8	3.2	8	3.2	8	3.2	8	3.2	8	3.2	40	16
Chuda	6	2.4	6	2.4	6	2.4	6	2.4	6	2.4	30	12
Limbadi	10	4	10	4	10	4	10	4	10	4	50	20
Total	**100**	**40**	**100**	**40**	**100**	**40**	**100**	**40**	**100**	**40**	**500**	**200**

Unit cost Rs.0.40 lakhs

Table 4.14.2.12: Requirement of cotton picker

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	30	3	30	3	30	3	30	3	30	3	150	15
Dhangadhra	30	3	30	3	30	3	30	3	30	3	150	15
Dasada	45	4.5	45	4.5	45	4.5	45	4.5	45	4.5	225	23
Lakhatar	30	3	30	3	30	3	30	3	30	3	150	15
Vadhavan	20	2	20	2	20	2	20	2	20	2	100	10
Muli	20	2	20	2	20	2	20	2	20	2	100	10
Chotila	15	1.5	15	1.5	15	1.5	15	1.5	15	1.5	75	8
Sayala	15	1.5	15	1.5	15	1.5	15	1.5	15	1.5	75	8
Chuda	15	1.5	15	1.5	15	1.5	15	1.5	15	1.5	75	8
Limbadi	30	3	30	3	30	3	30	3	30	3	150	15
Total	**250**	**25**	**250**	**25**	**250**	**25**	**250**	**25**	**250**	**25**	**1250**	**125**

Unit cost Rs.0.10 lakhs

Table 4.14.2.13: Requirement of brush cutters

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	10	1.5	10	1.5	10	1.5	10	1.5	10	1.5	50	8
Dhangadhra	15	2.25	15	2.25	15	2.25	15	2.25	15	2.25	75	11
Dasada	15	2.25	15	2.25	15	2.25	15	2.25	15	2.25	75	11
Lakhatar	9	1.35	9	1.35	9	1.35	9	1.35	9	1.35	45	7
Vadhavan	9	1.35	9	1.35	9	1.35	9	1.35	9	1.35	45	7
Muli	9	1.35	9	1.35	9	1.35	9	1.35	9	1.35	45	7
Chotila	9	1.35	9	1.35	9	1.35	9	1.35	9	1.35	45	7
Sayala	8	1.2	8	1.2	8	1.2	8	1.2	8	1.2	40	6
Chuda	6	0.9	6	0.9	6	0.9	6	0.9	6	0.9	30	5
Limbadi	10	1.5	10	1.5	10	1.5	10	1.5	10	1.5	50	8
Total	**100**	**15**	**100**	**15**	**100**	**15**	**100**	**15**	**100**	**15**	**500**	**75**

Unit cost Rs.0.15 lakhs

Table 4.14.2.14: Requirement of tractors

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	10	50.00	10	50.00	10	50.00	10	50.00	10	50.00	50	250
Dhangadhra	15	75.00	15	75.00	15	75.00	15	75.00	15	75.00	75	375
Dasada	15	75.00	15	75.00	15	75.00	15	75.00	15	75.00	75	375
Lakhatar	9	45.00	9	45.00	9	45.00	9	45.00	9	45.00	45	225
Vadhavan	9	45.00	9	45.00	9	45.00	9	45.00	9	45.00	45	225
Muli	9	45.00	9	45.00	9	45.00	9	45.00	9	45.00	45	225
Chotila	9	45.00	9	45.00	9	45.00	9	45.00	9	45.00	45	225
Sayala	8	40.00	8	40.00	8	40.00	8	40.00	8	40.00	40	200
Chuda	6	30.00	6	30.00	6	30.00	6	30.00	6	30.00	30	150
Limbadi	10	50.00	10	50.00	10	50.00	10	50.00	10	50.00	50	250
Total	**100**	**500.00**	**100**	**500.00**	**100**	**500.00**	**100**	**500.0**	**100**	**500.00**	**500**	**2500**

Unit cost Rs.5.00 lakhs

Table 4.14.2.15 Requirement of knapsack Sprayer

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	55	0.83	55	0.83	55	0.83	55	0.83	55	0.83	275	4.15
Dhangadhra	70	1.05	70	1.05	70	1.05	70	1.05	70	1.05	350	5.25
Dasada	75	1.13	75	1.13	75	1.13	75	1.13	75	1.13	375	5.65
Lakhatar	45	0.68	45	0.68	45	0.68	45	0.68	45	0.68	225	3.40
Vadhavan	45	0.68	45	0.68	45	0.68	45	0.68	45	0.68	225	3.40
Muli	40	0.60	40	0.60	40	0.60	40	0.60	40	0.60	200	3.00
Chotila	45	0.68	45	0.68	45	0.68	45	0.68	45	0.68	225	3.40
Sayala	40	0.60	40	0.60	40	0.60	40	0.60	40	0.60	200	3.00
Chuda	30	0.45	30	0.45	30	0.45	30	0.45	30	0.45	150	2.25
Limbadi	55	0.83	55	0.83	55	0.83	55	0.83	55	0.83	275	4.15
Total	**500**	**7.50**	**500**	**7.50**	**500**	**7.50**	**500**	**7.50**	**500**	**7.50**	**2500**	**37.50**

Unit cost Rs.0.015 lakhs

Table 4.14.2.16: Requirement of Rotary weeder

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	25	9.0	25	9.0	25	9.0	25	9.0	25	9.0	125	45
Dhangadhra	25	9.0	25	9.0	25	9.0	25	9.0	25	9.0	125	45
Dasada	25	9.0	25	9.0	25	9.0	25	9.0	25	9.0	125	45
Lakhatar	20	7.0	20	7.0	20	7.0	20	7.0	20	7.0	100	35
Vadhavan	20	7.0	20	7.0	20	7.0	20	7.0	20	7.0	100	35
Muli	20	7.0	20	7.0	20	7.0	20	7.0	20	7.0	100	35
Chotila	20	7.0	20	7.0	20	7.0	20	7.0	20	7.0	100	35
Sayala	15	5.0	15	5.0	15	5.0	15	5.0	15	5.0	75	25
Chuda	10	4.0	10	4.0	10	4.0	10	4.0	10	4.0	50	20
Limbadi	20	7.0	20	7.0	20	7.0	20	7.0	20	7.0	100	35
Total	**200**	**71.0**	**200**	**71.0**	**200**	**71.0**	**200**	**71.0**	**200**	**71.0**	**1000**	**355**

Unit cost Rs.0.35 lakhs

Table 4.14.2.17: Requirement of portable oil engine

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	45	9.0	45	9.0	45	9.0	45	9.0	45	9.0	225	45
Dhangadhra	55	11.0	55	11.0	55	11.0	55	11.0	55	11.0	275	55
Dasada	55	11.0	55	11.0	55	11.0	55	11.0	55	11.0	275	55
Lakhatar	35	7.0	35	7.0	35	7.0	35	7.0	35	7.0	175	35
Vadhavan	35	7.0	35	7.0	35	7.0	35	7.0	35	7.0	175	35
Muli	35	7.0	35	7.0	35	7.0	35	7.0	35	7.0	175	35
Chotila	35	7.0	35	7.0	35	7.0	35	7.0	35	7.0	175	35
Sayala	35	7.0	35	7.0	35	7.0	35	7.0	35	7.0	175	35
Chuda	25	5.0	25	5.0	25	5.0	25	5.0	25	5.0	125	25
Limbadi	45	9.0	45	9.0	45	9.0	45	9.0	45	9.0	225	45
Total	**400**	**80.0**	**400**	**80.0**	**400**	**80.0**	**400**	**80.0**	**400**	**80.0**	**2000**	**400**

Unit cost Rs.0.20 lakhs

Table 4.14.2.18: Requirement of threshers

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	10	5.0	10	5.0	10	5.0	10	5.0	10	5.0	50	25
Dhangadhra	15	7.5	15	7.5	15	7.5	15	7.5	15	7.5	75	38
Dasada	15	7.5	15	7.5	15	7.5	15	7.5	15	7.5	75	38
Lakhatar	10	5.0	10	5.0	10	5.0	10	5.0	10	5.0	50	25
Vadhavan	10	5.0	10	5.0	10	5.0	10	5.0	10	5.0	50	25
Muli	8	4.0	8	4.0	8	4.0	8	4.0	8	4.0	40	20
Chotila	8	4.0	8	4.0	8	4.0	8	4.0	8	4.0	40	20
Sayala	8	4.0	8	4.0	8	4.0	8	4.0	8	4.0	40	20
Chuda	6	3.0	6	3.0	6	3.0	6	3.0	6	3.0	30	15
Limbadi	10	5.0	10	5.0	10	5.0	10	5.0	10	5.0	50	25
Total	**100**	**50.0**	**100**	**50.0**	**100**	**50.0**	**100**	**50.0**	**100**	**50.0**	**500**	**250**

Unit cost Rs.0.50 lakhs

Table 4.14.2.19: Requirement of laser leveller

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	3	6.0	3	6.0	3	6.0	3	6.0	3	6.0	15	30
Dhangadhra	3	6.0	3	6.0	3	6.0	3	6.0	3	6.0	15	30
Dasada	2	4.0	2	4.0	2	4.0	2	4.0	2	4.0	10	20
Lakhatar	3	6.0	3	6.0	3	6.0	3	6.0	3	6.0	15	30
Vadhavan	2	4.0	2	4.0	2	4.0	2	4.0	2	4.0	10	20
Muli	2	4.0	2	4.0	2	4.0	2	4.0	2	4.0	10	20
Chotila	3	6.0	3	6.0	3	6.0	3	6.0	3	6.0	15	30
Sayala	3	6.0	3	6.0	3	6.0	3	6.0	3	6.0	15	30
Chuda	2	4.0	2	4.0	2	4.0	2	4.0	2	4.0	10	20
Limbadi	2	4.0	2	4.0	2	4.0	2	4.0	2	4.0	10	20
Total	**25**	**50.0**	**25**	**50.0**	**25**	**50.0**	**25**	**50.0**	**25**	**50.0**	**125**	**250**

Unit cost Rs.2.0 lakhs

Table 4.14.2.20: Requirement of small grader machine (Power operated)

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	10	3.00	10	3.00	10	3.00	10	3.00	10	3.00	50	15.00
Dhangadhra	10	3.00	10	3.00	10	3.00	10	3.00	10	3.00	50	15.00
Dasada	10	3.00	10	3.00	10	3.00	10	3.00	10	3.00	50	15.00
Lakhatar	5	1.50	5	1.50	5	1.50	5	1.50	5	1.50	25	7.50
Vadhavan	5	1.50	5	1.50	5	1.50	5	1.50	5	1.50	25	7.50
Muli	5	1.50	5	1.50	5	1.50	5	1.50	5	1.50	25	7.50
Chotila	5	1.50	5	1.50	5	1.50	5	1.50	5	1.50	25	7.50
Sayala	5	1.50	5	1.50	5	1.50	5	1.50	5	1.50	25	7.50
Chuda	5	1.50	5	1.50	5	1.50	5	1.50	5	1.50	25	7.50
Limbadi	5	1.50	5	1.50	5	1.50	5	1.50	5	1.50	25	7.50
Total	**65**	**19.5**	**65**	**19.5**	**65**	**19.5**	**65**	**19.5**	**65**	**19.5**	**325**	**97.5**

Unit cost Rs.0.30 lakhs

Table 4.14.2.21: Requirement of chaff cutter (Power operated) in the district

(Phy – No. of unit Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	10	2.50	10	2.50	10	2.50	10	2.50	10	2.50	50	12.50
Dhangadhra	10	2.50	10	2.50	10	2.50	10	2.50	10	2.50	50	12.50
Dasada	5	1.25	5	1.25	5	1.25	5	1.25	5	1.25	25	6.25
Lakhatar	10	2.50	10	2.50	10	2.50	10	2.50	10	2.50	50	12.50
Vadhavan	10	2.50	10	2.50	10	2.50	10	2.50	10	2.50	50	12.50
Muli	5	1.25	5	1.25	5	1.25	5	1.25	5	1.25	25	6.25
Chotila	10	2.50	10	2.50	10	2.50	10	2.50	10	2.50	50	12.50
Sayala	5	1.25	5	1.25	5	1.25	5	1.25	5	1.25	25	6.25
Chuda	10	2.50	10	2.50	10	2.50	10	2.50	10	2.50	50	12.50
Limbadi	10	2.50	10	2.50	10	2.50	10	2.50	10	2.50	50	12.50
Total	**85**	**21.25**	**85**	**21.25**	**85**	**21.25**	**85**	**21.25**	**85**	**21.25**	**425**	**106.25**

Unit cost Rs.0.25 lakhs

Table 4.14.2.22: Requirement of dug/bore wells and financial requirements

(Phy – No. of units, Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	60	48	60	48	60	48	60	48	60	48	300	240
Dhangadhra	50	40	50	40	50	40	50	40	50	40	250	200
Dasada	50	40	50	40	50	40	50	40	50	40	250	200
Lakhatar	50	40	50	40	50	40	50	40	50	40	250	200
Vadhavan	60	48	60	48	60	48	60	48	60	48	300	240
Muli	200	160	200	160	200	160	200	160	200	160	1000	800
Chotila	225	180	225	180	225	180	225	180	225	180	1125	900
Sayala	180	144	180	144	180	144	180	144	180	144	900	720
Chuda	60	48	60	48	60	48	60	48	60	48	300	240
Limbadi	65	52	65	52	65	52	65	52	65	52	325	260
Total	**1000**	**800**	**1000**	**800**	**1000**	**800**	**1000**	**800**	**1000**	**800**	**5000**	**4000**

Table 4.14.2.23: Requirement of pump sets and financial requirements

(Phy – No. of units, Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	25	10	25	10	25	10	25	10	25	10	125	50
Dhangadhra	25	10	25	10	25	10	25	10	25	10	125	50
Dasada	20	8	20	8	20	8	20	8	20	8	100	40
Lakhatar	20	8	20	8	20	8	20	8	20	8	100	40
Vadhavan	20	8	20	8	20	8	20	8	20	8	100	40
Muli	40	16	40	16	40	16	40	16	40	16	200	80
Chotila	40	16	40	16	40	16	40	16	40	16	200	80
Sayala	20	8	20	8	20	8	20	8	20	8	100	40
Chuda	20	8	20	8	20	8	20	8	20	8	100	40
Limbadi	20	8	20	8	20	8	20	8	20	8	100	40
Total	**250**	**100**	**250**	**100**	**250**	**100**	**250**	**100**	**250**	**100**	**1250**	**500**

Table 4.14.2.24: Requirement of lift irrigation and financial requirements

(Phy – No. of units, Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	70	42	70	42	70	42	70	42	70	42	350	210
Dhangadhra	70	42	70	42	70	42	70	42	70	42	350	210
Dasada	70	42	70	42	70	42	70	42	70	42	350	210
Lakhatar	60	36	60	36	60	36	60	36	60	36	300	180
Vadhavan	60	36	60	36	60	36	60	36	60	36	300	180
Muli	25	15	25	15	25	15	25	15	25	15	125	75
Chotila	25	15	25	15	25	15	25	15	25	15	125	75
Sayala	25	15	25	15	25	15	25	15	25	15	125	75
Chuda	25	15	25	15	25	15	25	15	25	15	125	75
Limbadi	70	42	70	42	70	42	70	42	70	42	350	210
Total	**500**	**300**	**500**	**300**	**500**	**300**	**500**	**300**	**500**	**300**	**2500**	**1500**

Table 4.14.2.25: Requirement of pipe line and financial requirements

(Phy – No. of units, Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	1000	250	1000	250	1000	250	1000	250	1000	250	5000	1250
Dhangadhra	1000	250	1000	250	1000	250	1000	250	1000	250	5000	1250
Dasada	1100	275	1100	275	1100	275	1100	275	1100	275	5500	1375
Lakhatar	1000	250	1000	250	1000	250	1000	250	1000	250	5000	1250
Vadhavan	1000	250	1000	250	1000	250	1000	250	1000	250	5000	1250
Muli	500	125	500	125	500	125	500	125	500	125	2500	625
Chotila	500	125	500	125	500	125	500	125	500	125	2500	625
Sayala	500	125	500	125	500	125	500	125	500	125	2500	625
Chuda	400	100	400	100	400	100	400	100	400	100	2000	500
Limbadi	1000	250	1000	250	1000	250	1000	250	1000	250	5000	1250
Total	**8000**	**2000**	**8000**	**2000**	**8000**	**2000**	**8000**	**2000**	**8000**	**2000**	**40000**	**10000**

Table 4.14.2.26: Requirement of Protective fence and financial requirements

(Phy – area in ha., Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halvad	2000	500	2000	500	2000	500	2000	500	2000	500	10000	2500
Dhangadhra	2000	500	2000	500	2000	500	2000	500	2000	500	10000	2500
Dasada	2000	500	2000	500	2000	500	2000	500	2000	500	10000	2500
Lakhatar	2000	500	2000	500	2000	500	2000	500	2000	500	10000	2500
Vadhavan	2000	500	2000	500	2000	500	2000	500	2000	500	10000	2500
Muli	2000	500	2000	500	2000	500	2000	500	2000	500	10000	2500
Chotila	2000	500	2000	500	2000	500	2000	500	2000	500	10000	2500
Sayala	2000	500	2000	500	2000	500	2000	500	2000	500	10000	2500
Chuda	2000	500	2000	500	2000	500	2000	500	2000	500	10000	2500
Limbadi	2000	500	2000	500	2000	500	2000	500	2000	500	10000	2500
Total	20000	5000	20000	5000	20000	5000	20000	5000	20000	5000	100000	25000

4.15 Food Processing and Storage

The district has the advantage of having conducive agro-climatic conditions for Agro-Export Zone. Surendranagar is also one of the 5 districts under AEZ for Sesame seeds identified by the GOI in 2005-06 for promoting infrastructure so as to enhance exports of sesame. Value added agriculture refers most generally to manufacturing processes that increase the value of primary agricultural commodities. Value-added agriculture may also refer to increasing the economic value of a commodity through particular production processes, e.g. organic produce, or through regionally-branded products that increase consumer appeal and willingness to pay a premium over similar but undifferentiated products. Action needed for providing effective financial support, favourable government policies and laws and linkages among producers, industry, R&D institutions and other partners are needed. The basic Marketing Infrastructure for Agricultural produce (Post Harvest management), Agro-processing units in the district and Establishment of Rural godown are given in 4.15.

Table 4.15.1 Groundnut oil mill units and financial requirements

(Phy – No. of units, Fin – Rs. in lakhs)

Taluka	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	2	10	1	5	1	5	-	-	-	-	4	20
Dhangadhra	-	-	1	5	-	-	1	5			2	10
Dasada	-	-	1	5	-	-	-	-	-	-	1	5
Lakhatar	-	-	-	-	1	5	-	-	-	-	1	5
Vadhavan	-	-	-	-			1	5	-	-	1	5
Muli	-	-	-	-	1	5	-	-	-	-	1	5
Chotila	-	-	-	-	1	5	1	5	1	5	3	15
Sayala	-	-	-	-			1	5			1	5
Chuda	1	5	-	-	-	-	-	-	-	-	1	5
Limbadi			-	-	1	5	-	-	-	-	1	5
Total	**3**	**15**	**3**	**15**	**5**	**25**	**4**	**20**	**1**	**5**	**16**	**80**

Table 4.15.2: Cotton ginning units and financial requirements

(Phy – No. of units, Fin – Rs. in lakhs)

Taluka	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halvad	1	5	1	5	1	5	1	5	1	5	5	25
Dhangadhra	5	25	5	25	5	25	5	25	5	25	25	125
Dasada	5	25	5	25	5	25	5	25	5	25	25	125
Lakhatar	4	20	4	20	4	20	4	20	4	20	20	100
Muli	1	5	1	5	1	5	1	5	1	5	5	25
Limbadi	-	-	1	5	1	5	1	5	1	5	4	20
Total	16	80	17	85	17	85	17	85	17	85	84	420

Table 4.15.3: Dal mill units and financial requirements

(Phy – No. of units, Fin – Rs. in lakhs)

Taluka	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halvad	1	5	1	5	1	5	2	10	2	10	7	35
Dhangadhra	4	20	4	20	4	20	4	20	4	20	20	100
Dasada	6	30	6	30	6	30	6	30	6	30	30	150
Lakhatar	4	20	4	20	4	20	4	20	4	20	20	100
Muli	1	5	1	5	1	5	2	10	2	10	7	35
Total	16	80	16	80	16	80	18	90	18	90	84	420

Table 4.15.4: Cumin processing units and financial requirements

(Phy – No. of units, Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	1	15	-	-	-	-	-	-	-	-	1	15
Dhangadhra	-	-	1	15	-	-	-	-	-	-	1	15
Dasada	-	-	1	15	-	-	-	-	-	-	1	15
Sayala	-	-	-	-	1	15	-	-	-	-	1	15
Total	**1**	**15**	**2**	**30**	**1**	**15**	**-**	**-**	**-**	**-**	**4**	**60**

Table 4.15.5: Sesame processing units and financial requirements

(Phy – No. of units, Fin – Rs. in lakhs)

Taluka	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	1	5	1	5	1	5	-	-	-	-	3	15
Dhangadhra	1	5	1	5	1	5	-	-	-	-	3	15
Vadhavan	-	-	1	5	-	-	-	-	-	-	1	5
Muli	-	-	1	5	1	15	-	-	-	-	2	10
Sayala	1	5	-	-	-	-	-	-	1	5	2	10
Limbadi	-	-	-	-	1	5	1	5	-	-	2	10
Total	**3**	**15**	**4**	**20**	**4**	**30**	**1**	**5**	**1**	**5**	**13**	**75**

Table 4.15.6 Establishment of Rural godown (Fin. Rs. in lakhs)

Taluka	Existing (2011-12)	2012-13 (projected)		2013-14 (projected)		2014-15 (projected)		2015-16 (projected)		2016-17 (projected)		Total	
	No	No	Fin.	No	Fin.	No	Fin.	No	Fin.	No	Fin.	No	Fin.
Halwad	17	20	14	20	14	22	15.4	25	17.5	25	17.5	112	78.4
Dhangadhra	15	20	14	20	14	22	15.4	25	17.5	25	17.5	112	78.4
Desada	10	15	10.5	15	10.5	18	12.6	20	14	20	14	88	61.6
Lakhatar	03	10	7	10	7	12	8.4	10	7	10	7	52	36.4
Vadhavan	20	22	15.4	22	15.4	22	15.4	15	10.5	15	10.5	96	67.2
Muli	08	10	7	10	7	11	7.7	12	8.4	12	8.4	55	38.5
Chotila	13	14	9.8	14	9.8	15	10.5	15	10.5	15	10.5	73	51.1
Sayala	02	8	5.6	8	5.6	9	6.3	10	7	10	7	45	31.5
Chuda	05	8	5.6	8	5.6	9	6.3	10	7	10	7	45	31.5
Limbadi	07	10	7	10	7	8	5.6	12	8.4	12	8.4	52	36.4
Total	**100**	**137**	**95.9**	**137**	**95.9**	**148**	**103.6**	**154**	**107.8**	**154**	**107.8**	**730**	**511**

Table 4.15.7: Agro food processing units (Mango pulp, pickle making etc) and financial requirements (Phy – No. of units, Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	-	-	1	15	-	-	-	-	-	-	1	15
Dhangadhra	-	-	-	-	-	-	1	15	-	-	1	15
Muli	-	-	-	-	-	-	-	-	1	15	1	15
Total	**0**	**0**	**1**	**15**	**0**	**0**	**1**	**15**	**1**	**15**	**3**	**45**

Table 4.15.8: Research on processing of food grains by SAUs

Particulars	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Research on food grains		50		20		20		20		20		130
Fruit processing		-		10		10		-		-		20
Total		**50**		**30**		**30**		**20**		**20**		**150**

4.16 Watershed Development

Soil and water being the two basic factors of agricultural production need to be conserved well and used carefully to ensure sustained level of production and productivity. The poor land management practices have led to a situation of rapid soil fertility deterioration, soil loss, declining / stagnating crop yields, depletion of water sources, deforestation, denundation, destruction of natural pasture and diminishing bio mass production, resulting in degradation of land and its productive capacity. Land development includes various activities like land leveling, bunding, terracing, water management, dry land farming, construction and use of Water Harvesting Tanks (WHTs), watershed management and compost / vermi composting. Land development is essential to improve the fertility of the soil and to increase the production and productivity. Surendranagar district faces the problem of wind & water erosion, moisture stress, salinity & alkalinity. There is a need for financing development activities like land leveling, bunding/soil conservation, water management etc. in the district.

More than 80.7% of the district is dependent on rainfed farming. On farm development through watershed basis and dry land farming assumes importance for the district. The physical and financial requirement for various watershed activies is presented in Table 4.16.

Watershed Management

Table 4.16.1. Protective (Community Tank) Irrigation Plan

(Fin. Rs. in lakh)

Taluka	Existing (2011-12)		2012-13 (projected)		2013-14 (projected)		2014-15 (projected)		2015-16 (projected)		2016-17 (projected)	
	No.	Fin.	No.	Fin.	No.	Fin.	No.	Fin.	No.	Fin.	No.	Fin.
Halwad	01	--	05	25.00	10	50.00	12	60.00	15	75.00	20	100
Dhangadhra	06	25.45	10	30.00	10	50.00	12	60.00	15	75.00	20	100
Desada	16	36.03	20	100.0	10	50.00	12	60.00	15	75.00	20	100
Lakhatar	02	4.94	15	75.00	10	50.00	12	60.00	15	75.00	20	100
Vadhavan	10	46.58	10	50.00	10	50.00	12	60.00	15	75.00	20	100
Muli	03	21.54	10	30.00	10	50.00	12	60.00	15	75.00	20	100
Chotila	14	75.22	05	40.00	10	50.00	12	60.00	15	75.00	20	100
Sayala	00	--	08	40.00	10	50.00	12	60.00	15	75.00	20	100
Chuda	05	22.45	10	50.00	10	50.00	12	60.00	15	75.00	20	100
Limbadi	--	--	--	--	10	50.00	12	60.00	15	75.00	20	100
Total	**56**	**232.21**	**96**	**440.0**	**100**	**500.0**	**120**	**600.0**	**150**	**750.0**	**200**	**1000**

Source: GLDC, Surendranagar

Table 4.16.2: Land reclamation and financial requirements

(Phy – No. of units, Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	200	60	100	30	100	30	100	30	200	60	700	210
Dasada	900	270	1000	300	950	285	950	285	900	270	4700	1410
Lakhatar	500	150	500	150	550	165	550	165	500	150	2600	780
Limbadi	400	120	400	120	400	120	400	120	400	120	2000	600
Total	**2000**	**600**	**2000**	**600**	**2000**	**600**	**2000**	**600**	**2000**	**600**	**10000**	**3000**

Table 4.16.3: Bunding and soil conservation and financial requirements

(Phy – No. of units, Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Lakhatar	200	50	200	50	200	50	200	50	200	50	1000	250.0
Chotila	150	37.5	150	37.5	150	37.5	150	37.5	150	37.5	750	187.5
Limbadi	150	37.5	150	37.5	150	37.5	150	37.5	150	37.5	750	187.5
Total	**500**	**125**	**500**	**125**	**500**	**125**	**500**	**125**	**500**	**125**	**2500**	**625.0**

Table 4.16.4: Watershed development and financial requirements

(Phy – No. of units, Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	2500	250	2500	250	2500	250	2500	250	2500	250	12500	1250
Dhangadhra	3000	300	3000	300	3000	300	3000	300	3000	300	15000	1500
Dasada	3500	350	3500	350	3500	350	3500	350	3500	350	17500	1750
Lakhatar	1500	150	1500	150	1500	150	1500	150	1500	150	7500	750
Vadhavan	1500	150	1500	150	1500	150	1500	150	1500	150	7500	750
Muli	2000	200	2000	200	2000	200	2000	200	2000	200	10000	1000
Chotila	2000	200	2000	200	2000	200	2000	200	2000	200	10000	1000
Sayala	2000	200	2000	200	2000	200	2000	200	2000	200	10000	1000
Chuda	1000	100	1000	100	1000	100	1000	100	1000	100	5000	500
Limbadi	2500	250	2500	250	2500	250	2500	250	2500	250	12500	1250
Total	**21500**	**2150**	**21500**	**2150**	**21500**	**2150**	**21500**	**2150**	**21500**	**2150**	**107500**	**10750**

Table 4.16.5: Desilting of check dam/ponds and financial requirements

(Phy – No. of units, Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	5	2.5	5	2.5	5	2.5	5	2.5	5	2.5	25	12.5
Dhangadhra	5	2.5	5	2.5	5	2.5	5	2.5	5	2.5	25	12.5
Dasada	5	2.5	5	2.5	5	2.5	5	2.5	5	2.5	25	12.5
Lakhatar	5	2.5	5	2.5	5	2.5	5	2.5	5	2.5	25	12.5
Vadhavan	5	2.5	5	2.5	5	2.5	5	2.5	5	2.5	25	12.5
Muli	10	5	10	5	10	5	10	5	10	5	50	25.0
Chotila	10	5	10	5	10	5	10	5	10	5	50	25.0
Sayala	30	15	30	15	30	15	30	15	30	15	150	75.0
Chuda	5	2.5	5	2.5	5	2.5	5	2.5	5	2.5	25	12.5
Limbadi	20	10	20	10	20	10	20	10	20	10	100	50.0
Total	**100**	**50**	**100**	**50**	**100**	**50**	**100**	**50**	**100**	**50**	**500**	**250.0**

Table 4.16.6: Planning of soil survey Programme

Taluka	Area to be surveyed and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Area	Fin.	Area	Fin.	Area	Fin.	Area	Fin.	Area	Fin.	Area	Fin.
Halwad	8038	24.1	8038	24.1	8038	24.1	8038	24.1	8038	24.1	40190	120.6
Dhangadhra	9812	29.4	9812	29.4	9812	29.4	9812	29.4	9812	29.4	49060	147.2
Dasada	10158	30.5	10158	30.5	10158	30.5	10158	30.5	10158	30.5	50791	152.4
Lakhatar	5728	17.2	5728	17.2	5728	17.2	5728	17.2	5728	17.2	28638	85.9
Vadhavan	6257	18.8	6257	18.8	6257	18.8	6257	18.8	6257	18.8	31285	93.9
Muli	6247	18.7	6247	18.7	6247	18.7	6247	18.7	6247	18.7	31234	93.7
Chotila	6509	19.5	6509	19.5	6509	19.5	6509	19.5	6509	19.5	32546	97.6
Sayala	5887	17.7	5887	17.7	5887	17.7	5887	17.7	5887	17.7	29436	88.3
Chuda	4170	12.5	4170	12.5	4170	12.5	4170	12.5	4170	12.5	20850	62.6
Limbadi	7626	22.9	7626	22.9	7626	22.9	7626	22.9	7626	22.9	38129	114.4
Total	**70431**	**211.3**	**70431**	**211.3**	**70431**	**211.3**	**70431**	**211.3**	**70431**	**211.3**	**352157**	**1056.5**

4.17 Micro Irrigation System:

The main sources of water supply for irrigation purposes in Surendranagar district include wells, canals and tanks. Drip irrigation is one of the emerging activities in Surendranagar District. There are 5991 drip sets and 2404 sprinkler sets. Only 2.72 % area of cultivable area is under MIS in the district.Focused attention is required on this activity as this district is drought prone. Irrigation scheduling can be managed precisely to meet crop demands, holding the promise of increased yield and quality. Precise application of nutrients is possible using drip irrigation. Also lifting of water from the wells, pumps are required. Pipe lines will help to avoid the conveyance losses in the field. The physical and financial requirement for development of water resources is presented in Table 4.17.

Table 4.17.3: Drip irrigation and financial requirements

(Phy – No. of units, Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	500	500	500	500	500	500	500	500	500	500	2500	2500
Dhangadhra	550	550	550	550	550	550	550	550	550	550	2750	2750
Dasada	800	800	800	800	800	800	1000	1000	1000	1000	4400	4400
Lakhatar	550	550	550	550	550	550	550	550	550	550	2750	2750
Vadhavan	450	450	450	450	450	450	450	450	450	450	2250	2250
Muli	450	450	450	450	450	450	450	450	450	450	2250	2250
Chotila	375	375	375	375	375	375	375	375	375	375	1875	1875
Sayala	450	450	450	450	450	450	450	450	450	450	2250	2250
Chuda	375	375	375	375	375	375	375	375	375	375	1875	1875
Limbadi	500	500	500	500	500	500	500	500	500	500	2500	2500
Total	**5000**	**5000**	**5000**	**5000**	**5000**	**5000**	**5200**	**5200**	**5200**	**5200**	**25400**	**25400**

Table 4.17.4: Requirement of sprinkler irrigation and financial requirements

(Phy – No. of units, Fin – Rs. in lakhs)

Taluka	No of units and financial requirements											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Halwad	400	200	400	200	400	200	400	200	400	200	2000	1000
Dhangadhra	170	85	170	85	170	85	170	85	170	85	850	425
Dasada	80	40	80	40	80	40	80	40	80	40	400	200
Lakhatar	80	40	80	40	80	40	80	40	80	40	400	200
Vadhavan	100	50	100	50	100	50	100	50	100	50	500	250
Muli	250	125	250	125	250	125	250	125	250	125	1250	625
Chotila	450	225	450	225	450	225	450	225	450	225	2250	1125
Sayala	250	125	250	125	250	125	250	125	250	125	1250	625
Chuda	150	75	150	75	150	75	150	75	150	75	750	375
Limbadi	70	35	70	35	70	35	70	35	70	35	350	175
Total	**2000**	**1000**	**2000**	**1000**	**2000**	**1000**	**2000**	**1000**	**2000**	**1000**	**10000**	**5000**

4.18 Banking and Finance

As per the guidelines issued by GoI and Reserve Bank of India, various initiatives were launched in the district in bringing more villages under umbrella of financial inclusion by providing banking facilities to financially excluded population in the rural areas. There are 87 branches of Commercial Banks, 31 branches of RRB and 13 branches of DCCB and 346 PACS as on 31 March 2011. The average no. of villages served by the Bank Branch was 8.6 villages per Bank Branch. Surendranagar District has achieved 100% Financial Inclusion in May 2008 covering 254011 of the 277667 households of 650 villages either through KCC or GCC. Only 23656 households who were either migrated or not willing to open the account in the banks could nto be covered. During 2010-11, 24927 KCC with an amount of 9353.03 Lakh were disbursed by sensitising them to take advantage of low cost crop loans for cultivating their fields. With a view to making available adequate and timely credit to the farmers in a cost effective and flexible manner, KCC Scheme was introduced in August 1998. The agency wise progress in issue of cards and limit sanctioned during the year 2008-09, 2009-10 and 2010-11 was as under

(in lakh)

Year	CBs		RRB		DCCB		Total	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
2008-09	40680	15588.51	22128	10463.95	30570	10206.92	93378	36259.38
2009-10	45762	20928.25	23038	11287.24	35923	14231.83	104723	46447.32
2010-11	57526	25318.31	29012	13134.15	43112	17347.89	129650	55800.35

The Kisan Credit Card Scheme, which was introduced in 1998-99, has made rapid progress with the banking system issuing more than 129650 cards with credit of 55800.35 lakh disbursed up to March 31, 2011 and the performance of bankers is showing an upward trend in the last three years. The existing facilities of providing crop loan the scope of KCC scheme has been enlarged to include term loans for agriculture and allied activities and reasonable component to meet the consumption needs.

4.19 Success story

Value addition in wheat by adoption of processing plant

Name : Mr. Bharatbhai Jaymalbhai Jadav

Village : Dhedhuki (Taluka: Sayla)

District : Surendranagar

Mo. Number : 098797 82763

Shri Bharatbhai J. Jadav a higher secondary passed farmer from Dheduki Village (Taluka Sayala Dist. Surendranagar). He is ower of 7 ha. land. He is also doing some black-smithy works from his home to repair the agricultural implements. He attended various Training Programs and demonstrations conducted by KVK since 2006. During the training program, mobile seed processing plant & other improved farm implements were demonstrated at the KVK Farm. Also many lectures on "Importance of value addition & Advantages of improved farm implements" were given by scientists of KVK.

Bharatbhai Jadav was very much interested to start seed grading unit, under guidance of KVK scientists. He purchased a processing plant (capacity of 5-6 qtl/hour) from Veraval-Shapar (Rajkot) cost of Rs 1.50 lakhs in 2009-10.

Initially he started grading of his own wheat and earned Rs.225-250 per quintal more price then the ungraded wheat. Then he started to purchase ungraded wheat from local market and after grading, processing & packing, he sold it at higher price Rs 250 per quintal higher than unprocessed wheat. He also gets extra income average Rs.100 /quintal when other farmers needs to process his wheat.

It is fruitful achievement of Bharatbhai J. Jadav by the adoption of Value addition technology.

Wheat Processing Plant

CHAPTER V

DEVELOPMENT OF ALLIED SECTORS

5.1 Introduction:-

Allied agricultural sectors i.e., Animal Husbandry, Fisheries development, Irrigation, Co-operation, Watershed development, Vermi-composting, etc. may perform active role in the sustainable development of agriculture and rural economy. These sectors offer good alternatives/opportunities for livelihood of rural people as well as generate employment. Farmers of Surendranagar district are actively engaged in cultivation of allied enterprises to meet their own home requirements and subsequently for the market. The thrust in the district has been on dairy.

5.2 Horticulture:

The importance of fruits and vegetable crops in improving the nutritional status and farm economy needs no elaboration. It offers excellent alternative for diversification in agriculture by ensuring balanced use of land, water and other resources for promoting sustainable agriculture besides increasing income of the farmers. Agro-climatic conditions, soil and water availability make it suitable for growing a wide variety of fruits, vegetable, spice, medicinal and aromatic plants. The horticulture in the district is very poor mainly due to lack of awareness about its importance and the marketing facilities. The marketing problem is due to the scattered production of the produce. In lemon which is the most important fruit crop grown in the Halvad block is not facing any marketing problem.

Table 5.2.1. Area, Production and Productivity of various fruit in Surendranagar district and Gujarat state (Year 2010-11)

Area in ha, Production in MT, Productivity in MT/ha

Sr. No.	Fruit	Surendranagar District			Gujarat State		
		Area	Prod	Productivity	Area	Prod	Productivity
1	Mango	716	3222	4.50	130019	911302	7.01
2	Chiku	203	1523	7.50	28800	287989	10.00
3	Citrus	1444	12996	9.00	39189	409134	10.44
4	Ber	1712.5	26030	15.20	12261	128533	10.48
5	Banana	0	0	0.00	64680	3978023	61.50
6	Guava	46	667	14.50	10222	150741	14.75
7	Pomegranate	108	972	9.00	5795	60338	10.41
8	Papaya	246.5	22185	90.00	17796	973973	54.73
9	Custard apple	10	30	3.00	5381	55621	10.34
10	Aonla	210	3255	15.50	12481	121514	9.74
11	Cashew nut	67	53.6	0.80	7163	21348	2.98
12	Coconut	8	88	11.00	20099	206780	10.29
13	Others	227.5	1506.4	6.62	6298	42913	6.81
	Total	**4998.5**	**72528**	14.51	**360184**	**7348209**	**20.40**

Source: http://agri.gujarat.gov.in/hods/dire_horticulture/stat_area_prod.htm

The climate of the district is highly suitable for spices production there is immense potential exists for growing spice crops in rabi season in area having irrigation facility. At present commercial floriculture is only in 12.5 ha area, with increase in transport and other infrastructure facilities, the scope for its cultivation and marketing will also be increased. There is immense potential to bring more area under vegetable crops by using drip irrigation in area having limited irrigation facility to provide nutritional food security.

Table 5.2.2. Area, Production, Productivity of various vegetables in Surendranagar district and Gujarat state (Year 2010-11)

Area in ha, Production in MT, Productivity in MT/ha

Sr. No.	Vegetables	Surendranagar District			Gujarat State		
		Area	Prod.	Productivity	Area	Prod.	Productivity
1	Onion	1719	37818	22.0	62010	1514091	24.42
2	Brinjal	4531	56631	12.5	72008	1236265	17.17
3	Cabbage	999	16176	16.2	28204	553559	19.63
4	Okra	3735	29880	8.0	54458	592512	10.88
5	Tomato	2014	32224	16.0	38802	978438	25.22
6	Cauliflower	507	7959.9	15.7	21104	387413	18.36
7	Clusterbean	1362	8308	6.1	30962	283466	9.16
8	Cowpea	493.5	5428.5	11.0	23954	247862	10.35
9	Cucurbits	1179	19300	16.4	52809	766361	14.51
10	Others	523.5	86071.6	164.4	66288	937700	14.15
	Total	**17063**	**299797**	17.6	**450599**	**7497667**	**16.64**

Source: http://agri.gujarat.gov.in/hods/dire_horticulture/stat_area_prod.htm

Table 5.2.3 Area expansion plan for horticultural crops

Existing cropping pattern (2011-12)		2012- 13	2013- 14	2014-15	2015- 16	2016- 17	Total expansion
Crop	Area (ha.)	Area (ha)	Area (ha)	Area (ha)	Area (ha)	Area (ha)	Area (ha)
Mango	742	750	755	760	765	775	33
Sapota	226	235	240	244	248	255	39
Citrus	1508	1520	1550	1575	1610	1645	137
Ber	1703	1710	1717	1725	1733	1740	37
Guava	50	55	62	70	75	85	35
Papaya	284	295	310	325	340	360	76
Custard Apple	10	11	12	13	14	15	5
Aonla	210	220	230	240	250	260	50
Cashew nut	67	70	72	74	76	78	11
Pomegranate	145	150	160	170	180	190	45
Datepalm	17	20	25	33	40	50	33
Other	256	270	275	280	285	290	
Total	5218	5306	5408	5509	5616	5743	

Table 5.2.4: Sustainability issues and gap analysis of productivity of horticultural crops

Sr. No	Factors /Constrains leading to gap	Strategies	Approach and methodology	Performance indicators/ output
1	Vegetables			
	Less area under vegetable crops and Lack of irrigation faculties and proper marketing	Popularize water harvesting techniques, drip irrigation and establishing collection centers on co-operative bases and linkage with suitable markets	Creating awareness about importance of vegetable crops, water harvesting structure, drip irrigation, establishing collation centers provided with cold chain linked vehicles	Increased area under vegetable crop and Increase the income of the farmers
2.	Plantation crops			
	Very Less area under fruit crops and Lack of awareness, small land holdings, limited irrigation facility	Popularize importance of fruit trees for sustainable income	Creating awareness and adoption of fruit crops through training, demonstrations and literature	Increase Sustainability income of the farmers
3.	Floriculture, Medicinal, Aromatic and Spice crops/ plants			
	Negligible area under flower crops and Lack of awareness, small land holdings, limited irrigation facility and marketing of the produce	Popularize importance of flower trees for sustainable income in identified area and market linking with suitable markets	Creating awareness and adoption of flower crops through training, demonstrations and literature	Increase and Sustainability income of the farmers

Table 5.2.5: Bridging the gaps for realizing the Vision- Horticulture sector

No.	Program	Activities
1.	**Thrust Areas/ Issues: Vegetable production**	
	Establishment of small scale nursery	Educate the farmers for raising nursery for preparing seedlings
	Increase area under vegetable crops	Educating the farmers for importance of vegetable cultivations through demonstrations on vegetable cultivation, Low cost net/green houses and kitchen gardening
	IPM	Educating the farmers about various insect pest and diseases of vegetables and their IPM through demonstration and training
	Integrated Nutrient Management	Educating farmers about the use of balanced fertilizer

No.	Program	Activities
	Cold storage	Establishment of cold storage at block level
	Market linkage	Strengthening market linkage through AGMARK net
	Collection centers	Establishment of collection centers
	Refrigerated van	Providing refrigerated van at cluster level
2.	**Thrust Areas/ Issues: Fruit crops**	
	Increase area under fruit crops	Establishment of nurseries for quality saplings, capacity building and demonstrations
	Introduction of cashew nuts	Educating farmers through demonstration and training in cluster approach
	IPM	Educating the farmers about various insect pest and diseases of fruit crops and their IPM Through demonstration and training
	Proper use of plant protection Equipment	Educate the farmers about proper use of plant protection equipments
	Value addition	Establishment of wafer production units Establishment of canning plant
3.	**Thrust Areas/ Issues: Floriculture**	
	Introduction of floriculture	Educating farmers through demonstration and training in cluster approach
4.	**Thrust Areas/ Issues: Spices**	
	Introduction of spice crops	Educating farmers through demonstration and training in cluster approach
5.	**Thrust Areas/ Issues: Conservation of bio-diversity**	
	Organic farming	Educating farmers through demonstration and training in cluster approach
	Medicinal and aromatic plants	Educating farmers through demonstration and training in cluster approach

Activities for development of horticulture sector

Horticultural crops are one of the crucial drivers for the sustainable agricultural growth in the state. Plantation and Horticulture is fast becoming the most preferred agriculture activity today as it provides an opportunity to link up with the processing industry and exports. By adopting scientific cultivation of horticulture crops even small and fragmented land holdings could be transformed as economically viable and ecologically stable units. Horticulture and plantation also enrich the waste lands and dry lands. Its impact on ecological development, employment generation, export promotion and nutritional security paves the way for sustainable eco-friendly development. In Surendranagar, Halwad & Dhangadhra block of the district have huge potential for horticulture cultivation and food processing which would cater to domestic & export market. The plantation and horticulture possess immense scope for investment.

Farmers in Gujarat are aware of the inherent advantages of taking up cultivation of fruits and vegetables. Horticulture sector encompasses cultivation of fruits, vegetables, flowers, plantation crops, spices, and medicinal and aromatic crops etc. which promise to be more profitable in terms of providing:

(i) Higher income per unit area
(ii) Optimum and balanced land utilization

(iii) Source of raw material for agro-based industries
(iv) Avenues for skilled employment/self employment opportunities
(v) Potential to attract investments
(vi) Good option for diversification in agriculture
(vii) Source of livelihood and nutritional security
(viii) Better option for turning fragmented land holdings into economically viable and units
(ix) Opportunity for economical use of wasteland/dry lands
(x) Export opportunity in agriculture sector

The major horticulture crops of Surendranagar district are Ber (1712.5 ha), Lime (1444 ha) and Mango (716 ha) as may be seen from growth in area under these crops. There is one Govt. nursery at Dhragadhra (mainly grafts for pomegranate, guava & sapota) two private nurseries at Halvad and one private nursery at Dhrangadhra (mainly seedlings for amla and ber) for taking up dry land Horticulture. Increased agro processing could reduce post harvest losses which are around 25-30 % of the total produce. There is no major storage and processing facility in the district except small units extracting pulp from mangoes and manufacturing powders and pickles. The horticulture in the district is very poor mainly due to lack of awareness about its importance and poor irrigation facilities. For enhancing the area under vegetables, fruit and spices, demonstrations will help to encourage the farmers for vegetables, fruit and spices cultivation.

Table 5.2.6 Rejuvenation plan for horticultural crops (area in ha)

Sr. No.	Area brought under rejuvenation (2011-12)		2012-13	2013-14	2014-15	2015-16	2016-17
	Crop	Area (ha.)	Area (ha.)	Area (ha.)	Area (ha.)	Area (ha.)	Area (ha.)
1	Lemon	1	1	2	2	2	2
	Total	1	1	2	2	2	2

5.2.7 Training needs in vegetables and fruit crops

Table 5.2.7.1: Training needs for vegetable and fruit cultivation

(Phy.- Number. , Fin. – Rs.in lakhs)

Sr. No.	Taluka name	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina
1	Halwad	25.0	0.15	25.0	0.15	25.0	0.15	25.0	0.15	25.0	0.15	125.0	0.8
2	Dhangadhra	20.0	0.12	20.0	0.12	20.0	0.12	20.0	0.12	20.0	0.12	100.0	0.6
3	Dasada	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
4	Lakhatar	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
5	Vadhavan	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	50.0	0.3
6	Muli	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	50.0	0.3
7	Chotila	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
8	Sayala	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	50.0	0.3
9	Chuda	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
10	Limbadi	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
11	**Total**	**100.0**	**0.6**	**100.0**	**0.6**	**100.0**	**0.6**	**100.0**	**0.6**	**100.0**	**0.6**	**500.0**	**3.0**

Table 5.2.7.2: Training needs for nursery raising (Phy.- Number. , Fin. – Rs.in lakhs)

Sr No.	Taluka name	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina
1	Halwad	15	0.23	15	0.23	15	0.23	15	0.23	15	0.23	75.0	1.15
2	Dhangadhra	10	0.15	10	0.15	10	0.15	10	0.15	10	0.15	50.0	0.75
3	Dasada	10	0.15	10	0.15	10	0.15	10	0.15	10	0.15	50.0	0.75
4	Lakhatar	10	0.15	10	0.15	10	0.15	10	0.15	10	0.15	50.0	0.75
5	Vadhavan	5	0.08	5	0.08	5	0.08	5	0.08	5	0.08	25.0	0.4
6	Muli	5	0.08	5	0.08	5	0.08	5	0.08	5	0.08	25.0	0.4
7	Chotila	2	0.03	2	0.03	2	0.03	2	0.03	2	0.03	10.0	0.15
8	Sayala	5	0.08	5	0.08	5	0.08	5	0.08	5	0.08	25.0	0.4
9	Chuda	2	0.03	2	0.03	2	0.03	2	0.03	2	0.03	10.0	0.15
10	Limbadi	2	0.03	2	0.03	2	0.03	2	0.03	2	0.03	10.0	0.15
Total		66	1.01	66	1.01	66	1.01	66	1.01	66	1.01	330	5.05

Table 5.2.7.3: Training needs for IPM/INM (Phy.- Number. , Fin. – Rs.in lakhs)

Sr. No.	Taluka name	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina
1	Halwad	25.0	0.15	25.0	0.15	25.0	0.15	25.0	0.15	25.0	0.15	125.0	0.8
2	Dhangadhra	20.0	0.12	20.0	0.12	20.0	0.12	20.0	0.12	20.0	0.12	100.0	0.6
3	Dasada	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
4	Lakhatar	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
5	Vadhavan	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	50.0	0.3
6	Muli	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	50.0	0.3
7	Chotila	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
8	Sayala	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	50.0	0.3
9	Chuda	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
10	Limbadi	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
Total		100.0	0.6	100.0	0.6	100.0	0.6	100.0	0.6	100.0	0.6	500.0	3.0

Table 5.2.7.4: Training needs for soil health management (Phy.- Number. , Fin. – Rs.in lakhs)

Sr. No.	Taluka name	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina
1	Halwad	15	0.18	15	0.18	15	0.18	15	0.18	15	0.18	75.0	0.9
2	Dhangadhra	10	0.12	10	0.12	10	0.12	10	0.12	10	0.12	50.0	0.6
3	Dasada	5	0.06	5	0.06	5	0.06	5	0.06	5	0.06	25.0	0.3
4	Lakhatar	5	0.06	5	0.06	5	0.06	5	0.06	5	0.06	25.0	0.3
5	Vadhavan	5	0.06	5	0.06	5	0.06	5	0.06	5	0.06	25.0	0.3
6	Muli	5	0.06	5	0.06	5	0.06	5	0.06	5	0.06	25.0	0.3
7	Chotila	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02	10.0	0.1
8	Sayala	5	0.06	5	0.06	5	0.06	5	0.06	5	0.06	25.0	0.3
9	Chuda	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02	10.0	0.1
10	Limbadi	5	0.06	5	0.06	5	0.06	5	0.06	5	0.06	25.0	0.3
Total		59	0.7	59	0.7	59	0.7	59	0.7	59	0.7	295	3.5

Table 5.2.7.5: Training needs for organic farming (Phy.- Number. , Fin. – Rs.in lakhs)

Sr No.	Taluka name	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina
1	Halwad	25.0	0.15	25.0	0.15	25.0	0.15	25.0	0.15	25.0	0.15	125.0	0.8
2	Dhangadhra	20.0	0.12	20.0	0.12	20.0	0.12	20.0	0.12	20.0	0.12	100.0	0.6
3	Dasada	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
4	Lakhatar	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
5	Vadhavan	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	50.0	0.3
6	Muli	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	50.0	0.3
7	Chotila	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
8	Sayala	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	50.0	0.3
9	Chuda	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
10	Limbadi	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
Total		100.0	0.6	100.0	0.6	100.0	0.6	100.0	0.6	100.0	0.6	500.0	3.0

Table 5.2.7.6: Training needs for value addition /processing (Phy.- Number. , Fin. – Rs.in lakhs)

Sr. No.	Taluka name	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina
1	Halwad	15	0.23	15	0.23	15	0.23	15	0.23	15	0.23	75.0	1.1
2	Dhangadhra	10	0.15	10	0.15	10	0.15	10	0.15	10	0.15	50.0	0.8
3	Dasada	2	0.03	2	0.03	2	0.03	2	0.03	2	0.03	10.0	0.2
4	Lakhatar	2	0.03	2	0.03	2	0.03	2	0.03	2	0.03	10.0	0.2
5	Vadhavan	5	0.08	5	0.08	5	0.08	5	0.08	5	0.08	25.0	0.4
6	Muli	5	0.08	5	0.08	5	0.08	5	0.08	5	0.08	25.0	0.4
7	Chotila	2	0.03	2	0.03	2	0.03	2	0.03	2	0.03	10.0	0.2
8	Sayala	5	0.08	5	0.08	5	0.08	5	0.08	5	0.08	25.0	0.4
9	Chuda	2	0.03	2	0.03	2	0.03	2	0.03	2	0.03	10.0	0.2
10	Limbadi	2	0.03	2	0.03	2	0.03	2	0.03	2	0.03	10.0	0.2
Total		50	0.75	50	0.75	50	0.75	50	0.75	50	0.75	250	3.8

Table 5.2.7.7: Training needs for marketing/ co-operative societies

(Phy.- Number. , Fin. – Rs.in lakhs)

Sr. No.	Taluka name	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina
1	Halwad	25.0	0.15	25.0	0.15	25.0	0.15	25.0	0.15	25.0	0.15	125.0	0.8
2	Dhangadhra	20.0	0.12	20.0	0.12	20.0	0.12	20.0	0.12	20.0	0.12	100.0	0.6
3	Dasada	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
4	Lakhatar	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
5	Vadhavan	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	50.0	0.3
6	Muli	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	50.0	0.3
7	Chotila	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
8	Sayala	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	10.0	0.06	50.0	0.3
9	Chuda	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
10	Limbadi	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	5.0	0.03	25.0	0.2
Total		100.0	0.6	100.0	0.6	100.0	0.6	100.0	0.6	100.0	0.6	500.0	3.0

Table 5.2.8: Establishment of nurseries: (Phy.- Number. , Fin. – Rs.in lakhs)

Sr. No.	Taluka name	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina
1	Halwad	1	3	1	3	-	-	1	3	-	-	3	9
2	Dhangadhra	1	3	-	-	-	-	-	-	1	3	2	6
3	Dasada	-	-	1	3	1	3	-	-			2	6
4	Lakhatar	-	-	-	-	1	3	-	-	1	3	2	6
5	Vadhavan	-	-	-	-	-	-	-	-	1	3	1	3
6	Muli	1	3	-	-	-	-	-	-	-	-	1	3
7	Chotila	-	-	-	-	-	-	-	-	-	-	0	0
8	Sayala	-	-	-	-	-	-	1	3	-	-	1	3
9	Chuda	-	-	-	-	1	3			-	-	1	3
10	Limbadi	-	-	1	3			1	3	-	-	2	9
Total		3	9	3	9	3	9	3	9	3	9	15	45

Cost @ Rs 3.00lakhs/unit

Table 5.2.9.1: Establishment of net and poly houses (Phy.- Number. , Fin. – Rs.in lakhs)

Sr. No.	Taluka name	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina
1	Halwad	20	16	20	16	20	16	20	16	20	16	100	80
2	Dhangadhra	20	16	20	16	20	16	20	16	20	16	100	80
3	Dasada	20	16	20	16	20	16	20	16	20	16	100	80
4	Lakhatar	5	4	5	4	5	4	5	4	5	4	25	20
5	Vadhavan	4	3.2	4	3.2	4	3.2	4	3.2	4	3.2	20	16
6	Muli	5	4	5	4	5	4	5	4	5	4	25	20
7	Chotila	5	4	5	4	5	4	5	4	5	4	25	20
8	Sayala	6	4.8	6	4.8	6	4.8	6	4.8	6	4.8	30	24
9	Chuda	8	6.4	8	6.4	8	6.4	8	6.4	8	6.4	40	32
10	Limbadi	7	5.6	7	5.6	7	5.6	7	5.6	7	5.6	35	28
Total		100	80	100	80	100	80	100	80	100	80	500	400

Cost @ Rs0.80 lakhs/unit

Table 5.2.9.2: Establishment of green house (Phy.- Number. , Fin. – Rs.in lakhs)

Sr. No.	Taluka name	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina	Phy	Fina
1	Halwad	2	60	2	60	2	60	2	60	2	60	10	300
2	Dhangadhra	2	60	2	60	2	60	2	60	2	60	10	300
3	Dasada	5	150	5	150	5	150	5	150	5	150	25	750
4	Lakhatar	2	60	2	60	2	60	2	60	2	60	10	300
5	Vadhavan	1	30	1	30	1	30	1	30	1	30	5	150
6	Muli	1	30	1	30	1	30	1	30	1	30	5	150
7	Chotila	6	180	6	180	6	180	6	180	6	180	30	900
8	Sayala	2	60	2	60	2	60	2	60	2	60	10	300
9	Chuda	2	60	2	60	2	60	2	60	2	60	10	300
10	Limbadi	2	60	2	60	2	60	2	60	2	60	10	300
Total		25	750	25	750	25	750	25	750	25	750	125	3750

Cost @ Rs 30 lakhs/unit

Table 5.2.10: Demonstrations on vegetables for area expansion

(Phy.- Number of demonstrations, Fin. – Rs.in lakhs)

Sr. No.	Name of Taluka	Number of demonstrations and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	20	2.00	20	2.00	20	2.00	20	2.00	20	2.00	100.0	10.0
2	Dhangadhra	16	1.60	16	1.60	16	1.60	16	1.60	16	1.60	80.0	8.0
3	Dasada	4	0.40	4	0.40	4	0.40	4	0.40	4	0.40	20.0	2.0
4	Lakhatar	4	0.40	4	0.40	4	0.40	4	0.40	4	0.40	20.0	2.0
5	Vadhavan	8	0.80	8	0.80	8	0.80	8	0.80	8	0.80	40.0	4.0
6	Muli	8	0.80	8	0.80	8	0.80	8	0.80	8	0.80	40.0	4.0
7	Chotila	4	0.40	4	0.40	4	0.40	4	0.40	4	0.40	20.0	2.0
8	Sayala	8	0.80	8	0.80	8	0.80	8	0.80	8	0.80	40.0	4.0
9	Chuda	4	0.40	4	0.40	4	0.40	4	0.40	4	0.40	20.0	2.0
10	Limbadi	4	0.40	4	0.40	4	0.40	4	0.40	4	0.40	20.0	2.0
	Total	80	8.00	80	8.00	80	8.00	80	8.00	80	8.00	400.0	40.0

Cost @ Rs 10,000/ unit

Table 5.2.11: Demonstrations on integrated pest management in vegetable crops

(Phy.- Number of demonstrations , Fin. – Rs.in lakhs)

Sr. No.	Name of Taluka	Number of demonstrations and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	15	0.60	15	0.60	15	0.60	15	0.60	15	0.60	75.0	3.0
2	Dhangadhra	10	0.40	10	0.40	10	0.40	10	0.40	10	0.40	50.0	2.0
3	Dasada	2	0.08	2	0.08	2	0.08	2	0.08	2	0.08	10.0	0.4
4	Lakhatar	2	0.08	2	0.08	2	0.08	2	0.08	2	0.08	10.0	0.4
5	Vadhavan	5	0.20	5	0.20	5	0.20	5	0.20	5	0.20	25.0	1.0
6	Muli	5	0.20	5	0.20	5	0.20	5	0.20	5	0.20	25.0	1.0
7	Chotila	2	0.08	2	0.08	2	0.08	2	0.08	2	0.08	10.0	0.4
8	Sayala	5	0.20	5	0.20	5	0.20	5	0.20	5	0.20	25.0	1.0
9	Chuda	2	0.08	2	0.08	2	0.08	2	0.08	2	0.08	10.0	0.4
10	Limbadi	2	0.08	2	0.08	2	0.08	2	0.08	2	0.08	10.0	0.4
	Total	50	2.00	50	2.00	50	2.00	50	2.00	50	2.00	250	10.0

Total cost @ Rs. 4000 /demon

Table 5.2.12: Demonstrations on integrated nutrient management in vegetables crops

(Phy.- Number of demonstrations, Fin. – Rs.in lakhs)

Sr. No.	Name of Taluka	Number of demonstrations and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	25	1.00	25	1.00	25	1.00	25	1.00	25	1.00	125.0	5.0
2	Dhangadhra	20	0.80	20	0.80	20	0.80	20	0.80	20	0.80	100.0	4.0
3	Dasada	5	0.20	5	0.20	5	0.20	5	0.20	5	0.20	25.0	1.0
4	Lakhatar	5	0.20	5	0.20	5	0.20	5	0.20	5	0.20	25.0	1.0
5	Vadhavan	10	0.40	10	0.40	10	0.40	10	0.40	10	0.40	50.0	2.0
6	Muli	10	0.40	10	0.40	10	0.40	10	0.40	10	0.40	50.0	2.0
7	Chotila	5	0.20	5	0.20	5	0.20	5	0.20	5	0.20	25.0	1.0
8	Sayala	10	0.40	10	0.40	10	0.40	10	0.40	10	0.40	50.0	2.0
9	Chuda	5	0.20	5	0.20	5	0.20	5	0.20	5	0.20	25.0	1.0
10	Limbadi	5	0.20	5	0.20	5	0.20	5	0.20	5	0.20	25.0	1.0
	Total	100	4.00	100	4.00	100	4.00	100	4.00	100	4.00	500.0	20.0

Total cost @ Rs. 4000 /demon

Table 5.2.13: Project proposal for kitchen gardening with low energy drip

(Phy-No. of units, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of units and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	1	0.03	1	0.03	1	0.03	1	0.03	1	0.03	5	0.15
2	Dhangadhra	1	0.03	1	0.03	1	0.03	1	0.03	1	0.03	5	0.15
3	Dasada	1	0.03	1	0.03	1	0.03	1	0.03	1	0.03	5	0.15
4	Lakhatar	1	0.03	1	0.03	1	0.03	1	0.03	1	0.03	5	0.15
5	Vadhavan	1	0.03	1	0.03	1	0.03	1	0.03	1	0.03	5	0.15
6	Muli	1	0.03	1	0.03	1	0.03	1	0.03	1	0.03	5	0.15
7	Chotila	1	0.03	1	0.03	1	0.03	1	0.03	1	0.03	5	0.15
8	Sayala	1	0.03	1	0.03	1	0.03	1	0.03	1	0.03	5	0.15
9	Chuda	1	0.03	1	0.03	1	0.03	1	0.03	1	0.03	5	0.15
10	Limbadi	1	0.03	1	0.03	1	0.03	1	0.03	1	0.03	5	0.15
	Total	10	0.3	10	0.3	10	0.3	10	0.3	10	0.3	50	1.50

Number of units (ha.) each 50 sq. mt area Cost @ Rs 3,000/unit

Table 5.2.14: High tech vegetable farming including all components

(Phy-No. of units, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of units and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	1	0.3	1	0.3	1	0.3	1	0.3	1	0.3	5	1.5
2	Dhangadhra	1	0.3	1	0.3	1	0.3	1	0.3	1	0.3	5	1.5
3	Dasada	-	-	-	-	1	0.3	1	0.3	1	0.3	3	0.9
4	Lakhatar	-	-	-	-	1	0.3	1	0.3	1	0.3	3	0.9
5	Vadhavan	-	-	-	-	1	0.3	1	0.3	1	0.3	3	0.9
6	Muli	-	-	-	-	1	0.3	1	0.3	1	0.3	3	0.9
7	Chotila	-	-	1	0.3	1	0.3	1	0.3	1	0.3	4	1.2
8	Sayala	-	-			1	0.3	1	0.3	1	0.3	3	0.9
9	Chuda	-	-	1	0.3	1	0.3	1	0.3	1	0.3	4	1.2
10	Limbadi	-	-	-	-	1	0.3	1	0.3	1	0.3	3	0.9
	Total	2	0.6	2	0.6	10	3.0	10	3.0	10	3.0	36	10.8

Number of units (ha.) each 50 sq. mt area Cost @ Rs 30,000/unit

Table 5.2.15: Proposal for establishment of cold storage units: (Phy-No. of units, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of units and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	-	-	1	300	-	-	-	-	-	-	1	300
2	Dhangadhra	-	-	-	-	1	300	-	-	-	-	1	300
3	Dasada	-	-	-	-	-	-	-	-	1	300	1	300
4	Chotila	1	300	-	-	-	-	-	-	-	-	1	300
5	Sayala	-	-	-	-	-	-	1	300			1	300
	Total	1	300	1	300	1	300	1	300	1	300	5	1500

Cost @ Rs 300 lakhs/ unit

Table 5.2.16: Proposal for establishment of collection centers

(Phy-No. of units, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of units and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	1	3.0	-	-	-	-	-	-	-	-	1	3.0
2	Dhangadhra	-	-	1	3.0	-	-	-	-	-	-	1	3.0
3	Dasada	-	-	-	-	-	-	1	3.0			1	3.0
4	Lakhatar	-	-	-	-	-	-	-	-	1	3.0	1	3.0
5	Vadhavan	-	-	-	-	1	3.0	-	-	-	-	1	3.0
6	Muli	-	-	-	-	1	3.0	-	-	-	-	1	3.0
7	Chotila	1	3.0	1	3.0			-	-	-	-	2	6.0
8	Sayala	-	-	-	-	1	3.0	-	-	-	-	1	3.0
9	Chuda	-	-	-	-	-	-	1	3.0	-	-	1	3.0
10	Limbadi	-	-	-	-	-	-	-	-	1	3.0	1	3.0
	Total	2	6.0	2	6.0	3	9.0	2	6.0	2	6.0	11	33.0

Cost @ Rs 3 lakhs/ unit

Table 5.2.17: Proposal for providing refrigerated vans

(Phy-No. of units, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of units and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	1	17.0	-	-	-	-	-	-	-	-	1	17
2	Dhangadhra	-	-	1	17.0	-	-	-	-	-	-	1	17
3	Dasada	-	-	-	-	-	-	1	17.0			1	17
4	Lakhatar	-	-	-	-	-	-	-	-	1	17.0	1	17
5	Vadhavan	-	-	-	-	1	17.0	-	-	-	-	1	17
6	Muli	-	-	-	-	1	17.0	-	-	-	-	1	17
7	Chotila	1	17.0	1	17.0			-	-	-	-	2	34
8	Sayala	-	-	-	-	1	17.0	-	-	-	-	1	17
9	Chuda	-	-	-	-	-	-	1	17.0	-	-	1	17
10	Limbadi	-	-	-	-	-	-	-	-	1	17.0	1	17
	Total	2	34.0	2	17.0	3	51.0	2	34.0	2	34.0	11	187.0

Cost @ Rs 17 lakhs/ unit

5.2.18: Training needs of farmers for fruit crops

Table 5.2.18.1: Training needs of farmers for fruit cultivation

(Phy-No. of farmers, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of farmers and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	20	0.12	20	0.12	20	0.12	20	0.12	20	0.12	100	0.60
2	Dhangadhra	15	0.09	15	0.09	15	0.09	15	0.09	15	0.09	75	0.45
3	Dasada	5	0.03	5	0.03	5	0.03	5	0.03	5	0.03	25	0.15
4	Lakhatar	5	0.03	5	0.03	5	0.03	5	0.03	5	0.03	25	0.15
5	Vadhavan	5	0.03	5	0.03	5	0.03	5	0.03	5	0.03	25	0.15
6	Muli	10	0.06	10	0.06	10	0.06	10	0.06	10	0.06	50	0.30
7	Chotila	20	0.12	20	0.12	20	0.12	20	0.12	20	0.12	100	0.60
8	Sayala	10	0.06	10	0.06	10	0.06	10	0.06	10	0.06	50	0.30
9	Chuda	5	0.03	5	0.03	5	0.03	5	0.03	5	0.03	25	0.15
10	Limbadi	5	0.03	5	0.03	5	0.03	5	0.03	5	0.03	25	0.15
	Total	100	0.6	100	0.6	100	0.6	100	0.6	100	0.6	500	3.00

Cost @ Rs 600/farmer

Table 5.2.18.2: Training needs of farmers for Nursery raising

(Phy-No. of farmers, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of farmers and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	10	0.7	10	0.7	10	0.7	10	0.7	10	0.7	50	3.5
2	Dhangadhra	8	0.56	8	0.56	8	0.56	8	0.56	8	0.56	40	2.8
3	Dasada	5	0.35	5	0.35	5	0.35	5	0.35	5	0.35	25	1.75
4	Lakhatar	5	0.35	5	0.35	5	0.35	5	0.35	5	0.35	25	1.75
5	Vadhavan	3	0.21	3	0.21	3	0.21	3	0.21	3	0.21	15	1.05
6	Muli	5	0.35	5	0.35	5	0.35	5	0.35	5	0.35	25	1.75
7	Chotila	10	0.7	10	0.7	10	0.7	10	0.7	10	0.7	50	3.5
8	Sayala	5	0.35	5	0.35	5	0.35	5	0.35	5	0.35	25	1.75
9	Chuda	4	0.28	4	0.28	4	0.28	4	0.28	4	0.28	20	1.4
10	Limbadi	5	0.35	5	0.35	5	0.35	5	0.35	5	0.35	25	1.75
	Total	60	4.2	60	4.2	60	4.2	60	4.2	60	4.2	300	21

Cost @ Rs 700/farmer

Table 5.2.18.3: Training needs of farmers for INM / IPM

(Phy-No. of farmers, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of farmrs and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	10	0.3	10	0.3	10	0.3	10	0.3	10	0.3	50	1.5
2	Dhangadhra	8	0.24	8	0.24	8	0.24	8	0.24	8	0.24	40	1.2
3	Dasada	5	0.15	5	0.15	5	0.15	5	0.15	5	0.15	25	0.75
4	Lakhatar	5	0.15	5	0.15	5	0.15	5	0.15	5	0.15	25	0.75
5	Vadhavan	3	0.09	3	0.09	3	0.09	3	0.09	3	0.09	15	0.45
6	Muli	5	0.15	5	0.15	5	0.15	5	0.15	5	0.15	25	0.75
7	Chotila	10	0.3	10	0.3	10	0.3	10	0.3	10	0.3	50	1.5
8	Sayala	5	0.15	5	0.15	5	0.15	5	0.15	5	0.15	25	0.75
9	Chuda	4	0.12	4	0.12	4	0.12	4	0.12	4	0.12	20	0.6
10	Limbadi	5	0.15	5	0.15	5	0.15	5	0.15	5	0.15	25	0.75
	Total	60	1.8	60	1.8	60	1.8	60	1.8	60	1.8	300	9

Cost @ Rs 300/farmer

Table 5.2.18.4: Training needs of farmers for Value addition processing

(Phy-No. of farmers, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of farmers and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	10	0.5	10	0.5	10	0.5	10	0.5	10	0.5	50	2.5
2	Dhangadhra	8	0.4	8	0.4	8	0.4	8	0.4	8	0.4	40	2
3	Dasada	5	0.25	5	0.25	5	0.25	5	0.25	5	0.25	25	1.25
4	Lakhatar	5	0.25	5	0.25	5	0.25	5	0.25	5	0.25	25	1.25
5	Vadhavan	3	0.15	3	0.15	3	0.15	3	0.15	3	0.15	15	0.75
6	Muli	5	0.25	5	0.25	5	0.25	5	0.25	5	0.25	25	1.25
7	Chotila	10	0.5	10	0.5	10	0.5	10	0.5	10	0.5	50	2.5
8	Sayala	5	0.25	5	0.25	5	0.25	5	0.25	5	0.25	25	1.25
9	Chuda	4	0.2	4	0.2	4	0.2	4	0.2	4	0.2	20	1
10	Limbadi	5	0.25	5	0.25	5	0.25	5	0.25	5	0.25	25	1.25
	Total	60	3	60	3	60	3	60	3	60	3	300	15

Cost @ Rs 500/farmer

5.2.19: Demonstrations on fruit crops for area expansion

Table 5.2.19.1: Demonstrations on fruit crops

(Phy-No. of demonstrations, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of demonstrations and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	15	0.6	15	0.6	15	0.6	15	0.6	15	0.6	75	3
2	Dhangadhra	50	2.0	50	2.0	50	2.0	50	2.0	50	2.0	250	10
3	Dasada	4	0.16	4	0.16	4	0.16	4	0.16	40	0.16	20	0.8
4	Lakhatar	3	0.12	3	0.12	3	0.12	3	0.12	30	0.12	15	0.6
5	Vadhavan	5	0.2	5	0.2	5	0.2	5	0.2	50	0.2	25	1
6	Muli	5	0.2	5	0.2	5	0.2	5	0.2	50	0.2	25	1
7	Chotila	4	0.16	4	0.16	4	0.16	4	0.16	40	0.16	20	0.8
8	Sayala	5	0.2	5	0.2	5	0.2	5	0.2	50	0.2	25	1
9	Chuda	4	0.16	4	0.16	4	0.16	4	0.16	40	0.16	20	0.8
10	Limbadi	5	0.2	5	0.2	5	0.2	5	0.2	50	0.2	25	1
	Total	100	4	100	4	100	4	100	4	100	4.0	500	20

Each unit 0.5 ha & its cost Rs.4000/-

Table 5.2.19.2: Demonstrations on Integrated pest management in fruit crops

(Phy- No. of demonstrations, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of demonstrations and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	15	0.3	15	0.3	15	0.3	15	0.3	15	0.3	75	1.5
2	Dhangadhra	50	1	50	1	50	1	50	1	50	1	250	5
3	Dasada	4	0.08	4	0.08	4	0.08	4	0.08	4	0.08	20	0.4
4	Lakhatar	3	0.06	3	0.06	3	0.06	3	0.06	3	0.06	15	0.3
5	Vadhavan	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
6	Muli	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
7	Chotila	4	0.08	4	0.08	4	0.08	4	0.08	4	0.08	20	0.4
8	Sayala	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
9	Chuda	4	0.08	4	0.08	4	0.08	4	0.08	4	0.08	20	0.4
10	Limbadi	5	0.1	5	0.1	5	0.1	5	0.1	5	0.1	25	0.5
	Total	100	2	100	2	100	2	100	2	100	2	500	10

Each unit 0.4 ha & its cost Rs.2000/-

Table 5.2.20 : Supply of plant protection equipment (Foot sprayer)

(Phy-No. of units, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of units and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	8	0.32	8	0.32	8	0.32	8	0.32	8	0.32	40	1.6
2	Dhangadhra	20	0.8	20	0.8	20	0.8	20	0.8	20	0.8	100	4
3	Dasada	4	0.16	4	0.16	4	0.16	4	0.16	4	0.16	20	0.8
4	Lakhatar	4	0.16	4	0.16	4	0.16	4	0.16	4	0.16	20	0.8
5	Vadhavan	3	0.12	3	0.12	3	0.12	3	0.12	3	0.12	15	0.6
6	Muli	2	0.08	2	0.08	2	0.08	2	0.08	2	0.08	10	0.4
7	Chotila	2	0.08	2	0.08	2	0.08	2	0.08	2	0.08	10	0.4
8	Sayala	2	0.08	2	0.08	2	0.08	2	0.08	2	0.08	10	0.4
9	Chuda	2	0.08	2	0.08	2	0.08	2	0.08	2	0.08	10	0.4
10	Limbadi	3	0.12	3	0.12	3	0.12	3	0.12	3	0.12	15	0.6
	Total	50	2	50	2	50	2	50	2	50	2	250	10

Unit cost Rs.4000/-

Table 5.2.21: Recycling of farm waste through composting using shredder

(Phy-No. of units, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of units and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	8	12	8	12	8	12	8	12	8	12	40	60
2	Dhangadhra	20	30	20	30	20	30	20	30	20	30	100	150
3	Dasada	10	15	10	15	10	15	10	15	10	15	50	75
4	Lakhatar	10	15	10	15	10	15	10	15	10	15	50	75
5	Vadhavan	8	12	8	12	8	12	8	12	8	12	40	60
6	Muli	4	6	4	6	4	6	4	6	4	6	20	30
7	Chotila	5	7.5	5	7.5	5	7.5	5	7.5	5	7.5	25	37.5
8	Sayala	5	7.5	5	7.5	5	7.5	5	7.5	5	7.5	25	37.5
9	Chuda	5	7.5	5	7.5	5	7.5	5	7.5	5	7.5	25	37.5
10	Limbadi	5	7.5	5	7.5	5	7.5	5	7.5	5	7.5	25	37.5
	Total	80	120	80	120	80	120	80	120	80	120	400	600

Unit Cost Rs. 1.5 Lakhs

Table 5.2.22: Cluster based demonstrations on spices, medicinal and aromatic plants

(Phy-No. of demonstrations, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of Demonstrations and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	2	0.5	2	0.5	2	0.5	2	0.5	2	0.5	10	2.5
2	Dhangadhra	2	0.5	2	0.5	2	0.5	2	0.5	2	0.5	10	2.5
3	Dasada	2	0.5	2	0.5	2	0.5	2	0.5	2	0.5	10	2.5
4	Lakhatar	1	0.25	1	0.25	1	0.25	1	0.25	1	0.25	5	1.25
5	Vadhavan	1	0.25	1	0.25	1	0.25	1	0.25	1	0.25	5	1.25
6	Muli	1	0.25	1	0.25	1	0.25	1	0.25	1	0.25	5	1.25
7	Chotila	1	0.25	1	0.25	1	0.25	1	0.25	1	0.25	5	1.25
8	Sayala	1	0.25	1	0.25	1	0.25	1	0.25	1	0.25	5	1.25
10	Limbadi	1	0.25	1	0.25	1	0.25	1	0.25	1	0.25	5	1.25
	Total	12	3	12	3	12	3	12	3	12	3	60	15

Each cluster 5.0 ha costing Rs. 0.25 Lakhs

5.3 Animal Husbandry

The Animal husbandry Sector plays an important and vital role in GDP of Gujarat State, which is to the tune of nearly about 5.0%. This sector also contributes to product nutritive food, rich in animal protein, to the general public and good supplementary income to the economically weaker section of society like S.T., S.C., small farmers, marginal farmers and agricultural labourers . In addition, it offers a good employment generation opportunity, if adopted on a large commercial basis.

Central to the challenge of ensuring improved livelihood and environmental sustainability is the ruminant livestock-particularly buffalo, cattle and goats- that are an integral part of the district's farming system. The expanding market with rise in demand for diverse animal products and easy access to marketing are added opportunities for further strengthening of this sector in the district with wide network of infrastructural and support services.

5.3.1: Dairy Development

Dairy is an essential component of the district. There is a long tradition of rearing dairy animals by the farmers in the district. Large numbers of landless families are also engaged in dairy animal rearing. There are 346861 numbers of cattle, 290113 numbers of buffaloes and 334015 in the district as per latest livestock census (2007). The numbers of cross bred cows are 4835 which are almost 1.39 per cent of total cows. During 2010-2011 total milk production of Surendranagar district was 105712.5 tonnes. The average milk yield of indigenous cow, crossbred cow and indigenous buffalo is 1.69 kg, 5.46 kg and 2.75 kg per day respectively *(27th survey report on estimates of major livestock products for the year 2009-2010, gujarat state).*

There exists wide gap between the average yield and attainable yield and potential yield which offers scope for improvement in productivity. The existing gaps in germplasm, low reproductive efficiency, shortage of quality feed and fodder (even quality), inadequate disease management etc. are to be addressed through a shift towards technology driven livestock production and management. Enhanced farmers' interest and thrust of animal husbandry and other government departments and agencies are required in increasing milk yield of the district.

The stock/germplasm gap can be tackled through A.I. services and supply of known pedigree bulls. The gap of milk yield can be bridged through availability of green fodder and popularizing hay and silage making. The macro and micro-nutrient deficiency in fodder/soil is also affecting the productivity of these animals through poor quality fodder supplement addressing the mineral deficiency in diet. The majority of farmers are feeding poor quality fodder to animals. To aware the farmers on this important aspect, quality fodder production through varietal and INM demonstrations are recommended. The high calf mortality and other disease threat would effectively be checked by starting extensive campaigns related to calf rearing and management. For effective disease control the veterinary services are to be strengthened by providing different improved diagnostic kits for mastitis, FMD etc. and providing mobile hospital vans for door step services to the farmers. The existing schemes and programmes for improvement of health of animals and enhancing milk productions are planned to be supplemented under RKVY.

The sheep and goat rearing activities are done by Bharwad and Rabari communities with zero input cost and in semi nomadic status in the district. Sheep and Goat rearing activities are techno economically viable but at a modest scale in view of agro climatic conditions and availability of grazing land in the district. Patanwadi and Marwadi breed sheep's and Zhalawadi breed goats are reared in the district for wool, meat and milk. As per 2007 census data, total Sheep and Goat population of the district was 133515 and 190500 respectively. The wool and meat production in the district were 177800 kg and 38422 kg respectively during 2007-08. Total milk production in the district is 105712.5 tonnes.

Table: 5.3.1 Milk Production (kg) and Number of milk cooperatives

Sr. No	Taluka	Number of milk cooperatives	No of members	Milk Production (kg)
1	Halwad	73	8000	12688909
2	Dhangadhra	74	10049	14099781
3	Dasada	82	9693	11751300
4	Lakhatar	42	3931	5577031
5	Vadhavan	55	4743	9025939
6	Muli	60	5410	9261725
7	Chotila	111	8280	15775675
8	Sayala	73	6589	13027340
9	Chuda	35	2750	6294129
10	Limbadi	58	4539	8210694
Total		663	63984	105712523

In addition to the proposed extension activities of capacity building and skill upgradation, the entrepreneurship development programmes are also included in the plan.

Gir Cow

Zalawadi Goat

Table 5.3.2 : Sustainability issues and gap analysis of productivity in Dairy industry.

Sr. No.	Factors/ Constraints leading to gap	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
a	Breed of Animals: Natural mating with non-descript bull	Strengthening A.I. facility, Community Bulls	Extension and development agencies A.H deptt. and co-operatives should jointly approach in a farmers participatory approach	Strengthening AI by establishing new AI centers, Mobile A.I. centers and semen storage facilities	Improvement in livestock breeds which increase the milk production.
b	Poor Housing management: Lack of awareness and poor economic condition of the farmers	Proper housing management	Creating awareness and increase adoption of proper housing management through training, demonstrations and literature	Increase the health, hygiene and milk production	Increase milk production
c	Imbalanced feeding : lack of green fodder	Cultivation of green fodders and establishing fodder bank	Demonstration, Trainings, supply of seed of fodder crops and establishing fodder bank at block level	Improve animal health and increase in milk production	Increase milk production
	Shortage and high cost of concentrate feed	Providing concentrate feed at cheaper rate by producing at co-operative levels	Supply of concentrate feed to the buffalo /cattle farmers establishment of concentrate production unit at co-operative level	Improve animal health and milk production	Increase income of the farmers
	Poor nutrient /micronutrient status of soil as well as feeds leads to mineral deficiency in animals	Mineral mixture supplementation of the animal feed	Supply of mineral mixture to the buffalo /cattle farmers	Correction of mineral status and Improvement of animal health and milk production	Increase income of the farmers

Sr. No.	Factors/ Constraints leading to gap	Strategies	Approach and methodology	Performance indicators	Sustainability outputs
d	Poor Health of animal :Poor feed and fodder availability and poor body conditions	Popularize health package (deworming, mineral mixture and concentrate feeding)	Creating awareness and increase adoption popularize health package through training, demonstrations and literature	Improve health and milk production	Increase income of the farmers
e	High calf mortality and delayed age of first calving: Lack of awareness about scientific calf rearing	Popularize scientific calf rearing	Creating awareness and increase adoption of scientific cal rearing through training, demonstrations and literature	Reduce calf mortality and production elite future herds	Increase income of the farmers
f	Goat rearing : Lack of knowledge about rearing	Popularize scientific goat rearing	Creating awareness and increase adoption of scientific Goat rearing through training, demonstrations and literature	Increase milk and meat production Provide household nutrition to poor family	Increase income and health of the farmers
g	Lack of knowledge about poultry rearing	Popularize scientific poultry rearing	Creating awareness and increase adoption of scientific poultry rearing through training, demonstrations and literature	Increase egg and meat production Provide household nutrition to poor family	Increase income and health of the farmers

Table 5.3.3: Bridging the gaps for realizing the Vision- Dairy sector

Issue	Programme	Activities	Collaborators/ Targets
Dairy Development	Fertility Improvement Programme	Arrangement of clinical camps for treatment of infertile animals and also awareness programme	AH, Co-Operatives, KVK
	Supplementation of Mineral Mixture to Milch Animals	to supplement mineral mixture to overcome the reproductive problems	AH, Co-Operatives, KVK
	Supply of balanced Concentrate ration to Animals	To improve the animals productive efficiency by providing balanced concentrate ration. Awareness about concentrate feeding and easy availability at cheaper rate with in district.	Co-Operative
	Rearing of female cattle/buffalo calf	To provide genetically superior livestock at doorstep and to produce superior herd stock for future.	AH, Co-Operatives, KVK
	Providing Life Insurance to Livestock	To protect the livestock farmers from vagaries of nature by insuring animals against death.	AH, Co-Operatives
	Fodder production and preservation	Demonstration on fodder production and preservation	AH, Co-Operatives, KVK
	Provision of Artificial Insemination/Community Bulls facilities	Breed improvement through AI and breeding bulls	AH, Co-Operatives
	Commercial Dairy Farming	To establish model for others and o motivate others for dairying	AH, Co-Operatives, KVK
Poultry Development	Promotion of back yard poultry	This form of rural poultry is important source of assured nutritional supply and a sizeable return with no or little extra cost to the farm family.	AH (Intensive Poultry Development Project), KVK
Sheep& Goat Development	Goat/Sheep farming	Income and employment generation for weaker section of society	AH, Co-Operatives, KVK

AH-Animal Husbandry department, KVK-Krishi Vigyan Kendra, Co-operatives-Dairy

5.4: Activities for development of Animal Husbandry in the district.

The objective of the project is to create awareness regarding scientific management of livestock for gaining maximum production with minimum inputs. The detail knowledge regarding housing, feeding and health management of livestock and first aid in animals will be explained to the farmers under training programme. The farmer, who wants to startup his own livestock enterprise for the first time will also be most benefitted with this programme. There are 77003 (36.49%) small and medium farmers in the district out of which 25231 (11.96%) are marginal. Total of six groups will be trained twice in a year, so the total number of trainings will come up to 12 in each taluka. The Rs. 300 per trainee will be utilized, which may account for the literature, tea, breakfast, lunch, travelling expense for the trainee. The tentative project proposal is shown below in the table.

5.4.1: Proposal for capacity building of livestock farmers

Table 5.4.1.1 Capacity building for livestock farmers at cluster level for quality improvement of feed

(Phy-No. of farmers, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of trainees and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	25	0.075	25	0.075	25	0.075	25	0.075	25	0.075	125	0.375
2	Dhangadhra	30	0.09	30	0.09	30	0.09	30	0.09	30	0.09	150	0.45
3	Dasada	20	0.06	20	0.06	20	0.06	20	0.06	20	0.06	100	0.3
4	Lakhatar	10	0.03	10	0.03	10	0.03	10	0.03	10	0.03	50	0.15
5	Vadhavan	15	0.045	15	0.045	15	0.045	15	0.045	15	0.045	75	0.225
6	Muli	15	0.045	15	0.045	15	0.045	15	0.045	15	0.045	75	0.225
7	Chotila	35	0.105	35	0.105	35	0.105	35	0.105	35	0.105	175	0.525
8	Sayala	30	0.09	30	0.09	30	0.09	30	0.09	30	0.09	150	0.45
9	Chuda	10	0.03	10	0.03	10	0.03	10	0.03	10	0.03	50	0.15
10	Limbadi	10	0.03	10	0.03	10	0.03	10	0.03	10	0.03	50	0.15
	Total	200	0.6	200	0.6	200	0.6	200	0.6	200	0.6	1000	3.0

No. of Trainees =25/training @ Rs.0.003/- trainee/day

Table 5.4.1.2 Capacity building for livestock farmers at cluster level to enhance milk production

(Phy-No. of farmers, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of trainees and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	25	0.075	25	0.075	25	0.075	25	0.075	25	0.075	125	0.375
2	Dhangadhra	30	0.09	30	0.09	30	0.09	30	0.09	30	0.09	150	0.45
3	Dasada	20	0.06	20	0.06	20	0.06	20	0.06	20	0.06	100	0.3
4	Lakhatar	10	0.03	10	0.03	10	0.03	10	0.03	10	0.03	50	0.15
5	Vadhavan	15	0.045	15	0.045	15	0.045	15	0.045	15	0.045	75	0.225
6	Muli	15	0.045	15	0.045	15	0.045	15	0.045	15	0.045	75	0.225
7	Chotila	35	0.105	35	0.105	35	0.105	35	0.105	35	0.105	175	0.525
8	Sayala	30	0.09	30	0.09	30	0.09	30	0.09	30	0.09	150	0.45
9	Chuda	10	0.03	10	0.03	10	0.03	10	0.03	10	0.03	50	0.15
10	Limbadi	10	0.03	10	0.03	10	0.03	10	0.03	10	0.03	50	0.15
	Total	200	0.6	200	0.6	200	0.6	200	0.6	200	0.6	1000	3.0

No. of Trainees =25/training @ Rs.0.003/- trainee/day

Table 5.4.1.3 Capacity building for livestock farmers at cluster level to improve reproductive efficiency of dairy animals (Phy-No. of farmers, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of trainees and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	25	0.075	25	0.075	25	0.075	25	0.075	25	0.075	125	0.375
2	Dhangadhra	30	0.09	30	0.09	30	0.09	30	0.09	30	0.09	150	0.45
3	Dasada	20	0.06	20	0.06	20	0.06	20	0.06	20	0.06	100	0.3
4	Lakhatar	10	0.03	10	0.03	10	0.03	10	0.03	10	0.03	50	0.15
5	Vadhavan	15	0.045	15	0.045	15	0.045	15	0.045	15	0.045	75	0.225
6	Muli	15	0.045	15	0.045	15	0.045	15	0.045	15	0.045	75	0.225
7	Chotila	35	0.105	35	0.105	35	0.105	35	0.105	35	0.105	175	0.525
8	Sayala	30	0.09	30	0.09	30	0.09	30	0.09	30	0.09	150	0.45
9	Chuda	10	0.03	10	0.03	10	0.03	10	0.03	10	0.03	50	0.15
10	Limbadi	10	0.03	10	0.03	10	0.03	10	0.03	10	0.03	50	0.15
	Total	200	0.6	200	0.6	200	0.6	200	0.6	200	0.6	1000	3.0

No. of Trainees =25/training @ Rs.0.003/- trainee/day

5.4.2 : Fertility Improvement Programme

The main objective of this project is to change the fertility state of animals from infertile to fertile. So, the animals which are not conceiving (Repeat breeding), showing irregular cyclicity or not showing signs of heat (anoestrus) can be treated very well and brought to the normal reproductive state, which may lead to increase in milk production of district. It is fact that infertile animals put an extra burden on milk producers and gives a un-satisfaction in dairy animal rearing so it is necessary to organize a series of infertility camps at village level and treat such infertile animals. Simultaneously awareness program pertaining to animal reproduction should also be organized. This project will help in reducing inter-calving period, increasing number of milch animals and increase in milk production of district, In addition to this there will be awareness in milk producers about scientific rearing of dairy animals in the district.

Table 5.4.2.1 Proposal for fertility improvement programme.(Fertility camp)
(Phy-No. of camps, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of camps and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	40	8	40	8	40	8	40	8	40	8	200	40
2	Dhangadhra	55	11	55	11	55	11	55	11	55	11	275	55
3	Dasada	35	7	35	7	35	7	35	7	35	7	175	35
4	Lakhatar	20	4	20	4	20	4	20	4	20	4	100	20
5	Vadhavan	25	5	25	5	25	5	25	5	25	5	125	25
6	Muli	25	5	25	5	25	5	25	5	25	5	125	25
7	Chotila	65	13	65	13	65	13	65	13	65	13	325	65
8	Sayala	55	11	55	11	55	11	55	11	55	11	275	55
9	Chuda	20	4	20	4	20	4	20	4	20	4	100	20
10	Limbadi	20	4	20	4	20	4	20	4	20	4	100	20
	Total	360	72	360	72	360	72	360	72	360	72	1800	360.0

2 camps /village/year @ Rs. 0.20 lakh/camp

Table 5.4.2.2 Proposal for fertility improvement Awareness programme.

(Phy-No. awareness programme, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of awareness programme and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	40	4.5	40	4	40	4	40	4	40	4	200	20.5
2	Dhangadhra	55	6	55	5.5	55	5.5	55	5.5	55	5.5	275	28
3	Dasada	35	4	35	3.5	35	3.5	35	3.5	35	3.5	175	18
4	Lakhatar	20	2.5	20	2	20	2	20	2	20	2	100	10.5
5	Vadhavan	25	3	25	2.5	25	2.5	25	2.5	25	2.5	125	13
6	Muli	25	3	25	2.5	25	2.5	25	2.5	25	2.5	125	13
7	Chotila	65	7	65	6.5	65	6.5	65	6.5	65	6.5	325	33
8	Sayala	55	6	55	5.5	55	5.5	55	5.5	55	5.5	275	28
9	Chuda	20	2.5	20	2	20	2	20	2	20	2	100	10.5
10	Limbadi	20	2.5	20	2	20	2	20	2	20	2	100	10.5
	Total	360	41	360	36	360	36	360	36	360	36	1800	185.0

2 awareness programme /village/year @ Rs. 0.10 lakh/ awareness programme +5 lakh for instruments during fist year

5.4.3: Supplementation of Mineral Mixture to Milch Animals

Due to over exploitation of land under extensive cultivation and poor recycling of farm wastes, the soils have become deficient in nutrients. Deficiency of Ca, P and micro nutrients has severely affected the health, productive and breeding efficiency of dairy animals. Reproductive problems viz. age at first heat, age at first calving, calving interval, conception rate, abortion and vaginal prolapse and other deficiency syndromes have severely affected the breeding ability of dairy animals. Retarded calf growth and poor animal health are another severe threats associated with mineral deficiency in feeding straw, fodder and other food-stuffs. Encouraging results have been obtained by supplementing 40-50 grams of quality mineral mixture per day per lactating animal in the ration. Since, milk is one of the main constituents of human diet the deficiency of mineral in milk obtained by feeding deficient fodder has become a great concern to human health.

Table 5.4.3: Proposal for mineral mixture (MM) feeding supplementation.

(Phy-No. of animals, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of animals and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	1200	27.0	1200	27.0	1200	27.0	1200	27.0	1200	27.0	6000	135
2	Dhangadhra	1500	33.8	1500	33.8	1500	33.8	1500	33.8	1500	33.8	7500	168.75
3	Dasada	1000	22.5	1000	22.5	1000	22.5	1000	22.5	1000	22.5	5000	112.5
4	Lakhatar	500	11.3	500	11.3	500	11.3	500	11.3	500	11.3	2500	56.25
5	Vadhavan	750	16.9	750	16.9	750	16.9	750	16.9	750	16.9	3750	84.375
6	Muli	750	16.9	750	16.9	750	16.9	750	16.9	750	16.9	3750	84.375
7	Chotila	1800	40.5	1800	40.5	1800	40.5	1800	40.5	1800	40.5	9000	202.5
8	Sayala	1500	33.8	1500	33.8	1500	33.8	1500	33.8	1500	33.8	7500	168.75
9	Chuda	500	11.3	500	11.3	500	11.3	500	11.3	500	11.3	2500	56.25
10	Limbadi	500	11.3	500	11.3	500	11.3	500	11.3	500	11.3	2500	56.25
	Total	10000	225	10000	225	10000	225	10000	225	10000	225	50000	1125.0

@50g/day/animal for 300days **@ Rs. 0.0.0015 lakh/ kg**

5.4.4 Supply of balanced Concentrate ration to Animals

Feeding cost accounts for more than 70% of total cost of milk production. The profitability of any milk production programme and health of animals depend upon the feeding management of animals. The problems associated with feeding are, under feeding, over feeding, imbalanced feeding and mineral deficiency. Young, heifers and non lactating animals are generally ignored and only milch animals are properly looked after. Such practice is not desirable. The care ignored at young age and during dry period has worse effects on the milk production and health of the animals in subsequent lactations. Balanced feeding improves the body weight gain, reduces the age at first calving, overcomes the problems of mineral deficiency and helps in better milk production and body condition.

At present there is no direct source of procuring balanced animal feed within the district, hence, milk producer are forced to pay higher prices for animal feed which is not made for this district or of poor quality. Considering geography, rainfall and poor economic condition of milk producers the feed manufacturing unit is of prime need in the district. This project will full fill following objectives.

- To improve the animals productive efficiency by providing balanced concentrate ration.
- To ensure regular supply of economical balanced cattle feed at "No profit no loss" basis, throughout year.
- To improve the existing animal feeding practices in the district.
- To improve the general health of the animals by incorporating some of the important minerals, vitamins and medicines during preparation of balanced cattle feed.
- To uplift rural economy by encouraging animal husbandry practices.
- To bring out the awareness and perception about the use and benefits of cattle feed among the milk producers.
- To promote the cattle feed marketing at large scale to rural milk producers, so, they will gain more income through animal husbandry.

The project will be under the supervision of a committee including N.D.D.B. representative, District Development Officer, Project Administrator – TAPS, representative from DRDA *etc.*

Animal feed Pulses

Mineral Mixture

Table 5.4.4: Proposal for feed factory plant 50 MT per day

S.N	Description	Total Rs. (lakhs)
A	Overall Civil construction expenditure	
1	Civil works & land development	62.00
2	Storage building facilities	83.00
3	Non- industrial buildings	44.40
4	Compound wall and other	9.20
5	Roads & pavements	21.00
6	Electrification	12.00
7	Water supply & drainage	12.00
8	Architect/ Engineer consultancy service	12.00
9	Civil contingency	10.00
Sub Total		**265.60**
B	Process and production equipment	
1	Raw materials and intake equipments	14.30
2	Grinding equipments	11.05
3	Batching and mixing	69.10
4	Molassing equipments	49.35
5	Pelleting equipments	31.30
6	Bagging equipments	23.35
7	Housing steel structure	97.00
8	Product piping and fitting	11.85
9	Driving equipments	29.00
Sub Total		**336.30**
C	Service equipments	
1	Steam generating system	32.00
2	Fuel handling system	18.30
3	Compress air handling system	3.00
4	Water handling system	3.00
5	Industrial electrical high tension	10.80
6	Industrial electrical low tension	23.90
7	Service equipment contingency	4.00
Sub total		**95.00**
D	Laboratory equipments	19.50
E	Workshop tools and equipments	3.00
F	Fire fighting system	3.30
G	Weighting equipments	10.30
H	Miscellaneous equipments	15.00
Total		**748.00**
I	Installation & commission of Process & production equipment (15 %)	50.45
J	Technical service fee of Process and production equipment (5 %)	16.82
K	Contingency of Process and production equipment (15 %)	16.82
Grand Total		**832.09**

5.4.5 Provision of shed for livestock

As stated earlier animal husbandry is poor in Surendranagar district, animals are kept by the livestock owners at inconvenient place under stressful conditions. The livestock owners generally tie their animals under trees in front of their houses, kaccha/ thatched shed with unleveled flooring with or without manger and no drinking water facility at place. Hence, under this housing facility, these animals are not comfortable and are under stress condition. Animals are harassed by flies, fleas, mosquitoes *etc*. in such housing which also adds to stress level of animals. These livestock stands in this housing system during hot summer, cold winter and monsoon. They aren't well protected under this situation thereby the production level of animals is badly hampered. Therefore, by providing the shelter to animals they will be protected against all above problems and there will be improvement in production performance of these animals. The detail of proposed project for provision of shed for livestock is as under.

The proposal for provision of shed for livestock is shown in table 5.4.5. The table shows the number of animal husbandry farmers to be covered and financial requirement per farmer. The total financial requirement for provision of shed for livestock in Surendranagar district is Rs 7500.00 lakhs for 12th five year plan.

Table 5.4.5: Proposal for provision of shed for livestock in Surendranagar District

Description	2012-13	2013-14	2014-15	2015-16	2016-17	Total
No. AH Farmers to be covered	5000	5000	5000	5000	5000	25000
Financial Requirement (0. 30 lakh/farmer) **(Rs. in lakhs)**	1500.00	1500.00	1500.00	1500.00	1500.00	**7500.00**

5.4.6: Rearing of female cattle/buffalo calf

Healthy cows/buffaloes are the basic factors involved in success of dairying and calves are the livestock industry of the future. Calf rearing is one of the most neglected aspects in dairying. Calf management plays an important role in the development of the dairy sector of the country. Young calves reared scientifically will help to improve the socio- economic status of farmers through better growth rate and they could become potential milk yielders in future. Calf care is not only essential to sustain the dairy industry but is also essential for the wake of preserving and maintaining our good quality germplasm. Important aspects in the calf rearing are the health management and proper nutrition to the calves. Adoption of scientific practices could effectively control calf mortality. Non adoption of proven practices could be due to lack of awareness.

Surendranagar district is having good amount of animal population but livestock holders in this area are not aware of scientific calf rearing. People don't rear the calf in proper scientific way so that it can be the part of their future herd. Hence, it is an urgent requirement for this area to learn the way of scientific dairying and calf rearing as a future herd. The future of any herd depends upon how the calves

are raised. One has to raise one's own calves to make a good potential herd. So the calf rearing should be taken upon scientific lines and it should be achieved cost-effectively.

The following is the proposed project for calf rearing. May be a unit comprising of 10 female calves will be reared for three years and afterwards the matured heifers will be inseminated with proven bull semen and these pregnant animals will be sold by the farmer. In following table (a) showing total expenditure on five calf rearing units, while, table (b) shows approximate calculation of expenditure per unit of 10 calves is given.

Table 5.4.6: Proposal for female cattle/buffalo calf rearing units.

(Phy-No. units, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of units and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	2	8.8	2	8.8	2	8.8	2	8.8	2	8.8	10	44
2	Dhangadhra	2	8.8	2	8.8	2	8.8	2	8.8	2	8.8	10	44
3	Dasada	1	4.4	1	4.4	1	4.4	1	4.4	1	4.4	5	22
4	Lakhatar	1	4.4	1	4.4	1	4.4	1	4.4	1	4.4	5	22
5	Vadhavan	1	4.4	1	4.4	1	4.4	1	4.4	1	4.4	5	22
6	Muli	1	4.4	1	4.4	1	4.4	1	4.4	1	4.4	5	22
7	Chotila	2	8.8	2	8.8	2	8.8	2	8.8	2	8.8	10	44
8	Sayala	2	8.8	2	8.8	2	8.8	2	8.8	2	8.8	10	44
9	Chuda	1	4.4	1	4.4	1	4.4	1	4.4	1	4.4	5	22
10	Limbadi	1	4.4	1	4.4	1	4.4	1	4.4	1	4.4	5	22
	Total	14	61.6	14	61.6	14	61.6	14	61.6	14	61.6	70	308.0

10 female calf per unit @ Rs. 4.4 lakh/ unit

5.4.7: Providing Life Insurance to Livestock

The Surendranagar district is having good amount of livestock owners which keep animals to uplift their economics. They take their animals for grazing during day time where animals have the risk of snake bite, food poisoning by eating poisoning plants or any other accidental risk on life. In addition to this there may occur death of animals due to life threatening diseases. Therefore, there is a need to protect the livestock farmers from vagaries of nature by insuring animals against death. Protecting livestock farmers from sudden death of dairy animals and sustaining their livelihood.

Table 5.4:8 Providing life insurance to animals.

(Phy-No of animals, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of animals and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	120	1.8	120	1.8	120	1.8	120	1.8	120	1.8	600	09.00
2	Dhangadhra	150	2.3	150	2.3	150	2.3	150	2.3	150	2.3	750	11.25
3	Dasada	100	1.5	100	1.5	100	1.5	100	1.5	100	1.5	500	07.50
4	Lakhatar	50	0.8	50	0.8	50	0.8	50	0.8	50	0.8	250	03.75
5	Vadhavan	75	1.1	75	1.1	75	1.1	75	1.1	75	1.1	375	05.62
6	Muli	75	1.1	75	1.1	75	1.1	75	1.1	75	1.1	375	05.62
7	Chotila	180	2.7	180	2.7	180	2.7	180	2.7	180	2.7	900	13.50
8	Sayala	150	2.3	150	2.3	150	2.3	150	2.3	150	2.3	750	11.25
9	Chuda	50	0.8	50	0.8	50	0.8	50	0.8	50	0.8	250	03.75
10	Limbadi	50	0.8	50	0.8	50	0.8	50	0.8	50	0.8	250	03.75
	Total	1000	15.0	1000	15.0	1000	15.0	1000	15.0	1000	15.0	5000	75.00

@ Rs. 0.015 lakh/ farmer/year

5.4.8 Supply of dairy utensils to AH farmers.

The farmers of Surendranagar district cannot afford to purchase dairy utensils (steel bucket, milking vessel, feeding vessel, tieing iron chain, *etc*.) and therefore, milks the animal in house hold pots, which may deteriorate the quality of milk. In consideration of above facts it is needed in the district to supply good quality dairy utensils.

The proposal for supply of dairy utensils to AH farmers is shown in table 5.4.9. The table shows the number of farmers to be proposed and amount required per farmer. Equal number of farmers proposed from each taluka. The total estimated amount required for supply of milch animals and dairy utensils to AH farmers is 250 lakh for the 12th five year plan.

Table 5.4.9: Proposal for supply of dairy utensils to AH farmers

Description	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**Total**
No. of farmers to be covered	5000	5000	5000	5000	5000	25000
Amount Required Rs.0.01 lakh/farmer for dairy utensils **(Rs. lakhs)**	50	50	50	50	50	**250**

5.4.9: Supply of health packages for animals to landless farmers.

The main occupation for landless families of the area is to rear livestock and labour work in others' farm field or under government projects, *viz*., NRG. With this they grow sufficient income for their family but can't manage to pay for feed and fodder of their animals. This turns in unproductive rearing of animals with no acceptable results, which motivates farmers to go away from animal husbandry to other non-agricultural work as a livelihood tool for family. To overcome this problem of poor landless livestock owners, they should be supplied with health package for their animals. With the

help of this package livestock owner will have feed and fodder supplements, dewormer, ectoparasiticidal and liver corrector for sustainable livestock rearing. This project can be used as a non-refundable loan for the farmers which can be used by the farmers at any time throughout year under supervision of government veterinary officer.

Table 5.4.10: Providing for supply of health package for animals to landless farmers

(Phy-No of farmers, Fin. – Rs in lakhs)

Sr. No	Name of Taluka	Number of animals and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	240	28.8	240	28.8	240	28.8	240	28.8	240	28.8	1200	144
2	Dhangadhra	300	36.0	300	36.0	300	36.0	300	36.0	300	36.0	1500	180
3	Dasada	200	24.0	200	24.0	200	24.0	200	24.0	200	24.0	1000	120
4	Lakhatar	100	12.0	100	12.0	100	12.0	100	12.0	100	12.0	500	60
5	Vadhavan	150	18.0	150	18.0	150	18.0	150	18.0	150	18.0	750	90
6	Muli	150	18.0	150	18.0	150	18.0	150	18.0	150	18.0	750	90
7	Chotila	360	43.2	360	43.2	360	43.2	360	43.2	360	43.2	1800	216
8	Sayala	300	36.0	300	36.0	300	36.0	300	36.0	300	36.0	1500	180
9	Chuda	100	12.0	100	12.0	100	12.0	100	12.0	100	12.0	500	60
10	Limbadi	100	12.0	100	12.0	100	12.0	100	12.0	100	12.0	500	60
	Total	2000	240.0	2000	240.0	2000	240.0	2000	240.0	2000	240.0	10000	1200.0

@ Rs. 0.12 lakh/ **farmer/year**

5.4.10: Fodder production and preservation

Feed and fodder accounts for about 70% of the total cost of milk production. Profitability and viability of any dairy production programme depends on feed and fodder availability and feeding management of dairy animals. Feed and fodder availability is continuously decreasing for the livestock due to heavy demands for grain production and urbanization. The palatable fodder crops like maize and cowpea have almost become extinct from the scene in groundnut-wheat and cotton crop rotations in the area. Secondly irrigation facility is very limited in the area. Decreased area under fodder crops is leading to poor availability of green fodder for dairy animals.

To boost the animal husbandry, it is necessary that quality fodder be made available to animals. Surendranagar has 46032 ha and 15652 ha land under pasture and cultivable waste land respectively. This land can be used for growing HYV of sorghum or good quality fodder. The availability of good quality fodder will boost the milk production apart from improving general health of animal. The production of fodder will be encouraged in all the taluka.

Table 5.4.10.1: Popularizing of chaff cutters among farmers

(Phy-No of units, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of animals and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	8	2.4	8	2.4	8	2.4	8	2.4	8	2.4	40	12
2	Dhangadhra	8	2.4	8	2.4	8	2.4	8	2.4	8	2.4	40	12
3	Dasada	5	1.5	5	1.5	5	1.5	5	1.5	5	1.5	25	7.5
4	Lakhatar	4	1.2	4	1.2	4	1.2	4	1.2	4	1.2	20	6
5	Vadhavan	5	1.5	5	1.5	5	1.5	5	1.5	5	1.5	25	7.5
6	Muli	4	1.2	4	1.2	4	1.2	4	1.2	4	1.2	20	6
7	Chotila	10	3.0	10	3.0	10	3.0	10	3.0	10	3.0	50	15
8	Sayala	8	2.4	8	2.4	8	2.4	8	2.4	8	2.4	40	12
9	Chuda	4	1.2	4	1.2	4	1.2	4	1.2	4	1.2	20	6
10	Limbadi	4	1.2	4	1.2	4	1.2	4	1.2	4	1.2	20	6
	Total	60	18.0	60	18.0	60	18.0	60	18.0	60	18.0	300	90.0

@ Rs. 0.30 lakh/ **unit**

Table 5.4.10.2: Fodder production.

Taluka	Pasture & cultivable waste Land (ha)	Land to covered under HYV(ha)	Year-wise financial requirement (Rs. in lakhs)					
			2012-13	2013-14	2014-15	2015-16	2016-17	Total
Halwad	6483	1499	2.7	2.7	2.7	2.7	2.7	13.5
Dhangadhra	4498	700	1.3	1.3	1.3	1.3	1.3	6.3
Desada	8613	1400	2.5	2.5	2.5	2.5	2.5	12.6
Lakhatar	3265	470	0.8	0.8	0.8	0.8	0.8	4.2
Vadhavan	3659	550	1.0	1.0	1.0	1.0	1.0	5.0
Muli	5081	750	1.4	1.4	1.4	1.4	1.4	6.8
Chotila	12156	2000	3.6	3.6	3.6	3.6	3.6	18.0
Sayala	6149	900	1.6	1.6	1.6	1.6	1.6	8.1
Chuda	2922	450	0.8	0.8	0.8	0.8	0.8	4.1
Limbadi	8858	1800	3.2	3.2	3.2	3.2	3.2	16.2
Total	61684	10519	18.9	18.9	18.9	18.9	18.9	94.7

5.4.11 : Provision of Artificial Insemination

To produce genetically improve breed by Artificial insemination of bride local breed of Cattle / Buffaloes. Establishing new A.I. centers in Surendranagar district will help farmer to get A.I. facilities at door step level to produce a good quality animal and generate self employment at village level. At present, there are 2 A.I. centers in Chuda and Limdi and one in other talukas except Lakhtar and Chotila. Keeping in view the animal population, 10 A.I. centers have been proposed.

Table 5.4.11: Proposal for artificial insemination facilities

(Phy-No of units, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of animals and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	1	4.4	1	4.4							2	8.8
2	Dhangadhra	1	4.4	1	4.4							2	8.8
3	Dasada			1	4.4	1	4.4					2	8.8
4	Vadhavan							1	4.4			1	4.4
5	Muli							1	4.4			1	4.4
6	Chotila	1	4.4			1	4.4					2	8.8
7	Sayala							1	4.4			1	4.4
8	Chuda									1	4.4	1	4.4
9	Limbadi									1	4.4	1	4.4
	Total	3	13.2	3	13.2	2	8.8	3	13.2	2	8.8	13	57.2

@ Rs. 4.4 lakh/ unit

5.4.12 : Supply of breeding bulls in villages

In the absence of A.I. facilities, the farmers are using nondescript animals for breeding their animals. This has resulted in decline in productivity of dairy animals. For increasing the milk production and income from milch animals, an efficient and practical animal breeding system is of immense importance. The success rate of A.I. in the buffaloes is very low and the reasons for this are manifolds. Therefore, it is proposed that bulls of proven breeding ability may be provided in each village with maintenance allowance. The duty of maintaining bulls can be assigned to a good and reputed person or committee in the village itself. The maintenance cost will be given for the one year only, thereafter, the maintenance will be done from the fees procured by use of bulls.

Table 5.4.12: Supply of breeding bulls in villages

(Phy-No of bulls, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of bulls and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	10	6.5	10	6.5	10	6.5	10	6.5	10	6.5	50	32.5
2	Dhangadhra	14	9.1	14	9.1	14	9.1	14	9.1	14	9.1	70	45.5
3	Dasada	12	7.8	12	7.8	12	7.8	12	7.8	12	7.8	60	39
4	Lakhatar	6	3.9	6	3.9	6	3.9	6	3.9	6	3.9	30	19.5
5	Vadhavan	10	6.5	10	6.5	10	6.5	10	6.5	10	6.5	50	32.5
6	Muli	6	3.9	6	3.9	6	3.9	6	3.9	6	3.9	30	19.5
7	Chotila	20	13	20	13	20	13	20	13	20	13	100	65
8	Sayala	10	6.5	10	6.5	10	6.5	10	6.5	10	6.5	50	32.5
9	Chuda	5	3.25	5	3.25	5	3.25	5	3.25	5	3.25	25	16.25
10	Limbadi	7	4.55	7	4.55	7	4.55	7	4.55	7	4.55	35	22.75
	Total	100	65	100	65	100	65	100	65	100	65	500	325

Cost of 2 bulls @ Rs. 0.40 lakh/ bull/village + maintenance cost @ Rs 0.25 lack/bull

5.4.13: Commercial Dairy Farming

In Surendernagar district, Most of the farm families of various land holding sizes engaged in the livestock farming. More and more number of farmers is falling into the category of marginal and small farmers due to division of land holdings involved in livestock enterprise. Buffaloes (94872) and desi cattle (89880) are the main milch animal in the district and crossbred cows (1137) are also being reared on small scale. The cost of one good animal is more than Rs. 40,000. Due to the small land holdings and the high cost of animal, it has become very difficult to maintain dairy animals. The demand for milk is continuously increasing by the urban areas. The price of milk in the area reaches up to Rs. 30/- per liter particularly during the lean periods or the summer. Milk being an important component of diet is becoming a scarce commodity for the low and middle class families in both the urban and rural areas. The reasons stated above have demanded the introduction of large commercial dairy farms, which can be run on economy of scale. The automation of this enterprise can bring down the cost of milk production, thereby making a good scope for commercially viable large sized dairy farms.

The progressive and needy farmers from the district will be selected and will be granted with the fund to start the commercial dairy unit. One commercial dairy farm has been proposed in each block of the district. The supervision of the farm will be under government veterinary doctor and scientist from Krishi Vigyan Kendra of the district.

Table 5.4.13: Proposal for commercial dairy farming

(Phy-No of farm, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of animals and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	1	5							1	5	2	10
2	Dhangadhra	1	5	1	5							2	10
3	Dasada					1	5					1	5
4	Vadhavan							1	5			1	5
5	Chotila	1	5	1	5							2	10
6	Sayala					1	5					1	5
7	Limbadi							1	5			1	5
	Total	3	15	2	10	2	10	2	10	1	5	10	50

@ Rs 5.0 lakh/ **unit**

5.4.14: Poultry Development

A number of farmers especially the landless and other farmers are having a few birds (1129) as back yard poultry. This form of poultry farming needs institutional support for its success as the productivity is quite low in these cases. The improved strains for this type of farming (e.g. vanaraja and gramapriya) together with their production packages are required to be delivered to the farmer doorstep. This form of rural poultry is important source of assured nutritional supply and a sizeable return with no or little extra cost to the farm family. The extension services, training and marketing needs for poultry farming are to be effectively addressed in the plan. The growing urbanisation , increasing demand for poultry , meat and eggs and expanding poultry units would get a boost if a marketing / poultry hub can be developed particularly in this region of state as of now there is no marketing center of these products in the area.

Poultry farming in general is not picking up due to lack of demand on account of social barriers and broiler farming in particular is not picking up on account of extreme climate of the district. As regards health care, there are two poultry centers (Prathugadh in Dhrangadhra taluka and Vadod in Vadhwan taluka) in the district and all talukas are covered through multi veterinary centers. Population of poutry birds is more in Limbadi, Chotila and Dasada. Hence 3 more poultry service centers have been proposed. The farmers of Surendranagar district may get an alternative occupation through low input bird project or backyard poultry farming. This will help the farmers in earning as well as a source of nutritive food. A unit of 25 poultry bird may be given to each farmer costing approx. Rs. 4000/- out of which 75% will be government subsidy. The total expenditure of the project is given in this plan.

Table 5.4.14.1: Low input bird/back yard poultry

(Phy-No of burds, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of bulls and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	50	1.5	50	1.5	50	1.5	50	1.5	50	1.5	250	7.5
2	Dhangadhra	50	1.5	50	1.5	50	1.5	50	1.5	50	1.5	250	7.5
3	Dasada	50	1.5	50	1.5	50	1.5	50	1.5	50	1.5	250	7.5
4	Chotila	50	1.5	50	1.5	50	1.5	50	1.5	50	1.5	250	7.5
5	Limbadi	50	1.5	50	1.5	50	1.5	50	1.5	50	1.5	250	7.5
	Total	200	6	200	6	200	6	200	6	200	6	1000	30

Unit cost- Rs 4000

Table 5.4.14.2: Poultry service center

(Phy-No, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of poultary service center and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Dasada	-	-	-	-	1	10	-	-	-	-	1	10
2	Chotila	1	10	-	-	-	-	-	-	-	-	1	10
3	Limbadi	-	-	1	10	-	-	-	-	-	-	1	10
	Total	1	10	1	10	1	10	-	-	-	-	3	30

Unit cost- Rs 10 lakhs

5.4.15: Sheep and Goat Development

Sheep and goat have an important role in the sustenance and livelihood security of farmers and land less rural. The rearing of these animals is having potential for poverty alleviation with low risk. With the availability of open pastures in the district, sheep and goat rearing is feasible in a big way. There are eight sheep and goat extension service centers. However, promoting small units as subsidiary to the agriculture by land less labourers and those traditionally engaged in such activities is quite feasible. The strains of goat and sheep with semi-intensive feeding system, parasitic control measures and promotion of good management practices can ensure healthy economic return to the farmer.

This will be low cost, no risk moderately income generating activity with nutritional security for the family. A unit of five sheep/goat one male and four female animals costing approx. Rs. 15000/- can be given to each farmer.

Table 5.4.15.1: Goat and sheep rearing units

(Phy-No of goat/sheep, Fin. – Rs in lakhs)

Sr. No.	Name of Taluka	Number of goat/sheep and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	20	3.00	20	3.00	20	3.00	20	3.00	20	3.00	100	15
2	Dhangadhra	20	3.00	20	3.00	20	3.00	20	3.00	20	3.00	100	15
3	Dasada	10	1.50	10	1.50	10	1.50	10	1.50	10	1.50	50	7.5
4	Muli	10	1.50	10	1.50	10	1.50	10	1.50	10	1.50	50	7.5
5	Chotila	20	3.00	20	3.00	20	3.00	20	3.00	20	3.00	100	15
6	Sayala	20	3.00	20	3.00	20	3.00	20	3.00	20	3.00	100	15
	Total	100	15	100	15	100	15	100	15	100	15	500	75

Unit cost @ Rs 0.15 lakh/ unit each unit – 10 goat/sheep

5.5 Fisheries:

The district does not have much to offer in fisheries sector as there is no seashore is available in the district. Under inland fisheries, aquaculture is possible in ponds, reservoirs and rivers. This activity has not yet picked up in the district. The chances of inland fisheries in the villages having perennial pond is much higher. The district is having 464 non mechanical boats for fishing in reservoir. The district is having about 205 fishermen depending on fishing business. The fish production of the district is 3095 tons as per 2010-11 data.

Table 5.5.1: Bridging the gaps for realizing the Vision- Fisheries sector

No.	Thrust Areas/ Issues	Program	Activities	Concerned Agencies/ collaborators	Approach
	Fisheries	Establishment of fisheries/ prawn production units at village level	Providing units (ponds) at cooperative base	Fisheries department	Providing units

Table 5.5.2: Providing fisheries/prawn production units (ponds) at village level

(Phy-No of units, Fin- Rs in lakhs)

Sr. No.	Name of Taluka	Number of units and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	1	5	1	5	1	5	-	-	-	-	3	15
2	Dhangadhra	2	10	1	5	1	5	1	5	1	5	6	30
3	Dasada	1	5	1	5	-	-	-	-	1	5	3	15
4	Lakhatar	-	-	-	-	1	5	-	-	1	5	2	10
5	Vadhavan	-	-	-	-	-	-	1	5	1	5	2	10
6	Limbadi	2	10	2	10	2	10	3	15	3	15	12	60
	Total	6	30	5	25	5	25	5	25	4	20	28	140

@ Rs. 5.00 lakhs

Table 5.5.3: Providing fishing boats with gear

(Phy-No of units, Fin– Rs in lakhs)

Sr. No.	Name of Taluka	Number of units and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	-	-	1	4	-	-	-	-	-	-	1	4
2	Dhangadhra	1	4	1	4	-	-	-	-	-	-	2	8
3	Dasada	-	-	-	-	1	4	-	-	-	-	1	4
4	Lakhatar	-	-	-	-	1	4	-	-	-	-	1	4
5	Limbadi	1	4	1	4	1	4	1	4	1	4	5	20
	Total	2	8	3	12	3	12	1	4	1	4	10	40

Cost @ Rs. 4 lakhs each

Fishing Boat

5.5.1 Success story

1. Name of the Enterprise or Specific Product

   Prawn Cultivation in water storage pond

2. Details of technologies/interventions/innovations/novelties adopted / practiced

   Name : Mr. Nathabhai Sanghani

   Village: Moti-Moladi (Chotila)

   District: Surendranagar

   Mo. Number: 099098 76051

   Qualification: B.Tech (Agri.Engg.)

   Land holding: 8 ha.

- Got Sardar Smruti Award-2009 for Scientific Cultivation of Wheat Crop By JAU, Junagadh.
- Constructed a pacca pond having water storage capacity 27,00,000 lit for the irrigation purpose.
- Prawn Cultivation in water storage pond
- Initially purchased about 30,000 seeds of prawn from Fisheries Department, Govt. of Gujarat in the year 2007-08.
- The Initial cost of seeds was Rs.1500.
- After 2 years, he sold them after attaining the weight of average 0.4 to 0.5 kg per Prawn at price of 30-40/kg.
- There is extra income of Rs.1.5 to 2.0 lakh from adopting this enterprise.

Prawn Cultivation

5.6 Forestry:

In Gujarat Forest constitutes 9.66% of the total geographical area. In Surendranagar 5.08% of the district land is forest land. Looking at the degradation of the forest, land resources in the district, there is a need for massive time bound programme in afforestation of wasteland. With more afforestation it will help in supplementing income generation activities with minor forest based collection. At present, area under forest is decreasing especially in Halvad block which has reduced to 3612 ha during 2009-10 from 8288 ha during 2005-06.

There are 11 nurseries of Social Forestry Division and 24 nurseries and one seed farm of Dept. of Foresty. Secondly, scheme of private nursery called as decentralised people's nursery with special component of Kisan Nursery. Even plants of horticulture, Eucalyptus are also produced there in. Size of nursery is to produce 5,000 to 20,000 plants. Technical guidance to farmers having land and irrigation facility, is given by Social Forestry dept.

DRDA and GSLDC also make efforts for afforestration on private waste land while implementing watershed development programme. Dy. Conservator of Forest, Social Forestry Division is engaged in afforestration activities. Scheme of rehabilitation of degraded farm land is being implemented in the district by Dept. of Social Forestry, there is an opportunity for extending credit support by the banks by coordinating with the Dept. of Social Forestry.

Table 5.6.1: Bridging the gaps for realizing the Vision- Forestry

SN	Thrust Areas/ Issues	Program	Activities	Approach
1	Forestry	Tree cover improvement	Providing tree covers with high market price	Providing tree covers

Forest Cultivation

Table 5.6.2 Different on going scheme in forest department and no. of plants

Taluka	CFP 12-13	Van Mohatsav CFP 12-13	Nursery	Kha. A. 2012-13	CFP 2011-12	Kha.A 2011-12
Chotila	26	0		19	22.75	19
Plants	35813	137000	5000	23585	5309	3822
Dhangandhra	28	0		22	41.5	19
Plants	39760	137000	5000	27584	9478	3822
Halvad	34.5	0		25	28.25	22
Plants	48599	137000	5000	31583	5838	4444
Lakhtar	30	0		17	36.2	17
Plants	43145	137000	5000	20919	7826	3422
Limbadi	44	0		22	57	36
Plants	58078	274000	10000	27172	11910	7288
Muli	64.5	0		30	59	18
Plants	93988	137000	5000	43248	15351	3622
Dasada	26	0		18	34	17
Plants	33706	137000	5000	22252	7408	3422
Sayala	21	0		22	31.5	17
Plants	27440	137000	5000	27584	6853	3466
Vadhavan	26	0		30	31.8	29
Plants	33706	137000	5000	34917	7318	6130
Total	300	0		205	342	194
Plants	414235	1370000	50000	258844	77290	39438

Table 5.6.3: Capacity building of forest staff

(Phy-No of trainees, Fin – Rs in lakhs)

Sr. No.	Name of Taluka	Number of trainees and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	5	0.05	5	0.05	5	0.05	5	0.05	5	0.05	25	0.25
2	Dhangadhra	8	0.08	8	0.08	8	0.08	8	0.08	8	0.08	40	0.4
3	Dasada	7	0.07	7	0.07	7	0.07	7	0.07	7	0.07	35	0.35
4	Lakhatar	3	0.03	3	0.03	3	0.03	3	0.03	3	0.03	15	0.15
5	Vadhavan	2	0.02	2	0.02	2	0.02	2	0.02	2	0.02	10	0.1
6	Muli	4	0.04	4	0.04	4	0.04	4	0.04	4	0.04	20	0.2
7	Chotila	5	0.05	5	0.05	5	0.05	5	0.05	5	0.05	25	0.25
8	Sayala	5	0.05	5	0.05	5	0.05	5	0.05	5	0.05	25	0.25
9	Chuda	3	0.03	3	0.03	3	0.03	3	0.03	3	0.03	15	0.15
10	Limbadi	3	0.03	3	0.03	3	0.03	3	0.03	3	0.03	15	0.15
	Total	45	0.45	45	0.45	45	0.45	45	0.45	45	0.45	225	2.25

Cost/ training for forest staff @ Rs. 0.01 lakh/trainee/day No of training= 15 per training

Table 5.6.4: Capacity building of forest farmers

(Phy-No of trainees, Fin – Rs in lakhs)

Sr. No.	Name of Taluka	Number of trainees and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	8	0.016	8	0.016	8	0.016	8	0.016	8	0.016	40	0.08
2	Dhangadhra	15	0.03	15	0.03	15	0.03	15	0.03	15	0.03	75	0.15
3	Dasada	14	0.028	14	0.028	14	0.028	14	0.028	14	0.028	70	0.14
4	Lakhatar	5	0.01	5	0.01	5	0.01	5	0.01	5	0.01	25	0.05
5	Vadhavan	4	0.008	4	0.008	4	0.008	4	0.008	4	0.008	20	0.04
6	Muli	7	0.014	7	0.014	7	0.014	7	0.014	7	0.014	35	0.07
7	Chotila	7	0.014	7	0.014	7	0.014	7	0.014	7	0.014	35	0.07
8	Sayala	7	0.014	7	0.014	7	0.014	7	0.014	7	0.014	35	0.07
9	Chuda	4	0.008	4	0.008	4	0.008	4	0.008	4	0.008	20	0.04
10	Limbadi	4	0.008	4	0.008	4	0.008	4	0.008	4	0.008	20	0.04
	Total	75	0.15	75	0.15	75	0.15	75	0.15	75	0.15	375	0.75

Cost/ training @ Rs. 200/trainee/day No of training= 25 per training

Table 5.6.5: Farm/social forestry

(Phy-No of demonstrations, Fin – Rs in lakhs)

Sr. No.	Name of Taluka	Number of demonstrations and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	1	1.3	1	1.3	1	1.3	1	1.3	1	1.3	5	6.45
2	Dhangadhra	1	1.3	1	1.3	2	2.6	2	2.6	2	2.6	8	10.35
3	Dasada	1	1.3	1	1.3	2	2.6	3	3.9	2	2.6	9	11.65
4	Lakhatar	1	1.3	1	1.3	1	1.3	1	1.3	1	1.3	5	6.45
5	Vadhavan	1	1.3	1	1.3	1	1.3	1	1.3	1	1.3	5	6.45
6	Muli	1	1.3	1	1.3	1	1.3	1	1.3	2	2.6	6	7.75
7	Chotila	1	1.3	1	1.3	1	1.3	1	1.3	2	2.6	6	7.75
8	Sayala	1	1.3	1	1.3	1	1.3	1	1.3	2	2.6	6	7.75
9	Chuda	1	1.3	1	1.3	1	1.3	1	1.3	1	1.3	5	6.45
10	Limbadi	1	1.3	1	1.3	1	1.3	1	1.3	1	1.3	5	6.45
	Total	10	12.5	10	13.0	12	15.6	13	16.9	15	19.5	60	77.5

Cost/ demonstration@ Rs. 1.3 lakhs

Table 5.6.6: Supply of tree cover as wind break

(Phy-No of trees in lakhs, Fin – Rs in lakhs)

Sr. No.	Name of Taluka	Number of trees and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.15	7.5
2	Dhangadhra	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.15	7.5
3	Dasada	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.15	7.5
4	Lakhatar	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.15	7.5
5	Vadhavan	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.15	7.5
6	Muli	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.15	7.5
7	Chotila	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.15	7.5
8	Sayala	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.15	7.5
9	Chuda	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.15	7.5
10	Limbadi	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.03	1.50	0.15	7.5
	Total	0.3	15.00	0.3	15.00	0.3	15.00	0.3	15.00	0.3	15.00	1.5	75

Cost @ Rs. 50

5.7 Agricultural Marketing and Agri-Business

The success of agricultural enterprises would depend not only on efficient production but also on the efficient marketing infrastructure which would ensure remunerative prices to farmers. The details of regulated markets functioning in Surendranagar district are given in Table 5.7.1.

Table 5.7.1 Marketing Infrastructure

Taluka	Existing marketing facilities (2011-12)	
	Main(no)	Sub-market (no)
Halwad	1	1
Dhangadhra	1	1
Dasada	1	1
Lakhatar	1	1
Vadhavan	1	1
Muli	1	1
Chotila	1	1
Sayala	1	1
Chuda	1	1
Limbadi	1	1
Total	10	10

5.8: Employment generation activities:

Bridging the gaps for realizing the Vision for employment generation activities.

No.	Thrust Areas/ Issues	Program	Activities	Approach
1.	Employment generation activities	Vermi-composting	Educating farmers through demonstration and training in cluster approaches and providing units	Training and demonstrations, providing units
		Nursery	Educating farmers through demonstration and training and providing units	Training and demonstrations, providing units
		Fruits and vegetable preserva-tion	Educating rural youth by providing training	Training

5.8.1 Vermi-composting

Animal and plant wastes are rich sources of all plant nutrients which are required for the improvement of soil health and sustainability of crops and animals production. Most of plant nutrients are either burnt or put at undesired places leading to soil and water pollution on one hand and loss of plant nutrients on other hand in terms of worth billion of rupees. Vermi-composting is an excellent method for recycling the farm wastes into valuable plant nutrients. Surendranagar district has 964019 cattle. Assuming that one cattle gives gober @ 2kg/day and 10 % of it is available for conversion into vermi compost, there is great potential to generate 703733 quintals of vermi compost year. To exploit this potential, planning has been given in this plan.

Table 5.8.1.1: Training needs for vermi-composting

(Phy-No of trainees, Fin – Rs in lakhs)

Sr. No.	Name of Taluka	Number of trainees and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	50	0.1	50	0.1	50	0.1	50	0.1	50	0.1	250	0.5
2	Dhangadhra	50	0.1	50	0.1	50	0.1	50	0.1	50	0.1	250	0.5
3	Dasada	50	0.1	50	0.1	50	0.1	50	0.1	50	0.1	250	0.5
4	Lakhatar	50	0.1	50	0.1	50	0.1	50	0.1	50	0.1	250	0.5
5	Vadhavan	50	0.1	50	0.1	50	0.1	50	0.1	50	0.1	250	0.5
6	Muli	50	0.1	50	0.1	50	0.1	50	0.1	50	0.1	250	0.5
7	Chotila	50	0.1	50	0.1	50	0.1	50	0.1	50	0.1	250	0.5
8	Sayala	50	0.1	50	0.1	50	0.1	50	0.1	50	0.1	250	0.5
9	Chuda	50	0.1	50	0.1	50	0.1	50	0.1	50	0.1	250	0.5
10	Limbadi	50	0.1	50	0.1	50	0.1	50	0.1	50	0.1	250	0.5
	Total	500	1	500	1	500	1	500	1	500	1	2500	5

Cost/ training @ Rs 200/trainee/day

Table 5.8.1.2: Vermi-compost units to farmer group

Taluka	Farmer's group (5person / village)	Organic certificate groups	Year-wise financial requirement(lacs)					
			2012-13	2013-14	2014-15	2015-16	2016-17	Total
Halwad	335	67	8.0	8.0	8.0	8.0	8.0	40
Dhangadhra	315	63	7.6	7.6	7.6	7.6	7.6	38
Desada	440	88	10.6	10.6	10.6	10.6	10.6	53
Lakhatar	215	43	5.2	5.2	5.2	5.2	5.2	26
Vadhavan	225	45	5.4	5.4	5.4	5.4	5.4	27
Muli	290	58	7.0	7.0	7.0	7.0	7.0	35
Chotila	565	113	13.6	13.6	13.6	13.6	13.6	68
Sayala	380	76	9.1	9.1	9.1	9.1	9.1	45.5
Chuda	190	38	4.6	4.6	4.6	4.6	4.6	23
Limbadi	315	63	7.6	7.6	7.6	7.6	7.6	38
Total			**78.5**	**78.5**	**78.5**	**78.5**	**78.5**	**392.5**

(Rs. 0.60 lakhs)

5.8.2 : Fruit and vegetable processing:

Surendranagar district has 704 number of units spread over entire district. The maximum units are in Vadhwan (475) followed by Chotila (117). The Dasada, Lakhatar and Chuda blocks have lowest number of units with minimum employment. It is observed that people are in want of net and poly houses in Dasada block. The district has the advantage of having conducive agro-climatic conditions for Agro-Export Zone. Surendranagar is one of the 6 districts that have been identified under the GOI's AEZ for promotion of exports of dehydrated onion. The major requirement for exports is quality, consistency and brand name establishment, as the state is known for high onion productivity and exports of dehydrated onions. There are about 18 units of dehydrated onion in the Saurashtra region, of which 6 are HACCP certified. Exports of onion is basically after dehydration and caters to the demand of ethnic groups settled abroad- in USA, Europe and the Middle East. Surendranagar is also one of the 5 districts under AEZ for Sesame seeds identified by the GOI in 2005-06 for promoting infrastructure so as to enhance exports of sesame. The Govt. has also launched a Central Scheme on High-tech Horticulture which, inter alia, provides grant of complete exemption of excise duty to food preparations based on fruits and vegetables. Establishment of small scale grading and processing units can help the people to get addition income from their produce. At present no fruit and vegetable processing unit exits in this district. Hence the same has been proposed in this plan.

Table 5.8.2.1: Capacity building for small scale fruit and vegetable processing

(Phy-No of trainees, Fin – Rs in lakhs)

Sr. No.	Name of Taluka	Number of trainees and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	25	0.19	25	0.19	25	0.19	25	0.19	25	0.19	125	0.94
2	Dhangadhra	25	0.19	25	0.19	25	0.19	25	0.19	25	0.19	125	0.94
3	Dasada	25	0.19	25	0.19	25	0.19	25	0.19	25	0.19	125	0.94
4	Lakhatar	25	0.19	25	0.19	25	0.19	25	0.19	25	0.19	125	0.94
5	Vadhavan	25	0.19	25	0.19	25	0.19	25	0.19	25	0.19	125	0.94
6	Muli	25	0.19	25	0.19	25	0.19	25	0.19	25	0.19	125	0.94
7	Chotila	25	0.19	25	0.19	25	0.19	25	0.19	25	0.19	125	0.94
8	Sayala	25	0.19	25	0.19	25	0.19	25	0.19	25	0.19	125	0.94
9	Chuda	25	0.19	25	0.19	25	0.19	25	0.19	25	0.19	125	0.94
10	Limbadi	25	0.19	25	0.19	25	0.19	25	0.19	25	0.19	125	0.94
	Total	250	1.88	250	1.88	250	1.88	250	1.88	250	1.88	1250	9.40

Cost- Rs 750 per trainee for 5 days No. of training-10 having 25 participant/training

Table 5.8.2.2: Establishment of small scale fruit and vegetable processing units

(Phy-No of units, Fin – Rs in lakhs)

Sr. No.	Name of Taluka	Number of units and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	1	10	-	-	-	-	-	-	-	-	1	10
2	Dhangadhra	-	-	1	10	-	-	-	-	-	-	1	10
3	Dasada	-	-	-	-	1	10	-	-	-	-	1	10
4	Sayala	-	-	-	-	-	-	1	10	-	-	1	10
5	Limbadi	-	-	-	-	-	-	-	-	1	10	1	10
	Total	1	10	1	10	1	10	1	10	1	10	5	50

Table 5.8.2.3: Establishment of dehydrated onion units

(Phy-No of units, Fin – Rs in lakhs)

Sr. No.	Name of Taluka	Number of units and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	1	15	-	-	-	-	-	-	-	-	1	15
2	Dhangadhra	-	-	1	15	-	-	-	-	-	-	1	15
3	Limbadi	-	-	-	-	-	-	1	15	-	-	1	15
	Total	1	15	1	15	-	-	1	15	-	-	3	45

Table 5.8.2.4: No of MSME Enterprise

Taluka	No of units	Investment (Rs in Lack)	No of Employees
Halwad	14	620.18	189
Dhangadhra	21	926.10	292
Desada	06	320.00	117
Lakhatar	01	158	20
Vadhavan	475	8718.48	4706
Muli	32	1140.70	709
Chotila	117	3849.06	1535
Sayala	15	503.80	206
Chuda	01	100.00	15
	704	16621.22	8034

5.8.3 : Organic farming

Globally, preference is given to organically grown crops, fruits and vegetables and their processed products. Hence organically grown produce along with contract farming forms essential components of the AEZ programme. Crops like sesame, pulses, bajra and some of the horticultural crops are harvested without application of pesticides especially in Dasada, Lakhatar and Limbadi blocks in majority of area. The district has the advantage of having conducive agro-climatic conditions for organic farming.

Table 5.8.3.1 Area to be brought under organic farming in next five years

Taluka	Present area under organic farming (ha) 2011-12	Year-wise area to be brought under organic farming in next 5 years (ha)					
		2012-13 (projected)	2013-14 (projected)	2014-15 (projected)	2015-16 (projected)	2016-17 (projected)	Total
Halwad	Nil	1	3	5	3	6	18
Dhangadhra	Nil	3	5	4	3	6	21
Desada	Nil	2	4	6	5	7	24
Lakhatar	Nil	2	4	6	5	7	24
Vadhavan	Nil	1	2	2	4	4	13
Muli	Nil	3	5	4	3	6	21
Chotila	Nil	3	5	4	3	6	21
Sayala	Nil	3	5	4	3	6	21
Chuda	Nil	2	2	4	4	3	15
Limbadi	Nil	2	5	3	5	3	18
Total		22	40	42	38	54	196

Source: stakeholder meeting

Table 5.8.3.2 Funds required for organic farming in next five years

Taluka	Present area under organic farming (ha) 2011-12	Year-wise funds required for organic farming in next 5 years					
		2012-13 (projected)	2013-14 (projected)	2014-15 (projected)	2015-16 (projected)	2016-17 (projected)	Total
Halwad	Nil	0.04	0.12	0.2	0.12	0.24	0.72
Dhangadhra	Nil	0.12	0.2	0.16	0.12	0.24	0.84
Desada	Nil	0.08	0.16	0.24	0.2	0.28	0.96
Lakhatar	Nil	0.08	0.16	0.24	0.2	0.28	0.96
Vadhavan	Nil	0.04	0.08	0.08	0.16	0.16	0.52
Muli	Nil	0.12	0.2	0.16	0.12	0.24	0.84
Chotila	Nil	0.12	0.2	0.16	0.12	0.24	0.84
Sayala	Nil	0.12	0.2	0.16	0.12	0.24	0.84
Chuda	Nil	0.08	0.08	0.16	0.16	0.12	0.6
Limbadi	Nil	0.08	0.2	0.12	0.2	0.12	0.72
Total		0.88	1.6	1.68	1.52	2.16	7.84

Source: stakeholder meeting

5.8.4 Renewable Source of Energy and Waste Utilization:

In the present world, the burning issue is of saving man from a state of a hopeless dependence on fast-dying oil-based support, protecting the world from man-made tsunami of curses like increasing environmental pollution, global warming, melting snow caps and the resultant floods, rising sea levels, widening holes in the ozone layer, etc. and, in the final reckoning, saving life. In Surendranagar district, there is scope for harnessing solar energy, wind energy, bio energy & bio-gas. Bio gas is a useful non conventional energy source which provides fuel for cooking lighting purpose and organic manure to rural farming. There are 9 APMCs and 11 rural markets / Haats in the district where huge wastage of food produce is available for developing alternate source of energy like bio-gas & Waste Utilization units which provide fuel for cooking purpose and organic manure to rural households etc. There is not much progress due to scarcity of water, lack of knowledge and interest in maintaining the bio gas plants. During the year 2005-06 only one bio gas plant was set up by DRDA, Surendranagar. India receives solar energy equivalent to over 5000 trillion kWh per year. The daily average solar energy incident over India varies from 4-7 kWh per square meter depending upon the location. Solar energy can be harnessed through two routes, namely, solar photovoltaic (PV) and solar thermal, by direct conversion to electricity and heat energy, respectively. The utilisation of solar energy in the country is regularly increasing. However, the high initial cost of the solar energy systems is a barrier in its large-scale utilisation. The estimated unit cost of electricity from grid connected solar energy plant is estimated to be around 12-15 per unit, which is very high compared to electricity generated from conventional sources including thermal power and other renewable energy sources like wind, small hydro and biomass. A total of 33 grid interactive solar photovoltaic power plants have been installed in the country

with financial assistance from the Ministry of New and Renewable Energy. These plants, with aggregate capacity of 2.125 Megawatt peak are estimated to generate about 2.5 million units of electricity in a year. However, looking to the comparative economics of generating electricity on a large scale, the home and community units are preferred. If the efforts at awakening the people to the ill-effects of atmospheric pollution, need for preserving the forests and the eco-system, and the ease and advantages of drawing upon the renewable solar energy succeed, we will have half-reversed the Global Warming threat. Forest Department has taken up educating the people about this renewable energy to reduce dependence on forests for fuel-wood.

Table 5.8.4.1: Establishment of bio gas plants (Phy-No of units, Fin – Rs in lakhs)

Sr. No.	Name of Taluka	Number of units and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	8	4	8	4	8	4	8	4	8	4	40	20
2	Dhangadhra	8	4	8	4	8	4	8	4	8	4	40	20
3	Dasada	5	2.5	5	2.5	5	2.5	5	2.5	5	2.5	25	12.5
4	Lakhatar	4	2	4	2	4	2	4	2	4	2	20	10
5	Vadhavan	5	2.5	5	2.5	5	2.5	5	2.5	5	2.5	25	12.5
6	Muli	4	2	4	2	4	2	4	2	4	2	20	10
7	Chotila	10	5	10	5	10	5	10	5	10	5	50	25
8	Sayala	8	4	8	4	8	4	8	4	8	4	40	20
9	Chuda	4	2	4	2	4	2	4	2	4	2	20	10
10	Limbadi	4	2	4	2	4	2	4	2	4	2	20	10
	Total	60	30	60	30	60	30	60	30	60	30	300	150

Cost @ Rs. 0.50/units

Table 5.8.4.2: Waste utilization units (Phy-No of units, Fin – Rs in lakhs)

Sr. No.	Name of Taluka	Number of units and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	1	6	-	-	-	-	-	-	-	-	1	6
2	Dhangadhra	1	6	-	-	-	-	-	-	-	-	1	6
3	Dasada	-	-	1	6	-	-	-	-	-	-	1	6
4	Lakhatar	-	-					1	6	-	-	1	6
5	Vadhavan	-	-	1	6	-	-	-	-	-	-	1	6
6	Muli	-	-	-	-	-	-	-	-	1	6	1	6
7	Chotila	-	-	-	-	1	6	-	-	-	-	1	6
8	Sayala	-	-	-	-	1	6	-	-	-	-	1	6
9	Chuda	-	-	-	-	-	-	1	6	-	-	1	6
10	Limbadi	-	-	-	-	-	-			1	6	1	6
	Total	2	12	2	12	2	12	2	12	2	12	10	60

Cost @ Rs. 6 lakh/units

Table 5.8.4.3: Solar off grid

(Phy-No of units, Fin – Rs in lakhs)

Sr. No.	Name of Taluka	Number of units and financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Halwad	1	2.0	1	2.0	1	2.0	1	2.0	1	2.0	5	10
2	Dhangadhra	1	2.0	1	2.0	1	2.0	1	2.0	1	2.0	5	10
3	Dasada	1	2.0	1	2.0	1	2.0	1	2.0	1	2.0	5	10
4	Lakhatar	1	2.0	1	2.0	1	2.0	1	2.0	1	2.0	5	10
5	Vadhavan	1	2.0	1	2.0	1	2.0	1	2.0	1	2.0	5	10
6	Muli	1	2.0	1	2.0	1	2.0	1	2.0	1	2.0	5	10
7	Chotila	1	2.0	1	2.0	1	2.0	1	2.0	1	2.0	5	10
8	Sayala	1	2.0	1	2.0	1	2.0	1	2.0	1	2.0	5	10
9	Chuda	1	2.0	1	2.0	1	2.0	1	2.0	1	2.0	5	10
10	Limbadi	1	2.0	1	2.0	1	2.0	1	2.0	1	2.0	5	10
	Total	10	20	10	20	10	20	10	20	10	20	50	100

Cost @ Rs. 2.0 lakh /units

Solar Energy

CHAPTER VI

DISTRICT PLAN

6.1 Introduction

District planning is the process of preparing an integrated plan for the local government sector in a district taking into account the resources (natural, agricultural, human and financial) available and covering the activities and schemes assigned to the district level as well as below up to Taluka and village level and those implemented through governments, non government and private organizations. District plan has been prepared for Surendranagar district for the XII five year plan period between 2012-13 to 2017-18 and this plan includes the proposals of various line departments like agriculture, horticulture, animal husbandry, fisheries, agricultural engineering, agricultural marketing and agri-business and water resources.

6.2 Growth drivers

The targets will achieved using different growth drivers in agriculture and allied Sectors as follows:

6.2.1 Agriculture

a) Crop diversification for more remunerative crops.
b) Development of high yielding varieties & hybrids.
c) Developing short duration varieties suitable for intercropping.
d) Increase area under hybrids and improved varieties in crops.
e) Resource conservation technologies for sustaining and improving the productivity levels.
f) Mechanization for increasing water use efficiency.
g) Seed grading, treatment and enhancing seed replacement rate.
h) IPM, INM and IWM.
i) Demonstrations and capacity building of field functionaries and the farmers.
j) Human resource development.

6.2.2 Soil Health Card

a) Research on soils to make it suitable for growing quality crops.
b) Prevention of degradation of soil fertility & care of soil health.
c) Reclamation of problematic soils.
d) Proper facilities of Soil & Water testing laboratory (Micronutrients & Ground water quality) in the district.
e) Use of waste biomass available from livestock, crop & farm for managing residues to maintain proper soil health.
f) Popularization of organic farming.

6.2.3 Agricultural Engineering

a) Improvement in farm mechanization.
b) Increase area under micro irrigation systems.

c) Development and recharge of ground water resources and implementation of watershed management programmes.

d) Establishment of storage structures and food processing units.

e) Implementation of renewable energy programmes.

6.2.4 Horticulture

a) Increasing area under fruits and vegetable crops.

b) Providing improved planting material of fruit crops.

c) IPM and INM.

d) Encouraging income and employment generating vocations through agro based vocations *viz.* vermi composting and food preservation etc.

e) Demonstrations and trainings for farmers and field officials

6.2.5 Forestry:

a) Increase area under agro forestry.

b) Ensuring livelihood of rural people by collection, processing and marketing of minor forest products.

c) Demonstrations and trainings for farmers & field officials.

6.2.6 Animal Husbandry:

a) Breed improvement through community bulls and A.I.

b) Mineral mixture feeding.

c) Deworming.

d) Fodder production and preservation.

e) Balanced feeding.

f) Demonstrations and capacity building of field functionary and farmers.

6.2.7 Fishery:

a) Utilization of village/Panchayat ponds for inland fisheries.

b) Technical inputs for increasing fish processing and its supply chain.

6.3 New Innovative Project Proposals

6.3.1 Background / Problem Focus

In Surendranagar district, Agriculture, Horticulture and Animal Husbandry are the major enterprises practiced by the farming community. The major agricultural crops grown are cotton, sesame, cumin, bajra, wheat, pulses and castor. Due to monsoon failures, the agricultural activities in terms of return are reducing gradually, leading to low income of the farmers. To combat this and to make the farm activities sustainable, an innovative and integrated approach comprising of agriculture, agricultural engineering, horticulture, animal husbandry, fisheries and other allied activities is the need of the hour, which can improve the income of the farmers.

In this connection, the potentiality of Surendranagar district could be explored and exploited to benefit the farming community. Special projects could be designed to optimally exploit the natural and human resources in order to generate more income and employment. Towards this direction, a few income generating but small enterprises have been proposed as discussed under:

The activities to be focused are:

- Formation of commodity interest groups.
- Training on grading, post harvest technologies, value addition and market intelligence.
- Establishment of rural godown with drying yards.
- Providing cold storage facility.
- Encouraging contract farming.
- Food park with basic infrastructure facilities.

i) Goal and objectives

- To generate additional income for farming community.
- To develop entrepreneurship among farmers.
- To generate employment opportunities.
- To promote value addition to agricultural products.

ii) Project Strategy

- Formation of commodity groups.
- Training programme to create awareness about market intelligence among farmers.
- Encouraging contract farming in cattle and value addition
- Training programme and exposure visit to farmers on grading and post harvest technology.
- Setting up of agro based industries with basic infrastructure facilities - Food park
- Providing storage facilities in rural area.

iii) Project Components

- Formation and strengthening of commodity based groups.
- Training to farmers on market intelligence.
- Facilitation to contact farming.
- Setting up of Mini cattle feed mixing unit maintained by Commodity group.
- Exposure visit on grading, post harvest technology and value addition.
- Establishment of Food Park with basic infrastructure facility.
- Establishment of rural godown with drying yards.
- Providing cold storage facilities.

6.3.2 Establishment of Multi Facility Testing Laboratory

For finding a solution of the problem, its testing in the laboratory, is of immense importance. Once the cause of problem is diagnosed, its cure becomes easy and less expensive. In the absence of testing facilities related to agriculture and animal husbandry, lot of expenditure is incurred for treatment

without getting desired results. Soil and water testing, seed germination testing, seed and fodder testing, fertilizer and pesticide testing are the facilities required for supplying quality inputs and solving problems related to agriculture and animal production. In the absence of adequate testing facilities farmers move from here and there and incur lot of time and money for getting solutions of their problems. Therefore, it is proposed that a central multi testing facility laboratory for conducting the following tests may be established at Kukda farm (transferred from state govt. to J.A.U.) near Surederanagar for benefiting the farmers in solving their day to day problems. Outsourcing help can be sought for fulfilling the objectives.

i) Seed germination test.

ii) Soil and water testing.

iii) Cattle feed and mineral mixture testing.

iv) Milk testing.

v) Dung, urine and blood testing of animals.

vi) Fertilizers and other chemicals testing.

vii) Semen quality evaluation

Table 6.3.1 : Proposal for establishment of multi-facility laboratory at kukda Farm

Phy-No., Fin. – Rs in lakhs)

Description	Year-wise financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Multi testing facility laboratory	1	50.0		25.0	-	-	-	-	-	-	1	25.0
Establishment of tissue culture laboratory	1	50		50							1	100

6.3.3 Weather Watch and Forecasting System

The farmers of the district are prone to vagaries of nature. The crop damage due to hailstorms, chilling temperature, high temperature, stormy winds has become a common feature in the recent past. The crop insurance schemes are unrealistic and compensation on damage is taxing on the state. To avoid the financial loss and decrease in production, there is a strong need for Weather Watch and Forecasting System, so that farmers can save their crops or minimize the loss by manipulating / modifying the farm operations as per need. It is therefore proposed to establish a Weather Watch and Forecasting System at 9 taluka except chotila. The physical and financial requirement is shown in Table 6.3.2.

Table 6.3.2 : Establishment of Weather Watch and Forecasting System

Phy-No., Fin. – Rs in lakhs)

Description	Year-wise financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Establishment of Weather Watch and Forecasting System	1	12	2	24	2	24	2	24	2	24	9	108

6.3.4 Agril Informatics and training halls at block level

Several projects are running simultaneously for the development of agriculture, animal husbandry, horticulture, agro forestry and fishery in the district. The farmers of remote area could not easily approach KVK or head quarters of line departments for getting information or solving their problems. Further inviting all the farmers at district headquarters or at KVK for conducting small trainings is neither desirable nor possible. It not only wastes the time and money of the farmers but field functionaries also face lot of problems. Therefore, to train the farmers of all line departments, construction of a training hall along with agro informatics service equipped with computer and e –connectivity and linking them with head quarters of line departments, KVK and the SAUs is proposed in this plan.

Table 6.3.3: Fund requirement for establishing agril. informatics and training centers at block level.

Phy-No., Fin. – Rs in lakhs)

Description	Year-wise financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Establishing agril. informatics and training centers at block level.	2	50	2	50	2	50	2	50	2	50	10	250.0

6.3.5 Establishment of Agriculture college.

6.3.5.1 Establishment of Agriculture college

There is only one agriculture college in Saurashtra at Surendranagar, so It is highly needed to prepare young workforce in agriculture through establishment of agriculture college.

Table 6.3.4: Fund requirement for establishing New Colleges

(Phy-No., Fin. – Rs in Lakh)

Description	Taluka	Year-wise financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Establishment of Agriculture college	One at district level	1	2000	-	500	-	500	-	500	-	500	1	4000
Total		**1**	**2000**	**-**	**500**	**-**	**500**	**-**	**500**	**-**	**500**	**1**	**4000**

6.3.6 Establishment of High Tech Agro Park:

The demonstration of tissue culture, bio fertilizer green house, GM crops and aquaculture, food processing and value addition, renewable energy, automated drip fertigation system, etc.

Table 6.3.5: Proposal for establishment of High Tech Agro Park

(Phy-No., Fin. – Rs in Lakh)

Description	Taluka	Year-wise financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Establishment of High tech agro park	One at district level	1	500	-	250	-	250	-	250	-	250	1	1500

6.3.7 Establishment of Krushi Vigyan Kendra at district level:

Krishi Vigyan Kendra is one of the important institution, which involved in transfer of technology related to agriculture and related occupations. At present one KVK is at Nana-kandhasar (Chotila), there are 10 talukas in the district and one KVK is not able to cater the need of the farmers of the district. Therefore, it is necessary to establish another KVK at district head quarter

Table 6.3.6 : Proposal for establishment of Krushi Vigyan Kendra at district level

(Phy-No., Fin. – Rs in Lakh)

Description	Year-wise financial requirement											
	2012-13		2013-14		2014-15		2015-16		2016-17		Total	
	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin.	Phy	Fin.	Phy	Fin
Establishment of Krushi Vigyan Kendra at district level	1	140	-	140	-	90	-	100	-	110	1	580

6.4 Miscellaneous activities:

6.4.1 Kisan Mela

Keeping in view, the innovative idea of the Hon'ble chief minister shri Narendra Modi of mass campaigning for agricultural technologies at farmers' doorstep, the **Kisan Melas** are proposed once in a year at each Taluka. These melas provide a common platform to the farmers to exchange their views with the expert/scientists. In the Kisan Mela, the season based crop production, animal husbandry and fisheries technologies will be demonstrated. The farmers visiting the melas themselves judge the performance of different technologies exhibited and adopt in their farming system. The buzz sessions help the farmers in highlighting their problems to the experts. Participation of agro-industrial input suppliers for demonstrating their latest technologies is an additional advantage in these events. Therefore, provision of one Kisan mela per taluka is proposed in the district with a financial requirement of Rs. 5,00,000/- per mela.

Table 6.4.1 : Fund requirement for conducting Krishi Mela

(Phy-No., Fin. – Rs in Lakh)

Description	Taluka	Year-wise financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Krishi Mela	One in each taluka	2	10	2	10	2	10	2	10	2	10	10	50

6.4.2 Clinical Camps

Animal husbandry plays an important role in income and employment generation in the rural areas. There are several innovative technologies which can prove to be useful to the farmers for improving the health and productivity of animals can be demonstrated in clinical camps. Operating up on a diseased animal through surgery is a troublesome problem. Sometimes, the cost of treatment exceeds the paying capacity of the farmers. The clinical camps provide an opportunity to the farmers to exhibit the cows and cattle in the melas for motivation of other farmers. The message delivered by the scientists in such events help the farmers a lot. Therefore, one clinical camp is proposed in each Taluka in five years with a grant of Rs. 50,000/- per camp. Interaction of farmers with field officers of department and other farmers, motivate the farmers for improving the health and productivity of their livestock.

Table 6.4.2: Fund requirement for clinical camps (Phy-No., Fin. – Rs in Lakh)

Description	Taluka	Year-wise financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Cattle mela / clinical camp	One in each taluka	2	1.0	2	1.0	2	1.0	2	1.0	2	1.0	10	5.0

6.4.3 Farmer Puraskar:

Advance farmers spent a lot of time and money for creating new innovations in the agricultural production system. By adoption of these innovations, a large number of farmers are benefited. Keeping in view, the innovative ideas of the Hon'ble chief minister shri Narendra Modi for motivating the innovative farmers, if such farmers are encouraged with little awards, the other farmers will also be motivated for new innovations. Therefore, provision of five awards per year for best innovation one in each field of agriculture, horticulture, agricultural engineering, animal husbandry and fisheries have been proposed in this plan

Table 6.4.3: Fund requirement for giving award to progressive farmers

(Phy-No., Fin. – Rs in Lakh)

Description	Taluka	Year-wise financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
Incentive award to progressive farmers	One in each field per year	5	1.5	5	1.5	5	1.5	5	1.5	5	1.5	25	7.5

6.4.4 Disease Diagnostic Kits

The field officers of animal husbandry departments have to attend the problems of animals at the doorsteps of farmers. There are no facilities available for disease diagnosis in the veterinary hospitals and centres. In the absence of these facilities, animals are not treated properly leading to unproductive farmers' expenditure. In the market disease diagnostic kits are available through which lot of help is available for proper diagnosis and treatment of animals. Therefore a budget provision of Rs. 50,000 per diagnostic kit is required in each taluka of the district in the 12th Five Year Plan.

Table 6.4.4: Fund requirement for Disease Diagnostic Kits

(Phy-No., Fin. – Rs in Lakh)

Description	Taluka	Year-wise financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Disease Diagnostic Kits	One in each Taluka	2	1.0	2	1.0	2	1.0	2	1.0	2	1.0	10	5.0

6.4.5 Hydroponics:

Hydroponics is a subset of hydroculture and is a method of growing plants using mineral nutrient solutions, in water, without soil. Terrestrial plants may be grown with their roots in the mineral nutrient solution only or in an inert medium, such as perlite, gravel, mineral wool, expanded clay or cotton stalk. Cotton is the major crop of the district and cotton stalks is available in plenty in this district. Plants that are not traditionally grown in a climate would be possible to grow using a controlled environment system like hydroponics. The soils of three talukas lakhatar, limbadi and dasada are salt affected there fore cotton stalks will be used as a media for growing nurseries instead of soils.

Table 6.4.5: Fund requirement for Hydroponic

(Phy-No., Fin. – Rs in Lakh)

Description	Taluka	Year-wise financial requirement											
		2012-13		2013-14		2014-15		2015-16		2016-17		Total	
		Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
Establishment of nursery in controlled condition	One in limbadi, dasada and lakhtar	-	-	1	5	1	5	1	5	-	-	3	15

6.5. Monitoring, Evaluation and Consolidated Budget Proposal:

Both monitoring and evaluation are the keys to success for any developmental Programme. Monitoring of the programme suggests the ways and means to add strong points and delete the undesired. Continuous monitoring and evaluation are also required for further extension of the project to achieve the desired goals. Therefore, it is suggested that year wise monitoring of progress may be made and evaluation of the goal achieved is done. A lot of expenditure (on POL, TA and other office expenses) will be incurred on monitoring and evaluation of the project for submitting the desired reports to the concerned departments. Therefore, an outlay of Rs. 10.0 lakh will be required for this task as per the details given below.

Table 6.5.1: Proposed Expenditure on monitoring and evaluation (Rs in Lakh)

Description	Year-wise financial requirement					
	2012-13	2013-14	2014-15	2015-16	2016-17	Total
Expenditure on TA,DA, POL and hiring of vehicles and office expenses	2.0	2.0	2.0	2.0	2.0	10.0

6.6. Consolidated Budget Proposal of the Surendranagar District for XII five year plan

Table 6.6.1: Consolidated Budget Proposal of the Surendranagar District for XII five year plan

(Rs. in Lakh)

Activity	2012-13	2013-14	2014-15	2015-16	2016-17	TOTAL
Training for capacity building of agriculture staff	61	61	1	1	1	125
Capacity building of farmers on different technologies						
Seed production/ seed replacement	3	3	3	3	3	15
Seed treatment	1.5	1.5	1.5	1.5	1.5	7.5
INM/ micronutrients	1.5	1.5	1.5	1.5	1.5	7.5
Soil health management (soil testing/ bio-fertilizers/ green manuring	9	9	9	9	9	45
NRM	1.5	1.5	1.5	1.5	1.5	7.5
Farm waste management/ enrichment of compost/ Vermi-compost	3	3	3	3	3	15
Organic farming	1.5	1.5	1.5	1.5	1.5	7.5
Reclamation of problematic soils	0.6	0.6	0.6	0.6	0.6	3
IPM	4.5	4.5	4.5	4.5	4.5	22.5
IWM	4.5	4.5	4.5	4.5	4.5	22.5
Micro irrigation system	7.5	7.5	7.5	7.5	7.5	37.5
Farm mechanization	0.9	0.9	0.9	0.9	0.9	4.5
Value addition Processing (oil& dal mill/ cotton etc.)	1.5	1.5	1.5	1.5	1.5	7.5
Marketing intelligence/ Co-operative/ association/ groups	0.75	0.75	0.75	0.75	0.75	3.75
Varietal demonstrations						
Cotton	16	20	20	20	20	96
Pearlmillet	6	9	12	15	15	57
Wheat	12	16	20	24	28	100
Pulses	3	4.5	6	7.5	9	30

Cont.

Activity	2012-13	2013-14	2014-15	2015-16	2016-17	TOTAL
Groundnut	9	10.5	12	13.5	15	60
Gram	9	10.5	12	13.5	15	60
Sesame	6	9	12	15	18	60
Castor	7.6	8.4	9	12	12	49
Cumin	6	9	12	15	15	57
Demonstrations on plant health management						
Pearlmillet	4	4	4	4	4	20
Wheat	6	6	6	6	6	30
Gram	8	8	8	8	8	40
Groundnut	6	6	6	6	6	30
Sesame	2	2	2	2	2	10
Castor	4	4	4	4	4	20
Cotton	4	4	4	4	4	20
Cumin	4	4	4	4	4	20
Demonstrations on soil health management						
Wheat	4	4	4	4	4	20
Gram	6	6	6	6	6	30
Groundnut	8	8	8	8	8	40
Castor	4	4	4	4	4	20
Cotton	6	6	6	6	6	30
Cumin	1	1	1	1	1	5
crop diversification	1	1	1	1	1	5
soil reclamation	8	8	8	8	8	40
Demonstrations on IWM						
Wheat	8	8	8	8	8	40
Gram	1.5	1.5	1.5	1.5	1.5	7.5
Groundnut	2	2	2	2	2	10
Castor	4	4	4	4	4	20
Cotton	4	4	4	4	4	20
Cumin	4	4	4	4	4	20
Seed production enhancement						
Pearlmillet	0.4	0.4	0.4	0.4	0.4	2
Wheat	12	12	12	12	12	60
Gram	21	21	21	21	21	105
Groundnut	48	48	48	48	48	240
Sesame	1.2	1.2	1.2	1.2	1.2	6
Cumin	6.25	6.25	6.25	6.25	6.25	31.25
Pulses	2.85	2.85	2.85	2.85	2.85	14.25

Cont.

Activity	2012-13	2013-14	2014-15	2015-16	2016-17	TOTAL
Modernization of University Farm	0	0	10	10	0	20
Seed storage at taluka level	10	10	10	10	10	50
Seed storage godowns at panchayat level	135	135	135	135	135	675
Establishment of soil and water testing laboratory	50	25	50	50	5	180
Strengthening & upgrading of existing laboratories	0	50	50	50	5	155
Establishment of mobile soil testing and plant health clinic van	0	25	25	25	5	80
Planning of soil testing program	41.75	41.75	41.75	41.75	41.75	208.75
Establishment of new APMC		500				500
e-connectivity	10	10				20
Requirement of farm mechanization						
Mini tractor	141	141	141	141	141	705
Power tiller	225	225	225	225	225	1125
Rotavator	54	54	54	54	54	270
Mobile chopper	250	250	250	250	250	1250
Shredder	50	50	50	50	50	250
Reversible MB plough	37.5	37.5	37.5	37.5	37.5	187.5
Chisel plough	15	15	15	15	15	75
Groundnut decorticator	27.5	27.5	27.5	27.5	27.5	137.5
Manual drawn automatic seed drill	15.5	15.5	15.5	15.5	15.5	77.5
Bullock drawn automatic seed drill	15	15	15	15	15	75
Automatic seed drill tractor drawn	40	40	40	40	40	200
Cotton picker	25	25	25	25	25	125
Brush cutters	15	15	15	15	15	75
Tractors	500	500	500	500	500	2500
Knapsack Sprayer	7.5	7.5	7.5	7.5	7.5	37.5
Rotary weeder	71	71	71	71	71	355

Cont.

Activity	2012-13	2013-14	2014-15	2015-16	2016-17	TOTAL
Portable oil engine	80	80	80	80	80	400
Threshers	50	50	50	50	50	250
Laser leveller	50	50	50	50	50	250
Small grader machine	19.5	19.5	19.5	19.5	19.5	97.5
Chaff cutter	21.25	21.25	21.25	21.25	21.25	106.25
Dug/bore wells	800	800	800	800	800	4000
Pump sets	100	100	100	100	100	500
Lift irrigation	300	300	300	300	300	1500
Pipe line	2000	2000	2000	2000	2000	10000
Protective fence	5000	5000	5000	5000	5000	25000
Groundnut oil mill units	15	15	25	20	5	80
Cotton ginning units	80	85	85	85	85	420
Cotton oil mill units	80	80	80	90	90	420
Cumin processing units	15	30	15	0	0	60
Sesame processing units	15	20	30	5	5	75
Establishment of rural godown	95.9	95.9	103.6	107.8	107.8	511
Agro food processing units	0	15	0	15	15	45
Research on food grains	50	20	20	20	20	130
Fruit processing	0	10	10	0	0	22
Community tank	440	500	600	750	1000	3290
Land reclamation	600	600	600	600	600	3000
Bunding and soil conservation	125	125	125	125	125	625
Watershed development	2150	2150	2150	2150	2150	10750
Desilting of check dam/ponds	50	50	50	50	50	250
Planning of soil survey program	211.3	211.3	211.3	211.3	211.3	1056.5
Micro Irrigation System						
Drip irrigation	5000	5000	5000	5200	5200	25400
Sprinkler irrigation	1000	1000	1000	1000	1000	5000
AGRICULTURE	**20451.8**	**21104.1**	**20684.9**	**21029.6**	**21156.1**	**104426.3**

Cont.

Activity	2012-13	2013-14	2014-15	2015-16	2016-17	TOTAL
Vegetable cultivation	0.6	0.6	0.6	0.6	0.6	3
Nursery raising	1.01	1.01	1.01	1.01	1.01	5.05
IPM/INM	0.6	0.6	0.6	0.6	0.6	3
Soil health management (soil testing/ bio-fertilizers / green manuring	0.7	0.7	0.7	0.7	0.7	3.5
Organic farming	0.6	0.6	0.6	0.6	0.6	3
Value addition /Processing	0.75	0.75	0.75	0.75	0.75	3.8
Marketing/ co-operative societies	0.6	0.6	0.6	0.6	0.6	3
Establishment of nurseries	9	9	9	9	9	45
Establishment of net and poly houses	80	80	80	80	80	400
Establishment of green house	750	750	750	750	750	3750
Demonstrations on vegetables						
Demonstrations on vegetables for area expansion	8	8	8	8	8	40
Demonstrations on integrated pest management	2	2	2	2	2	10
Demonstrations on integrated nutrient management	4	4	4	4	4	20
Project proposal for kitchen gardening	0.3	0.3	0.3	0.3	0.3	1.5
High tech vegetable farming	0.6	0.6	3	3	3	10.8
Proposal for establishment of cold storage units	300	300	300	300	300	1500
Establishment of collection centers	6	6	9	6	6	33
Proposal for providing refrigerated vans	34	17	51	34	34	187
Training needs of farmers for fruit crops						
Training needs of farmers for fruit cultivation	0.6	0.6	0.6	0.6	0.6	3

Cont.

Activity	2012-13	2013-14	2014-15	2015-16	2016-17	TOTAL
Training needs of farmers for Nursery raising	4.2	4.2	4.2	4.2	4.2	21
Training needs of farmers for INM / IPM	1.8	1.8	1.8	1.8	1.8	9
Training needs of farmers for Value addition processing	3	3	3	3	3	15
Demonstrations on fruit crops for area expansion	4	4	4	4	4	20
Demonstrations on Integrated pest management	2	2	2	2	2	10
Supply of plant protection equipment	2	2	2	2	2	10
Recycling of farm waste through composting	120	120	120	120	120	600
Cluster based demonstrations on spices, medicinal and aromatic plants	3	3	3	3	3	15
HORTICULTURE	**1339.36**	**1322.36**	**1361.76**	**1341.76**	**1341.76**	**6724.65**
Capacity building for livestock farmers						
for quality improvement	0.6	0.6	0.6	0.6	0.6	3
to enhance milk production	0.6	0.6	0.6	0.6	0.6	3
to improve reproductive efficiency of dairy animals	0.6	0.6	0.6	0.6	0.6	3
Proposal for fertility improvement programme.						
Fertility camp	72	72	72	72	72	360
Awareness programme	41	36	36	36	36	185
Mineral mixture feeding supplementation	225	225	225	225	225	1125
Proposal for female cattle /buffalo calf rearing units	61.6	61.6	61.6	61.6	61.6	308
Providing life insurance to animals	15	15	15	15	15	75
Providing for supply of health package for animals	240	240	240	240	240	1200

Cont.

Activity	2012-13	2013-14	2014-15	2015-16	2016-17	TOTAL
Popularizing of chaff cutters among farmers	18	18	18	18	18	90
Proposal for artificial insemination facilities	13.2	13.2	8.8	13.2	8.8	57.2
Supply of breeding bulls	65	65	65	65	65	325
Proposal for commercial dairy farming	15	10	10	10	5	50
Goat and sheep rearing units	15	15	15	15	15	75
Low input bird/back yard poultry	6	6	6	6	6	30
Poultry service center	10	10	10	0	0	30
ANIMAL HUSBANDRY	**798.6**	**788.6**	**784.2**	**778.6**	**769.2**	**3919.2**
Capacity building of forest staff	0.45	0.45	0.45	0.45	0.45	2.25
Capacity building of forest farmers	0.15	0.15	0.15	0.15	0.15	0.75
Farm/social forestry	12.5	13	15.6	16.9	19.5	77.5
Supply of tree cover as wind break	15	15	15	15	15	75
FORESTRY	**28.1**	**28.6**	**31.2**	**32.5**	**35.1**	**155.5**
Providing fisheries/ prawn production units	30	25	25	25	20	140
Providing fishing boats	8	12	12	4	4	40
FISHRIES	**38**	**37**	**37**	**29**	**24**	**180**
Training needs for vermi-composting	1	1	1	1	1	5
Capacity building for small scale fruit and vegetable processing	1.88	1.88	1.88	1.88	1.88	9.4
Establishment of small scale fruit and vegetable processing units	10	10	10	10	10	50
Establishment of dehydrated onion units	15	15	0	15	0	45
Establishment of bio gas plants	30	30	30	30	30	150
Waste utilization units	12	12	12	12	12	60
Solar off grid	20	20	20	20	20	100
Employment generation activities	**89.88**	**89.88**	**74.88**	**89.88**	**74.88**	**419.4**

Cont.

Activity	2012-13	2013-14	2014-15	2015-16	2016-17	TOTAL
Establishment of multi-facility laboratory	50	25	-	-	-	25
Establishment of tissue culture laboratory:	50	50				100
Establishment of Weather Watch and Forecasting System	12	24	24	24	24	108
Agril Informatics & training halls at block level	50	50	50	50	50	250
Establishment of college of agriculture	2000	500	500	500	500	4000
Establishment of high tech agro park	500	250	250	250	250	1500
Establishment of KVK	140	140	90	100	110	580
Krusi Mela	10	10	10	10	10	50
Clinical camp	1	1	1	1	1	5
Incentive award to progressive farmers	1.5	1.5	1.5	1.5	1.5	7.5
Disease diagnostic kit	1	1	1	1	1	5
Establishment of Hydroponic nursery	-	5	5	5	-	15
Expenditure on monitoring & evaluation	2	2	2	2	2	10
New innovative projects	**2817.5**	**1059.5**	**934.5**	**944.5**	**949.5**	**6655.5**
GRAND TOTAL	**20523.19**	**19384.99**	**18863.39**	**19190.79**	**19295.49**	**97482.5**

Table 6.6.2: Consolidated Budget Proposal of the Surendranagar District for XII five year plan

(Rs. in Lakh)

Budget proposal head-wise	2012-13	2013-14	2014-15	2015-16	2016-17	TOTAL
Agriculture	20451.8	21104.1	20684.9	21029.6	21156.1	104426.3
Horticulture	1339.36	1322.36	1361.76	1341.76	1341.76	6724.65
Animal Husbandry	798.6	788.6	784.2	778.6	769.2	3919.2
Forestry	28.1	28.6	31.2	32.5	35.1	155.5
Fisheries	38	37	37	29	24	180
Employment Generation Activities	89.88	89.88	74.88	89.88	74.88	419.4
New Innovative Projects	2817.5	1059.5	934.5	944.5	949.5	6655.5
Grand Total	**25563.24**	**24430.04**	**23908.4**	**24245.84**	**24350.54**	**122480.55**

Annexure - I

Proceeding of the meeting with the members of the district level planning committee (RKVY) held on 18/01/2013 under the chairmanship of District Development Officer, Surendranagar

The meeting of the district level planning committee was held on 18/01/2013 under the chairmanship of District Development Officer, Surendranagar. Shri R.M.Sundarva, Member Secretary and District Agriculture Officer, Surendranagar welcomed Shri C.P.Patel, District Development Officer, Zilla Panchayat Surendranagar and all the members of the district level planning committee of Surendranagar present in the meeting and requested Shri C.P.Patel, District Development Officer, Zilla Panchayat Surendranagar to chair the meeting.

In inaugural speech, Shri C.P.Patel, District Development Officer, Surendranagar appreciated the work done by the department of agriculture and allied sectors and State Agricultural University's due to which Gujarat agriculture has recorded the fastest growth (about 11 percent) amongst all Indian states, since 2000, which is more than three times agricultural growth at all India level (2.9 percent per annum during 2000-01 to 2007-08). Agriculture in Gujarat is a success story for other states to emulate. Due to significant regional disparity in agricultural growth across the state, it became imperative to prepare micro level planning and understand the drivers of this high growth in agricultural sector in Gujarat. Planning receives equal importance in the process of development with that of investment and execution. Therefore, ways and means need to be planned at micro level to augment the resources is highly essential to increase crop productivity and farm income. There exists ample scope to enhance the production by interventions of modern technologies and capacity building of the farmers.

As per the agenda of the meeting of the district level planning committee (RKVY), chairman asked Dr. G.R.Sharma, Research Scientist (Agricultural Engineering) and Nodal officer C-DAP, Surendranagar to present the District Agriculture Plan before the members of the district level planning committee of Surendranagar. Dr. G.R.Sharma, Research Scientist (Agricultural Engineering) and Nodal officer C-DAP, Surendranagar welcomed the District Development Officer and all the members of the district level planning committee of Surendranagar and gave the brief introduction of the Comprehensive District Agriculture Plan including available resources, SWOT analysis

of the Surendranagar district and the vision for agriculture and allied sectors with overall development perspective of the district along with financial requirement in order to accelerate the agriculture and allied sectors during XII plan. Dr. Sharma also presented the proposals for agriculture and allied sectors theme-wise included in the C-DAP with financial outlay. The proposals included in the C-DAP were discussed thoroughly and was approved by the members.

The meeting was ended with a vote of thanks by Dr. J.N.Naria, Programme Coordinator,KVK, Nana-kandhasar.

Research Scientist(Ag.Engg.) Junagadh Agricultural University Targhdia	District Agriculture Officer Zilla Panchayat Surendranagar	District Development Officer Zilla Panchayat Surendranagar

Annexure - II

Preparation of Draft Action Plan and Discussion with Stakeholders in Taluka Meetings

Proceedings of the Meetings

Based on the baseline information and proposals, stakeholders meeting were organized at taluka levels to discuss the plan. The details of the meetings organized are mentiond below.

Stalk holder meeting

Extension Officers & diffrent line departments participated during C-DAP Meeting

A group of innovative farmers participated during C-DAP meeting

C-DAP MEETING AT PATADI

Meeting with stalk Holder at Kuntalpur Village of Muli Taluka

Village level stalk holder meeting