NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME (NADP)

DISTRICT AGRICULTURE PLAN

ERODE

CENTRE FOR AGRICULTURAL AND RURAL DEVELOPMENT STUDIES
TAMIL NADU AGRICULTURAL UNIVERSITY
COIMBATORE -641 003

NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME (NADP / RKVY)

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2017

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EXECUTIVE SUMMARY

The agricultural activity in Erode district is well supported by perennial rivers. Cauvery and Bhavani are the two main rivers in the district. The river Bhavani extensively benefits agriculture in Sathyamangalam and Gobichettipalayamtaluks. Cauvery riverprovides irrigation facilities to a limited extent inBhavanitaluk. Noyyal is another river flowing through Erode taluk.

The soil of the district is predominantly red sandy to red gravel type. This type of soil occurs to a large extent in Bhavani. Red loamy soil is found in Gobichettipalayamtaluk.

Paddy, Sugarcane, Groundnut, Gingelly, Banana, Turmeric and Coconut are the major crops grown in this district. The farmers in the district are very progressive and innovative in adopting modern technologies and new crop varieties. The district is one of the leading districts in the state in terms of production in crops such as Paddy, Sugarcane, Coconut and Turmeric. Of late, area under Maize and Tapioca are gaining momentum.

Small holdings with a size of less than two hectares formed 74.33 Per cent of the total number of holdings and accounted for 38.46 Per cent of the land area owned. On the contrary, relatively larger land holdings with a size of more than five hectares accounted for about five Per cent of the total number of holdings in the district with more than 24.00 Per cent of the total area owned in the district. The average size of holdings in the district was found to be 1.65 hectares only.

Cattle population was found to be high in Thalavadi, Sathyamangalam, Ammapettai, Modakkurichi and Nambiyur blocks. Buffaloes were concentrated in Modakkurichi, Nambiyur, Perundurai, Gobichettipalayam and Chennimalai blocks. Modakkurichi, Nambiyur, Perundurai, GobichettipalayamandKodumudi blocks had more sheep population as compared to the other blocks in Erode district.

Erode district has a big turmeric market and some of the surrounding towns of the district have a large number of agro-processing industries such as rice mills, coconut and groundnut oil mills. Besides hosiery and readymade garments, cotton mills and other manufacturing industries are the prime industries in the district. The share of factories and share of persons engaged in the industries in Erode district accounted for 0.56 and 0.77 per cent of total number of industries and total number of persons engaged in Tamil Nadu.

In view of high level of urbanization, the district has a good market for horticultural commodities especially for fruits and vegetables.

However, low rainfall and heavy dependence on North-East monsoon, limited availability of ground water, increasing scarcity of labour due to sharp increase in migration from rural areas to urban areas and declining interest among farmers in continuing agriculture due to increasing employment in non-agricultural sector coupled with stagnation in profitability in many crops were posing problems for furthering agriculture.

Agriculture Department is implementing various schemes to increase the production and productivity of wide range of crops cultivated in the district. The schemes include Rice Production Programme, Oilseeds Development Programmes and Maize Development Programmes besides centrally sponsored schemes like NADP, NFSM, Seed Village, NADP-Infrastructural Development, Cotton Mini Mission etc. In addition, the Department of Horticulture operates Integrated Horticulture Development Scheme, Precision Farming, NADP-Machineries, Hi-tech Vegetable Cultivation, Pandal Vegetables, Peri Metro Vegetables Cluster, etc. The Department of Agricultural Marketing operates centrally sponsored schemes like RIDF-Godown, RIDF-Cold Storage, RIDF-Sub Regulated Markets, NADP-Agmark Lab and NADP-Transaction Shed and State Sponsored Schemes like Transaction Shed (Market Committee Fund), Turmeric Market Complex (Market Committee Fund) and Regulated Market (Market Committee Fund)and Central and State sponsored schemes on National Mission on Food Processing.

The Department of Agricultural Engineering implements schemes like Agricultural Mechanization Programme, Financial assistance for procurement of Agricultural Machinery and equipments, Farm machinery banks for custom hiring, Hitech productivity equipment hub for custom hiring, Promotion of farm mechanization in selected villages, command area development and water management programme, centrally sponsored schemes like demonstration of agricultural machinery and equipments, training programmes to farmers in handling and maintenance of agricultural machinery, post-harvest technology and management and national mission on Sustainable Agriculture, NADP schemes, on Agricultural Mechanization, formation of farmers group and training to farmers, provision of scientific onion storage structures in 12 major growing districts, solar powered pumping system with tracking facility and purchase of Diesel Engine pumpset with rain gun irrigation systems and mobile sprinklers for critical lifesaving supplemental irrigation.

However, there exists lot of scope for further strengthening these schemes details them with schemes under NADP.

District Plan at a Glance

The district plan covers a wide range of activities involving crop specific and non-crop specific activities. Enhancement of cultivation of paddy, millets, sugarcane, groundnut, infrastructural facilities and prevention of wild animals menace were given emphasis in Agricultural Sector.

In Horticulture sector, importance were given to enhancing banana, tapioca and coconut cultivation, establishment of biocontrol agents production units, promotion of hybrid tomato production and vegetable cultivation.

Water conservation, irrigation facilities and supply of agricultural machineries and equipments were given priority in Agriculture Engineering Sector. In the case of Agricultural Marketing, establishment of Farmers Producers' Organization, Strengthening of Village Shandies, and Capacity Building of Farmers at Village Level for Value Added Products and Strengthening of Infrastructural Facilities were considered.

In Animal Husbandry Sector, establishment of dispensaries, provision for milk chilling unit and strengthening of clinics, dispensaries and veterinary hospitals were given prime importance.

In Sericulture Sector, establishment of cocoon market, silk reeling, twisting unit and training centre, subsidy to plant mulberry, rearing shed, rearing appliances and training were considered.

In Fisheries, establishment of farm ponds, provision for fish feed, fish seed and manure, provision for supply of plastic sheet and training for fish farmers were given importance.

In Seed Certification Unit, emphasis was given for seed testing laboratory, seed inspection office and technical support for certification officers and seed inspectors and infrastructural facilities.

For strengthening and face lifting of Agricultural Research Station, Bhavanisagar, emphasis was given to processing unit, cold storage unit, irrigation cafeteria, technology park, vermished etc.

The proposed financial support sought under NADP for agricultural and allied sectors is given below.

Expected Outcome

The implementation of the plans will augment the growth rate in Agricultural Sectors. It will also improve the infrastructural facilities at village level which would in turn act as blood vessels for further development. Besides, it will substantially increase the rural employment and income to farmers in general and rural economy as a whole. By developing allied sectors such as animal husbandry, sericulture and fisheries it will ensure nutritional security and rural income which would pave way for achieving the goals under vision 2023.

Consolidated Budget for Erode District

(Rs. in Lakhs)

Sl. No.	Components	2017-18	2018-19	2019-20	2020-21	2021-22	Total
1	Agriculture	4816.36	3097.98	2689.68	2670.48	3170.04	16444.54
2	Agricultural Research	100.00	30.00	100.00	0.00	0.00	230.00
3	Horticulture	9213.57	9099.67	9216.52	9227.04	9111.36	45868.14
4	Agricultural Engineering	1365.52	1698.62	1653.57	1652.37	1643.62	8013.70
5	Agricultural Marketing	858.12	402.56	52.56	612.76	677.68	2603.68
6	Seed Certification & Organic Certification	18.36	0.60	13.96	0.60	0.60	34.12
7	Animal Husbandry	956.75	1099.75	959.75	809.75	749.75	4575.75
8	Animal Science Research (TANUVAS)	105.93	105.93	755.93	105.93	105.93	1179.65
9	Dariy Development	1552.75	7174.75	7945.00	2155.25	1481.50	20309.25
10	Fisheries	35.30	35.50	77.00	34.30	33.70	215.80
11	Fisheries Research (TNFU)	0.26	340.56	300.26	0.26	0.26	641.60
12	Public Works Department (WRO)	85303.14	63077.80	51945.80	28649.00	3000.00	231975.74
13	Civil Supplies & Co-Operation	2597.67	1183.03	501.52	718.60	285.82	5286.64
	Grand total	**106923.73**	**87346.75**	**76211.55**	**46636.34**	**20260.26**	**337378.61**

The plan outlay for five years (2017-22) for Erode district is given in the table. Among the different activities, PWDsector requires huge financial outlay (₹ 231975.74 lakhs respectively) of the total plan outlay of ₹. 337378.61lakhs. Greater emphasis has been given to farm mechanization and soil and water conservation measures as they have become pre-requisites to the implementation of modern technologies in Erode district.

CHAPTER I

INTRODUCTION

Rashtriya Krishi Vikas Yojana (RKVY) vis-à-vis National Agricultural Development Program (NADP) was initiated in 2007 as an umbrella scheme for ensuring holistic development of agriculture and allied sectors by allowing states to choose their own agriculture and allied sector development activities. The scheme has come a long way since its inception and has been implemented across two plan periods i.e. during 11th and 12th plan periods. Based on feedback received from States, experiences garnered and inputs provided by various stakeholders, schemes eligible for funding under RKVY have undergone modifications to enhance efficiency, efficacy and inclusiveness of the program.

The overall objectives of RKVY (NADP) are as follows:

Objectives of RKVY

a. To strengthen the farmers' efforts through creation of required pre and post- harvest agri-infrastructure that increases access to quality inputs, storage, market facilities etc. and enables farmers to make informed choices.

b. To provide autonomy, flexibility to States to plan and execute schemes as per local/ farmers' needs.

c. To promote value chain addition linked production models that will help farmers increase their income as well as encourage production/productivity

d. To mitigate risk of farmers with focus on additional income generation activities - like integrated farming, mushroom cultivation, bee keeping, aromatic plant cultivation, floriculture etc.

e. To attend national priorities through several sub-schemes.

f. To empower youth through skill development, innovation and agri-entrepreneurship based agribusiness models that attract them to agriculture.

District and State Agriculture Plans

As per the recent guidelines issued by the Government of India under Remunerative Approaches for Agriculture and Allied sector Rejuvenation (RAFTAAR), the new projects proposed and are to be implemented under NADP/RKVY must be in consonant with District Agricultural Plans (DAP), State Agriculture Plans (SAP) and State Agriculture Infrastructure Development Program (SAIDP) prepared by the individual States. Thus, such action-oriented plan documents will remain as a cornerstone of planning and implementation of the NADP/RKVY and other schemes.

The overall guidelines suggested by the Government of India to be followed for preparation of District Agriculture Plans (DAP) and State Agricultural under NADP/RKVY are as follows:

- The several states have already prepared Comprehensive District and State Agriculture plans for 12th Plan period. These plans have to be revised and updated appropriately for implementing RKVY-RAFTAAR during 14th Finance Commission keeping in view modification proposed for the plan period and emerging needs of the State.
- The District Agriculture Plan (DAP) shall not be however the usual aggregation of existing schemes but would aim at moving towards projecting the requirements for development of Agriculture and allied sectors of the district and for the State a whole.
- These plans would also present the vision for Agriculture and allied sectors within the overall development perspective of the district and further State as a whole.
- The District Agriculture Plans and the State level plan would also present their financial requirements in addition to sources of financing the agriculture development plans in a comprehensive way.
- The District Agriculture Plan will include animal husbandry and fishery development, minor irrigation projects, rural development works, agricultural marketing schemes and etc. keeping in view the natural resources and technological possibilities in each district.
- District level potential linked credit plans (PLP) already prepared by the National Bank for Agriculture and Rural Development (NABARD) and Strategic Research and Extension Plans (SREP) developed under the Agricultural Technology Management Agency (ATMA) etc. may be referred for revision of DAPs.
- It should also be ensured that the strategies for convergences with other programs as well as the role assigned to the Panchayati Raj Institutions (PRIs) are appropriately incorporated in DAPs.

Therefore, each State will also have a comprehensive State Agricultural Plan (SAP) for the remaining period of the Fourteenth Finance Commission by integrating the District Plans. SAPs will invariably have to indicate resources that can flow from the State to the districts.

The Process

Revision and updating of SAPs could be a two-way process. Firstly, State Nodal Department (or Agriculture Department) could get DAPs revised in the first instance to ensure that priorities of the State are properly covered in the district plans. States should, at this stage of scrutiny, ensure that requirements of districts and priorities of the State are appropriately captured and aligned in DAPs. Alternately, State Nodal Agency could communicate to the districts in the first instance, the State's priorities that ought to be reflected in the respective district plans and the districts may incorporate these in their updated district plans. Preparation/revision of the DAPs need to be an elaborate, exhaustive and iterative process and care has to be taken by the State Nodal department and District Agriculture Department in ensuring that these plans cover the entire gamut of agriculture and allied sectors.

Revision and Updation of DAP and SAP in Tamil Nadu

Tamil Nadu State continued to receive Central Assistance under NADP/RKVY. The Government of Tamil Nadu also prepared District and State Agriculture Plans covering 11th and 12th Plan periods. Tamil Nadu State has 32 districts including Chennai. The District Agriculture Plan were prepared for 31 districts excluding Chennai during 12th plan period. Thus, the current exercise is the continuation of the 12th plan period: which also covered two years of the 14th Finance Commission period (2015-16 and 2016-17) and also keeping in view of the changing scenario in the development and emerging needs of the State and to be eligible for fresh grants from Government of India. These plans were further revised and updated appropriately for implementing RKVY during the periods from 2017-18 to 2021-22.

Methodology followed

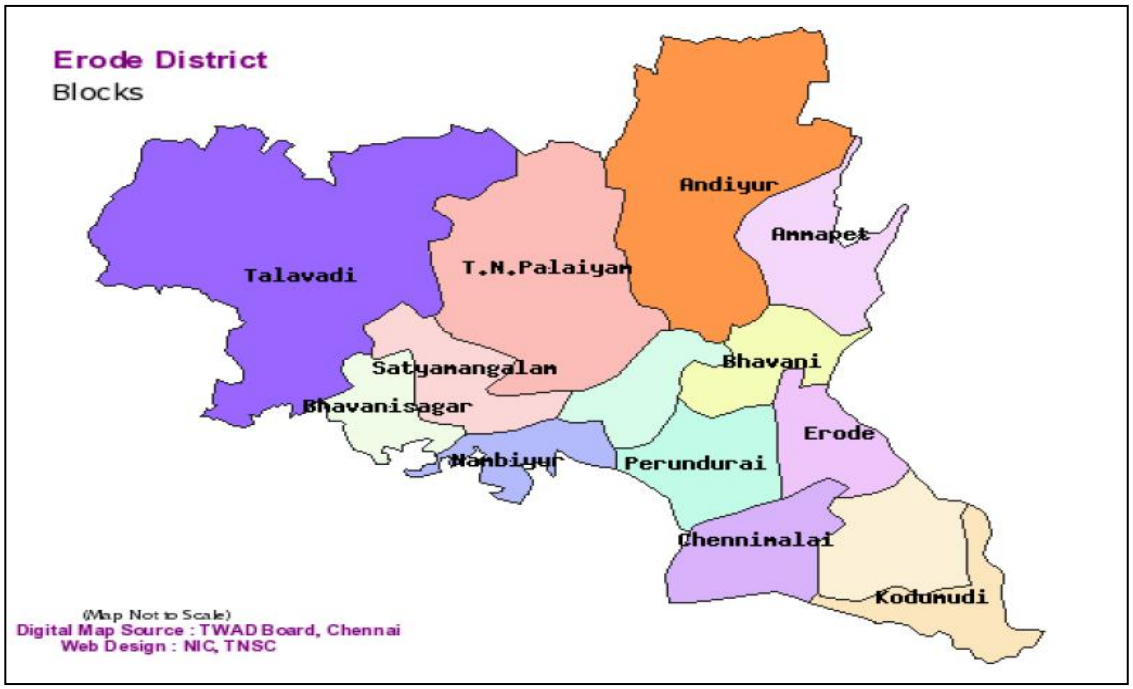
The revision of the District Agricultural Plan of Erode district, was done by gathering the secondary data about district and block with respect to rainfall, land use pattern, demography, livestock, machinery, infrastructure so far created etc. In addition, the constraints in production and marketing of agricultural and livestock produce, crop/animal production and gaps between expected and actual yield and the reasons for such gaps were also discussed among the various stakeholders and incorporated in this plan document. Besides, in consultation with the line department officials and based on the data received from respective districts, a detailed year-wise action plan i.e. from 2017-18 to 2021-22 with physical and financial implications were presented.

CHAPTER II

PROFILE OF THE DISTRICT

Erode District lies on the extreme north of Tamil Nadu. It is bounded mostly by Karnataka State and also River Palar covers pretty long distance. To the East lies Namakkal and Karur Districts. Dindigal District is its immediate neighbor on the South and on the West; it has Coimbatore and The Nilgiris Districts, as its boundaries (Fig.1.). Thus Erode District is essentially a land-locked area having no sea-cost of its own.

Fig.1 Map showing the block location of Erode Districts



The region comprised in the district can be portrayed as a long undulating plain gently sloping towards the river Cauvery in the south-east. The two major tributaries of river Cauvery *viz.,* Bhavani and Noyyal drain the long stretch of mountains in the north. A part of the eastern boundary of the district is formed by river Cauvery, entering the district from Salem and flowing in a southerly direction.

Erode District came into being as a result of the bifurcation of Coimbatore District, through the G.O.Ms.No.1917, Revenue dated 31.08.1979. Bhavani, Erode and Sathyamangalam taluks were included from Coimbatore district which had a composite character. Of these, Sathyamangalam taluk was renamed as Gobichettipalayam taluk retaining Sathyamangalam as a sub-taluk. In 1975, Sathyamangalam sub-taluk was upgraded into a taluk. In 1979, Perundurai sub taluk was upgraded into taluk. These five taluks were grouped together to constitute the new district of Erode.

Erode District is situated at between 10°36” and 11°58” North Latitude and between 76°49” and 77°58” East Longitude.

2.1 Administrative Structure of Erode district

Erode District consists of five taluks *viz.,* Sathyamangalam, Bhavani, Gobichettipalayam, Perundurai and Erode. There are four Municipalities in the district *viz.,*Sathyamangalam, Bhavani, Gobichettipalayam, and Punjai Puliampatti. The other four Municipalities in the district *viz.,*Periasemur, Kasipalayam, Surampatti and Veerappanchatram have been merged recently with Erode Corporation. There are 42 Town Panchayat, 230 Village Panchayat and 375 Revenue Villages. There are 14 Community Development Blocks in the district (Table. 2.1).

Table.2.1. List of Blocks in Erode District

Sl.No.	Name of the Block	No. of Revenue Villages
1	Ammapettai	23
2	Anthiyur	14
3	Bhavani	20
4	Bhavanisagar	26
5	Chennimalai	24
6	Erode	41
7	Gobi	32
8	Kodumudi	24
9	Modakkurichi	29
10	Nambiyur	23
11	Perundurai	48
12	Sathy	30
13	Thalavadi	20
14	T.N.Palayam	21
	Total	**375**

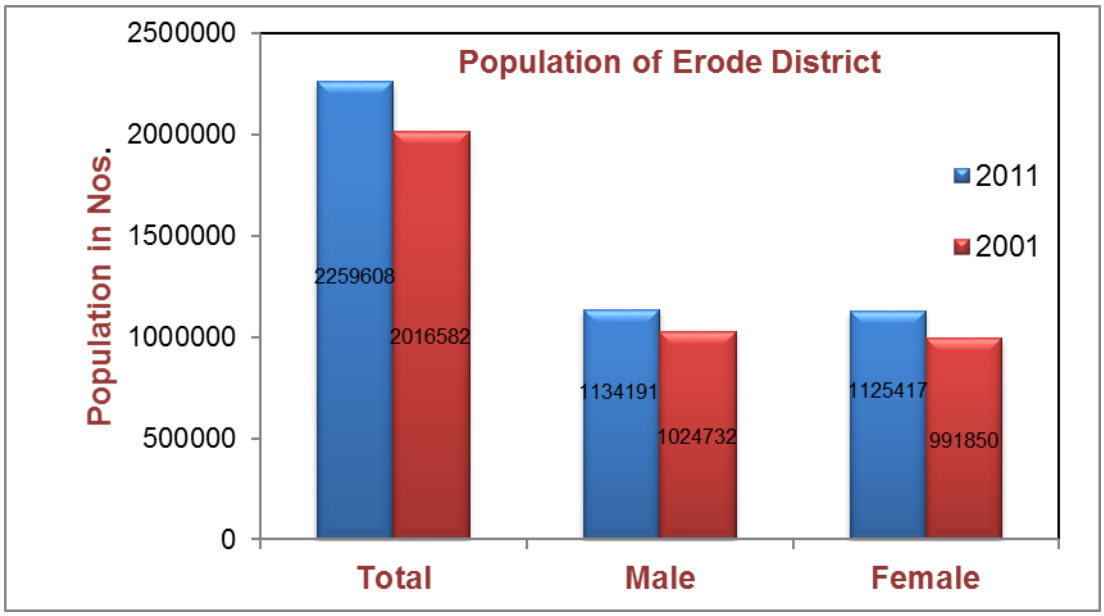
Source: Annual Report of Joint Director of Agriculture, Erode District.

2.2 Demographic profile

2.2.1 Population

In 2011, Erode distict had population of 2,259,608 of which males and females were 1,134,191 and 1,125,417 respectively. In 2001 census, Erode district had a population of 2,016,582 of which males were 1,024,732 and the remaining 9,91,850 were females. Erode District population accounted for 3.13 percent of total Maharashtra's population in 2001 census, and at present it was 3.23 percent of Maharashtra's population. The composition of population in Erode district as per 2001 and 2011 census is presented in Fig. 2.

Fig. 2 Population of Erode District



With regards to Sex Ratio in Erode district, it stood at 992 per 1000 male as compared to 2001 census figure of 968 per thousand. The average national sex ratio in India was 940 as per the Census reports of 2011. The child sex ratio in 2011 was 956 girls per 1000 boys as compared to 939 girls per 1000 boys in 2001 census. In census enumeration, data regarding children under 0-6 age were also collected for all districts including Erode. There were in all 1, 81,188, children under the age of 0-6 in 2011 as against 2, 00,853 of 2001 census. Of the total population of the children 1, 81,188, male and female were 92,638 and 88,550 respectively. Child Sex Ratio as per census 2011 was 956 as compared to 939 of census 2001. In 2011, Children under 0-6 formed 8.02 percent of Erode District as compared to 9.96 percent of 2001. The demographic details of Erode district are furnished in Table. 2.2. It could be seen that males accounted for 50.19 Per cent of the total population of the district. Further population in the urban areas was relatively high as compared to rural areas. As regards sex wise distribution of population, females were found to be high in urban areas (50.14 Per cent) than in rural areas (49.45 Per cent).

Table 2.2 Demographic Details of the Erode District (2011 census)

Description	Number	Percentage
Total population	22,59,608	100.00
Male	11,34,191	50.19
Female	11,25,417	49.81
Rural population	11,02,215	48.78
Male	5,57,133	50.55
Female	5,45,082	49.45
Urban population	11,57,393	51.22
Male	5,77,058	49.86
Female	5,80,335	50.14

Source: Census of India 2011, Statistical Hand Book of TamilNadu 2011-2012

2.2.2 Literacy level

The total number of literates in Erode district was 14, 92,662 persons which constituted 66.05 Per cent of the district population. Of the total literate's population, 8,28,300 were constituted by male population, and the remaining 664362 were constituted by the female population which was equivalent to 55.49 and 44.51 per cent respectively (Table. 2.3).

Table 2.3 Literacy Level in Erode District

Description	Number of persons	Literacy rate (%)
Total literates	14,92,662	66.05
Male literates	8,28,300	55.49
Female literates	6,64,362	44.51

Source: Tamil Nadu – An Economic Appraisal 2011-12 to 2013-14, Govt. of Tamil Nadu, Chennai.

2.4.3. Working population

Table 2.4 Occupational Classification of Population in Erode District

Description	Number	Percentage
Total workers	11,95,773	53.10
Total main workers	11,11,051	92.90
Marginal workers	84,722	7.10
Cultivators	1,78,170	14.90
Agricultural labourers	3,70,212	31.00
Household industries	54,322	4.50
Other workers	5,93,069	49.60

Source: Tamil Nadu – An Economic Appraisal 2011-12 to 2013-14, Govt. of Tamil Nadu, Chennai.

The details of occupational classification of population in the district are presented in the Table.2.4. Among the total work force in the district, more than 92.90 per cent were main workers comprising of cultivators (14.90 per cent), agricultural labourers (31.00 per cent), other workers (49.60 per cent) and those engaged in household industries (4.50 Per cent). The marginal workers accounted for about 7.10 Per cent of the total working force in the district.

2.5 Topography

Erode district has a semi-arid climate with high temperatures throughout the year, and relatively low rainfall. It has a hilly terrain with undulating topography. It is surrounded by Urugumalai, Athimalai, and Chennimalai hills. The rivers that flow in Erode are Amaravathy, Noyyal, Bhavani, and Cauvery .The prominent geomorphic units identified in the district through interpretation of Satellite imagery are structural hills, inselberg, ridges, valley fill, pediments and shallow pediments. The plains are characterized by an undulating topography with a general gradient from east and southeast. The plains are limited to the east and South Western border of the district. The plains west of Cauvery river are known as Lower Cauvery plains.

2.6 Soil type

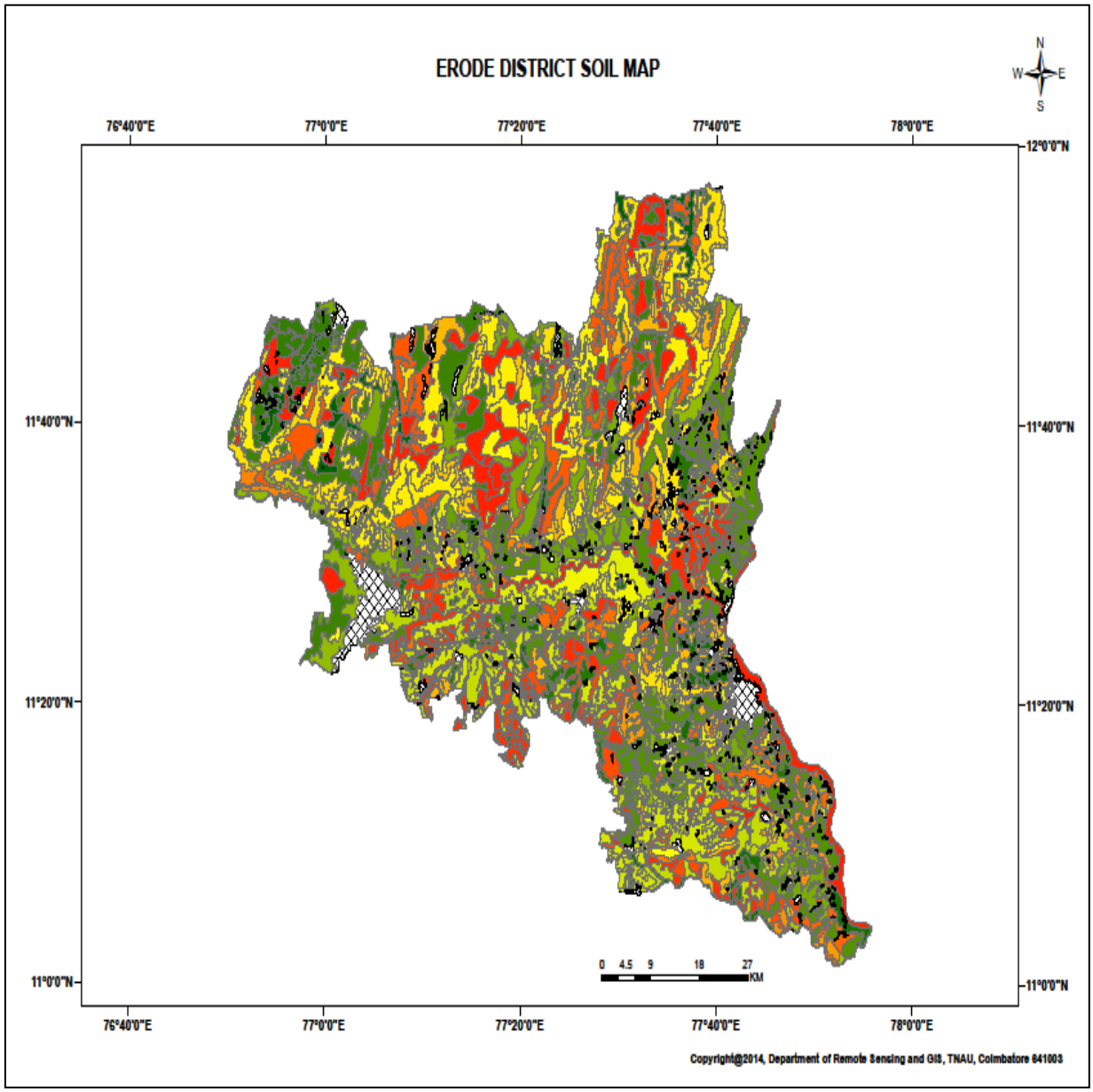
The soils of the district are mostly red sand and gravel with moderate amounts of red-loam and occasional black loam tracts. Vast stretches of the upland regions are mostly gravelly. Red-loam occurs mostly in land under Kalingarayan channel and in beds of tanks in Erode taluk and to some lesser extent in the valleys in Perundurai taluk. It also occurs in the hilly tracts of Bhavani taluk (Table 2.5). Soils of Bhavanisagar, Chennimalai, Modakkurichi, Perundurai and Sathyamangalam blocks are mostly sandy loam. Soils of Ammapettai and Thalavadi blocks are mostly sandy clay loam. Clay loam soils are found in T. N. Palayam, Bhavani and Nambiyur blocks. The soil map of Erode district is exhibited in Fig. 3.

Table.2.5. Block wise soil types in Erode district

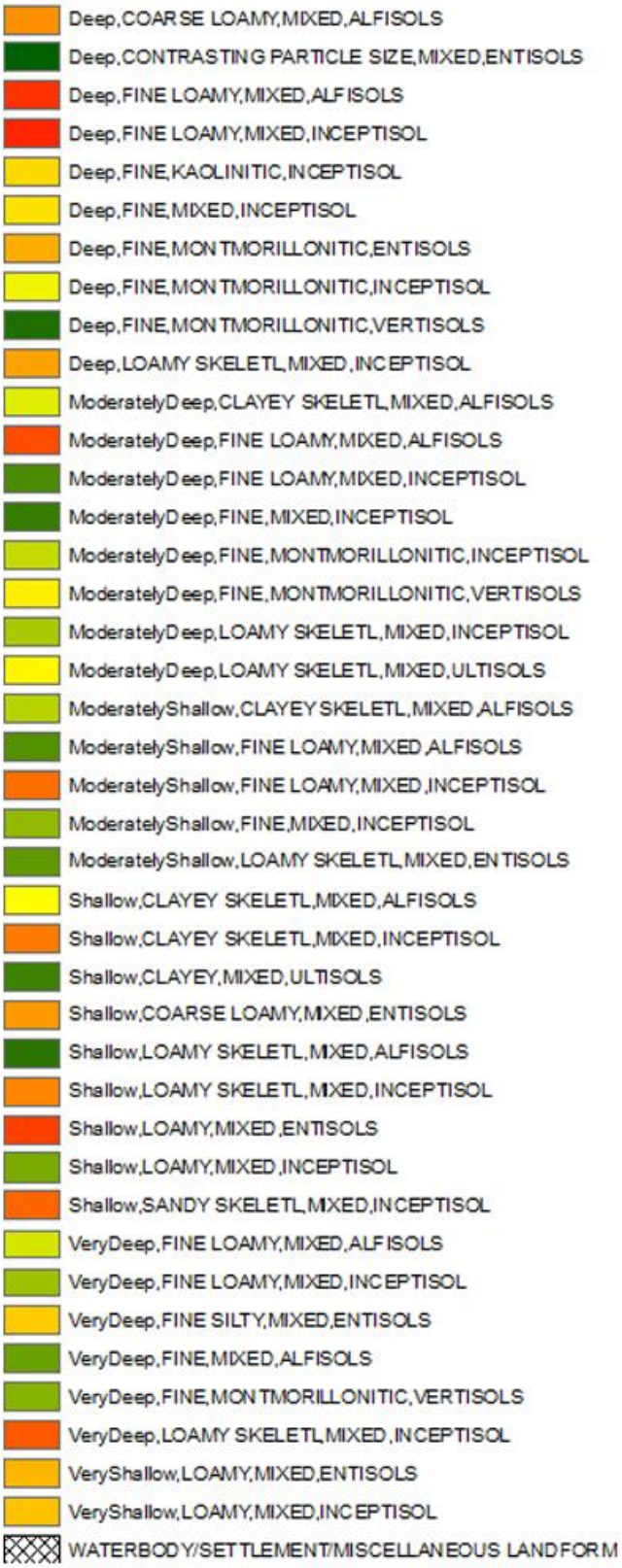
Sl.No.	Name of the Block	Soil Type
1	Ammapettai	Sandy Clay Loam
2	Anthiyur	Sandy Loam
3	Bhavani	Clay Loam, Sandy Loam
4	Bhavanisagar	Sandy Loam
5	Chennimalai	Sandy Loam
6	Erode	Clay Loam, Sandy Loam
7	Gobi	Sandy Clay Loam
8	Kodumudi	Sandy Clay Loam
9	Modakkurichi	Sandy Loam
10	Nambiyur	Clay Loam, Sandy Loam
11	Perundurai	Sandy Loam
12	Sathy	Sandy Loam
13	Thalavadi	Sandy Clay Loam
14	T.N.Palayam	Clay Loam

Source: Office of Joint Director of Agriculture, Erode District

Fig.3 Soil Map of Erode District



(Fig. 3Contd.) Erode District Soil Legend



2.7 Climatic Condition and Rainfall

The district in general is characterized with a scanty rainfall and a dry climate. The Palghat gap in the Western Ghats, which has a soothing effect in the climate of Coimbatore District, does not render much help in bringing down the dry climate in this area. The cool-wind that gushes out of the west coast through Palghat gap loses its coolness and becomes dry by the time it crosses Coimbatore district and reaches Erode region.

Month-wise mean maximum and mean minimum temperature in Erode district is presented in Table 2.6. It could be seen that mean minimum temperature was observed in December – January months and mean maximum temperature was prevalent in April – May months. The average maximum and minimum temperature in the district is 36.9^{o}C and 19.2^{o}C respectively.

The month-wise and season wise rainfall distribution in Erode district in 2013-14 is presented in Table 2.7. The normal rainfall of the district is 702.90 mm. North East monsoon sets in vigorously during October – November and by December the rains disappear rendering the climate clear but pleasant. The district receives normally about 314.6 mm, 229.8 mm, 142.4 mm and 16.1 mm of rainfall in north east monsoon, south west monsoon, hot weather period and winter period, respectively. The actual rainfall received in 2012-13 was 534.20 mm. The season wise normal and actual rainfall received in the district is shown in Fig. 4.

Table 2.6 Year Wise /Month-wise maximum and minimum temperature in Erode

Year	Months	Mean Maximum	Mean Minimum
2011	April	36.9	25.1
	May	36.8	25.5
	June	34.9	24.4
	July	33.4	23.6
	August	33.2	23.4
	September	33.1	23.3
	October	31.9	22.8
	November	30.5	21.2
	December	31.1	19.6
2012	January	31.1	19.2
	February	33.7	20.2
	March	33.7	22.5

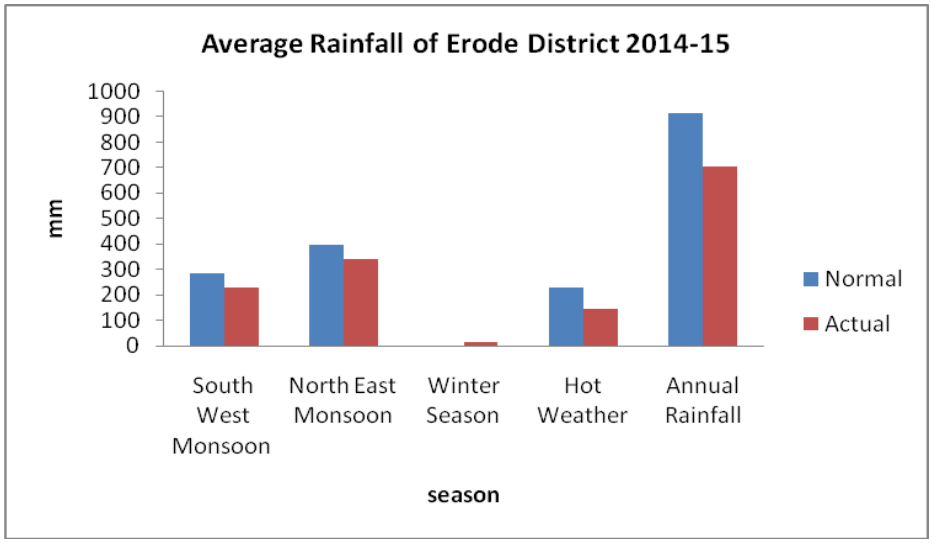
Source: Department of Economics and Statistics, Chennai

Table 2.7 Month-wise / Season-wise rainfall distribution in Erode District (Actual and Normal)

Season / Month	2013-2014		2014-15	
	Normal	Actual	Normal	Actual
South West Monsoon				
June	27.5	14.3	26.5	27.5
July	38.9	38.9	35.6	38.9
August	57.6	60.9	92.7	57.6
September	105.8	75.1	131.5	105.8
Total	**229.8**	**189.2**	**286.3**	**229.8**
North East Monsoon				
October	158.9	179.1	328.2	158.9
November	110.5	49.1	48.4	110.5
December	45.2	6.1	19.2	45.2
Total	**314.6**	**234.3**	**395.8**	**314.6**
Winter Season				
January	6.6	0	1.2	6.6
February	9.5	33.1	0	9.5
Total	**16.1**	**33.1**	**1.2**	**16.1**
Hot Weather				
March	16.8	0.9	19.8	16.8
April	44.5	43.5	104.6	44.5
May	81.1	37.4	104.2	81.1
Total	**142.4**	**81.8**	**228.6**	**142.4**
Annual rainfall	**702.9**	**534.2**	**911.9**	**702.9**

Source: Season and Crop Report 2014-15

Fig. 4 Season-wise Average and Active Rainfall in Erode District



2.8 Land

2.8.1 Land and its types

The nine-fold classification of the land use pattern of Erode district is provided in Table 2.8.

The total geographical area of the district is 5, 72,264 hectares. In 2014-15 1,78,687 hectares, have been brought under cultivation as net area sown. This accounted for 31.22 per cent of the total area of the district. Area sown more than once was 20661 hectares. Forests accounted for 2, 27,511 hectares and formed 39.75 per cent of the total area. Less than 9.32 per cent of the total area was put to non-agricultural use (53,341 hectares). However, 10.53 per cent of the area accounted for current fallow lands (60269 hectares). Trees crops, groves, orchards etc. together accounted for about 0.17 per cent of the total area in the district. Of the 1, 78,687 hectares brought under net area sown (Table 2.8).

Table 2.8 Land Use Pattern of Erode District (2014-15)

Sl.No.	Particulars	Area (ha)	%
1	Geographical Area	572264	100
2	Forest	227511	39.75
3	Barren & Unculturable Area	6270	1.09
4	Land Put to Non-agricultural Uses	53341	9.32
5	Permanent Pastures & Other grazing lands	101	0.01
6	Misc.tree crops & groves not incl. in the net area sown	1004	0.17
7	Current Fallow	60269	10.53
8	Other Fallow	43350	7.57
9	Net area sown	178687	31.22
10	Area sown more than once	20661	3.61
11	Gross area sown	199348	34.83
	Grand total	**1362806**	

Source: Season and Crop Report (2014-15),

2.8.2. Land Holding Pattern

The land holdings pattern in Erode district is given in Table 2.9. It could be seen that the small holdings with a size of less than two hectares formed 74.33 Per cent of total number of holdings and accounted for 38.46 Per cent of the land area owned. On the contrary, the relatively larger land holdings with a size of more than five hectares accounted for about five Per cent of the total number of holdings in the district with more

than 24.03 Per cent of the total land owned in the district. The average size of holdings in the district was found to be 1.65 hectares only.

2.8.3. Block wise Distribution of Farmers.

The block wise distributions of different categories of farmers are furnished in Table 2.10. In general, small farmers were found to be high as compared to other categories of farmers and they accounted for about 44.00 Per cent of the total farmers in the district. The medium farmers accounted for 37.74 Per cent of the total farmers in the district. The small farmers were found to be high in Ammapettai, Perundurai, Bhavani, Nambiyur, Modakkurichi and Erode blocks. The medium farmers were in large numbers in Perundurai, Kodumudi, Bhavani, BhavaniSagar and Gobichettipalayam blocks.

Table 2.9 Land Holdings Pattern in Erode District

(Area in ha)

Size Class of holding (ha)	Number					Area				
	S.C.	S.T.	Others	Institution	Total	S.C.	S.T.	Others	Institution	Total
Below-0.50	3825	238	64340	62	68465	1114.32	71.78	19140.65	13.13	20339.88
0.50-1.00	2649	314	65496	36	68495	1906.81	235.88	48148.45	27.67	50318.81
1.00 -2.00	2136	466	76938	46	79586	3006.19	658.08	111196.22	65.44	114925.93
2.00 -3.00	549	85	34305	41	34980	1295.52	190.43	83087.83	100.21	84673.99
3.00 -4.00	155	25	16190	39	16409	527.35	85.73	56053.73	136.89	56803.70
4.00 -5.00	69	9	8778	22	8878	305.12	39.83	39091.01	94.97	39530.93
5.00 -7.50	68	7	8889	26	8990	399.5	41.92	53544.24	160.63	54146.29
7.50-0.00	16	1	3127	13	3157	136.16	7.62	26653.04	109.65	26906.47
10.00-20.00	7	0	2073	34	2114	81.33	0	26809.47	490.75	27381.55
20.00 &Above	0	0	195	36	231	0	0	5235.36	2312.76	7548.12
Total	**9474**	**1145**	**280331**	**355**	**291305**	**8772.30**	**1331.27**	**468960.00**	**3512.10**	**482575.67**

Source: District Statistical Handbook, Erode District.

Table 2.10 Block Wise Distribution of Different Categories of Farmers in Erode District

(in numbers)

Sl. No.	Name of the Block	General Category				SC/ST Category				Total			
		SF	MF	OF	Agri. Lab.	SF	MF	OF	Agri. Lab.	SF	MF	OF	Agri. Lab.
1	Ammapettai	10666	2042	786	2260	386	32	4	3240	11052	2074	790	5500
2	Anthiyur	3572	4154	2431	6304	251	273	91	24195	3823	4427	2522	30499
3	Bhavani	9388	5809	582	2970	32	47	0	3750	9420	5856	582	6720
4	Bhavanisagar	3371	5718	1699	7173	53	207	8	3862	3424	5925	1707	11035
5	Chennimalai	4980	4526	302	1300	65	135	2	2160	5045	4661	304	3460
6	Erode	6437	2158	1257	8876	23	1	0	3428	6460	2159	1257	12304
7	Gobi	1305	5220	1740	25232	245	124	0	11248	1550	5344	1740	36480
8	Kodumudi	3190	8268	2897	1300	13	3203	5	2160	3203	11471	2902	3460
9	Modakkurichi	6920	3540	1110	2000	70	10	0	15000	6990	3550	1110	17000
10	Nambiyur	8554	4280	3317	6527	343	34	12	9760	8897	4314	3329	16287
11	Perundurai	9718	9047	229	1265	402	147	0	2530	10120	9194	229	3795
12	Sathy	4322	4800	3327	9689	486	713	138	6500	4808	5513	3465	16189
13	Thalavadi	3185	3792	2627	39514	703	975	376	13660	3888	4767	3003	53174
14	T.N.Palayam	3172	4393	786	6600	42	221	2	4082	3214	4614	788	10682
	Total	**78780**	**67747**	**23090**	**121010**	**3114**	**6122**	**638**	**105575**	**81894**	**73869**	**23728**	**226585**

Source: Commodity Potential Report, TNAU, 2013.

Legend: SF-Small Farmer, MF- Marginal Farmer, OF-Other Farmer, Agri.Lab.-Agricultural laborers

2.9 Total Water Potential

The details of blocks with the present level of ground water development are furnished in Table 2.11.

Table 2.11 Block wise Distribution of Ground Water Potential

District	Over Exploited	Critical (Dark)	Semi critical (Gray)	Safe (White)
	Greater than 100%	Between 50 and 100%	70 and 90%	Less than 70%
Erode	1.Ammapet	1.Bhavanisagar	1.Bhavani	1.Chennimalai
	2.Anthiyur	2.Sathyamangalam	2.Gobichettipalayam	2.Erode
	3.Nambiyur	3.Thalavadi	3.Modakkurichi	3.Kodumudi
			4.Perundurai	
			5.T.N. Palayam	

Source: Report on Dynamo Ground Water Resources of Tamil Nadu, as on Tamil Nadu State.

It could be seen from the table that of the 14 blocks in Erode district, ground water had been over exploited in three blocks and over exploitation was more pronounced inAmmapet, Anthiyur and Nambiyur blocks. The ground water level was safe in Chennimalai, Erode and Kodumudi blocks only.

2.10 Source of Irrigation

Information on source wise area irrigated in Erode district is provided in Table 2.12. Open wells were found to be the major source of irrigation and they accounted for 56570 ha of net area irrigated in 2014-15. Next to open wells, canals formed an important source and they accounted for 39286 ha of the net area irrigated during the period under consideration. Tube wells/ bore wells accounted for the remaining net area irrigated in the district

Table 2.12. Irrigation by Different Sources in Erode District during 2014-15

Sl.No.	Particularls		Numbers	Area (in ha)
1	Canals	Gross	10	44672
		Net		39286
2	Tanks	Gross	698	0
		Net		0
3	Tube wells / Bore wells	Gross	7438	30638
		Net		27158
4	Open wells	Gross		67699
		Net		56570
5	Supplementary wells	Gross		0
		Net		0
6	Other Sources	Gross		402
		Net		402

Source: Season and Crop Report 2014-15.

Table 2.13 Comparison of irrigation sources for the last three years

(in hectare)

Sl.No.	Particularls		2012-13	2013-14	2014-15	Average
1	Canals	Gross	8794	37265	44672	30243.67
		Net	8685	36337	39286	28102.67
2	Tanks	Gross	71	42	0	37.67
		Net	71	42	0	37.67
3	Tube wells / Bore wells	Gross	29887	31267	30638	30597.33
		Net	28761	29762	27158	28560.33
4	Open wells	Gross	74830	59622	67699	67383.67
		Net	72643	54176	56570	61129.67
5	Supplementary wells	Gross	0	0	0	0.00
		Net	0	0	0	0.00
6	Other Sources	Gross	313	824	402	513.00
		Net	313	767	402	494.00

Source: Season and Crop Report 2014-15.

From the above Table 2.13 the net area under open well irrigation was reduced from 72643 ha to 56570 ha. Similarly, there is reduction in net area under Tube wells from 28761 ha to 27158 ha. The area under Tank irrigation was completely lost from 71 ha to nil. Only the net area under canal irrigation was increased from 8685 ha to 39286 ha. Drastic reduction in net area under Tanks, Tube wells and open wells shows the severe threat for drought condition. It is necessary to take plan of action for eradicating this situation in future.

2.11 Cropping pattern

2.11.1 Major Crops

Major crops cultivated in Erode district are Paddy, Maize, Groundnut, Gingelly, Sugarcane, Turmeric and Banana. Though noted for trade and industry, the district is by no means backward in the field of agriculture. Close association and link with Coimbatore district which has the advantage of two premier agricultural Institutions *viz.,* the Agricultural College and the Research Institute and SBI have helped to keep up the developments in agricultural methods and practices and also improved strains of seeds and the publicity and developmental activities launched by the agricultural institutions in Coimbatore penetrated far and wide in Erode District. Added to this was the propaganda and demonstration organized by the Agricultural Department. Availability of irrigation facilities coupled with the awareness of improved methods of farming helped the agriculturists to forge ahead. The details of Area, Production and Productivity of major crops in this district are given in Table 2.14.

Table 2.14. Area, Production and Productivity of major crops in Erode district

Sl.No	Particulars	Area (in ha)	Production (in tonnes)	Productivity (in kg/ha)
1	Paddy	24894.67	123047.67	4942.732
2	Maize	17255.00	102082.67	5916.121
3	Cumbu	84.00	201.00	2392.857
4	Ragi	3759.67	12067.00	3209.59
5	Bengal Gram	1.33	0.67	503.7594
6	Red Gram	1400.33	1397.00	997.622
7	Black Gram	696.33	545.67	783.6371
8	Green Gram	381.33	203.33	533.2127
9	Horse Gram	795.67	489.67	615.4185
10	Groundnut	17641.33	30608.33	1735.035
11	Sunflower	43.33	53.00	1223.171
12	Gingelly	6377.00	3961.33	621.1902
13	Castor	310.00	94.33	304.2903
14	Cotton	786.33	2331.00	2964.404
15	Coconut	12829.00	1272.00	99.15036
16	Sugarcane	25321.33	2577448.00	101789.6
17	Tobacco	2385.67	3737.33	1566.575
18	Onion	1047.33	9548.67	9117.155
19	Brinjal	166.67	1505.00	9029.819
20	Bhendi	180.00	1330.67	7392.611
21	Cabbage	129.00	8669.33	67204.11
22	Tomato	187.00	2544.33	13606.04
23	Banana	11224.67	343706.00	30620.59
24	Mango	899.33	6163.00	6852.879
25	Jack Fruit	18.33	241.33	13165.85
26	Pine Apple	1.00	32.67	32670

27	Guava	138.33	859.00	6209.788
28	Grapes	10.00	145.67	14567
29	Orange	15.33	45.00	2935.421
30	Chillies	180.33	76.67	425.165
31	Garlic	33.00	150.33	4555.455
32	Ginger	5.00	26.00	5200
33	Pepper	4.33	1.33	307.1594
34	Coriander	3881.67	0.67	0.172606
35	Turmeric	8467.00	40801.00	4818.826
36	Tamarind	131.00	760.67	5806.641
37	Potato	387.33	5973.67	15422.69
38	Tapioca	5287.33	175320.67	33158.64
39	Sweet Potato	0.67	11.67	17417.91
	Total	**147357.00**	**3457453.33**	23463.11

Sugarcane is the predominant crop in this district with 25321.33 ha followed by paddy and Groundnut with 24894 ha and 17641 ha respectively. Maize was cultivated at 17255 ha. Coconut and Banana was cultivated at 12829 and 11224 ha respectively. But the productivity of crops is low such as paddy has only 4.9 tonnes /ha and total pulses productivity is 603 kg/ha. This indicates the importance of extension in improving the adaptation of improved technologies in the cultivation of crops.

2.11.2 Area under Different Crops

The details of area, production and productivity under major food and vegetable crops for the period 2014-15 and triennium ending 2014-15 are given in Table 2.15. and 2.16 respectively. Most of the cereal crop varieties cultivated in the district is those released by Tamil Nadu Agricultural University. However, in crops such as sunflower, maize and vegetable crops, private varieties were found to dominate. Sunflower, maize and tapioca are relatively newer crops in the district and area under these crops is gaining momentum due to their lesser labour requirement and low cost of cultivation.

2.11.3 Block wise Cropping Pattern and Cropping Intensity

The block wise cropping pattern and their cropping intensity for triennium ending 2011-12 is furnished in Table 2.17. It could be seen that in the canal areas, paddy –

gingelly, paddy – pulses, paddy – paddy – gingelly, paddy – paddy – pulses, paddy – groundnut and paddy – gingelly – maize is the common cropping pattern in the different blocks of the district. In garden lands, groundnut – pulses, paddy – cotton, groundnut – cotton, groundnut – gingelly, groundnut – pulses, paddy – pulses, maize – groundnut, and turmeric – maize, are the cropping pattern in the different blocks of the district. In rainfed areas, groundnut – cholam, ragi – pulses – maize, maize – cholam, groundnut – fodder cholam, and ragi – gingelly – maize is the commonly seen cropping pattern in different blocks of the district. In canal areas of Bhavani and Kodumudi and in garden lands of Modakkurichi, Nambiyur, Perundurai, Sathyamangalam and Thalavadi blocks sugarcane is commonly cultivated. The cropping intensity for the triennium ending 2011-12 was around 127 Per cent and it varied from 100 Per cent in T. N.Palayam block to 140 percent in Ammapettai, Bhavani and Bhavanisagar blocks.

Table 2.15 Area, Production and Productivity of food crops (2014-15) and Triennium ending (2014-15)

		Area (Ha)					Production (in tonnes)					Productivity (in kg / ha)				
Sl.No	**Particulars**	**2012-13**	**2013-2014**	**2014-2015**	**Total**	**Average**	**2012-13**	**2013-2014**	**2014-2015**	**Total**	**Average**	**2012-13**	**2013-2014**	**2014-2015**	**Total**	**Average**
1	Paddy	6603	30889	37192	74684	24894.67	29125	163021	176997	369143	123047.67	4411	5278	4759	14448	4816.00
2	Maize	13955	18259	19551	51765	17255.00	64089	111023	131136	306248	102082.67	4593	6080	6707	17380	5793.33
3	Cholam	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
4	Cumbu	58	95	99	252	84.00	88	215	300	603	201.00	1524	2258	3029	6811	2270.33
5	Ragi	2	5626	5651	11279	3759.67	9337	13425	13439	36201	12067.00	1831	2386	2203	6420	2140.00
6	Total Cereals	25734	54877	62507	143118	47706.00	102660	287693	321892	712245	237415.00				0	0.00
	Total	**46352**	**109746**	**125000**	**281098**	**93699.33**	**205299**	**575377**	**643764**	**1424440**	**474813.33**	**12359**	**16002**	**16698**	**45059**	**15019.67**

Source:Season and Crop Report (2014-15)

Table 2.16 Area, Production and Productivity of vegetable crops (2014-15) and Triennium ending (2014-15)

		Area (Ha)					Production (in tonnes)					Productivity (in kg / ha)				
Sl.No	**Particulars**	**2012-13**	**2013-2014**	**2014-2015**	**Total**	**Average**	**2012-13**	**2013-2014**	**2014-2015**	**Total**	**Average**	**2012-13**	**2013-2014**	**2014-2015**	**Total**	**Average**
1	Onion	686	1139	1317	3142	1047.33	5665	12628	10353	28646	9548.67	8258	11087	7861	27206	9068.67
2	Brinjal	164	156	180	500	166.67	1513	1401	1601	4515	1505.00	9228	8978	8896	27102	9034.00
3	Bhendi	166	136	238	540	180.00	1322	921	1749	3992	1330.67	7962	6772	7350	22084	7361.33
4	Cabbage	106	146	135	387	129.00	6125	6872	13011	26008	8669.33	57784	47065	96375	201224	67074.67
5	Tomato	130	213	218	561	187.00	1850	2628	3155	7633	2544.33	14228	12338	14470	41036	13678.67
6	Other Vegetables	7369	8105	10091	25565	8521.67				0	0.00				0	0.00
	Total	**8621**	**9895**	**12179**	**30695**	**10231.67**	**16475**	**24450**	**29869**	**70794**	**23598.00**	**97460**	**86240**	**134952**	**318652**	**106217.33**

Table 2.17 Block wise Cropping Pattern and their Cropping Intensity

(Triennium Ending 2011-12)

Blocks	Type	Cropping Pattern	Gross area cultivated (ha.)	Net area cultivated (ha.)	Cropping Intensity (Per cent)
Ammapettai	Canal area	Paddy - Gingelly			
	Garden land	Groundnut - Pulses			
	Garden land	Paddy - Cotton			
		Total	**17806**	**16450**	**140**
Anthiyur	Rainfed	Ragi - Pulses - Maize			
	Garden land	Groundnut-Cotton			
	Garden land	Groundnut - Maize			
		Maize - Pulses			
		Total	**6150**	**5850**	**120**
Bhavani	Canal area	Paddy- Gingelly			
	Canal area	Sugarcane			
	Garden land	Cholam - Groundnut			
	Garden land	Groundnut - Gingelly			
	Rainfed	Groundnut- Cholam			
		Total	**14659**	**13044**	**140**
Bhavanisagar	Canal area	Paddy-Pulses			
	Garden land	Sugarcane			
	Garden land	Groundnut - Pulses			
	Rainfed	Maize - Cholam			
		Total	**9851**	**8340**	**140**
Chennimalai	Canal area	Paddy- Gingelly			
	Garden land	Paddy-Pulses			
	Rainfed	Groundnut- Cholam			
		Total	**11866**	**10545**	**123**
Erode	Canal area	Paddy-Paddy -Gingelly			
	Canal area	Cholam - Paddy - Pulses			
		Total	**6920**	**5730**	**135**
Gobi	Canal area	Paddy-Paddy-Pulses			
	Canal area	Paddy-Gingelly			
	Garden land	Paddy-Groundnut			
	Rainfed	Groundnut-Fodder Cholam			
		Total	**24256**	**18688**	**132**
Kodumudi	Canal area	Paddy-Paddy -Gingelly			
	Canal area	Sugarcane			
	Canal area	Turmeric - Maize			
	Garden land	Maize - Groundnut			
		Total	**13367**	**12460**	**124**
Modakkurichi	Canal area	Paddy-Paddy -Gingelly			
	Canal area	Sugarcane			
	Canal area	Turmeric - Maize			
	Garden land	Maize - Groundnut			
		Total	**18478**	**17326**	**130**
Nambiyur	Canal area	Paddy- Groundnut			
	Garden land	Sugarcane			
	Garden land	Turmeric - Maize			
	Rainfed	Groundnut- Pulses			
		Total	**16300**	**15100**	**130**

Blocks	Type	Cropping Pattern	Gross area cultivated (Ha.)	Net area cultivated (Ha.)	Cropping Intensity (Per cent)
Perundurai	Canal area	Paddy-Gingelly			
	Garden land	Sugarcane			
	Garden land	Turmeric -			
	Rainfed	Groundnut-Cholam			
	Rainfed	Groundnut- Pulses			
		Total	**19681**	**18420**	**131**
Sathy	Canal area	Paddy-Pulses			
	Garden land	Sugarcane			
	Rainfed	Groundnut- Cholam			
		Total	**15788**	**14420**	**126**
Thalavadi	Rainfed	Ragi - Gingelly- Maize			
	Garden land	Sugarcane			
	Garden land	Groundnut - Gingelly - Ragi			
		Total	**10579**	**9907**	**112**
T.N.Palayam	Canal area	Paddy-Paddy -Gingelly			
	Garden land	Paddy-Pulses			
	Garden land	Groundnut-gingelly			
		Total	**4997**	**4997**	**100**
District total			**190698**	**171277**	**127**

Source: Office of JDA, Erode District

2.12. Consumption of Chemical Fertilizers and Pesticides

The details of fertilizers and pesticides consumption in the district during the year 2011-12 are furnished in Table 2.18. It could be seen from the table that 0.53, 0.12 and 0.12 lakh tonnes of nitrogenous, phosphatic and Potassic fertilizers were consumed in Erode district during 2014-15.

Table 2.18 Consumption of Chemical Fertilizers and Pesticides during 2014-15

Particulars	Fertilizers (in '000' Tonne)				Pesticides	
	Nitrogenous (N)	Phosphoric (P_2O_5)	Potassic (K_2O)	Total (NPK)	Dust (MT.)	Liquid (Lit.)
Total consumption	53.58	12.63	**12.89**	**79.12**	**65**	**32**

Source: Joint Director of Agriculture, Erode

2.13. Agricultural Engineering - Machineries and Implements

Table.2.19. clearly indicates that the machineries and implements available in the district.

Table 2.19 List of Agricultural Implements and Machineries

Sl.No	Name of the agricultural machineries and implements	Total (Nos.)
I.	**Machineries**	
1	Bulldozer chain type	2
2	Tractors	7
3	Combine harvester (Paddy)	2

4	Rock blasting unit	1
II.	**Implements**	
1	Disc plough	3
2	Rotavator	4
3	Sugarcane stubble shaver	2
4	Sugarcane transplanter	1
5	Laser land leveller	4
6	Post hole digger	2
7	9 tyne cultivator	2
8	11 tyne cultivator	1
9	5 tyne cultivator	2
10	Chisel plough	1
11	Reversible plough	1
12	Guard wheel	2 sets
13	Quick fit gauge wheel	2 sets
14	Water divine implements	1no

Source: Assistant Executive Engineer, Erode

2.14. Agricultural Marketing - Regulated Markets

The number of regulated markets and quantity and value of commodities transacted in the regulated markets are given in Table.2.18. There are 15 regulated markets in the district. The notified commodities are cotton, groundnut, tobacco, turmeric, maize, jaggery, paddy, chillies, sesame, coconut, copra, sorghum, ragi, sunflower and castor.

The arrivals of turmeric, jaggery, paddy, coconut, copra were found to be higher than the other notified commodities. The arrivals of chillies, sorghum, cumbu, ragi, and caster have been very meager. There had been fluctuations in the arrivals of commodities to the regulated markets. Hence steps have to be taken up to stabilize the arrivals by resorting to appropriate publicity measures. Besides there are five farmers' markets functioning in the district.

The details of Uzhavarsandhai and the commodities transacted during 2014-15 in Erode district are also given in Table 2.20.

Table 2.20 Quantity and Value of Commodities Transacted in Regulated Markets of Erode district during 2014-15

Markets	Products arrived	Quantity Arrived (MT)	Receipts (₹. Lakhs)
Regulated Markets (15)			
	Cotton	12,973	4,110.99
	Groundnut	4,466	1,068.68
	Tobacco	14,938	2,189.51
	Turmeric	23,478	28,762.00
	Maize	16,593	1,402.33
	Jaggery	67,682	28,529.00

Markets	Products arrived	Quantity Arrived (MT)	Receipts (₹. Lakhs)
	Paddy	29,892	5,901.25
	Chillies	154	52.62
	Sesamum	8,768	3,728.82
	Coconut	33,348	3,187.15
	Copra	19,692	7,045.86
	Sorghum	642	45.36
	Cumbu	135	19.90
	Ragi	170	12.53
	Sunflower	3,811	868.25
	Castor	45	13.08
	Others	2,733	821.23
	Total	**2,39,520**	**87,758.56**
UzhavarSandhais (5)			
SampathNagar, Erode	Fruits and Vegetables	7,094	1,042
Periyarnagar, Erode	Fruits and Vegetables	2,049	301
Perundurai	Fruits and Vegetables	1,812	294
Gobichettipalayam	Fruits and Vegetables	3,448	526
Sathyamangalam	Fruits and Vegetables	3,302	521
		17,705	**2,684**

Source: Deputy Director of Marketing, Erode

2.14.1Godowns

The locations of godowns for storing agricultural and non– agricultural commodities and storage capacity of various storage godowns in Erode district are given Table.2.21 and Table 2.22, respectively. It could be seen that there were 14 storage godowns in the main centre and 21 storage godowns in sub-centres. Besides ten storage godowns, seven cold storage units and one market complex with the capacity of 29800, 250 and 1000 Mt capacity are under progress (Table 2.23).

Table.2.21. List of Agricultural Storage Godowns in Erode district in 2014-15

(in numbers)

Sl.No.	Taluk	Main Centre	Sub Centre
1	Ammapettai	1	2
2	Anthiyur	1	1
3	Bhavani	1	1
4	Bhavanisagar	1	1
5	Chennimalai	1	1
6	Erode	1	2
7	Gobi	1	2
8	Kodumudi	1	2
9	Modakkurichi	1	2
10	Nambiyur	1	1
11	Perundurai	1	1
12	Sathy	1	1
13	Thalavadi	1	1
14	T.N.Palayam	1	3
Total		**14**	**21**

Source: Deputy Director of Marketing, Erode

2.14.2. Storage facilities

Table2.22 Storage Facilities Available in Erode District

Category	Number	Storage capacity (MT)
Storage godowns	37 completed	20,800
	10 under progress	29,800
Food Corporation of India godown	1	12,500
Tamil Nadu Civil Supplies Corporation godowns	7	12,650
Seed Processing Units - Government	7	3,043
Seed Processing Units - Private	3	1,260
Cold Storage – Government	0	0
Cold Storage – Private	1	5,000
Market complex with cold storage	1	1000 under progress
Godown in Market Committee	13	9,664
Rural business Hub	1	-
Private Godown	98	12,900

Source: Deputy Director of Marketing, Erode

Table 2.23 Market Infrastructure in Erode District

Particulars	Completed		Under Progress	
	No.	Capacity (MT)	No.	Capacity (MT)
Storage Godown	37	20800	10	29800
Cold Storage	-	-	7	250
Agri Business Centre	-	-	-	-
Collection centre	-	-	-	-
Rural Business Hub	1		-	-
Ripening chamber	-	-	-	-
Market complex with cold storage	-	-	1	1000
Market complex	-	-	-	-
Drying yard	41	-	1	-

Source: Deputy Director of Marketing, Erode

2.15 Sericulture

Apart from the agricultural activities, the district is also involved in the development of allied sectors in different blocks. Sericulture is a commercial sustainable farm based economic activity favouring the rural poor in the unorganized sector because of its low capital requirement and high returns. The area under mulberry and production of cocoon had increased considerably over the years. Most of the area under mulberry cultivation is concentrated in Thalavadi, T. N. Palayam, and Sathyamangalam blocks. The area under mulberry cultivation and rearing of silk worm was the highest in Thalavadi Block. The details of sericulture development in Erode district are furnished in Table 2.24.

Table 2.24 Details of Sericulture Development in Erode District

Sl.No.	Particulars	Unit	Value
1	Irrigated area	ha	1028.99
2	Rainfed area	ha	29.44
3	Newly planted area	ha	431.33
4	Production of reeling cocoon	MT	1174.10
5	Value of ruling cocoons	Rs. in lakhs	1485.24
6	Production of raw silk	MT	167.60
7	Value of raw silk	Rs. in lakhs	1945.84

Source: Assistant Director of Sericulture, Thalavadi

2.16 Animal Husbandry and Dairy Development

The Department of Animal Husbandry has contributed immensely in the development of animal husbandry in Erode and in providing additional income to the farmers in Erode district. Erode district is one of the rich districts in cattle wealth and poultry development. There are many milch breeds available in the district and the Tamil Nadu Milk Producers Federation has a milk collection centre and processing plant at Erode from where milk is transported to different parts of the State every day.

2.16.1. Livestock Population

The details regarding livestock population in Erode district are provided in Table 2.25. As per the 19th Livestock Census, the total livestock in the district was about 857880 numbers. The population of poultry in the district was about 5976115 numbers. Poultry rearing has become a commercial activity in this District.

Table 2.25 Livestock Population of Erode District

(Numbers)

Sl. No.	Particulars	Population
1	Cattle	276584
2	Buffaloes	102840
3	Sheep	165277
4	Goats	309202
5	Horses and ponies	331
6	Donkeys	194
7	Camels	0
8	Pigs	3452
	Total Livestock	**857880**
9	Elephants	0
10	Dogs	80650
11	Rabbits	478
	Poultry	
12	Back yard Poultry	526417
13	Farm Poultry	5449698
	Total Poultry	**5976115**

Source: 19th Livestock Census.

The block wise livestock population in Erode district is furnished in Table 2.26. It could be seen that cattle population was found to be high in Thalavadi, Sathyamangalam, Ammapettai, Modakkurichi and Nambiyur blocks. Buffaloes were concentrated in Modakkurichi, Anthiyur, Kodumudi, Gobichettipalayam and Chennimalai blocks. Likewise, sheep population was found to be more in Chennimalai, Nambiyur, Perundurai, Ammapettai and Bhavanisagarblocks. Modakkurichi, Nambiyur, Perundurai, Gobichettipalayam and Kodumudi blocks had more goat population as compared to other blocks of Erode district.

There is constant expansion of poultry activity both under layer and broiler in the district. Perundurai block dominated other blocks in the poultry population. Modakkurichi, Chennimalai and Nambiyur blocks also had considerable poultry population.

Table 2.26 Block wise Livestock Population of Erode District

(in numbers)

Sl. No.	Type of animals	Ammapet	Anthiyur	Bhavani	Bhavanisagar	Chennimalai	Erode	Gobi	Kodumudi	Modakkuruchi	Nambiyur	Perundurai	Sathy	T.N. Palayam	Thalavadi
1	Cattle	23841	20900	15522	15224	12028	8060	20450	15338	24900	21848	16460	25893	11363	28747
2	Buffalo	5774	8047	5946	1214	7601	7733	9993	8682	11443	9110	14209	6339	2877	2882
3	Sheep	18129	11327	7422	12257	22094	5079	11342	8220	12157	19580	18129	10023	3359	9830
4	Goat	13837	17510	11644	21571	18128	13688	28448	27651	38743	31705	29853	21618	15860	9548
5	Pigs	86	57	117	354	24	20	230	330	81	183	175	563	295	101
6	Poultry	63712	85462	82533	136731	665295	169458	185980	261584	786460	306004	2365140	92500	44872	16828
7	Others	--	3999	--	--	--	--	--	3125	--	--	--	--	3901	3353

Source: TANUVAS, Chennai 2014-15.

2.16.2 Veterinary Institutions

The majority of the blocks in the district possess dispensaries, clinical centres and mobile units for the welfare of the livestock. In the case of hospitals, few are present in the blocks such as Erode, Modakkuruchi, Perundurai, Gobichettipalayam and Bhavani. In all, 56 dispensaries are available in the district and the concentration of dispensaries is found in Erode and Gobichettipalayam blocks. In Modakkurichi, Perundurai, Ammapettai and Bhavani blocks, veterinary dispensaries are unavailable. Veterinary sub centres are available only in Erode and Gobichettipalayam blocks. Likewise, insemination centres are available only in Erode block. In 2014-15, 11.55 lakh animals were treated and 0.82 lakh animals were castrated. The details of veterinary institutions are furnished in Table 2.27.

Table 2.27 Number of Veterinary Hospitals in Erode district in 2014-15

Sl. No.	Name of the block	Veterinary Institutions				Sub-centres	Other units		Animals treated	Castration performed
		Polyclinic	Hospitals	Dispensaries	Clinic centres		Insemination centres	Mobile units		
1	Erode	-	1	20	1	28	1+1	1	1154856	85296
2	Modakkurichi	-	1	-	-	-	-	-		
3	Kodumudi	-	-	1	-	-	-	-		
4	Perundurai	-	1	-	-	-	-	-		
5	Chennimalai	-	-	1	-	-	-	-		
6	Gobichetti -palayam	-	1	28	1	17	-	1		
7	Nambiyur	-		1	-	-	-	-		
8	Thukkanaiken palayam	-	-	1	-	-	-	-		
9	Sathyamangalam	-	-	1	-	-	-	-		
10	Bhavanisagar	-	-	1	-	-	-	-		
11	Thalavadi	-	-	1	-	-	-	-		
12	Bhavani	-	1	-	-	-	-	-		
13	Ammapettai	-	-	-	-	-	-	-		
14	Anthiyur	-	-	1	-	-	-	-		
	Total	**-**	**5**	**56**	**2**	**45**	**1+1**	**2**		

Source: Joint Director of Animal Husbandry, Erode.

2.16.3 Dairy Development

The infrastructure facilities in the district are furnished in the Table 2.28. The district possesses the cooperative marketing society, veterinary clinics and milk collection centre for effective functioning of the dairy department. The district recorded a reasonable number of veterinary clinics and cooperative marketing society. The district has considerable scope for creation of infrastructure facilities for dairy development.

Table 2.28 Block wise Infrastructure Facilities in Erode district

Sl. No.	Infrastructure facilities	Ammapet	Anthiyur	Bhavani	Bhavanisagar	Chennimalai	Erode	Gobi	Kodumudi	Modakkuruchi	Nambiyur	Perundurai	Sathy	T.N. Palayam	Thalavadi
1	Dairy co-operative society	Yes	28	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	30	Yes	Yes
2	Veterinary clinics	6	6	Yes	Yes	-	Yes	Yes	Yes	Yes	Yes	-	7	Yes	Yes
3	Milk collection centre	28	50	Yes	Yes	Yes	-	Yes	Yes	Yes	Yes	Yes	40	Yes	-

Source: TANUVAS, Chennai 2014-15.

Table 2.29 Year wise milk production in Erode district

(in'000tonnes)

Sl. No.	Year	Milk Production
1	2003-04	246.7
2	2004-05	287.2
3	2005-06	325.8
4	2011-12	359.5
5	2012-13	327.6

Source: Tamil Nadu in Economic Appraisal-2005-06 and 2013-14. Evaluation and Applied Research Development, Govt. of Tamil Nadu, Chennai.

Dairying plays an important role in providing gainful employment and income generation opportunities. The State government is taking concerned efforts to increase the per capita availability of milk to meet the growing requirements. There had been a steady increase in the milk production in the district. The milk production of the district in 2011-12 accounted for 5.13 Per cent of the total milk production the State. The details of milk production in Erode district over years are furnished in Table 2.29. The milk production in Erode district was found to be the fourth highest in the state.

2.16.4. Poultry Development

Poultry sector provides direct and indirect employment to the poor people of the district. In general, the State's relative share at the all India level was 19.7 Per cent and Tamil Nadu stood first in poultry rearing. The details of egg production over years are furnished in Table 2.30. The egg production in the district was hovering around 1.2 million and it accounted for 10.09 percent of the state production.

Table 2.30 Year wise Egg Production in Erode district

(in 'lakhs number)

Sl.No	Year	Egg Production
1	2003-04	2268.9
2	2004-05	10345.4
3	2005-06	10924.7
4	2011-12	11295.5
5	2012-13	11960.00

Source: Tamil Nadu: An Economic Appraisal,2005-06, 2013-14. Evaluation and Applied Research Department, Chennai – 108.

2.17. Fisheries Development

Fisheries are recognized as a powerful income and employment generator as it stimulates growth of a number of subsidiary industries and is a source of cheap and nutritious food for the people. Tamil Nadu ranks fifth among the states in fisheries.

Inland fisheries are the only fisheries for the fishermen in the district. Being a land locked district, there is no scope for marine fisheries, Bhavanisagaris the major reservoir in the district. There is a fresh water biological station in Bhavanisagar. More than thirty varieties of fish are found in Bhavanisagar reservoir. The total water spread available for aquaculture in Erode district is about nine thousand hectares. It accounted for 2.39 Per cent of the total water spread area in the State. The details of fish production are furnished in Table 2.31.

Table. 2.31. Details of Fish Production

(in 'tonnes)

Year	Inland	Marine
Erode District		
2011-12	9,601	-
2012-13	9,642	-
2013-14	9,683	-
Tamil Nadu State		
2011-12	2,23,591	4,26,735
2012-13	2,24,700	4,29,641
2013-14	2,25,803	4,32,132

Source: Tamil Nadu – An Economic Appraisal, Evaluation and Applied Research Department, Chennai – 108.

It could be seen from the table that there had been a steady increase in fisheries production and it accounted for 4.28 Per cent of the States' inland fishery production in 2013-14. To augment inland fisheries, the short fall in fish seed and feed have to be strengthened and fishery cooperative society should be provided with adequate financial support to take up culture and capture fisheries.

2.18. Forestry Development

Forests serve as a home to rich biodiversity. Traditionally, forest resources had been exploited for several products by the people. The details of forest areas in Erode district and Tamil Nadu State are furnished in Table 2.32.

Table 2.32 Details of Forest Area – 2014-15
(in sq. km.)

Sl. No.	Particulars	Erode District	Tamil Nadu State
1	Geographical area	8,209.00	1,30,759.00
2	Reserved forest	2,440.65	19,45,908
3	Reserved Lands	14.82	2,151.50
4	Unclassified forests	8.95	1,266.10
5	Total	2,464.42	22,876.68

Source: Tamil Nadu: An Economic Appraisal – 2011-12 to 2015-16, Evaluation and Applied Research Department, Chennai – 108.

Of the total area under forests in Erode district, reserved forests alone accounted for a higher share of 99.04 Per cent followed by reserved lands with 0.60 Per cent and the remaining being unclassified forests. In fact, the extent of reserved forest in Erode district was the highest in the State. Sathyamangalam, Thalavadi, Nambiyur and Anthiyur are the four forest ranges coming under Divisional Forest Officer, Erode. The important forest products are sandal wood, rosewood, timber, teak, firewood, tamarind and herbs.

As the scope for increasing the area was not possible, enhancing tree cover outside the forests by enhancing tree cultivation in private farm lands, fallow lands, tank beds, porambok lands, road sides and canal banks are taken up. Forestry extension and outreach efforts need to be further strengthened. Further the transfer of technology from lab to land has to be strengthened.

2.19. Industrial Development

Modernization of Agriculture coupled with rapid development of industries is a necessary condition for sustained economic growth. The details of industry comprising of SSI Permanent units / Micro Small and Medium Enterprises in Erode district as on 31.03.2012 are furnished in Table 2.33.

Table 2.33 Details of Industry Groups in Erode District

Sl. No.	Classification of Industry Groups	Number of Units	Share to Total Units (in Per cent)
1	Food products	5525	13.11
2	Beverage and tobacco products	628	1.40
3	Cotton textile	8025	19.04
4	Wool, silk, synthetic fiber textiles	232	
5	Jute, hemp, mesta products	123	
6	Hosiery and readymade garments	9582	22.74
7	Leather and fur products	1053	2.50
8	Wood and wood products	317	8.22

Table 2.33 Details of Industry Groups in Erode District (Contd,…)

Sl. No.	Classification of Industry Groups	Number of Units	Share to Total Units (in Per cent)
9	Paper and paper products	2009	4.77
10	Chemical and chemical products	752	1.78
11	Rubber and plastic products	552	1.31
12	Basic mineral products	538	1.28
13	Non-metallic mineral products	1028	2..4
14	Metal products and parts	1424	3.38
15	Machinery and parts	1335	3.17
16	Electrical machinery apparatus	644	1.53
17	Transport equipment and parts	769	1.83
18	Other manufacturing units	7404	7.57

Source: Tamil Nadu: An Economic Appraisal – 2011-12 to 2014-15, Evaluation and Applied Research Department, Chennai – 108.

From the table, it could be seen that Hosiery and Readymade garments, cotton textiles, other manufacturing industries and food products industries are the prime industries in the district.

2.19.1. Principal Industrial Scenario

The principal industrial characteristic features of Erode district and that of Tamil Nadu State are furnished in Table 2.34.

Table 2.34 Industrial Scenario: Tamil Nadu State and Erode District

Principal Characteristics	Tamil Nadu (Rs. in Crores)	Erode District (Rs. in Lakhs)
No. of factories	2,17,554	1218
Fixed capital	19,49,769	5,00,123
Productive capital	25,38,564	N.A.
Gross value of Output	57,77,944	12,09,253
Net value added	8,36,284	2,36,913
Total No. of persons engaged (Lakh nos.)	134.30	1.04444

Source: Tamil Nadu: An Economic Appraisal – 2011-12 to 2014-15, Evaluation and Applied Research Department, Chennai – 108.

It could be seen that the share of factories in Erode district accounted for 0.56 Per cent of number of industries in Tamil Nadu state. Likewise, the total number of persons engaged in the industries in Erode district formed 0.77 Per cent of the total number of persons engaged in the industries at the State level.

2.20. Banking Network

Finance is a key element in ensuring sustained and inclusive economic growth. There was a steady increase in the number of bank branches in the district. The number of bank branches functioning in the district went up from 250 in 2013-14 to 264 in

2014-15. The aggregate bank deposit is one of the indices that indicate the effectiveness with which the savings available with the public are mopped up by the financial intermediaries. The total mobilization of deposits by the banks in Erode district improved from ₹.7659 crores in 2013-14 to ₹.8428 crores in 2014-15 registering a growth of 11.00 percent. The credit deposit ratio displays the level of efficiency with which the banks mop up resources from the public and then lend it to the needy borrowers of funds for financing productive economic activities. Between two years 2013-14 and 2014-15, the credit deposit ratio in Erode district raised from 127 to 138 per cent. The details are furnished in Table 2.35.

Table 2.35 Details of Banking Development in Erode District

Sl. No.	Particulars	2013-14	2014-15
1	Number of scheduled commercial banks	250	264
2	Aggregate deposits (₹. Crores)	7,659	8,428
3	Gross bank credit (₹. crores)	9,697	11,633
4	Credit deposit ratio (%)	127	138

Source: Tamil Nadu: An Economic Appraisal – 2013-14 to 2014-15, Evaluation and Applied Research Department, Chennai – 108.

2.20.1 Cooperative Banks

The performance of central cooperative bank in Erode district is furnished in Table 2.36.

Table 2.36 Performance of Cooperative Banks in Erode District (Rs. in Crores)

Sl. No.	Particulars	2013-14	2014-15
1	No. of branches	29	29
2	Share Capital	38.47	119.48
3	Reserves	81.23	88.23
4	Deposits	920.78	1,038.08
5	Borrowings	183.66	244.38

Source: Tamil Nadu: An Economic Appraisal – 2013-14 to 2014-15, Evaluation and Applied Research Department, Chennai – 108.

Cooperative banks are playing a leading role in mobilizing the deposits and credit disbursement in rural areas with a view to fulfill the needs of vulnerable section of the population. Of the total number of 737 central cooperative bank branches, 29 branches are functioning in Erode district. The deposits received rose from Rs.920.78 crores in 2013-124 to Rs.1038.08 crores in 2014-15 (12.74 Per cent). The performance of banking sector in Erode district is in the right direction viewed from spread of banking network, mobilization of deposit, dispersion of credits, penetration of cooperative movement etc.

2.20.2. Insurance Schemes

The district operates different insurance schemes for the welfare of the people. The insurance agencies issued a total of 197493 policies in about 15 branches of agencies. Total number of beneficiaries benefitted through various agencies is about 1,36,654. The total amount paid as compensation through insurance agencies was about 17878.13 lakhs. The details of policies and sum assured are illustrated in the Table 2.37.

Table 2.37 Insurance Schemes in Erode District

Name of the Insurance	No. of Branches	Policies Issued	Sum Assured (Rs. in Crores)	No. of Beneficiaries	Amount paid as compensation (Rs. in lakhs)
New India Assurance Co. Ltd.	NA	NA	NA	NA	NA
L.I.C	7	97,585	1,446.09	28,433	16,751.57
United India Insurance	4	56,569	350.00	56,569	37.26
National Insurance	4	43,339	NA	51,652	1,089.30

Source: Regional Office, LIC, Coimbatore.

2.20.2. Cooperative Societies

The Cooperative societies, banks and stores in the district are presented in Table 2.38. The district possesses 361 various societies for the provision of funds among the people. Of which, 162 are Primary Agricultural Co-operative banks, 99 are students co-operative stores and 50 are employees cooperative credit societies.

Table 2.38 Cooperative Societies in Erode District

Sl.No	Type of Societies	No. of Societies		
		Erode circle	Gobi circle	Total
1	Erode Dist. Central Co-operative Bank, Ltd., Erode	1	0	1
2	Primary Agri. Cooperative Bank	59	103	162
3	Primary Agri. And Rural Development Bank	3	4	7
4	Urban Bank	2	3	5
5	Primary Co-operative Stores	12	8	20
6	Employees Co-op Credit Society	31	19	50
7	Consumer Co-op. Wholesale Stores	1	0	1
8	Co-op. Marketing Societies	2	3	5
9	Special type co-op Societies	3	0	3
10	Student Co-op. Stores	47	52	99
11	Jally and Stone Workers Co-opSociety	0	1	1
12	Co-op. Printing Press Society	1	0	1

Table 2.38 Cooperative Societies in Erode District (Contd,...)

Sl.No	Type of Societies	No. of Societies		
		Erode circle	Gobi circle	Total
13	District Co-op Union	1	0	1
14	Labour Contract Society	0	1	1
15	Sathy Lamb Society	0	1	1
16	Land Colonization Society	0	3	3
17	Lift Irrigation coo-op Society	0	0	0

Source: District Statistical Handbook, Erode District.

2.21. Constraints

Agricultural Sector

- Higher proportions of farmers rely on farm saved seeds leading to low seed replacement rate.
- There is skewness in the application of chemical fertilizers. Farmers should be educated enough to apply balanced application of fertilizers.
- There are wide yield gaps across the district.
- Existing resource infrastructure is not being properly maintained resulting is underutilization of resources.
- Increased scarcity of ground water in many parts of the district is a major constraint for expansion of irrigated agricultural production.
- Industrial pollution around wetland areas of Erode town due to release of effluents of leather tanneries and the pollution of ground water from the effluents released by the industries located inside the SIPCOT industrial estate near Perundurai are the constraints not only for increasing agricultural production but also for sustaining the productivity level already reached.
- Declining interest among farmers in continuing the agriculture due to stagnation in productivity and profitability of many crops.

Animal Husbandry

- Lack of adequate technical manpower in the veterinary health care institutions to support health related programmes.
- Improving fodder production.
- Popularization of good fodder varieties and more efficient use of crop residues.
- Optimum utilization of wasteland to grow fodder.

Fisheries

- Inland fisheries are conditioned by aberrations of rainfall, inadequate fish seed and feed and absence of proper marketing.

Forest

- Encroachment in the forest areas.
- Strengthening of forestry extension and outreach efforts.
- Increasing the green cover outside the forest area.

CHAPTER III

DEVELOPMENT OF AGRICULTURAL AND ALLIED SECTOR

The action plan for enhancing the agricultural production includes the following components.

3.1 Trends in Area, Production and Productivity of Major Crops

Development of agricultural sectors calls for analyzing the current situation of area, production and productivity of crops and projecting the same over years keeping the existing trend as base.

Compound Growth Rate (CGR) is used to measure the annual rate of growth in area, production and productivity of major crops cultivated in Erode district. The compound growth rate has been estimated using fifteen year time series data from 2000-01 to 2014-15.

The details of area under major crops in Erode district for the period from 2000-01 to 2014-2015 and for the triennium ending 2014-15 are furnished in Table 3.1. It could be seen that paddy and maize put together accounted for nearly 74.00 per cent of the total area under major crops in the district.

The compound growth rate of area, production and productivity of major crops in Erode district during 2005-2015 are presented in Table 3.2. It could be seen from the table that a positive growth rate was observed in the area under Maize and Banana with variation in their growth rates. The growth in the productivity was observed in the case of ragi, maize, cholam, cumbu, blackgram, groundnut, gingelly, tapioca, banana, turmeric and onion. A decline in productivity was observed in Cumbu, Banana, greengram, turmeric, tapioca and onion. Positive growth rates in area, production and productivity was observed only in maize and banana. Decline in productivity, especially in paddy and sugarcane, is causing concern and conserted efforts should be taken for arresting the trend. Similarly, efforts must be geared up for sustaining the growth rates in the productivity of millet crops in Erode district.

Table 3.1 Area under major crops in Erode District 2014-15 (Triennium average)

Sl.No	Crops	Area	%	Production	Yield (kg/ha)
1	Paddy	24895	18.18	123048	12900
2	Cumbu	84	0.06	201	1299
3	Ragi	5459	3.99	12067	3290
4	Maize	17255	12.60	102083	8686
5	Black gram	696	0.51	546	737
6	Green gram	381	0.28	203	451
7	Turmeric	8467	6.18	40801	6585
8	Sugarcane	25321	18.49	2577448	9532
9	Banana	11225	8.20	343706	30438
10	Tapioca	5287	3.86	175321	24384
11	Onion	1047	0.76	9549	6855
12	Groundnut	17641	12.88	24344	1717
13	Gingelly	6377	4.66	10577	606
14	Coconut	12829	9.37	N.A	N.A
		136965	**100.00**		

**N.A denotes Not Available*

Table 3.2.Compound Growth Rate of Area, Production and Productivity under major crops in Erode District during 2015 (% per year)

		CGR during 2005-2006 to 2014-2015 (%)		
Sl.No	**Crops**	**Area**	**Production**	**Yield**
1	Paddy	-7.11	4.36	12.35
2	Cumbu	-21.00	1.20	-10.03
3	Ragi	-3.49	2.75	14.43
4	Maize	0.97	4.13	13.95
5	Black gram	-10.91	1.49	4.27
6	Green gram	-26.13	1.25	-2.20
7	Turmeric	-0.20	3.71	-1.38
8	Sugarcane	-7.21	7.52	32.84
9	Banana	1.94	5.17	-8.98
10	Tapioca	-4.87	4.88	-13.19
11	Onion	-8.98	2.91	-10.06
12	Groundnut	-10.22	3.27	1.17
13	Gingelly	-9.33	2.60	-3.05
14	Coconut	-4.52	N.A	N.A

**N.A denotes Not Available*

3.2. Projection of Area, Production and Yield

Keeping the compound growth rates of the period of 2001-2011 as base, the area, production and yield of major crops are projected for the period from 2012-13 to 2015-16 and the details are furnished in Table 3.3.

It is evident from the table that area under paddy would likely to increase from 36164 hectares in the triennium ending 2011-12 to 43109 hectares in 2015-16. Likewise, the production of paddy would increase at a compound growth rate of 3.597 per cent per annum and it is projected to reach 183490 tonnes in 2015-16. Though the production is increased, yet due to declining rate of yield, the productivity would be 4079.94 kg per hectare instead of 4256.42 kg per hectare.

Since the area under Ragi in Erode district declined at a compound growth rate of 5.72 per cent per annum, the area would likely to decline from 6209 hectares in the triennium ending 2011-12 to 4348 hectares in 2015-16. On the contrary, the production would likely to be 4348 tonnes in 2015-16 due to the positive growth rate in the production (0.693 per cent). Similarly, the yield rate would likely to increase from 1575 kg per hectare in the triennium ending 2011-12 to 2173 kg per hectare due to positive growth rate of 6.79 per cent per annum.

Since Maize exhibited positive growth rates in area, production and productivity during the period under consideration, the area, production and productivity would likely to be 28359 million hectares, 358395 tonnes and 11318.4 kg per hectare, respectively in 2015-16.

Cumbu exhibited negative growth rates of 20.42 and 15.86 per cent per annum in area and production, the same would likely to decline to 58 million hectares and 130.58 tonnes respectively in 2015-16. On the contrary, due to positive growth rate of 5.41 per cent in yield the same would increase from 1671 kg per hectare in the triennium ending 2011-12 to 2165 kg per hectare in 2015-16.

In Erode district, groundnut exhibited a negative growth rate of 7.51 and 6.68 per cent per annum in area and production respectively and a positive growth rate of 0.57 per cent per annum in yield. Accordingly, it is projected that the area and production would decline to the level of 14506 hectares and 25627 tonnes respectively. There will be a marginal increase in yield from 1654 kg per hectare in the triennium ending 2011-12 to 1674 kg per hectare in 2015-16.

Positive growth rates of 3.03 and 1.52 per cent were observed in area and production of sugarcane in Erode district. However, a declining trend of 1.58 per cent was observed in yield of sugarcane during 2001-2011 in Erode district. Assuring the same trend would prevail, it is projected that area would increase from 33539 hectares in the triennium ending 2011-12 to 41562 hectares in 2015-16 and the production would increase from 37.22 lakh tonnes to 43.93lakh tonnes. However, it is projected that the yield of sugarcane would decline from 111 tonnes per hectare in triennium ending 2011-12 to 104 tonnes per hectare in 2015-16 in Erode district.

Both banana and turmeric exhibited positive growth rates in its area, production and yield. Consequently, the area, production and yield in banana would likely to increase to 13648 hectares, 651223 tonnes and 47023 kg per hectare in area, production and yield respectively in 2015-16. Similarly, in turmeric, the area, production and yield would likely to rise up to 13648 hectares, 78495 tonnes and 6379 kg per hectare respectively in 2015-16.

In sum, the declining growth rate in paddy and sugarcane is causing concern and efforts have to be taken to arrest this trend on possible ways.

Table 3.3 Projected Area, Production and Yield Based for the Major Potential Crops Identified

(Area in hectares, Production in tonnes, Yield in kg per hectare)

Description	Paddy			Ragi			Maize		
	Area	Production	Yield	Area	Product -ion	Yield	Area	Product -ion	Yield
Compound Growth Rate (%)	3.769	3.597	-0.461	-5.716	0.693	6.798	10.218	25.639	13.113
Triennium Average ending 2011-12	36164	151771	4200	6209	9624	1575	12980	79623	6115
2012-13	38581	165033	4136.93	5188	9258	1784.45	21181	180714.41	7820.76
2013-14	40035	170969	4117.85	4891	9322	1905.75	23345	227047.21	8846.3
2014-15	41544	177119	4098.85	4612	9387	2035.3	25730	285259.13	10006.3
2015-16	43109	183490	4079.94	4348	9452	2173.65	28359	358395.82	11318.4

Description	Cholam			Cumbu			Green gram		
	Area	Production	Yield	Area	Product -ion	Yield	Area	Production	Yield
Compound Growth Rate (%)	-55.33	-47.65	13.60	-20.42	-15.86	5.41	-20.67	-20.78	-1.95
Triennium Average ending 2011-12	10	16	1067	181	274	1671	617	231	396
2012-13	2	4.29	1531.21	114	219.18	1849.33	528	250.45	384.54
2013-14	1	2.24	1739.37	91	184.43	1949.34	419	198.42	377.05
2014-15	0	1.17	1975.83	72	155.19	2054.76	332	157.20	369.70
2015-16	0	0.61	2244.43	58	130.58	2165.89	264	124.54	362.49

Table 3.3 Projected Area, Production and Yield Based for the Major Potential Crops Identified (Contd. Table 3.3)

Description	Black gram			Groundnut			Coconut		
	Area	Production	Yield	Area	Production	Yield	Area	Production	Yield
Compound Growth Rate (%)	-9.14	-6.26	2.41	-7.51	-6.68	0.57	-3.88	-4.70*	4.06*
Triennium Average ending 2011-12	975	549	557	19273	31980	1654	10943	1717	15635
2012-13	883	517.18	538.77	18462	31530.10	1645.22	11374	1808.28	17385.5
2013-14	802	484.81	551.74	17075	29425.17	1654.62	10933	1723.30	18090.5
2014-15	729	454.48	565.02	15792	27460.77	1664.07	10510	1642.31	18824.2
2015-16	662	426.03	578.62	14606	25627.51	1673.58	10103	1565.13	19587.6

Description	Gingelly			Sugarcane			Tapioca		
	Area	Production	Yield	Area	Production	Yield	Area	Production	Yield
Compound Growth Rate (%)	-2.69	-2.46	0.01	3.03	1.52	-1.58	5.59	8.03	2.13
Triennium Average ending 2011-12	10631	7473	708	33539	3722852	111	7753	318418	40976
2012-13	10025	7544.67	732.97	38006	4199312.6	109.14	8923	418307.63	45960.3
2013-14	9755	7359.37	733.04	39156	4262944.4	107.42	9422	451914.89	46940.4
2014-15	9493	7178.62	733.11	40341	4327540.4	105.73	9949	488222.18	47941.4
2015-16	9237	7002.31	733.19	41562	4393115.2	104.06	10505	527446.45	48963.8

Table 3.3 Projected Area, Production and Yield Based for the Major Potential Crops Identified (Contd. Table 3.3)

Description	Banana			Turmeric			Onion		
	Area	Production	Yield	Area	Production	Yield	Area	Production	Yield
Compound Growth Rate (%)	7.41	9.49	1.83	2.61	3.58	0.87	-2.63	0.08	1.75
Triennium Average ending 2011-12	8764	306875	34299	12337	71448	5763	1528	20588	13237
2012-13	11014	496210.52	44538.9	11014	70630.17	6411.17	1534	20667.50	12018.8
2013-14	11830	543276.10	45352.1	11830	73160.09	6466.64	1494	20684.37	12229.3
2014-15	12707	594805.86	46180	12707	75780.61	6522.6	1455	20701.26	12443.4
2015-16	13648	651223.22	47023.1	13648	78495.01	6579.04	1416	20718.16	12661.2

*Area in Hectares; Production in Tonnes; Yield in kg/ ha (*Denotes growth rates from 2004 to 2011)*

3.3 Yield gap analysis

The Tamil Nadu vision 2023 has three proposed strategies for improving productivity and thereby sustaining growth in agriculture production so as to meet the growing demand for the agricultural produce and as well as creating food security. Agricultural production can be substantially increased if the yield gap is addressed properly through technological and policy adoption.

Information regarding ruling varieties, their average and potential yield and progressive farmers' yield were gathered from the Office of the Joint Director of Agriculture and Horticulture as well and the details are furnished in Table 3.4. Yield gap was worked out by considering the difference between the progressive farmers' yield and the average farm yield.

Table 3.4 Yield Gap of the Identified Potential Crops in Erode District

(kg/ha)

Crop	Variety	ART / Potential yield	Crop cutting yield / progressive farmer's yield (A)	Average farm yield (B)	Yield gap (A-B)
Paddy	ADT 36	6000	6225	3611	2614
	ADT 38	6200	5723	5600	123
	ADT 39	5500	6000	4205	1795
	ADT 43	5900	5863	4410	1453
	CO 43	5200	5015	4950	65
Maize	COHM4	10000	10000	6975	3024
	CO1	6700	4521	4020	501
Gingelly	SVPR 1	1000	900	657	243
Groundnut	VRI 2	2000	2584	2164	420
	TMV 7	1900	1825	1661	164
Sugarcane	CO 86032	128000	120000	115000	5000
Turmeric	BSR 1	30000	29000	26500	2500
	BSR 2	32000	29050	27200	1850
	Erode Local	28000	25600	25000	600

Source: JDA office, Erode

It could be seen from the table that ADT 36, ADT 38, ADT 39, ADT 43 and CO 43 are the main ruling varieties of paddy in the district and the yield gap in these varieties varied from 65 kg per hectare in CO 43 to 2614 kg per hectare in ADT 36. As regards maize, the yield gap ranged from 301 kg per hectare in CO 1 variety to 3024 kg per hectare in COHM 4. VRI 2 and TMV 7 are the ruling varieties in groundnut and the yield gap of these two varieties were found to be 420 and 164 kg per hectare respectively. Likewise, BSR 1, BSR 2 and Erode local are the prime ruling varieties in turmeric and the yield gap ranged from 600 kg per hectare in Erode local to 2500 kg per hectare in BSR 1. This calls for location specific cost effective technological adoption and appropriate interventions.

3.4. Projected yield and production of selected of crops

Of the total area under major crops in Erode district, paddy, maize, groundnut, gingelly, sugarcane and turmeric accounted for more than 77.00 per cent. Hence they have been chosen for projecting their area, production and yield using the secondary data of the triennium ending 2011-12.

The annual growth rates of areas for the period between 2000-2001 and 2010-11were negative for the selected major crops like groundnut, coconut, cholam, cumbu, green gram and black gram and it was positive only in case of paddy, maize, gingelly and turmeric. Therefore, planned efforts are utmost necessary to sustain the areas under these crops so as to enhance the agricultural production by means of raising the productivities of these crops. The yield gaps for these selected crops were much wider ranging from 65 kg in paddy to 5000 kg in sugarcane. Therefore, the best option for raising the production is to take efforts to bridge the existing yield gaps in a situation where the scope for increasing the area under the crops is limited. However, efforts are required to sustain the present net sown area of the district, as this district has a very good locational advantage of production and supply of food grains, vegetables, fruits and other value – added agricultural commodities required to meet the growing demands of the population of the city.

In view of the above reasons, projection for increasing the productivities of the selected crops alone were resorted to assess the estimated yield and production for the period from 2011-12 to 2022-23 and the results are discussed below.

3.4.1 Paddy

Samba is the major season for paddy in the district, which has 72.3 per cent of the total area under paddy followed by *Kuruvai* (23.07per cent) and *Navarai* (4.5 per cent). The maximum yield recorded in the crop cutting experiment was considered to assess the potential yield for paddy varieties like ADT38,39,43and CO43 grown in *Samba* and *Navarai* seasons. These yield gaps in the three seasons could be gradually bridged over the next 12 year period, i.e., from 2011-12 to 2022-23 as indicated in Table.3.5. Extension machinery needs to be strengthened to bridge the yield gap such that the yield is raised annually at the rate of 3.14 per cent. The bridging up of the yield gap would result in the gradual increase in paddy production from 1.69 lakh tonnes in 2010-11 to 2.29 lakh tonnes in 2022-23 (Table 3.6) accounting for an increase of 35.66 per cent.

Table3.5 Existing and Projected Yield and Production of Paddy in Erode District

Year	Season			Total
	Kar / Kuruvai / Sornavari (Apr-July)	Samba/ Taladi/ Pishanam (Aug-Nov)	Navarai/ Kodai (Dec-Mar)	
Area (Ha)				
2008-09	8945	26607	2501	38053
2009-10	9207	27448	1459	38114
2010-11	7883	27583	1193	36659
Triennium average ending 2010-11**	**8678**	**27213**	**1717**	**37608**
Projected area for 2022-23	8678	27213	1718	37608
% to total	23.07	72.3	4.5	100.00
Varieties	ADT43 and ASD 16	ADT 38, ADT 39 andCO *43*	ADT36	-
Maximum yield as per Crop Cutting Experiment (Kgs/Ha)	**5863**	**6000**	**6225**	**6134**
Average yield for Triennium average ending 2010-11 (Kgs/Ha)**	4410	4205	3611	4224
Yield Gap (Kgs/Ha)	1453	1795	2614	1954
Projected Production for 2022-23 (tonnes)*	50879	163278	10688	229408
Production for Triennium average ending 2010-11 (tonnes)**	38369	124511	6212	169093
Percentage of increase in production over 2010-11	32.60	31.13	72.05	35.66

**Based on Crop Production Guide.*

*** Source: Season and Crop Reports of 2008-09, 2009-10 and 2010-11.*

Table 3.6 Projected Increase in Yield and Production of Paddy from 2011-12 to 2022-23

Year	Yield (kg/ ha)				Production (Tonnes)			
	Kar / Kuruvai / Sornavari (Apr-July)	Samba/ Taladi/ Pishanam (Aug-Nov)	Navarai/ Kodai (Dec-Mar)	Total	Kar / Kuruvai / Sornavari (Apr-July)	Samba/ Taladi/ Pishanam (Aug-Nov)	Navarai/ Kodai (Dec-Mar)	Total
Triennium average ending 2010-11	4410	4205	3611	4224	38369	124511	6212	169093
2011-12	4531	4355	3828	4383	39411	127741	6585	174119
2012-13	4651	4505	4045	4542	40453	130971	6958	179145
2013-14	4772	4655	4262	4701	41495	134201	7331	184171
2014-15	4893	4805	4479	4860	42537	137431	7704	189197
2015-16	5014	4955	4696	5019	43579	140661	8077	194223
2016-17	5135	5105	4913	5178	44621	143891	8450	199249
2017-18	5256	5255	5130	5337	45663	147121	8823	204275
2018-19	5377	5405	5347	5496	46705	150351	9196	209301
2019-20	5498	5555	5564	5655	47747	153581	9569	214327
2020-21	5619	5705	5781	5814	48789	156811	9942	219353
2021-22	5740	5855	5998	5973	49831	160041	10315	224379
2022-23	5863	6000	6225	6134	50879	163278	10694	229408
Required Growth Rate (%)	2.40	3.00	4.60	3.14	2.37	2.28	4.59	2.57

3.4.2 Maize

Maize is a major cereal crop grown in *Kharif* season accounting for 92.04 per cent of the total area under maize. Major varieties grown are COHM 4 and Pioneer private variety.

Table 3.7 indicates the yield gap of 3024 kg per hectare in *Kharif* season and 4885 kg per hectare in *Rabi* season. These yield gaps could be bridged over a period from 2011-12 to 2022-23 by increasing yield at the rate of 3.76 per cent per annum. This would in turn increase the maize production from 113964 tonnes in 2010-11 to 562933 tonnes in 2022-23 with an increase of 393 per cent (Table 3.8).

Table 3.7 Existing and Projected Yield and Production of Maize in Erode District

Year	Season		
	Kharif	***Rabi***	**Total**
Area (Ha)			
2008-09	17370	315	17685
2009-10	13610	171	13781
2010-11	12002	573	12575
Triennium average ending 2010-11**	14327	200	14680
Projected area for 2022-23	**52339**	**4523**	**56862**
% to total	92.04	7.95	100.00
Varieties	COHM 4	COHM 4	
Maximum Potential yield (Kgs/Ha) *	**10000**	**9800**	**9900**
Average yield for Triennium average ending 2010-11 (Kgs/Ha) **	6976	4915	6339
Yield Gap (Kgs/Ha)	3024	4885	3561
Projected Production for 2022-23 (tonnes)	523390	44325	562933
Production for Triennium average ending 2010-11 (tonnes)**	95369	18597	113964
Percentage of increase in production over 2010-11	448	138	393

* *Based on Crop Production Guide.*

** *Source: Season and Crop Reports of 2008-09, 2009-10 and 2010-11.*

Table.3.7 indicates that the required annual growth rate in the productivity of maize during 2011-12 to 2022-23 is 3.76 per cent. In such an effort of bridging the yield gap, the production could be raised from 1, 13,964 tonnes (2010-11) to 5, 62,933 tonnes (2022-23) accounting for an increase of 393 per cent.

Table3.8 Projected Increase in Yield and Production of Maize from 2011-12 to 2022-23

Year	Yield (Kg/ha)			Production (Tonnes)		
	Kharif	***Rabi***	**Total**	***Kharif***	***Rabi***	**Total**
Triennium average ending 2010-11	6976	4915	6339	95369	18597	113964
2011-12	7228	5322	6635	131037	20741	151378
2012-13	7480	5729	6931	166705	22885	188792
2013-14	7732	6136	7227	202373	25029	226206
2014-15	7984	6543	7523	238041	27173	263620
2015-16	8236	6950	7819	273709	29317	301034
2016-17	8488	7357	8115	309377	31461	338448
2017-18	8740	7764	8411	345045	33605	375862
2018-19	8992	8171	8707	380713	35749	413276
2019-20	9244	8578	9003	416381	37893	450690
2020-21	9469	8985	9299	452049	40037	488104
2021-22	9748	9392	9595	487717	42181	525518
2022-23	10000	9800	9900	523390	44325	562933
Required Growth Rate (%)	3.03	5.85	3.76	14.17	7.36	13.34

3.4.3 Groundnut

Groundnut is the major oilseed crop grown in Erode district and it is grown under K*harif* as well as *Rabi* seasons. It is cultivated mostly in *kharif* season accounting for 70 per cent of the total area under groundnut. Major varieties grown in the district are TMV 7 and VRI 2. Of these two varieties, TMV 7 has an average yield of 1775 kg per ha and the yield gap is 332 kg/ha (Table 3.9). Selection of the suitable variety and timely application of inputs would improve the productivity. Extent of improvement of the average yield during the next 12 – year period, i.e., from 2011-12 to 2022-23 and the resultant increase in the production are given in Table.3.10. By bridging the yield gap, the production could be increased from 41,133 tonnes (2010-11) to 55282 tonnes (2022-23) accounting for an increase of 34.3 per cent over 2010-11 with a growth of 4.47 and 2.49 per cent per annum in productivity and production respectively.

Table 3.9 Existing and Projected Yield and Production of Groundnut in Erode district

Year	Season (both *Kharif* and *Rabi*)
Area (Ha)	
2008-09	24994
2009-10	19392
2010-11	19895
Triennium average ending 2010-11*	21427
Projected area for 2022-23	21427
% to total	100.00
Varieties	TMV 7 and VRI-2
Maximum yield as per Crop Cutting Experiment (Kgs/Ha)	2584
Average yield for Triennium average ending 2010-11 (Kgs/Ha) *	1775
Yield Gap (Kgs/Ha)	332
Projected Production for 2022-23 (tonnes)	55282
Production for Triennium average ending 2010-11 (tonnes)*	41133
Percentage of increase in production over 2010-11	34.3

* *Source: Season and Crop Reports of 2008-09, 2009-10 and 2010-11.*

Table3.10 Projected Increase in Yield and Production of Groundnut from 2011-12 to 2022-23

Year	Yield(kg/ha)	Production (tonnes)
	(Both *Kharif* and *Rabi*)	**(Both *Kharif* and *Rabi*)**
Triennium average ending 2010-11	1775	41133
2011-12	1842	42312
2012-13	1909	43491
2013-14	1976	44670
2014-15	2043	45849
2015-16	210	47028
2016-17	2177	48207
2017-18	2244	49386
2018-19	2311	50565
2019-20	2378	51744
2020-21	2445	52923
2021-22	2512	54102
2022-23	2584	55282
Required Growth Rate (%)	**4.47**	**2.49**

3.4.4 Gingelly

Gingelly is yet another major oilseed crop grown in Erode district and it is grown under irrigated as well as rain fed conditions. It is cultivated mostly in *Kharif* and *Rabi* seasons accounting for 51 and 49 per cent of the total area under Gingelly respectively. Major variety grown in the district is SPVR 1 and it has a yield potential of 1000 kg per ha and it is suggested for bridging the yield gap (Table 3.11). Selection of the suitable variety and timely application of inputs would improve the productivity. Extent of improvement of the average yield during the next 12 – year period, i.e., from 2011-12 to 2022-23 and the resultant increase in the production are given in Table.3.12.By bridging the yield gap, the production could be increased from 9614 tonnes (2010-11) to 14051 tonnes (2022-23) accounting for an increase of 46.15 per cent with a required growth rate of 2.41 and 3.20 per cent per annum in productivity and production respectively.

Table 3.11 Existing and Projected Yield and Production of Gingelly in Erode District

Year	Season		
	Kharif	***Rabi***	**Total**
Area (Ha)	**Yield (kg)**		
2008-09	8956	5203	14159
2009-10	6318	6605	12923
2010-11	4154	6806	10960
Triennium average ending 2010-11*	6476	6205	12680
Projected area for 2022-23	**7546**	**7228**	**14774**
% to total	51.07	48.9	100.00
Varieties	SVPR 1	SVPR 1	-
Maximum yield as per Crop Cutting Experiment (kg/Ha)	1000	900	950
Average yield for Triennium average ending 2010-11 (kg/Ha)*	767	657	716
Yield Gap (kg/Ha)	233	243	238
Projected Production for 2022-23 (tonnes)	7546	6505	14051
Production for Triennium average ending 2010-11 (tonnes)*	6636	2978	9614
Percentage of increase in production over 2010-11	13	118	46.15

** Source: Season and Crop Reports of 2008-09, 2009-10 and 2010-11.*

Table3.12 Projected Increase in Yield and Production of Gingelly from 2011-12 to 2022-23

Year	Yield (Kg/ ha)			Production (Tonnes)		
	Kharif	***Rabi***	**Total**	***Kharif***	***Rabi***	**Total**
Triennium average ending 2010-11	767	657	716	6636	2978	9614
2011-12	786	677	735	6712	3272	9983
2012-13	805	697	754	6788	3566	10352
2013-14	824	717	774	6864	3860	10721
2014-15	843	737	794	6940	4154	11090
2015-16	862	757	814	7016	4448	11459
2016-17	881	777	834	7092	4742	11828
2017-18	900	797	854	7168	5036	12197
2018-19	919	817	874	7244	5330	12566
2019-20	938	837	893	7320	5624	12935
2020-21	957	857	913	7396	5918	13304
2021-22	976	877	934	7472	6212	13673
2022-23	1000	900	950	7546	6505	14051
Required Growth Rate (%)	2.21	2.63	2.41	1.08	6.62	3.20

** Source: Season and Crop Reports of 2008-09, 2009-10 and 2010-11.*

3.4.5 Sugarcane

In Erode district, sugarcane is grown in an area of 35371 ha and the canes are supplied to the sugar mill at Sathyamangalam and Appakudal. Planted crop accounts for a larger area of 54 per cent followed by ratoon crop (45.67 per cent). Major varieties grown in the district are CoC 86032. The yield gap estimated was only five tonnes /ha and this gap could be bridged as indicated in Table.3.13. The annual growth rate required to raise the yield from 115 tonnes per ha in 2010-11 to 120 tonnes per ha in 2022-23 is estimated at 4.34 per cent. The increase in production by bridging this yield gap from 4.08 lakh tonnes (2010-11) to 5.74 lakh tonnes (2022-23) accounts for 40.6 per cent.

Table3.13 Existing and Projected Yield and Production of Sugarcane in Erode District

Year	Season		
	Planted	**Ratoon**	**Total**
Area (Ha)			
2008-09	16704	20335	37039
2009-10	18497	16099	34596
2010-11	21594	12885	34479
Triennium average ending 2010-11*	**18931**	16439	35371
Projected area for 2022-23	26016	21872	47888
% to total	54.32	45.67	73.86
Varieties	CoC 86032	CoC 86032	
Maximum potential yield (tonnes/Ha)	**120.0**	120.0	120.0
Average yield for Triennium average ending 2010-11 (tonnes/Ha) *	115	115	115
Yield Gap (tonnes/Ha)	5	5	5
Projected Production for 2022-23 (tonnes)	3121920	2624640	5746560
Production for Triennium average ending 2010-11 (tonnes)*	**2548261**	1536894	4085155
Percentage of increase in production over 2010-11	22.5	70.7	40.6

** Source: Season and Crop Reports of 2008-09, 2009-10 and 2010-11.*

Table3.14 Projected Increase in Yield and Production of Sugarcane from 2011-12 to 2022-23

Year	Yield (tonnes/ ha)	Production (Tonnes)
Triennium average ending 2010-11	115	4085155
2011-12	115.41	4223605
2012-13	115.82	4362055
2013-14	116.23	4500505
2014-15	116.64	4638955
2015-16	117.05	4777405
2016-17	117.46	4915855
2017-18	117.81	5054305
2018-19	118.28	5192755
2019-20	118.69	5331205
2020-21	119.0	5469655
2021-22	119.50	5608105
2022-23	120	5746560
Required Growth Rate (%)	**4.34**	**2.88**

3.4.6 Turmeric

In Erode district, Turmeric is one of the major tuber crops grown and cultivated in an area of 10839 ha. Turmeric is mainly grown in irrigated season and it accounts for a larger area of 84 per cent. Major varieties grown in the district are BSR 1,2 and Erode local. The yield gap estimated was 1090 kg/ha and this gap could be bridged as indicated in Table.3.15. The annual growth rate required to raise the yield from 6804 kg per ha in 2010-11 to per 7894 kg/ha in 2022-23 is estimated at 1.25 per cent.

Table 3.15 Existing and Projected Yield and Production of Turmeric in Erode District

Year	Season irrigated	Total
Area (ha)		
2008-09	8365	8365
2009-10	9854	9854
2010-11	14299	14299
Triennium average ending 2010-11*	**10839**	**10839**
Projected area for 2022-23	12890	12890
% to total	84.0	84.0
Varieties	BSR 1,2 and Erode local	
Maximum potential yield (kg/ha)	**7894**	**7894**
Average yield for Triennium average ending 2010-11 (kg/ha/Ha)*	6804	6804
Yield Gap (kg/Ha)	1090	1090
Projected Production for 2022-23 (tonnes)	100542	100542
Production for Triennium average ending 2010-11 (tonnes)*	**67369**	67369
Percentage of increase in production over 2010-11	49.2	49.2

** Source: Season and Crop Reports of 2008-09, 2009-10 and 2010-11.*

The increase in production by bridging the yield gap from 67369 tonnes (2010-11) to 100542 lakh tonnes (2022-23) accounted for 3.38 per cent (Table 3.16).

Table3.16 Projected Increase in Yield and Production of Turmeric from 2011-12 to 2022-23

Year	Yield (kg per ha)	Production (Tonnes)
Triennium average ending 2010-11	6804	67369
2011-12	6895	70133
2012-13	6986	72897
2013-14	7077	75661
2014-15	7168	78425
2015-16	7259	81189
2016-17	7350	83953
2017-18	7441	86717

Table 3.16 Projected Increase in Yield and Production of Turmeric from 2011-12 to 2022-23 (Contd. Table 3.16)

Year	Yield (kg/ ha)	Production (Tonnes)
2018-19	7532	89481
2019-20	7623	92245
2020-21	7714	95009
2021-22	7805	97773
2022-23	7894	100542
Required Growth Rate (%)	1.25	3.38

** Source: Season and Crop Reports of 2008-09, 2009-10 and 2010-11*

From the foregoing tables it in evident for achieving the projected production in 2022-2023 over 2010-2011, for paddy, maize, ground nut, gingelly, sugarcane and turmeric were found to be 35.66,393.00,34.3,46.15,40.6 and 49.2 per cent respectively. This calls for reorientation of production technologies by identifying the technological interventions and strategies to reduce the yield gap.

3.5 Emerging issues

- The productivity achieved in crops like paddy, sugarcane, pulses and turmeric has to be sustained.
- There is a need for introducing labour saving and water saving technologies.
- Production and distribution of quality seeds, popularization of SRI techniques in paddy, hybrid rice cultivation, soil health improvement, technologies demonstrations and distributions of hybrid seeds in major crops to address the issue of enhancing productivity.
- Promoting allied agricultural activities such as animal husbandry in rainfall areas.
- Strengthening of extension activities through technology demonstration, production of short film in modern technology, farmers training, study tours within and outside the state etc.,
- Modernization of agricultural marketing infrastructures as well as strengthening rural shandies, commodity group formation, training farmers in marketing and storage etc.,

3.5. Technological Interventions and strategies to reduce the yield gaps

The adoption of suitable high yielding varieties and crop production technologies are the pre-requisites to boost the production. The strategy for increasing the production of potential crops in Erode district through the increase in productivities of those identified crops has already been discussed in the previous section. The constraints for increasing the production and productivity of major crops identified and the suggestion for the same are presented in Table 3.17.

Table 3.17. Constraints Faced and Strategies Required in Erode District

Sl.No.	Crop	Constraints Faced	Strategies
1.	Paddy	• Continued adoption of traditional varieties of paddy • Non adoption of hybrid and latest varieties of paddy • Non adoption of right aged seedlings • Lack of fertilizer management • Prevalence of more pest and disease attack • Labour shortage at harvesting times • The farmers in Kallipatti area of T.N.Palayam block of Erode District area cultivating Paddy in large scale. The farm families face problem of boiling paddy for lesser quantity.	• Better high yielding varieties and hybrid varieties are needed • Require High yielding variety suitable to kuruvai and samba season (like BPT 5204) • Availability of ADT 38 and ASD 16 in time and season • Varietal purity with resistance to pests and diseases • Split application of nitrogen and soil based recommendation of fertilizer • SRI- power weeder should be provided in time by custom hiring charge basis. • Transplanter and paddy cum harvester to avoid labour shortage. • Storage godown should be constructed in each block • Marketing centre is also be opened for paddy . • Fixed price for the produce • MKVK demonstrated paddy Parboiling drum at household level. In this technology, the water can be heated by burning fire wood or agricultural waste. After the completion of first boiling, the remaining water can be used for next boiling. Advantages of the technology are: (i) Uniform parboiling and increased head rice recovery up to 95% (ii) Takes 45 minutes for parboiling for the first time of soaked paddy and 25 minutes for the subsequent boiling. • Provide subsidy for paddy Parboiling drum

Table 3.17. Constraints Faced and Strategies Required in Erode District (Contd,...)

Sl.No.	Crop	Constraints Faced	Strategies
2.	Maize	• Non adoption of High Yielding Varieties. • Private variety is the ruling one (Pioneer). Non adoption of INM and IPM	• Motivate them to adopt TNAU high yielding hybrids. • Cultivation of New High yielding varieties and Hybrids (Co 6 and other hybrids) • Insist adoption of INM and IPM practices • Seed treatment with Metalaxyl @6g/kg of seed for protection against downy Mildew. • Foliar spraying of Maize maxim at the time of flowering and grain filling stage @3kg/ac.
3.	Sugarcane	• Non-availability of quality seed material (setts) • Poor adoption SSI techniques due to labour shortage • Labour scarcity and delayed cutting order from the companies • Procured only for sugar factory	• Coverage of larger area under Co 86032. • Alternate variety with high sugar recovery and high yield • Create awareness on SSI • Issuing of harvesting machinery at subsidized cost and government should regulate the timely issuing of cutting order from the company. • Government should take effort to procure sugarcane for fuel purpose
4.	Groundnut	• Non availability of pure variety • Require pink colour seeded variety (Like Andhra variety) • Poor adoption of population maintenance and poor pod setting • Non availability of gypsum in time	• Pure varieties of VRI 2 and JL 24 are needed. • Introduce high yielding hybrid variety (Pink colour kernel) • Create awareness on population maintenance and Foliar spray of Brassinolide at 0.5 ppm at flowering and pod formation stages increase the pod yield in groundnut. • Dept. of Agriculture should supply gypsum in time • Tractor seed drill should be required in adequate nos and in time also. • Required modified groundnut harvester - without any damage for kernel. • Fixed government minimum support price

Table 3.17. Constraints Faced and Strategies Required in Erode District

Sl.No.	Crop	Constraints Faced	Strategies
5.	Gingelly	• Not getting good quality seeds in time (require white seeded variety SVPR-1) • Not aware about foliar spray and its importance • Require control measure for root rot	• Provide quality seeds in time • Foliar spray of salicylic acid 100 ppm enhanced the pod set and seed yield in sesamum when sprayed on flowering and capsule filling stages • Insist the farmer to follow the correct technological interventions to control the root rot.
6.	Turmeric	• Cultivation of old varieties like Erode Local and some extent to BSR-1 and 2. • Lack of knowledge on technological interventions. • Inadequate number of harvest machines. • Require adequate numbers of harvest machines by custom hiring service. • Labour scarcity for boiling turmeric.	• Farmers are requested to go for high yielding latest variety. • Require turmeric seedlings instead of tuber. **Pre planting treatment** The seed rhizomes are dipped in Carbendazim 1 g/lit and Phosalone 35 EC 2 ml/lit for controlling rhizome rot and scales. • Avoid planting turmeric after Banana or other solanaceous vegetables. Plant only after taking suitable control measures. Apply Carbofuran 4 kg a.i./ha twice on the third and fifth month after planting the rhizomes. **To control the Rhizome rot** • Treat the seed rhizomes with 0.3% Copper oxychloride for 30 min or Drench with Bordeaux mixture 1 % or Copper oxychloride 0.25 % or Ridomil 0.1 % Require minimum support price. • Fertigation schedule for turmeric should be followed as per recommendation. • Engineering department should take necessary arrangement for supply harvester in time. • Minimum support price should be fixed by the government • Turmeric boiler to reduce the labour scarcity and gender friendly technology.

Sl.No.	Crop	Constraints Faced	Strategies
			• The inside containers which hold turmeric can easily be taken out without wasting boiling water, which can be re-used and thereby water and fuel requirement can be saved considerably. • The advantages of the technologies are (i) Enhanced boiling and quality improvement in colour (ii) Reduces drying time and drudgery on women. • Provision of subsidy for turmeric boiler.

3.5 Schemes implemented by various departments

The details about various schemes implemented by the line departments of the district are presented in Table 3.18 through 3.22.

3.5.1 Agriculture

Various schemes are operated by the Department of Agriculture for improvement of production and productivity of agricultural crops. The schemes include centrally sponsored schemes *viz.,* NADP, seed village scheme, infrastructural development, cotton mini mission etc., and Central and State sponsored schemes for rice, oil seeds, maize etc. The details of allocation of finance over years are furnished in Table 3.18.

3.5.2. Horticulture

To augment the production of fruits and flower crops in the district, the government is providing subsidies. The department is implementing the Integrated Horticulture Development Programme and Western Ghat Development Programme. Under the Integrated Horticulture Development programme quality and high yielding hybrid fruit saplings and vegetable seeds are provided with subsidy. Similarly, under Western Ghat Development Programme the department is providing fruit saplings, seeds for various horticultural crop, sprayers and pesticides to horticultural farmers.

The schemes implemented by the Horticulture Department during 2012-13 and 2014-15 furnished in Table 3.19.

Table3.18 Schemes Implemented by Department of Agriculture

Sl.No.	Scheme / Project Title	2012-13			2013-14		2014-15	
		Physical		Finance		Finance		Finance
		Unit	Target	Allocation (₹. in lakhs)	Target	Allocation (₹. in lakhs)	Target	Allocation (₹. in lakhs)
I.	**Centrally sponsored**							
1	NADP			274.388		417.798		191.2775
2	NFSM			23.75		41.019		24.81
3	Seedvillage			84.02		53.2		58.45
4	NADP-Infrastructure Development			165.7		2.24		0
5	Cotton Mini Mission			0.758				0
II.	**State sponsored**							
1	KT-Head			8.143		4.865		0
III.	**Central and State sponsored (Indicate the share)**							
1	ICDP-Rice (90:10)			26.3		0.291		0
2	ISOPOM-Oilseeds (75:25)			93.028		53.673		0
3	ISOPOM-Maize(75:25)			5.813		5.813		0
4	TMOC (76:24)			0		0.79		0
5	NMOOP (75:25)			0		0		38.364

Table3.19 Schemes implemented by Department of Horticulture (2012-13 to 2014-15)

Sl.No.	Scheme / Project title	Physical		Finance allocation (₹. in lakhs) 2012-13	Sponsorship share	
		Unit	Target		State	Central
1	IHDS	ha	2800	70.055		
2	NHM	ha	263.5	8.660	15	85
3	NMMI	ha	2208.664	1190.210	65	35
4	NADP - Precision farming	ha	200	42.000	50	50
5	NADP- Machineries	nos.	1539	76.522		
6	NADP- Hi tech vegetable cultivation	ha	97	8.122		
7	NADP pandal vegetables	ha	18	28.125		
8	RADP	ha	50	25.000	50	50

Sl.No.	Scheme / Project title	Physical		Finance allocation (₹. in lakhs) (2013-14)
		Unit	Target	
I	**State sponsored**			
1	IHDS	ha	700	14.00
II	**Central and state sponsored (indicate the share)**			
1	NHM	ha	1948	91.157
2	NMMI	ha	1200	810.430
3	NADP- Precision farming, Hi tech and pandal	ha	446	114.000
4	RADP	ha	50	24.45

Sl.No	Scheme / Project title	Physical		Finance allocation (₹. in lakhs) (2014-15)
		Unit	Target	
I	**Centrally sponsored**			
1	Perimetro vegetable cluster	ha		121.34
2	NBM	ha	5	0.5830
II	**Central and state sponsored (indicate the share)**			
1	NHM	ha	485	108.0710
2	NMMI	ha	1177.927	1434.5590
3	NADP	ha	48	24.2000
4	RADP	ha	145	36.2500
5	NMMP	ha	5	0.4300

3.5.3. Agricultural Marketing

The Agricultural Marketing Department has implemented various schemes for construction of godowns, transactions shed, cold storage facilities, national mission on food processing and the like. The details of centrally sponsored, state sponsored and central and state sponsored schemes with 75:25 share over years are furnished in Table 3.20.

3.5.4. Agricultural Engineering

The Agricultural Engineering of Department operates schemes for procurement of agricultural machinery and equipment, farm mechanization banks for custom hiring, promotion of mechanization in selected villages, Commanded Area Development and Water Management Programme, demonstration of agricultural machinery and equipment's, training farmers for handling and maintenance of equipment's etc. The details of schemes operated by the Agricultural Engineering Department over years are furnished in Table 3.21.

Table3.20 Schemes Implemented by Department of Agricultural Marketing

(₹.in lakhs)

Sl. No.	Scheme / Project Title	2012-13			2013-14			2014-15		
		Physical		Finance	Physical		Finance	Physical		Finance
		Unit	Target	Allocation	Unit	Target	Allocation	Unit	Target	Allocation
I.	**Centrally sponsored**									
1	RIDF- Godowns (2000MT)	3		300.00						
2	RIDF- Cold storage (25 MT)	6		190.60						
3	RIDF-Sub Regulated Market (2000 MT)	2		200.00						
4	NADP- AGMARK LAB	1		20.00						
5	NADP- Transaction shed				1		40.00			
II.	**State sponsored**									
1	Transaction shed (Market committee fund)	1		30.00						
2	Turmeric Market Complex(Market committee fund)	1		600.00						
3	Regulated Market (Market committee fund)	1		100.00						
III.	**Central and State sponsored (Indicate the share)**									
1	National Mission on Food Processing (75:25)	1		44.00	3		12.627			

Table 3.21 Schemes Implemented by Department of Agricultural Engineering

(₹. in lakhs)

Sl. No.	Scheme / Project Title	Unit	2012-13		2013-14		2014-15	
			Finance		Finance		Finance	
			Target	Allocation	Target	Allocation	Target	Allocation
I	**Schemes shared between Centre and State**							
a)	**Schemes shared between Centre and State (90 : 10) (Macro Management Mode)**							
1	Agricultural Mechanisation Programme	Machinery / Implements in Nos	35	14.5	10	3.25		
b)	**Sub Mission on Agricultural Mechanization (SMAM) (75:25)**							
i)	Financial Assistance for procurement of Agricultural Machinery and Equipment	Machinery / Implements in Nos					5279	420.66
ii	Farm machinery banks for custom hiring	Groups					7	28
iii	Hi Tech, Hi Productive equipment Hub for custom hiring	Hubs					1	40
iv	Promotion of farm mechanization in selected villages	Villages					14	140
	Total **(SMAM)**							**628.66**
c)	**Schemes shared between Centre and State (50:50)**							

Table 3.21 Schemes Implemented by Department of Agricultural Engineering (Contd,... Table 3.21)

Sl. No.	Scheme / Project Title	Unit	2012-13		2013-14		2014-15	
			Finance		Finance		Finance	
			Target	Allocation	Target	Allocation	Target	Allocation
1	Command Area Development and Water Management Programme	Area in Ha	2076.74	280.12	1059.23	141.61	1710	425.3
II	**Central Sector Schemes with 100% Central Assistance**							
1	Demonstration of Agricultural Machinery and implements	No. of Demo	13	0.39	30	0.90	31	1.24
2	Training programme to farmers in handing and maintenance of Agricultural machinery	No. of Training			4	1.04	0	0.00
3	Post-Harvest Technology and Management	Machinery in Nos					3	4.95
		No. of Demo					30	
4	National Mission on Sustainable Agriculture (NMSA)	Structures in Nos					69	180.55
III	**State Plan Schemes**							
1	Rain Water Harvesting and Runoff Management Programme	Structures in Nos.	3	10.58	0	0.00		
2	**National Agriculture Development Programme**							
a.	Agricultural Mechanization	Machinery / Implements in Nos	456	183.07	241	114.16	265	125.6

Table 3.21 Schemes Implemented by Department of Agricultural Engineering (Contd,... Table 3.21)

Sl. No.	Scheme / Project Title	Unit	2012-13		2013-14		2014-15	
			Finance		Finance		Finance	
			Target	Allocation	Target	Allocation	Target	Allocation
b.	Formation of farmers Group and training to farmers	Groups	1	0.00	1	0.63	1	0.333
		Nos			2			
c	Provision of Scientific Onion storage structures to farmers in 12 major growing districts	MT			20	0.80		
d	Provision of solar PV Pumping system of 5 hp AC Solar Powered pumping system with tracking facility linked with Micro Irrigation Scheme to farmers	Nos.			0	0.00		
e	Purchase of Diesel Engine Pumpset with Raingun irrigation systems and mobile sprinklers for critical lifesaving supplemental irrigation	Sets			13	7.47		
3	Artificial Ground Water Recharge Structure	Structure in Nos.	11	106.23				
4	**Land Development**							
a.	Bull Dozer	Hours	2227	0	1267	0	2200	0
b.	Tractor	Hours	3961	0	5229	0	8000	0
c.	Combine harvester	Hours	626	0	506	0	2200	0

CHAPTER IV

BLOCK AND DISTRICT LEVEL PLAN

The interventions proposed, the associated outlays, the physical targets, budgetary requirements, time frame for achievements in the agricultural (field crops) sector, horticultural sector, agricultural engineering sector, agricultural marketing and animal husbandry sector, fisheries sector and PWD sector are discussed in this chapter. This would comprehend the activities and the achievements to be made in the next five years' period (2017-2022) under NADP.

4.1. Agriculture Sector

The various development issues, constraints and activities (interventions) planned for the development of agriculture and allied sectors were discussed in earlier chapters. Based on the discussions, the district plan in full is briefly outlined below. The activities planned and the associated targets and costs are presented for the development of both agricultural and allied sectors

4.1.1. Paddy

4.1.1.1. Enhancing rice productivity

Rice is one of the most important food grain crops of the state. However, the area under rice is declining due to failure of monsoon. Hence the requirement of rice for feeding the people is to be met only by increasing the productivity of paddy. System of Rice Intensification is one of the new technologies which need awareness creation and adoption for improving the productivity of the crop. Encouraging SRI techniques apart from basic adopting package of practices will improve the production and productivity of rice in Erode district. The important interventions suggested by Department of Agriculture are discussed below,

Project components

1. Promotion of SRI in all blocks except Bhavani, Bhavanisagar, Erode and Thalavadi
2. Supply of certified seeds, micronutrient mixtures, bio-fertilizer, zinc sulphate, gypsum and green manure seeds
3. Incentives for paddy machine planting to all blocks except Bhavani, Bhavanisagar and Thalavadi

4. Distribution of portray to Bhavani, Gobi, Modakurichi, Kodumudi, Nambiyur, Sathy and T. N. Palayam
5. Distribution of biocontrol agents/ biopesticides and herbicides
6. Distribution of polyvinyl coated tarpaulin to Bhavani, Erode, Gobi, Modakurichi, Kodumudi and Nambiyur

Budget

The budget requirement for fulfilling the various interventions is ₹ 1454.52 Lakhs.

Expected outcome

Adoption of improved methods in cultivation, farm machineries and the supply of inputs will increase the yield of rice.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.1. Budget requirement for rice

(Rs. in Lakhs)

Sl. No.	Interventions	Unit	Unit Cost (in Rs.)	Block covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Promotion of SRI	Ha	15000	All Blocks except B2, B3, B5, B13	394	59.10	394	59.10	404	60.60	404	60.60	424	63.60	2020	303.00
2	Distribution of High Yielding Varieties	MT	35000	All Blocks except B3, B13	103	36.05	105	36.75	108	37.80	108	37.80	108	37.80	532	186.20
3	Distribution of Foundation	MT	40000	All Blocks except B2, B3, B12, B13	43	17.20	43	17.20	43	17.20	43	17.20	43	17.20	215	86.00
4	seed production - Foundation	MT	32000	B6, B8, B11	14	4.48	14	4.48	14	4.48	14	4.48	14	4.48	70	22.40
5	seed production - Certified class	MT	26000	All Blocks excpet B3,B10, B13	109	28.34	124	32.24	124	32.24	124	32.24	124	32.24	605	157.30
6	Incentives for paddy machine planting	Ha	10000	All Blocks except B2, B3, B13	840	84.00	860	86.00	860	86.00	860	86.00	910	91.00	4330	433.00
7	Distribution of Protray	No	80	B3, B7, B8, B9, B10 B12, B14	4240	3.39	5840	4.67	5840	4.67	5840	4.67	5890	4.71	27650	22.12
8	Distribution of MN mixture/ Copper Sulphate	Ha	1000	All Blocks except B1, B2, B10, B13	1060	10.60	1110	11.10	1110	11.10	1110	11.10	1110	11.10	5500	55.00
9	Distribution of biofertilizer / PPFM / bioinputs / plant nutrient mobilizing bacteria	Ha	300	All Blocks except B2, B3, B10, B13	750	2.25	750	2.25	750	2.25	750	2.25	750	2.25	3750	11.25
10	Distribution of Zinc sulphate (Soil application & foliar)	Ha.	1000	All Blocks except B2, B3, B4,B13	610	6.10	630	6.30	630	6.30	630	6.30	630	6.30	3130	31.30

Sl. No.	Interventions	Unit	Unit Cost (in Rs.)	Block covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
11	Distribution of biocontrol agents/biopesticides	Ha..	1000	B7, B8, B14	150	1.50	150	1.50	150	1.50	150	1.50	150	1.50	750	7.50
12	Gypsum application	Ha.	1500	B6, B8	100	1.50	100	1.50	100	1.50	100	1.50	100	1.50	500	7.50
13	Distribution of herbicides	Ha.	1000	B4, B5, B6, B7, B8, B10, B14	295	2.95	295	2.95	295	2.95	295	2.95	295	2.95	1475	14.75
14	Polyvinyl coated Tarpaulin (6m x 5m)	No.	2000	B3, B6, B7, B8, B9, B10	172	3.44	172	3.44	172	3.44	172	3.44	172	3.44	860	17.20
15	Demonstration of drip irrigation	ha	100000	All Blocks	20	20.00	20	20.00	20	20.00	20	20.00	20	20.00	100	100.00
	Grand total					**280.90**		**289.48**		**292.03**		**292.03**		**300.07**		**1454.52**

Ammapettai- B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.1.2. Enhancing millets productivity

Millets are gaining momentum among the consumers at the wake of their importance in nutrition. Millets is becoming popular in the district in recent times due to huge demand. Due to its low cost of cultivation and low water requirement, millet cultivation is gaining momentum in irrigated garden lands as well as under Rainfed conditions in the dry lands. Therefore, there is scope for increasing the productivity and production of millets through appropriate strategies. Drip irrigation is an effective way to manage water scarcity during drought periods especially for maize. The productivity of millets depends on the quality of seed materials and use of high yielding varieties. The adoption of package of practices like IPM and INM with high yielding varieties gives the maximum potential yield. The increasing cost of labour can be minimized by use of mechanized weeder and thresher.

Project components

1. Distribution of seeds of maize and ragi to Perundurai, Anthiyur, Sathy and Thalavadi blocks
2. Drip irrigation for maize
3. Formation of small millet groups in Thalavadi block
4. Distribution of LPG operated bird scarrer to Perundurai block
5. Distribution of biofertilizers and herbicides
6. Expansion of area under minor millets in Anthiyur, Bhavani, Bhavanisagar, Sathy, Thalavadi and T.N.Palayam

Budget

The budget requirement for fulfilling the various interventions is ₹ 1210.85 Lakhs. The details of budget requirement for each intervention across the blocks are shown in Table 4.2.

Expected outcome

There is a scope to increase the area under millets in Erode district. By distributing improved varieties/ hybrids of millets will certainly improve the living standard of the farmers of this tract. The implementation of the project will result in an increase of 10 per cent in the yield and production of millets. This will help the bakery units and to supply more of raw material for their value added products.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.2. Budget requirement for millets

(Rs. in Lakhs)

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Millets															
1	Distribution of LPG operated Bird Scarrer	Nos.	0.1	B11	5	0.50	5	0.50	5	0.50	5	0.50	5	0.50	25	2.50
2	Distribution on biofertilizer - Liquid / Carrier	Ha	0.003	B1, B2, B4,B5, B7, B11, B12, B13, B14	685	2.06	685	2.06	685	2.06	685	2.06	685	2.06	3425	10.28
3	Expansion of area under Minor Millets (Demo - supply of seed, seed treatment, MN mixture & Organic package)	Ha	0.05	B2, B3, B4, B12, B13, B14	225	11.25	225	11.25	225	11.25	225	11.25	230	11.50	1130	56.50
4	Formation of small millet groups	Nos.	0.2	B13	1	0.20	1	0.20	1	0.20	1	0.20	1	0.20	5	1.00
	Sorghum															
5	Demonstration (Supply of seed, seed treatment, MN mixture & Organic package)	Ha	0.05	B10, B11	110	5.50	110	5.50	110	5.50	110	5.50	110	5.50	550	27.50
6	Seed distribution	MT	0.7	B10, B11	101	70.70	101	70.70	101	70.70	101	70.70	101	70.70	505	353.50
	Maize															
7	Demonstration (Supply of seed, seed treatment & MN mixture, organic package)	Ha	0.05	B1, B4, B5, B10, B11, B12, B13, B14	162.5	8.13	162.5	8.13	162.5	8.13	162.5	8.13	162.5	8.13	812.5	40.63
8	Distribution of biofertilizers Liquid / Carrier	Ha	0.003	B1, B4, B5, B7, B11, B12, B14	680	2.04	680	2.04	680	2.04	680	2.04	680	2.04	3400	10.20
9	Distribution of herbicides	Ha	0.008	B4,B7,B14	35	0.28	35	0.28	35	0.28	35	0.28	35	0.28	175	1.40
10	Distribution of Maize maxim (15 kg/ha)	Ha	0.045	B13	50	2.25	50	2.25	50	2.25	50	2.25	50	2.25	250	11.25

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
11	Drip irrigation for maize	Ha	1	B1, B5, B10	120	120.00	120	120.00	120	120.00	120	120.00	120	120.00	600	600.00
12	Seed Distribution	MT	0.4	B11	1	0.40	1	0.40	1	0.40	1	0.40	1	0.40	5	2.00
13	Seed Distribution Hybrid seeds for maize	MT	1.8	B3	3	5.40	3	5.40	3	5.40	3	5.40	3	5.40	15	27.00
	Ragi															
14	Demonstration (supply of seed, seed treatment, MN mixture & organic package)	Ha	0.05	B12	100	5.00	100	5.00	100	5.00	100	5.00	100	5.00	500	25.00
15	Distribution of biofertilizers Liquid / Carrier	Ha	0.003	B12	50	0.15	50	0.15	50	0.15	50	0.15	50	0.15	250	0.75
16	Distribution of MN mixture	Ha	0.007	B12	50	0.35	50	0.35	50	0.35	50	0.35	50	0.35	250	1.75
17	Seed Distribution	MT	0.66	B2, B12, B13	12	7.92	12	7.92	12	7.92	12	7.92	12	7.92	60	39.60
	Grand total					**242.12**		**242.12**		**242.12**		**242.12**		**242.37**		**1210.85**

Ammapettai- B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.1.3. Enhancing pulses productivity

Pulses are one of the important food components for the health of the human being. The state of Tamil Nadu is a deficit state in pulses production. The yields of pulse crop are very low and become unremunerated to the farmers. Under the above circumstances one of the option is to increase the productivity of pulses. With a decreasing area under cultivation, the possibility to improve the production of pulses is only through increasing the productivity of pulses through the adoption of better seed varieties and package of practices. Technical and logistic support to the pulses growing farmers will improve the pulses productivity

Project components

1. Production of foundation and certified pulses seeds to all blocks except Bhavani block
2. Distribution of certified seeds to all blocks
3. Distribution of gypsum, bio-fertilizers, Rhizobium, micro nutrients, DAP spray/ pulse wonder, weedicide and plant protection chemicals
4. Promotion of red gram transplantation for nursery preparation to Anthiyur and Bhavani
5. Demonstration on intercropping of pulses with other crops in Bhavanisagar block
6. Demonstration through NGOs in Ammapettai block
7. Cropping system based demonstration in Gobi, Kodumudi, Modakurichi and Nambiyur block
8. Bund cropping and line sowing
9. Distribution of weedicide to Erode, Kodumudi, Modakurichi
10. Seed treatment and soil application with *Trichoderma viridi*
11. Pu crop demonstration – black gram and green gram in Bhavanisagar

Budget

The budget requirement for fulfilling the various interventions is ₹ 377.87 Lakhs. The details of budget requirement for each intervention across the blocks are shown in Table 4.3.

Expected outcome

Increasing the productivity of pulses will result in the availability of pulses to the people

Implementing agency

The programmes will be implemented by the Department of Agriculture.

Table 4.3. Budget requirement for pulses

(Rs. in Lakhs)

Sl. No.	Interventions	Unit	Unit cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Production of Foundation/ Certified pulses seeds	MT	86000	All Blocks except B3	28	24.08	30	25.80	30	25.80	30	25.80	30	25.80	148	127.28
2	Distribution of Certified Seeds	MT	100000	All Blocks	23	23.00	25	25.00	25	25.00	25	25.00	25	25.00	123	123.00
3	Distribution of Gypsum	ha	400	B1, B3, B5, B6, B8	200	0.80	200	0.80	200	0.80	200	0.80	200	0.80	1000	4.00
4	Distribution of Biofertilizer/ Organic packages (Rhizobium + Phosphobacteria) - Liquid / Carrier	Ha	600	All Blocks except B2, B3, B10, B13	570	3.42	570	3.42	570	3.42	570	3.42	570	3.42	2850	17.10
5	Distribution of Micro Nutrients(5 kgs/ Ha)	Ha	350	All Blocks except B1, B5, B7, B10, B11	245	0.86	245	0.86	245	0.86	245	0.86	245	0.86	1225	4.29
6	DAP Spray	Ha	700	All Blocks except B2,B13	480	3.36	480	3.36	480	3.36	480	3.36	480	3.36	2400	16.80
7	Pulse wonder - 5 kg/ha	Ha	1000	B4,B6, B7, B8, B9, B10, B14	210	2.10	210	2.10	210	2.10	210	2.10	210	2.10	1050	10.50
8	Bund Cropping	Ha	300	All Blocks except B3,B11, B12	300	0.90	300	0.90	300	0.90	300	0.90	300	0.90	1500	4.50

Sl. No.	Interventions	Unit	Unit cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
9	Line sowing	Ha	2250	All Blocks except B3, B4,B6, B8, B10,B12, B14	70	1.58	80	1.80	80	1.80	80	1.80	80	1.80	390	8.78
10	Cropping system based demonstration	Ha	12500	B7, B8, B9, B10	7	0.88	7	0.88	7	0.88	7	0.88	7	0.88	35	4.38
11	Distribution of weedicide	Ha	1000	B6, B8, B9	107	1.07	107	1.07	107	1.07	107	1.07	107	1.07	535	5.35
12	Plant Protection Chemicals	Ha	1000	B6, B7, B8, B14	110	1.10	110	1.10	110	1.10	110	1.10	110	1.10	550	5.50
13	Seed treatment and soil application with Trichoderma viridi	Ha	700	B1,B5, B6, B8, B9, B10	210	1.47	210	1.47	210	1.47	210	1.47	210	1.47	1050	7.35
14	Pure crop demonstration - Black gram and green gram	Ha	6300	B4	30	1.89	30	1.89	30	1.89	30	1.89	30	1.89	150	9.45
15	Demonstration on intercropping of pulses with other crops	Ha	8300	B4	12	1.00	12	1.00	12	1.00	12	1.00	12	1.00	60	4.98
16	Demonstration on pulses production	Ha	8250	B1	10	0.83	10	0.83	10	0.83	10	0.83	10	0.83	50	4.13
17	Promotion of Redgram Transplantation for nursery preparation	Ha	5000	B2, B3	82	4.10	82	4.10	82	4.10	82	4.10	82	4.10	410	20.50
	Grand total					**72.41**		**76.36**		**76.36**		**76.36**		**76.36**		**377.87**

Ammapettai- B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.1.4. Enhancing oilseeds productivity

Oilseeds form a major part of the agricultural produces. The reduction in the area under oilseed crops is mainly due to the increased cost of cultivation because of the high cost of labour and plant protection in the cultivation of oilseed crops like groundnut and gingelly. Besides, oil seed crops are raised under rain fed condition, productivity is low in this district. More over crops are raised in single season, owing to complete dependence of Northeast monsoon rain fall. If season favors, oil seed crops could be raised successfully. The supply of critical inputs to the farmers will improve the livelihood of the people. Hence it is necessary to increase the productivity of these oilseed crops.

Project components

1. Production of foundation and certified seeds of groundnut and Gingelly
2. Distribution of certified seeds to all blocks except Bhavani and Thalavadi blocks
3. Distribution of inputs like micro nutrient mixture, gypsum, bio-fertilizer, liquid fertilizer and gypsum
4. Castor as bund crop in Ammapettai block
5. Combined nutrient spray to Bhavanisagar and Nambiyur blocks
6. Distribution of light and pheromone traps to Erode blocks
7. Distribution of seed treatment chemicals and bioagents

Budget

The budget requirement for fulfilling the various interventions is ₹ 2001.21 Lakhs. The details of budget requirement for each intervention across the blocks are shown in Table 4.4.

Expected outcome

The supply of good quality seeds and planting materials like micronutrients, gypsum and bio-fertilizers will enhance the production and productivity of oilseeds.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.1.4. Budget requirement for oilseeds

(Rs. in Lakhs)

Sl. No	Components	Unit	Unit Cost (in lakhs.)	Blocks Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
I	**OILSEEDS**															
1	Herbicide	Ha	0.01	B6	5.00	0.05	5.00	0.05	5.00	0.05	5.00	0.05	5.00	0.05	25.00	0.25
2	Light trap (NCIPM) / Pink Boll Worm trap	Nos.	0.01	B6	5.00	0.05	5.00	0.05	5.00	0.05	5.00	0.05	5.00	0.05	25.00	0.25
3	Bio pesticide/fungicide	Ha	0.01	B1, B5, B6	25.00	0.25	25.00	0.25	25.00	0.25	25.00	0.25	25.00	0.25	125.00	1.25
4	Compact Block Demonstration - Groundnut	Ha	0.20	B1,B5,B8, B9, B10	105.00	21.00	105.00	21.00	105.00	21.00	105.00	21.00	105.00	21.00	525.00	105.00
5	Microirrigation (Raingun / Microsprinkler)	Ha	0.55		75.00	41.25	150.00	82.50	50.00	27.50	60.00	33.00	75.00	41.25	410.00	225.50
6	Distribution of IPM kit	Nos.	0.10	All Blocks	1000.00	100.00	1500.00	150.00	1000.00	100.00	500.00	50.00	1000.00	100.00	5000.00	500.00
7	Growth regulator / DAP	Ha	0.01	All Blocks	150.00	0.75	150.00	0.75	200.00	1.00	200.00	1.00	150.00	0.75	850.00	4.25
	GROUNDNUT															
8	Strengthening seed chain by foundation seed production	Mt	0.76	All Blocks except B2, B3,B7B12, B13, B14	20.00	15.20	24.00	18.24	24.00	18.24	24.00	18.24	24.00	18.24	116.00	88.16
9	Strengthening seed chain by certified seed production	Mt	0.73	All Blocks except B3,B13	65.00	47.45	72.00	52.56	72.00	52.56	72.00	52.56	72.00	52.56	353.00	257.69

Sl. No	Components	Unit	Unit Cost (in lakhs.)	Blocks Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
10	Distribution of Certified seeds	Mt	0.84	All Blocks except B2, B13	109.00	91.56	116.00	97.44	116.00	97.44	116.00	97.44	116.00	97.44	573.00	481.32
11	Distribution of Seed Treatment Chemicals and Bioagents (T.Viridi)	Kg	0.00	All Blocks except B2,B8,B 10, B11, B12, B13	305.00	0.46	305.00	0.46	305.00	0.46	305.00	0.46	305.00	0.46	1525.00	2.29
12	Application of Gypsum to Groundnut Crop	Ha	0.02	All Blocks except B3,B5, B11, B13	645.00	10.32	645.00	10.32	645.00	10.32	645.00	10.32	645.00	10.32	3225.00	51.60
13	Distribution of Micro Nutrient Mixture	Ha	0.02	All Blocks except B3,B5, B11, B13	405.00	6.08	405.00	6.08	405.00	6.08	405.00	6.08	405.00	6.08	2025.00	30.38
14	Distribution of Biofertilizer	Ha	0.01	All Blocks except B2, B3, B10, B13	1125.00	6.75	1125.00	6.75	1125.00	6.75	1125.00	6.75	1125.00	6.75	5625.00	33.75
15	Distribution of Liquid Biofertilizer	Ha	0.01	All Blocks except B2, B3B10, B11, B13	930.00	5.58	930.00	5.58	930.00	5.58	930.00	5.58	930.00	5.58	4650.00	27.90
16	Distribution of Rhizobium/ PSB Culture	Ha	0.01	B4,B12, B14	550.00	3.30	550.00	3.30	550.00	3.30	550.00	3.30	550.00	3.30	2750.00	16.50
17	Distribution of Light Traps	Nos.	0.02	B6	5.00	0.10	5.00	0.10	5.00	0.10	5.00	0.10	5.00	0.10	25.00	0.50
18	Castor as Bund crop	Ha	0.01	B1	10.00	0.06	10.00	0.06	10.00	0.06	10.00	0.06	10.00	0.06	50.00	0.30

Sl. No	Components	Unit	Unit Cost (in lakhs.)	Blocks Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
19	Combined Nutrient Spray	Ha	0.02	B4,B10	520.00	7.80	520.00	7.80	520.00	7.80	520.00	7.80	520.00	7.80	2600.00	39.00
20	Seed Drill Sowing / Line sowing of Groundnut with Pulses as intercrop (hiring charges only)	Ha	0.03	B1, B2, B5,B7, B9	315.00	9.45	315.00	9.45	315.00	9.45	315.00	9.45	315.00	9.45	1575.00	47.25
21	Production of Foundation Seeds	Mt	1.13	B1, B6,B8, B9	3.50	3.96	3.50	3.96	3.50	3.96	3.50	3.96	3.50	3.96	17.50	19.78
22	Production of Certified Seeds	Mt	1.09	B1, B6,B8, B9	4.00	4.36	4.00	4.36	4.00	4.36	4.00	4.36	4.00	4.36	20.00	21.80
23	Distribution of certified seeds	Mt	1.25	B1, B6, B8, B9, B11	6.80	8.50	6.80	8.50	6.80	8.50	6.80	8.50	6.80	8.50	34.00	42.50
24	Distribution of Micro nutrients (Manganese sulphate/ Zinc sulphate)	Ha	0.00	B6,B8	200.00	0.80	200.00	0.80	200.00	0.80	200.00	0.80	200.00	0.80	1000.00	4.00
	Total					**385.07**		**490.35**		**385.60**		**341.10**		**399.10**		**2001.21**

Ammapettai- B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.1.5. Enhancing the productivity of Oil palm

India is the largest consumer of palm oil in the world, consuming around 17 per cent of total world consumption. India is also the largest importer of palm oil amounting to 44 per cent of world imports. Palm Oil is extracted from the pulpy portion (monocarp) of the fruit of Oil Palm. The Crude Palm Oil is deep orange red in colour and is semi solid at a temperature of 20 degree centigrade. Palm Oil contains an equal proportion of saturated and unsaturated fatty acid containing about 40 per cent oleic acid, 10 per cent linoleic acid. 44 per cent palmitic acid and 5 per cent stearic acid. The unprocessed palm oil is used for cooking in various countries. Palm Oil is a very rich source of Beta Carotene, an important source of Vitamin A and it contains Tecopherols and Tocotrienols, a natural source of Vitamin E. Vitamin A and Vitamin E contents are the highest in palm oil in comparison with any other types of oil and hence consumption of the same boosts health. By virtue of the high vitamin contents the Red Palm Oil is a nature's gift for the human beings. In view of the rich content of vitamins, palm oil can be utilized for the preparation of cosmetics as well there is a need to promote oil palm by the way of area expansion and better cultivation practices, it is equally important to focus on innovative growth strategies through National Mission on Oilseeds and Oil Palm (NMOOP) has been launched in which Mini Mission-II (MM-II) is dedicated to oil palm area expansion and productivity increases. MM-II of NMOOP and MM-III of NMOOP is being implemented in 13 States viz; Tamil Nadu, Andhra Pradesh, Assam, Arunachal Pradesh, Chhattisgarh, Gujarat, Karnataka, Kerala, Mizoram, Nagaland, Odisha, Telangana, and West Bengal.

Project components

- Oil palm area expansion programme in Erode block
- Distribution of Inputs for intercropping to Ammapettai, Bhavanisagar, Erode, Gobi, Sathy and T.N.Palayam
- Neem, Pungam area expansion programme in all blocks except Anthiyur, Bhavani, Sathy and Thalavadi blocks.

Budget

It is proposed to incur ₹. 49.50 lakhs over a period of five years with the finance facilities under the NADP and other sources.

Expected outcome

The expected outcome of the project will result in an increase in the production of oil palm for producing oil and major supply of quality raw material to the oilseed industry which will improve the income of the farmers and requirement of oilseeds.

Implementing Agency

Department of Agriculture will implement the project and report the progress to the District-level officials.

Table 4.1.5. Budget requirement for oil palm

(Rs. in Lakhs)

Sl. No.	Intervention	Unit	Unit Cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	NMOOP -Mini Mission -II (Oilpalm)															
2	Oilpalm Area Expansion Programme	Ha	0.14	B6	5	0.70	5	0.70	5	0.70	5	0.70	5	0.70	25	3.50
3	Cultivation maintenance	Ha	0.1	B1, B4,B6, B7, B12, B14	26	2.60	26	2.60	26	2.60	26	2.60	26	2.60	130	13.00
4	Inputs for Intercropping	Ha	0.1	B1, B4, B6, B7, B12, B14	26	2.60	26	2.60	26	2.60	26	2.60	26	2.60	130	13.00
5	Supply of Diesel pumps	No	0.3		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
6	Construction of Borewells	No	1		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
7	Motorised Chisel	No	0.2		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
8	Alumium portable ladder	No	0.06		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
9	Wire mesh	No	0.1	B6	2	0.20	2	0.20	2	0.20	2	0.20	2	0.20	10	1.00
10	Oilpalm Cutter	No	0.03		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
11	NMOOP -Mini Mission -III (Tree Borne Oilseeds)					0.00		0.00		0.00		0.00		0.00	0	0.00
12	Neem/ Pungam Area Expansion Programme	Ha	0.2	All Blocks except B2, B3, B12, B13	14	2.80	14	2.80	14	2.80	14	2.80	14	2.80	70	14.00
13	Cultivation maintenance	Ha	0.05	B1, B5, B6, B7, B8, B9, B10	10	0.50	10	0.50	10	0.50	10	0.50	10	0.50	50	2.50
14	Inputs for Intercropping	Ha	0.05	B1, B4, B6, B8, B9, B10, B14	10	0.50	10	0.50	10	0.50	10	0.50	10	0.50	50	2.50
	Grand total					**9.90**		**9.90**		**9.90**		**9.90**		**9.90**		**49.50**

Ammapettai- B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.1.6. Enhancing cotton productivity

Cotton is the most important fiber crop of India. It provides the basic raw material (cotton fibre) to cotton textile industry. Its seed (binola) is used in vanaspati industry and can also be used as part of fodder for milch cattle to get better milk. The reduction in the area under cotton is mainly due to the increased cost of cultivation because of the high cost of labour and plant protection in the cultivation of cotton. Cotton is susceptible to many insects and pests. Though HYV seeds and hybrid seeds are available in the market and the eradication of disease is not achievable. Alternatively, production of cotton can be increased through varying cultivation practices that could achieve sustainable development.

Project components

1. Distribution of bio-fertilizer to Bhavanisagar, Gobi and T. N. Palayam blocks
2. Distribution of MN mixture to Bhavanisagar, sathy and T. N. Palayam
3. Exposure visits and farmers training
4. Intercropping with pulses in T. N. Palayam block
5.

Budget

The budget requirement for fulfilling the various interventions is ₹ 14.36 lakhs. The details of budget requirement for each intervention across the blocks are shown in Table 4.6.

Expected outcome

Increase in the production of cotton in the most sustainable way.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.6. Budget requirement for cotton

(Rs. in Lakhs)

Sl. No.	Intervention	Unit	Unit Cost (in Rs.)	Blocks Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Distribution of biofertilizer	Ha	300	B4, B7, B14	17	0.05	17	0.05	17	0.05	17	0.05	17	0.05	85	0.26
2	Distribution of MN Mixture	Ha	1000	B4,B12, B14	42	0.42	42	0.42	42	0.42	42	0.42	42	0.42	210	2.10
3	Exposure visits	No	40000	B1, B12	3	1.20	3	1.20	3	1.20	3	1.20	3	1.20	15	6.00
4	Farmers training	No	20000	B1,B11	2	0.40	2	0.40	2	0.40	2	0.40	2	0.40	10	2.00
5	Field days	No	10000	B1,B7, B14	3	0.30	3	0.30	3	0.30	3	0.30	3	0.30	15	1.50
6	Intercropping with pulses	Ha	10000	B14	5	0.50	5	0.50	5	0.50	5	0.50	5	0.50	25	2.50
	Grand total					**2.87**		**2.87**		**2.87**		**2.87**		**2.87**		**14.36**

Ammapettai- B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.1.7. Enhancing sugarcane productivity

Sugarcane is a major cash crop in Erode district. Sustainable Sugarcane Initiative (SSI) is a method of sugarcane production that involves the use of fewer setts, less water and appropriate utilization of fertilizers to achieve higher yields. The goal is to create awareness about SSI technology among the farmers through transfer of the SSI technology by strengthening the extension system, providing the high yielding variety setts and other inputs at appropriate time and providing the machineries like sugarcane planter, detachers and harvesting machines.

Project components

1. Distribution of gypsum to Bhavanisagar, Erode and Kodumudi blocks
2. Distribution of biofertilizers and weedicide
3. Distribution of chip cutter to T.N.Palayam block
4. Distribution of FeSo4, ZnSo4 and micro nutrient mixture
5. Distribution of parasite *Trichogramma* to Bhavani, Erode and Sathy
6. Distribution of protray to Bhavani, Erode and Kodumudi blocks
7. Establishment of shade net in Anthiyur, Bhavani, Erode, Gobi, Kodumudi, Nambiyur and T.N.Palayam blocks
8. Distribution of single bud seedling to Bhavani, Erode, Kodumudi and T. N. Palayam blocks
9. Trash mulching
10. Demonstration on intercropping with sugarcane in Erode, Kodumudi and Nambiyur blocks

Budget

The budget requirement for fulfilling the various interventions is ₹ 3880.38 Lakhs.

Expected outcome

The supply of good quality seeds and planting materials like micronutrients, gypsum and bio-fertilizers will enhance the production and productivity of sugarcane. Increase in the production of sugarcane in the most sustainable way.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.7. Budget requirement for sugarcane

(Rs. in Lakhs)

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Disribution of Gypsum (500 Kg/Ha)	Ha	0.02	B4,B6, B8	216	4.32	216	4.32	216	4.32	216	4.32	216	4.32	1080	21.60
2	Distri. of biofertilizer (Ha)	Ha	0.006	B4, B6, B11, B14	126	0.76	126	0.76	126	0.76	126	0.76	126	0.76	630	3.78
3	Distri. of weedicide (Ha)	Ha	0.01	B6	50	0.50	50	0.50	50	0.50	50	0.50	50	0.50	250	2.50
4	Distribution of Chip Cutter	Nos	0.05	B14	10	0.50	10	0.50	10	0.50	10	0.50	10	0.50	50	2.50
5	Distribution of FeSO4 Spray	Ha	0.005	B5,B6, B8, B9,B10, B13	620	3.10	620	3.10	620	3.10	620	3.10	620	3.10	3100	15.50
6	Distribution of ZnSO4 Spray	Ha	0.005	B1,B5,B6, B8, B9	210	1.05	210	1.05	210	1.05	210	1.05	210	1.05	1050	5.25
7	Distribution of Micro Nutrient Mixture	Ha	0.02	B1,B5,B6, B8, B9	350	7.00	350	7.00	350	7.00	350	7.00	350	7.00	1750	35.00
8	Distribution of Parasite Trichogramma	Ha	0.00125	B3,B6, B12	200	0.25	200	0.25	200	0.25	200	0.25	200	0.25	1000	1.25
9	Distribution of Protray (2500 nos/ha)	Nos	0.0008	B3,B6,B8	26000	20.80	26000	20.80	26000	20.80	26000	20.80	26000	20.80	130000	104.00
10	Distribution of Water Soluble Fertiliers	ha	0.25	B1, B2, B5B6, B8, B9, B12, B13, B14	355	88.75	355	88.75	355	88.75	355	88.75	355	88.75	1775	443.75
11	Microirrigation - Drip (1.2x0.6)	ha	1.24	B1,B5,B6,B8, B9, B10, B11	410	508.40	410	508.40	410	508.40	410	508.40	410	508.40	2050	2542.00
	Sustainable Sugarcane Initiative (SSI)															
12	A. Establishment of Shadenet	Nos	1.5	B2,B3, B6B7, B8, B10, B14	32	48.00	32	48.00	32	48.00	32	48.00	32	48.00	160	240.00
13	B.Distribution of Single Bud Seedling	Ha	0.225	B3,B6,B8, B14	210	47.25	210	47.25	210	47.25	210	47.25	210	47.25	1050	236.25

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
14	Trash Mulching	Ha	0.04	All Blocks except B3,B11	995	39.80	1095	43.80	1095	43.80	1095	43.80	1095	43.80	5375	215.00
15	Demonstration on intercropping in Sugarcane	Ha	0.08	B6, B8, B10	30	2.40	30	2.40	30	2.40	30	2.40	30	2.40	150	12.00
	Grand total					**772.88**		**776.88**		**776.88**		**776.88**		**776.88**		**3880.38**

Ammapettai- B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.1.8. Enhancing coconut productivity

The coconut palm exerts a profound influence on the rural economy of the many states where it is grown extensively and it provides sustenance to more than 10 million people. The processing and related activities centered on the crop generate employment opportunities for over two million people in India. The aim is to rejuvenate the existing old coconut gardens to increase the yield of the coconut trees through the distribution of mineral nutrient mixture at subsidized cost.

Project components

1. Distribution of Tall seedlings to all blocks
2. Distribution of TXD hybrid and DXT hybrid to all blocks
3. Drip irrigation and intercropping with green manures
4. Distribution of tree climbers to Kodumudi, Nambiyur, Sathy and t. N. Palayam
5. Distribution of MN mixture to all blocks except Anthiyur, Perunduari and Thalavadi blocks
6. Distribution of Pheromone traps for Red palm weevil/ Rhinocerous beetle
7. Replanting and Rejunation of coconut gardens to Kodumudi, Nambiyur, Sathy and T. N. Palyam
8. Demonstration on Integrated fertilizer management
9. Distribution of coconut seedlings to school children
10. Training on neera production
11. corpus fund release for FPG

Budget

The total cost of the project for five years works to ₹1313.71 Lakhs. The details of budget requirement for each intervention across the blocks are shown in Table 4.8.1.

Expected outcome

The implementation of the project will result in a minimum increase of coconut planting area. This will help the coconut growing farmers to increase the area and productivity. This will help the employment opportunity and income of the farming community.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.8. Budget requirement for coconut

(Rs. in Lakhs)

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Distribution of T x D hybrid seedlings	No	0.0006	All Blocks	12400	7.44	12400	7.44	12400	7.44	12400	7.44	12400	7.44	62000	37.20
2	Distribution of Tall Seedlings	No	0.0004	All Blocks	9525	3.81	9525	3.81	9525	3.81	9525	3.81	9525	3.81	47625	19.05
3	Distribution of D xT hybrid Seedlings	No	0.0015	All Blocks except B2, B3, B10, B11	1075	1.61	1075	1.61	1075	1.61	1075	1.61	1075	1.61	5375	8.06
4	Distribution of MN mixture	Ha	0.1000	All Blocks except B2, B11, B13	490	49.00	490	49.00	490	49.00	490	49.00	490	49.00	2450	245.00
5	Distribution of Pheromone traps for Red palm weevil/ Rhinocerous beetle	Ha	0.0160	All Blocks execept B2, B4, B5, B7, B10, B11, B12, B14	450	7.20	450	7.20	450	7.20	450	7.20	450	7.20	2250	36.00
6	Distribution of tree climbers	No	0.1500	B6, B7,B8, B10	51	7.65	51	7.65	51	7.65	51	7.65	51	7.65	255	38.25
7	Drip irrigation	Ha	0.3500	All Blocks except B2, B3, B12, B13	150	52.50	150	52.50	150	52.50	150	52.50	150	52.50	750	262.50
8	Intercropping with green manures	Ha	0.0300	B6, B8, B10	150	4.50	150	4.50	150	4.50	150	4.50	150	4.50	750	22.50

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
9	Replanting and Rejunation of coconut gardens	Ha	0.4500	B8,B10, B12, B14	60	27.00	60	27.00	60	27.00	60	27.00	60	27.00	300	135.00
10	Demonstration on Integrated fertiliser management	Ha	0.7500	B6, B8,B10	15	11.25	15	11.25	15	11.25	15	11.25	15	11.25	75	56.25
11	Distribution of coconut seedlings to school children	No	0.0004	B6,B8,B10, B13	700	0.28	700	0.28	700	0.28	700	0.28	700	0.28	3500	1.40
12	Training on neera production	Batches	0.2500	B9	2	0.50	2	0.50	2	0.50	2	0.50	2	0.50	10	2.50
13	corpus fund release for FPG (2000 nos.)	No	5.0000	B4, B6,B7, B8, B12, B14	18	90.00	18	90.00	18	90.00	18	90.00	18	90.00	90	450.00
	Grand total					**262.74**		**262.74**		**262.74**		**262.74**		**262.74**		**1313.71**

Ammapettai- B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.1.9. Training to farmers

Enhancing the livelihood of farmers through training

Agricultural extension is being provided at the Block level and below, under the Extension Reforms scheme being implemented. Contact them or any other functionary of the State Government in Agriculture and allied departments to get answers for the queries, information about any Programme / Scheme and appropriate technologies for the area or individual farmer. The new information that farmers gain through these training sessions makes their daily farming activities much easier. It also leads to an increase in productivity and bigger profits in the long run.

Project components

- State level trainings to Extension officials
- State level and interstate level training programmes to farmers
- District level training to farmers
- Awareness campaigns
- Moisture conservation practices to Anthiyur, Erode, Kodumudi, Nambiyur and Thalavadi blocks
- Rodent pest management demonstration in Erode, Kodumudi and Nambiyur blocks
- Exposure visits

Budget

It is proposed to incur ₹.197.85 lakhs over a period of five years with the finance facilities under the NADP and other sources.

Expected outcome

The projects will results better income to farmers. They may learn many things to improve their knowledge of cultivation if they listen this programme which will improve the income of the farmers.

Implementing Agency

Department of Agriculture will implement the project and report the progress to the District-level officials.

Table 4.9. Budget requirement for training

(Rs. in Lakhs)

Sl. No.	Cafeteria of Activities	Unit	Unit Cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	District Level															
	Training of Farmers															
1	Inter State Training of Farmers	Nos.	1.25	B2,B6, B8, B10, B13	10	12.50	10	12.50	10	12.50	10	12.50	10	12.50	50	62.50
2	Training of 536 Groups of Seed Village Farmers in quality Seed Production technology.	Nos.	0.1	B6, B8, B10	3	0.30	3	0.30	3	0.30	3	0.30	3	0.30	15	1.50
3	Training of Farmers under Mission Soil Health Card	Nos.	0.15	B2,B6,B8, B10, B13	13	1.95	13	1.95	13	1.95	13	1.95	13	1.95	65	9.75
4	With in the district training of Farmers	Nos.	0.1	B2,B3,B6,B8 , B10, B13	16	1.60	16	1.60	16	1.60	16	1.60	16	1.60	80	8.00
5	With in the State training of Farmers	Nos.	1.2	B2,B6, B8, B10, B13	10	12.00	10	12.00	10	12.00	10	12.00	10	12.00	50	60.00
	Training of Farmers With in the district															
6	Awareness campaigns	Nos.	0.1	B2,B3,B6,B8 ,B10,B12	15	1.50	15	1.50	15	1.50	15	1.50	15	1.50	75	7.50
7	Groundnut	Nos.	0.1	B2,B6,B8,B1 0	5	0.50	5	0.50	5	0.50	5	0.50	5	0.50	25	2.50
8	IFS	Nos.	0.1	B2,B3,B6,B8 ,B10	6	0.60	6	0.60	6	0.60	6	0.60	6	0.60	30	3.00
9	Moisture conservation practices	Nos.	0.1	B2,B6,B8,B1 0,B13	10	1.00	10	1.00	10	1.00	10	1.00	10	1.00	50	5.00
10	oil Palm	Nos.	0.1	B6,B8,B10	1	0.10	1	0.10	1	0.10	1	0.10	1	0.10	5	0.50
11	Organic cultivation practices	Nos.	0.1	B2,B6,B8,B1 0,B13	10	1.00	10	1.00	10	1.00	10	1.00	10	1.00	50	5.00

Sl. No.	Cafeteria of Activities	Unit	Unit Cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
12	Paddy	Nos.	0.1	B3,B6,B8,B10B12, B14	6	0.60	6	0.60	6	0.60	6	0.60	6	0.60	30	3.00
13	Pulses	Nos.	0.1	B2,B8,B10	4	0.40	4	0.40	4	0.40	4	0.40	4	0.40	20	2.00
14	Sugarcane	Nos.	0.1	B2,B6,B8,B10,B13	10	1.00	10	1.00	10	1.00	10	1.00	10	1.00	50	5.00
15	Value addition training	Nos.	0.1	B3	1	0.10	1	0.10	1	0.10	1	0.10	1	0.10	5	0.50
	Exposure visit of Farmers															
16	Rodent Pest Management Demonstration	Nos.	0.04	B6, B8, B10	3	0.12	3	0.12	3	0.12	3	0.12	3	0.12	15	0.60
17	With in State Exposure visit	Nos.	0.4	B2,B6,B8, B10, B13	7	2.80	7	2.80	7	2.80	7	2.80	7	2.80	35	14.00
18	Organisation of Kisan gosthies on Soil test based nutrient application (Campaign)	Nos.	0.15	B6, B8, B10	3	0.45	3	0.45	3	0.45	3	0.45	3	0.45	15	2.25
19	With in the district exposure visit	Nos.	0.15	B2,B6,B8, B10, B13	7	1.05	7	1.05	7	1.05	7	1.05	7	1.05	35	5.25
	Grand total					**39.57**		**39.57**		**39.57**		**39.57**		**39.57**		**197.85**

Ammapettai- B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.1.10. Infrastructure

Facilities for Seed production

Seed is the most basic input in agriculture. Therefore, the sustained supply of the quality seeds will continue to be a key factor for augmenting agricultural growth. The seed processing is a vital part of the seed production activities and the State Government has accorded high priority. In view of above, efforts have to be taken with the objective of production of quality seeds of agricultural crops through scientific methods and adopting appropriate processing techniques through establishment and modernization of State seed processing plants.

After harvesting, cleaning, drying, processing, and packaging, the representative samples of seed lot are required to be taken and sent to the laboratory for quality testing. From the test results, genetic, physical, physiological, and health qualities of seeds are determined. Different countries have set their own standards to find out these qualities in the seed lot. The National Seed Board, for instance, has approved maximum amount of moisture content, minimum germination potential, and minimum physical purity in foundation, certified and truthfully labeled seeds of different crops as basic seed standards. The test results must conform the approved seed standards to send the seeds in the market for commercial transaction.

Project components

- Construction of IAEC (383 Nos.) with vehicle shed and compound wall in Ammapettai, Anthiyur, Erode, Gobi, Modakurichi, Thalavadi and T.N. Palayam blocks
- Construction of Seed godown (300 MT) in Anthiyur and Thalavadi blocks
- Construction of Sub-AEC (498 Nos.) in Ammapettai, Anthiyur, Erode, Modakurichi and Thalavadi blocks

Budget

The budget requirement for the establishment of infrastructure facilities in Erode district is ₹.2810.00 lakhs over a period of five years

Implementing Agency

Department of Agriculture will implement the project and report the progress to the District-level officials.

Table 4.10. Budget requirement for Infrastructure

(Rs. in Lakhs)

Sl.No	Components	Unit	Unit Cost (in Rs.)	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Seed Godown (300 MT)	Nos.	2500000	B2,B13	2	50.00	0	0.00	0	0.00	0	0.00	0	0.00	2	50.00
2	Construction of Integrated Agricultural Extension Centre with vehicle shed and compound wall	Nos.	25000000	B1, B2, B6, B7, B9, B13, B14	7	1750.00	1	250.00	0	0.00	0	0.00	0	0.00	8	2000.00
3	Construction of Sub-Agricultural Extension Centre (498 Nos.)	Nos.	3000000	B1, B2, B6, B9, B13	7	210.00	0	0.00	0	0.00	0	0.00	0	0.00	7	210.00
4	Strengthening of training institute / nursery / FTC / KVK	Nos.	50000000	All Blocks	0	0.00	0	0.00	0	0.00	0	0.00	1	500.00	1	500.00
5	Infrastructure for empowerment of coconut nurseries	Nos.	5000000	All`	0	0.00	1	50.00	0	0.00	0	0.00	0	0.00	1	50.00
	Grand total					**2010.00**		**300.00**		**0.00**		**0.00**		**500.00**		**2810.00**

Ammapettai- B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.11. Soil Health Management

It has been observed that the average productivity of major crops in Tamil Nadu is only about 60 percent of the potential yield. The reason may be due to decline in organic matter content of the soil of the State leading to low soil fertility. The availability of organic manures to farmers has become scanty and costly. The importance of FYM/Green manuring in maintaining the organic matter status of the soil has to be educated to the farmers. The total production of bio-fertilizers has to be stepped up to meet the growing demand. Similarly, crop based micronutrient mixtures need to be promoted. Soil amendments *viz.,* gypsum and lime have to be provided at a subsidized rate as a reclamation measure for the cultivable acid and alkali soils. Besides, efficient earthworm cultures should be provided for vermicompost unit by providing subsidy for establishment of vermicompost units with training in vermicompost.

Project Component:

- Establishment of Permanent Vermi compost units in Anthiyur, Bhavani, Bhavanisagar, Erode, Kodumudi, Perundurai and Thalavadi blocks
- Establishment of HDPE Vermi compost units in Anthiyur, Bhavani, Nambiyur and Thalavadi blocks
- Green Manuring
- Distribution of Soil Health Card to Erode, Kodumudi and Nambiyur blocks
- Distribution of Enriched Pressmud to Erode block

Budget:

Enhancing soil health by distributing enriched farm yard manure, micro-nutrient mixture, gypsum, bio-fertilizers, *etc.* is essential to maximize profitability. The overall budget to undertake the various interventions in Cuddalore district is ₹.220.90 lakhs.

Expected Outcome:

Healthy soils are the foundation for profitable, productive and environmentally sound agricultural systems. In an agricultural context, it refers to the ability of the soil to sustain agricultural productivity and protect environmental resources. The proposed soil health management practices will improve soil health by increasing productivity and profitability immediately and into the future.

Implementing Agency:

The projects will be implemented by the Department of Agriculture.

Table 4.11. Budget requirement for Soil Health Management

(Rs. in Lakhs)

Sl. No.	Interventions	Unit	Unit Cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Soil Health Management															
1	Permanent Vermi compost units	Cluster Nos.	50000	B2,B3,B4, B6,B8,B10 , B11,B13	47	23.50	47	23.50	47	23.50	47	23.50	47	23.50	235	117.50
2	HDPE Vermi compost units	Kit Nos	12000	B2,B3,B10 ,B13	59	7.08	59	7.08	59	7.08	59	7.08	59	7.08	295	35.40
3	Green Manuring	Nos	4000	B3,B4,B6, B7,B8,B9, B11,B14	375	15.00	325	13.00	325	13.00	325	13.00	325	13.00	1675	67.00
4	Distribution of Soil Health Card	Ha	300	B6,B8, B10	0.15	0.00	0.15	0.00	0.15	0.00	0.15	0.00	0.15	0.00	0.75	0.00
5	Distribution of Enriched Pressmud (37.5 Mt/ha)	units	1000	B6	20	0.20	20	0.20	20	0.20	20	0.20	20	0.20	100	1.00
	Grand total					**45.78**		**43.78**		**43.78**		**43.78**		**43.78**		**220.90**

Ammapettai- B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.1.12. Rainfed Area Development

Rainfed areas account for nearly 57 per cent of the agricultural land in India. Rainfed areas if managed properly have the potential to contribute a larger share in the food grain production. These high potential rainfed areas provide us with opportunities for faster agricultural growth compared to irrigated areas that have reached a plateau In-fact the potential is such that there is more opportunity for faster agricultural growth here than in irrigated areas. With proper management, rainfed areas have the potential of contributing a larger share to food grain production. Increasing agricultural productivity of rainfed areas in a sustainable manner by adopting appropriate farming system based approaches through Restoration of confidence in rainfed agriculture by creating sustained employment opportunities through improved on-farm technologies and cultivation practices Enhancement of farmer's income and livelihood support for reduction of poverty in rainfed areas.

Project components

- Stress Management in crops by the Application of Pink Pigmented Facultative Methylotrophs (PPFM spray)/ Kcl Spray in Nambiyur block
- Milch Animal (1 no) + 1 ha cropping system with inter crop & border plantation like castor/sesbania etc.
- Organic Mulching
- Establishment of soil Moisture conservation strategies (contour bunding/Dust mulching/Polythene mulch etc.,)

Budget

It is proposed to incur ₹. 1377.82 lakhs over a period of five years with the finance facilities under the NADP and other sources.

Expected outcome

The expected outcome of the project will result in an increase in the production of the rainfed crops which will improve the income of the farmers

Implementing Agency

Department of Agriculture will implement the project and report the progress to the District-level officials.

Table 4.12. Budget requirement for Rainfed Area Development

(Rs. in Lakhs)

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Stress Management in crops by the Application of Pink Pigmented Facultative Methylotrophs (PPFM spray)/ Kcl Spray	Ha	0.004	B10	0	0.00	20	0.08	20	0.08	20	0.08	20	0.08	80	0.32
2	Milch Animal (1 no) + 1 ha cropping farming system (Cropping system with inter crop & border plantation like castor/sesbania etc.) @ Rs.27500/ as subsidy per Unit	Ha	0.55	B1, B3, B5, B7, B9, B10	500	275.00	500	275.00	500	275.00	500	275.00	500	275.00	2500	1375.00
3	Organic Mulching	Ha	0.06	B3	5	0.30	5	0.30	5	0.30	5	0.30	5	0.30	25	1.50
4	Creation of Farm pond	Nos.	0.75			0.00		0.00		0.00		0.00		0.00	0	0.00
5	Soil Moisture conservation strategies (contour bunding/Dust mulching/Polythene mulch etc.)	Ha.	0.1	B3	2	0.20	2	0.20	2	0.20	2	0.20	2	0.20	10	1.00
6	Promotion of Farmers club for Sustainable Dryland Agriculture	Cluster	84.9415			0.00		0.00		0.00		0.00		0.00	0	0.00
	Grand total					**275.50**		**275.58**		**275.58**		**275.58**		**275.58**		**1377.82**

Ammapettai- B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.1.13. Integrated Pest Management (IPM)

Integrated Pest Management also known as integrated pest control is a broad based approach that integrates practices for economic control of pests. IPM aims to suppress pest populations below the economic injury level. IPM used in agriculture, horticulture, forestry, human habitations, preventive conservation and general pest control, including structural pest management. The principle is on control not eradication. IPM holds that wiping out an entire pest population is often impossible, and the attempt can be expensive and unsafe. IPM programmes first work to establish acceptable pest levels, called action thresholds, and apply controls if those thresholds are crossed. The IPM process starts with monitoring, which includes inspection and identification, followed by the establishment of economic injury levels.

Integrated pets management employ a variety of actions including cultural controls, including physical barriers, biological controls, including adding and conserving natural predators and enemies to the pest and finally chemical controls or pesticides.

Farmers Field Schools (FFS) is group based learning process that has been used by a governments to promote Integrated Pest Management (IPM). The FFS is a form of adult education, which evolved from the concept that farmers learn optimally from field observation and experimentation. It was developed to help farmers tailor their IPM practices to diverse and dynamic ecological conditions.

Interventions

1. Farmers Field Schools (FFS) in all blocks except Anthiyur, Bhavani and Chennimalai blocks
2. Field days
3. Establishment of IPM School in Ammapettai, Bhavanisagar, Gobi, Modakurichi, sathy and T. N. Palayam blocks

Budget

It is proposed to incur ₹. 29.00 lakhs over a period of five years with the finance facilities under the NADP and other sources.

Expected outcome

The expected outcome of the project will result in an increase in the production of the rainfed crops which will improve the income of the farmers

Implementing Agency

Department of Agriculture will implement the project and report the progress to the District-level officials.

Table 4.13. Budget requirement for IPM

(Rs. in Lakhs)

Sl. No.	Interventions	Unit	Unit Cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Farmers Field Schools (FFS)	Nos.	20000	All Blocks except B2, B3,B5	12	2.40	12	2.40	12	2.40	12	2.40	12	2.40	60	12.00
2	Field days	No.	20000	B1,B7,B9, B12, B14	5	1.00	5	1.00	5	1.00	5	1.00	5	1.00	25	5.00
3	IPM School	Nos.	40000	B1,B4,B7, B9,B12, B14	6	2.40	6	2.40	6	2.40	6	2.40	6	2.40	30	12.00
	Grand total					**5.80**		**5.80**		**5.80**		**5.80**		**5.80**		**29.00**

Ammapettai- B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.1.14. Farm Mechanization

Agricultural mechanization is the need of the hour to meet out the growing shortage of labour workforce in Agriculture. It has been identified as one of the critical inputs for increasing production in time. The labour intensive crops need high man power requirement, which is fast depleting and posing a big challenge to crop productivity. Agricultural labour wages are increasing at an alarming rate in Tamil Nadu resulting in shifting from labour intensive to mechanization intensive techniques. The farm machinery for land preparations, land development, seeding, planting, transplanting, weeding and intercultural operations, harvesting and threshing which are predominantly used in other parts of the country / other countries are proposed for introduction in the farmers field of Cuddalore district.

Project Component:

- Distribution of tractor, mini tractor and power tiller
- Distribution of MB plough, rotavator, laser leveller, baler and paddy transplanter
- Distribution of tractor drawn seed cum fertilizer drill
- Distribution of pump set, mobile sprinklers, rain guns and PVC Pipes to carry irrigation water from source to field
- Solar power pump system and Solar light trap
- Distribution of sprayers (power, hand and battery operated sprayer)
- Distribution of chaff cutter, combine harvester, multi crop thrasher and Tarpaulins
- Distribution of weeder (manual, cono weeder and rotary power weeder)

Budget:

Agricultural mechanization programs are proposed to implement in a big way to increase the agricultural production and to popularize the agricultural machinery among the farmers of this district with a budget of ₹. 1835.15 lakhs.

Expected Outcome:

Distribution of farm machinery / implements to farmers will increase the farm power. All the proposed agricultural machinery / implements will be put into use by the farmers. The acute agricultural labour scarcity will be reduced. The benefit of agricultural mechanization is to be extended to all categories of farmers with due consideration to small, marginal, scheduled caste, scheduled tribes and women farmers.

Implementing Agency:

The projects will be implemented by the Department of Agriculture.

Table 4.14. Budget requirement for Farm Mechanization

(Rs. in Lakhs)

Sl. No.	Interventions	Unit	Unit Cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Solar light trap	No.	4000	B1,B6,B7,B12, B14	40	1.60	40	1.60	40	1.60	40	1.60	40	1.60	200	8.00
2	Battery operated sprayer	Nos.	4000	All Blocks	158	6.32	158	6.32	158	6.32	158	6.32	158	6.32	790	31.60
3	Power operated sprayer	Nos.	8000	All Blocks except B5,B8,B10	88	7.04	88	7.04	88	7.04	88	7.04	88	7.04	440	35.20
4	Hand operated sprayer	0	0	All Blocks except B2,B5,B8,B10, B11,B13	58	0.87	58	0.87	58	0.87	58	0.87	58	0.87	290	4.35
5	Distribution of chaff cutter	Nos	25000	All Blocks except B2,B3,B11,B13	56	14.00	56	14.00	56	14.00	56	14.00	56	14.00	280	70.00
6	Distribution of Mini Tractor	Nos	300000	B1, B2,B6,B8,B10, B13	15	45.00	15	45.00	15	45.00	15	45.00	15	45.00	75	225.00
7	Distribution of Mobile Sprinklers	Ha	30000	B1,B4,B5,B8, B10	62	18.60	62	18.60	62	18.60	62	18.60	62	18.60	310	93.00
8	Distribution of Paddy transplanter	Nos	1200000	B2	5	60.00	5	60.00	5	60.00	5	60.00	5	60.00	25	300.00
9	Distribution of Powertiller	Nos	150000	All Blocks except B3,B4	39	58.50	39	58.50	39	58.50	39	58.50	39	58.50	195	292.50

Sl. No.	Interventions	Unit	Unit Cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
10	Distribution of Rain guns	Ha	40000	B1,B4,B5,B6, B7, B8, B10, B14	64	25.60	64	25.60	64	25.60	64	25.60	64	25.60	320	128.00
11	Distribution of Rotavator	Nos	80000	All Blocks except B3	43	34.40	43	34.40	43	34.40	43	34.40	43	34.40	215	172.00
12	Distribution of Tarpaulins	Nos	8000	All Blocks	220	17.60	220	17.60	220	17.60	220	17.60	220	17.60	1100	88.00
13	Distribution of Tractor	Nos	600000	B6,B8,B10	3	18.00	3	18.00	3	18.00	3	18.00	3	18.00	15	90.00
14	Distribution of Tractor Drawn Seed cum Fertilizer Drill	Nos	70000	B4	5	3.50	5	3.50	5	3.50	5	3.50	5	3.50	25	17.50
15	PVC Pipes to carry Irrigation water from source to field	Unit	40000	All Blocks	140	56.00	140	56.00	140	56.00	140	56.00	140	56.00	700	280.00
	Grand total					**367.03**		**367.03**		**367.03**		**367.03**		**367.03**		**1835.15**

Ammapettai- B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.1.15. Strengthening of State Seed Farm

Seed is the basic and most critical input for sustainable agriculture. The response of all other inputs depends on quality of seeds to a large extent. It is estimated that the direct contribution of quality seed alone to the total production is about 15–20% depending upon the crop and it can be further raised up to 45% with efficient management of other inputs. The total seed requirement of the country amounts to 2.56 lakh tonnes. However, about 20 per cent of the total seed requirement is met as quality seeds, while the rest is managed by farm saved seeds. The main reason for wider gap in agricultural crops especially pulses and oilseeds was that most of the private and multinational companies are concentrating on high value and low volume crops like hybrid cotton, millets and vegetables whereas only public institutions are producing and marketing high volume and low value crops like pulses and oilseeds. Hence, high emphasis has to be given for the production and supply of quality seeds of pulses and oilseeds to farmers and increase the Seed Replacement Rate. Hence there is an urgent need for the State Seed Corporations also to transform themselves in tune with the industry in terms of infrastructure, technologies, approach and the management culture to be able to survive in the competitive market and to enhance their contribution in the national endeavour of increasing food production to attain food & nutritional security.Therefore, the infrastructurefacilities at the SSFs like levelled land, more area, assured irrigation, thrashing floor, drying yard, processing units, storage etc., are essential to produce, process and pack quality seeds. Therefore, the strengthening of state seed farms is aimed for quality seed production in Tamil Nadu.

Project components

- Soil Fertility Improvement and Land development works for Bhavanisagar and T. N. Palyam blocks
- Provision of Irrigation facilities viz., Solar pump sets, Deepening of bore wellLaying of pipelines, Rain gun, Mobile sprinkler, Laying of drip, New bore well with EB connection, Deepening of open well to Bhavani and Perundurai blocks
- Supply of machineries *viz.* Dunnage, Paddy transplanter, Rotavator, Tractor, Tarpaulin and generator to Bhavani, Perundurai and T. N .Palayam blocks
- Establishment of new threshing floor in Bhavani and Perundurai blocks
- Farm office establishment and renovation in Perundurai block

Budget

It is proposed to incur ₹. 327.98 lakhs over a period of five years with the finance facilities under the NADP and other sources.

Expected outcome

The expected outcome of the project will result it will Enhance production of quality seeds of Crop varieties and Ensure timely delivery of seeds to farmers and it will increase supply of good quality seed which increase the production of the crops and the income of the farmers of Tamil Nadu.

Implementing Agency

Department of Agriculture will implement the project and report the progress to the District-level officials.

Table 4.15. Budget requirement for State seed farm

(Rs. in Lakhs)

Sl. No.	Intervention	unit	unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
I	**Soil Fertility Improvement and Land development works in SSF**	ac	2	B4, B14	0	0.00	4	8.00	4.75	9.50	2	4.00	0	0.00	10.75	21.50
II	**Irrigation Component**															
1	Solar pumpsets	nos	6	B3	0	0.00	0	0.00	1	6.00	0	0.00	0	0.00	1	6.00
2	Laying of pipelines	mt	0.05	B11	600	30.00	0	0.00	0	0.00	0	0.00	0	0.00	600	30.00
3	Rain gun	nos	0.4	B3	1	0.40	2	0.80	0	0.00	0	0.00	0	0.00	3	1.20
4	Mobile sprinkler	nos	0.3	B3	1	0.30	2	0.60	0	0.00	2	0.60	0	0.00	5	1.50
5	Laying of drip	nos	2	B3	5	10.00	10	20.00	6	12.00	2	4.00	0	0.00	23	46.00
6	New bore well with EB connection	nos	8	B3	2	16.00	1	8.00	0	0.00	0	0.00	0	0.00	3	24.00
7	Deepening of open well	nos	8	B3	0	0.00	3	24.00	0	0.00	0	0.00	0	0.00	3	24.00
III	**Machineries**															
8	Dunnage (Poly Pallets)	nos	0.075	B3,B14	20	1.50	25	1.88	5	0.38	5	0.38	10	0.75	65	4.88
9	Paddy Transplanter	nos	5	B3	0	0.00	1	5.00	0	0.00	0	0.00	0	0.00	1	5.00
10	Rotavator	nos	1	B3, B11	1	1.00	0	0.00	0	0.00	0	0.00	0	0.00	1	1.00
11	Tractor and accessories	nos	10	B3, B11,B14	1	10.00	1	10.00	0	0.00	0	0.00	0	0.00	2	20.00
12	Tarpaulin	nos	0.1	B3,B11,B14	15	1.50	0	0.00	5	0.50	12	1.20	7	0.70	39	3.90
13	Generator	nos	7	B11	1	7.00	0	0.00	0	0.00	0	0.00	0	0.00	1	7.00
IV	**Civil Works**															

Sl. No.	Intervention	unit	unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
14	New Threshing floor	nos	5	B3,B11	4	20.00	2	10.00	0	0.00	0	0.00	0	0.00	6	30.00
15	seed godown	nos	25	B3	1	25.00	0	0.00	0	0.00	0	0.00	0	0.00	1	25.00
16	Farm office	nos	8	B11	1	8.00	3	24.00	0	0.00	0	0.00	0	0.00	4	32.00
17	Farm office renovation	nos	3	B11	15	45.00	0	0.00	0	0.00	0	0.00	0	0.00	15	45.00
	Grand total					**175.70**		**112.28**		**28.38**		**10.18**		**1.45**		**327.98**

Ammapettai- B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.16. Information Technology in Agriculture

Agriculture is a major sector which is vital for the survival of modern man. The produce from agriculture drives trade from one country to another, brings income for farmers, makes productive use of otherwise idle land, and brings food on the table. It is such an important part of everyone's daily life, although it may not be seen as a direct factor since the produce goes a long way before reaching the hands of everyone who benefits from it. Because of its importance to society, it's must to evolve with the times and adjust to meet the needs of modern people. By adapting and making use of IT to help improve agricultural progress, everyone benefits from the union of these sectors.

Role of IT in Agriculture

In the context of agriculture, the potential of information technology (IT) can be assessed broadly under two heads: (a) as a tool for direct contribution to agricultural productivity and (b) as an indirect tool for empowering farmers to take informed and quality decisions which will have positive impact on the way agriculture and allied activities are conducted.The indirect benefits of IT in empowering farmer are significant and remain to be exploited. The farmer urgently requires timely and reliable sources of information inputs for taking decisions. At present, the farmer depends on trickling down of decision inputs from conventional sources which are slow and unreliable. The changing environment faced by farmers makes information not merely useful, but necessary to remain competitive.

Components include input devices, output devices, processors, storage devices, software, networking devices, transmission media and other accessories.

Budget

It is proposed to incur ₹.73.19 lakhs over a period of five years with the finance facilities under the NADP and other sources.

Expected outcome

The expected outcome of the project will result in an increase in the adoption of technologies for production of the crops which will improve the income of the farmers

Implementing Agency

Department of Agriculture will implement the project and report the progress to the District-level officials.

Table 4.16. Budget requirement for IT

(Rs. in Lakhs)

Sl. No.	Intervention	Unit	Unit Cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Procurement of Hardware for replacement of old hardware	Nos	50000	All blocks	13	6.50	14	7.00	14	7.00	14	7.00	14	7.00	69	34.50
2	Connectivity Charges	Nos	11000	All blocks	13	1.43	14	1.54	14	1.54	14	1.54	14	1.54	69	7.59
3	Printer cum Scanner	Nos	20000	All blocks	1	0.20	13	2.60	0	0.00	0	0.00	0	0.00	14	2.80
6	Laptop/Desktop	Nos	50000			0.00	0	0.00	2	1.00	0	0.00	0	0.00	2	1.00
7	Anti -virus software	Nos	2500	All blocks	1	0.03	13	0.33	0	0.00	0	0.00	0	0.00	14	0.35
8	Television	Nos	100000	All blocks	1	1.00	13	13.00	0	0.00	0	0.00	0	0.00	14	14.00
9	Colour printer	Nos	15000	All blocks	1	0.15	13	1.95	0	0.00	0	0.00	0	0.00	14	2.10
10	4G Internet - Dongle	Nos	2500	All blocks	1	0.03	13	0.33	0	0.00	0	0.00	0	0.00	14	0.35
11	**Equipments for Documentation**															
a	Handycam	Nos	30000	All blocks	1	0.30	13	3.90	0	0.00	0	0.00	0	0.00	14	4.20
b	Camera	Nos	25000	All blocks	1	0.25	13	3.25	0	0.00	0	0.00	0	0.00	14	3.50
c	GPS instrument	Nos	20000	All blocks	1	0.20	13	2.60	0	0.00	0	0.00	0	0.00	14	2.80
	Grand total					**10.08**		**36.49**		**9.54**		**8.54**		**8.54**		**73.19**

Ammapettai- B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

Table 4.17. Budget requirement for Agriculture Sector

(Rs. in Lakhs)

Sl. No.	Crops	2017-18	2018-19	2019-20	2020-21	2021-22	Total
1	Paddy	280.90	289.48	292.03	292.03	300.07	1454.52
2	Millets	242.12	242.12	242.12	242.12	242.37	1210.85
3	Pulses	72.42	76.36	76.36	76.36	76.36	377.87
4	Oilseeds	243.07	257.10	257.10	257.10	257.10	1271.46
5	Oilpalm	9.90	9.90	9.90	9.90	9.90	49.50
6	Cotton	2.87	2.87	2.87	2.87	2.87	14.36
7	Sugarcane	772.88	776.88	776.88	776.88	776.88	3880.38
8	Coconut	262.74	262.74	262.74	262.74	262.74	1313.71
9	Training	39.57	39.57	39.57	39.57	39.57	197.85
10	Infrastructure	2010.00	300.00	0.00	0.00	500.00	2810.00
11	Soil Health Management	45.78	43.78	43.78	43.78	43.78	220.90
12	Rainfed Area Development	275.50	275.58	275.58	275.58	275.58	1377.82
13	Integrated Pest Management	5.80	5.80	5.80	5.80	5.80	29.00
14	Farm Mechanization	367.03	367.03	367.03	367.03	367.03	1835.15
15	Strengthening of State Seed Farm	175.70	112.28	28.38	10.18	1.45	327.98
16	Agriculture Information Technology	10.08	36.49	9.54	8.54	8.54	73.19
	Grand total	**4816.36**	**3097.98**	**2689.68**	**2670.48**	**3170.04**	**16444.54**

4.1.18. Agriculture research infrastructure and development

Agricultural infrastructures are categorized into (i) capital intensive, like irrigation, roads, bridges (ii) capital extensive, like extension services and (iii) institutional infrastructure, like formal and informal institutions. Infrastructure, such as irrigation, watershed development, rural electrification, roads, and markets in close coordination with institutional infrastructure, such as credit institutions, agricultural research and extension, rural literacy determines the nature and the magnitude of agricultural output in India. Adequate infrastructure raises farm productivity and lowers farming costs and its fast expansion accelerates agricultural as well as economic growth rate. It is acknowledged that infrastructure plays a strategic role in producing larger multiplier effects in the economy with agricultural growth.

The government encourage to farmers to shift from traditional agriculture crops to new crops to grow more remunerative crops such as quinoa the native of South America which is rapidly gaining popularity across the globe for its high nutritional value and gluten free quality. Farmers need to intelligently adapt to the changing climate in order to sustain crop yields and farm income. Enhancing resilience of agriculture to climate risk is of paramount importance for protecting livelihoods of small and marginal farmers. Traditionally, technology transfer in agriculture has aimed at enhancing farm productivity. However, in the context of climate change and variability, farmers need to adapt quickly to enhance their resilience to increasing threats of climatic variability such as droughts, floods and other extreme climatic events. These problems all necessitate the need for making them aware of good farming practices from research infrastructure which may provide better infrastructure facilities and higher agricultural production by adopting the following research infrastructure facilities so they can be getting a better knowledge on crops for getting higher agricultural production at Erode district.

Project components

- Gauging the extant knowledge delivery system and developing a viable model for effective TOT
- Determinants of the gaps in the seed supply chain of the TNAU evolved oilseed varieties
- Pragmatic shift to quinoa farming breaking the feudalism in the dry tract of Erode district of Tamil Nadu
- Production and popularization of climate resilient technologies through animated scientific communication for sustainable livelihood

Budget

The budget requirement for the above research and development activities is estimated at Rs.**230.00** lakhs over a period of five years.

Expected outcome

The implementation of the above project will result in better research activities and trainings on latest technologies for higher agricultural production.

Implementing agency

Tamil Nadu Agricultural University will be implementing the project.

Table.4.18. Budget for Agricultural Research infrastructure

(Rs.in lakhs)

Sl. No.	Interventions	Blocks Covered	Unit Cost	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
				Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
	Production and Growth														
1	Gauging the extant knowledge delivery system and developing a viable model for effective TOT	Bhavanisagar	35	1	35.00	0	0.00	0	0.00	0	0.00	0	0.00	1	35.00
2	Determinants of the gaps in the seed supply chain of the TNAU evolved oilseed varieties	Bhavanisagar	30	0	0.00	1	30.00	0	0.00	0	0.00	0	0.00	1	30.00
3	Pragmatic shift to quinoa farming breaking the feudalism in the dry tract of Erode district of Tamil Nadu	Bhavanisagar	65	1	65.00	0	0.00	0	0.00	0	0.00	0	0.00	1	65.00
4	Production and popularization of climate resilient technologies through animated scientific communication for sustainable livelihood	Bhavanisagar	100	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	1	100.00
	Grand total				**100.00**		**30.00**		**100.00**		**0.00**		**0.00**		**230.00**

4.2. Horticulture Sector

Horticulture plays a vital role in the food and nutritional security of the people as well as in earning foreign exchange through export of raw and value added horticultural crops. The farmers are ready to go in for the cultivation of horticultural crops which prove remunerative. The challenge lies in taking the technologies to 90 per cent of farmers who are small and marginal farmers. In all, horticulture crops are grown in 10.01 lakh hectares, of which vegetables, spices, plantation crops, flowers and medicinal plants are the major crops cultivated in the State. Totally, 86 horticultural crops are grown in the State which clearly indicates the crop diversity and also the possibility of augmenting the income of farmers. The major strategies suggested are as follows:

Area expansion of Horticultural crops

a. Fruit Crops

Today's changing food pattern enhances the area expansion under fruits. The preferable choices of fruits are Mango, Apple, Banana, Grapes, Orange, Guava, Pomegranate, Sapota etc. Fruits are rich in fiber which is very essential for the smooth movement of the digestive system. There are some fruits that give body energy as they contain carbohydrates which are the main source of energy. Carbohydrates in fruits are mainly sugar which actually breaks down easily and make a quick source of energy. They also contain minerals, vitamins and nutrients that are useful for a healthy life. Considering the importance of fruits, the productivity can be increased by promotion of cultivation of fruit crops in the potential areas.

b. Vegetable crops

Vegetables are the store houses of most of the vitamins and minerals and also proteins. In order to ensure continuous supply of fresh vegetables to the burgeoning urban markets, it is absolutely necessary to create forward linkages from rural to urban areas. This will also ensure assured income to farmers in the rural areas adjoining the cities. Cultivation of vegetables, formation of farmer clusters, formation of farmers society, collection centers, reefer vans, retail outlets, mobile stores are the components to be promoted for increasing the productivity and marketing of vegetables.

c. Flower crops

The major flowers grown are Gundumalli, Mullai, Rose, Crossandra, Chrysanthemum, Marigold, Tuberose, Arali, Jathimalli etc. Floriculture activity has evolved as a viable and profitable alternative, with a potential to generate remunerative self-employment among small & marginal farmers. The flower crops require lots of

manpower for picking flowers and perform other operations, hence providing opportunity to marginal and small farmers for generating more income, employment and promote greater involvement of women work force. Keeping this in mind, the promotion area of cultivation of traditional and cut flowers are planned for different flower crops.

d. Spice crops

Spice crops play a unique role in India's economy by improving the income of the rural people. Cultivation of spices is labor intensive so it can generate lot of employment opportunities for the rural population. The demand of Indian spice is very much in other countries. Hence production of spices has very much scope to meet that demand by huge production.

e. Plantation crops

Plantation crops are high value commercial crops of greater economic importance and play a vital role in our Indian economy. These crops help to conserve the soil and ecosystem. The crops include tea, coffee, rubber, cocoa, coconut, arecanut, oil palm, palmyrah, cashew, cinchona etc. So the promotion of cultivation of plantation crops in the potential districts will increase the economy of the farmer and also Indian economy.

Improving Infrastructural facilities for production

To increase the income of the horticultural farmers, support for the establishment of pandals, trellies, staking and propping polygreen houses, (tubular structure) have to be provided. Vegetables like bitter gourd, snake gourd, ribbed gourd, pandal avarai, pole beans, tomato, gherkin, cucumber, squash and in fruits grapes, musk melons and in spices pepper etc could be cultivated under pandal cultivation. Similarly, crops like peas, musk melon, pole beans, tomatoes, ivy gourd could be raised in trellies. High value vegetables like capsicum, beans and flowers like carnation, roses etc could be raised in poly houses.

Maintenance of Plantation

The existing fruit trees have to be maintained properly until they attain fruit bearing stage and thereafter up to economically profitable bearing stage. This calls for proper maintenance of fruit trees with appropriate intercultural operations periodically. Regular maintenance of orchards / fruit trees would enhance the production / productivity as well.

Area expansion by Precision Farming Technology

By providing inputs like water soluble fertilizers, hybrid / high yielding vegetable seeds and plant protection chemicals, the area under annual crops like vegetables, flowers, spices, medicinal plants and one year long season crops like banana, tapioca, annual moringa and turmeric could be raised under precision farming technology.

Area expansion by high density planting

By adopting high density planting in mango, guava and sapota, the area under fruit trees could be increased. This includes supply of pedigree planting materials, integrated nutrient management and integrated pest management.

Area expansion by Normal Planting

Besides precision farming and high density planting, the area could be increased by normal planting as well by using pedigree planting materials in fruits, spices, flowers and plantation crops. Similarly, by extending support for the planting materials of high value vegetables, the protected cultivation of vegetable area could also be increased. Likewise, cultivation of cut flowers and filler foliage also need to be encouraged.

Protected cultivation

Precision Farming through Hi tech cultivation Practices It is proposed to plan for increasing the production of crops by adopting advanced technology like high tech cultivation practices which includes high density planting, use of quality planting materials, tissue culture planting materials, canopy management, micro irrigation fertigation, mulching, use of bunch sleeves for banana, protected cultivation, shade net nursery and mechanization in horticulture crop cultivation by popularizing the same among the growers to enhance productivity. It is proposed to adopt high density planting in mango, guava and sapota in select districts of the State by providing subsidy.

Rejuvenation of Old Orchards – Mango and Guava

In general, 40-45 years old mango trees exhibit decline in fruit yield because of dense and overcrowded canopy. The trees do not get proper sunlight resulting in decreased production of shoots. New emerging shoots are weak and are unsuitable for flowering and fruiting. The population of insects and pests builds up and the incidence of diseases increases in such orchards. These unproductive trees can be converted into productive ones by pruning with the techniques developed. Similarly, a procedure to rejuvenate and restore the production potential of old unproductive and wilt affected

guava orchards has been developed, which employs pruning of branches at different periodicity and at different severities. Crowding and encroachment of guava trees with subsequent inefficient light utilization is an obvious problem with older orchards, if trees are not well managed. The internal bearing capacity of guava trees also decreases with time, due to overshadowing of internal bearing wood.

Organic farming

Organic farming is an alternative agricultural system which originated early in the 20th Century in reaction to rapidly changing farming practices. It relies on fertilizers of organic origin such as compost, manure, green manure, and bone meal and places emphasis on techniques such as crop rotation, companion planting. Biological pest control, mixed cropping and fostering of insect predators are encouraged. Since 1990, the market for organic food and other products has grown rapidly, reaching $63 billion worldwide in 2012. This demand has driven a similar increase in organically managed farmland that grew from 2001 to 2011 at a compounding rate of 8.9 per cent per annum. As of 2011, approximately 3.70 lakh hectares worldwide were farmed organically, representing approximately 0.9 per cent of total world farmland. Organic farming encourages crop diversity. The science of agro ecology has revealed the benefits of polyculture (multiple crops in the same space), which is often employed in organic farming. Planting a variety of vegetable crops supports a wider range of beneficial insects, soil microorganisms, and other factors that add up to overall farm health. Crop diversity helps environments thrive and protects species from going extinct. The profitability of organic agriculture can be attributed to a number of factors. First, organic farmers do not rely on synthetic fertilizer and pesticide inputs, which can be costly. In addition, organic foods currently enjoy a price premium over conventionally produced foods, meaning that organic farmers can often get more for their yield.

The price premium for organic food is an important factor in the economic viability of organic farming. Organic agriculture can contribute to ecologically sustainable, socio-economic development, especially in poorer countries. The application of organic principles enables employment of local resources (e.g., local seed varieties, manure, etc.) and therefore cost-effectiveness. Local and international markets for organic products show tremendous growth prospects and offer creative producers and exporter’s excellent opportunities to improve their income and living conditions.

Post-Harvest Management

In agriculture, postharvest handling is the stage of crop production immediately following harvest, including cooling, cleaning, sorting and packing. Postharvest treatment largely determines final quality, whether a crop is sold for fresh consumption, or used as an ingredient in a processed food product. The most important goals of post-harvest handling is to avoid moisture loss and slow down undesirable chemical changes, and avoiding physical damage such as bruising, to delay spoilage. Sanitation is also an important factor, to reduce the possibility of pathogens that could be carried by fresh produce, for example, as residue from contaminated washing water.

Marketing Interventions

Interventions to build the marketing system are essential such that marketing expenses should be shifted as an expense towards an investment. It's important that interactions between farmers and market intermediaries should match the image of marketing portrays.

Capacity building

Capacity building of Horticultural Officers and Farmers

In service training of horticultural officers regularly would help them to update the modern technologies in production, marketing and value addition of horticultural crops including organic farming. Similarly, exposure visits to farmers to nearby districts / States and even foreign countries would help them aware and adopt new innovative technologies.

Bee Keeping

Production of apiary honey in the country reached 10,000 tons, valued at about Rs.300 million. Bee-Keeping Industry is one of the important activities. The Government provides financial support to this Industry by way of providing grant for supply of bee-hives to the Tribal on hill areas, Scheduled Castes /Scheduled Tribes under Western Ghats Development Programmes, Hill Area Development Programme and Integrated Tribal Development Programme. The income earned by the farmers through bee-keeping activities is an additional income to their agriculture income. Honey industry in the country can well become a major foreign exchange earner if international standards are met. Beekeeping is an age-old tradition in India but it is considered a no-investment profit giving venture in most areas. Of late, it has been recognized that it has the potential to

develop as a prime agri-horticultural and forest-based industry. Honey production is a lucrative business and it generates employment.

Apiary honey is produced in bee hives and is harvested by extraction in honey extractors. Other types of beekeeping equipment like queen excluder, smoker, hive tool, pollen trap and honey processing plant are also used. Indian honey has a good export market. With the use of modern collection, storage, beekeeping equipment, honey processing plants and bottling technologies, the potential export market can be tapped.

Mechanization in cultivation of horticultural crops

Mechanization encourages large scale production and improves the quality of farm produce. It ensures reduction of drudgery associated with variety of farm operations and also encourages the utilization of input and thereby harnessing the potential of available resources. Provision of power operated machineries and tools including power operated saw and plant protection equipments, power machines with rotavator / equipment, power machines including accessories and equipment would strengthen the infrastructural facilities.

Micro Irrigation, Water harvesting and Management

With increasing demand on water from various sectors, the availability of water is under severe stress. Agriculture sector is the largest use of water. While irrigation projects (Major and medium) have contributed to the development of water resources, conventional methods of irrigation are inefficient and lead to wastage of water. It has been recognized that the use of modern irrigation methods like drip and sprinkler irrigation are the ways for the efficient use of surface as well as ground water resources.

Majority of fruit trees / orchards are under rainfed cultivation. It is advisable to bring a minimum percentage of the area under irrigation by providing and strengthening the water harvesting system. This includes provision of drip irrigation facilities wherever possible, recharge of defunct bore wells, provision of pipes and protected distribution system, provision of water lifting devices, Insitu water conservation and the like.

Special Interventions

Production Enhancement through Precision Farming

Farmers have experienced fruitful results of technology especially during the past five years. Hence further increase in the production of horticultural crops would be possible both by increasing area and productivity by adopting advanced technologies like

precision farming, high density planting, protected cultivation, shade net nursery, integrated pest management and integrated nutrient management. Besides increasing infrastructure and mechanization facilities, productivity enhancement is considered by area expansion and resorting to high tech cultivation practices. Annual crops like vegetables, flowers, spices, medicinal plants and one year long season crops like banana, tapioca, turmeric and annual moringa could be considered for expansion by precision farming technology and providing assistance for inputs like water soluble fertilizers, hybrid/ high yielding vegetable seeds, plant protection chemicals etc., with subsidy.

Pandal / Trellis cultivation, Propping / Support / Staking

Pandal vegetables being short duration crops fit very well in the cropping system by offering viable option to the growers to get increased income per unit area. However, the cultivation of vegetables is too constrained due to high initial investment cost. With the objective of enhancing area under pandal vegetables and encouraging farmers to realize increased income, this project is proposed by popularizing high yielding/hybrid seed materials and dissemination of improved method of cultivation to farmers. It is proposed to cover at least 500 hectares in crops like bitter gourd, ribbed gourd, snake gourd, pandal beans etc.

Banana Bunch Sleeve

'Bunch care techniques' are to be followed in banana cultivation to achieve the best quality. Transparent polyethylene sleeves are recommended to cover the bunch immediately after opening of the last hand. Using of opaque polythene covers / sleeves gauge (during winter) and paper bags (to avoid chilling injury at frost conditions and sun scrotch). The bunch will be free from insect bites, fungi, bacteria attacks and physical injuries. The cover will also improve bunch appeal and maturity of bunch will be advanced by 7 to 10 days.

Agro Ecosystem Analysis (AESA) based IPM

The IPM has been evolving over the decades to address the deleterious impacts of synthetic chemical pesticides on environment ultimately affecting the interests of the farmers. The economic threshold level (ETL) was the basis for several decades but in modern IPM (FAO 2002) emphasis is given to AESA where farmers take decisions based on larger range of field observations. Decision making in pest management requires a thorough analysis of the agro-ecosystem. Farmer has to learn how to observe the crop,

how to analyze the field situation and how to make proper decisions for their crop management. This process is called the AESA. In AESA based IPM emphasis is given to natural enemies, plant compensation ability, abiotic factors and P: D ratio.

Control of coconut Red Palm weevil

Coconut is a perennial crop and longevity of the tree is about 50 to 70 years. The red palm weevil is a fatal enemy and less than 20 years coconut palm succumbs to severe damage when infected. Hence it is highly necessary to control the attack of red palm weevil pest on war footing. It is programmed to distribute 50, 000 traps of ferrolure of five traps per ha for 1.00 lakh hectare with subsides assistance of 50 per cent. The total cost for one hectare of Rs. 325/ferrolure comes to Rs.3, 250. Hence, an assistance of Rs. 1600/ha is proposed for five ferrolure per ha.

Promotion of Roof top Garden / Potager garden

The traditional kitchen garden, also known as a potager is a space separate from the rest of the residential garden i.e. the ornamental plants and lawn areas. Most vegetable gardens are still miniature versions of old family farm plots, but the kitchen garden is different not only in its history, but also its design. The kitchen garden may serve as the central feature of an ornamental, all-season landscape, or it may be little more than a humble vegetable plot. It is a source of herbs, vegetables and fruits, but it is often also a structured garden space with a design based on repetitive geometric patterns. The kitchen garden has year-round visual appeal and can incorporate permanent perennials or woody shrub plantings around (or among) the annuals.

There are many types of vegetable gardens. The potager, a garden where vegetables, herbs and flowers are grown together, has become more popular than the more traditional rows or blocks.

Some popular culinary herbs in temperate climates are to a large extent still the same as in the medieval period. Herbs often have multiple uses. For example, mint may be used for cooking, tea, and pest control.

Perimetro Vegetable Cluster Development Programme

Since production of vegetables is not in accordance with the market demand and the productivity of many vegetables is less than the potential yield, farmers are to be motivated to plan for cultivation of vegetables based on market demand. Market led production of vegetables need to be taken up to ensure continuous supply of vegetables

to the market andthe grower to get increased return out of sale of produce. Hence, it is necessary to go in for the productivity enhancement by advanced technologies. The project involves vegetable

Cultivation under protected condition, post-harvest management, collection centres, retail outlets and training to the growers. The vegetable produced in the project area will be immediately transported to the pack house where grading, sorting and standard packing will be done. Further to narrow down the supply chain, open retail outlets and mobile stores are proposed.

Establishing Centre of Excellence for different crops

Centre of Excellence for Horticulture crops like fruits, vegetables and flowers are aimed at designing, manufacturing and installation of State of the art facilities be it greenhouse technology, environmental control systems, tissue culture labs, crop production modules specializes in developing Centre of Excellence for fruits, vegetables and flowers in different states of India.

Computerization and Governance

As per the Stated policy under the scheme of E-governance and computerization of the various Development Departments, desktop computers and associated equipments had been contemplated. In order to ensure effective implementation of E-Governance, computer equipments (such as laptops, personal computers, Tablets etc) are essential.

Research on Crop Diversification

Crop Diversification refers to a shift from the regional dominance of one crop to regional production of a number of crops, to meet ever increasing demand of cereals, pulses, vegetables, fruits, oilseeds, fibres, fodder, grasses etc. It aims to improve soil health and to maintain dynamic equilibrium of the agro-ecosystem. In the instant case, crop diversification is intended to promote technological innovations for sustainable agriculture and enable farmers to choose crop alternatives for increased productivity and income.

Special Development Programme – Onion

Onion Storage Structures

India is one of the largest producers of onion in the world. It is one of the most important vegetable crops of our country and forms a part of daily diet in almost all

households. In Tamil Nadu onion was grown in an area of about 35,000 ha with a production of 3, 80,000 tons. Most of the farmers bring onion directly to the market after harvest as proper storage facilities are not available with them. The present storage capacities are quite inadequate and most of the available units are traditional and unscientific.

Tissue Culture Unit

Plant tissue culture is a collection of techniques used to maintain or grow plant cells, tissues or organs under sterile conditions on a nutrient culture medium of known composition. Plant tissue culture is widely used to produce clones of a plant in a method known as micro propagation.

Plant tissue culture relies on the fact that many plant cells have the ability to regenerate a whole plant (totipotency). Single cells, plant cells without cell walls (protoplasts), pieces of leaves, stems or roots can often be used to generate a new plant on culture media given the required nutrients and plant hormones. Although some growers and nurseries have their own labs for propagating plants by the technique of tissue culture, additional number of laboratories need to be created to provide custom propagation services and commercially viable plants to propagate in a laboratory.

Off-season Moringa Production – Pods and Leaves

Extremes of weather conditions that prevail in Northern States during Kariff as well as Rabi seasons do not favour the cultivation of Moringa. Hence truckloads of drumsticks are being transported from TN, AP and Karnataka to Northern States. Though the moringa pod is demanded throughout the year, the production is meager during winter and rainy seasons owing to the inadequate thermal requirements of the crop. Various systems of cultivation are in vogue to produce moringa round the year production. Commercial cultivation of annual moringa PKM-1 can fit into any crop rotation. Though it is annual, it is amenable for rationing twice.

Establishment of Mushroom unit

Mushrooms have been valued throughout the world as both food and medicine for thousands of years. They are a rich source of nutrition and form a major chunk of health foods. Earlier mushroom eating was restricted to specific regions and areas of the world but due to globalization, interaction between different cultures, growing consumerism has ensured the accessibility of mushrooms in all areas. Mushrooms are increasingly gaining acceptance in different Cusines and in everday consumption. They have created a space

in a common man's kitchen. Also, current trend of consumption conveys the opportunity that lies in the area of mushroom exports.

Rainfed Area Development Programme (RADP)

Rainfed areas assume special significance in terms of ecology, agricultural productivity and livelihood for millions of rural households in India.

To ensure agriculture growth in the rainfed areas, the Government of India launched a new scheme "Rainfed Area Development Programme (RADP)" in the year 2011-12 as a sub-scheme under Rashtriya Krishi Vikas Yojana (RKVY).

It aims at improving quality of life of farmers especially, small and marginal farmers by offering a complete package of activities to maximize farm returns. RADP focuses on Integrated Farming System (IFS) for enhancing productivity and minimizing risks associated with climatic variabilities.

Coastal area development programme

The coastal area in Tamil Nadu is susceptible to cyclones periodically, which cause damage to life and property. The coastal area supports several important economic activities such as fisheries, ports, industries and tourism. Most ecologically critical and threatened areas in the coastal areas are coastal wet lands especially lagoons and estuaries and their mangrove swamps. The coastal areas provide food and shelter for waterfowls, fishes, crustaceans, molluscs including some of the world's lucrative fisheries. Mangroves and coral reef system are important for protecting shorelines and coastal lines against erosion. Thus coastal areas play a prominent role in the human life.

Infrastructure Development

Mushroom production

Commercial production of edible Mushrooms converts the agricultural, industrial, forestry and household wastes into nutritious food (Mushroom). Indoor cultivation of oyster mushrooms utilizes the vertical space and is regarded as the highest protein producer per unit area and time – almost 100 times more than the conventional agriculture and animal husbandry.

Supporting structures for vegetable production

Vegetables are excellent source of vitamins and minerals such as calcium, iron besides proteins and carbohydrates. Vegetables combat under nourishment and are known to be a cheapest source of natural protective tools.

a. Staking, trellis and propping

Though most vegetables grow on their own, plants with vining and sprawling growth or with brittle stems and heavy fruits need support. Peas, cucumbers, pole beans, tomatoes, squash, eggplants and peppers benefit from trellising, caging or staking. The trick to heavy harvests knows which vegetable support system works best for each plant. Trellising, which involves tying plant stems to vertical structures with garden twine or plant ties, allows you to fit more plants in the garden. It is the preferred support method for peas, indeterminate vine-type tomatoes, pole and runner beans, cucumbers and smaller squash varieties.

b. Pandal structure

Pandal vegetables, being short duration crops, fit very well in the intensive cropping system. It offers viable option for the growers to get increased income per unit area. It includes number of vegetables viz. bitter gourd, snake gourd, ribbed gourd, pandal avarai etc. These vegetables are grown on commercial scale and are capable of giving high yields and high economic returns to the growers. It has tremendous market potential. The cultivation of vegetables is constrained due to high initial investment cost. With the objective of enhancing area under pandal vegetables and encouraging farmers to obtain increased income, it is proposed to implement the project on “Encouraging Cultivation of Pandal Vegetables. In this situation, financial support for the establishment of pandal structures for the vegetables will increase in the area and production of pandal vegetables. Along with which the support on supply of high yielding / hybrid seed materials for cultivation will be additional assistance among the farmers to get enhanced yield per unit area.

District Horticulture information and training centre

The information center also houses a training center where all the training programmes are being imparted. This includes training under various schemes like Mission for Integrated Development of Horticulture, Micro Irrigation, Medicinal plants, Perimetro vegetable cluster development Scheme, ATMA (SSEPER) etc. The Centre would not only provide employment, but also training to agriculturists in batches on

raising vegetable and horticultural crops and conduct orientation programme for Department officials.

Additionally, to augment the promotion of cut flowers and other horticulture crops cold storage facilities can also be made in the horticulture complex. The other facilities like glass house, green house for production and multiplication of ornamental plants will also be established in the training centre for demonstration purpose.

Community Seed Bank

Community Seed Banks (CSBs) are places of storage where indigenous seed varieties are conserved and managed by community members. These ex-situ conservation sites provide farmers with free and easy access to traditional seeds under the condition that a farmer returns twice the amount of seeds he or she borrowed. They not only reduce farmers' dependence on seed companies but also help conserve the agro-biodiversity of their villages. These seed banks form the cornerstone of GREEN's efforts for biodiversity conservation through community empowerment.

Modernization of State Horticulture Farms

In Tamil Nadu, there are 52 State Horticulture Farms including six parks and garden. The prime objectives of these farms are to produce pedigree planting materials of fruits, flowers, spices and vegetables. The quality planting materials produced in these farms are distributed to the farmers directly and through various schemes of the department. The parks and garden serve as study centre to the students apart from educating the public on Eco preservation.

It is programmed to expand the production of planting materials of various kinds of fruits viz., mango, guava, sapota and flowers like rose, jasmine and ornamental plants and avenue trees by modernizing the nurseries, developing the farms as demonstration centres for the latest techniques in horticulture, enhancing the productivity and augmenting farm mechanization for increasing the efficiency. It is aimed to enhance the productivity levels of orchard crops by 30 per cent and increase the production level of planting materials by 25 per cent.

Establishment of Processing Units

Tamil Nadu produces nearly 110 lakh tones of vegetables and fruits but it has only 136 cold storage locations with a capacity of 2.3 lakh tonnes which is shared amongst marine, milk and agro produce. The combined capacity is small as compared to required capacity. Further it has been reported that nearly 30 per cent of the horticultural crops produced are wasted due to rotting and in the post-harvest supply chain of storage and

handling. Reducing this wastage calls for conversion of value added horticultural crops, fruits and flowers. Hence, it has been programmed to establish horticultural processing unit and essential oil extraction unit.

Crop Insurance

Crop Insurance coverage has to be done for major crops like paddy, millets, pulses, oilseeds, sugarcane, cotton, cash crops and all Horticulture crops in the notified areas.

Horticultural mechanization

With increasing agricultural labour Shortage in India, a calculated shift to mechanization is imperative. Not only does mechanization provide for optimal utilization of factor resources (viz., land, labour, water, capital and expensive farm inputs), it also helps farmers to save valuable time and effort. Judicious use of time, labour and resources helps facilitate sustainable intensification (multi-cropping) and timely planting of crops and towards giving crops more time to mature, leading to improved productivity.

Micro irrigation in horticultural crops

Micro-irrigation will generally use less than half the volume of water required by the more traditional 'watering' systems such as sprinkler irrigation. Lower pressures used mean less energy for pumping while precise placement of more exact water volumes enhances and improves water management. Micro Irrigation system scales down requirement of labour and takes care of application of fertilizers.

Conducting Field Days / Shows and Farmer's mela

Regular training programmes on relevant topics for Upgradation of knowledge and skill of extension functionaries of development department and farmers are essential. Apart from this, exhibition, horticulture show, Farmers' Mela, Field Days in farmer's field and Frontline Demonstrations to demonstrate technologies are to be regularly conducted.

Budget

The budget requirement for fulfilling the various interventions is ₹ **45868.14** Lakhs.

Implementing agency

The projects will be implemented by the Department of Horticulture

Table. 4.19. Budget for horticulture development

(Rs.in lakhs)

Sl. No.	Interventions	Unit	Unit cost	Blocks covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
A	**Production Growth**															
I	**Area expansion of fruit crops**															
1	TC Banana & TC Pineapple	Ha	1.25	All blocks	320	400.00	320	400.00	320	400.00	320	400.00	320	400.00	1600	2000.00
2	HDP in Mango, Guava, Litchi, Pomegranate	Ha	1	All blocks	30	30.00	30	30.00	30	30.00	30	30.00	30	30.00	150	150.00
3	Area expansion fruits with traditional varieties	Ha	0.6	All blocks except B6, B14	12	7.20	24	14.40	24	14.40	24	14.40	24	14.40	108	64.80
4	Normal Planting in lime / lemons	Ha	0.6	All blocks except B4, B14	21	12.60	21	12.60	21	12.60	22	13.20	22	13.20	107	64.20
5	Normal Planting in Mango	Ha	0.6	All blocks except B6	29	17.40	29	17.40	29	17.40	29	17.40	29	17.40	145	87.00
6	Normal planting in Guava	Ha	0.6	All blocks except B5,B11	30	18.00	30	18.00	30	18.00	31	18.60	31	18.60	152	91.20
7	Normal planting in Sapota	Ha	0.6	B1,B2,B3, B7,B8	5	3.00	5	3.00	5	3.00	5	3.00	5	3.00	25	15.00
8	Normal planting in Amla	Ha	0.6	B6,B12,B 14	15	9.00	15	9.00	15	9.00	15	9.00	15	9.00	75	45.00
9	Normal planting in Papaya	Ha	0.6	All blocks	48	28.80	48	28.80	51	30.60	55	33.00	55	33.00	257	154.20
10	Normal planting in Jack	Ha	0.6	B14	5	3.00	5	3.00	5	3.00	5	3.00	5	3.00	25	15.00

Sl. No.	Interventions	Unit	Unit cost	Blocks covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
11	Normal planting in Pomegranate	Ha	0.6	B1, B2, B3	5	3.00	5	3.00	5	3.00	5	3.00	5	3.00	25	15.00
12	Normal planting in Avacado	Ha	0.6		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
13	Banana for leaf production	Ha	0.6	B4,B7, B12	35	21.00	35	21.00	35	21.00	35	21.00	35	21.00	175	105.00
14	Commercial production of Traditional fruits (Woodapple, Manila Tamarind, Jamun, Ber, Karonda, Annona, Egg fruit, etc.,)	Ha	0.6	All blocks except B6	20	12.00	20	12.00	20	12.00	20	12.00	20	12.00	100	60.00
II	**Area expansion of vegetable crops**															
15	Brinjal	Ha	0.5	All blocks	37	18.50	40	20.00	40	20.00	46	23.00	46	23.00	209	104.50
16	Bhendi	Ha	0.5	All blocks	137	68.50	145	72.50	149	74.50	149	74.50	149	74.50	729	364.50
17	Green Chillies	Ha	0.5	All blocks except B6	28	14.00	28	14.00	28	14.00	28	14.00	28	14.00	140	70.00
18	Tomato	Ha	0.5	B6	24	12.00	24	12.00	24	12.00	28	14.00	32	16.00	132	66.00
19	Gourds including pumpkin and tinda	Ha	0.5	B6	34	17.00	34	17.00	34	17.00	34	17.00	34	17.00	170	85.00
20	Peas & Beans	Ha	0.5	B2,B14	32	16.00	32	16.00	32	16.00	32	16.00	32	16.00	160	80.00
21	Greens	Ha	0.5	All blocks except B7,B10,B 12,B14	12	6.00	12	6.00	12	6.00	12	6.00	12	6.00	60	30.00

Sl. No.	Interventions	Unit	Unit cost	Blocks covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
22	Small Onion	Ha	0.5	All blocks	223	111.50	223	111.50	223	111.50	223	111.50	223	111.50	1115	557.50
23	Cauliflower	Ha	0.5	B14	10	5.00	10	5.00	10	5.00	10	5.00	10	5.00	50	25.00
24	Annual Moringa	Ha	0.5	B6,B10,B14	12	6.00	12	6.00	15	7.50	15	7.50	15	7.50	69	34.50
25	Cabbage	Ha	0.5	B14	20	10.00	20	10.00	20	10.00	20	10.00	20	10.00	100	50.00
26	Cucumber/ gherkin	Ha	0.5	B12	2	1.00	2	1.00	2	1.00	2	1.00	3	1.50	11	5.50
27	Potato	Ha	0.5	B14	20	10.00	25	12.50	30	15.00	35	17.50	40	20.00	150	75.00
28	Lab Lab	Ha	0.5	B4,B7,B10,B11,B12,B14	28	14.00	28	14.00	32	16.00	32	16.00	32	16.00	152	76.00
29	Radish	Ha	0.5	All blocks	4	2.00	4	2.00	4	2.00	4	2.00	4	2.00	20	10.00
30	Melons	Ha	0.5	B5,B11	138	69.00	138	69.00	138	69.00	138	69.00	138	69.00	690	345.00
31	Cluster bean	Ha	0.5	B2,B4,B7, B10,B12, B13,B14	26	13.00	26	13.00	26	13.00	26	13.00	26	13.00	130	65.00
32	Beetroot	Ha	0.5	B14	2	1.00	2	1.00	2	1.00	2	1.00	2	1.00	10	5.00
33	Tapioca	Ha	0.5	All blocks	217	108.50	217	108.50	217	108.50	217	108.50	217	108.50	1085	542.50
34	Yams and colacassia	Ha	0.5	All blocks	55	27.50	55	27.50	55	27.50	52	26.00	52	26.00	269	134.50
35	Commercial production of location specific traditional vegetables (Athalakkai, Palu	Ha	0.5		6	3.00	6	3.00	6	3.00	6	3.00	6	3.00	30	15.00

Sl. No.	Interventions	Unit	Unit cost	Blocks covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
	Pavakkai, Mullu kathiri, Poiyur kathiri, Kottapatti kathiri etc.,)															
III	**Area expansion of Medicinal and Aromatic plants**															
36	Coleus	Ha	0.5141	B1	1	0.51	1	0.51	1	0.51	1	0.51	1	0.51	5	2.57
IV	**Area expansion of Spices crops**															
37	Seed and Rhizomatic spices (Coriander, Turmeric, Ginger, Dry Chilly, Cumin, Fennel, Fenu greek, Dil, Cardamom etc.,)	Ha	0.3	All blocks	357	107.10	357	107.10	357	107.10	357	107.10	357	107.10	1785	535.50
38	Perennial spices (Pepper, Curry leaf, All spice, Cinnamon, Clove, Tamarind, Nut meg etc.,)	Ha	0.5	All blocks except B6	13	6.50	13	6.50	13	6.50	13	6.50	13	6.50	65	32.50
39	Bulbous spices Garlic	Ha	0.5	B14	4	2.00	4	2.00	4	2.00	4	2.00	4	2.00	20	10.00
V	**Area expansion of Flower crops**															
40	Loose flowers - Jasminum sp, Crossandra, Marigold, Rose,	Ha	0.4	All blocks	50	20.00	55	22.00	55	22.00	55	22.00	55	22.00	270	108.00

Sl. No.	Interventions	Unit	Unit cost	Blocks covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
	Chrysanthemum, Nerium, Torenia															
41	Bulbous flowers - Tube rose, Gladioli, Dahlia, Bird of paradise, Heliconia, Tulip	Ha	1.5	All blocks except B5,B6,B11	22	33.00	22	33.00	22	33.00	26	39.00	26	39.00	118	177.00
42	Cut flowers under open condition - Alstromaria, Golden Rod	Ha	1	B14	3	3.00	3	3.00	3	3.00	3	3.00	3	3.00	15	15.00
VI	**Area expansion /Gap filling of Plantation crops**															
43	Cocoa	Ha	0.5	All blocks except B6,B11	33	16.50	33	16.50	33	16.50	33	16.50	33	16.50	165	82.50
44	Arecanut	Ha	0.5	All blocks	83	41.50	83	41.50	86	43.00	86	43.00	86	43.00	424	212.00
45	Betelvine	Ha	0.5	B1,B2,B3	27	13.50	27	13.50	27	13.50	27	13.50	27	13.50	135	67.50
46	Coconut	Ha	0.5	All blocks	210	105.00	210	105.00	210	105.00	210	105.00	210	105.00	1050	525.00
VII	**Rejuvenation/INM-IPM/Mulching/Anti bird net**															
47	INM/IPM for Horticultural crops	Ha	0.04	All blocks	235	9.40	235	9.40	235	9.40	235	9.40	235	9.40	1175	47.00
48	Mulching	Ha	0.32	All blocks	243	77.76	243	77.76	243	77.76	243	77.76	243	77.76	1215	388.80
49	Anti Bird net	1000 Sq.m	0.35	All blocks	24	8.40	26	9.10	26	9.10	26	9.10	26	9.10	128	44.80

Sl. No.	Interventions	Unit	Unit cost	Blocks covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
VIII	**Pollination Support through Bee Keeping**															
50	Bee hive & Colony	No	0.04	All blocks	1350	54.00	1360	54.40	1360	54.40	1360	54.40	1360	54.40	6790	271.60
51	Honey Extractor	No	0.2	All blocks	135	27.00	136	27.20	136	27.20	136	27.20	136	27.20	679	135.80
IX	**Organic Farming**															
52	Organic farming and PGS certification in 50 acre cluster	1 cluster	14.95	All blocks except B6	13	194.35	3	44.85	11	164.45	11	164.45	1	14.95	39	583.05
53	HDPE Vermibed	No	0.16	All blocks	34	5.44	34	5.44	34	5.44	34	5.44	34	5.44	170	27.20
X	**Rainfed Area development**															
54	Integrated farming system - Horticulture Based farming	Ha	0.5	All blocks	315	157.50	315	157.50	315	157.50	315	157.50	315	157.50	1575	787.50
55	Moisture stress management - Minimum irrigation gurantee by PUSA hydrogel	Ha	0.1	All blocks	1110	111.00	1110	111.00	1110	111.00	1110	111.00	1110	111.00	5550	555.00
B	**Infra structures and Assets creation**															
1	Poly Green House	1000 Sq.m	9.35	All blocks except B6	14	130.90	2	18.70	2	18.70	2	18.70	2	18.70	22	205.70
2	Shadenet	1000 Sq.m	7.1	All blocks	14	99.40	23	163.30	23.5	166.85	23.5	166.85	23.5	166.85	107.5	763.25

Sl. No.	Interventions	Unit	Unit cost	Blocks covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
II	**Mushroom production**															
3	Cottage mushroom unit	1 No.	1	B4	0	0.00	0	0.00	0	0.00	1	1.00	1	1.00	2	2.00
III	**Vermicompost unit**															
4	Permanent Vermicompost Unit	600 cu.ft	1	All blocks	14	14.00	14	14.00	14	14.00	14	14.00	14	14.00	70	70.00
IV	**Supporting structures for Horticulture crop production**															
5	Staking/ Trellies/ Propping	Ha	1	B5,B6,B9, B11,B14	110	110.00	110	110.00	110	110.00	110	110.00	110	110.00	550	550.00
6	Permanent Pandhal structure	Ha	4	All blocks	26	104.00	30	120.00	26	104.00	26	104.00	26	104.00	134	536.00
V	**District Horticulture information and training centre**															
VI	**Community seed bank**															
C	**Special interventions**															
7	Farm deficiency correction	Ha	0.04	All blocks	1400	56.00	1700	68.00	1900	76.00	2100	84.00	2300	92.00	9400	376.00
8	Promotion of Roof top Garden/ Potager garden Kit	No	0.005	All blocks	1325	6.63	1325	6.63	1325	6.63	1325	6.63	1325	6.63	6625	33.13
9	Promotion of Roof top Garden/ Potager garden	No	0.0735	All blocks	113	8.31	113	8.31	113	8.31	163	11.98	163	11.98	665	48.88

Sl. No.	Interventions	Unit	Unit cost	Blocks covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
	Kit with shadenet															
10	Banana Bunch Sleeve	Ha	0.25	B2,B4,B7, B12	40	10.00	40	10.00	40	10.00	40	10.00	40	10.00	200	50.00
11	AESA based IPM in fruits and vegetables Pheramone trap	Ha	0.04	All blocks except B10,B12, B14	22	0.88	22	0.88	22	0.88	22	0.88	22	0.88	110	4.40
12	AESA Based IPM in fruits and vegetables Yellow sticky trap	Ha	0.04	All blocks except B10,B12, B14	22	0.88	22	0.88	22	0.88	22	0.88	22	0.88	110	4.40
13	AESA Based IPM in fruits and vegetables Light trap	Ha	0.08	All blocks except B10,B12, B14	22	1.76	22	1.76	22	1.76	22	1.76	22	1.76	110	8.80
D	**Post Harvest Management**															
14	Pack house (9m X 6m)	1 No	4	All blocks	17	68.00	17	68.00	17	68.00	17	68.00	17	68.00	85	340.00
15	Low cost onion structure 25 mt	1 No	1.75	All blocks except B6	24	42.00	27	47.25	27	47.25	27	47.25	27	47.25	132	231.00
16	Drying yard	1 No	5	All blocks	14	70.00	14	70.00	14	70.00	14	70.00	14	70.00	70	350.00
17	Refer van/collection vehicle	1 No	26	B3	1	26.00	1	26.00	0	0.00	0	0.00	0	0.00	2	52.00
E	**Development of Farms, Nurseries and Parks**															
17	Developmental activities in new/ exsisting state Horticultural farm,	No	25	B4	1	25.00	1	25.00	1	25.00	1	25.00	1	25.00	5	125.00

Sl. No.	Interventions	Unit	Unit cost	Blocks covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
	Keelapalur															
F	**Mechanization - Machineries, Equipments & Tools**															
18	Power tiller/Tractor/Minitractor	Nos	1	All blocks	37	37.00	44	44.00	44	44.00	44	44.00	44	44.00	213	213.00
19	Potato planter/Potato harvester / Onion harvester	No	0.3	B14	2	0.60	2	0.60	2	0.60	2	0.60	2	0.60	10	3.00
20	Power operated sprayer	Nos	0.05	All blocks	190	9.50	197	9.85	201	10.05	230	11.50	232	11.60	1050	52.50
21	Plastic crates for vegetable & fruits handling	No of sets containing 10crates	0.075	All blocks	305	22.88	305	22.88	305	22.88	305	22.88	305	22.88	1525	114.38
22	Turmeric Boiler		2.5	All blocks except B6,B14	16	40.00	16	40.00	16	40.00	16	40.00	16	40.00	80	200.00
23	Turmeric Polishing Machine		0.88	All blocks except B6,B7,B14	13	11.44	6	5.28	13	11.44	6	5.28	13	11.44	51	44.88
24	5 layered Polythene spread sheets for drying horticulture produce	No	0.16	B7,B8,B9, B14	27	4.32	27	4.32	27	4.32	27	4.32	27	4.32	135	21.60
G	**Water / Irrigation Management**															

Sl. No.	Interventions	Unit	Unit cost	Blocks covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
25	Micro Irrigation - Drip	Ha	1.12	All blocks	4450	4984.00	4450	4984.00	4450	4984.00	4450	4984.00	4450	4984.00	22250	24920.00
26	Rain gun	Ha	0.34	All blocks	1045	355.30	1045	355.30	1045	355.30	1045	355.30	1045	355.30	5225	1776.50
27	Sprinkler	No	0.195	All blocks	805	156.98	805	156.98	805	156.98	805	156.98	805	156.98	4025	784.88
28	Water harvesting system for individuals	No	1.5	All blocks except B6	20	30.00	20	30.00	20	30.00	20	30.00	20	30.00	100	150.00
H	**Capacity Building**															
29	Training to farmers within the State. 2 days Rs.1000/farmer/day	No	0.02	All blocks	70	1.40	70	1.40	70	1.40	70	1.40	70	1.40	350	7.00
30	Exposure visit to farmers for 5 days. Rs.1000/farmer/day	No	0.05	All blocks	280	14.00	280	14.00	280	14.00	280	14.00	280	14.00	1400	70.00
31	Exposure visit of farmers outside India	No	4	All blocks	14	56.00	14	56.00	14	56.00	14	56.00	14	56.00	70	280.00
32	Training to staff outside the state / Batch of 5 members	No	0.04	All blocks	36	1.44	10	0.40	36	1.44	10	0.40	24	0.96	116	4.64
33	Training to staff outside India	No	6	All blocks	14	84.00	14	84.00	14	84.00	14	84.00	14	84.00	70	420.00
34	HRD for supervisors and enterpreuners	No	20	All blocks	16	320.00	18	360.00	18	360.00	18	360.00	18	360.00	88	1760.00

Sl. No.	Interventions	Unit	Unit cost	Blocks covered	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
35	District level seminar	No	2	All blocks	2	4.00	4	8.00	3	6.00	3	6.00	4	8.00	16	32.00
36	Computerization & governance	No	1	All blocks	13	13.00	1	1.00	12	12.00	0	0.00	12	12.00	38	38.00
37	Publicity and Documentation	No	0.5	All blocks	14	7.00	14	7.00	14	7.00	14	7.00	14	7.00	70	35.00
I	**Crop Insurance and Risk Mitigating schemes**															
38	Crop Insurance	Ha	0.025	All blocks	7800	195.00	7800	195.00	7800	195.00	7800	195.00	7800	195.00	39000	975.00
	Grand total					**9213.57**		**9099.67**		**9216.52**		**9227.04**		**9111.36**		**45868.14**

Ammapettai- B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Tnpalayam – B13, Thalavadi – B14,

Agricultural Engineering

Agricultural mechanization is the process whereby equipments, machineries and implements are utilized to boost agricultural and food production. It is the application of machineries, equipments and implements in the day to day farm activities to increase marginal output in food production and poverty eradication. It increases productivity of land and labour by meeting timeliness of farm operations and increase work out-put per unit time. Besides its paramount contribution to the multiple cropping and diversification of agriculture, mechanization also enables efficient utilisation of inputs such as seeds, fertilisers and irrigation water. The agricultural mechanization is the only way out to face the challenge of farm worker's shortage. Thus the ultimate objective of Agricultural Mechanization Strategies in developing countries is to help increase the welfare of farm households and create positive dynamics and opportunities for economic growth in rural areas.

Strategies:

- Promotion and strengthening of Agricultural Mechanization through training, Testing and Demonstration in order to ensure performance testing of agricultural machinery and equipment, capacity building of farmers and end users and promoting farm mechanization through demonstrations.
- Demonstration, Training and Distribution of post-harvest Technology and Management (PHTM) to popularize the technology for primary processing, value addition, low cost scientific storage/transport and the crop by-product management through demonstrations, capacity building of farmers and end users. Provides financial assistance for establishing PHT units.
- Promotion of ownership to small and marginal farmers for various agricultural machinery and equipments such as Tractors, Power tillers, Rice transplanter, Self-propelled machinery, Tractor/Power tiller drawn equipments (MB Plough, Disc plough, Cultivator, Harrow, Leveler Blade, Ridger, Laser Land Leveller, Reversible Mechanical Plough, Rotavator, Rotopuddler, Reversible Hydraulic Plough, Post hole digger, Reaper, Seed driller, Balers, Coconut thrash cutter, coconut frond chopper, Multi crop thresher, Paddy thresher, Brush cutter, Chaff cutter, Drum Seeder) and Plant protection equipments .
- Provision of suitable financial assistance to establish farm machinery banks for custom hiring for appropriate locations and crops
- Establishment of hi-tech machinery hubs for high value crops like sugarcane, cotton etc.

- Promotion of appropriate technologies and to set up farm machinery banks in identified villages
- Provision of financial assistance on per hectare basis to the beneficiaries hiring machinery/equipments from custom hiring centres
- Increases the tractor hire services in the farms of small and marginal farmers
- Strengthening of Minor irrigation for the rainfed and hard rock areas. It would establish through construction of open well, tube wells and Bore wells. Revitalisation of wells by side boring and blasting in hard rock areas.
- Introduction of renewable energy in the villages which would replace other fuels. Also attractive for water pumping applications in remote areas. Hence solar operated photovoltaic water pumping system provides better sustainable alternative option to fulfill irrigation requirement of agriculture.
- Provision of components such as High tech Earth excavator, Poly Green House with Fogging facility, Vermi Compost unit with packing accessories, Farm pond / Fish pond, Farmers kit (Crow bar, Hand hoe, rose can, pruning siccature, coconut dehusker, trolley etc.,), Land levelling, Pipe laying, Stening wall, Well deepening, Replacement of old Pumpsets, Infrastructure like packing unit, godown, cattle shed and Threshing floor, Publicity and propaganda for farm mechanization in AED, Special Training for Coconut Growers, Special Training for Coconut Tree Climbing, J C B, Mini Drill, Compartmental Bund Formation, Farm Ponds, Community Bore wells, Deepening of Open Wells, Renovation of MI Tanks, Check Dam, Percolation Pond, Recharge Shaft, Summer Ploughing, PVP pipe laying, Replacement of Submersible Motors pump sets, Telescopic Pruner, Motorized Rubber Roller, Trays for Paddy Nursery Raising, Combine Harvester, Diesel Pump, Rotary Tiller, Smoke House, Mist Blower, Tea Harvester, Construction of LD & MI Repair Shed and Construction of Training Centre for farmers with furniture and accessories at the department of Agricultural engineering
- Strengthening of communication and information facilities in order to disseminate the information in rural areas
- Promotion of agro-processing and management machinery at community level through supply of post-harvest machinery such as self-propelled/other driven horticultural machinery (Chain saw/ wheel barrow/ Mango grader/ planter and other suitable self-propelled machineries and equipments), Manual horticultural equipments (Aluminium ladder/ Ladder, Aluminium pole, Plucker), Post-harvest equipments for grains, oil seeds and Horticultural crops (Mini Rice mill, Mini Dhall mill, Millet Mill, Oil mill with filters, Extractor, pomegranate air extractor, Custard

apple pulper, Dehydration unit, Pricking Machine, Humidifier, Packing machine, power driven dehusker, thresher, Harvester, De-spiking, Deconing, Peeler, Splitter, Stripper, Boiler, Steamer, Dryer solar, Washing Machine, Grinder, Pulveriser, Polisher, Cleaner cum grader, gradient separator, Specific gravity separator) this would make sure that more value is added to farm outputs locally

- Establishment of Agricultural Engineering Extension centres in order to collect information related to Government subsidy on agricultural / machineries / equipment / irrigation systems etc., compilation of latest technologies related to Agricultural Engineering and Development of video cassettes library related to Processing of agricultural products, Working of important agricultural machines and equipment and Repair, maintenance and proper setting of the different agricultural Machines / and equipment
- Promotion of training to AED engineers on post-harvest techniques and bio energy

Expected outcome

Implementation of the above strategies such as supply of farm implements to carry out mechanised cultivation operations and demonstration to farmers the advantage of using Agricultural implements and machinery would increase the production and productivity. Post- Harvest Technologies to farmers would prevent loss of food grains during harvest and storage and Preserve the quality of produce in respect of perishable commodities. Disseminated technologies on renewable energies, in particular, solar energy for agricultural activities in respect of pumping with solar powered pumps, drying farm produce for enhancement of quality to fetch reasonable market price.

Budget

Agriculture continues to be the most predominant sector of this district economy, as 70 percent of the population is engaged in Agriculture and allied activities for their livelihood. Agricultural Mechanization could provide the stability in agricultural production in a sustainable manner to meet the food requirement of growing population and also to meet the raw material needs of agro based industries, thereby providing employment opportunities to the rural population**.** The overall budget requirement for implementation of above interventions is ₹ 8013.70 lakhs .

Implementing agency

The projects will be implemented by the Department of Agricultural Engineering

Table.4.20. Budget requirement for Agricultural Engineering

(₹. in lakhs)

(Rs. in Lakhs)

Sl. No.	Interventions	Blocks Covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Capacity Building															
1	**Demonstration of Agricultural Machinery**	All Blocks	No's/Ha	0.04	17	0.68	17	0.68	17	0.68	17	0.68	17	0.68	85	3.40
2	**Training of farmers**	All Blocks	No's/Ha	0.04	9	0.36	9	0.36	9	0.36	9	0.36	9	0.36	45	1.80
3	**Training of Rural Youth in workshops**	All Blocks	No's/Ha	0.04	9	0.36	9	0.36	9	0.36	9	0.36	9	0.36	45	1.80
4	**Demonstration of Post Harvest Technologies**	All Blocks	No's/Ha	0.04	9	0.36	9	0.36	9	0.36	9	0.36	9	0.36	45	1.80
5	**Financial assistance for Post Harvest Equipment**	B6	No's/Ha	4	1	4.00	0	0.00	0	0.00	1	4.00	0	0.00	2	8.00
6	Tractor (8-15 PTO HP)	All Blocks	No's/Ha	3	8	24.00	7	21.00	8	24.00	8	24.00	7	21.00	38	114.00
7	Tractor (15-20 PTO HP)	All Blocks	No's/Ha	4	31	124.00	32	128.00	33	132.00	34	136.00	35	140.00	165	660.00
8	Tractor (Above 20-40 PTO HP)	All Blocks	No's/Ha	6	6	36.00	6	36.00	8	48.00	6	36.00	6	36.00	32	192.00
9	Tractor (40-70 PTO HP)	All Blocks	No's/Ha	8.5	19	161.50	19	161.50	21	178.50	20	170.00	24	204.00	103	875.50
10	**Power Tillers**															
11	Power Tiller (below 8 BHP)	B1, B3, B4, B7, B10, B12, B14, B13	No's/Ha	1	2	2.00	2	2.00	2	2.00	2	2.00	2	2.00	10	10.00
12	Power Tiller (8 BHP & above)	All Blocks	No's/Ha	1.75	40	70.00	40	70.00	45	78.75	45	78.75	40	70.00	210	367.50
13	**Rice Transplanter**															

Sl. No.	Interventions	Blocks Covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
14	Self Propelled Rice Transplanter (4 rows)	B1, B3, B4, B7	No's/Ha	2.5	1	2.50	1	2.50	1	2.50	1	2.50	1	2.50	5	12.50
15	Self Propelled Rice Transplanter (Above 4-8 rows)	B4, B7	No's/Ha	16	1	16.00	0	0.00	0	0.00	1	16.00	0	0.00	2	32.00
16	**Self Propelled Machinery**															
17	Reaper cum Binder	All Blocks Except B6, B11	No's/Ha	3	40	120.00	50	150.00	30	90.00	40	120.00	40	120.00	200	600.00
18	**Specialized Self Propelled Machinery**															
19	Reaper	All Blocks	No's/Ha	1.1	3	3.30	3	3.30	3	3.30	3	3.30	3	3.30	15	16.50
20	Post Hole Digger / Augur	All Blocks	No's/Ha	0.63	14	8.82	14	8.82	14	8.82	14	8.82	14	8.82	70	44.10
21	**Tractor/Power Tiller (below 20 BHP) driven equipments**															
22	**a. Land Development, tillage and seed bed preparation equipments**															
23	MB Plow	B1, B3	No's/Ha	0.3	1	0.30	1	0.30	0	0.00	0	0.00	0	0.00	2	0.60
24	Disc Plow	B6	No's/Ha	0.3	1	0.30	0	0.00	0	0.00	0	0.00	0	0.00	1	0.30
25	Cultivator	All Blocks	No's/Ha	0.2	4	0.80	3	0.60	4	0.80	3	0.60	4	0.80	18	3.60
26	Harrow	B6	No's/Ha	0.6	0	0.00	0	0.00	0	0.00	1	0.60	0	0.00	1	0.60
27	Leveler Blade	B1, B3, B4, B7, B10, B12, B14, B13	No's/Ha	0.15	2	0.30	2	0.30	2	0.30	2	0.30	1	0.15	9	1.35

Sl. No.	Interventions	Blocks Covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
28	Ridger	B13	No's/Ha	0.25	1	0.25	1	0.25	1	0.25	1	0.25	1	0.25	5	1.25
29	Rotavator	B6, B8, B9, B5, B11	No's/Ha	0.35	5	1.75	5	1.75	5	1.75	5	1.75	5	1.75	25	8.75
30	**c. Intercultivation Equipments**															
31	Power Weeder (engine operated below 2 BHP)	All Blocks Except B6	No's/Ha	0.25	4	1.00	3	0.75	4	1.00	3	0.75	4	1.00	18	4.50
32	**d. Equipment for residue management / hay and forage equipments**															
33	Sugarcane thrash Cutter	B6, B8, B9, B5, B11	No's/Ha	1.5	1	1.50	1	1.50	1	1.50	1	1.50	1	1.50	5	7.50
34	Coconut Frond chopper	B6, B8, B9, B5, B11	No's/Ha	0.8	1	0.80	1	0.80	1	0.80	1	0.80	1	0.80	5	4.00
35	**e. Harvesting and Threshing equipments**															
36	Brush Cutter	All Blocks	No's/Ha	0.25	6	1.50	8	2.00	8	2.00	10	2.50	10	2.50	42	10.50
37	**f. Chaff Cutter (Operated by engine / electric motor below 3 hp and by power tiller and tractor of below 20 BHP tractor)**	All Blocks	No's/Ha	0.25	200	50.00	200	50.00	200	50.00	210	52.50	210	52.50	1020	255.00
38	**Tractor (above 20-35 BHP) driven equipments**															
39	**a. Land Development, tillage and seed bed preparation equipments**															
40	MB Plow	B3	No's/Ha	0.8	1	0.80	1	0.80	0	0.00	0	0.00	0	0.00	2	1.60
41	Disc Plow	B3	No's/Ha	0.4	0	0.00	1	0.40	0	0.00	0	0.00	0	0.00	1	0.40

Sl. No.	Interventions	Blocks Covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
42	Cultivator	All Blocks	No's/Ha	0.25	9	2.25	9	2.25	9	2.25	9	2.25	9	2.25	45	11.25
43	Harrow	B3 and B7	No's/Ha	0.9	1	0.90	0	0.00	1	0.90	0	0.00	0	0.00	2	1.80
44	Leveler Blade	B9, B5, B11	No's/Ha	0.25	1	0.25	0	0.00	1	0.25	1	0.25	1	0.25	4	1.00
45	Ridger	B9, B5, B11	No's/Ha	0.3	1	0.30	1	0.30	0	0.00	1	0.30	0	0.00	3	0.90
46	Rotavator	All Blocks	No's/Ha	0.8	24	19.20	26	20.80	26	20.80	28	22.40	28	22.40	132	105.60
47	Rotopuddler	B3	No's/Ha	1.2	0	0.00	0	0.00	1	1.20	0	0.00	0	0.00	1	1.20
48	Reversible Hydraulic plough	B6, B8, B9, B5, B11	No's/Ha	1.9	0	0.00	1	1.90	1	1.90	1	1.90	1	1.90	4	7.60
49	**c. Inter Cultivation Equipments**															
50	Power Weeder (engine operated above 2 BHP)	All Blocks	No's/Ha	0.7	23	16.10	25	17.50	27	18.90	29	20.30	31	21.70	135	94.50
51	**d. Equipments for Residue management/Hay and Forage Equipments**															
52	Coconut Frond chopper	B6, B8, B9, B5, B11	No's/Ha	0.9	1	0.90	2	1.80	2	1.80	2	1.80	2	1.80	9	8.10
53	Balers	B1, B3, B4, B7, B10, B12, B14, B13	No's/Ha	3	1	3.00	1	3.00	1	3.00	1	3.00	1	3.00	5	15.00
54	**e.Harvesting & Threshing Equipments**															
55	Multi crop Threshers	B6, B8, B9, B5, B11	No's/Ha	3	1	3.00	1	3.00	1	3.00	1	3.00	1	3.00	5	15.00
56	**f.Chaff Cutter (Operated by engine / electric**	B6, B8, B9, B5, B11	No's/Ha	0.4	1	0.40	1	0.40	1	0.40	1	0.40	1	0.40	5	2.00

Sl. No.	Interventions	Blocks Covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	motor above 3-5 hp and by power tiller and tractor of below 35 BHP tractor)															
57	**Tractor (above 35 BHP) driven equipments**															
58	**a.Land Development, tillage and seed bed preparation equipments**															
59	MB Plow	B6, B8, B9, B5, B11	No's/Ha	1	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	5	5.00
60	Disc Plow	B1, B3, B4	No's/Ha	0.6	1	0.60	0	0.00	1	0.60	1	0.60	0	0.00	3	1.80
61	Cultivator	All Blocks	No's/Ha	0.3	19	5.70	19	5.70	19	5.70	19	5.70	19	5.70	95	28.50
62	Harrow	B1, B3, B4, B7, B10, B12, B14, B13	No's/Ha	1	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	5	5.00
63	Leveler Blade	B1, B3, B4, B7, B10, B12, B14, B13	No's/Ha	0.3	2	0.60	2	0.60	2	0.60	2	0.60	2	0.60	10	3.00
64	Ridger	B1, B3, B4, B7, B10, B12, B14, B13	No's/Ha	0.4	1	0.40	1	0.40	1	0.40	1	0.40	1	0.40	5	2.00
65	Reversible Mechanical plough	B1, B3, B4, B7, B10, B12, B14, B13	No's/Ha	0.8	1	0.80	1	0.80	1	0.80	1	0.80	1	0.80	5	4.00
66	Rotavator	All Blocks	No's/Ha	0.95	140	133.00	145	137.75	145	137.75	150	142.50	150	142.50	730	693.50
67	Rotopuddler	B1, B3, B4, B7, B10,	No's/Ha	1.4	1	1.40	1	1.40	1	1.40	1	1.40	1	1.40	5	7.00

Sl. No.	Interventions	Blocks Covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
		B12, B14, B13														
68	Reversible Hydraulic plough	All Blocks	No's/Ha	2	6	12.00	6	12.00	6	12.00	6	12.00	6	12.00	30	60.00
69	**b. Sowing Planting, Reaping and Digging Equipments:**															
70	Tractor drawn reaper	All Blocks	No's/Ha	1.25	5	6.25	5	6.25	4	5.00	4	5.00	4	5.00	22	27.50
71	Post Hole digger	B6 and B3	No's/Ha	1.05	1	1.05	0	0.00	1	1.05	0	0.00	0	0.00	2	2.10
72	Automatic Rice NurserySowing Machine	B6 and B3	No's/Ha	2.5	0	0.00	0	0.00	1	2.50	1	2.50	0	0.00	2	5.00
73	**d.Harvesting & Threshing Equipments**															
74	Thresher/Multi Crop threshers	All Blocks	No's/Ha	4	2	8.00	2	8.00	2	8.00	2	8.00	2	8.00	10	40.00
75	**e.Equipments for Residue management/Hay and Forage Equipments**															
76	Sugarcane thrash Cutter	B5, B11	No's/Ha	2	1	2.00	1	2.00	0	0.00	0	0.00	0	0.00	2	4.00
77	Coconut Frond chopper	All Blocks	No's/Ha	1.05	6	6.30	5	5.25	5	5.25	6	6.30	6	6.30	28	29.40
78	Balers (Round)	All Blocks	No's/Ha	3.5	5	17.50	5	17.50	6	21.00	6	21.00	6	21.00	28	98.00
79	Baler (Rectangular)	All Blocks	No's/Ha	8	2	16.00	2	16.00	2	16.00	2	16.00	2	16.00	10	80.00
80	Sugarcane ratoon manager	B5, B11	No's/Ha	1	1	1.00	0	0.00	1	1.00	0	0.00	0	0.00	2	2.00
81	**All Manual/animal drawn equipment/implements / Tools**															

Sl. No.	Interventions	Blocks Covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
82	Tree climber	All Blocks	No's/Ha	0.07	10	0.70	10	0.70	10	0.70	10	0.70	10	0.70	50	3.50
83	**Plant protection equipments**															
84	Manual sprayer: Knapsack/foot operated sprayer	All Blocks	No's/Ha	0.015	4	0.06	4	0.06	4	0.06	4	0.06	4	0.06	20	0.30
85	Powered Knapsack Sprayer/Power operated Taiwan sprayer (capacity 8-12 lts)	All Blocks	No's/Ha	0.06	60	3.60	60	3.60	60	3.60	60	3.60	60	3.60	300	18.00
86	Powered Knapsack Sprayer/Power operated Taiwan sprayer (capacity above 12-16 lts)	All Blocks	No's/Ha	0.08	100	8.00	100	8.00	105	8.40	110	8.80	120	9.60	535	42.80
87	Powered Knapsack Sprayer/Power operated Taiwan sprayer (capacity above 16 lts)	All Blocks	No's/Ha	0.1	4	0.40	4	0.40	4	0.40	4	0.40	4	0.40	20	2.00
88	**Establishment of Farm Machinery Banks for Custom Hiring**	All Blocks	No's/Ha	28	5	140.00	5	140.00	4	112.00	5	140.00	5	140.00	24	672.00
89	**Promotion of Farm Mechanization in Selected Villages**	All Blocks	No's/Ha	11.5	2	23.00	2	23.00	2	23.00	2	23.00	1	11.50	9	103.50
90	**Financial assistance for promotion of Mechanized Farming operations**	All Blocks	No's/Ha	0.04	20	0.80	20	0.80	20	0.80	15	0.60	15	0.60	90	3.60
91	**Tractor Hiring Scheme**															
92	Purchase of Tractors for AED	B5, B11	No's/Ha	8	0	0.00	1	8.00	0	0.00	0	0.00	1	8.00	2	16.00
93	Purchase of Tractor drawn implemnets for	All Blocks	No's/Ha	0.5	7	3.50	4	2.00	0	0.00	0	0.00	2	1.00	13	6.50

Sl. No.	Interventions	Blocks Covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	AED															
94	**Solar Energy**															
95	**5 hp**	All Blocks	No's/Ha	3.75	30	112.50	45	168.75	45	168.75	45	168.75	45	168.75	210	787.50
96	**7.5 hp**	All Blocks	No's/Ha	5.3	18	95.40	30	159.00	30	159.00	30	159.00	30	159.00	138	731.40
97	**10 hp**	All Blocks	No's/Ha	6.75	0	0.00	18	121.50	18	121.50	18	121.50	18	121.50	72	486.00
98	Solar Driers to farmers / farmers' groups for drying agricultural produce															
99	**upto 400sq.ft**	All Blocks	No's/Ha	4.25	2	8.50	2	8.50	2	8.50	2	8.50	2	8.50	10	42.50
100	**400-600sq.ft**	All Blocks	No's/Ha	6.5	1	6.50	1	6.50	1	6.50	1	6.50	1	6.50	5	32.50
101	**Any other innovative schemes of AED with Components & its unit cost**															
102	**Information Technology (IT) related items**															
103	Computer & its accessories	B6, B8, B9, B5, B11	No's/Ha	0.8	1	0.80	1	0.80	1	0.80	1	0.80	1	0.80	5	4.00
104	Tablet (Tab)	All Blocks	No's/Ha	0.25	8	2.00	8	2.00	8	2.00	8	2.00	8	2.00	40	10.00
105	Xerox machine	B6, B8, B9, B5, B11	No's/Ha	1.5	1	1.50	1	1.50	1	1.50	1	1.50	1	1.50	5	7.50
106	Chain saw/ Wheel barrow/ Mango grader/ planter and other suitable self propelled machineries and equipments for horticulture Crops	All Blocks	No's/Ha	1	5	5.00	5	5.00	5	5.00	5	5.00	5	5.00	25	25.00

Sl. No.	Interventions	Blocks Covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
107	**Manual Horticultural Equipments**															
108	Aluminium Ladder/ Ladder	All Blocks	No's/Ha	0.2	100	20.00	100	20.00	100	20.00	100	20.00	100	20.00	500	100.00
109	Aluminium pole	All Blocks	No's/Ha	0.03	50	1.50	50	1.50	50	1.50	50	1.50	50	1.50	250	7.50
110	Plucker	All Blocks	No's/Ha	0.02	100	2.00	100	2.00	100	2.00	100	2.00	100	2.00	500	10.00
111	**Post Harvest Equipments for food grains, oil seeds and Horticultural Equipments**															
112	Oil mill with filter press (for all type of Horticulture / Food grain / Oil seeds crop)	All Blocks	No's/Ha	1.2	3	3.60	5	6.00	5	6.00	5	6.00	3	3.60	21	25.20
113	All types of Power driven Dehusker/ sheller/ Threshers/ Harvesters/ De-spiking/ Deconing Machine/ Peeler/ Splitter/ Stripper (for all type of Horticulture / Food grain / Oil seeds crop)	All Blocks	No's/Ha	1.2	0	0.00	0	0.00	0	0.00	10	12.00	0	0.00	10	12.00
114	All types of Boiler/ Steamer/ Dryer solar (for all type of Horticulture / Food grain / Oil seeds crop)	All Blocks	No's/Ha	2	10	20.00	10	20.00	10	20.00	0	0.00	8	16.00	38	76.00
115	All types of Washing Machines (for all type of Horticulture / Food grain / Oil seed crop)	All Blocks	No's/Ha	1.5	0	0.00	0	0.00	0	0.00	10	15.00	0	0.00	10	15.00

Sl. No.	Interventions	Blocks Covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
116	All types of Grinder/ Pulveriser/ Polisher (for all type of Horticulture / Food grain / Oil seed crop)	All Blocks	No's/Ha	0.3	10	3.00	10	3.00	10	3.00	0	0.00	8	2.40	38	11.40
117	**Construction of Agricultural Engineering Extension centres (AEECs)**	B5, B11	No's/Ha	75	0	0.00	1	75.00	1	75.00	0	0.00	0	0.00	2	150.00
118	**Training of AED Engineers on " Agricultural Processing" and " Bio- Energy"**	B1, B3, B4, B7, B10, B12, B14, B13	No's/Ha	0.04	2	0.08	2	0.08	2	0.08	2	0.08	2	0.08	10	0.40
	Grand total					**1365.52**		**1698.62**		**1653.57**		**1652.37**		**1643.62**		**8013.70**

Ammapettai – B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.4 Agricultural Marketing

The Government is taking every effort to attain sustainable agricultural development by transforming agriculture into a commercial venture, by switching over to new scientific methods of cultivation so as to increase the productivity manifold. Besides, through value addition, processing and utilization of the marketing opportunities, the incremental output can be ensured. To further improve the marketing opportunities and to reduce the loss of agricultural produces, several measures have to be taken up by way of interventions like promotion of commodity groups and market information, strengthening of Uzhavar shandies and regulated markets, construction of storage godown, provision of market access and market activities, supply chain and post-harvest management, infrastructure and assets, and capacity building of farmers.

The core problem however in Agribusiness development is the general failure in coordinating the decisions of the private stakeholders *viz.,* farmers, traders and agricultural processors and service providers by the government and non-governmental sectors. In fact farmers fail to link themselves through effective producer-organizations to undertake joint decisions in production and marketing as well. Such weak linkages also due to limited access to relevant market intelligence and inadequate market infrastructure. Farmers are also poorly linked to research and extension service providers to address their specific technology and knowledge needs that would enable them into high-value production systems.

Entrepreneurs also have weak linkages with the farmers through contracts and vertical integration arrangements and are away from consumers because of absence of organized retail chains. Linkage with service providers are characterized by lack of confidence. The inadequacy in certification, quality assurance systems and inadequate infrastructure continues to limit the integration of production and international markets.

Agricultural produce are seasonal and perishable in nature. In a good season there may be a local glut, but because of insufficient transport facilities, lack of good roads and poor availability of packaging materials, the surplus cannot be taken quickly enough to the natural markets in urban areas. Moreover, the surplus often cannot be stored for sale in the off-season because of inadequate local storage facility; the farmers are often forced to market their produce at low price. Thus, the cultivars do not get a good price for their produce because of the glut, and some of it is spoiled resulting in complete loss. Currently pulses are processed manually using thirugu, ural, chakki, etc., which is laborious and time consuming. Due to existing problems in processing of pulses and millets, their market is not profitable for the farmers growing pulses. To reduce the

loss of agricultural produce which are up to 30 per cent, necessary provisions are needed to ensure remunerative price to the produce, encourage processing from the present level of 10 per cent of the total.

So, to accelerate the growth substantially, a new way of linking of Agricultural produce and marketing and promoting Agribusiness are focused. Promotion of commodity groups, farmer producer agencies, marketing organization and market linkage, encouraging of private players in marketing, value addition, crop specific supply chain management, more infrastructural facilities for processing and sensitizing the farmers for market-led agriculture by rendering crop advisory and market information are focused. Agri-business also contributes to the production of higher-value products and diversification away from the staple foods. Through this diversification and the development of the value chain between producers and consumers, the rural economy benefits from innovation and the creation of non-farm employment.

Components

- Provision of Agmark lab equipments in Kangeyam, Vellakkoil, Perundurai and Erode
- Construction of Storage godown for commodity groups in all blocs
- Construction of drying yards in all blocks
- Provision of market access *viz*. plastic crates and tarpaulin to all blocks
- Distribution of turmeric solar dryer and turmeric pulveriser to Erode block
- Exposure visit (within state & outside state) for commodity group farmers to acquire value addition technologies
- Training on market led extension, Agmark grading and food safety at district level

Budget

The district plan proposes an outlay of **Rs.2603.68 lakhs** over a period of five years for Erode district.

Expected Outcome

The expected impact of the intervention will be increasingly competitive agribusiness sector leading to diversification, higher-value added products and higher incomes for farmers, farm workers and entrepreneurs and reduced rural poverty. The interventions will facilitate the development of a competitive agriculture sector, promoting diversification and contributing to the transformation of agriculture into a system

producing higher value produces. The interventions will also provide higher-value for consumers, value that will be shared as distributed benefits to value chain stakeholders including farmers, entrepreneurs and workers.

Implementing Agency

The Block-level officials of the Department of Agricultural Marketing and Agri-Business will implement the programs.

Table 4.21. Budget for strengthening of Agricultural Marketing and Agri-Business in Erode District

(Rs. in Lakhs)

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Promotion of Commodity Groups and Market Information															
1	Provision of Agmark Lab equipments	Nos.	5	B1, B2, B7, B18	7	35.00	0	0.00	0	0.00	0	0.00	0	0.00	7	35.00
	Strengthening of Uzhavar Sandhai and Regulated Market															
2	Drying Yard	Nos.	2.5	All Blocks	40	100.00	80	200.00	20	50.00	80	200.00	100	250.00	320	800.00
3	Storage godown	Nos.	10	All Blocks	40	400.00	20	200.00	0	0.00	40	400.00	40	400.00	140	1400.00
	Formation of FPO / Strengthening of Existing Commodity Groups															
4	Commodity Group	Nos.	0.03	All Blocks	400	12.00	0	0.00	0	0.00	40	1.20	0	0.00	440	13.20
	Provision of Market Access and Market Activities															
5	Plastic crates	1 Nos	0.0045	All Blocks	3000	13.50	200	0.90	200	0.90	200	0.90	200	0.90	3800	17.10
6	Tarpaulin	Nos.	0.108	All Blocks	400	43.20	0	0.00	0	0.00	0	0.00	20	2.16	420	45.36
	Post Harvest Infrastructure and Machinaries															
7	Turmeric Solar dryer	Nos.	30	B18	1	30.00		0.00		0.00		0.00		0.00	1	30.00

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
8	Turmeric pulvariser	Nos	32.82	B18	1	32.82		0.00		0.00		0.00		0.00	1	32.82
	Capacity building Programme															
9	Exposure Visits - within state	Nos.	0.11	All Blocks	120	13.20	6	0.66	6	0.66	6	0.66	40	4.40	178	19.58
10	Exposure Visits - outside state - 3 days	Nos.	0.66	All Blocks	240	158.40	0	0.00	0	0.00	0	0.00	17	11.22	257	169.62
11	Training on Market led Extension, Agmark grading&Food safety, post harvest technology, Supply Chain Management, Grading-sorting-packing, Market linkages & Exports, Food processing and value addition at district level	Nos.	0.05	All Blocks	400	20.00	20	1.00	20	1.00	200	10.00	180	9.00	820	41.00
	Grand total					**858.12**		**402.56**		**52.56**		**612.76**		**677.68**		**2603.68**

B1-Kangayam, B2-Vellakovil, B3-Dharapuram, B4-Mulanur, B5-Kundadam, B6-Uthukuli, B7 -Perundurai, B8-Chennimalai, B9-Ammapettai, B10-Anthiyur, B11-Bhavani, B12-Gobi, B13-T.N.Palayam, B14-Nambiyur, B15-Sathy, B16-Bhavanisagar, B17-Thalavady, B18-Erode, B19-Modakurichi, B20-Kodumudi

4.5. Seed and Organic Certification

Seed is a critical input for long-term sustained growth of agriculture. Timely availability of certified quality seeds with good yield potential continues to be a decisive factor in agricultural production. Farmers in Tamilnadu state are well aware of the benefits of using quality seeds which include foundation, certified and truthfully labelled seeds. In our State, the seed replacement rate is being adopted as per the guidelines of Government of India. In order to achieve the target of doubling the income of farmers, timely availability of quality seeds is given utmost importance. Concerted efforts are essential in ensuring timely availability of seeds as well as increasing the Seed Replacement Rate (SRR). The National Mission on Seeds has been formulated with a view to upgrade the quality of farm saved seeds and also to enhance Seed Replacement Rate. The Department of Seed Certification & Organic Certification plays the supporting role in the enhancement of Seed Replacement Rate by certifying quality seeds in an increasing trend over the years.

Seed certification is a legally sanctioned system for quality control of seed multiplication and production. The immediate objective of seed certification is to supply high quality seed to farmers and other growers, which is true to identity, high in purity and germination capacity and free from certain pests and diseases. Seed quality is most important in crop production, as high quality seed is essential for good crop yields and good returns, and minimize the likelihood of crop failure. Moreover, growing consciousness of health hazards due to possible contamination of farm products from use of chemicals have immensely contributed to the revival of organic agriculture. Organic certification is a certification body for organic production which was established as a government department on 17 of May 2007. Thus the major focus of the department will be creation of new facilities for better certification by strengthening the lab facilities, and infrastructure, create more awareness on quality seed and organic agriculture through capacity building, expanding communication and networking facilities in order to enhance the activities on seed and organic certification.

Project components

- Strengthening of Seed Testing laboratories

Samples received in a seed testing laboratory should be processed through various stages in the laboratory as quickly as possible so that result may be sent to sender promptly. The space provided for seed testing, the arrangement of that space and furnishing available would contribute greatly in the efficient functioning of the laboratory. In order to carry out seed quality tests and maintaining the purity in the seed testing laboratory the equipments such as Dehumidifier, R.O. System, Humidifier, Thermo hydrometer, Digital Moisture meter, Microscope, Working table, Working Chair, Air

conditioner, Sample Racks, Geaser, Heater, Trolley for Carriages, Generator 30KV, Induction Stove, Fabricated Display Racks, Conductivity Meter, Dehuller/ Scarifier, Seed Grinder, Blower, Hot Air oven, Incubator and Miscellaneous are required.

- Creation of infrastructure facilities in seed testing laboratories

A laboratory may be a completely separate building, or a part of a larger building housing a department. Regardless of how this space need is met a minimum of 1500 sq. ft. of working space should be provided for the laboratory analyzing about 10000 samples annually. The space provided should be divided into general work areas. These may be completely separate rooms or they may be portions of the same room. The areas to be considered include sample receiving, preparation, purity analysis, germination, seed storage, tags, supplies, mailing, general storage and office with a main objective to occupy large number of samples.

- Capacity building

Promotion of quality seed production and distribution the training programmes would be organized. The training to be given on the seed production to seed producers. The training includes seed growers who are mostly small and marginal farmers. Also training to be given to the seed dealers on quality maintenance in storage, selling of seeds.

- Strengthening of communication and networking facilities

Information on quality seed production techniques would be disseminate among the farmers and seed growers.

Expected outcome

Enhancement of infrastructure facilities, capacity building, communication and networking would promote the quality of seed and organic certification.

Budget

Seed testing plays a pivotal role in modern agriculture. It is being carried out to analyze factors like germination, physical purity, moisture, seed health and admixture of other distinguishable varieties. Seed testing is carried out in the notified seed testing laboratories. The Seed testing results are very important for the successful implementation of Seed Certification and Seed Law Enforcement programmes. Apart from certified seed samples and samples received from the seed quality control wing, the service samples sent by the farmers, seed dealers and seed producers are also tested in these laboratories of Erode district. The overall budget requirement for implementation of above interventions is ₹ 34.12 lakhs.

Implementing agency

The projects will be implemented by the Directorate of seed and organic certification.

Table.4.22. Budget requirement for Seed and Organic Certification

(Rs. in Lakhs)

Sl. No	Interventions	Unit	Unit cost	Blocks Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
I	**Strengthening of Seed Certification lab**															
	Blower, Conductivity meter, Dehuller/Scarifier, Dehumidifier Air Conditioner, Digital moisture meter, Dunnage, Fabricated display Racks ,Geaser, Generator, Heater,Hot air oven,Humidifier,Incubator,Induction stove,Microscope,Moisture meter,Packing machine,R. O system,Sample racks,Seed Grinder,Sieve,Thermohydro meter,Dunnage,Trolley for carriages,Working chair,Working table, Miscellaneous,	Nos	13.36	All Blocks	1.00	13.36	0.00	0.00	1.00	13.36	0.00	0.00	0.00	0.00	2.00	26.72
II	**Strengthening of communication and networking facilities**															
	Computer accessories	No's	0.50	All Blocks	10.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.00	5.00
III	**Capacity Building**															
	Training to seed grower for quality seed production	No's	0.20	All Blocks	0.00	0.00	2.00	0.40	2.00	0.40	2.00	0.40	2.00	0.40	8.00	1.60
	Training to seed producers on seed certification procedures	No's	0.10	All Blocks	0.00	0.00	2.00	0.20	2.00	0.20	2.00	0.20	2.00	0.20	8.00	0.80
	Total					**18.36**		**0.60**		**13.96**		**0.60**		**0.60**		**34.12**

Ammapettai – B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi – B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.6. Animal husbandry

Livestock have been an integral component of India's agricultural and rural economy since time immemorial, supplying energy for crop production in terms of draught power and organic manure, and in turn deriving their own energy requirements from crop byproducts and residues. Livestock are now more valued as source of food and contribute over one-fourth to the agricultural gross domestic product and engage about 9% of the agricultural labour force. The livestock sector has been growing faster than crop sector; however, in recent years, the growth both in livestock production and productivity has decelerated considerably. India's livestock sector is one of the largest in the world. It has 56.7% of world's buffaloes, 12.5% cattle, 20.4% small ruminants, 2.4% camel, 1.4% equine, 1.5% pigs and 3.1% poultry. In 2010-11, livestock generated outputs worth Rs. 2075 billion which comprised 4% of the GDP and 26% of the agricultural GDP. The total output worth was higher than the value of food grains.

Animal Husbandry sector plays a crucial role in ensuring the welfare of rural population. A majority of farmers depend on Animal Husbandry for their livelihood. Moreover, livestock sector provides supplementary employment and sustainable source of income to many small and marginal farmers. Thus, this sector is emerging as an important sector, leveraging the rural economy. In addition, this sector provides a continuous flow of essential food products like milk, meat, eggs besides draught power, raw materials like wool and hides for industries, and manure. With increase in production of livestock products, livestock rearing is also considered as an avocation with high export potential. Distribution of livestock wealth is more egalitarian, compared to land and hence, from the equity and livelihood perspective, it is considered as an important component in poverty alleviation programmes.

Keeping view in this mind, various major interventions are being planned and proposed in the district agricultural plan to be implemented beyond 12th five year plan. The major interventions are:

1. Increasing the availability of fodder through field level interventions
2. Increasing the availability of fodder by strengthening farm infrastructure
3. Livestock breeding management
4. Livestock health
5. Improving the livestock productivity
6. Improving the service delivery at veterinary institutions
7. Enhancing livestock management
8. Capacity building

Increasing the availability of fodder through field level interventions

Livestock rearing is one of the major occupations in India and is making significant contribution to the country's GDP. The livestock population, over the years, has shown a steady growth on broadly two counts i.e. (i) increase in the number of stall feeding based bovine livestock viz. buffaloes and hybrid cattle, and (ii) increase in the number of free grazing based livestock like goats and sheep that can survive on the fast degrading pasturage. The animal husbandry sector has a good growth potential. However, further growth of the sector will be as much dependent upon the availability of fodder. The available data reveals that the present fodder availability in the country is well below requirement. The data also reveals that only about half of the annual fodder requirement is met from the cultivated fodder and crop residues, whereas open grazing and fodder availability from common property resources like forests, pastures, village commons, etc. fulfills the remaining half of the annual fodder requirement. The issue to be taken note of is that it is the open grazing and fodder availability from the common property resources that provides sustenance to a vast majority of households with animal husbandry as the only vocation.

The increasing number of livestock and the changing dynamics of animal husbandry practices require corresponding increase in the type of fodder needed to meet the requirements of these new situations. To overcome these issues the following field level interventions are proposed to improve the fodder availability.

1. Establishment of vermicomposting unit
2. Distribution of Azolla trays
3. Fodder plot development
4. Meikal land development
5. Distribution of seedlings, sprinklers, grass cutter and raingun to the farmers
6. Development of seed production plots

Increasing the availability of fodder by strengthening farm infrastructure

The livestock sector is handicapped due to inadequate infrastructure facilities as a result of low productivity. Infrastructure development for animal husbandry is felt essential to provide the desired veterinary services in the interior pockets of the districts so as to enable the livestock owners living in the remote areas can avail the opportunities to consider AH activities as livelihood option and maximize profit through livestock sector. Adequately providing proper infrastructure and equipment to the veterinary health care

institution is necessary for the timely diagnosis and treatment of animal diseases. Further, emphasis has to be laid on optimum utilization of waste land to grow fodder.

Improved infrastructure facilities will provide improved veterinary services contributing to reduction in the incidences of animal diseases thereby increasing the overall productivity of animals. The Rural Veterinary Dispensaries are either functioning from rented premises or in dilapidated buildings. Further, functioning of Veterinary Institutions in the rental buildings do not satisfy the requirement of a typical Veterinary Institution and with a restricted scope for further expansion, these are not ideal infrastructure. This necessitates strengthening the infrastructure of the veterinary institutions to offer better delivery of services and to reshape it into knowledge resource centers where best practices can be disseminated to the farmers. The following infrastructure facilities will strengthen the fodder availability such as

1. Establishment of farm production cover
2. Construction of silo pit and overhead tanks
3. Establishment of feed mixing units
4. Installation of rain gun and sprinklers
5. Procurement of agri inputs

Livestock breeding management

Over the past few decades, imported exotic cow varieties have gain a boost in milk production in Tamil Nadu. Most of the cattle breeds are exotic. These breeds theoretically produce a lot of milk, but are not well-adapted to our conditions. About 69% of Indian cows are owned by the economically poor strata of the society. These folks cannot afford to house these exotic breeds in regulated climate conditions.

The government has significantly mismanaged cow breeding. The average milk yield per animal in India is just 3.2 kgs, compared to a global average of 6.6 kgs. The dairy policy and outlook is highly outdated and needs to be replaced with modern, evidence-based thinking

Livestock industry continues to demonstrate a beneficial impact on rural people by improving their income, employment and consumption and thereby acting as a potential tool in alleviating rural poverty. Artificial insemination (AI) has proven to be very effective for the improvement of the genetic potential of animals for higher production and there is no surprise why today AI is the back bone of all breeding programmes in India. The replacement of unproductive and ageing animals in the herd and its expansion are very

important to maintain the scale of economy of the farm. Augmentation of fertility in repeat breeders and sex-sorted semen are some of the modern scientific tools which have been proposed to be employed for effective breeding management to enhance the livestock fertility and productivity. The following interventions will help to improve livestock breeding management, such as

1. CIDR
2. Establishment and distribution of sex-sorted semen facility
3. Establishment of IVF lab
4. Establishment of LN2 and embryo transfer lab
5. Oestrous synchronization

Livestock health

A large number of infectious and metabolic diseases prevalent in Indian livestock have serious implication for animal productivity, export potential and safety/ quality of livestock products and many of these diseases have zoonotic implications. The current efforts of prevention and control of livestock diseases needs to be strengthened. There is a shortage of veterinary and Para-veterinary manpower and facilities including mechanisms for diagnosis, treatment, tracking and prevention of the diseases. Adequate infrastructure for ensuring bio-security, proper quarantine systems and services to prevent the ingress of diseases across the states and national borders is not available. By providing the following facilities will prevent the above diseases such as

1. Upgradation of vaccine production facilities for bacteria and virus
2. Procurement of vaccines, medicine, diagnostic kit
3. Animal quarantine facility in govt. farm
4. Animal testing facility

Improving the livestock productivity

Although India is a major producer of livestock products the average productivity of livestock is lower compared to world average. Inadequate availability of feed and fodder, insufficient coverage through artificial insemination, low conception rates, non-availability of quality males for breeding, poor management practices, high mortality and morbidity losses due to diseases, inadequate marketing infrastructure and unorganized marketing are the other major concerns. To maximize the livestock productivity the following activities should be implement. The intervention have been propose are

1. Distribution of sheep, goat, buffalo, piggery, poultry units

2. Establishment of modern poultry, rabbit , piggery, sheep, goat and bull shed
3. Popularizing quail rearing
4. Integrated farming

Improving the service delivery at veterinary institutions

Veterinary hospitals, dispensaries, Aid Centers, diagnostic laboratories and veterinary manpower already available are much less than what is required. These services would be improved and expanded and will continue to be provided by the state owned facilities with an appropriate system of recovery of cost wherever feasible. Private investment to improve delivery of animal health services including facilities by private veterinary graduates would be encouraged. Mobile veterinary dispensaries with provision for vaccination and facilities to generate awareness of farmers regarding various livestock management issues would be promoted to improve outreach. For companion animals, state governments may consider to extend the veterinary services on full cost recovery basis. To improve the service delivery the below mentioned intervention have been proposed. The intervention have been propose are

1. Deep freezer facility for storage of vaccines and medicines
2. Establishment of infrastructure facilities, disease diagnostic lab, mobile veterinary units, surgical theaters and ambulance facilities.

Enhancing livestock management

The country has rich and diverse genetic resources of livestock in the form of a large number of species, breeds, and strains within a species. India has some of the best breeds of cattle and buffaloes with traits for dairy, draught power and dual purposes, several carpet wool breeds of sheep, highly prolific breeds of goats and adaptive breeds of poultry. Such utility genes and breeds would be identified, conserved and utilized for breeding and research. The focus would be on conservation of indigenous breeds of livestock and poultry. By developing slaughter house, livestock shandy also be helpful to enhancing livestock management. The intervention have been propose are

1. Animal identification and traceability
2. Conservation of indigenous breeds
3. Improvement of livestock shandy
4. Establishment of slaughter house

Capacity building

Educating the farmers about the advanced crop production technologies as well as the techniques will enrich the knowledge of farmers through conduct of trainings and demonstrations to the farmers, youths and young entrepreneurs. On field demonstrations are conducted on fodder production technologies, seed production, poultry farming and sheep farming etc.

Capacity building programme is to strengthen the capacities of farmers, indigenous and local communities, and their organizations and other stakeholders, to manage sustainable biodiversity so as to increase their benefits, and to promote awareness and responsible action, in the form of trainings, demonstrations, exposure visits, etc. To create awareness among the farmers the following trainings and campaigns have to be conducted.

1. Establishment of farmers training Centre
2. Conducting demonstrations camps and campaigns
3. Creating awareness of livestock management to the farmers through training programmes.

Budget allocation

The major themes proposed in the plan for animal husbandry sector with a total budget out lay of ₹. **4575.75 lakhs**.

Project implementing agency

The projects proposed will be implemented by the Department of Animal husbandry sector.

Table.4.23. Budget requirement for Animal Husbandary

(Rs. in lakhs)

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Increasing the Availability of Fodder through Field level Interventions															
1	Establishment of Vermicomposting unit (single bed)	Nos	0.05	All Blocks	14	0.70	14	0.70	14	0.70	14	0.70	14	0.70	70	3.50
2	Fodder production to the farmers by Hydrophonic methods	Nos	0.1	All Blocks	95	9.50	95	9.50	95	9.50	95	9.50	95	9.50	475	47.50
3	Fodder plot development	acre	0.05	All blocks	400	20.00	400	20.00	400	20.00	200	10.00	200	10.00	1600	80.00
4	Distribution of Chaff Cutter to farmers	Nos	0.25	All Blocks	950	237.50	950	237.50	950	237.50	950	237.50	950	237.50	4750	1187.50
5	Distribution of Tree Seedlings to livestock farmers	Nos	0.02	All Blocks	280	5.60	280	5.60	280	5.60	280	5.60	280	5.60	1400	28.00
	Livestock Breeding Management															
6	CIDR (Controlled Internal Drug Release) for increasing Fertility in Cattle	Nos	0.01	All Blocks	475	4.75	475	4.75	475	4.75	475	4.75	475	4.75	2375	23.75
7	Distribution of sex sorted semen to veterinary institution	Nos	0.02	All Blocks	700	14.00	700	14.00	700	14.00	700	14.00	700	14.00	3500	70.00
	Improving the Livestock Productivity					0.00		0.00		0.00		0.00		0.00	0	0.00
8	Distibution of Sheep/Goat units -semi intensive system	Nos	0.6	All Blocks	210	126.00	210	126.00	210	126.00	210	126.00	210	126.00	1050	630.00
9	Distribution of Buffalo units(5 Buffaloes)	Nos	4.5	All Blocks	29	130.50	29	130.50	29	130.50	29	130.50	29	130.50	145	652.50
10	Integrated farming (Goat+Cattle+Fish+Agriculture /Horticulture)	Unit	2	All Blocks	5	10.00	5	10.00	5	10.00	5	10.00	5	10.00	25	50.00
11	Development of Native chicken farms	Farm	1	All Blocks	25	25.00	25	25.00	25	25.00	25	25.00	25	25.00	125	125.00
12	Establishment of disposal pits for poultry unit	Nos	1	All Blocks	25	25.00	25	25.00	25	25.00	25	25.00	25	25.00	125	125.00
	Improving the Service Delivery at Veterinary Institutions															
13	Deep freezer facility for Storage of vaccines and Medicines	Nos	10	All Blocks	0	0.00	0	0.00	14	140.00	0	0.00	0	0.00	14	140.00
14	Establishment of Mobile Disease	Nos	20	B7	1	20.00	0	0.00	0	0.00	0	0.00	0	0.00	1	20.00

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Diagnostic Labs															
15	Establishment of Mobile Veterinary Units	Nos	10	B12	1	10.00	0	0.00	0	0.00	0	0.00	0	0.00	1	10.00
16	Establishment of surgical theatres at veterinary institution	Nos	30	All Blocks	3	90.00	3	90.00	3	90.00	3	90.00	2	60.00	14	420.00
17	Providing solar lighting panels at veterinary institution	Nos	1	All Blocks	14	14.00	14	14.00	14	14.00	14	14.00	14	14.00	70	70.00
18	Package of Modern Veterinary Diagnostic Aids to Veterinary Institutions such as Computerised X rays, Ultrasound, Diathermy etc.	Nos	30	All Blocks	3	90.00	3	90.00	3	90.00	3	90.00	2	60.00	14	420.00
19	Establishment of Ambulance facility for animals	Nos	80	B6	1	80.00	1	80.00	0	0.00	0	0.00	0	0.00	2	160.00
	Livestock Management															
20	Animal Identification and Traceability	Unit of 1000 animals	0.1	All Blocks	300	30.00	30	3.00	30	3.00	30	3.00	30	3.00	420	42.00
21	Conservation of Indigenous breeds	Pack	10	All Blocks	1	10.00	1	10.00	1	10.00	1	10.00	1	10.00	5	50.00
	Capacity Building															
22	Establishment of Farmers training Centre	Nos	200	B6	0	0.00	1	200.00	0	0.00	0	0.00	0	0.00	1	200.00
23	Conducting Demonstrations, Camps and Campaigns	Nos	0.1	All Blocks	14	1.40	14	1.40	14	1.40	14	1.40	14	1.40	70	7.00
24	Creating awarness of livestock management to the farmers through Training Programmes	Nos	0.1	All Blocks	28	2.80	28	2.80	28	2.80	28	2.80	28	2.80	140	14.00
	Grand total					**956.75**		**1099.75**		**959.75**		**809.75**		**749.75**		**4575.75**

B1-Kangayam, B2-Vellakovil, B3-Dharapuram, B4-Mulanur, B5-Kundadam, B6-Uthukuli, B7 -Perundurai, B8-Chennimalai, B9-Ammapettai, B10-Anthiyur, B11-Bhavani, B12-Gobi, B13-T.N.Palayam, B14-Nambiyur, B15-Sathy, B16-Bhavanisagar, B17-Thalavady, B18-Erode, B19-Modakurichi, B20-Kodumudi

Table.4.24. Budget requirement for Animal Research (TANVAS)

(Rs. in lakhs)

Sl. No.	Intervention	Blocks Covered	Unit	Unit Cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
I	**Infrastructure and Assets**															
1	Breed Research Stations	All Blocks	No	650	0	0.00	0	0.00	1	650.00	0	0.00	0	0.00	1	650.00
2	Livestock conservation centre	All Blocks	Nos	105.93	1	105.93	1	105.93	1	105.93	1	105.93	1	105.93	0	529.65
	Grand total					**105.93**		**105.93**		**755.93**		**105.93**		**105.93**		**1179.65**

Ammapettai – B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi– B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.7. Dairy development

The importance of dairying in a country like India hardly needs emphasize. India has vast resources of livestock, which play an important role in the national economy and also in the socioeconomic development of millions of rural households. India has one of the largest stocks of cattle and buffaloes: more than 50 percent of the world's buffaloes and 20 percent of its cattle.

Dairy sector acts as an important source of income for rural families, plays a vital role in providing gainful employment and income generating opportunities in the district. Dairy industry in the country is expected to witness spectacular growth in 2017, according to experts.

During the last 10 years, the annual growth rate in Indian dairy industry is 4.6 per cent as compared to the global growth rate of 2.2 per cent. During this period, per capita consumption of milk in the country was 340 g a day as against 299 g globally. “India’s milk production has touched 155.4 metric tonnes during 2015-16. Consumption is increasing at a faster rate. However in the country more than 90 per cent of the dairying is at the subsistence level so the emerging trends have to increase the county’s milk production moreover. To fulfill the shortage in dairy sector the following interventions have been suggested.

Strengthening of milk storages and processing units

Clean milk production is a concept being used everywhere, where quality of milk has become prime importance. It has to be maintained throughout the milk supply chain right from the dairy farm environment to cooling & storage to its packaging. The machinery and equipment required depends on the level of mechanization desired and the scale of operation. However, some machinery and equipment are essentially required such as storage tanks, washer, coolers, pumps and processing equipment’s. Except for this some electrical installation also required to provide proper storage facilities.

The major interventions are,

1. Milk storage tanks of various capacities
2. Milk tankers
3. Milk pumps
4. Processing equipment’s
5. Pasteurizers
6. Heaters and chillers

7. Washer and conveyors
8. Pipes and fittings
9. Cleaning equipment's
10. Electrical installations (UPS, generators, stabilizers, control panel)

Enhancing milk production and milk processing units

The quality of animals is critical in determining its milk productivity and hence overall production. Currently, low productivity per animal hinders development of the dairy sector. Despite being the world's largest milk producer, India's productivity per animal is very low, at 987 kg per lactation, compared with the global average of 2038 kg per lactation.

The low productivity is a result of ineffective cattle and buffalo breeding programmes, limited extension and management on dairy enterprise development, traditional feeding practices that are not based on scientific feeding methods, and limited availability and affordability of quality feed and fodder. Animal health and breeding services provision, veterinary infrastructure development and vaccinations are the responsibility of the state government. These services have traditionally been provided for free or at a very subsidized rate but in the past few years it has been payable. state livestock development agencies are being set up as autonomous bodies to offer services in animal breeding in the form of procurement, production and distribution of breeding inputs (such as semen and liquid nitrogen), training and promotional activities. Despite these initiatives, the availability of services remains limited and extension activities in dairy management are woefully lacking. Let to get a better improvement in milk production than before the following inputs have been suggested.

1. Provision of veterinary medicine
2. Fodder development equipment and seed material
3. Milk testing equipment's
4. Equipment's for artificial insemination
5. Milk society buildings and cow shed
6. Cryogenic containers
7. Weighing machines
8. Computer accessories

Capacity building

India is the largest milk producer in the world with an annual production of over 155.4 metric tonnes of milk, yet the sector faces numerous issues. One of the major challenges facing the dairy sector is the growing gap between milk supply and demand. Another major challenge arises from the fact that more than 92 percent of the animals are owned by smallholders who had little ownership of land to manage them. The small farmers do not have sufficient resources and lack training in dairy sector that leads to poor animal health and low milk yield. Furthermore, the small farmers lack knowledge of modern breeding practices. To make the farmers as scholars in particular thing some trainings and camps has to be conducted. To make sure this the following intervention has been proposed.

1. Training of personnel of MPCS, Union and federation
2. Infertility camps

Marketing structures

Marketing is generally defined as the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational objectives. The word Dairy marketing means where the milk is kept and marketing. Dairy marketing truly came into the public consciousness with the introduction of the “Got milk” campaign in 1993. Marketing plays a vital role not only in stimulating production and consumption, but also in accelerating the pace of economic development. An efficient marketing system minimizes costs, increases returns to farmers by reducing the number of middlemen or by restricting the commission of marketing system. To increase the income in dairy sector the suitable marketing structure is vital. For that the following structures have been suggested

1. Parlour structure
2. Milk product storage cabinets
3. Product billing system

Quality control

Quality is a vital ingredient of a good brand. Remember the “core benefits” – the things consumers expect. These must be delivered well. To ensure the quality of the following interventions have been suggested

1. Adulteration detection equipment's
2. Milk testing equipment and laboratory

Processing and value addition

While adding value to farm and livestock products before they reach the local and international market is one of the key aims of Vision 2030. Product diversification has become an important aspect of business strategy with reasons for this increased focus being increased profitability, reduction in risk, increasing competition, higher growth and more efficient resource allocation. Value addition in the dairy value chain is still a challenge in our country. Value addition has been hailed as one of the solutions to the perishability challenge of milk by converting it to a more durable form and hence reducing farm losses. But only few of them undertake the value addition In India. To maximize the value addition in rural areas the following interventions have been suggested

1. Skim milk powder plant
2. Dairy processing plants
3. Water and effluent treatment plants
4. Steam raising plant
5. Fat handling and other dairy equipment's

Development for dairy sector

Though the milk production has reached an all-time high in the district, the producers are not able to market the milk produced. This is mainly due to inadequate infrastructure available for procurement, processing of milk and marketing network. Providing proper infrastructure to the veterinary health care institutions is necessary for the timely diagnosis and treatment of animal diseases. An efficient management of cattle will be incomplete without a well-planned and adequate housing of cattle. Good quality milk is essential for production of good quality dairy products, taste and flavor, free from pathogens and long keeping quality. Immediately after milking, the milk must be cooled preferably to 4° C. This requires mechanical refrigeration or milk cooling tanks. These are expensive and can usually be afforded by large scale commercial farms. For small scale dairy farmers, setting up a milk cooling centre centrally may be the ideal solution. The following buildings have been proposed for better storage and improvement

1. Construction of dairy farm and skim milk powder plant
2. BMC building

3. Cattle feed plants
4. Ware house for dairy products
5. Ice cream manufacturing buildings.

Budget allocation

An outlay of Rs.20309.25 lakhs is proposed to fulfill the aforementioned interventions for five years.

Implementing agency

The projects will be implemented by the Department of Dairy Development.

Table.4.25.Budget requirement for Dairy development

(Rs. in lakhs)

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Engineering section															
1	Electrical installation like Tranformemr, UPS, Stabilisers, Control Panel MCC etc.,	1	25	All blocks	2	50.00	1	25.00	0	0.00	1	25.00	0	0.00	4	100.00
2	Milk Storage Tanks of various capacities	1	15	All blocks	4	60.00	4	60.00	0	0.00	4	60.00	0	0.00	12	180.00
3	Tub washer, Canwashers, Crate conveyor systems.	1	10	All blocks	0	0.00	4	40.00	0	0.00	2	20.00	0	0.00	6	60.00
4	Point of Sale Machines and billing systems	1	0.25	All blocks	25	6.25	25	6.25	25	6.25	25	6.25	25	6.25	125	31.25
5	SS pipes and fittings	1	5	All blocks	3	15.00	3	15.00	3	15.00	3	15.00	3	15.00	15	75.00
6	Solar system for water heating	1	2	All blocks	5	10.00	5	10.00	5	10.00	5	10.00	5	10.00	25	50.00
7	Packing Machineries for milk, Butter, Ghee, SMP and Other Milk products	1	18	All blocks	2	36.00	0	0.00	2	36.00	0	0.00	2	36.00	6	108.00
8	Plate Heat type Chillers and pasteurizers	1	10	All blocks	1	10.00	0	0.00	1	10.00	1	10.00	1	10.00	4	40.00
9	Milk Tankers of various capacities	1	25	All blocks	0	0.00	4	100.00	4	100.00	4	100.00	0	0.00	12	300.00
10	Milk Pumps of Vaious capacities	1	0.5	All blocks	10	5.00	10	5.00	10	5.00	10	5.00	10	5.00	50	25.00
11	Generator of various capacities	1	20	All blocks	1	20.00	1	20.00	1	20.00	1	20.00	1	20.00	5	100.00

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
12	Curd processing equipments	1	50	All blocks	0	0.00	2	100.00	0	0.00	0	0.00	0	0.00	2	100.00
13	Cleaning In Place equipments with accessories	1	75	All blocks	0	0.00	0	0.00	2	150.00	0	0.00	1	75.00	3	225.00
	Procurement and Input															
14	Veterinary Medicine	1	2	All blocks	5	10.00	7	14.00	8	16.00	8	16.00	10	20.00	38	76.00
15	Two wheeler for AI technician	1	0.5	All blocks	25	12.50	25	12.50	25	12.50	15	7.50	25	12.50	115	57.50
16	Computer system with accessories	1	0.5	All blocks	10	5.00	10	5.00	10	5.00	10	5.00	10	5.00	50	25.00
17	Fodder seed materials	1	0.25	All blocks	20	5.00	20	5.00	30	7.50	20	5.00	20	5.00	110	27.50
18	Fodder development equipments like chaff cutter, Mower etc.,	1	0.2	All blocks	20	4.00	30	6.00	30	6.00	30	6.00	30	6.00	140	28.00
19	Bulk Milk coolers of Various capacities	1	15	All blocks	5	75.00	0	0.00	5	75.00	0	0.00	5	75.00	15	225.00
20	Milk cans	1	0.035	All blocks	1000	35.00	1000	35.00	1000	35.00	1000	35.00	1000	35.00	5000	175.00
21	Electronic weighing scales of various capacities.	1	0.3	All blocks	10	3.00	0	0.00	10	3.00	0	0.00	10	3.00	30	9.00
22	Electronic milk testing equipments	1	1.25	All blocks	50	62.50	50	62.50	50	62.50	50	62.50	50	62.50	250	312.50
23	Milking machine	1	0.8	All blocks	50	40.00	50	40.00	50	40.00	50	40.00	50	40.00	250	200.00
24	Cow shed	1	5	All blocks	25	125.00	25	125.00	25	125.00	25	125.00	25	125.00	125	625.00
25	Society Buildings	1	20	All blocks	20	400.00	20	400.00	20	400.00	20	400.00	20	400.00	100	2000.00
26	Cryogenic containers	1	0.35	All blocks	20	7.00	20	7.00	25	8.75	30	10.50	25	8.75	120	42.00

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
27	Equipments for Artificial Insemination	1	0.5	All blocks	5	2.50	5	2.50	5	2.50	5	2.50	5	2.50	25	12.50
	Capacity building															
28	Training of personnel of MPCS, Union and Federation.	1	0.05	All blocks	200	10.00	200	10.00	200	10.00	200	10.00	200	10.00	1000	50.00
29	Infertility Camps	1	0.2	All blocks	100	20.00	100	20.00	100	20.00	100	20.00	100	20.00	500	100.00
	Marketing															
30	Parlour structures	1	5	All blocks	30	150.00	30	150.00	30	150.00	30	150.00	30	150.00	150	750.00
31	Milk product storage cabinets	1	0.3	All blocks	50	15.00	100	30.00	100	30.00	100	30.00	100	30.00	450	135.00
32	Product Billing systems	1	0.3	All blocks	100	30.00	100	30.00	100	30.00	100	30.00	100	30.00	500	150.00
	Quality control															
33	Adulteration detection equipments	1	4	All blocks	1	4.00	1	4.00	1	4.00	1	4.00	1	4.00	5	20.00
34	Milk testing equipment and Laboratory.	1	5	All blocks	0	0.00	2	10.00	0	0.00	0	0.00	2	10.00	4	20.00
	Processing															
36	Dairy Processing Plants	1	6000	All blocks	0	0.00	0	0.00	1	6000.00	0	0.00	0	0.00	1	6000.00
37	Refrigeration Plants	1	500	All blocks	0	0.00	1	500.00	0	0.00	0	0.00	0	0.00	1	500.00
38	Water Treatment Plants. Reverse Osmosis plant	1	100	All blocks	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	1	100.00
39	Effluement treatment plant	1	100	All blocks	0	0.00	0	0.00	0	0.00	2	200.00	0	0.00	2	200.00

Sl. No.	Intervention	Unit	Unit cost	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
40	Steam raisning plant with accessories	1	100	All blocks	0	0.00	0	0.00	2	200.00	0	0.00	0	0.00	2	200.00
41	Fat handling equipments	1	200	All blocks	0	0.00	0	0.00	0	0.00	2	400.00	0	0.00	2	400.00
42	Dairy equipments	1	50	All blocks	1	50.00	1	50.00	1	50.00	1	50.00	1	50.00	5	250.00
	Civil work Infrastructure															
43	BMC buildings	1	15	All blocks	5	75.00	5	75.00	0	0.00	5	75.00	0	0.00	15	225.00
44	Cattle feed Plants	1	5000	All blocks	0	0.00	1	5000.00	0	0.00	0	0.00	0	0.00	1	5000.00
45	Ware house for Dairy products	1	200	All blocks	1	200.00	0	0.00	1	200.00	1	200.00	0	0.00	3	600.00
46	Ware house for Dairy consumables	1	200	All blocks	0	0.00	1	200.00	0	0.00	0	0.00	1	200.00	2	400.00
	Grand total					**1552.75**		**7174.75**		**7945.00**		**2155.25**		**1481.50**		**20309.25**

Ammapettai – B1, Anthiyur – B2, Bhavani – B3, Bhavanisagar – B4, Chennmalai – B5, Erode – B6, Gobi – B7, Kodumudi– B8, Modackurichi – B9, Nambiyur – B10, Perundurai – B11, Sathy – B12, Thalavadi – B13, Tnpalayam – B14

4.8. Fisheries

Indian fisheries and aquaculture is an important sector of food production, providing nutritional security to the food basket, contributing to the agricultural exports and engaging about fourteen million people in different activities. With diverse resources ranging from deep seas to lakes in the mountains and more than 10% of the global biodiversity in terms of fish and shellfish species, the country has shown continuous and sustained increments in fish production since independence. Constituting about 6.3% of the global fish production, the sector contributes to 1.1% of the GDP and 5.15% of the agricultural GDP. The total fish production of 10.07 million metric tonnes presently has nearly 65% contribution from the inland sector and nearly the same from culture fisheries. Hence its necessary to improve the fisheries development throughout the country.

I. Enhancement of fisheries production

Aquatic plants growing in ponds and lakes are beneficial for fish and wildlife. They provide food, dissolved oxygen, and spawning and nesting habitat for fish and waterfowl. Aquatic plants can trap excessive nutrients and detoxify chemicals. However, dense growths (over 25% of the surface area) of algae and other water plants can seriously interfere with pond recreation and threaten aquatic life. Water plants can restrict swimming, boating, fishing, and other water sports. Biological controls for aquatic vegetation have received considerable publicity. Several species of fish are herbivorous in that their principal diet is aquatic vegetation. One such species, the grass carp (also known as the white Amur or Chinese carp), is being tested in various parts of the country. Hence in this district it is suggested to implement the biological control of aquatic weeds by stocking of Grass Carps in Aquatic Weed Infested water bodies with project cost of ₹12.00 lakhs.

Tremendous potential exists in India to augment fish production from freshwater aquaculture resources, which are spread across the length and breadth of the country. With concerted efforts to mobilize farmers to adopt fish farming, application of appropriate technologies for sustainable fish farming and fish seed production and availability of institutional finance, it would be possible to bring in substantial hikes in the annual fish production from the aquaculture sector within a span of 5 years. Hence in this district it suggested to implement the following intervention to enhance the production and growth of fisheries through Introduction of IMC seeds in reverie check dams and weirs, Increasing Fishing Efficiency of Inland Fishermen and Fish Farmers, Enhancement of Fish production in irrigation tanks and Panchayat tanks by stocking fish seeds, Promotion of quality fish marketing by traditional fishers by providing moped with ice box, Improvement of hygienic fish handling by providing ice boxes, Resource enhancement by

ranching of seeds in rivers and sea and Organization of Fish festival with budget cost of ₹140.10 lakhs.

II. Infrastructure and assets

Fish Farming is an age old activity and in practice from ancient times. The successful fish culture requires plugging of pond, addition of manure, stocking of fish seed; eradication of unwanted aquatic plants and animals, watering the pond; harvesting the crop and marketing of the produce. The fish culture technologies and economics are simple and understandable to the fish farmers.

The handling, processing, and marketing of fish products are essential complementary functions of all food production systems. Marketing of fish products usually provides rural women with their source of income. In rural areas the customers become aware of a pond harvesting by informal contacts and buy their fish at the pond site. Most of the customers are women, who use the fish for home consumption or local marketing. The closer the market is to the farm, the fewer intermediaries and the greater the chance that women become actively involved in marketing aquatic products.

The establishment of domestic markets plays a very crucial role in the development of fisheries sector in the country. Apart from ensuring nutritional and food security, it also helps in minimizing post-harvest losses, increase revenue; enhance employment opportunities and offers high standards of hygiene and sanitation leading to food safety. The importance of domestic marketing can be understood from the fact that only about 15% of the total fish landing is utilized for export of fishery products and the remaining about 85% is distributed through domestic markets. As more and more trade restrictions are being imposed on the fishery product exports, a well-developed domestic marketing system only can ensure the viability of the fisheries sector.

III. Capacity Building

Effective extension support is essential for the promotion of Aquaculture in freshwater and brackish water areas. It is necessary to establish the information centers/data dissemination centers in Fishermen villages, animation camps in fisheries villages, seminars, exhibitions and workshop, and awareness centers for linking the fishing villages, marketing centers and the district offices.

Budget

The budget requirement for fulfilling the above interventions is ₹ 215.80 lakhs.

Implementing agency

Department of Fisheries will be implementing the project

Table 4.26. Budget requirement of fisheries

(Rs in lakhs)

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Enhancement of fisheries															
1	Resource enhancement by ranching of seeds in rivers and sea	Erode, Modakkuruchi, Kodumudi, Ammapet, Bhavani, Gobi, T.N.Palayam, Sathy, Bhavanisagar	No's	0.00004	0	0.00	45000	1.80	45000	1.80	45000	1.80	45000	1.80	180000	7.20
2	Promotion of quality fish marketing by traditional fishers by providing mobbed with icebox	Erode, Modakkuruchi, Kodumudi, Bhavani, Gobi , Bhavanisagar	No's	0.3	1	0.30	17	5.10	17	5.10	17	5.10	17	5.10	69	20.70
3	Introduciton of IMC seeds in riverine check dams and weirs (ha.) (2000 AFL/ha. @Rs.2/seed-100% subsidy)	Erode, Modakkuruchi, Kodumudi, Bhavani, Bhavanisagar	No's	0.00003	0	0.00	55000	1.65	55000	1.65	55000	1.65	55000	1.65	220000	6.60
4	Increasing fishing efficiency of inland fishermen and fish farmers	All Blocks except T.N.Palayam, Nambiyur, Perundurai, Chinnimalai	No's	0.125	240	30.00	120	15.00	120	15.00	120	15.00	120	15.00	720	90.00
5	Improvement of hygenic fish handling by providing ice	Erode, Modakkuruchi, Kodumudi, Ammapet,	No's	0.05	0	0.00	13	0.65	13	0.65	13	0.65	13	0.65	52	2.60

	boxes	Anthiyur, Bhavani, Gobi, T.N.Palayam, Sathy, Thalavadi.														
6	Improvement of hygienic fish marketing by establishing modern fish kiosk TNFDC	Erode	No's	16.5	0	0.00	0	0.00	1	16.50	0	0.00	0	0.00	1	16.50
7	Enhancement of Fish production in irrigation tanks and Panchayat tanks by stocking fish seeds	Anthiyur, Gobi, T.N.Palayam	No's	0.00004	0	0.00	49998	1.99	49998	1.99	49998	1.99	49998	1.99	19	8.00
8	Biological Control of Aquatic Weeds by Stocking of Grass Carps in Aquatic Weed Infested water bodies	Anthiyur	Ha	0.00004	100000	4.00	50000	2.00	50000	2.00	50000	2.00	50000	2.00	300000	12.00
9	Assistance for construction of shrimp farms for DFFDA farmers	Bhavani, Sathy, Bhavanisagar	No's	4.5	0	0.00	1	4.50	1	4.50	1	4.50	1	4.50	4	18.00
	Creation of infrastructure facilities					0.00		0.00		0.00		0.00		0.00	0	0.00
10	Establishment of fish culture ponds and provision of inputs	Kodumudi, Gobi, Bhavani, T.N.Palayam, Bhavanisagar	No's	0.1	10	1.00	10	1.00	10	1.00	10	1.00	10	1.00	50	5.00
	Capacity building programme					0.00		0.00		0.00		0.00		0.00	0	0.00

11	Establishment of modern mobile fish marketing vehicles	Erode, Modakkuruchi, Kodumudi, Ammapet, Anthiyur, Bhavani, Gobi, T.N.Palayam, Sathy	No's	2	0	0.00	0	0.00	10	20.00	0	0.00	0	0.00	10	20.00
12	Exposure visit to farmers to other states	Erode, Modakkuruchi, Kodumudi, Ammapet, Anthiyur, Bhavani, Gobi, T.N.Palayam, Sathy, Thalavadi.	No's	0.05	0	0.00	24	1.20	24	1.20	0	0.00	0	0.00	48	2.40
13	Organisation of Fish festivel	Erode	No's	5	0	0.00	0	0.00	1	5.00	0	0.00	0	0.00	1	5.00
14	Training to fish farmers	Erode, Modakkuruchi, Kodumudi, Ammapet, Anthiyur, Bhavani, Gobi, T.N.Palayam, Sathy, Bhavanisagar, Thalavadi	No's	0.01	0	0.00	60	0.60	60	0.60	60	0.60	0	0.00	180	1.80
	Grand total					**35.30**		**35.49**		**76.99**		**34.29**		**33.69**		**215.79**

4.8.2. FISHERIES RESEARCH

Fisheries sector occupies a very important place in the socio-economic development of the country. It has been recognized as a powerful income and employment generator as it stimulates growth of a number of subsidiary industries, and is a source of cheap and nutritious food, besides being a foreign exchange earner. Most importantly, it is the source of livelihood for a large section of economically backward population of the country. In India, fisheries have always been playing a vital role in providing gainful employment to people, besides securing their food and nutritional security, especially in rural areas. India is the third largest producer of inland capture fish in the world after China and Myanmar. Inland fish production in the country registered an impressive growth of 8 fold in the last 50 years.

Tamil Nadu with its 1076 km of coastline (13 per cent of country's coastline), 1.9 lakh sq. km of Exclusive Economic Zone (EEZ) (9.4 per cent of India's EEZ) and a continental shelf of about 41,412 sq km is one of the leading producers of both marine and inland fish. Tamil Nadu has 3.7 lakh hectare of water spread area suitable for fish culture. It comprises of major reservoirs (52,000 ha.), big/small irrigation tanks (98000 ha.), small lakes and Rural Fishery Demonstration Tanks (158000 ha.) and brackish water areas, swamps, estuaries (63,000 ha.) which are suitable for both capture and culture fisheries. Tamil Nadu is also endowed with rich cold water fishery resources. Apart from this 7400 km length of rivers and canals offer good scope for fisheries development. The Inland Fisheries policy of the state focuses in maximizing the fish production utilizing available inland water resources by adopting scientific freshwater aquaculture management and quality seed production.

Tamil Nadu Fisheries University (TNFU) is the State funded, unitary professional Fisheries University in India imparting education, research and training to enhance fish production and utilization by following the State Agricultural University (SAU) pattern and syllabi. The prominent area of research in the area of aquaculture are: improving the quality of progeny by developing sperm bank, development of techniques for the culture of fin fishes in cages, enhancing the water use efficiency and productivity by bio-floc technology, developing the improved methods of ornamental fish culture and breeding techniques and inventing techniques to prevent and cure fish diseases. Stock assessment of important fishery resources, mapping the fauna and understanding the biology of commercially important and rare species, coastal area and inland waters monitoring for the major pollutants and waste water management are the focus areas of research. Value addition to fish has been a major focus area and technologies for fish pickle, fish noodles and ready to eat products like fish curry, fish puff, fish cutlet and fish burger have been evolved. Quality control wing of fish processing has evolved

several rapid techniques for detection of human pathogens. A separate laboratory for quality monitoring will be built to help the industry.

Project component

- Brood stock development through hormonal manipulation
- Evolving new candidate species for diversified aquaculture
- Awareness campaign on health beneficial attributes of fish
- Production of short films on nutritive value of fish and screening in theatres and television channels
- supply of preserved ready to eat and ready to cook fish products through public distribution systems
- Supply of fish and fish products in mid day meal programme
- Supply chain management to promote consumption of farmed freshwater fishes

Budget

The proposed intervention will be implemented with a budget outlay of. ₹ 641.60 lakhs.

Project implementing agency

The project will be implemented by the Tamil Nadu Fisheries University. The progress of the work will be monitored by the Vice Chancellor and Nodal Officer of the concerned project.

Expected outcome

The implementation of the project will trigger the adoption of cage farming in the inland fisheries system.

4.27. Budget requirement for Fisheries Research (TNFU Research)

(Rs. in Lakhs)

Sl. No.	Interventions	Blocks covered	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
				Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	**Aquaculture**														
i	**Inland Aquaculture**														
1	Brood stock development through hormonal manipulation	Erode	250	0	0.00	0	0.00	1	250.00	0	0.00	0	0.00	1	250.00
2	Evolving new candidate species for diversified aquaculture	Erode	250	0	0.00	1	250.00	0	0.00	0	0.00	0	0.00	1	250.00
2	**Harvest and Post harvest**														
i	**fish processing technology**														
e	**Enhancement of per capita consumption of fish**														
3	Awareness campaign on health beneficial attributes of fish	Erode	0.005	52	0.26	52	0.26	52	0.26	52	0.26	52	0.26	260	1.30
4	Production of short films on nutritive value of fish and screening in theatres and television channels	Erode	50	0	0.00	0	0.00	1	50.00	0	0.00	0	0.00	1	50.00
g	**Ensuring nutritional security through fish and fishery products**														
5	supply of preserved ready to eat and ready to cook fish products	Erode	12.9	0	0.00	1	12.90	0	0.00	0	0.00	0	0.00	1	12.90

Sl. No.	Interventions	Blocks covered	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
				Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	through public distribution sytems														
6	Supply of fish and fish products in mid day meal programme	Erode	12.9	0	0.00	1	12.90	0	0.00	0	0.00	0	0.00	1	12.90
7	Supply chain management to promote consumption of farmed freshwater fishes	Erode	64.5	0	0.00	1	64.50	0	0.00	0	0.00	0	0.00	1	64.50
	Grand total				**0.26**		**340.56**		**300.26**		**0.26**		**0.26**		**641.60**

4.9. Public Works Department

Increasing the ground water level

In view of low rainfall in the district, and poor groundwater status, it is absolutely necessary to introduce appropriate water harvesting and soil conservation practices in Erode district. Further, there exist vast scope in reducing wastage of water in the command area through canal lining and on farm water management as well. Further the loss of top soil through erosion needs to be controlled to maintain the soil fertility. The reduction of water storage facilities and the conversion of water bodies fornon-agricultural purposes result in the rainwater run-off. The *in situ* water conservationwill help in reducing the water and soil erosion and also improve the ground waterrecharge which is the need of the day. There is a need for farmer's participation not only inthe construction of infrastructure but also in its maintenance to reap the benefits. The farmers are to be trained and involved in thedevelopment and maintenance of these structures as a common property of the village. Most of the canals and tanks are silted and bushes occupied major part of the tanks and canals, which are major source of flow water for tanks during the rainy period. There by storage capacity of the tank is very much reduced. Hence, to raise the water table level, construction of check dams, need to be taken up in canals to increase the storage capacity of the tanks.

Project components (furnished in table)

- Construction of Check dam across
- Rehabilitation of canals
- Rehabilitation of tanks

Budget

It is proposed to incur Rs.**2319.76 crores** over a period of five years as shown in Table 4.9.

Expected outcome

The project will increase the Ground water table level and carrying capacity of canals during the heavy rain period and thereby increasing the crop cultivation area. This will result in the ensuring of food security for the people.

Implementing agency

Department of Public Works will be implementing the project.

Table. 4.28. Budget estimate for PWD works in Erode district

(Rs.in lakhs)

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Construction of Checkdam across odai in S.F.No.124/1 of Kondappanaickenpalayam Village in Sathyamangalam Taluk in Erode District	Sathy-mangalam	Ha	1.76	26	45.00	0	0.00	0	0.00	0	0.00	0	0.00	26	45.00
2	Construction of Checkdam across odai in S.F.No.64 of Igalur Village in Thalavadi Taluk in Erode District	Thalavady	Ha	212.94	2	323.14	0	0.00	0	0.00	0	0.00	0	0.00	2	323.14
3	Rehabilitation of Mettur West Bank Main Canal from LS 18600 M to 43200 M in Erode District.	Ammapettai, Bhavani	Ha	2.26	4774	10800.00	0	0.00	0	0.00	0	0.00	0	0.00	4774	10800.00
4	Rehabilitation of the Distributories from LS 19600 M to 43200 M in Mettur West Bank Canal in Erode District.	Ammapettai, Bhavani	Ha	0.67	0	0.00	0	0.00	3903	2630.00	0	0.00	0	0.00	3903	2630.00
5	Rehabilitation of Kalingarayan Cahnnel From mile 9-7-000 to 15-4.5-195 in Erode Taluk of	Erode	Ha	15.75	479	7535.00	0	0.00	0	0.00	0	0.00	0	0.00	479	7535.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	District.															
6	Rehabilitation of Kalingarayan Cahnnel From mile 15-4.5-195 to 20-0-070 Erode Taluk of District.	Modakkurichi	Ha	3.82	367	1400.00	0	0.00	0	0.00	0	0.00	0	0.00	367	1400.00
7	Rehabilitation of Kalingarayan Cahnnel From mile 20-0-070 to 23-6.5-300 Erode Taluk of District.	Modakkurichi	Ha	2.05	543	1115.00	0	0.00	0	0.00	0	0.00	0	0.00	543	1115.00
8	Rehabilitation of Distributories at mile 66-5-603 and 67-0-290 of LBP main canal.	Moda kuruchi	Ha	0.53	2733	1450.00	0	0.00	0	0.00	0	0.00	0	0.00	2733	1450.00
9	Rehabilitation of Distributories at mile 70-1-394 of LBP main canal.	Moda kuruchi	Ha	0.31	1765	550.00	0	0.00	0	0.00	0	0.00	0	0.00	1765	550.00
10	Rehabilitation of Chennasamudram Distributory from mile 0/0 to 3/0 and its cross masonries of Chennasamudram Distributory .	Moda kuruchi	Ha	1.07	655	700.00	0	0.00	0	0.00	0	0.00	0	0.00	655	700.00
11	Rehabilitation of Branch canals and sub branch canal at mile 2/7 to tail end of 0.5.42 branch of Chennasamudram Distributory .	Moda kuruchi	Ha	0.19	2540	480.00	0	0.00	0	0.00	0	0.00	0	0.00	2540	480.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
12	Rehabilitation of Branch canals and sub branch canal at 1.4.644 of Chennasamudram Distributory .	Moda kuruchi	Ha	0.23	4689	1100.00	0	0.00	0	0.00	0	0.00	0	0.00	4689	1100.00
13	Rehabilitation of Chennasamudram Distributory from mile 3/0 to 6/0 and its cross masonries.	Moda kuruchi	Ha	0.32	3422	1100.00	0	0.00	0	0.00	0	0.00	0	0.00	3422	1100.00
14	Rehabilitation of Chennasamudram Distributory from mile 6/0 to tail end and its cross masonries .	Moda kuruchi	Ha	0.44	7157	3150.00	0	0.00	0	0.00	0	0.00	0	0.00	7157	3150.00
15	Rehabilitation of UnjalurDistributory from mile 0/0 to 1/6 and its cross masonries.	Moda kuruchi	Ha	0.48	2103	1000.00	0	0.00	0	0.00	0	0.00	0	0.00	2103	1000.00
16	Rehabilitation of UnjalurDistributory from mile 1/6 to 14/6 and its cross masonries.	Moda kuruchi	Ha	1.86	2152	4000.00	0	0.00	0	0.00	0	0.00	0	0.00	2152	4000.00
17	Rehabilitation of UnjalurDistributory from mile 14/6 to 20/6 and its cross masonries.	Moda kuruchi	Ha	1.72	1161	2000.00	0	0.00	0	0.00	0	0.00	0	0.00	1161	2000.00
18	Rehabilitation of Branch Distributory at	Moda kuruchi	Ha	0.37	405	150.00	0	0.00	0	0.00	0	0.00	0	0.00	405	150.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	mile 3.2.347 and 3.7.390 of Unjalur Distributory.															
19	Rehabilitation of Branch Distributory at mile 4.3.300 and 4.3.570 of Unjalur Distributory.	Moda kuruchi	Ha	0.25	603	150.00	0	0.00	0	0.00	0	0.00	0	0.00	603	150.00
20	Rehabilitation of Branch Distributory and sub branch at mile 5.0.30 of Unjalur Distributory.	Moda kuruchi	Ha	0.23	6588	1500.00	0	0.00	0	0.00	0	0.00	0	0.00	6588	1500.00
21	Rehabilitation of Branch Distributory at mile 8.2.640 and 8.4.220 of Unjalur Distributory.	Moda kuruchi	Ha	0.23	511	120.00	0	0.00	0	0.00	0	0.00	0	0.00	511	120.00
22	Rehabilitation of Branch Distributory at mile 9.0.180 of Unjalur Distributory.	Moda kuruchi	Ha	0.39	903	350.00	0	0.00	0	0.00	0	0.00	0	0.00	903	350.00
23	Rehabilitation of Branch Distributory and sub branch from mile 0/0 to 2/3 at mile 11.4.589 of Unjalur Distributory.	Moda kuruchi	Ha	0.10	2447	250.00	0	0.00	0	0.00	0	0.00	0	0.00	2447	250.00
24	Rehabilitation of Branch Distributory and	Moda kuruchi	Ha	0.20	1485	300.00	0	0.00	0	0.00	0	0.00	0	0.00	1485	300.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	sub branch from mile 2/3 to tail end at mile 11.4.589 of Unjalur Distributory.															
25	Rehabilitation of Branch Distributory at mile nile 1/0 to tail end of 15.7.125 , 16.1.203 and 16.7.300 of Unjalur Distributory.	Moda kuruchi	Ha	0.54	373	200.00	0	0.00	0	0.00	0	0.00	0	0.00	373	200.00
26	Rehabilitation of Branch Distributory at mile 17.7.470, and 18.4.260 of Unjalur Distributory.	Moda kuruchi	Ha	0.20	737	150.00	0	0.00	0	0.00	0	0.00	0	0.00	737	150.00
27	Rehabilitation of Branch Distributory at mile 19.0.380,19.5.545, and 20.4.460 of Unjalur Distributory.	Moda kuruchi	Ha	0.12	826	100.00	0	0.00	0	0.00	0	0.00	0	0.00	826	100.00
28	Rehabilitation of Punjaipalatholuvu Tank	Chenni malai	Ha	0.40	87	35.00	0	0.00	0	0.00	0	0.00	0	0.00	87	35.00
29	Rehabilitation of left bund in Noyyal Orathupalayam Reservoir	Chenni malai	Ha	150.00	1	150.00	0	0.00	0	0.00	0	0.00	0	0.00	1	150.00
30	Rehabilitation and repair of	Chenni malai	Ha	100.00	1	100.00	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	spillway gate river sluice shutters , emergency gate and left and right side canal sluice shutters in Noyyal Orathupalayam Reservoir															
31	Rehabilitation of Arakkankottai Channel from mile 1-2-000 to 6-4-460	T.N Palayam	Ha	34.30	277	9500.00	0	0.00	0	0.00	0	0.00	0	0.00	277	9500.00
32	Rehabilitation of Arakkankottai Channel from mile 6-4-460 to 17-1-190	T.N Palayam	Ha	26.88	502	13500.00	0	0.00	0	0.00	0	0.00	0	0.00	502	13500.00
33	Rehabilitation of Thadapalli channel from mile 1/1 to 10/0 in Gobi Taluk of Erode District.	Gobi	Ha	11.05	724	8000.00	0	0.00	0	0.00	0	0.00	0	0.00	724	8000.00
34	Rehabilitation of Thadapalli channel from mile 10/0 to 16/0 in Gobi Taluk of Erode District.	Gobi	Ha	8.09	742	6000.00	0	0.00	0	0.00	0	0.00	0	0.00	742	6000.00
35	Rehabilitation of Thadapalli channel from mile 39/0 to 48/1 in Gobi Taluk of Erode District.	Bhavani	Ha	10.97	729	8000.00	0	0.00	0	0.00	0	0.00	0	0.00	729	8000.00
36	Rehabilitation of S.F.No.190A Senbagapudur village	Sathy	Ha	0.35	0	0.00	313	110.00	0	0.00	0	0.00	0	0.00	313	110.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Harnessing Scheme of Sathyamangalam Taluk in Erode District.															
37	Rehabilitation of S.F.No.49A Palayakalaiyanur village Harnessing Scheme of Sathyamangalam Taluk in Erode District.	Sathy	Ha	0.28	0	0.00	271	75.00	0	0.00	0	0.00	0	0.00	271	75.00
38	Rehabilitation of S.F.No.311 Elathur village Harnessing Scheme of Gobichettipalayam Taluk in Erode District.	Gobi	Ha	0.16	0	0.00	959	150.00	0	0.00	0	0.00	0	0.00	959	150.00
39	Rehabilitation of S.F.No.267 Elathur village Harnessing Scheme of Gobichettipalayam Taluk in Erode District.	Gobi	Ha	0.37	0	0.00	449	165.00	0	0.00	0	0.00	0	0.00	449	165.00
40	Rehabilitation of S.F.No.337 Pandiyampalayam village Harnessing Scheme of Perundurai Taluk in Erode District.	Perundurai	Ha	0.07	0	0.00	826	60.00	0	0.00	0	0.00	0	0.00	826	60.00
41	Rehabilitation of S.F.No.22A Chandrapuram	Bhavani	Ha	0.23	0	0.00	330	76.00	0	0.00	0	0.00	0	0.00	330	76.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	village Harnessing Scheme of Bhavani Taluk in Erode District.															
42	Rehabilitation of Kanjikoil Anicut, Mullampatty Anicut, and Supply Channels in Perundurai Taluk of Erode District.	Perundurai	Ha	0.95	0	0.00	190	180.00	0	0.00	0	0.00	0	0.00	190	180.00
43	Rehabilitation of Alathur Anicut, and Supply Channels, Ananthasagaram Supply Channel in BhavaniTaluk of Erode District.	Bhavani	Ha	1.27	0	0.00	142	180.00	0	0.00	0	0.00	0	0.00	142	180.00
44	Rehabilitation of S.F.No.696 of Periyapuliyur Village of Bhavani Taluk of Erode District.	Bhavani	Ha	4.93	0	0.00	20	100.00	0	0.00	0	0.00	0	0.00	20	100.00
45	Rehabilitation of Erode Anicut, and its Channels	Erode	Ha	0.64	0	0.00	47	30.00	0	0.00	0	0.00	0	0.00	47	30.00
46	Rehabilitation of Kurunganpallam Anicut and its Channels	Modak kurichi	Ha	0.55	0	0.00	1396	765.00	0	0.00	0	0.00	0	0.00	1396	765.00
47	Rehabilitation of Avalpundurai Anicut and its Channels.	Modak kurichi	Ha	0.42	0	0.00	59	25.00	0	0.00	0	0.00	0	0.00	59	25.00
48	Rehabilitation of Kulavilakku	Modak kurichi	Ha	0.95	0	0.00	84	80.00	0	0.00	0	0.00	0	0.00	84	80.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Anicut, and its Channels.															
49	Rehabilitation of Anjur Anicut and its Channels..	Kodumudi	Ha	0.98	0	0.00	102	100.00	0	0.00	0	0.00	0	0.00	102	100.00
50	Rehabilitation of Perumpallam Anicut and its Channels .	Modak kurichi	Ha	0.87	0	0.00	1030	900.00	0	0.00	0	0.00	0	0.00	1030	900.00
51	Rehabilitation of Kadukampalaya m Anicut and its channels	Gobi	Ha	0.44	0	0.00	563	250.00	0	0.00	0	0.00	0	0.00	563	250.00
52	Rehabilitation of LBP main canal from mile 1/3 to 3/5 and its cross masonry works.	Sathy	Ha	1.67	0	0.00	866	1450.00	0	0.00	0	0.00	0	0.00	866	1450.00
53	Rehabilitation of LBP main canal from mile 3/5 to 14/6 and its cross masonry works.	Sathy	Ha	0.61	0	0.00	10002	6150.00	0	0.00	0	0.00	0	0.00	10002	6150.00
54	Rehabilitation of LBP main canal from mile 14/6 to 18/2 and its cross masonry works.	Sathy	Ha	1.32	0	0.00	1673	2200.00	0	0.00	0	0.00	0	0.00	1673	2200.00
55	Rehabilitation of Distributory at 1-6-060 of LBP main canal	Sathy	Ha	0.43	0	0.00	213	91.00	0	0.00	0	0.00	0	0.00	213	91.00
56	Rehabilitation of Distributory at 3-2-415 of LBP main canal.	Sathy	Ha	0.82	0	0.00	537	441.00	0	0.00	0	0.00	0	0.00	537	441.00
57	Rehabilitation of Distributory at 5-2-280 of LBP main canal.	Sathy	Ha	1.32	0	0.00	1070	1417.00	0	0.00	0	0.00	0	0.00	1070	1417.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
58	Rehabilitation of Distributory at 6-4-055 of LBP main canal.	Sathy	Ha	1.54	0	0.00	3427	5290.40	0	0.00	0	0.00	0	0.00	3427	5290.40
59	Rehabilitation of Distributory at 7-7-420 of LBP main canal	Sathy	Ha	1.24	0	0.00	332	412.00	0	0.00	0	0.00	0	0.00	332	412.00
60	Rehabilitation of Distributory at 8-2-550 of LBP main canal.	Sathy	Ha	1.74	0	0.00	319	554.00	0	0.00	0	0.00	0	0.00	319	554.00
61	Rehabilitation of Distributory at 9-2-085 of LBP main canal.	Sathy	Ha	1.26	0	0.00	613	774.00	0	0.00	0	0.00	0	0.00	613	774.00
62	Rehabilitation of Distributory at 10-0-195 of LBP main canal.	Sathy	Ha	1.23	0	0.00	1754	2158.80	0	0.00	0	0.00	0	0.00	1754	2158.80
63	Rehabilitation of Distributory at 12-0-410 of LBP main canal.	Sathy	Ha	1.21	0	0.00	845	1026.40	0	0.00	0	0.00	0	0.00	845	1026.40
64	Rehabilitation of Distributory at 14-6-520 of LBP main canal.	Sathy	Ha	1.26	0	0.00	846	1067.20	0	0.00	0	0.00	0	0.00	846	1067.20
65	Rehabilitation of Distributory at 15-2-225 of LBP main canal.	Sathy	Ha	0.80	0	0.00	301	240.00	0	0.00	0	0.00	0	0.00	301	240.00
66	Rehabilitation of LBP Main Canal from mile 51/0 to 56/2 in Perundurai Taluk of Erode District	Perundurai	Ha	0.42	0	0.00	5556	2340.00	0	0.00	0	0.00	0	0.00	5556	2340.00
67	Rehabilitation of LBP Main Canal from mile 56/2 to	Perundurai	Ha	0.60	0	0.00	4516	2700.00	0	0.00	0	0.00	0	0.00	4516	2700.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	63/0 in Perundurai Taluk of Erode District															
68	Rehabilitation of Mettupalayam Branch Distributory from mile 0/0 to 8/2 in Perundurai Taluk of Erode District	Perundurai	Ha	0.23	0	0.00	2708	630.00	0	0.00	0	0.00	0	0.00	2708	630.00
69	Rehabilitation of Bhavani Distributory from mile 0/0 to 3/2 in Perundurai Taluk of Erode District	Perundurai	Ha	0.16	0	0.00	2841	450.00	0	0.00	0	0.00	0	0.00	2841	450.00
70	Rehabilitation of Periyaagraharam Branch from mile 0/0 to 5/0 in Erode Taluk of Erode District	Erode	Ha	0.21	0	0.00	1748	360.00	0	0.00	0	0.00	0	0.00	1748	360.00
71	Rehabilitation of Thannerpandal palayam Branch canal from mile 0/0 to 3/0 in Erode Taluk of Erode District	Erode	Ha	0.43	0	0.00	631	270.00	0	0.00	0	0.00	0	0.00	631	270.00
72	Rehabilitation of Bhavani Distributory from mile 3/2 to 11/0 in Erode Taluk of Erode District	Erode	Ha	0.16	0	0.00	3887	630.00	0	0.00	0	0.00	0	0.00	3887	630.00
73	Rehabilitation of Mosakkaradu Branch from mile 0/0 to 5/2 in	Erode	Ha	0.41	0	0.00	1093	450.00	0	0.00	0	0.00	0	0.00	1093	450.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Erode Taluk of Erode District															
74	Rehabilitation of Erode Distributory from mile 0/0 to 6/4 in Erode Taluk of Erode District	Erode	Ha	0.22	0	0.00	2417	540.00	0	0.00	0	0.00	0	0.00	2417	540.00
75	Rehabilitation of Thindal Distributory from mile 0/0 to 6/0 in Erode Taluk of Erode District	Erode	Ha	0.30	0	0.00	1629	490.00	0	0.00	0	0.00	0	0.00	1629	490.00
76	Rehabilitation of LBP main canal from mile 63/0 to 68/5 and its cross masonry works.	Chenni malai	Ha	0.50	0	0.00	2199	1100.00	0	0.00	0	0.00	0	0.00	2199	1100.00
77	Rehabilitation of LBP main canal from mile 68/5 to 74/2 and its cross masonry works..	Moda kuruchi	Ha	0.57	0	0.00	2696	1550.00	0	0.00	0	0.00	0	0.00	2696	1550.00
78	Rehabilitation of Distributories at mile 72-7-308 and 73-5-144 of LBP main canal.	Moda kuruchi	Ha	0.32	0	0.00	1084	350.00	0	0.00	0	0.00	0	0.00	1084	350.00
79	Rehabilitation of Branch canals and sub branch canal at mile 0.3.156 and mile 0/0 to 2/7 of 0.5.42 branch of Chennasamudram Distributory .	Moda kuruchi	Ha	0.60	0	0.00	1123	670.00	0	0.00	0	0.00	0	0.00	1123	670.00
80	Rehabilitation of Branch canals	Moda kuruchi	Ha	0.24	0	0.00	4412	1050.00	0	0.00	0	0.00	0	0.00	4412	1050.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	and sub branch canal at 3.0.138 of Chennasamudram Distributory .															
81	Rehabilitation of Branch canals at mile 4-0-465 (R) and 4-4-140 (R) of Chennasamudram Distributory .	Moda kuruchi	Ha	0.26	0	0.00	195	50.00	0	0.00	0	0.00	0	0.00	195	50.00
82	Rehabilitation of Branch canal and sub branch canals from mile 0/0 to 5/5 of 5-3-360 (L) of Chennasamudram Distributory .	Moda kuruchi	Ha	0.57	0	0.00	2004	1150.00	0	0.00	0	0.00	0	0.00	2004	1150.00
83	Rehabilitation of Branch canal from mile 5/5 to tail end of 5-3-360 (L) of Chennasamudram Distributory .	Moda kuruchi	Ha	0.72	0	0.00	625	450.00	0	0.00	0	0.00	0	0.00	625	450.00
84	Rehabilitation of Branch canal and sub branch canals at mile 5-7-150 (R) of Chennasamudram Distributory .	Moda kuruchi	Ha	0.60	0	0.00	501	300.00	0	0.00	0	0.00	0	0.00	501	300.00
85	Rehabilitation of Branch canal and sub branch at mile 7.0.225 (R) of Chennasamudram Distributory .	Moda kuruchi	Ha	0.66	0	0.00	1215	800.00	0	0.00	0	0.00	0	0.00	1215	800.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
86	Rehabilitation of Branch canals at mile 7-4-504 (L), 8-3-440(R) and 8-6-440 (R) of Chennasamudram Distributory .	Moda kuruchi	Ha	0.55	0	0.00	545	300.00	0	0.00	0	0.00	0	0.00	545	300.00
87	Rehabilitation of Branch canal and sub branch canal at mile 9-7-320 (L) of Chennasamudram Distributory .	Moda kuruchi	Ha	0.62	0	0.00	614	380.00	0	0.00	0	0.00	0	0.00	614	380.00
88	Rehabilitation of Branch canal and sub branch canal at mile 10.4.24 (L) of Chennasamudram Distributory .	Moda kuruchi	Ha	0.68	0	0.00	498	340.00	0	0.00	0	0.00	0	0.00	498	340.00
89	Rehabilitation of Branch canals at mile 11-4-244 (R), 11-4-544 (R), 12-3-505 (R) of Chennasamudram Distributory	Moda kuruchi	Ha	0.37	0	0.00	271	100.00	0	0.00	0	0.00	0	0.00	271	100.00
90	Rehabilitation of Branch canal at mile 12-5-504 (L) of Chennasamudram Distributory .	Moda kuruchi	Ha	0.51	0	0.00	272	140.00	0	0.00	0	0.00	0	0.00	272	140.00
91	Rehabilitation of Branch canal and sub branch canal at mile 13-1-104 (L) , of Chennasamudram Distributory .	Moda kuruchi	Ha	0.55	0	0.00	400	220.00	0	0.00	0	0.00	0	0.00	400	220.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
92	Rehabilitation of Branch canals at mile 13-2-534 (R) , 13-6-130 (L) , and 13-7-300 (L) of Chennasamudram Distributory .	Moda kuruchi	Ha	0.70	0	0.00	444	310.00	0	0.00	0	0.00	0	0.00	444	310.00
93	Rehabilitation of Branch canals at mile 14-2-291 (L) and 14-3-480 (L) of Chennasamudram Distributory .	Moda kuruchi	Ha	0.72	0	0.00	265	190.00	0	0.00	0	0.00	0	0.00	265	190.00
94	Rehabilitation of Branch canals at mile 15-0-281 (L) , 15-5-643 (L) , of Chennasamudram Distributory .	Moda kuruchi	Ha	0.65	0	0.00	338	220.00	0	0.00	0	0.00	0	0.00	338	220.00
95	Rehabilitation of Branch canals atmile 16-3-100 (R) of Chennasamudram Distributory .	Moda kuruchi	Ha	0.69	0	0.00	360	250.00	0	0.00	0	0.00	0	0.00	360	250.00
96	Rehabilitation of Branch canals at mile 17-2-400 (L) , 17-3-640 (L) , 18-4-200 (R) and 18-5-581 (L) of Chennasamudram Distributory .	Moda kuruchi	Ha	0.56	0	0.00	537	300.00	0	0.00	0	0.00	0	0.00	537	300.00
97	Rehabilitation of Branch Distributory at mile 1-0-0 of Unjalur	Moda kuruchi	Ha	0.39	0	0.00	772	300.00	0	0.00	0	0.00	0	0.00	772	300.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Distributory.															
98	Rehabilitation of Branch Distributory at mile 1-0-49 of Unjalur Distributory.	Moda kuruchi	Ha	0.40	0	0.00	1241	500.00	0	0.00	0	0.00	0	0.00	1241	500.00
99	Rehabilitation of Branch Distributory at mile 2.2.70 of Unjalur Distributory.	Moda kuruchi	Ha	0.40	0	0.00	1516	600.00	0	0.00	0	0.00	0	0.00	1516	600.00
100	Rehabilitation of Branch Distributory at mile 5.2.480 and 6.2.275 of Unjalur Distributory.	Moda kuruchi	Ha	0.26	0	0.00	1166	300.00	0	0.00	0	0.00	0	0.00	1166	300.00
101	Rehabilitation of Branch Distributory at mile 7.1.380 and 7.6.580 of Unjalur Distributory.	Moda kuruchi	Ha	0.20	0	0.00	739	150.00	0	0.00	0	0.00	0	0.00	739	150.00
102	Rehabilitation of Branch Distributory at mile 9.4.140 of Unjalur Distributory.	Moda kuruchi	Ha	0.35	0	0.00	851	300.00	0	0.00	0	0.00	0	0.00	851	300.00
103	Rehabilitation of Branch Distributory at mile 10.1.40, 10.1.140 and 10.3.620 of Unjalur Distributory.	Moda kuruchi	Ha	0.17	0	0.00	871	150.00	0	0.00	0	0.00	0	0.00	871	150.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
104	Rehabilitation of Branch Distributory at mile 13.3.480 and 14.6.100 of Unjalur Distributory.	Moda kuruchi	Ha	0.30	0	0.00	677	200.00	0	0.00	0	0.00	0	0.00	677	200.00
105	Rehabilitation of Branch Distributory at mile 15.0.375 and mile 0/0 to 1/0 of 15.7.125 of Unjalur Distributory.	Moda kuruchi	Ha	0.23	0	0.00	797	180.00	0	0.00	0	0.00	0	0.00	797	180.00
106	Rehabilitation of Arakkankottai Channel from mile 17-1-190 to 20-1-000	T.N Palayam	Ha	13.48	0	0.00	200	2700.00	0	0.00	0	0.00	0	0.00	200	2700.00
107	Rehabilitation of Vaniputhur Branch Channel takes of at mile 6-4-460 of Arakkankottai Channel	T.N Palayam	Ha	9.43	0	0.00	223	2100.00	0	0.00	0	0.00	0	0.00	223	2100.00
108	Rehabilitation of Thadapalli channel from mile 16/0 to 22/0 in Gobi Taluk of Erode District.	Gobi	Ha	7.04	0	0.00	852	6000.00	0	0.00	0	0.00	0	0.00	852	6000.00
109	Rehabilitation of Thadapalli channel from mile 22/0 to 26/0 in Gobi Taluk of Erode District.	Gobi	Ha	5.01	0	0.00	798	4000.00	0	0.00	0	0.00	0	0.00	798	4000.00
110	Rehabilitation of S.F.No.208 Ukkaram village	Sathy	Ha	0.12	0	0.00	0	0.00	812	100.00	0	0.00	0	0.00	812	100.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Harnessing Scheme of Sathyamangalam Taluk in Erode District.															
111	Rehabilitation of S.F.No.115 Ukkaram village Harnessing Scheme of Sathyamangalam Taluk in Erode District.	Sathy	Ha	0.27	0	0.00	0	0.00	467	125.00	0	0.00	0	0.00	467	125.00
112	Rehabilitation of S.F.No.16 Kurumandur village Harnessing Scheme of Gobichettipalayam Taluk in Erode District.	Gobi	Ha	0.49	0	0.00	0	0.00	582	285.00	0	0.00	0	0.00	582	285.00
113	Rehabilitation of S.F.No.175 Karattupalayam village Harnessing Scheme of Gobichettipalayam Taluk in Erode District.	Gobi	Ha	0.41	0	0.00	0	0.00	534	220.00	0	0.00	0	0.00	534	220.00
114	Rehabilitation of S.F.No.415 Karattupalayam village Harnessing Scheme of Gobichettipalayam Taluk in Erode District.	Gobi	Ha	0.80	0	0.00	0	0.00	289	230.00	0	0.00	0	0.00	289	230.00
115	Rehabilitation of S.F.No.894	Bhavani	Ha	0.13	0	0.00	0	0.00	941	120.00	0	0.00	0	0.00	941	120.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Salangapalayam village Harnessing Scheme of Bhavani Taluk in Erode District.															
116	Rehabilitation of S.F.No.341Salangapalayam village Harnessing Scheme of Bhavani Taluk in Erode District.	Bhavani	Ha	0.19	0	0.00	0	0.00	305	58.00	0	0.00	0	0.00	305	58.00
117	Rehabilitation of S.F.No.261 Nallampatti village Harnessing Scheme of Perundurai Taluk in Erode District.	Perundurai	Ha	0.26	0	0.00	0	0.00	592	152.00	0	0.00	0	0.00	592	152.00
118	Rehabilitation of Kalingarayan Cahnnel From mile 23-6.5-300 to 30-2-037 in Erode Taluk of District.	Modakkurichi	Ha	3.68	0	0.00	0	0.00	594	2184.00	0	0.00	0	0.00	594	2184.00
119	Rehabilitation of Kalingarayan Cahnnel From mile 30-2-037 to 40-3.5-090 in Erode Taluk of District.	Kodumudi	Ha	7.07	0	0.00	0	0.00	475	3360.00	0	0.00	0	0.00	475	3360.00
120	Rehabilitation of Kalingarayan Cahnnel From mile 40-3.5-090 to 47-1-090 in	Kodumudi	Ha	5.43	0	0.00	0	0.00	433	2352.00	0	0.00	0	0.00	433	2352.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Erode Taluk of District.															
121	Rehabilitation of Kalingarayan Cahnnel From mile 47-1-090 to 56-5.5-020 in Erode Taluk of District.	Kodumudi	Ha	6.98	0	0.00	0	0.00	433	3024.00	0	0.00	0	0.00	433	3024.00
122	Rehabilitation of Distributory at 16-2-380 of LBP main canal.	sathy	Ha	0.85	0	0.00	0	0.00	273	231.60	0	0.00	0	0.00	273	231.60
123	Rehabilitation of Distributory at 17-1-060 of LBP main canal.	sathy	Ha	1.41	0	0.00	0	0.00	725	1023.20	0	0.00	0	0.00	725	1023.20
124	Rehabilitation of LBP main canal from mile 18/2 to 30/4 and its cross masonry works..	Gobi	Ha	0.83	0	0.00	0	0.00	9894	8240.00	0	0.00	0	0.00	9894	8240.00
125	Rehabilitation of Distributory at mile 22-2-115 of LBP main canal.	Gobi	Ha	0.27	0	0.00	0	0.00	732	197.00	0	0.00	0	0.00	732	197.00
126	Rehabilitation of Distributory at mile 23-3-140 of LBP main canal.	Gobi	Ha	0.19	0	0.00	0	0.00	2984	553.00	0	0.00	0	0.00	2984	553.00
127	Rehabilitation of Distributory at mile 27-6-330 of LBP main canal.	Gobi	Ha	0.28	0	0.00	0	0.00	310	88.00	0	0.00	0	0.00	310	88.00
128	Rehabilitation of Distributory at mile 29-0-540 of LBP main canal.	Gobi	Ha	0.14	0	0.00	0	0.00	850	123.00	0	0.00	0	0.00	850	123.00
129	Rehabilitation of Distributory at mile 29-7-000 of	Gobi	Ha	0.14	0	0.00	0	0.00	397	54.00	0	0.00	0	0.00	397	54.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	LBP main canal.															
130	Rehabilitation of Distributory at mile 30-4-300 of LBP main canal.	Gobi	Ha	0.29	0	0.00	0	0.00	3477	1000.00	0	0.00	0	0.00	3477	1000.00
131	Rehabilitation of LBP main canal from mile 30/4 to 40/3 and its cross masonry works.	Gobi	Ha	0.45	0	0.00	0	0.00	15400	6892.00	0	0.00	0	0.00	15400	6892.00
132	Rehabilitation of Distributory at 33-0-390 of LBP main canal.	Gobi	Ha	0.29	0	0.00	0	0.00	522	150.00	0	0.00	0	0.00	522	150.00
133	Rehabilitation of LBP Main canal and its distributory from mile 74/2 to 78/2	Modak kuruchi	Ha	0.40	0	0.00	0	0.00	1177	471.00	0	0.00	0	0.00	1177	471.00
134	Rehabilitation of LBP Main canal and distributary canal from mile 78/2 to 93/0	Chenni malai	Ha	0.40	0	0.00	0	0.00	2172	870.00	0	0.00	0	0.00	2172	870.00
135	Rehabilitation of LBP Main canal from mile 93/0 to 97/1-200	Kangayam	Ha	0.50	0	0.00	0	0.00	228	113.00	0	0.00	0	0.00	228	113.00
136	Rehabilitation of Vaniputhur Extension Channel takes of at Vaniputhur Branch Channel	T.N Palayam	Ha	9.43	0	0.00	0	0.00	223	2100.00	0	0.00	0	0.00	223	2100.00
137	Rehabilitation of Thadapalli channel from mile 26/0 to 32/0 in Gobi Taluk of Erode District.	Gobi	Ha	10.89	0	0.00	0	0.00	551	6000.00	0	0.00	0	0.00	551	6000.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
138	Rehabilitation of Thadapalli channel from mile 32/0 to 39/0 in Gobi Taluk of Erode District.	Gobi	Ha	15.70	0	0.00	0	0.00	573	9000.00	0	0.00	0	0.00	573	9000.00
139	Rehabilitation of S.F.No.314 Kalingiyam village Harnessing Scheme of Gobichettipalayam Taluk in Erode District.	Gobi	Ha	0.79	0	0.00	0	0.00	0	0.00	356	280.00	0	0.00	356	280.00
140	Rehabilitation of S.F.No.454 Allukuli village Harnessing Scheme of Gobichettipalayam Taluk in Erode District.	Gobi	Ha	0.50	0	0.00	0	0.00	0	0.00	302	150.00	0	0.00	302	150.00
141	Rehabilitation of Distributory at 33-1-580 of LBP main canal.	Gobi	Ha	0.20	0	0.00	0	0.00	0	0.00	9808	1982.00	0	0.00	9808	1982.00
142	Rehabilitation of Distributory at 35-7-255 of LBP main canal.	Gobi	Ha	0.38	0	0.00	0	0.00	0	0.00	1302	500.00	0	0.00	1302	500.00
143	Rehabilitation of Distributory at 37-2-500 of LBP main canal.	Gobi	Ha	0.22	0	0.00	0	0.00	0	0.00	456	100.00	0	0.00	456	100.00
144	Rehabilitation of Distributory at 38-2-320 of LBP main canal.	Gobi	Ha	0.37	0	0.00	0	0.00	0	0.00	1090	400.00	0	0.00	1090	400.00
145	Rehabilitation of LBP main canal from mile 40/3 to	Bhavani, Perundurai	Ha	0.78	0	0.00	0	0.00	0	0.00	11397	8900.00	0	0.00	11397	8900.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	51/0 and its cross masonry works.															
146	Rehabilitation of Distributories at mile 40/0-140 of LBP main canal.	Bhavani	Ha	0.13	0	0.00	0	0.00	0	0.00	969	125.00	0	0.00	969	125.00
147	Rehabilitation of Distributory at 41/2-780 of LBP main canal.	Perundurai	Ha	0.22	0	0.00	0	0.00	0	0.00	5968	1300.00	0	0.00	5968	1300.00
148	Rehabilitation of Distributory at 41/4-435 of LBP main canal.	Perundurai	Ha	0.13	0	0.00	0	0.00	0	0.00	449	60.00	0	0.00	449	60.00
149	Rehabilitation of Distributory at 42/2-505 of LBP main canal.	Perundurai	Ha	0.10	0	0.00	0	0.00	0	0.00	330	32.00	0	0.00	330	32.00
150	Rehabilitation of Distributory at 43/2-900 of LBP main canal.	Perundurai	Ha	0.08	0	0.00	0	0.00	0	0.00	354	29.00	0	0.00	354	29.00
151	Rehabilitation of Distributory at 48/6-540 of LBP main canal.	Perundurai	Ha	0.34	0	0.00	0	0.00	0	0.00	2590	880.00	0	0.00	2590	880.00
152	Rehabilitation of Distributories at mile 49/1-95 of LBP main canal.	Perundurai	Ha	0.12	0	0.00	0	0.00	0	0.00	283	35.00	0	0.00	283	35.00
153	Rehabilitation of Distributory at 50/5-575 of LBP main canal.	Perundurai	Ha	0.19	0	0.00	0	0.00	0	0.00	405	76.00	0	0.00	405	76.00
154	Rehabilitation of Perumugai Athani Branch Channel takes of at mile 17-1-190 of Arakkankottai	T.N Palayam/Anthiyur	Ha	14.41	0	0.00	0	0.00	0	0.00	146	2100.00	0	0.00	146	2100.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Channel															
155	Rehabilitation of Kugalur branch channel & Mevani channel of Thadapalli channel	Gobi	Ha	7.54	0	0.00	0	0.00	0	0.00	955	7200.00	0	0.00	955	7200.00
156	Rehabilitation of Singiyam branch channel & Side channel of Thadapalli channel	Gobi	Ha	18.53	0	0.00	0	0.00	0	0.00	243	4500.00	0	0.00	243	4500.00
157	Rehabilitation of Ammapalayam branch channel of Thadapalli channel	Bhavani	Ha	1.83	0	0.00	0	0.00	0	0.00	0	0.00	981	1800.00	981	1800.00
158	Rehabilitation of Gunderipallam Reservoir main canal and its Distributories	T.N Palayam	Ha	1.24	0	0.00	0	0.00	0	0.00	0	0.00	967	1200.00	967	1200.00
	Grand total					**85303.14**		**63077.80**		**51945.80**		**28649.00**		**3000.00**		**231975.74**

4.10. Cooperative Sector

The Cooperative Marketing Societies in Tamil Nadu help the farmer members by supply of quality seeds, fertilizers, pesticides and other farm requirement at competitive rates as and when required by them. The Cooperative Marketing Societies also help the farmers in processing, storing and marketing their agriculture produces to fetch reasonable price for their agricultural produces. With these objectives the Cooperative Marketing Societies are functioning at taluk levels.

In Tamil Nadu, Cooperatives play a prominent role in the day to day affairs of the common man. They help the farmer to improve agricultural production by providing crop loans and by supplying agricultural inputs such as fertilizers and insecticides. They also enable the farmer to store and market his produce. In most districts, cooperatives run the fair price shops which provide the rural and urban poor essential commodities at highly subsidized prices. The policy of the State Government is to ensure adequate availability of essential commodities of acceptable quality at an affordable price to the general public particularly the poor. Public Distribution System has been one of the most crucial elements in food policy and food security system in the country.

Cooperatives all over the world have become an effective and potential instrument of economic development. The Cooperative Movement in Tamil Nadu has witnessed over the decades substantial growth in diverse areas of economy. There is not a single major sphere of economic activity which has not been touched by Cooperatives. Cooperatives are also envisaged as an instrument for implementing many important policies like agricultural credit, urban credit, market intervention, price support for agricultural commodities through Cooperative Wholesale stores, Public Distribution system etc. The office infrastructure has to be improved. The intervention is proposed for creating of infrastructure facilities.

Project components

- Office Infrastructure
- Capital Asset Creation

Budget

It is proposed to incur Rs. 5286.64 lakh over a period of five years.

Implementing agency

Department of Cooperation will be implementing the project

Table 4.29.Budget requirement for Cooperative Sector

(Rs. in Lakhs)

Sl. No	Co-operation	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total Amount	
			Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Construction of Compound wall	All blocks	66	478.21	28	316.10	3	70.00	4	52.00	1	40.00	102	956.31
2	Construction of Godown	B1, B2, B4, B5, B7, B8, B9, B14	10	275.10	11	220.00	5	135.00	2	115.00	4	119.00	32	864.10
3	Construction of Office Building	All blocks	42	661.56	9	138.14	8	178.00	7	181.00	2	67.00	68	1225.70
4	Constuctuion of Marketing Yard	B9	1	5.00	0	0.00	0	0.00	0	0.00	0	0.00	1	5.00
5	Establishment of Auction yard	B5, B6	4	279.00	0	0.00	0	0.00	0	0.00	0	0.00	4	279.00
6	Establishment of Processing unit	B1, B9	2	15.91	1	8.00	0	0.00	1	295.60	0	0.00	4	319.51
7	Establishment of Tractor Shed	B14	1	1.80	0	0.00	0	0.00	0	0.00	0	0.00	1	1.80
8	Renovation of Godown	All blocks except B1, B2, B8, B12	28	136.10	9	83.70	2	35.00	1	12.00	3	8.30	43	275.10
9	Renovation of Office Building	All blocks except B1, B12	141	461.46	35	291.60	5	27.00	4	45.00	0	0.00	185	825.06
10	Shopping complex Construction	B1, B5, B6, B14	4	36.19	1	50.00	1	51.52	0	0.00	1	51.52	7	189.23
11	Strong Room construction	B5, B9, B14	4	17.50	0	0.00	0	0.00	0	0.00	0	0.00	4	17.50

Sl. No	Co-operation	Blocks covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total Amount	
			Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
12	Strengthening of Cooperation Centres (Furniture's, Solar panel, Modern counter, Xerox machine, Air Conditioner, CCTV Camera, Bore well, Generator, UPS Battery, Cash Counting Machine, Invertor, Jewel Weighing Machine, Packing Machine, Purchase of computer and peripherals, Hand Billing machine, LED Display for tender process, Purchase of Jewel Carat Meter, Smart Card Printing Machine, Burglary Alarm, Agricultural Equipments, Safety Locker, Purchase of Display racks, Defender Door, Purchase of Paddy drying machine, Automatic Printer machine, Conveyer, E-Tender process, Fork Lifter, Gunny Bag Stitching machine, Jewel tester, Pallets, Tarpaulin, Trolley and Printing Press machineries)	0	142	221.49	15	75.49	2	5.00	1	3.00	0	0.00	160	304.98
13	Amenities for Cooperative Centres (RO Water unit, Sanitation, Vehicle Parking Shed, Construction and renovation of Marriage Hall, Construction and renovation of amenity centres)	0	9	8.35	0	0.00	0	0.00	1	15.00	0	0.00	10	23.35
	Total			**2597.67**		**1183.03**		**501.52**		**718.60**		**285.82**		**5286.64**

B1 – Erode, B2 – Kodumudi, B3- Chennimalai, B4 – Modakurichi, B5- Perundurai, B6 – Gobi, B7 – Nambiyur, B8 - TN Palayam, B9 – Sathy, B10 – Bhavanisagar, B11 – Thalavadi, B12- Anthiyur, B13 – Ammapettai, B14 - Bhavani

Table 4.30. Budget Abstract for Erode District

(Rs. in Lakhs)

Sl. No.	Components	2017-18	2018-19	2019-20	2020-21	2021-22	Total
1	Agriculture	4816.36	3097.98	2689.68	2670.48	3170.04	16444.54
2	Agricultural Research	100.00	30.00	100.00	0.00	0.00	230.00
3	Horticulture	9213.57	9099.67	9216.52	9227.04	9111.36	45868.14
4	Agricultural Engineering	1365.52	1698.62	1653.57	1652.37	1643.62	8013.70
5	Agricultural Marketing	858.12	402.56	52.56	612.76	677.68	2603.68
6	Seed Certification & Organic Certification	18.36	0.60	13.96	0.60	0.60	34.12
7	Animal Husbandry	956.75	1099.75	959.75	809.75	749.75	4575.75
8	Animal Science Research (TANUVAS)	105.93	105.93	755.93	105.93	105.93	1179.65
9	Dariy Development	1552.75	7174.75	7945.00	2155.25	1481.50	20309.25
10	Fisheries	35.30	35.50	77.00	34.30	33.70	215.80
11	Fisheries Research (TNFU)	0.26	340.56	300.26	0.26	0.26	641.60
12	Public Works Department (WRO)	85303.14	63077.80	51945.80	28649.00	3000.00	231975.74
13	Civil Supplies & Co-Operation	2597.67	1183.03	501.52	718.60	285.82	5286.64
	Grand total	**106923.73**	**87346.75**	**76211.55**	**46636.34**	**20260.26**	**337378.61**

The total budget requirement for implementation of various interventions by different departments in Erode district is **₹. 337378.61 lakhs**


KARNATAKA
KERALA
SRI LANKA