NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME (NADP)

DISTRICT AGRICULTURE PLAN

TIRUCHIRAPPALI

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

NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME (NADP / RKVY)

NADP

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COIMBATORE - 641 003

2017

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EXECUTIVE SUMMARY

Tiruchirappalli district is an important region in the state and had been a Centre of activities for many historical events from the days of the early Cholas. Rock Fort, Thayumana Swamy, illaiyar Temple, Teppakulam, the Nawaz's palace, the Nadir Shah Mosque, Sri Rangam temple, thiruvanai Koil, Subramanya swami Temple, Upper Anicut and Grand Anicut are some of the important monuments and temples reflecting the history, culture and traditions of the district. Tiruchirapalli district is located at the Central part of Tamil Nadu surrounded by Perambalur district in the north, Pudukkottai district in the south, Karur and Dindigul districts in the West and Thanjavur district in the east. It lies between 10^{o} 10' and 11^{o} 20' of the Northern latitudes and 78^{o}10' and 79^{o} 0' of Eastern longitudes in the centre part of the Tamil Nadu. The general slope of the district is towards east. It has a number of detached hills, among which Pachamalai Hill is an important one, which has a peak up to 1015m, located at Sengattupatti Rain Forest. Tiruchirapalli district is one of the important districts in Tamil Nadu and had a population of 25 lakhs as per 2001 census. In terms of urbanisation level, according to the composition of urban and rural population, Tiruchirapalli district ranked 10th among the other districts in Tamil Nadu. Tiruchirappalli district comprises of eight taluks (Fig.1) *viz.* Thuraiyur, Lalgudi, Musiri, Tiruchirappalli, Thottiyam, M.nallur, Srirengam and Manapparai, which included 14 blocks, 408 Village Panchayats and 1590 Villages. This district consists of four municipality's *viz.* Ponmalai, Srirangam, Thuraiyur and Manapparai. Tiruchirapalli is the only Municipal Corporation which is also the Head Quarters of the District. Agriculture sector provides the major source of income to the population of the district and the major crops in this district are paddy, cholam, cotton, groundnut, maize etc., In addition, the other allied sectors like dairy, sheep/ goat, sericulture and inland fishing are the major sectors contributing to the district economy as well as act as a major source of providing livelihood for improving the income and standard of living of the people.

On-going Programmes in the District

The Department of Agriculture is currently implementing various Programmes in terms of crops to increase the productivity of crops *viz.,* rice, cotton, groundnut, gingelly, sunflower, pulses, millets etc. The Programmes included crop wise interventions such as Integrated Nutrient Management, IPM, demonstration of new technologies (SRI in paddy), promotion and distribution of bio fertilizers, certified seeds etc. In addition, organizing farmer fields schools and farmers' visits are also included in the on-going Programmes. The Department of Horticulture is implementing a number of Programmes such as Integrated

Horticulture Development Programme, National Horticulture Mission and Micro Irrigation in Tiruchirappalli district.

The Agricultural Engineering Department is implementing projects on Soil conservation measures like contour Stone wall, check dams etc., in Tribal Hilly regions, Rainwater Harvesting structures (Percolation Ponds, Check dams, Ooranis, Farm Ponds etc.), Creation of Water Harvesting Structures, Distribution of farm machineries such as Tractors, Power Tillers and implements like rotavator, Micro Irrigation etc., to improve the welfare of the farmers.

District Plan at a Glance

The plan outlay for five years (2017-22) for Tiruchirappalli district is given in Table. The total budget requirements of proposed plan for agricultural and allied sectors are given below. The total budget requirement for implementing various Programmes for different sectors is **Rs. 814823.74 lakhs** for Tiruchirappalli district.

Budget Abstract for Tiruchirappalli District

(₹.in lakhs)

Sl. No	Sectors	2017-18	2018-19	2019-20	2020-21	2021-22	Total
1	Agriculture	99166.56	100433.27	100659.51	100165.19	103664.37	504088.90
2	Agricultural Research (TNAU)	742.00	584.69	327.69	261.00	126.00	2041.38
3	Horticulture	4115.20	5677.98	5148.67	5681.88	7218.70	27842.43
4	Agricultural Engineering	1386.27	1398.96	1350.91	1421.90	1442.21	7000.25
5	Agricultural Marketing	4662.00	459.83	437.37	397.87	351.64	6308.71
6	Seed Certification & Organic Certification	212.56	1.30	1.30	1.30	1.30	217.76
7	Animal Husbandry	756.07	848.07	715.32	567.07	492.32	3378.85
8	Animal Science Research (TANVAS)	141.00	141.00	141.00	0.00	0.00	423.00
9	Dairy Development	2931.50	2986.50	3431.50	4436.50	9757.50	23543.50
10	Fisheries	7.00	59.00	11.00	4.00	4.00	85.00
11	Fisheries Research (TNFU)	170.26	190.56	200.26	0.26	0.26	561.60
12	Water Resource Organization (PWD)	98703.00	28238.00	54041.00	53576.00	3871.00	238429.00
13	Civil Supplies & Co-Operation	216.40	298.40	192.00	133.95	62.61	903.36
	Total	**213209.82**	**141317.56**	**166657.53**	**166646.92**	**126991.91**	**814823.74**

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 plan 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 Tiruchirappalli 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

2.1 District at a glance

Tiruchirappalli district is an important region in the State and had been a Centre of activities for many historical events from the days of the early Cholas. Rock Fort, ThayumanaSwamy, Pillaiyar Temple, Teppakulam, the Nawab's palace, the Nadir Shah Mosque, Sri Rangam Temple, Thiruvanaikoil, Vayalur Subramanyaswami Temple, Upper Anicut and Grand Anicut are some of the important monuments and temples reflecting the history, culture and traditions of the district.

2.2 Area, Location and Geographical features

The total area of Tiruchirappalli district was 96.9 km^2. The district is located at the Central part of Tamil Nadu surrounded by Perambalur district. In the north, Pudukkotai district in the south, Karur and Dindigul districts in the west and Thanjavur district in the east. It lies between $10^{o}10'$ and $11^{o}20'$ of the Northern latitudes and $78^{o}10'$ and $79^{o}0'$ of Eastern latitudes in the centre part of the Tamil Nadu. The general slope of the district is towards east. It has a number of detached hills, among which Pachamalai Hill is an important one, which has a peak up to 1015m, located at Sengattupatti Rain Forest.

Table 2.1. Taluks, Blocks and Agricultural Divisions in the Tiruchirappalli District

Name of the Taluks (12)	Name of the Blocks (14)
Thuraiyur	Uppiliapuram
Thottiam	Tattayyangarpettai
Musri	Turaiyur
Manachanallur	Thottiyam
Lalgudi	Musri
Tiruchirappalli West	Pullambadi
Tiruchirappalli East	Manachanellur
Srirangam	Lalgudi
Manapparai	Andanallur
Marungapuri	Thiruverambur
Thiruverumbur	Manikandam
Pullambadi	Vaiyampatti
	Manapparai
	Marungapuri

2.3 Administrative Structure of Tiruchirappalli district

Tiruchirappalli district comprised of eight taluks *viz.* Thuraiyur, Lalgudi, Musri, Tiruchirappalli, Thottiyam, Manachanallur, Srirangam and Manapparai, which included 14 blocks, 408 Village Panchayats and 1590 Villages. This district consists of two municipalities namely Thuraiyur and Manapparai. Tiruchirappalli is the only Municipal

Corporation which is also the Headquarters of the District. The taluk wise and block wise map of Tiruchirappalli district are shown in Figure 1 & 2 respectively.

Fig1. Taluks of Tiruchirappalli District

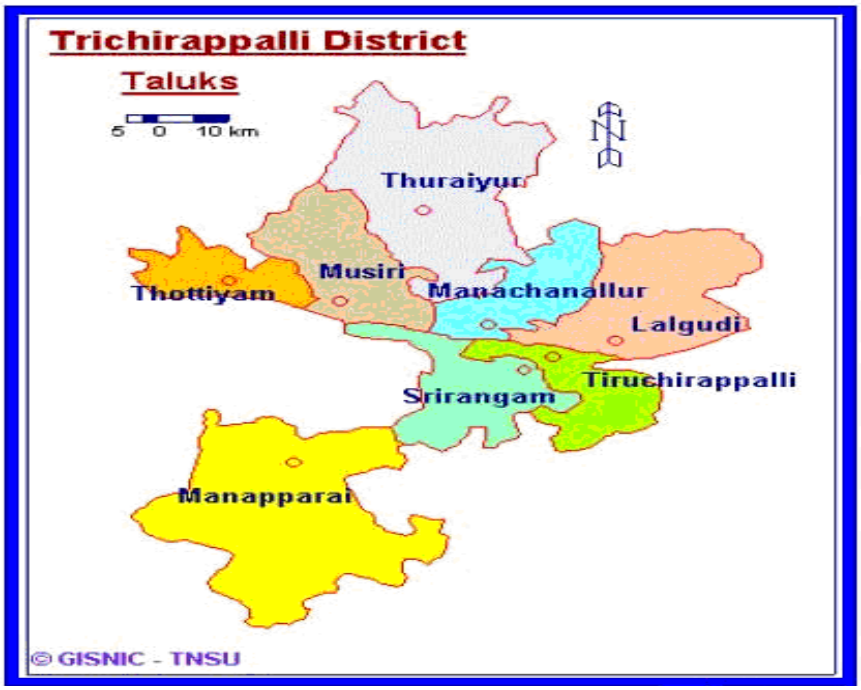
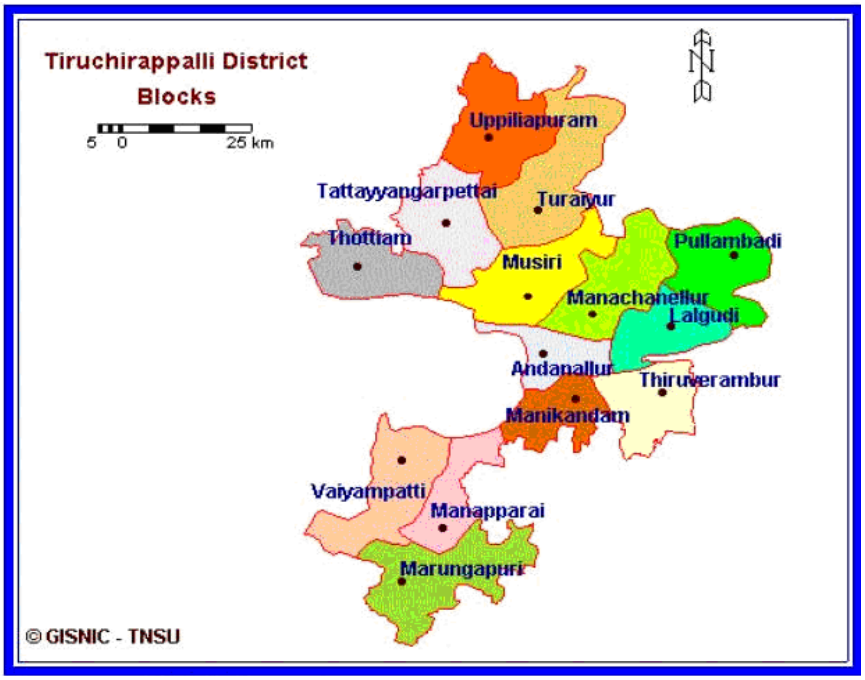


Fig 2. Blocks of Tiruchirappalli District



2.4 Demographic profile

2.4.1. Population

According to the 2011 census Tiruchirappalli district has a population of 2,713,858, of which males and females were 1347863 and 1365995 respectively, roughly equal to the nation of Kuwaitor the US state of Nevada. This gives it a ranking of 146th in India (out of a total of 640). The district has a population density of 602 inhabitants per square kilometer (1,560 /sq mi). Its population growth rate over the decade 2001-2011 was 12.22%. Tiruchirappalli has a sex ratio of 1013 females for every 1000 males.

Table 2.2 Demographic Details of the Tiruchirappalli District

Description	**Number**	**Percentage**
Total population	**2713858**	**100.00**
Male	1347863	49.67
Female	1365995	50.33
Rural population	1377009	50.74
Male	684825	25.85
Female	692184	25.50
Urban population	1336849	49.26
Male	663038	24.43
Female	673811	24.82
	Rural	**Urban**
Sex Ratio	1011	1016
Child Sex Ratio (0-6)	940	965
Child Population (0-6)	135,365	118,268
Male Child(0-6)	69,765	60,182
Female Child(0-6)	65,600	58,086
Child Percentage (0-6)	9.83 %	8.85 %
Male Child Percentage	10.19 %	9.08 %
Female Child Percentage	9.48 %	8.62 %

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

Table 2.3 Block wise population level -2011

Name of the Block	Area (Sq.Km)	Population			Literates			Scheduled Caste			Scheduled Tribes		
		Persons	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female
Thiruverumbbur	339.88	726019	364295	361724	573179	30399	269183	86874	43372	43502	3206	1613	1593
Anadanallur	144.01	172801	86213	86588	128764	69746	59018	27867	13749	14118	210	94	116
Manikandam	214.14	204459	102377	102082	147196	79933	67263	29045	14495	14550	614	313	301
Mannapparai	277.61	129025	64470	64555	82018	47991	34027	19436	9633	9803	491	247	244
Marungapuri	445.17	115926	57595	58331	62400	38167	24233	22965	11356	11609	39	20	19
Vaiyampatti	267.42	86304	43075	43229	45374	26866	18508	13173	6479	6694	0	0	0
Lalgudi	206.46	144877	71921	72956	103624	56732	46892	35070	17147	17923	208	105	103
Pullampadi	388.52	100821	49832	50989	64220	36324	27896	15267	7582	7685	189	92	97
Manachanallur	371.49	159013	78944	80069	105319	58941	46378	29775	14614	15161	248	124	124
Musiri	349.03	124402	61856	62546	79953	45555	34398	26321	12914	13407	333	173	160
T.Pettai	313.66	96653	48907	47746	60113	35167	24946	17285	8719	8566	88	48	40
Thottiam	278.02	126569	63461	63108	76161	44388	31773	26826	13285	13541	68	37	1
Thuraiyur	475.23	133761	66859	66902	85435	48309	37126	25588	12651	12937	7754	3912	3842
Uppliapuram	333.19	97736	48729	49007	59722	34239	25483	24001	11921	12080	5464	2818	2646
Total	4403.83	2418366	1208534	1209832	1673478	926354	747124	399493	197917	201576	18912	9596	9286

Source: Area and Population Census -2011

Table 2.4 Block and municipality wise demographic details of Tiruchirappalli district

Name of the Block/ Municipality	Density per Sq.Km.	Females per 1000 males	Increase in population since 1991(%)	Urban/Rural Population (%)	Literacy rate		S.C. Population (%)	S.T. Population (%)
					Male (%)	Female (%)		
Andhanallur	1200.00	1004	49.43	116.04	54.16	45.83	15.58	0.12
Manikandam	915.55	995	17.90	63.72	78.62	66.68	14.22	0.31
Thiruverumbur	203.09	993	40.34	116.69	39.50	60.49	11.14	0.44
Manapparai	477.49	1001	11.00	38.00	58.44	41.55	15.00	0.37
Marungapuri	242.00	1012	17.80	9.00	67.82	44.11	23.77	0.04
Musiri	379.00	999	10.20	22.51	73.41	55.79	21.20	0.20
Thathaiyangarpettai	308.21	976	102.00	21.00	58.71	45.72	18	0
Thuriyur	203.95	998	10.10	77.00	36.13	27.74	19.00	5.7
Uppliyapuram	299.00	1158	7.28	18.09	57.35	42.64	7.34	68.59
Lalgudi	643.00	1003	85.50	33.70	31.70	21.90	21.25	0.09
Pullambadi	259.00	1023	7.50	22.00	28.60	51.10	15.14	0.18
Manachanallur	428.60	1014	9.90	26.00	37.25	62.74	18.72	0.15
Thottiyam	450.00	991	9.50	19.59	69.94	50.34	21.19	0.05
Vaiyampatty	318.00	1003	8.50	Nil	59.90	40.10	15.00	0

Source: Census of India-2011

2.4.2 Literacy level

The overall literacy level of the district population was 83.62 per cent. If things are looked out at gender wise, male and female literacy were 90.04 and 77.32 respectively. Total literate in Tiruchirappalli District were 2,055,742 of which male and female were 1,096,125 and 959,617 respectively.

Table 2.5 Literacy level in the district

Description	Rural	Urban
Literates	**959,049**	**1,096,693**
Male Literates	528,940	567,185
Female Literates	430,109	529,508
Average Literacy	**77.24 %**	**90.00 %**
Male Literacy	86.00 %	94.08 %
Female Literacy	68.64 %	86.00 %

Source: Census of India - 2011

2.4.3 House holds

Table2.6 Block wise Cultivators in the district

Si.No.	Block	Total Number	Male Farmers	Female
1.	Thiruverumbburr	3132	2454	678
2.	Anadanallur	4610	3355	1255
3.	Manikandam	5926	3896	2030
4.	Mannapparai	16231	10785	5446
5.	Marungapuri	19896	11856	8040
6.	Vaiyampatti	13667	8072	5595
7.	Lalgudi	9029	7758	1271
8.	Pullampadi	14728	8988	5740
9.	Manachanallur	11024	7017	4007
10.	Musiri	16128	12077	5051
11.	T.Pettai	11719	7157	4562
12.	Thottiam	9382	6093	3289
13.	Thuraiyur	16727	9530	7197
14.	Uppliapuram	16441	9361	7080
15.	Vaiyampatty	2029	1649	380
	Total	**170669**	**110048**	**61621**

2.4.4 Working population

The total workers in the district were 12.13 lakhs. The demographic details of the Tiruchirappalli district are present in the Table 2.7. The main occupation of the district is agriculture and allied activities. About 10.84 per cent of the total work force is engaged in the agricultural sector. The share of cultivators and agricultural labourers in the total number of workers in Tiruchirappalli district constituted 14.06 per cent and 31.20 per cent of the total working population respectively.

The district had a total of 98,404 households. There were a total of 1,213,979 workers, comprising 1082329 total main workers and 131650 marginal workers. Among the total population, 170669 are cultivators, 378782 agricultural labourers, 30386 in house hold industries and 634142 other workers.

Table 2.7 Workers in Tiruchirappalli District

Description	Number	Percentage
Total workers	1213979	100.00
a. Total main workers	1082329	89.16
b. Marginal workers	131650	10.84
i. Cultivators	170669	14.06
ii. Agricultural labourers	378782	31.20
iii. Household industries	30386	2.50
iv. Other workers	634142	52.24

Source: Tamil Nadu An Economic Appraisal 2013-14, Govt. of Tami Nadu, Chennai - 108

2.5 Topography

The topology of Trichy is flat. It lies at an altitude of 78 m above sea level. The river Kaveri (also called Cauvery) and the river Coleroon (also called Kollidam) flows through Trichy, the latter forms the northern boundary of the city. There are a few reserve forests along the river Cauvery, located at the west and the north-west of the city. The southern and the south-western part of the district are dotted by several hills which are thought to be an offset of the Western Ghats. Eastern ghats also pass through the district. The soil here is considered to be very fertile. As two rivers flow through the city, the northern part of the city is filled with greeneries rather than other areas of the city.

2.6 Soil type

In Tiruchirappalli district, majority of the area is under Red Sandy soil and this soil type covers 18 per cent of the total area in the district. Black soil is distributed along the

rivers of Cauvery and Ayacuts near big tanks, this soil type cover 14 per cent of the total area in the district. The other soil types like Clay, Red Ferruginous, etc., are occupying the remaining extent of land cover the district. Out of the total area nearly 93678 hectares of lands are identified as soil problem area with Salinity and Alkalinity, which is 29 per cent to total area of the district. Moreover, nearly 1,31,785 ha of lands are identified to be prone to soil erosion in the district. The district has been provided with 463 percolation ponds in order to safeguard the agricultural practices in the region. Soil conservation practices have been undertaken in about 13934 hectares.

Soil Classification

Table2.8 Types of Soil in Tiruchirappalli district

Sl.No	Type of Soil	Places in the district
1.	Red Loam	Part of Manaparaitaluk& Part of Thuraiyurtaluk
2.	Lateritic Soil (ruiskz ;)	NIL
3.	Black Soil	NIL
4.	Sandy Coastal Alluvium	Musiri, Thottiam, Lalgudi and Manachanallurtaluks.
5.	Red Sandy Soil	NIL

Source: Directorate of Economics and Statistics, Chennai.

Soil resources

S. No	Name of the taluk	Soil series	Major nutrients which are deficient	Micro-nutrients which are deficient
1	Lalgudi	Irugur, Puvalur, Kallakkudi, kallagam, pilamedu,	Nitrogen	Zinc
2	Manapparai	Irugur, palaviduthi, Madukkur, Pilamedu, Vayalogam, pattukkottai, Palathurai	Nitrogen	Zinc
3	Manachanallur	Irugur, Pilamedu, Mixed alluvium, Omandur, Puvalur	Nitrogen	Zinc
4	Musiri	Tulukkanur, Thuraiyur, Kallanpatti, Solampatti, Uppliyapuram, Thinnakonam, mangaraipatti, Tholurpatti, Govindapuram, Thondipatti, Manmalai	Nitrogen	Zinc
5	Srirangam	Mixed alluvium, Vayalogam, Alathur, Adhanur, Irugur, Periyanayakkanpalayam, Kalathur	Nitrogen	Zinc
6	Trichy	Vayalogam, madukkur, Alathur, Kalathur, Adhanur, Mixed alluvium, Irugur	Nitrogen	Zinc
7	Thottiyam	Thondipatti, Tholurpatti, Solampatti, Thinnakonam, Tulukkanur, Kallanpatti	Nitrogen	Zinc
8	Thuraiyur	Govindapuram, Uppliyapuram, Thuraiyur, Manmalai	Nitrogen	Zinc

Distribution of Soil Types in Tiruchirappalli district

Table 2.9 Distribution of Soil Types in Tiruchirappalli district

Soil Description	Area (ha)
Deep, fine, mixed, Alfisols	42605.13
Moderately shallow, fine, mixed, Inceptisols	25527.65
Very deep, fine loamy, mixed, Inceptisols	24597.94
Very deep, fine loamy, mixed, Alfisols	24532.33
Deep, fine, montmorillonitic, Vertisols	23872.10
Deep, coarse loamy, mixed, Inceptisols	17591.93
Moderately shallow, fine, mixed, Alfisols	17290.74
Moderately shallow, clayey skeletal, mixed, Inceptisols	17119.17
Moderately deep, fine loamy, mixed, Alfisols	16442.03
Deep, fine, mixed, Inceptisols	14934.67
Moderately shallow, fine loamy, mixed, Alfisols	14560.06
Very deep, fine, montmorillonitic, Inceptisols	14307.61
Moderately deep, fine, mixed, Alfisols	13795.37
Moderately deep, fine, montmorillonitic, Inceptisols	13335.45
Moderately deep, fine loamy, mixed, Inceptisols	9549.42
Deep, fine loamy, mixed, Inceptisols	9367.91
Very deep, clayey skeletal, kaolinitic, Alfisols	8532.97
Shallow, clayey skeletal, mixed, Alfisols	8177.58
Deep, loamy skeletal, mixed, Inceptisols	7054.61
Deep, fine loamy, mixed, Alfisols	6959.15
Shallow, loamy, mixed, Inceptisols	6554.44
Moderately shallow, loamy skeletal, mixed, Inceptisols	6390.36
Shallow, clayey skeletal, mixed, Inceptisols	6137.05
Moderately deep, fine, mixed, Inceptisols	5591.75
Moderately deep, loamy skeletal, mixed, Alfisols	4970.60
Very shallow, loamy, mixed, Entisols	4599.63
Shallow, loamy, mixed, Alfisols	4446.20
Moderately shallow, loamy skeletal, mixed, Entisols	4443.13
Deep, fine loamy, mixed, Entisols	4431.68

Source: Geograpical informational system (TNAU)

2.7 Climatic Condition and Rainfall

The variation of temperature throughout the year exhibits hot and dry climate with high temperature and low degree of humidity. The region experiences four main seasons: Cool Months - December to February Hot Months - March to May Windy Months - June to August and Rainy Months - September to November. Generally, the region has a long spell of hot climate with a short spell of rainy season and winter.

Table 2.10 Weather data of Tiruchirappalli district

Month	Rainfall (mm)	Rainy days	Temperature ^{0} C		Relative Humidity (%)
			Maximum	Minimum	
April 2010	0	0	39.0	25.3	57.1
May 2010	172	4	37.8	26.1	58.0
Jun 2010	60.3	5	36.4	25.5	59.1
July 2010	120	4	35.2	24.5	59.9
Aug 2010	88.6	6	35.1	24.5	60.5
Sep 2010	108.2	10	34.3	24.1	62.2
Oct 2010	96	10	34.0	24.3	67.4
Nov 2010	329	16	31.2	22.5	66.0
Dec 2010	99.6	12	30.3	20.2	71.9
Jan 2011	0	0	32.0	18.6	65.0
Feb 2011	7.6	3	33.0	18.7	67.3
Mar 2011	0	0	35.7	20.1	66.00

Source: Sugarcane Research Station, TNAU, Sirugamani, Trichy.

Table 2.11 Humidity data

Months	Mean Maximum		Mean Minimum		Humidity	
	Normal	Actual	Normal	Actual	8.30 hrs.	17.30 hrs.
2011 June	35.0	36.5	25.8	25.8	68.1	37.1
July	34.7	35.8	25.8	25.5	72.2	46.0
August	35.3	35.0	25.0	25.2	72.7	49.5
September	34.4	35.4	24.8	24.9	72.0	46.5
October	31.3	33.2	23.6	23.1	76.1	52.5
November	30.7	31.0	21.8	22.3	76.8	55.1
December	31.6	30.7	20.4	20.3	78.5	48.4
2012 January	30.2	32.4	19.5	18.3	81.2	40.2
February	32.2	34.0	20.7	18.6	88.0	41.7
March	34.2	36.9	20.8	22.3	81.2	43.0
April	36.5	38.0	25.1	24.4	75.3	42.0
May	37.6	38.1	25.4	25.7	73.5	43.3

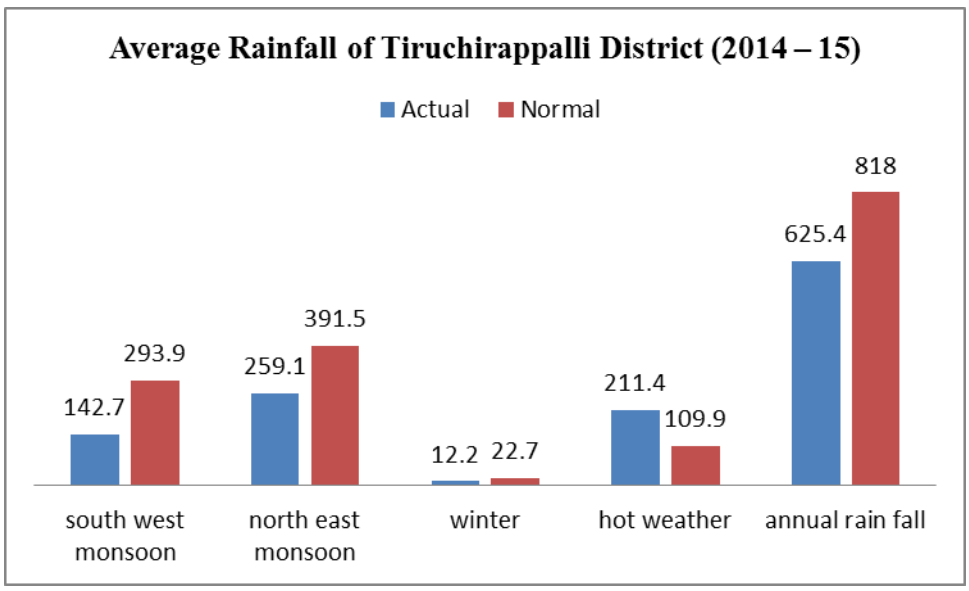
Source: Sugarcane Research Station, TNAU,Sirugamani, Trichy.

Table 2.12 Season wise rainfall data of Tiruchirappalli district

Season / Month	2012-2013		2014-15	
	Normal	Actual	Normal	Actual
South West Monsoon				
June	31.5	24.5	13.3	31.5
July	53.2	28.3	13.4	53.2
August	73.8	82.3	65.7	73.8
September	135.4	68.9	50.3	135.4
Total	**293.9**	**204**	**142.7**	**293.9**
North East Monsoon				
October	173.2	218.6	143.5	173.2
November	139.9	69.5	76.3	139.9
December	78.4	5.8	39.3	78.4
Total	**391.5**	**293.9**	**259.1**	**391.5**
Winter Season				
January	13.6	0.8	10.2	13.6
February	9.1	5.7	2	9.1
Total	**22.7**	**6.5**	**12.2**	**22.7**
Hot Weather				
March	11.8	14.4	0.4	11.8
April	38.4	1.6	103.5	38.4
May	59.7	42.2	107.5	59.7
Total	**109.9**	**58.2**	**211.4**	**109.9**
Annual rainfall	**818**	**562.6**	**625.7**	**818**

Source: Season and Crop Report 2014-15

Fig. 3 Average Rainfall of Tiruchirappalli District (2014 – 15)



2.8 Land

The total geographical area of Tiruchirappalli district is 4,40,383 hectares, of which net sown area occupied 1,62,226 hectares and this accounted for 36.84 per cent of the total area in the district. Area under not available for cultivation accounted for 19.35 per cent of the total land in the district, i.e. 85230 hectares. Nearly 29.29 per cent of the areas were classified under fallow lands and 8.35 per cent of the lands were under forest coverage. The remaining lands were classified as given in Table 2.13.

2.8.1 Types of land

2.8.2 Land use pattern

Table 2.13 Land Use Pattern (2014-15)

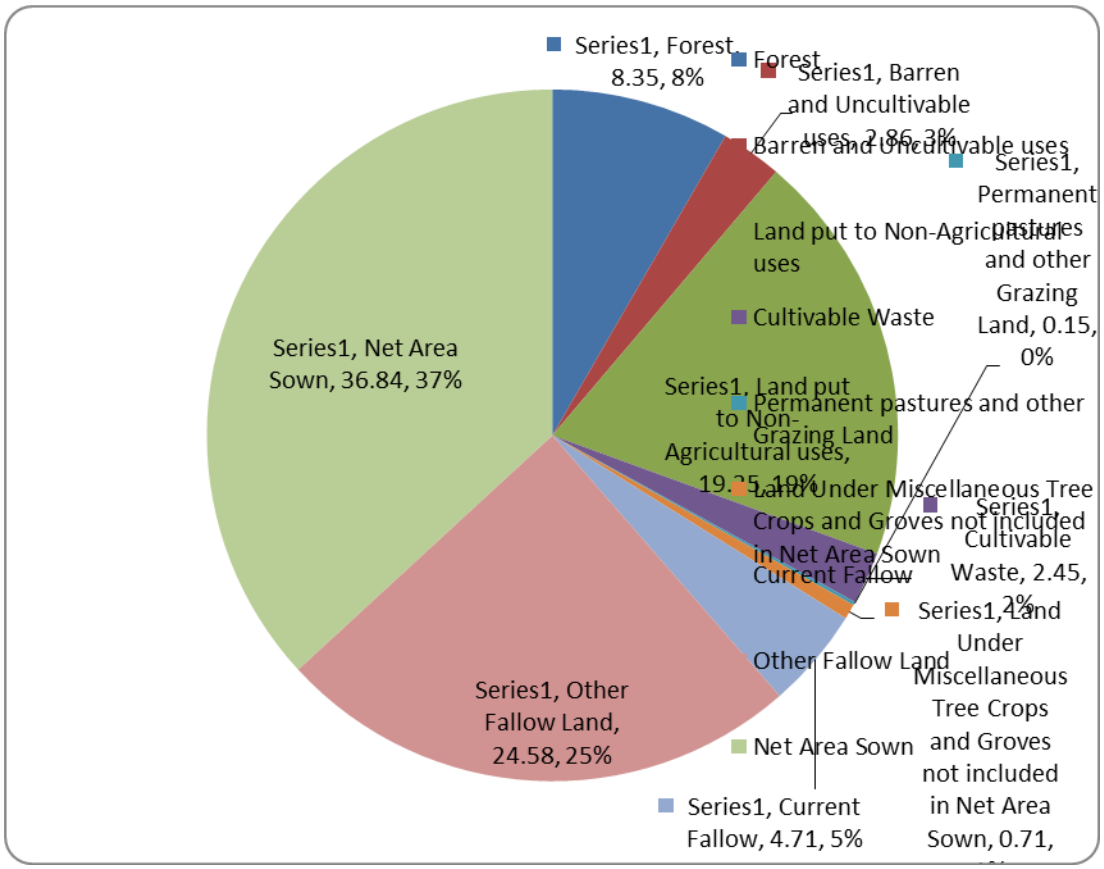
Sl. No	Particulars	2014-15	Percentage
1	Forest	36773	8.35
2	Barren and Uncultivable uses	12598	2.86
3	Land put to Non-Agricultural uses	85230	19.35
4	Cultivable Waste	10785	2.45
5	Permanent pastures and other Grazing Land	667	0.15
6	Land Under Miscellaneous Tree Crops and Groves not included in Net Area Sown	3114	0.71
7	Current Fallow	20731	4.71
8	Other Fallow Land	108259	24.58
9	Net Area Sown	162226	36.84
10	Total Geographical Area	440383	100.00

Table 2.14 Land Use Pattern of Tiruchirappalli District (2014-15) Compound Growth Rates (2005 to 2015) per annum

Sl.No.	Classification	Area (ha)	Percent	CGR (%)
1	Forest	36773	8.35	0.18
2	Barren and Uncultivable uses	12598	2.86	-2.52
3	Land put to Non-Agricultural uses	85230	19.35	1.39
4	Cultivable Waste	10785	2.45	-5.57
5	Permanent pastures and other Grazing Land	667	0.15	-20.13
6	Land Under Miscellaneous Tree Crops and Groves not included in Net Area Sown	3114	0.71	-7.76
7	Current Fallow	20731	4.71	-12.01
8	Other Fallow Land	108259	24.58	5.47

Sl.No.	Classification	Area (ha)	Percent	CGR (%)
9	Net Area Sown	162226	36.84	0.31
10	Total Geographical Area	440383	100.00	0.00
11	Area Sown More Than Once	16384		0.35
12	Total Cropped Area	178610		0.30
13	Irrigated Area	98523		

Fig 4 Nine-fold classification of lands in Tiruchirappallidistrict



2.8.3 Land Holding Pattern of Farmers

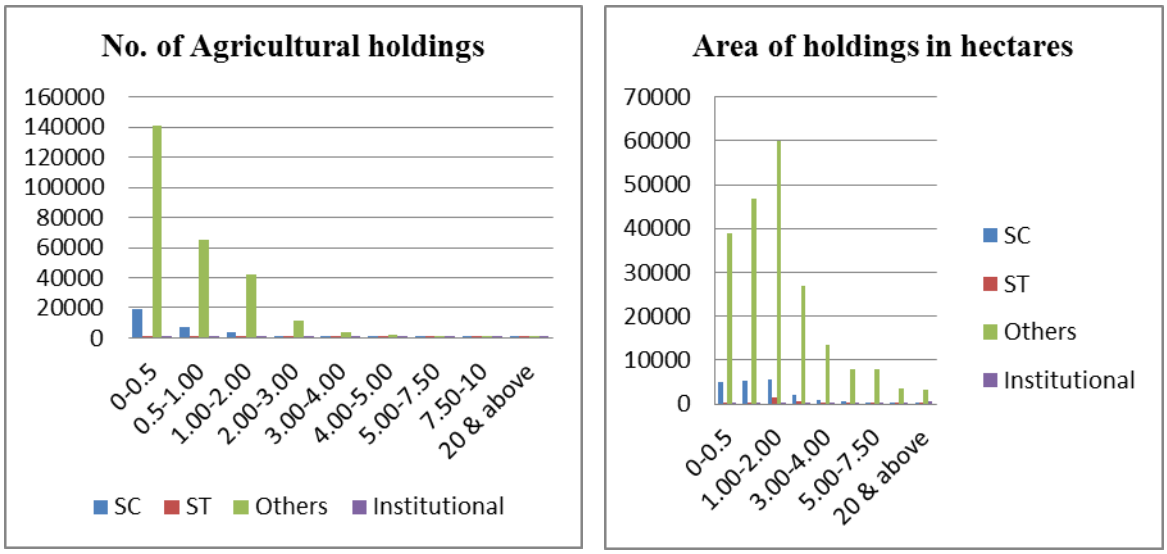
The land holding pattern of the cultivators across the district is presented in Table 2.15. In the whole district marginal farmers with less than 1 ha. Constituted 96,264 Hectares of the total land held by the farmers.

Table 2.15 Number and area of operational land in Tiruchirappalli district during 2013-14

Size class of holdings	No. of agricultural holdings					Area of holdings in hectares				
	SC	ST	Others	Institutional	Total	SC	ST	Others	Institutional	Total
0-0.5	18973	749	140882	162	160766	4850	171	38785	40	43846
0.5-1	7564	393	64880	77	72914	5327	291	46744	56	52418
1-2	4069	902	42209	112	47292	5526	1363	60045	160	67094
2-3	865	261	11242	51	12419	2066	616	26951	121	29751
3-4	255	46	3954	19	4274	875	159	13549	68	14651
4-5	111	21	1810	31	1973	489	94	8012	140	8735
5-7.5	65	33	1312	37	1447	404	199	7800	230	8633
7.5-10	16	14	428	15	473	135	115	3650	131	4031
10-20	11	5	247	35	298	159	61	3218	509	3947
20 & above	1	0	27	20	48	30	0	811	1163	2004
Total	**31930**	**2424**	**266991**	**559**	**301904**	**19861**	**3069**	**209565**	**2619**	**235110**

Source: Agricultural Census 2013-2014

Fig 5 Social Category wise Area



2.9 Sources of Irrigation

The Principal purpose of irrigation is to increase agricultural productions by cropping more areas. As for as the irrigation is concerned in this district, the sources are the canals from the river Cauvery, ordinary wells, tanks and tube wells.

The river *Cauvery* and its branch *Coleroon* are the most important rivers in the District. The other notable rivers are *Nandhiyar, Ponnaniyar*. The important canals are *Pullambadi* canal, *Pudukkottai* canal, *KattalaiVaikkal, Uyyakondan, Iyyanvaikkal* and *PeruvalaiVaikkal*.

i) The Cauvery and Coleroon River: Cauvery, one of the major rivers of South India and Tamil Nadu, flows towards east. In Tiruchirappalli district, the river splits into two branches, the northern branch being called the Coleroon (Kollidam) and the southern branch is called river Cauvery. The total length of the river in this district is about 125 Kms, and the area of river basin extends about 17,200 hectares of land. Ponnaniar, Uppamodai and Siddhayalli reservoir are mainly used for irrigation purpose.

ii) Koraiyar River Koraiyar River rises from KaruppurReddiyarpatti hill rainfall at an elevation of about 500 m. The river carries water from catchment areas of Puttanattam, Viralimalai, Malaikudippatti, Tennalur, Illupur, Kalluppatti, Arur, Kulakkattaigudi, Keeranur and Thuvarankurichi. The catchment area of river is 632 sq.km and the length is 75 km. The entire catchment of the river is covered by a large number of tanks.

iii) Ariyar River Ariyar River rises in Manapparai area from PallivelliMukku at an elevation of about 700 m. The river carries water from Kadavur and Semmalai reserve

forests, Vairampattai, Kulattur and Manapparai areas. The catchment area of the river is about 832 Sq.km.

iv) Upper Anicut A dam known as upper Anicut was constructed in 1836 at a place where the Cauvery branches off into two at the west end of Srirangam, to regulate the flow of water in the Cauvery and Coleroon rivers. In its original form, the upper Anicut consisted of a simple masonary dam of 230 meters in length divided into three parts. Below the Grand Anicut, the Cauvery further splits into two, one was being called the Cauvery and the other, the Vennar River. These channels are utilised as the main canals for irrigation.

v) Grand Anicut Karikala Cholan, an early Chola King, constructed the grand Anicut. It is situated on the northern bank of Cauvery about 16 km east of Tiruchirappalli town and mainly used for irrigation purpose. With regard to water spread area, 75 system tanks and 99 seasonal/ rain fed tanks were found to exist and then covered 5751.14 ha. in the district. The details of area irrigated by different source are given in Table 2.16 and 2.17.

Table 2.16 Area irrigated by different sources of water supply and growth rates

(in hectare)

Sl.No.	Particularls		2012-13	2013-14	2014-15	Average
1	Canals	Gross	32009	40548	39118	37225.00
		Net	28683	34094	32727	31834.67
2	Tanks	Gross	641	2647	2991	2093.00
		Net	641	2392	2754	1929.00
3	Tube wells / Bore wells	Gross	8042	9572	9545	9053.00
		Net	6990	7837	8119	7648.67
4	Open wells	Gross	43905	36769	36176	38950.00
		Net	41818	34328	32581	36242.33
5	Supplementary wells	Gross	0	0	0	0.00
		Net	0	0	0	0.00
6	Other Sources	Gross	0	0	0	0.00
		Net	0	0	0	0.00

Source: Season and Crop Report 2014-15

From the Table 2.16 the large area of irrigation sourced was covered by open wells but it was reduced further years. It shows the decline in irrigation source. Decline in net irrigated area of canals was also reduced. It results the scarcity of water causes severe drought. So we have to plan for maintaining these irrigation sources.

Table 2.17 Irrigation by Different Sources in Tiruchirappalli District during 2014-15

Sl.No.	Particularls		Area (in ha)
1	Canals	Gross	39118
		Net	32727
2	Tanks	Gross	2991
		Net	2754
3	Tube wells / Bore wells	Gross	9545
		Net	8119
4	Open wells	Gross	36176
		Net	32581
5	Supplementary wells	Gross	0
		Net	0
6	Other Sources	Gross	0
		Net	0

Source: Season and Crop Report, 2014-2015

From the Table 2.17 canals and open wells are the major sources of irrigation. The presence of canal irrigation is found in all blocks of Tiruchirappalli with the exception of Thuraiyur, Marungapuri, and Thathaiyangarenpet blocks. There is no incidence of drought and cyclone registered in district with the exception of flood in 1989 – 90 to 1992-93 and in 1996. The Blockwise details of irrigation sources was given in Table 2.18 and 2.19.

Table2.18 Details of irrigation sources in Tiruchirappalli district

Sl. No.	Name of the Block	Dams					Tanks				No. of Tube/ Bore Wells	No. Dug cum Bore	No of Filter point well	No. of Dug cum open well
		Catchment area	Water spread area k.m	Height f.t	Capacity k.m	Length of canals k.m	Water spread area sqm	Capacity m.cum	Height of Tanks	Length of canals				
1	Marungapuri								161	72	50	--	--	7762
2	Manaparai								0	78	742	--	--	5817
3	Vaiyampatti						1.056	1300	42	36	99	--	--	6158
4	Tiruverumbur						5.375	5.345	201	0	80	--	--	66
5	Andanallur						5.08	6.7	825	0	679	--	25	635
6	Manikandam	313	33.6	51	119.7	3.5	1.547	7.158	91	11	515	--	--	598
7	Lalgudi						41.50	13.40	14	84	2037	--	387	1751
8	Manachanallur						3.15	0	91	21	171	--	38	8500
9	Pullambadi						3.50	0	46	40	235	--	--	3413
10	Musiri								63	53	162	--	--	7065
11	Thottiam								27	60	80	365	--	6276
12	Thathaiyangarpettai								109	0	2083	--	--	7126
13	Thuraiyur						5.864	321.05	76	19	74	--	--	9760
14	Uppiliyapurm						6.795	332.02	22	20	90	--	--	8347

Source: District 'G' – Return, Tiruchirappalli District, Fasli 1421 (2014-15).

Table 2.19 Source wise actual area irrigated in Tiruchirappalli district

Source	Number	Area Irrigated(ha)	
		Net	Gross
I. Surface Water:			
Canals i) Government Canals ii) Private Canals	135	40461	47190
2. Tanks Large Small	 115 1652	 1595 3886	 1595 3894
3. Flow Irrigation Major & Medium Minor	 --	 --	 --
5. Ponds i) Lift Irrigation Minor 6. Other Sources: Lift Irrigation Flow Irrigation II Ground Water: Public Private Tube Wells Bore Well Dug Bore wells Filter Point wells Dug Wells I) Masonry ii) Non Masonry	 6917 185 365 450 73276 56829 16447	 4512 48070	 4730 50984

Source: 'G' Return.

2.10 Cropping pattern

2.10.1. Major Crops and Varieties grown in Trichy district

Paddy, Banana, Millets and other cereals are the principal crops in Tiruchirappalli district.

Table 2.20. Details of major food and non- food crops are given below.

Important Food Crops	Paddy, Banana, Cholam, Cumbu, , Red gram, Green gram, Black gram, Horse gram, Turmeric, Sugarcane, Mango, Tapioca, Groundnut &Gingelly
Important Non-food Crops	Cotton, Flowers, Castor and Fodder Crops

The Area, production and Productivity of major crops grown in Trichy district are given in Table 2.21. It shows that Paddy is predominant crop occupies about 48186 ha followed by Cholam and Maize with 25888 ha and 9192 ha respectively. The productivity of Banana is high compared to other crops. Hence it implements the intervention to enhance the productivity of other crops.

The major ruling varieties in the principal crops are given in Table 2.22. It revealed that farmers are adopting high yielding varieties such as ADT, IR and ASD in case of paddy followed by groundnut where in TMV and VRI are the promising varieties and in Pulses, TMV and Vamban are the ruling varieties in this district. However, in Cotton and Maize though high yielding varieties are cultivated, hybrids and Bt varieties are extensively adopted in this district. The Block wise details of major Horticultural crops are given in the Table 2.23. Area, Production and productivity of major food and vegetable crops for the last three years' data given in Table 2.24 and 2.25. Also The major Potential crop identified in this district are given in Table 2.26.

Table 2.21. Area, Production and Productivity of major crops in Trichy TE 2014-15

Sl.No	Particulars	Area (in ha)	Production (in tonnes)	Productivity (in kg/ha)
1	Paddy	48186.33	201636.67	4184.52
2	Maize	9192.00	46110.00	5016.319
3	Cholam	25888.00	28085.33	1084.878
4	Cumbu	1200.33	1364.00	1136.354
5	Ragi	10.00	35.67	3567
6	Bengal Gram	37.33	21.00	562.5502
7	Red Gram	1781.67	1701.67	955.0983
8	Black Gram	6732.00	5739.00	852.4955
9	Green Gram	752.33	516.33	686.3079
10	Horse Gram	460.33	294.33	639.3891
11	Groundnut	8300.33	20834.33	2510.06
12	Sunflower	797.00	1314.00	1648.683
13	Gingelly	1553.33	1053.67	678.3298
14	Castor	301.00	111.67	370.9967
15	Cotton	16891.33	27591.00	1633.442
16	Coconut	6434.00	980.67	152.42
17	Sugarcane	3977.33	349727.33	87930.18
18	Onion	3508.67	31290.67	8918.1

Sl.No	Particulars	Area (in ha)	Production (in tonnes)	Productivity (in kg/ha)
19	Brinjal	136.00	1227.00	9022.059
20	Bhendi	79.67	589.00	7392.996
21	Tomato	141.00	1918.00	13602.84
22	Banana	7642.67	385225.67	50404.59
23	Mango	2403.00	9392.67	3908.727
24	Jack Fruit	28.67	361.33	12603.07
25	Guava	184.33	1141.33	6191.776
26	Grapes	0.33	4.67	14151.52
27	Chillies	808.33	460.33	569.4828
28	Coriander	181.00	76.00	419.8895
29	Turmeric	996.67	3905.33	3918.378
30	Tamarind	972.33	1672.67	1720.27
31	Tapioca	5224.67	224093.00	42891.32
32	Sweet Potato	2.67	51.67	19352.06
	Total	**154804.67**		

Source: Season and Crop Report 2014-15

Table 2.22 Major Crop Varieties in Tiruchirappalli District

Crop	Irrigated		Rainfed	
	HYV	Hybrid	HYV	Hybrid
Paddy	ADT 36, ADT 39, ADT 43, ADT 45, IR20, IWP, ASD-19	…..	…..	…..
Groundnut	…..	…..	TMV- 2, TMV - 7, VRI – 2	…..
Maize	NK – 6240, CP – 818, Super – 900 gold, Pinnacle	…..	NK – 6240, CP – 818, Super – 900 gold	NK– 6240, CP – 818, Super– 900 gold, Pinnacle
Cotton	Surabi, MCU - 5	…..	RCH2, Rasi XL Super	MRC6918, RCH2 – BT Rasi XL Super
Pulses	…..	…..	TMV -1, VBN - 2, VBN -3	…..

Source: Joint Director of Agriculture, Tiruchirapalli

Table 2.23 Blockwise and Cropwise Area, Production and Productivity of Horticultural Crops

Sl. No	Particulars	Andanallur			Lalgudi			Manapparai			Manikandam		
		Area Coverage	Productivity (MT / Ha)	Production (MT)	Area Coverage	Productivity (MT / Ha)	Production (MT)	Area Coverage	Productivity (MT / Ha)	Production (MT)	Area Coverage	Productivity (MT / Ha)	Production (MT)
I **FRUITS**													
1	Mango	122.24	2.52	308.0	104.335	2.52	262.9	162.14	2.52	408.6	51.96	2.52	130.9
2	Banana	1941.22	45	87354.9	1449.25	45	65216.3	10.38	45	467.1	197.44	45	8884.8
3	Acid lime	0.28	18	5.0	7.71	18	138.8	60.745	18	1093.4	1.015	18	18.3
4	Guava	42.82	15	642.3	9.335	15	140.0	17.4	15	261.0	9.11	15	136.7
	Total	**2106.56**	**80.52**	**88310.285**	**1570.63**	**80.52**	**65757.979**	**250.665**	**80.52**	**2230.1**	**259.525**	**80.52**	**9170.659**
II **VEGETABLES**													
1	Tomato	0	24	0.0	0	24	0.0	65.26	24	1566.2	0	24	0.0
2	Brinjal	3.652	12	43.8	1.355	12	16.3	75.25	12	903.0	9.185	12	110.2
3	Moringa	0.545	50.00	27.3	0	50.00	0.0	1.17	50.00	58.5	3.01	50.00	150.5
4	Bhendi	3.625	7.5	27.2	0	7.5	0.0	11.925	7.5	89.4	12.96	7.5	97.2
5	Onion	0	8.5	0.0	2.045	8.5	17.4	2.55	8.5	21.7	0	8.5	0.0
6	Gourds	0	15.00	0.0	0	15.00	0.0	0.405	15.00	6.1	13.995	15.00	209.9
7	Tapioca	1.195	40.00	47.8	2.34	40.00	93.6	6.62	40.00	264.8	0	40.00	0.0
	Total	**9.017**	**157**	**146.0615**	**5.74**	**157**	**127.2425**	**163.18**	**157**	**2909.73**	**39.15**	**157**	**567.845**
III **SPICES AND CONDIMENTS**													
1	Turmeric	5.86	5.74	33.6	1.265	5.74	7.3	17.47	5.74	100.3	0	5.74	0.0
2	Chillies	2.21	8.00	17.7	0.18	8.00	1.4	67.44	8.00	539.5	1.095	8.00	8.8
	Total	**8.07**	**13.74**	**51.3164**	**1.445**	**13.74**	**8.7011**	**84.91**	**13.74**	**639.798**	**1.095**	**13.74**	**8.76**
IV **PLANTATION CROPS**													
1	Arecanut	0.89	2.50	2.2	0	2.50	0.0	0	2.50	0.0	0	2.50	0.0
V **MEDICINAL PLANTS**													
1	Coleus	0	22	0.0	0	22	0.0	7.24	22	159.3	0	22	0.0
2	Gloriosa	0	2.00	0.0	0	2.00	0.0	0	2.00	0.0	0	2.00	0.0
	Total	**0**	**24**	**0**	**0**	**24**	**0**	**7.24**	**24**	**159.28**	**0**	**24**	**0**

Table 2.23 Blockwise and Cropwise Area, Production and Productivity of Horticultural Crops (Contd.,)

VI **FLOWERS**													
1	Rose	21.205	8.25	174.9	1.225	8.25	10.1	0	8.25	0.0	0.445	8.25	3.7
2	Jasmine	226.255	8.00	1810.0	0	8.00	0.0	32.245	8.00	258.0	21.035	8.00	168.3
3	Tuberose	0	12.00	0.0	0	12.00	0.0	0	12.00	0.0	0	12.00	0.0
	Total	**247.46**	**28.25**	**1984.9813**	**1.225**	**28.25**	**10.10625**	**32.245**	**28.25**	**257.96**	**21.48**	**28.25**	**171.951**
I **FRUITS**													
1	Mango	71.39	2.52	179.9	1127.78	2.52	2842.0	88.98	2.52	224.2	37.325	2.52	94.1
2	Banana	1259.33	45	56669.9	31.995	45	1439.8	154.815	45	6966.7	4.23	45	190.4
3	Acid lime	169.96	18	3059.3	155.73	18	2803.1	128.1	18	2305.8	149.86	18	2697.5
4	Guava	24.51	15	367.7	12.705	15	190.6	7.555	15	113.3	7.53	15	113.0
	Total	**1525.19**	**80.52**	**60276.68**	**1328.21**	**80.52**	**7275.496**	**379.45**	**80.52**	**9610.03**	**198.945**	**80.52**	**3094.839**
II **VEGETABLES**													
1	Tomato	25.5	24	612.0	31.83	24	763.9	12.5	24	300.0	0.47	24	11.3
2	Brinjal	9.42	12	113.0	16.365	12	196.4	7.205	12	86.5	0.4	12	4.8
3	Moringa	16.045	50.00	802.3	1.68	50.00	84.0	0.29	50.00	14.5	1.19	50.00	59.5
4	Bhendi	11.745	7.5	88.1	14.945	7.5	112.1	2.395	7.5	18.0	0	7.5	0.0
5	Onion	168.53	8.5	1432.5	10.29	8.5	87.5	64.645	8.5	549.5	85.065	8.5	723.1
6	Gourds	4.23	15.00	63.5	2.05	15.00	30.8	3.435	15.00	51.5	0	15.00	0.0
7	Tapioca	198.215	40.00	7928.6	2.19	40.00	87.6	357.89	40.00	14315.6	0	40.00	0.0
	Total	**433.685**	**157**	**11039.93**	**79.35**	**157**	**1362.203**	**448.36**	**157**	**15335.53**	**87.125**	**157**	**798.632**
III **SPICES AND CONDIMENTS**													
1	Turmeric	2.98	5.74	17.1	0	5.74	0.0	16.325	5.74	93.7	0.715	5.74	4.1
2	Chillies	54.63	8.00	437.0	331.325	8.00	2650.6	34.255	8.00	274.0	45.95	8.00	367.6
	Total	**57.61**	**13.74**	**454.1452**	**331.325**	**13.74**	**2650.6**	**50.58**	**13.74**	**367.7455**	**46.665**	**13.74**	**371.7041**
IV **PLANTATION CROPS**													
1	Arecanut	0	2.50	0.0	0	2.50	0.0	0	2.50	0.0	0	2.50	0.0
V **MEDICINAL PLANTS**													
1	Coleus	1.755	22	38.6	0	22	0.0	0	22	0.0	0	22	0.0
2	Gloriosa	0	2.00	0.0	0	2.00	0.0	1.46	2.00	2.9	0	2.00	0.0
	Total	**1.755**	**24**	**38.61**	**0**	**24**	**0**	**1.46**	**24**	**2.92**	**0**	**24**	**0**
VI **FLOWERS**													
1	Rose	10.985	8.25	90.6	0	8.25	0.0	0	8.25	0.0	0	8.25	0.0
2	Jasmine	101.6	8.00	812.8	5.57	8.00	44.6	38.65	8.00	309.2	1.06	8.00	8.5
3	Tuberose	16.54	12.00	198.5	0	12.00	0.0	0	12.00	0.0	0	12.00	0.0
	Total	**129.125**	**28.25**	**1101.906**	**5.57**	**28.25**	**44.56**	**38.65**	**28.25**	**309.2**	**1.06**	**28.25**	**8.48**

Table 2.23 Blockwise and Cropwise Area, Production and Productivity of Horticultural Crops (Contd.,)

No	Particulars	T.Pet			Thottiyam			Thuraiyur			Tiruverumbur		
		Area Coverage	Productivity (MT / Ha)	Production (MT)	Area Coverage	Productivity (MT / Ha)	Production (MT)	Area Coverage	Productivity (MT / Ha)	Production (MT)	Area Coverage	Productivity (MT / Ha)	Production (MT)
I **FRUITS**													
1	Mango	174.68	2.52	440.2	150.47	2.52	379.2	70.38	2.52	177.4	25.89	2.52	65.2
2	Banana	39.4	45	1773.0	2873.180	45	129293.1	46.63	45	2098.4	277.83	45	12502.4
3	Acid lime	5.79	18	104.2	9.34	18	168.1	145.3	18	2615.4	4.915	18	88.5
4	Guava	11	15	165.0	9.475	15	142.1	11.65	15	174.8	2.07	15	31.1
	Total	**230.87**	**80.52**	**2482.414**	**3042.465**	**80.52**	**129982.5**	**273.96**	**80.52**	**5065.858**	**310.705**	**80.52**	**12687.11**
II **VEGETABLES**													
1	Tomato	18.75	24	450.0	45.535	24	1092.8	5.78	24	138.7	0	24	0.0
2	Brinjal	3.57	12	42.8	7.615	12	91.4	5.125	12	61.5	0	12	0.0
3	Moringa	2.66	50.00	133.0	5.665	50.00	283.3	1.17	50.00	58.5	0	50.00	0.0
4	Bhendi	5.2	7.5	39.0	6.375	7.5	47.8	1.705	7.5	12.8	0	7.5	0.0
5	Onion	788.465	8.5	6702.0	192.985	8.5	1640.4	1523.13	8.5	12946.6	0	8.5	0.0
6	Gourds	4.1	15.00	61.5	5.86	15.00	87.9	1.495	15.00	22.4	0	15.00	0.0
7	Tapioca	587.5	40.00	23500.0	169.13	40.00	6765.2	2169.2	40.00	86768.0	0	40.00	0.0
	Total	**1410.25**	**157**	**30928.29**	**433.165**	**157**	**10008.76**	**3707.6**	**157**	**100008.5**	**0**	**157**	**0**
III **SPICES AND CONDIMENTS**													
1	Turmeric	407.365	5.74	2338.3	45.355	5.74	260.3	115.675	5.74	664.0	0.755	5.74	4.3
2	Chillies	45.51	8.00	364.1	67.225	8.00	537.8	156.265	8.00	1250.1	0	8.00	0.0
	Total	**452.875**	**13.74**	**2702.355**	**112.58**	**13.74**	**798.1377**	**271.94**	**13.74**	**1914.095**	**0.755**	**13.74**	**4.3337**
IV **PLANTATION CROPS**													
1	Arecanut	4.67	2.50	11.7	5.195	2.50	13.0	4.56	2.50	11.4	0	2.50	0.0
V **MEDICINAL PLANTS**													
1	Coleus	6.715	22	147.7	26.2	22	576.4	6.58	22	144.8	0	22	0.0
2	Gloriosa	3.485	2.00	7.0	2.8	2.00	5.6	26.76	2.00	53.5	0	2.00	0.0
	Total	**10.2**	**24**	**154.7**	**29**	**24**	**582**	**33.34**	**24**	**198.28**	**0**	**24**	**0**
VI **FLOWERS**													
1	Rose	0	8.25	0.0	5.2	8.25	42.9	0	8.25	0.0	0	8.25	0.0
2	Jasmine	4.98	8.00	39.8	33.73	8.00	269.8	17.375	8.00	139.0	0	8.00	0.0
3	Tuberose	0	12.00	0.0	0	12.00	0.0	0	12.00	0.0	0	12.00	0.0
	Total	**4.98**	**28.25**	**39.84**	**38.93**	**28.25**	**312.74**	**17.375**	**28.25**	**139**	**0**	**28.25**	**0**

Table 2.23 Blockwise and Cropwise Area, Production and Productivity of Horticultural Crops (Contd.,)

S.No	Particulars	T.Pet			Thottiyam		
		Area Coverage	Productivity (MT /Ha)	Production (MT)	Area Coverage	Productivity (MT / Ha)	Production (MT)
I **Fruits**							
1	Mango	174.68	2.52	440.2	150.47	2.52	379.2
2	Banana	39.4	45	1773.0	2873.180	45	129293.1
3	Acid lime	5.79	18	104.2	9.34	18	168.1
4	Guava	11	15	165.0	9.475	15	142.1
	Total	**230.87**	**80.52**	**2482.414**	**3042.465**	**80.52**	**129982.5**
II **Vegetables**							
1	Tomato	18.75	24	450.0	45.535	24	1092.8
2	Brinjal	3.57	12	42.8	7.615	12	91.4
3	Moringa	2.66	50.00	133.0	5.665	50.00	283.3
4	Bhendi	5.2	7.5	39.0	6.375	7.5	47.8
5	Onion	788.465	8.5	6702.0	192.985	8.5	1640.4
6	Gourds	4.1	15.00	61.5	5.86	15.00	87.9
7	Tapioca	587.5	40.00	23500.0	169.13	40.00	6765.2
	Total	**1410.25**	**157**	**30928.29**	**433.165**	**157**	**10008.76**
III **Spices and Condiments**							
1	Turmeric	407.365	5.74	2338.3	45.355	5.74	260.3
2	Chillies	45.51	8.00	364.1	67.225	8.00	537.8
	Total	**452.875**	**13.74**	**2702.355**	**112.58**	**13.74**	**798.1377**
IV **Plantation Crops**							
1	Arecanut	4.67	2.50	11.7	5.195	2.50	13.0
1	Coleus	6.715	22	147.7	26.2	22	576.4
V **Medicinal Plants**							
2	Gloriosa	3.485	2.00	7.0	2.8	2.00	5.6
	Total	**10.2**	**24**	**154.7**	**29**	**24**	**582**
VI **Flowers**							
1	Rose	0	8.25	0.0	5.2	8.25	42.9
2	Jasmine	4.98	8.00	39.8	33.73	8.00	269.8
3	Tuberose	0	12.00	0.0	0	12.00	0.0
	Total	**4.98**	**28.25**	**39.84**	**38.93**	**28.25**	**312.74**

Table 2.24 Area, Production and Productivity under major Cereals 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	45237	48050	51272	144559	48186.33	138079	226632	240199	604910	201636.67	3052	4717	4685	12454	4151.33
2	Maize	7716	9857	10003	27576	9192.00	19035	41142	78153	138330	46110.00	2467	4174	7813	14454	4818.00
3	Cholam	20761	24608	32295	77664	25888.00	10900	17616	55740	84256	28085.33	525	716	1726	2967	989.00
4	Cumbu	1327	1073	1201	3601	1200.33	957	884	2251	4092	1364.00	721	824	1874	3419	1139.67
5	Ragi	2	16	12	30	10.00	25	44	38	107	35.67	1970	2736	3203	7909	2636.33
6	Total Cereals	75100	83640	94788	253528	84509.33	169046	286359	376388	831793	277264.33				0	0.00
	Total	**150143**	**167244**	**189571**	**506958**	**168986.00**	**338042**	**572677**	**752769**	**1663488**	**554496.00**	**8735**	**13167**	**19301**	**41203**	**13734.33**

Table 2.25 Area, Production and Productivity under major Cereals 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	3274	3958	3294	10526	3508.67	31384	33484	29004	93872	31290.67	9586	8460	8805	26851	8950.33
2	Brinjal	132	97	179	408	136.00	1218	871	1592	3681	1227.00	9228	8978	8896	27102	9034.00
3	Bhendi	80	67	92	239	79.67	637	454	676	1767	589.00	7962	6772	7350	22084	7361.33
4	Cabbage	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00
5	Tomato	143	156	124	423	141.00	2035	1925	1794	5754	1918.00	14228	12338	14470	41036	13678.67
6	Other Vegetables	8898	8978	9864	27740	9246.67				0	0.00				0	0.00
	Total	**12527**	**13256**	**13553**	**39336**	**13112.00**	**35274**	**36734**	**33066**	**105074**	**35024.67**	**41004**	**36548**	**39521**	**117073**	**39024.33**

Table2.26 Major potential crops identified for Trichy district

Sl.No	Crop name	Percentage share
1	Paddy	36.7
2	Cholam	13.30
3	Cumbu	0.95
4	Maize	3.48
5	Red Gram	0.59
6	Black Gram	4.20
7	Chillies	0.85
8	Turmeric	0.56
9	Sugarcane	2.83
10	Onion	2.82
11	Groundnut	6.34
12	Coconut	2.31
13	Sun flower	0.90
14	Cotton	6.25

Source: Records of Office of Joint Director of Agriculture, Tiruchirapalli

2.11 Consumption of Chemical Fertilizers and Pesticides

Table 2.27 Consumption of Chemical Fertilizers and Pesticides during 2013-14

Fertilizers (000' T)				Pesticides		Urea (000' T)
Nitrogenous (N)	Phosphatic (P2 05)	Pottassic (K2 0)	Total (NPK)	Dust (Kgs.)	Liquid (Lit.)	
29.957	11.875	17.651	59.483	62210	89844	47.853

Source: Joint Director of Agriculture, Trichy.

2.12 Agricultural Machineries and Implements

Table2.28 Agricultural Implements and Machinery in Tiruchirappalli district

Sl.No.	Item	1994	16th census
1.	**Ploughs**		
	a) Wooden	185110	50038
	b) Iron	24191	14146
	c) Total	159301	64184
2.	**Water Pumps for Irrigation Purpose**	**-**	**-**
	a) Worked by Oil Engine	26361	8831
	b) Worked by Electric Power	68864	44036
	c) Total	55245	52867
3.	**Tractors**	**42**	**-**
	a) Government	2240	-
	b) Private	2282	447
	c) Total	4522	447
4.	**Sugarcane Crushers**		
	a) Worked by Power	46	6
	b) Worked by Bullocks	326	-
	c) Total	372	6
5.	**Oil Ghanis**	**-**	**-**
	a) 5 Kg. & above	-	-
	b) Less than 5 Kg.	164	-
	c) Total	164	-

Source: Based on Quinquennial Livestock Census

2.13 Agricultural Marketing and Regulated Markets

Establishment of Agri Marketing Intelligence and Business Promotion Center

Protecting farmers from fluctuating agricultural commodity prices is to be focused now with high priority. For this the farmers are to be empowered with knowledge on price forecasting, high price period, best market price, quality parameters, pre and post-harvest technologies for different agricultural commodities, export opportunities etc,. This would help the farmers to achieve crop diversification for better returns and adopt "Market-led Agriculture",apart from identifying the gaps in marketing infrastructure and farmers' capacity building needs for post-harvest management. In this regard, during 2012-13 AgrI Marketing

Intelligence and Business Promotion Center (AMI & BPC) is proposed to be established at Trichy under PART II scheme at a cost of `43 lakh. Departmental coordination for data collection will be done by Agriculture, Horticulture, Agri Marketing and Agri Business and Tamil Nadu Agricultural University staff to this AMI&BPC on deputation basis. Four IT consultants will be engaged on contractual basis for data collection, analysis, compilation and documentation. Two Subject Matter Specialists will be engaged on contractual basis for data analysis, interpretation and price forecasting. The AMI&BPC officials will be trained by TNAU.The Crop and Market Advisory Service will be rendered through SMS to the staff of the Departments and farmers and other stakeholders who have registered with. Through this centre, Crop and Market Advisory services will be rendered as “One Stop Shop Service” which includes technical and input services, pledge loan, post harvest processing, value addition besides suggesting ways to tap the market potential, future market alert, crops that gives best returns during current / next season etc.

Tiruchirappalli district has 10 regulated markets, 7 farmers market and 2 agmark labs (Table 2.29) and Infrastructure facilities are given in Table 2.30.

Table2.29. Regulated markets available in Tiruchirappalli market committee

S.No	Regulated Market	Farmer’s Market
1	Manapparai	TiruchirappalliAnna Nagar
2	Thuraiyur	ThuraiyurTiruchirappalli
3	Lalgudi	K.K.Nagar
4	Trichy	Manapparai
5	Thottiyam	Musiri
6	Manachanallur	Thuvakudi
7	Thuvarankurichi	Lalgudi
8	Pullambadi	
9	Thathaiyangarpet	
10	Kattuputhur	

Table2.30 Infrastructure facilities available in Regulated Markets of Tiruchirappalli district

Facilities	**Numbers**
Number of regulated Markets	10
Number of farmers markets	7
Agmark labs	2
Facilities available in Tiruchirappalli Regulated Markets	
Own Land	14
Godown	12
Rural Godown	11
Transaction shed	20
Rural Business Hub	--
Drying Yard	18
Automatic weighing and bagging machine	-
Farmers Rest Shed	5
Sanitary Facilities	14
Drinking water Facilities	14

2.14 Storage Facilities

Additional Market Infrastructure and Cold Storages-During the year 2011-12, creation of following infrastructure facilities at a total cost of`1920 lakh under NADP have been taken-up. Market complex for Banana and 1000 MTcapacity cold storage unit for vegetables at Thiruchendurai village in Trichy District.

The storage and marketing infrastructure available in the Tiruchirappalli district is presented in Table 2.31. The storage go down available in Tiruchirappalli district amounted to 20 numbers and which also had 28 numbers of drying yard.

Table2.31 Storage infrastructure facilities available in Tiruchirappalli district

Sl. No	**Particulars**	**No**	**Capacity (MT) /Area(Sqm)**
1	Storage Godown (completed)	20	14000
2	Storage Godown (under progress)	2	4000
3	Cold Storage(completed)	-	-
4	Cold Storage(under progress)	1	100
5	Agri Business Centre	-	-
6	Collection centre	-	-

Sl. No	Particulars	No	Capacity (MT) /Area(Sqm)
7	Rural Business Hub	-	-
8	Ripening chamber	1	5/day
9	Market complex with cold storage(completed)	-	-
10	Market complex with cold storage(under progress)	2	1100
11	Market complex	-	-
12	Drying yard	28	11200

2.15 Sericulture

Since 1980 onwards Sericulture activities were being in practice in TiruchirappalliDistrict.

1. Total Mulberry area in Tiruchirappalli District 720.30 Ac. 350 Farmers.
2. Most Popular Mulberry Variety Planted MR, V1.

2.15.1. Silkworm layings and cocoon production

Tiruchirappalli Farmers are lifting the layings by means of young silk worms through the private young age silk worm rearing centre and at Govt. farmers. There is one private chawkies rearing centre at Inampuliyur.The ongoing government subsidy are given in Table 2.32 and its achievement are given in Table 2.33.

Table 2.32. Ongoing Govt. Subsidy Schemes

1	Mulberry Planting Subsidy	Rs. 10,500 per acre Upto the limit or 5.00 Axcs.
2	Drip Irrigation	Rs. 22,500 to 30,000 per acre Upto the limit or 5.00 Axcs.
3	Silk Worm Rearing Shed Level –I	Rs. 82,500
4	Silk Worm Rearing Shed Level –II	Rs. 87,500
5	Priceless Rearing Appliances	Rs. 52,500 per farmer

Table 2.33 Sericulture Achievements in 2012-13

1.	New Plantation	127.30 Ac. 65 Farmers
2.	Release Plantation subsidy	29.85 Ac. 3.13 Lakhs.
3.	Lifting of Silkworm eggs	90647/DFS
4.	Production of cocoons	63468 Kg.
5.	Drip Irrigation installed	6.20 Ac.
6.	Utilization of Disinfectants	Sanitech – 4200 liters Bleaching Powder – 5300 Kg Bed Disinfectants – 4100 Kg

Sericulture was introduced in Tiruchirappalli District in the late 70's and the progress is slowly picking up. At present, it has got mulberry cultivation is about 217.00 acres involving 308 Sericulturists in silkworm rearing. One district sericulture complex is functioning in this district, which includes the following administrative offices. 1.Regional Deputy Director of Sericulture. 2. Assistant Director of Sericulture. The details of cultivation area of mulberry are given in Table 2.34.and techinal centre for silkworm rearing are given in Table 2.35.

2.15.2. Silkworm seed (egg) production center – Grainage, Tiruchirappalli

It produces crossbreed layay's (eggs) by procuring local and foreign race seed cocoons from Denkanikottai and Coimbatore areas and supplies layings to the sericulturists.

Table2.34. Areas of mulberry cultivation in different taluk

Sl.No	Name of the Taluks	No. of Acres	No. of Farmers
1.	Tiruchirappali	11.00	7
2.	Srirangam	12.00	17
3.	Mannachanallur	13.00	16
4.	Manapparai	47.50	63
5.	Thuraiyur	50.50	90
6.	Musiri	38.00	54
7.	Thottiyam	45.00	61
TOTAL		**217.00**	**308**

Table2.35. Technical center for silkworm rearing

Sl.No	Name of the Technical Centre	Silk Worm Layings Harvested	Cocoon Harvested in Kgs.
1.	Palaiyour(Manachanallur)	10831	4901
2.	Musiri	21449	8714
3.	Trichy Pachamalai	1342	412
TOTAL		**33622**	**14027**

2.16 Animal Husbandry and Dairy Development

2.16.1 Livestock population

In this district, among the livestock population goat's population is higher with 465832 no's followed by cattles with 354444 No's and Sheep with 150111 No's. The total poultry population of this district was 2486815 No's. The remaining data are given in Table 2.36.

Table 2.36 Livestock Population in Trichy district

(Numbers)

Sl.No.	Particulars	Population
1	Cattle	354444
2	Buffaloes	21836
3	Sheep	150111
4	Goats	465832
5	Horses and ponies	112
6	Donkeys	446
7	Camels	0
8	Pigs	6889
	Total Livestock	**999670**
9	Elephants	3
10	Dogs	50937
11	Rabbits	618
	Poultry	
12	Back yard Poultry	617454
13	Farm Poultry	1869361
	Total Poultry	**2486815**

Table 2.37 Availability of Infrastructure Facilities in the Block

Sl. No.	Infrastructures	Availability		Present condition		Volume of transmission	Interventions needed	
		Yes	No	Good	Bad		Nature	Cost
1	Dairy co-operative society	Yes	-	Good	-	1,13,000lakh Litre/day	-	-
2	Veterinary clinics	Yes	-	Good	-	10,77,059 cases treated/year	-	-
3	Milk collection centre	Yes	-	Good	-	2.85 lakhs litre /day	-	-

2.16.2 Veterinary Institution and Animals

The block wise details of number of veterinary institutions and other units are depicted in the Table 2.38. And also the block wise details of veterinary hospitals are given in Table 2.39.

Table2.38 Block Wise Veterinary Institutions and Animals Treated in Trichy district

Name of the Block	Veterinary Institutions				Sub-centres	Other Units		Animals treated	Castration performed
	Polyclinic	Hospitals	Dispen-saries	Clini-ianCentres		Animal disease investigation unit	Mobile units		
Marugapuri		0	3		4	-	-	60286	1149
Manaparai		0	1		3	-	-	6921	843
Vaiyampetti		0	2		1	-	-	36406	850
Thiruverumbur		0	3		5	-	-	35380	785
Anthanallur		0	3		4	-	-	47680	760
Manikandom		0	3		3	-	-	52194	363
Lalgudi		1	3		9	-	-	47086	2219
Manachanallur		0	3		6	-	-	49416	986
Pullampadi		1	4		6	-	-	38851	1546
Musiri		0	4		4	-	1	67212	965
Thottiyam		1	3		2	-	-	51894	871
T.pett		0	5		0	-	-	60755	2390
Thuraiyur		1	3		2	-	-	40965	1303
Uppiyapuram		0	3		3	-	-	48785	1840
Tiruchy		0	3		10	-	1	76906	667
Total		**4**	**46**	**0**	**62**	**0**	**2**	**726737**	**17637**

Source: District Animal Husbandry Office.

Table 2.39 Numbers of Veterinary Hospitals in Trichy district during 2011-12

Sl.No.	Name of the Block	Number of	
		Government	Private
1	Marungapuri	1	Nil
2	Manaparai	1	‘’
3	Vaiyampatti	1	‘’
4	Tiruverampur	1	‘’
5	Andanallur	--	‘’
6	Manikandam	--	‘’
7	Lalgudi	1	‘’
8	Manachanallur	--	‘’
9	Pullambadi	1	‘’
10	Musiri	--	‘’
11	Thottiyam (Kattuputhur)	1	‘’
12	T.Pettai	--	‘’
13	Uppiliyapuram	--	‘’
14	Thuraiyur	1	‘’
	Total	**8**	‘’

Source: District Animal Husbandry Office.

2.16.3. Dairy Development

The dairy development details are given in Table 2.40. There are 308 milk societies are available in Trichy district.

Table 2.40 Dairy Developments in Trichy district during 2011-12

Name of the Circle	No. of milk societies	Quantity of milk produced (litres)	Value of milk produced (Rs.)
Tiruchirappalli	51	99575	1443838
Lalgudi	55	84539	1225815
Manapparai	85	660905	9583123
Musiri – Ist	31	208264	3019828
Musiri –IInd Circle	56	282218	4092161
Thuraiyur	30	113707	1648751
Total	**308**	**1449208**	**21013516**

Source: Concerned Milk Societies.

2.17. Fisheries

The details of fisheries development and its production are given in Table 2.41.

Table 2.41 Fisheries Development and Production in Trichy district in 2011-12

Name and Address of Fishing centre's	Inland Fish Catch (Tonne)	Marine Fish Catch (Tonne)	Number of Fisherman engaged
Cauvery river, colleroon river stretch & tanks	6555	--	660
District Total	**6555**	**--**	**660**

Source: Fisheries Department.

2.18 Banking and Insurance

The details of number of banks and its credentials are given in Table 2.42. and their achievements are given in Table 2.43. Bank details of this district and insurance details are given in Table 2.44.and 2.45 respectively.

Table 2.42 Distribution of Scheduled Commercial Banks Officers, Aggregate Deposits and Gross Bank Credit in Tiruchirappalli District (2011-12)

Number of Banks / Offices	285
Credit (Rs. Crores)	11732
Debit (Rs. Crores)	10151

Table 2.43 Allocation and Achievement under Annual Credit Plan of Tiruchirappalli District (2011-12)

	Farm Sector	Non – Farm Sector (NFS)	Other Priority Sector (OPS)	Total
Allocation	1207.99	232.22	663.93	2104.14
Achievement	1906.14	185.27	534.63	2626.04
Percentage of	158	80	81	125

Table2.44 No of Commercial banks in Tiruchirappalli district in 2011-12

Items	Deposits (Rs. in Lakhs)	Advances (Rs. in Lakhs)	Credit Deposit Ratio	Sector wise Credit Details (Rs. in Lakhs)			
				Priority Sector	Direct Agri.	DRI Advance	Weaker Section
Public Sector Bank (213 branches)	859922	721272	83.88	528111	237118	841	195910
Private Sector Bank (61)	263833	215371	81.63	100622	60565	-	10925
Co-op Sector (41)	78413	76469	97.52	23995	18559	-	17413
TIIC(1)	--	6176	--	6176	--	--	--
Regional Rural Bank 2010-11	96942	251325	259.00	123440	106120	--	156

Source: IOB (Lead Bank) Annual Credit Plan 2010-11

Table 2.45 Insurance Scheme in Tiruchirappalli district during 2011-12

Name of the Insurance	No. of Branches	Policies Issued	Sum Assured (Rs. in crores)	No. of Beneficiaries	Amount paid as compensation (Rs. in crores)
L.I.C	27 Branches, 13 Satellite Offices	448156	5230	163666	404.31

2.19. Co-operation

There are 10 different types of societies are available in this district and their details are furnished in the Table 2.46.

Table 2.46 Co-operative Societies in Tiruchirappalli district during 2011-12

Sl. No.	Type of Societies	No. of Societies	Membership	Share Capital/ Working Capital	Working capital	Loans Advanced (Outstanding and Overdue)	No. of Employees
1	Primary Agri. Co. Society	147	894589	2822.19	34486.15	41826.32	342
2	Co-op. Mrk.Socy.	5	24115	126.32	643.75	551.42	62
3	Co-op. Emp.Socy	97	46812	6117.20	97312.16	66478.42	166
4	Central Co-op Bank	1	987	3684.00	173894.50	143116.00	372
5	LabourContratSocy.	3	1048	6.61	37.21	0	0
6	Lift Irriga. Socy	1	207	0.10	0.21	0	1
7	Co-operative Wholesale Store	2	81211	47.95	0	0	0
8	Primary Stores	14	17421	9.33	165.22		192
9	Urban Bank	7	116922	407.32	127.45	8989.45	39
10	Urban Credit Societies	2	2478	1284	13.82	24.96	3
11	Others	0	0	0	0	0	0
	TOTAL	**279**	**1185510**	**13233.86**	**306680.47**	**260986.57**	**1177**

Source: Joint Registrar, Co-Operative Societies.

CHAPTER III

DEVELOPMENT OF AGRICULTURE AND ALLIED SECTORS

Before suggesting an action plan for development of agriculture and allied sectors, a brief analysis (at district level) was done in the following components:

i. Assessing the trends in area, production and productivity of major crops and projection till the 12th Plan period (2015-16)

ii. Yield gap analysis for the major crops

3.1 Trends in area, production and productivity of major crops

The past trends in area, production and productivity of major crops need to be analyzed to plan for future agricultural development. Compound Growth Rate (CGR) tool is used to measure the annual rate of growth in area, production and productivity of major crops cultivated in the district and it is expressed in percentage. The compound growth rate was estimated using 10 years time series data from 2005-2006 to 2014-15. The equation used to estimate the annual compound growth rate is:

$$Y_t = ab^t e$$

Logarithmic form of the above equation is: $\ln Y = \ln a + t \ln b$

The compound growth rate (CGR) in percentage is derived using the formula:

$CGR(r) = [\text{Antilog } b-1] \times 100$

where, Y_t = Area or Production or Yield

a = Intercept

b = Regression coefficient of t

t = Time variable

r = Compound Growth Rate

The area and production and productivity (CGR) of major crops like paddy, cholam, maize, black gram, groundnut, coconut, cotton, Sugarcane, Tapiaco and Banana of Tiruchirappalli district are given in Table 3.1. and Table 3.2. The results exhibited a maximum growth rate of 39.57 per cent in maize crop. All other major crops like cholam and ground nut exhibited a negative growth rate in cultivated area. Crops like paddy, maize, blackgram and Coconut had positive growth rates in their productivity. Since black gram crops are grown as sole crop very in recent years the crop has shown high positive growth rate in area with 9.65 per cent though it exhibited a positive growth rate in productivity.

Table 3.1 Area Production and Yield of major crops in TiruchirappalliDistrict (Triennium average ending 2014-15)

Sl.No.	Crops	Area(Ha)	%	Production (Tonnes)	Yield (kg/ha)
1	Paddy	48186.33	34.80	201636.67	4184.52
2	Cholam	25888.00	18.70	28085.33	1084.878
3	Maize	9192.00	6.64	46110.00	5016.319
4	Black gram	6732.00	4.86	5739.00	852.4955
5	Ground nut	8300.33	5.99	20834.33	2510.06
6	Coconut*	6434.00	4.65	980.67	152.42
7	Cotton	16891.33	12.20	27591.00	1633.442
8	Sugarcane	3977.33	2.87	349727.33	87930.18
9	Tapioca	5224.67	3.77	224093.00	42891.32
10	Banana	7642.67	5.52	385225.67	50404.59
	TOTAL	**138468.67**	**100.00**		

Source: Season crop report 2014-15
*In lakh nuts

The Compound growth rates are shown in Table 3.2.

Table. 3.2. Compound Growth Rates (CGR) of Area, Production and Productivity under major crops in Tiruchirappalli District

Sl.No.	Crops	CGR during 2005-2006 to 2014-15 (%)		
		Area	Production	Productivity
1	Paddy	0.247	2.307	2.056
2	Cholam	-3.993	-6.022	-2.107
3	Maize	39.578	61.344	15.575
4	Black gram	9.659	14.473	4.395
5	Ground nut	-1.433	-0.244	1.207
6	Coconut	1.303	9.467	8.838
7	Cotton	11.308	14.846	3.131
8	Sugarcane	1.750	1.696	-0.042
9	Tapioca	1.453	2.992	1.517
10	Banana	-0.034	0.413	0.727

3.2 Projected area, production and yield of selected crops

The area, production and yield were projected using CGR for the years upto 2015-16 and the results are presented in Table 3.3.

The expected growth rates of paddy varieties to bridge the yield gap in 2023 has been recorded and the overall yield gap of those varieties and the growth rates are presented in Table.3.3. The required cumulative growth rates were arrived to the range of 37 to 53 per cent over a period of the next 11 years. The annual growth rate to bridge the yield gap was the lowest at 3.64 for IWP and it was the highest in the case paddy variety BPT 5204.

Table.3.3. Performance of select varieties of Paddy crop in Tiruchirappalli district

Ruling Varieties	ADT 43	ADT 36	IWP	ADT 39	Co 43	BPT 5204	ASD 19
Potential Yield	7957	7680	5000	6525	5551	8658	5800
Progressive farmer yield	3930	4500	3100	3300	3400	3900	3800
Average Yield	3700	3650	3000	3100	3300	3600	3600
Overall Yield Gap	4257	4030	2000	3425	2251	5058	2200
Required Growth Rates	53.50	52.47	40.00	52.49	40.55	58.42	37.93
Annual Growth Rate	4.86	4.77	3.64	4.77	3.69	5.31	3.45

3.4.1 Projected yield of paddy crops in 2023

Yield projection for select varieties of paddy presented in Table.3.4 The projected yield for major varieties of paddy was worked out over a period of the next 11 years. The projected yield for the variety ADT 43 was 3937 kg per hectare from the current yield of 3700 kg per hectare and the projected yield was ranged between 3000 kg per hectare to 8884 kg per hectare for the varieties such as ADT 36, IWP, ADT 39, CO 43, BPT 5204 and ASD 19.

Table.3.4. Yield projection for select varieties of paddy in Tiruchirappalli district

Year / Variety	ADT 43	ADT 36	IWP	ADT 39	Co 43	BPT 5204	ASD 19
2011-12	3700	3650	3000	3100	3300	3600	3600
2012-13	3721	3727	3009	3411	3309	3627	3618
2013-14	3742	3806	3018	3754	3318	3655	3636
2014-15	3763	3887	3027	4131	3327	3682	3655
2015-16	3784	3969	3037	4546	3337	3710	3673
2016-17	3806	4053	3046	5003	3346	3738	3692
2017-18	3827	4139	3055	5505	3355	3767	3710
2018-19	3849	4227	3064	6058	3364	3795	3729
2019-20	3871	4316	3074	6666	3373	3824	3748
2020-21	3892	4407	3083	7336	3383	3853	3767
2021-22	3914	4501	3092	8073	3392	3882	3786
2022-23	3937	4596	3102	8884	3401	3912	3805

Projection of paddy production in 2023

The projection of production for select varieties of paddy presented in Table.3.5. The projected production for major varieties of paddy was worked out over a period of the next 11 years. Among the varieties, the projected production for the year 2022-23 was higher for the variety BPT 5204 with 136907 tonnes and the same was ranged between 8273 tonnes to 48860 tonnes for the varieties ADT 36, IWP, ADT 39, CO 43, and ASD 19 respectively.

Table.3.5. Projection of variety wise paddy production for 2023 in Tiruchirappalli district

(Tonnes)

Year / Variety	ADT 43	ADT 36	IWP	ADT 39	Co 43	BPT 5204	ASD 19
Proportion of varieties	0.04	0.08	0.08	0.09	0.04	0.58	0.08
Area	2500	4500	5000	5500	2500	35000	5000
2012-13	9302	16773	15045	18763	8273	126955	18091
2013-14	9355	17128	15091	20647	8296	127916	18182
2014-15	9408	17490	15137	22721	8318	128885	18274
2015-16	9461	17861	15183	25003	8341	129862	18366
2016-17	9514	18239	15229	27514	8364	130846	18459
2017-18	9568	18625	15275	30278	8387	131837	18552
2018-19	9622	19019	15321	33319	8410	132836	18646
2019-20	9677	19422	15368	36665	8434	133842	18740
2020-21	9731	19833	15414	40348	8457	134856	18835
2021-22	9786	20253	15461	44400	8480	135878	18930
2022-23	9842	20682	15508	48860	8503	136907	19026

3.4.2 Cholam

The yield gap I was worked out to 80 kg and 1100 kg per hectare for the varieties CoH 3 and Co18, respectively. The overall yield gap for the same was worked out to 1710 kg and 2450 kg per hectare, respectively for the varieties CoH 3 and Co18.(Table.3.6)

The expected growth rates of paddy varieties to bridge the yield gap in 2023 has been recorded and the overall yield gap of those varieties and the growth rates are presented in Table.3.6. The required cumulative growth rates were arrived to the range of 134 to 213 per cent over a period of the next 11 years for the varieties CoH 3 and Co18. The annual growth rate to bridge the yield gap was worked out to 12.24 and 19.37 per cent for the varieties CoH 3 and Co18, respectively.

Table.3.6. Variety wise yield gap in Tiruchirappalli district

Variety	Yield GAP I	Yield GAP II	Overall YG
CoH 3	80	1630	1710
Co 18	1100	1350	2450

Table 3.7 . Performance of select varieties of Cholam in Tiruchirappalli district

Ruling Varieties	CoH 3	Co 18
Potential Yield	2980	3600
Progressive farmer yield	2900	2500
Average Yield	1270	1150
Overall Yield Gap	1710	2450
Required Growth Rates	134.65	213.04
Annual Growth Rate	12.24	19.37

Projection of Yield of Cholam

Yield projection for select varieties of cholam presented in Table.3.8. The projected yield for major varieties of cholam was worked out over a period of the next 11 years. The projected yield for the year 2023 for the variety CoH 3 was 4523 kg per hectare from the current yield of 1270 kg per hectare and the same was worked out to 8063 kg per hectare for the variety Co 18.

Table.3.8. Yield projections for Cholam in Tiruchirappalli district

Year	CoH 3	Co 18
2011-12	1270	1150
2012-13	1425.448	1372.755
2013-14	1599.923	1638.658
2014-15	1795.753	1956.066
2015-16	2015.554	2334.956
2016-17	2262.257	2787.236
2017-18	2539.158	3327.124
2018-19	2849.951	3971.588
2019-20	3198.785	4740.885
2020-21	3590.316	5659.194
2021-22	4029.77	6755.38
2022-23	4523.014	8063.897

Projection of production of Cholam

The projection of production for select varieties of cholam presented in Table.3.9. The projected production for major varieties of paddy was worked out over a period of the next 11 years. The projected production for the year 2023 for the variety CoH 3 was 56538 tonnes from the current production of 12500 tonnes and the same was worked out to 100799 tonnes for Co 18.

Table.3.9. Projection of variety wise Cholam production for 2023

	CoH 3	Co 18
Proportion of varieties	0.625	0.375
Area	12500	7500
2012-13	17818	17159
2013-14	19999	20483
2014-15	22447	24451
2015-16	25194	29187
2016-17	28278	34840
2017-18	31739	41589
2018-19	35624	49645
2019-20	39985	59261
2020-21	44879	70740
2021-22	50372	84442
2022-23	56538	100799

3.4.3 Pulses

Projection of Yield of Pulses

Yield projection for select varieties of pulses presented in Table.3.10. The projected yield for major varieties of pulses was worked out over a period of the next 11 years. The projected yield for the varieties of black gram ranged between 723 to 910 kg per hectare for the year 2023 and the same was worked out to 1636 kg per hectare for the variety Co 6 of green gram.

Table.3.10. Projection of Yield of Pulses

Year	Black gram				Green gram
	VBN3	ADT-3	ADT-5	T9	Co 6
2011-12	550	597	500	530	437
2012-13	567	608	528	553	493
2013-14	584	618	557	576	556
2014-15	602	629	589	601	626
2015-16	620	640	622	626	706
2016-17	639	651	656	653	796
2017-18	658	663	693	681	898
2018-19	678	675	732	710	1012
2019-20	698	686	773	741	1141
2020-21	720	699	816	772	1287
2021-22	741	711	861	805	1451
2022-23	764	723	910	840	1636

Projection of production of pulses

The projection of production for select varieties of pulses presented in Table.3.11. The projected production for major varieties of pulses was worked out over a period of the next 11 years. The projected production for the year 2023 for the varieties for black gram ranged between 1085 to 1364 tonnes from the current production and the same was projected to 573 tonnes for the green gram variety Co 6.

Table.3.11. Projection of variety wise pulses production for 2023 in Tiruchirappalli district

Particulars	Black gram				Green gram
	VBN3	ADT-3	ADT-5	T9	Co6
Proportion of varieties	0.07895	0.5	0.28947	0.13158	1
Area	1500	9500	5500	2500	350
2012-13	850	911	792	829	172
2013-14	876	927	836	864	194
2014-15	902	944	883	901	219
2015-16	930	960	932	940	247
2016-17	958	977	984	980	279
2017-18	987	994	1039	1022	314
2018-19	1017	1012	1098	1065	354
2019-20	1048	1030	1159	1111	399
2020-21	1079	1048	1224	1158	450
2021-22	1112	1066	1292	1208	508
2022-23	1146	1085	1364	1259	573

3.4.4 Oilseeds

Projection of Yield of Oilseeds

Yield projection for select varieties of oilseeds presented in Table.3.12. The projected yield for major varieties of oilseeds was worked out over a period of the next 11 years. The projected yield for the variety TMV of groundnut was worked out to 1917 kg per hectare and the same was ranged between 757 to 1058 kg per hectare for the varieties of gingelly.

Table 3.12. Yield projection for select varieties of oilseeds in Tiruchirappalli district

Particulars	Ground nut	Gingelly	
Year	TMV 7	TMV 3	TMV 4
2011-12	1663	650	600
2012-13	1685	659.1	631.8
2013-14	1707	668.3274	665.2854
2014-15	1729	677.684	700.5455
2015-16	1751	687.1716	737.6744
2016-17	1774	696.792	776.7712
2017-18	1797	706.547	817.9401
2018-19	1820	716.4387	861.2909
2019-20	1844	726.4688	906.9393
2020-21	1868	736.6394	955.0071
2021-22	1892	746.9524	1005.622
2022-23	1917	757.4097	1058.92

Projection of production of Oilseeds

The projection of production for select varieties of Oilseeds presented in Table.3.13. The projected production for major varieties of Oilseeds was worked out over a period of the next 11 years. The production was projected to 28753 tonnes for the variety TMV 7 of groundnut for the year 2023 and the same was projected to the range of 379 to 529 tonnes for the varieties for gingelly.

Table 3.13. Projection of variety wise oilseeds production for 2023 in Tiruchirappalli district

Particulars	Ground nut	Gingelly	
	TMV 7	TMV 3	TMV 4
Proportion of varieties	1	0.25	0.75
Area	15000	500	1500
2012-13	25269	330	316
2013-14	25598	334	333
2014-15	25931	339	350
2015-16	26268	344	369
2016-17	26609	348	388
2017-18	26955	353	409
2018-19	27305	358	431
2019-20	27660	363	453
2020-21	28020	368	478
2021-22	28384	373	503
2022-23	28753	379	529

3.4.5 Sugarcane

Yield projection for select varieties of sugarcane presented in Table.3.14. The projected yield for sugarcane was worked out over a period of the next 11 years. The projected yield for the variety CoC 86032 of sugarcane was worked out to 2.75 lakh tonnes for the year 2023.

Table 3.14. Yield projection for sugarcane variety COC- 771in Tiruchirappalli district

Year	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
CoC 86032	102000	111639	122189	133736	146374	160206	175346	191916	210052	229902	251627	275406

Projection of variety wise sugarcane production for 2023 in Tiruchirappalli district

The projection of production for sugarcane is presented in Table.3.15. The projected yield for sugarcane was worked out over a period of the next 11 years. The projected production for the variety CoC 86032 of sugarcane was worked out to 11 lakh tonnes for the year 2023 from the current yield of 4 lakh tonnes.

Table 3.15. Projection of production of Sugarcane

Proportion of varieties	1
Area	4000
2012-13	446556
2013-14	488756
2014-15	534943
2015-16	585495
2016-17	640824
2017-18	701382
2018-19	767663
2019-20	840207
2020-21	919607
2021-22	1006509
2022-23	1101625

Table 3.16. Projected Area, Production and Yield Based for the Major Potential Crops Identified

Description	Paddy			Cholam			Maize			Blackgram		
	Area	Produ.	Yield	Area	Produ.	Yield	Area	Produ.	Yield	Area	Produ.	Yield
Compound Growth Rate (%)	0.247	2.307	2.056	-3.99	-6.022	-2.10	39.578	61.344	15.58	9.66	14.473	4.395
Triennium Average ending 2011-12	65133	278962	4288	24571	12858	526	5968	33542	5524	6351	4410	690
2012-13	66041	275630	4174	23367	10951	469	25937	148791	5733	7274	4562	627
2013-14	66204	281988	4259	22433	10291	459	36202	240065	6626	7977	5222	655
2014-15	66367	288493	4347	21538	9671	449	50530	387330	7658	8747	5978	684
2015-16	66531	295147	4436	20678	9089	440	70529	624934	8850	9592	6843	714

Description	Groundnut			Coconut			Cotton		
	Area	Production	Yield	Area	Production	Yield	Area	Production	Yield
Compound Growth Rate (%)	-1.433	-0.244	1.207	1.303	9.467*	8.838*	11.308	14.846	3.131
Triennium Average ending 2011-12	11201	22037	1964	6512	1164	17923	12724	32788	456
2012-13	11812	23357	1977	6812	1461	22016	12298	25579	354
2013-14	11643	23300	2001	6901	1600	23962	13689	29377	365
2014-15	11476	23243	2025	6990	1751	26080	15237	33738	376
2015-16	11312	23187	2050	7082	1917	28385	16960	38746	388

Description	Sugarcane			Tapioca			Banana		
	Area	Production	Yield	Area	Production	Yield	Area	Production	Yield
Compound Growth Rate (%)	1.750	1.696	-0.042	1.453	2.992	1.517	-0.034	0.413	0.727
Triennium Average ending 2011-12	4842	527940	109	5697	302140	53089	8511	423861	49760
2012-13	5689	591147	104	6287	342024	54401	8594	407010	47871
2013-14	5789	601173	104	6378	352257	55226	8591	408690	48219
2014-15	5890	611369	104	6471	362795	56064	8588	410377	48570
2015-16	5993	621739	104	6565	373649	56915	8585	412071	48923

*** It Denotes Growth rates during 2014-15**

3.3 Yield Gap Analysis

The difference between progressive farms yields (achievable yield) and farmer's average yield (actual yields) is termed as yield gap II.

The yields obtained by the farmers under improved technologies were recorded as progressive farms yields (achievable yield) and compared with the district level average yields for the estimation of yield gap-II. The progressive farms yields are obtained from the office of Joint Director of Agriculture, Trichy and it is crosschecked with officials in line departments. Yields obtained at district level represent the farmers average yields (actual yields) for triennium ending (2009-2011) are collected from season and crop report, Department of Economics and Statistics, Tamil Nadu.

Estimation of yield gaps

Yield gap analyse in major crops were presented variety wise in the following Table 3.17. The difference between potential yield and progressive farms yields explains about the yield gap I which was higher than the yield gap II (difference between progressive farmers yield and actual yield) in paddy varieties like ADT 45 and BPT 5204 paddy varieties. The yield gap II was highest for the variety ADT 36 with 850 Kg per hectare and it was lowest for Co 43 with 100 Kg per hectare.

Pulses crop especially in black gram, the yield gap I was highest for ADT 5 with 550 kg per hectare. Yield gap II was highest for the variety T9 with 270 Kg per hectare and the same was lowest for ADT 3 with 103 Kg per hectare. In Green gram, Yield gap II was reported as 213 Kg per hectare for the variety Co 6. This situation warrants for higher scope of obtaining better yield to achieve the target of double the yield in the year 2023 with concerted effort to make the farmers adopting improved technologies and high yielding varieties.

Oilseeds sector also has maximum rate of over all yield gaps to the potential yield ground nut varieties. Yield gap I was reported as 200 Kg per hectare for the variety TMV 7. Yield gap II for the varieties TMV 4 varieties of gingelly were reported as 50 kg per hectare. Concentration in this crop to bridge this component of yield gap will have a huge impact in increasing or doubling the production in the future.

The yield gaps I and II for the sugarcane crop was 88 tonnes per hectare and 18 tonnes per hectare, respectively for the variety CoC 86032. The yield loss from the potential yield has been incurred in sugarcane crops implying that bridging this yield gap will have a very huge impact in state's exchequer.

6.2 Yield Gap for Horticultural Crops in Tiruchirappalli district

Yield gap I was higher for the crop banana with 30 tonnes followed by 25 tonnes for tapioca. It was worked out 18 tonnes, 16 tonnes and 14.9 tonnes, and 8 tonnes respectively for the crops acid lime, brinjal, guava and mango.

Yield gap II was higher for the flower crops such as jasmine and Chrysanthemum crops with 1 tonne for each. It was worked out 970 kg per hectare for mango (Table 3.17).

Table.3.17. Estimated Yield Gap for Agricultural Crops Analysis in Tiruchirappalli district

S.No	Crop	Variety	Area (ha)	Potential yield (Kg/ha) (A)	Progressive farmer yield (Kg/ha) (B)	Actual yield (Kg/ha) (C)	Yield Gap I (Kg/ha) (A-B)	Yield Gap II (Kg/ha) (B-C)	Yield Gap III (Kg/ha) (A-C)
1.	Paddy	ADT 43	2500	7957	3930	3700	4027	230	4257
		ADT 36	4500	7680	4500	3650	3180	850	4030
		IWP	5000	5000	3100	3000	1900	100	2000
		ADT 39	5500	6525	3300	3100	3225	200	3425
		Co 43	2500	5551	3400	3300	2151	100	2251
		BPT 5204	35000	8658	3900	3600	4758	300	5058
		ASD19	5000	5800	3800	3600	2000	200	2200
2.	Black gram	VBN3	1500	825	750	550	75	200	275
		ADT 3	9500	740	700	597	40	103	143
		ADT 5	5500	1300	750	500	550	250	800
		T9	2500	1000	800	530	200	270	470
3.	Green gram	Co6	350	1050	650	437	400	213	613
4.	Cholam	CoH 3	12500	2980	2900	1270	80	1630	1710
		Co 18	7500	3600	2500	1150	1100	1350	2450
5.	Ground nut	TMV 7	15000	1900	1700	1663	200	37	237
6.	Gingelly	TMV 3	500	750	650	650	100	0	100
		TMV 4	1500	950	650	600	300	50	350
7.	Sugarcane	CoC 86032	4000	208000	120000	102000	88000	18000	106000

Table.3.18. Estimated Yield Gap for Horticultural Crops in Tiruchirappalli district

S.No	Crop	Area (ha)	Potential yield (Kg/ha) (A)	Progressive farmer yield (Kg/ha) (B)	Actual yield (Kg/ha) (C)	Yield Gap I (Kg/ha) (A-B)	Yield Gap II (Kg/ha) (B-C)	Yield Gap III (Kg/ha) (A-C)
1.	Banana	9167	75000	45000	44800	30000	200	30200
2.	Mango	2082	10000	2000	1030	8000	970	8970
3.	Acid lime	1030	20000	2000	1180	18000	820	18820
4.	Guava	228	20000	5100	4570	14900	530	15430
5.	Tapioca	6013	80000	55000	52500	25000	2500	22500
6.	Onion	3410	16000	9200	8960	6800	240	7040
7.	Chillies	1995	3000	1500	1000	1500	500	2000
8.	Coriander	699	800	510	270	290	240	530
9.	Turmeric	402	6000	5500	5000	500	500	1000
10.	Tomato	337	20000	9700	9500	10300	200	10500
11.	Brinjal	125	25000	8560	8350	16440	210	16650
12.	Jasmine	585	10000	8000	7000	2000	1000	3000
13.	Crossandra	115	3000	2500	2000	500	500	1000
14.	Chrysanthemum	76	12000	9000	8000	3000	1000	4000

Table 3.19. Milk Yield by Type of Animals

Sl. No.	Type of animals	Milk yield (kg)		Reason for low yield
		Potential	Actual	
1	Cows			Fodder shortage & Low concentrate feeding
	a. Local / N.D.	6	4	
	b. Cross breed	12	8	
2	Buffalo			Fodder shortage & Low concentrate feeding
	a. Local / N.D.	8	6	
	b. Cross breed	14	10	

3.5. Technological interventions and strategies to reduce the yield gaps

Table 3.20. Constraints Faced and Suggestions for the Agricultural Development in Tiruchirappalli District

S.No.	Crop	Constraints Faced	Suggestions
1	**-**	**-**	**-**

Table 3.21. Constraints faced in crop details

Sl.No.	Crop	Constraints Faced	Suggestions
1	**Intercropping**	• Climate change • Temperature is on the rise in most of the cropping days.	• Pearl millet, maize, finger millet will be suitable for intercropping with red gram and again value addition of these millets through SHGs and farmer training programmes encourage farmers in proceeding with such practices. • Millet grains are known to thrive in droughts, have a short growing season with high productivity, and are resistant to insects and diseases. It can be used to confront the productivity losses due to climate change. • A traditional paddy variety could be intercropped with another traditional paddy variety having different harvesting times (ex: 180 days and 100 days) so that when unexpected rains occur, even if one gets damaged, the other may sustain and gives yield. This practice has been followed by farmers in Cauvery delta as an approach to reduce loss and to preserve traditional seed varieties in paddy.
2	**Oilseeds**	• Compared to paddy, sugarcane cultivation the oilseeds crop cultivation is very limited area.	• Post-harvest technologies in bringing out value addition from oil seeds could improve the economic status of farmers and also augment the participation of women through SHG

			trainings on these lines. • Orientation on the utilization of agricultural machineries and subsidies for the same has to be enhanced through trainings and demonstrations at field level.
3	**Sugar crops**	• Sugarcane, a tropical plant grown in warm countries, is very sensitive to climate variations; any global climate change will definitely impact on sugar production and hence entail serious socio-economic responses. • Climatic parameters like solar radiation,temperature, wind, and rainfall have a profound influence on yield and quality.	• Ratoon and plant crops are cultivated in villages around Ponnaniyar basin. Multi-ratooning through Sustainable Sugarcane Initiative (SSI) of ICRISAT could be promoted for successful exploitation of sunlight and air in this area by following wider space in the main field. • Wider spacing eases intercultural operation also reducing drudgery among women labourers.
4	**HDPS for Mangoes**	Maximizes the efficiency of costly farm inputs.	In high-density planting, 400 trees of can be planted in one hectare of area. Better application of NPK through drip fertigation at proper schedules, bring out better yields in the range of 20-25 tons / ha. HDPS could also be suggested in cotton fields to reduce input costs.

3.5.3 Coconut - Coir Pith Compost

Coconut is highly cultivated crop next to Oil seeds and Paddy. Coir fibre has been recognized well by farmers practicing organic farming across the state. Earlier coir pith had been considered as a growth medium for horticulture only. Now it's suitability to many other crop lands has been explored. When coconut husk is applied as such in the form of layers in field, crop may get damaged. Coir waste which is getting separated while extracting the fibre can be used after composting it on the fields. Quick composting can be done by applying mushroom seeds on coir pith. Half to one ton pith wastes will be sufficient for one acre of land. The addition of composted coir dust improves soil texture, structure and tilth, sandy soil become more compact and clayey soils become more arable. It improves the water holding capacity (more than 5 times its dry weight) contributing towards increased soil moisture. Thus the water requirement of a crop reduces 10-15 times (once in 2 weeks irrigation instead of doing daily). Coir pith compost application increased the soil native microflora because of addition of humic materials. Ammonification, nitrification and nitrogen fixation are increased due to improved microbiological activity.

3.5.4 Sesbania Soil mulch

Sesbania will increase soil nitrogen through symbiotic interaction with bacteria, has the ability to stabilize soil. Its branches have been used as mulch and leaves as a green manure. S. sesban improves soil fertility in a short-term rotation fallow and is useful in combating weeds also. Due to unavailability of irrigation water to grow it as a fallow crop in Ponnaniyar river basin, intercropping with Paddy could be adopted, which had been widely practised successfully in many other districts too. Sesbania is a promising shrub for intercropping because it is easy to establish, it grows rapidly, coppices readily and provides mulch of high nutrient content (particularly N). Application of 2, 4-D (0.5 kg ha-1) is made to kill the co-cultured Sesbania. It reduces weed population by nearly half without any adverse effect on rice yield. Sesbania surface mulch decomposes very fast to supply N.

3.5 Crop area coverage and Schemes implemented by the Department

The details about various schemes implemented by the line departments of the district are presented in Tables 3.22. (Agriculture), 3.27 (Horticulture) and 3.28 (Agricultural Engineering).

3.5.1 Agriculture

Table 3.22. Schemes implemented by Department of Agriculture during 2012-13

			Target		Achievement	
Sl. No	**Scheme**	**Units**	**Phy**	**Fin(Rs.in lakhs)**	**Phy**	**Fin(Rs.in lakhs)**
	ICDP- Rice Unspent of 2012-12 Revalididated					
	Distribution of Certified Paddy seeds (Subsidy @ Rs. 5-kg)	MT	30	1.5	30	1.5
1	**NADP - PADDY MISSION**					
	Popularizsing SRI technology @ Rs.300/ha (Unspent Balance of 2012-13)	Ha	1500	45	1500	44.997
	Distribution of Certified Paddy seeds	MT	450	22.5	450	22.5
	Popularizsing SRI technology @ Rs.300/ha	Ha	100	3	100	3
				70.5		**71.997**
2	**NADP- Gypsum Application**					
	Gypsum Application for groundnut @ 50% Subsidy or Rs.750/Ha (Unspent of 2012-12)	Ha	3071	23.033	27854	17.304
	ISOPOM-Maize					
	Block Demonstration by Dept	Nos	47	1.88	47	1.88
	IPM demonstration	Nos	2	0.5	2	0.453
	Pipeline for carrying water from water source to the field	Nos	12	1.8	12	1.8
	Farmers training	Nos	2	0.3	2	0.3
	Officers Training	Nos	1	0.16	1	0.16
	Publicity Staff & contingencies			0.025		0.025
	Hiring of Vehicles and POL			0.3		0.3
				4.919		**4.918**

Source : Deputy Director of Agriculture, Tiruchirappalli

			TARGET		ACHIEVEMENT	
Sl.No	**SCHEME**	**UNITS**	**PHY**	**FIN(RS.in la)**	**PHY**	**FIN(RS.in la)**
	NADP-Oilpalm Area Expansion					
1	Distribution of Planting materials	Ha	50	5	13	1.299
2	Area expansion	Ha	50	3	13	0.78
3	II Year Maintenance Subsidy @ Rs.4500/Ha	Ha	21	0.735	20.6	0.721
4	III Year Maintenance Subsidy @ Rs.6500/Ha	Ha	61	2.745	57.4	2.5848
5	Supply of Drip Irrigation as per NMMI norms	Ha	50	5.11	6	0.53
6	Supply of Diesel /Electric pumpset	Nos	50	4.2	5	0.5
7	Inputs to intercropping in Oilpalm	Ha	25	2.5	5	1.06
8	Assistance for INM,IPM,Fertiligation, PP chemicals and tree guard	Ha	50	2.5	11	0.55
9	Inputs to intercropping for II Year crop @ Rs.5000/ha	Ha	10	0.5	10.8	0.54
10	Inputs to intercropping for III Year crop @ Rs.5000/ha	Ha	50	2.5	53.19	2.66
11	Assistance for INM,IPM,Fertiligation, PP chemicals and tree guard for II year crop @ Rs.1250/ha	Ha	21	0.263	20.6	0.258
12	Assistance for INM,IPM,Fertiligation, PP chemicals and tree guard for III year crop @ Rs.1250/ha	Ha	51	0.763	57.56	0.72
13	Construction of Vermi compost units @ Rs. 15000/ut	Nos	4	0.6	5	0.75
14	Subsidy for borewells @ Rs.5000/ha	Nos	3	1.5	2	1
				31.916		**13.9528**
	NADP-Coconut seedling distribution					
	Tall @ Rs.7.5/nos	Nos	15000	1.125	10120	0.759
	TXD @ Rs.15/nos	Nos	15000	2.25	10192	1.5288
				3.375		**2.2878**
	Coconut Development board					
	Demonstration plots (new)	ha	14	2.45	14	2.45
	Demonstration plots (old)-Maintanance	Ha	10	1.75	10	1.75
				4.2		**4.2**

3.5.2 Horticulture

Table 3.23. Schemes implemented by Department of Horticulture during 2014-15

Sl. No.	Name of the Scheme	Target		Achievement		% of Achievement	No. of Beneficiaries
		Physical (Ha.)	Finance (Rs. in lakhs)	Physical (Ha.)	Finance (Rs. in lakhs)		
1	Mission on Integrated Development of Horticulture (NHM)	4193	160.280	4193	160.280	100	2349
2	Cocoa Area Expansion Programme (NHM)	25	3.000	25	3.000	100	21
3	National Agriculture Development Programme	98	33.500	98	33.500	100	156
4	NMSA - Rainfed Area Development	130	27.090	130	27.090	100	154
5	National Mission on Medicinal Plants	56.15	10.335	56.15	10.335	100	115
6	National Bamboo Mission	60	2.013	60	2.013	100	50
7	Micro Irrigation	467.06	274.330	467.06	274.330	100	424
8	Perimetro Vegetable Cluster Development Programme	224	228.327	0	0.097	0.04	10

Source : Deputy Director of Horticulture, Tiruchirappalli

Table 3.24.Schemes implemented by Department of Engineering (2012-13 to 2014-15)

Sl. No.	Scheme/Project title	Unit	2012-13		2013-14		2014-15	
			Physical target	Budget Allocation	Physical Target	Budget Allocation	Physical Target	Budget Allocation
I	**Centrally Sponsored**							
1	Artificial Recharge to Groundwater Scheme	Nos.	28	165.43833				
2	Demonstration	Nos.	18	0.540	17	0.510		
3	Training to Farmers on Agricultural Machinery	Nos			4	1.04		
II	**State Sponsored**							
1	National Agricultural Development programme - Special Package for Delta District	Nos.	6	15.600				
2	NADP - Agricultural Mechanisation Programme(others)	Nos.	3031	197.36977	317	143.38967		
3	NADP - Agricultural Mechanisation Programme(Special) SC/ST	Nos.	75	48.35965	98	33.3785		
4	Integrated Tribal Development Programme	Ha./Nos.	10.90/0	2.010	1/21.735	7.71		
5	Rain Water Harvesting and Run-Off Management	Nos.	0	0	3	18.37000		
6	Faremers Training	Nos.	1	0.300	1	0.33300		
7	Rural Youth Training	Nos.	2	7.150				
8	NADP -Onion Storage Structure	Ha.			10	0.400		
9	CTDP	Ha.					7.000	1.000
III	**Central and State sponsored (Indicate the share)**							
1	Macro Management of Agriculture (MMA)	Nos.	34	14.300	4	1.300		

Source : The Executive Engineer, Department of Agricultural Engineering, Tiruchirappalli

CHAPTER IV

DISTRICT AGRICULTURE 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 and fisheries sector are discussed in this chapter. This would comprehend the activities and the achievements to be made in the five-year's 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 has been outlined in this chapter. 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 the Paddy productivity

Paddy is one of the major crop is being grown in Tiruchirappalli district under area of 65133 ha which accounted 36.7 percent of total cropped area with an average productivity of 4288 kg/ha. Paddy is mostly raised under wet land condition. The paddy production of the district mainly depends on releasing of canal water from Mettur dam and tube wells. Since productivity of paddy mainly depends on the use of quality seed materials, production and distribution of hybrid seed and high yielding varieties to farmers is highly essential. System of Rice Intensification (SRI) is one of the promising technologies which needs further awareness creation and adoption for improving the productivity of the crop among the rice growers. The following are proposed interventions

4.1.1.2. Project components

- Promotion of SRI Technology in Andanallur, Lalkudi, Manapparai, Mannachanallur, Marungapuri, Thiruverumburand Vaiyampatti blocks
- Distribution of certified seeds and production of foundation seeds
- Incentives for paddy machine planting
- Distribution of MN mixture, biofertilizers, zinc sulphate to all blocks

- Distribution of bio control agents/ biopesticides to all blocks except Mannachanallur, Musiri, T.Pet and Thottiyam blocks
- Distribution of direct sown paddy with seed drill sowing to all blocks except Marungapuri, T.Pet and Vaiyampatti blocks
- Distribution of herbicides to all blocks except Mannachanallur and T.Pet
- Hybrid rice distribution in Vaiyampatti block
- Distribution of polyvinyl coated tarpaulin to all blocks except Lalkudi, T.Pet and Thiruverumbur blocks.

4.1.1.3. Budget

It is proposed to incur **₹.5590.41** lakhs over a period of five years with the finance facilities under the NADP and other sources as shown in Table 4.1.

4.1.1.4. Expected outcome

The SRI technology will result in an increase in the yield of paddy and in turn the production of paddy. This will result in the ensuring of food security for the people.

4.1.1.5. Implementing agency

Department of Agriculture will implement the project

Table 4.1. Budget for interventions in Paddy

(₹.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
1	Promotion of SRI	Ha	0.15	B1,B2,B3,B5, B6,B10,B14	2770	415.50	2870	430.50	3170	475.50	3520	528.00	3670	550.50	16000	2400.00
2	Distribution of High Yielding Varieties	MT	0.35	All blocks	357	124.95	383	134.05	396	138.60	407	142.45	423	148.05	1966	688.10
3	Distribution of Foundation	MT	0.40	All blocks exceptB3, B9, B10	34	13.60	34.2	13.68	35.4	14.16	35.4	14.16	35.6	14.24	174.6	69.84
4	seed production - Foundation	MT	0.32	B1,B2,B4,B7, B8,B10,B12,B 13	41	13.12	43.7	13.98	46.4	14.85	49.4	15.81	52.1	16.67	232.6	74.43
5	seed production - Certified class	MT	0.26	All blocks except B5	470	122.20	488	126.88	499	129.74	516	134.16	524	136.24	2497	649.22
6	Incentives for paddy machine planting	Ha	0.10	B1, B2, B3, B4, B6, B10, B14	950	95.00	1070	107.00	1130	113.00	1250	125.00	1360	136.00	5760	576.00
7	Distribution of Protray	No	0.00	All Blocks except B5, B8, B12, B13	5100	4.08	5174	4.14	5258	4.21	5307	4.25	5397	4.32	26236	20.99
8	Distribution of MN mixture/ Copper Sulphate	Ha	0.01	All blocks	2015	20.15	2053	20.53	2184	21.84	2237	22.37	2302	23.02	10791	107.91
9	Distribution of biofertilizer / PPFM / bioinputs / plant nutrient mobilizing bacteria	Ha	0.00	All Blocks	2405	7.22	2522	7.57	12402	37.21	22520	67.56	12796	38.39	52645	157.94
10	Distribution of Zinc sulphate (Soil application & foliar)	Ha.	0.01	All Blocks	1295	12.95	1333	13.33	1411	14.11	1489	14.89	1527	15.27	7055	70.55
11	Distribution of biocontrol agents/biopesticid es	Ha..	0.01	All blocks except B5, B7, B9, B11	1470	14.70	1490	14.90	1510	15.10	1530	15.30	1550	15.50	7550	75.50
12	Gypsum application	Ha.	0.02	B1, B8, B10, B12, B13	800	12.00	850	12.75	875	13.13	900	13.50	925	13.88	4350	65.25

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
13	Distribution of herbicides	Ha.	0.01	All blocks except B5, B9	1625	16.25	1655	16.55	1683	16.83	1754	17.54	1790	17.90	8507	85.07
14	Hybrid Rice seed distribution	Ha	0.04	B14	0	0.00	1	0.04	1	0.04	1	0.04	1	0.04	4	0.16
15	Polyvinyl coated Tarpaulin (6m x 5m)	No.	0.02	All Blocks except B2, B9, B10	65	1.30	76	1.52	87	1.74	98	1.96	109	2.18	435	8.70
16	Direct sown paddy with seed drill sowing	Ha	0.07	All Blocks except B6, B9, B14	1000	70.00	1000	70.00	1125	78.75	1300	91.00	1425	99.75	5850	409.50
17	Establishment of community paddy nursery	Ha	0.25	All Blocks	25	6.25	25	6.25	25	6.25	25	6.25	25	6.25	125	31.25
18	Demonstration of drip irrigation	Ha	1.00	All Blocks	20	20.00	20	20.00	20	20.00	20	20.00	20	20.00	100	100.00
	Grand Total					**969.27**		**1013.67**		**1115.05**		**1234.23**		**1258.19**		**5590.41**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musiri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

4.1.2. Millets

4.1.2.1. Enhancing the Millets productivity

Millets are grown mainly under rainfed conditions in Tamilnadu. Maize, sorghum and cumbu are becoming popular in the district in recent times due to huge demand for poultry feed production under the area of 30,509 ha occupying 17.73 percent in total cropped area. However, an overall fall in demand of millets is being often attributed to factors like changing food habits, growing urbanization, increased incomes, and competition from other crops. Therefore, there is scope for increasing the productivity and production of millets through appropriate technologies like distribution of quality seeds, soil health enhancers, plant protection measures and demonstration of technologies.

4.1.2.2. Project components

- Distribution of LPG operated bird scarrer to Manapparai, Marungapuri, Musiri, Thottiyam and Vaiyampatti blocks
- Distribution of MN mixture, liquid carrier/ biofertilizers and herbicides
- Expansion of area under Minor Millets (Demo - supply of seed, seed treatment & MN mixture) in Manapparai, Manikanam, Marungapuri and T.Pet
- Formation of small millet groups in Manikanam, Marungapuri and Vaiyampatti
- Seed Distribution (hybrid seeds) for maize
- Drip irrigation for maize
- Millet Processing unit-Minor millet in Vaiyampatti block

4.1.2.3. Budget

It is proposed to incur **₹.1581.76** lakhs over a period of five years with the finance facilities under the NADP and other sources as shown in Table 4.2.

4.1.2.4. Expected outcome

The expected outcome will be increased area under maize at least 10-15 % with improved varieties along with the package of practices resulting in an increase in the millets production.

4.1.2.5. Implementing Agency

Department of Agriculture will implement the project

Table. 4.2. Budget for interventions in Millets

(₹.in lakhs)

Sl. No.	Components	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	B3,B6,B7, B11,B14	32	3.20	33	3.30	35	3.50	36	3.60	36	3.60	172	17.20
2	Distribution on biofertilizer - Liquid / Carrier	Ha	0.003	B3,B5,B6, B8,B9,B11 ,B12,B13, B14	1775	5.33	1830	5.49	1858	5.57	1940	5.82	1985	5.96	9388	28.16
3	Expansion of area under Minor Millets (Demo - supply of seed, seed treatment, MN mixture & Organic package)	Ha	0.05	B3,B4,B6, B9	630	31.50	760	38.00	800	40.00	865	43.25	915	45.75	3970	198.50
4	Formation of small millet groups	Nos.	0.2	B3,B6,B14	50	10.00	50	10.00	50	10.00	50	10.00	50	10.00	250	50.00
5	Millet Processing unit-Minor millet	Nos.	2.5	B14	5	12.50	5	12.50	5	12.50	5	12.50	5	12.50	25	62.50
6	Seed Production / Incentives for quality seed	MT	0.63	B8,B9,B11 ,B12	8	5.04	8	5.04	9	5.67	13	8.19	13	8.19	51	32.13
7	Soil moisture conservation practices	Ha	0.05	All Blocks	350	17.50	250	12.50	125	6.25	300	15.00	200	10.00	1225	61.25
8	Initiative for Nutritional Security through Intensive Millet Promotion (INSIMP)	ha	0.04	All Blocks	300	12.00	300	12.00	300	12.00	300	12.00	300	12.00	1500	60.00
	Sorghum															
7	Demonstration (Supply of seed, seed treatment, MN mixture & Organic package)	Ha	0.05	B3,B5,B6, B7,B11,B1 2,B13,B14	1050	52.50	1060	53.00	1070	53.50	1080	54.00	1090	54.50	5350	267.50

Sl. No.	Components	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	Distribution of biofertilizers Liquid / Carrier	Ha	0.003	B3,B5,B6, B7,B8,B9. B12,B13, B14	1920	5.76	1974	5.92	2025	6.08	2080	6.24	2165	6.50	10164	30.49
9	Distribution of MN mixture (12.5kg/ha)	Ha	0.007	B3,B5,B6, B7,B9,B11 ,B14	1429	10.00	1475	10.33	1525	10.68	1580	11.06	1645	11.52	7654	53.58
10	Seed distribution	MT	0.7	B3,B6,B7, B11,B14	7	4.90	11	7.70	15	10.50	23	16.10	23	16.10	79	55.30
	Maize															
11	Demonstration (Supply of seed, seed treatment & MN mixture, organic package)	Ha	0.05	B3,B5,B6, B7,B8,B9, B12,B13, B14	714	35.70	725	36.25	745	37.25	865	43.25	885	44.25	3934	196.70
12	Distribution of biofertilizers Liquid / Carrier	Ha	0.003	B3,B5,B6, B7,B8,B9, B12,B13, B14	535	1.61	550	1.65	570	1.71	590	1.77	610	1.83	2855	8.57
13	Distribution of herbicides	Ha	0.008	B3,B6,B7, B8,B12, B13,B14	400	3.20	410	3.28	425	3.40	440	3.52	455	3.64	2130	17.04
14	Distribution of Maize maxim (15 kg/ha)	Ha	0.045	B3,B6,B14	20	0.90	20	0.90	20	0.90	20	0.90	20	0.90	100	4.50
15	Drip irrigation for maize	Ha	1	B3,B6,B7, B11,B14	24	24.00	26	26.00	30	30.00	32	32.00	36	36.00	148	148.00
16	Seed Distribution	MT	0.4	B3,B6,B14	2.2	0.88	3	1.20	4	1.60	4	1.60	5	2.00	18.2	7.28
17	Seed Distribution Hybrid seeds for maize	MT	1.8	B3,B6,B7, B8,B12, B13,B14	6.7	12.06	7.1	12.78	7.5	13.50	7.9	14.22	8.3	14.94	37.5	67.50
	Cumbu															
18	Demonstration (Supply of seed, seed treatment & MN mixture, organic package)	Ha	0.05	B3,B5,B6, B7,B14	175	8.75	190	9.50	205	10.25	215	10.75	230	11.50	1015	50.75

Sl. No.	Components	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
19	Distribution of biofertilizers Liquid / Carrier	Ha	0.003	B3,B5,B6, B7,B9,B14	245	0.74	310	0.93	385	1.16	470	1.41	544	1.63	1954	5.86
20	Distribution of MN mixture (12.5kg/ha)	Ha	0.007	B3,B6,B7, B9.B14	127	0.89	142	0.99	157	1.10	179	1.25	204	1.43	809	5.66
21	Seed Distribution	MT	0.53	B3,B6,B7, B14	0.305	0.16	1.1	0.58	1.5	0.80	1.7	0.90	2.1	1.11	6.705	3.55
	Ragi															
22	Demonstration (supply of seed, seed treatment & MN mixture)	Ha	0.05	B3,B6,B14	45	2.25	55	2.75	65	3.25	75	3.75	85	4.25	325	16.25
23	Distribution of biofertilizers Liquid / Carrier	Ha	0.003	B3,B6,B14	45	0.14	55	0.17	65	0.20	75	0.23	85	0.26	325	0.98
24	Distribution of MN mixture	Ha	0.007	B3,B6,B14	5	0.04	5	0.04	5	0.04	5	0.04	5	0.04	25	0.18
25	Seed distribution	MT	0.66	B3,B6,B14	20.1	13.27	30.1	19.87	40.1	26.47	50.1	33.07	60.1	39.67	200.5	132.33
	Total					**274.79**		**292.66**		**307.85**		**346.41**		**360.04**		**1581.76**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musiri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

4.1.3. Pulses

4.1.3.1. Enhancing the productivity of pulses

Pulses are part of a healthy, balanced diet and have been shown to have an important role in preventing illnesses. Pulses are a low-fat source of protein, with a high fibre content and low glycemic index. The black gram and regram are the major pulses. The area under black gram in Tiruchirappalli district is 5968 ha with a productivity of 690 kg/ha. In this context, increasing the productivities of pulses gains importance. To increase the productivities of pulses through field demonstration, supply of high yielding variety seeds and adoption of improved package of practices.

4.1.3.2. Project components

- Distribution of certified seeds to all blocks except T.Pet
- DAP Spray to all blocks except Pullambadi, Thuraiyur and Uppiliyapuram
- Distribution of Biofertilizer (Rhizobium + Phosphobacteria) - Liquid / Carrier to all blocks except T.Pet
- Distribution of Micro Nutrients(5 kgs/ Ha), Pulse wonder - 5 kg/ha, Yellow sticky trap /pheromone trap, Plant Protection Chemicals, weedicide
- Seed treatment and soil application with *Trichoderma viridi*
- Promotion of Redgram Transplantation for nursery preparation
- Pure crop demonstration - Black gram and green gram
- Bund Cropping and line sowing

4.1.3.3. Budget

It is proposed to incur ₹.**1821.62** lakhs over a period of five years with the finance facilities under the NADP and other sources as shown in Table 4.3

4.1.3.4. Expected outcome

The project will result in increased area under pulse with improved varieties along with the package of practices resulting in an increase in the pulse productivity and production.

4.1.3.5. Implementing Agency

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

Table 4.3. Budget requirement for Pulses

(₹.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	65	55.90	82	70.09	89	76.11	103	88.15	112	95.89	449	386.14
2	Distribution of Certified Seeds	MT	100000	All blocks except B9	67	67.00	84	83.50	92	92.00	105	104.50	114	114.00	461	461.00
3	Distribution of Gypsum	ha	400	B3,B6,B10,B14	450	1.80	510	2.04	580	2.32	640	2.56	710	2.84	2890	11.56
4	Distribution of Biofertilizer/ Organic packages (Rhizobium + Phosphobacteria) - Liquid / Carrier	Ha	600	All blocks except B9	1670	10.02	1820	10.92	1925	11.55	2056	12.34	2202	13.21	9673	58.04
5	Distribution of Micro Nutrients(5 kgs/ Ha)	Ha	350	B1,B2,B3,B4,B5, B6,B7,B10,B11, B14	1205	4.22	1260	4.41	1405	4.92	1466	5.13	1567	5.48	6903	24.16
6	DAP Spray	Ha	700	B1,B2,B3,B4,B5, B6,B7,B9,B10,B11,B14	1775	12.43	1900	13.30	2080	14.56	2256	15.79	2379	16.65	10390	72.73
7	Pulse wonder - 5 kg/ha	Ha	1000	B3,B6,B7,B10,B11,B14	550	5.50	615	6.15	680	6.80	751	7.51	807	8.07	3403	34.03
8	Bund Cropping	Ha	300	B1,B2,B3,B4,B5, B6,B7,B8,B10,B11,B12,B13,B14	1090	3.27	1218	3.65	1296	3.89	1414	4.24	1512	4.54	6530	19.59
9	Line sowing	Ha	2250	All blocks	625	14.06	726	16.34	837	18.83	948	21.33	1104	24.84	4240	95.40
10	Distribution of Yellow sticky trap /pheromone trap	ha	1000	B3,B6,B7,B8,B10 ,B11,B12,B13, B14	290	2.90	318	3.18	346	3.46	374	3.74	402	4.02	1730	17.30
11	Cropping system based demonstration	Ha	12500	B1,B3,B4,B6,B7, B8,B11,B12,B13, B14	357	44.63	412	51.50	432	54.00	437	54.63	447	55.88	2085	260.63
12	Distribution of weedicide	Ha	1000	B3,B6,B7,B11, B14	250	2.50	278	2.78	326	3.26	374	3.74	422	4.22	1650	16.50
13	Plant Protection Chemicals	Ha	1000	B1,B2,B3,B4,B6, B7,B10,B11,B14	675	6.75	783	7.83	881	8.81	969	9.69	1063	10.63	4371	43.71

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
14	Seed treatment and soil application with Trichoderma viridi	Ha	700	B3,B6,B7,B9,B10 ,B11,B14	440	3.08	505	3.54	590	4.13	691	4.84	777	5.44	3003	21.02
15	Pure crop demonstration - Black gram and green gram	Ha	6300	B2,B3,B5,B6,B7, B10,B11,B14	372	23.44	410	25.83	437	27.53	577	36.35	615	38.75	2411	151.89
16	Demonstration on intercropping of pulses with other crops	Ha	8300	B3,B5,B6,B7,B8, B11,B12,B13	247	20.50	266	22.08	285	23.66	310	25.73	328	27.22	1436	119.19
17	Demonstration on pulses production	Ha	8250	B3,B5,B6,B14	4	0.33	10	0.83	14	1.16	18	1.49	22	1.82	68	5.61
18	Promotion of Redgram Transplantation for nursery preparation	Ha	5000	B3,B5,B6,B14	12	0.60	16	0.80	20	1.00	24	1.20	28	1.40	100	5.00
19	Seed treatment with chemicals	Ha	250	B5,B6,B7,B8,B10 ,B11,B12,B14	2000	5.00	1100	2.75	1225	3.06	1400	3.50	1525	3.81	7250	18.13
	Total					**283.92**		**331.51**		**361.04**		**406.45**		**438.71**		**1821.62**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musiri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

4.1.4. Oilseeds

4.1.4.1. Enhancing the productivity of oilseeds

Oilseeds form a major part of the agricultural produces and also part in life of human beings. Oilseeds crops are cultivated under rainfed conditions; their productivity is low. However, as their outputs fetch higher prices in the market, farmers could get more income, if they obtain more yields from oilseed crops. Therefore, it is necessary to provide the needed assistance to the farmers by way of subsidized inputs and promotion of new technology. Groundnut is mainly cultivating as oilseed in this district. Now a days the oil palm becoming a popular oilseed. Therefore, it is necessary to provide the needed assistance to the farmers by way of integrated approach technologies and promotion of technologies for increasing the productivity of oilseeds.

4.1.4.2. Project components

- Production of foundation seeds
- Distribution of certified seeds
- Distribution of liquid biofertilizer, Rhizobium/ PSB Culture and pheromone traps
- Establishment of castor as bund crop in all blocks except Andanallur, Lalkudi, Manikandam, Pullambadi and Thiruverumbur blocks
- Distribution of power operated groundnut stripper to Musiri block and power operated groundnut decoticator to Thottiyam block
- Seed Drill Sowing / Line sowing of Groundnut with Pulses as intercrop and Seed drill Sowing of Groundnut with Redgram as Intercrop
- Distribution of gypsum and Seed Treatment Chemicals and Bioagents (T.Viridi)

4.1.4.3. Budget

It is proposed to incur ₹.**2557.53** lakhs over a period of five years with the finance facilities under the NADP and other sources as shown in Table 4.4.

4.1.4. Expected outcome

There will be an increasing the oilseed especially groundnut yield per hectare. The oilseed area would also increase from 15 to 20 per cent from the exiting area especially Groundnut and oil palm in this district.

4.1.5. Implementing Agency

Department of Agriculture will implement the project.

Table 4.4. Budget requirement for oilseeds

(₹.in lakhs)

Sl. No	Components	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	**OILSEEDS**															
1	Polythene mulch Inclusive of erection	Ha	0.5	B3,B6,B7,B11, B12,B13,B14	53	26.50	64	32.00	71	35.50	83	41.50	90	45.00	361	180.50
2	Herbicide	Ha	0.01	B3,B6,B7,B11, B14	340	3.40	370	3.70	400	4.00	433	4.33	461	4.61	2004	20.04
3	Light trap (NCIPM)	Nos.	0.01	B3,B6,B7,B11, B12,B13,B14	300	3.00	335	3.35	370	3.70	408	4.08	456	4.56	1869	18.69
4	Bio pesticide/fungicide	Ha	0.01	B3,B5,B6,B22, B12,B13,B14	315	3.15	345	3.45	370	3.70	401	4.01	452	4.52	1883	18.83
5	Compact Block Demonstration-Groundnut	Ha	0.2	B3,B6,B7,B14	70	14.00	86	17.20	102	20.40	118	23.60	135	27.00	511	102.20
6	Compact Block Demonstration-Gingelly / Castor	Ha	0.06	B3,B6,B11	24	1.44	28	1.68	34	2.04	41	2.46	45	2.70	172	10.32
7	Compact Block Demonstration-Sunflower	Ha	0.08	All Blocks	22	1.76	27	2.16	32	2.56	37	2.96	42	3.36	160	12.80
	GROUNDNUT															
8	Strengthening seed chain by foundation seed production	Mt	0.76	B3,B6,B7,B9, B11,B12,B13, B14	25.5	19.38	31	23.56	36	27.36	41.5	31.54	48	36.48	182	138.32
9	Seed Production - certified seeds	Mt	0.73	B3,B5,B6,B7, B9,B11,B12,B13,B14	107.5	78.48	116.5	85.05	132.5	96.73	144.5	105.49	158.5	115.71	659.5	481.44
10	Distribution of Certified seeds	Mt	0.84	B3,B5,B6,B7, B9,B11,B12,B13,B14	83	69.72	89.5	75.18	95.5	80.22	102.5	86.10	112.5	94.50	483	405.72
11	Distribution of Seed Treatment Chemicals and Bioagents	Kg	0.0015	B3,B6,B7,B11, B12,B13,B14	780	1.17	855	1.28	952	1.43	1040	1.56	1160	1.74	4787	7.18

Sl. No	Components	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
	(T.Viridi)															
12	Application of Gypsum to Groundnut Crop	Ha	0.016	B3,B6,B7,B11, B12,B13,B14	880	14.08	935	14.96	1011	16.18	1094	17.50	1170	18.72	5090	81.44
13	Distribution of Micro Nutrient Mixture	Ha	0.015	B3,B6,B7,B11, B12,B13,B14	440	6.60	475	7.13	530	7.95	591	8.87	650	9.75	2686	40.29
14	Distribution of Biofertilizer	Ha	0.006	B3,B6,B7,B11, B12,B13,B14	612	3.67	631	3.79	650	3.90	675	4.05	706	4.24	3274	19.64
15	Distribution of Liquid Biofertilizer	Ha	0.006	B3,B5,B5,B7, B9,B11,B12, B13,B14	508	3.05	559	3.35	610	3.66	667	4.00	744	4.46	3088	18.53
16	Distribution of Rhizobium/ PSB Culture	Ha	0.006	B3,B6,B11,B14	202	1.21	213	1.28	222	1.33	232	1.39	240	1.44	1109	6.65
17	Distribution of Pheromone Traps	Nos.	0.02	B3,B6,B7,B14	122	2.44	136	2.72	150	3.00	169	3.38	188	3.76	765	15.30
18	Distribution of Light Traps	Nos.	0.02	B3,B6,B7,B11, B14	180	3.60	195	3.90	212	4.24	226	4.52	241	4.82	1054	21.08
19	Castor as Bund crop	Ha	0.006	B3,B5,B6,B7, B9,B11,B12,B13,B14	148	0.89	182	1.09	206	1.24	335	2.01	389	2.33	1260	7.56
20	Combined Nutrient Spray	Ha	0.015	B3,B5,B6,B7, B11,B12,B13	420	6.30	495	7.43	568	8.52	646	9.69	724	10.86	2853	42.80
21	Seed Drill Sowing / Line sowing of Groundnut with Pulses as intercrop(hiring charges only)	Ha	0.03	B3,B6,B7,B11, B13	400	12.00	435	13.05	470	14.10	511	15.33	555	16.65	2371	71.13
22	Seeddrill Sowing of Groundnut with Redgram as Intercrop	Ha	0.04	B11	100	4.00	105	4.20	110	4.40	116	4.64	125	5.00	556	22.24
23	Distribution of Power Operated Groundnut Stripper	Nos.	1.3	B7	25	32.50	30	39.00	30	39.00	35	45.50	40	52.00	160	208.00
24	Distribution of Power operated	Nos.	1	B11	5	5.00	5	5.00	5	5.00	5	5.00	5	5.00	25	25.00

Sl. No	Components	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
	Groundnut Decorticator															
	GINGELLY															
25	Production of Foundation Seeds	Mt	1.13	B2	0.5	0.57	0.5	0.57	0.6	0.68	0.6	0.68	0.6	0.68	2.8	3.16
26	Production of Certified Seeds	Mt	1.09	B2	1	1.09	1.25	1.36	1.25	1.36	1.5	1.64	1.5	1.64	6.5	7.09
27	Distribution of certified seeds	Mt	1.25	B2	1.5	1.88	1.5	1.88	1.5	1.88	1.5	1.88	1.75	2.19	7.75	9.69
	CASTOR															
28	Production of Foundation Seeds	Mt	0.52	B8	0.5	0.26	0.5	0.26	0.5	0.26	0.5	0.26	0.5	0.26	2.5	1.30
29	Production of Certified Seeds	Mt	0.5	B8	1	0.50	1	0.50	1	0.50	1	0.50	1	0.50	5	2.50
30	Distribution of certified seeds	Mt	0.58	B8	1.5	0.87	1.5	0.87	1.5	0.87	1.5	0.87	1.5	0.87	7.5	4.35
	Total					**423.25**		**411.68**		**546.44**		**540.08**		**636.09**		**2557.53**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musiri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

4.1.5. Oil palm

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 Manikandam, Musiri, T.Pet and Thottiyam blocks
- Inputs for intercropping
- Supply of diesel pumps to Musiri and Thuraiyur blocks
- Supply of aluminium ladder, wire mesh and oil palm cuter to Musiri, Manikandam and Thottiyam blocks
- Distribution of motorized chisel to Musiri block
- Construction of borewells to Musiri and Thottiyam blocks

Budget

It is proposed to incur ₹.874.25 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 4.5. Budget requirement for oilpalm

(₹.in lakhs)

Sl. No	Components	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	B4,B7,B9,B11	15	2.10	16	2.24	22	3.08	24	3.36	26	3.64	103	14.42
3	Cultivation maintenance	Ha	0.1	B4,B7,B9, B11,B12,B13	17	1.70	19	1.90	24	2.40	27.5	2.75	29	2.90	116.5	11.65
4	Inputs for Intercropping	Ha	0.1	B4,B7,B9, B11,B12,B13	17	1.70	21	2.10	28	2.80	36.5	3.65	38	3.80	140.5	14.05
5	Supply of Diesel pumps	No	0.3	B7,B11	6	1.80	6	1.80	11	3.30	9	2.70	11	3.30	43	12.90
6	Construction of Borewells	No	1	B7,B11	6	6.00	6	6.00	11	11.00	9	9.00	11	11.00	43	43.00
7	Motorised Chisel	No	0.2	B7	5	1.00	5	1.00	10	2.00	8	1.60	10	2.00	38	7.60
8	Alumium portable ladder	No	0.06	B7	5	0.30	5	0.30	10	0.60	8	0.48	10	0.60	38	2.28
9	Wire mesh	No	0.1	B7,B11	1430	143.00	1500	150.00	1540	154.00	1579.5	157.95	1620	162.00	7669.5	766.95
10	Oilpalm Cutter	No	0.03	B4,B7	6	0.18	6	0.18	11	0.33	11.5	0.35	12	0.36	46.5	1.40
	Total					**157.78**		**165.52**		**179.51**		**181.84**		**189.60**		**874.25**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musiri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

4.1.6 Enhancing cotton productivity in Trichy district

Cotton is an important commercial crop which grown in the black soil areas of the district. In Tirunelveli district cotton crop grown in an area of 4770 ha and the yield of lint is around 186 kg/ha. It is a highly remunerative crop which requires much care in pest and disease management. The reduction in the area under cotton is mainly due to the increased cost of cultivation because of the high cost of labor and plant protection in the cultivation of cotton. However, adoption of improved package of practices by the farmers with the use of quality seeds, bio-fertilizers and micronutrient mixture, is the important concern for improvement of cotton yield.

Project components

- Demonstration of IPT in Manapparai, Musiri, Pullambadi, Thuraiyur, Uppiliyapuram and Vaiyampatti blocks
- Distribution of biofertilizer, biopesticides / Bio agents, weedicides and MN mixture
- Distribution of cotton picking machine to Thottiyam block
- Frontline Demo on Desi and ELS cotton seed production in Vaiyampatti block
- Promotion of precision farming in cotton –WSF in Vaiyampatti block
- Trials on High Density Planting system in cotton in Vaiyampatti block
- Exposure visits and training
- Soil reclamation with gypasum in Mannachanallur block

Budget

The budget requirement for fulfilling the various interventions is ₹ 495.72 Lakhs.

Expected Outcome

The implementation of the project will result in an increase of 10 per cent in the yield and production of cotton. This will help the textile units and to supply more of raw material for their products.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.6. Budget requirement for cotton

(₹.in lakhs)

Sl. No	Components	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	Demonstration of IPT	Ha	15000	B3,B7,B8, B12,B13,B14	18	2.70	19	2.85	20	3.00	26	3.90	32	4.80	115	17.25
2	Distribution of biofertilizer	Ha	300	B3,B5,B7,B8, B11,B12,B13,B14	580	1.74	595	1.79	610	1.83	625	1.88	640	1.92	3050	9.15
3	Distribution of biopesticides / Bio agents	Ha	1000	B3,B5,B7,B8, B11,B12,B13,B14	420	4.20	429	4.29	440	4.40	445	4.45	460	4.60	2194	21.94
4	Distribution of cotton picking machine	No	5000	B11	20	1.00	22	1.10	23	1.15	28	1.40	33	1.65	126	6.30
5	Distribution of MN Mixture	Ha	1000	B3,B7,B8,B11, B12,B13,B14	390	3.90	397	3.97	405	4.05	410	4.10	420	4.20	2022	20.22
6	Distribution of Pheromone trap	No	6000	B3,B7,B8, B12,B13,B14	190	11.40	192	11.52	195	11.70	200	12.00	210	12.60	987	59.22
7	Distribution of PP chemicals	Ha	1000	B3,B5,B7,B8, B11,B12,B13,B14	245	2.45	257	2.57	265	2.65	270	2.70	285	2.85	1322	13.22
8	Distribution of Yellow Sticky trap	No	3000	B7,B8,B11,B12,B13	165	4.95	165	4.95	165	4.95	170	5.10	175	5.25	840	25.20
9	Exposure visits	No	40000	B7,B8,B12, B13,B14	8	3.20	7	2.80	7	2.80	7	2.80	7	2.80	36	14.40
10	Farmers training	No	20000	B7,B8,B12, B13,B14	5	1.00	4	0.80	4	0.80	4	0.80	4	0.80	21	4.20
11	Field days	No	10000	B7,B8,B12, B13,B14	5	0.50	4	0.40	4	0.40	4	0.40	4	0.40	21	2.10
12	Intercropping with pulses	Ha	10000	B3,B7,B8, B12,B13,B14	18	1.80	25	2.50	28	2.80	35	3.50	43	4.30	149	14.90
13	Promotion of precision farming in cotton -WSF	Ha	50000	B14	5	2.50	5	2.50	5	2.50	5	2.50	5	2.50	25	12.50
14	Soil reclamation with gypsum	Ha	1000	B5	5	0.05	5	0.05	10	0.10	10	0.10	10	0.10	40	0.40
15	Frontline demo on ICM in cotton	Ha	7000	B7,B14	2	0.14	1	0.07	1	0.07	1	0.07	1	0.07	6	0.42
16	Frontline Demo on Desi and ELS cotton seed production	Ha	8000	B14	1	0.08	1	0.08	1	0.08	1	0.08	1	0.08	5	0.40

Sl. No	Components	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
17	Trials on High Density Planting system in cotton	Ha	9000	B14	2	0.18	2	0.18	2	0.18	2	0.18	2	0.18	10	0.90
18	Application of weedicide	Ha	3000	B8,B12,B13,B14	310	9.30	310	9.30	310	9.30	310	9.30	310	9.30	1550	46.50
19	Spraying of growth regulator	Ha	3000	B8,B12,B13,B14	160	4.80	160	4.80	160	4.80	160	4.80	160	4.80	800	24.00
20	Topping of cotton	Ha	1000	B8,B12,B13,B14	300	3.00	300	3.00	300	3.00	300	3.00	300	3.00	1500	15.00
21	Summer ploughing	Ha	7500	B8,B12,B13,B14	500	37.50	500	37.50	500	37.50	500	37.50	500	37.50	2500	187.50
	Total					**96.39**		**97.02**		**98.06**		**100.56**		**103.70**		**495.72**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musiri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

4.1.7. Enhancing sugarcane productivity in Trichy district

Sugarcane was grown in an area of 3000 ha and it occupies a less place in the Tirunelveli district in terms of production and productivity. The major varieties grown are COC6304 and COC86032 and the yield is around 64 tonnes/ha. To increase the production and productivity, sustainable sugarcane initiative and enrichment of soil fertility through sugarcane thrash mulching is implemented. Supply of quality sets and implementing sustainable sugarcane initiative is very important to enhance the sugarcane yield in the district.

Project components

1. Trash mulching
2. Distribution of gypsum, bio-fertilizer and weedicide to all blocks except T.Pet, Thiruverumbur and Thottiyam blocks
3. Distribution of $FeSO_4$ and $ZnSO_4$ for spray in all blocks except t.Pet, Thiruverumbur and Thottiyam blocks
4. Distribution of portray and sugarcane booster
5. Establishment of shadenet in Musiri, Pullambadi, T.Pet, Thuraiyur and Uppiliyapuram blocks
6. Distribution of single bud seedlings
7. Demonstration on intercropping in sugarcane
8. Distribution of Sugarcane Harvester

Budget

The budget requirement for fulfilling the various interventions is ₹ **466464.92** Lakhs.

Expected outcome

Trash mulching techniques will improve the soil heath and nutrient status. Hence assurance of nutritional sustainability will be kept. The timely supply of inputs will increase the production and productivity of sugarcane.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.7. Budget requirement for sugarcane

(₹.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
1	Disribution of Gypsum (500 Kg/Ha)	Ha	0.02	B1,B2,B3,B4, B5,B6,B7,B8. B12, B13,B14	155	3.10	155	3.10	155	3.10	155	3.10	155	3.10	775	15.50
2	Distri. of biofertilizer (Ha)	Ha	0.006	B1,B2,B3,B4, B5,B6,B7,B8. B12, B13,B14	155	0.93	155	0.93	155	0.93	155	0.93	155	0.93	775	4.65
3	Distri. of weedicide (Ha)	Ha	0.01	B1,B2,B3,B4, B5,B6,B7,B8. B12, B13,B14	230	2.30	230	2.30	230	2.30	230	2.30	230	2.30	1150	11.50
4	Distribution of Chip Cutter	Nos	0.05	B4,B6,B7,B8, B12,B13,B14	36	1.80	36	1.80	36	1.80	36	1.80	36	1.80	180	9.00
5	Distribution of FeSO4 Spray	Ha	0.005	B1,B2,B3,B4, B5,B6,B7,B8. B12, B13,B14	155	0.78	155	0.78	155	0.78	155	0.78	155	0.78	775	3.88
6	Distribution of ZnSO4 Spray	Ha	0.005	B1,B2,B3,B4, B5,B6,B7,B8. B12,B13,B14	155	0.78	155	0.78	155	0.78	155	0.78	155	0.78	775	3.88
7	Distribution of Micro Nutrient Mixture	Ha	0.02	B1,B2,B3,B5, B6,B7,B8.B12, B13,B14	145	2.90	145	2.90	145	2.90	145	2.90	145	2.90	725	14.50
8	Distribution of Parasite Trichogramma	Ha	0.00125	B1,B8,B12,B13,B14	75	0.09	75	0.09	75	0.09	75	0.09	75	0.09	375	0.47
9	Distribution of Protray (2500 nos/ha)	Nos	0.0008	B8,B11,B12, B13	10000	8.00	10000	8.00	10000	8.00	10000	8.00	10000	8.00	50000	40.00
10	Distribution of Sugarcane Booster (10 Kg/Ha)	Ha	0.035	B1,B2,B4,B5, B6,B7,B14	60	2.10	60	2.10	60	2.10	60	2.10	60	2.10	300	10.50
11	Distribution of Sugarcane Harvester	Nos	75	B4,B5,B6,B7, B14	40	3000.00	40	3000.00	40	3000.00	40	3000.00	40	3000.00	200	15000.00

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
12	Distribution of Water Soluble Fertiliers	ha	0.25	B1,B2,B4,B5, B6,B7,B8.B12, B13,B14	205	51.25	205	51.25	205	51.25	205	51.25	205	51.25	1025	256.25
13	Microirrigation - Drip (1.2x0.6)	ha	1.24	B7,B8,B9,B11, B12,B13	105	130.20	110	136.40	112	138.88	125	155.00	130	161.20	582	721.68
	Sustainable Sugarcane Initiative (SSI)															
14	A. Establishment of Shadenet	Nos	1.5	B7,B8,B9,B11, B12,B13	20	30.00	23	34.50	25	37.50	27	40.50	29	43.50	124	186.00
15	B.Distribution of Single Bud Seedling	Ha	0.225	B7,B8,B9,B11, B12,B13	400108	90024.30	400111	90024.99	400164.1	90036.92	400167	90037.61	400170	90038.30	2000721	450162.12
16	Trash Mulching	Ha	0.04	B1,B2,B8,B12, B13	55	2.20	55	2.20	55	2.20	55	2.20	55	2.20	275	11.00
17	Demonstration on intercropping in Sugarcane	Ha	0.08	B1,B8,B12, B13	35	2.80	35	2.80	35	2.80	35	2.80	35	2.80	175	14.00
	Grand Total					**93263.52**		**93274.91**		**93292.33**		**93312.13**		**93322.02**		**466464.92**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musiri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

4.1.8 Enhancing coconut productivity in Trichy district

Tiruchirappalli district has an area of 6512 ha under coconut cultivation and accounted for 4.31 per cent of the area in total cropped area and production of 17963 lakh nuts. Increase in yield can be obtained by way of introducing high yielding varieties/hybrids, incorporation of micronutrient mixtures, removal of wilt infected plants from existing coconut gardens.

Project components

- Distribution of quality hybrid seedlings to all blocks except T.Pet
- Distribution of power operated coconut leaf shredder to Manapparai, Marungapuri and Vaiyampatti blocks
- Control of slug caterpillar in Vaiyampatti block
- Distribution of MN mixture and Pheromone traps for Red palm weevil/ Rhinocerous beetle
- Distribution of power operated rocker sprayer to Manapparai, Marungapuri and Vaiyampatti blocks
- Distribution of Solar copra drier to Musiri block
- Intercropping with green manures to all blocks except Lalkudi, Mannachanallur, t.Pet and Thiruverumbur blocks
- Training on neera production in Marungapuri block
- Management of Black headed caterpillar in Andanallur, Musiri and Vaiyampatti blocks
- Replanting and Rejunation of coconut gardens in Andanallur, Musiri and Vaiyampatti blocks
- corpus fund release for FPG to all blocks

Budget

It is proposed to incurred **₹.11037.80** lakhs over a period of five years with the finance facilities under the NADP.

Expected outcome

The project outcome will result in an increase in the yield and production of coconut.

Implementing Agency

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

Table 4.8. Budget requirement for Coconut

(₹.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
1	Distribution of T x D hybrid seedlings	No	0.0006	All blocks except B9	8050	4.83	8855	5.31	9465	5.68	10070	6.04	10700	6.42	47140	28.28
2	Distribution of Tall Seedlings	No	0.0004	All blocks except B9	8020	3.21	8855	3.54	9490	3.80	10070	4.03	10750	4.30	47185	18.87
3	Boom sprayer	No	0.2	B1,B3,B4,B6 ,B7,B14	15	3.00	22	4.40	24	4.80	26	5.20	28	5.60	115	23.00
4	Distribution of D xT hybrid Seedlings	No	0.0015	B3,B6,B14	300	0.45	320	0.48	340	0.51	360	0.54	400	0.60	1720	2.58
5	Distribution of power operated coconut leaf shredder	No	0.6	B7	5	3.00	10	6.00	10	6.00	10	6.00	10	6.00	45	27.00
6	Distribution of MN mixture	Ha	0.1	All blocks except B2,B5,B9, B10	405	40.50	425	42.50	445	44.50	465	46.50	485	48.50	2225	222.50
7	Distribution of Pheromone traps for Red palm weevil/ Rhinocerous beetle	Ha	0.016	B1,B3,B4,B6 ,B7,B11, B14	185	2.96	205	3.28	225	3.60	245	3.92	265	4.24	1125	18.00
8	Distribution of power operated rocker sprayer	No	0.1	B3,B6,B14	15	1.50	17	1.70	19	1.90	21	2.10	23	2.30	95	9.50
9	Distribution of Solar copra drier	No	0.2	B7	1	0.20	0	0.00	0	0.00	0	0.00	0	0.00	1	0.20
10	Distribution of tree climbers	No	0.15	B1,B4,B7,B8 ,B12,B13, B14	17	2.55	15	2.25	15	2.25	15	2.25	15	2.25	77	11.55
11	Drip irrigation	Ha	0.35	B7,B11,B14	25	8.75	30	10.50	30	10.50	30	10.50	30	10.50	145	50.75

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
12	Intercropping with green manures	Ha	0.03	All blocks except B2,B5,B9, B10	395	11.85	415	12.45	435	13.05	455	13.65	475	14.25	2175	65.25
13	Management of Black headed caterpillar	Ha	0.05	B1,B7,B14	40	2.00	40	2.00	40	2.00	40	2.00	40	2.00	200	10.00
14	Replanting and Rejunation of coconut gardens	Ha	0.45	B1,B7,B14	25	11.25	25	11.25	25	11.25	25	11.25	25	11.25	125	56.25
15	Demonstration on Integrated fertiliser management	Ha	0.75	B3,B6,B7,B8 ,B12,B13, B14	19	14.25	21	15.75	23	17.25	25	18.75	27	20.25	115	86.25
16	Distribution of coconut seedlings to school children	No	0.0004	B3,B6,B8, B12,B13,B14	2502	1.00	2504	1.00	2506	1.00	2508	1.00	2510	1.00	12530	5.01
17	Control of Eriophid mite	No. of tree	0.0002	B3,B6,B14	3000	0.60	3400	0.68	3800	0.76	4200	0.84	4600	0.92	19000	3.80
18	Establishment of Neera processing unit	No	600	B6,B14	2	1200.00	3	1800.00	3	1800.00	2	1200.00	1	600.00	11	6600.00
19	Control of slug caterpillar	No. of tree	0.0003	B14	1000	0.30	1000	0.30	1000	0.30	1000	0.30	1000	0.30	5000	1.50
20	Training on neera production	Batc hes	0.25	B6	876	219.00	1751	437.75	2626	656.50	3501	875.25	4376	1094.00	13130	3282.50
21	corpus fund release for FPG (2000 nos.)	No	5	All blocks	75	375.00	7	35.00	7	35.00	7	35.00	7	35.00	103	515.00
	Grand Total					**1906.20**		**2396.15**		**2620.65**		**2245.12**		**1869.68**		**11037.80**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musiri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

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

1. State level trainings to Extension officials
2. State level and interstate level training programmes to farmers
3. Traning to farmers with in the district
4. Exposure visits

Budget

It is proposed to incur **₹. 2083.30 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

(₹.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
	Training of Farmers															
1	Inter State Training of Farmers	Nos.	1.25	All Blocks	14	17.50	28	35.00	42	52.50	56	70.00	70	87.50	210	262.50
2	Inter State Training of Farmers	Nos.	1.75	All Blocks	14	24.50	28	49.00	42	73.50	56	98.00	70	122.50	210	367.50
3	Training of 536 Groups of Seed Village Farmers in quality Seed Production technology.	Nos.	0.1	All Blocks	28	2.80	42	4.20	56	5.60	70	7.00	84	8.40	280	28.00
4	Training of Farmers under Mission Soil Health Card	Nos.	0.15	All Blocks	28	4.20	42	6.30	56	8.40	70	10.50	84	12.60	280	42.00
5	With in the district training of Farmers	Nos.	0.1	All Blocks	69	6.90	84	8.40	98	9.80	112	11.20	126	12.60	489	48.90
	With in the State training of Farmers	Nos.	1.2	All Blocks	69	82.80	84	100.80	98	117.60	112	134.40	126	151.20	489	586.80
	Training of Farmers With in the district															
6	Awareness campaigns	Nos.	0.1	All Blocks	140	14.00	154	15.40	168	16.80	182	18.20	196	19.60	840	84.00
7	Groundnut	Nos.	0.1	All Blocks	70	7.00	84	8.40	98	9.80	112	11.20	126	12.60	490	49.00
8	IFS	Nos.	0.1	All Blocks	28	2.80	42	4.20	56	5.60	70	7.00	84	8.40	280	28.00
9	Major & Minor Millets	Nos.	0.1	All Blocks	70	7.00	84	8.40	98	9.80	112	11.20	126	12.60	490	49.00
10	Moisture conservation practices	Nos.	0.1	All Blocks	28	2.80	42	4.20	56	5.60	70	7.00	84	8.40	280	28.00
11	oil Palm	Nos.	0.1	All Blocks	14	1.40	28	2.80	42	4.20	56	5.60	70	7.00	210	21.00
12	Organic cultivation practices	Nos.	0.1	All Blocks	28	2.80	42	4.20	56	5.60	70	7.00	84	8.40	280	28.00
13	Paddy	Nos.	0.1	All Blocks	70	7.00	84	8.40	98	9.80	112	11.20	126	12.60	490	49.00
14	Pulses	Nos.	0.1	All Blocks	70	7.00	84	8.40	98	9.80	112	11.20	126	12.60	490	49.00
15	Value addition training	Nos.	0.1	All Blocks	28	2.80	42	4.20	56	5.60	70	7.00	84	8.40	280	28.00

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
16	**Exposure visit of Farmers**															
	Rodent Pest Management Demonstration	Nos.	0.04	All Blocks	280	11.20	294	11.76	308	12.32	322	12.88	336	13.44	1540	61.60
17	With in State Exposure visit	Nos.	0.4	All Blocks	56	22.40	70	28.00	84	33.60	98	39.20	112	44.80	420	168.00
18	Organisation of Kisan gosthies on Soil test based nutrient application (Campaign)	Nos.	0.15	All Blocks	28	4.20	42	6.30	56	8.40	70	10.50	84	12.60	280	42.00
19	With in the district exposure visit	Nos.	0.15	All Blocks	56	8.40	70	10.50	84	12.60	98	14.70	112	16.80	420	63.00
	TOTAL					**239.50**		**328.86**		**416.92**		**504.98**		**593.04**		**2083.30**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musiri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

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 andadopting 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.

Establishment of Laboratories

Quality control is the process of checking the quality of the material against the standard set by the organizations and if the material does not match with the standards, then suchmaterial is said to be substandard. Quality control laboratories are being established by the Government with an intention to supply quality inputs viz., seed, fertilizers andpesticide and services like soil testing to the farmers. To have effective quality control of inputs, quality inspectors are to be appointed.

The Agricultural Research - NABL Accreditation lab, Organic Fertilizer Testing laboratory, Bio-Fertilizer Quality Control Laboratory, Pesticide Residual Laboratory and laboratory for leaf analysis for selective nutrient application, Soil Testing Laboratory and Fertilizer Control Laboratory, Strengthening of Mobile Soil Testing Laboratory for Ensuring Soil Health were proposed.

The major interventions are

1. Additional Seed Godown and Bag closure
2. Establishment of Thrashing floor/drying yard

Budget

It is proposed to incur **₹. 615 lakhs** over a period of five years with the finance facilities under the NADP and other sources.

Expected outcome

The projects will provide better facility 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 4.10. Budget requirement for Infrastructure

(₹.in lakhs)

Sl. No	Components	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	Seed godown (300 MT)	Nos.	2500000	B3, B5	2	50.00	0	0.00	0	0.00	0	0.00	0	0.00	2	50.00
2	Establishment of Threshing floor/drying yard	Nos.	500000	B3, B5, B14	3	15.00	0	0.00	0	0.00	0	0.00	0	0.00	3	15.00
3	Strengthening of training institute / nursery / FTC / KVK	Nos.	50000000	All Blocks	0	0.00	0	0.00	1	500.00	0	0.00	0	0.00	1	500.00
4	Infrastructure for empowerment of coconut nurseries	Nos.	5000000	All Blocks	0	0.00	1	50.00	0	0.00	0	0.00	0	0.00	1	50.00
	Grand total					**65.00**		**50.00**		**500.00**		**0.00**		**0.00**		**615.00**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musiri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

4.1.11. 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:

- Reclamation of alkali soils
- Green manuring to all blocks
- Adoption of PGS certification through cluster approach in Thuraiyur and Uppiliyapuram blocks
- Establishment of permanent vermi compost units and HDPE vermin compost units to all blocks except Andanallur, Lalkudi, Manikandam, Mannachanallur and Thiruverumbur blocks

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 **₹. 813.38 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

(₹.in lakhs)

Sl. No	Components	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
	Soil Health Management															
1	Permanent Vermi compost units	Cluster Nos.	50000	B3,B6,B7, B8,B9,B11, B12,B13, B14	26	13.00	30	15.00	33	16.50	36	18.00	39	19.50	164	82.00
2	HDPE Vermi compost units	Kit Nos	12000	B3,B6,B7, B8,B10,B11 ,B12,B13, B14	103	12.36	113	13.56	128	15.36	138	16.56	148	17.76	630	75.60
3	Reclamation of Alkali Soil	MT	50000	B4,B8,B12, B13	40	20.00	40	20.00	40	20.00	70	35.00	70	35.00	260	130.00
4	Green Manuring	Nos	4000	All blocks	2190	87.60	2340	93.60	2440	97.60	2585	103.40	2605	104.20	12160	486.40
5	Adoption of PGS certification through cluster approach	Nos	1495000	B12,B13	2	29.90	0	0.00	0	0.00	0	0.00	0	0.00	2	29.90
6	Production of Enriched FYM	MT	2500	B10,B12	60	1.50	72	1.80	74	1.85	76	1.90	78	1.95	360	9.00
7	Composting of Farm Waste Through Pluerotus (Production and Distribution of Kits)	MT	200	B8,B12	30	0.06	30	0.06	60	0.12	60	0.12	60	0.12	240	0.48
	Total					**164.42**		**144.02**		**151.43**		**174.98**		**178.53**		**813.38**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musiri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

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 Vaiyampatti block
- Milch Animal (1 no) + 1 ha cropping system with inter crop & border plantation like castor/sesbania etc.
- Small ruminant (9+1) + 1 ha cropping system with inter crop & border plantation like castor/sesbania etc. Organic Mulching
- Creation of Farm pond
- Soil Moisture conservation strategies (contour bunding/Dust mulching/Polythene mulch etc.,)
- Promotion of Farmers club for Sustainable Dryland Agriculture

Budget

It is proposed to incur **₹. 2297.11 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

(₹.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
1	Stress Management in crops by the Application of Pink Pigmented Facultative Methylotrophs (PPFM spray)/ Kcl Spray	Ha	0.004	B14	50	0.20	50	0.20	50	0.20	50	0.20	50	0.20	250	1.00
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	B3,B6,B12 ,B14	50	27.50	60	33.00	70	38.50	80	44.00	90	49.50	350	192.50
3	Small ruminant (9+1)+ 1 ha Tree based farming system (Cropping system with inter crop & border plantation like castor/sesbania etc.) @ Rs.23500/ as subsidy per Unit	Ha	0.47	B3,B12, B14	65	30.55	65	30.55	65	30.55	65	30.55	65	30.55	325	152.75
4	Organic Mulching	Ha	0.06	B3,B12	15	0.90	15	0.90	15	0.90	15	0.90	15	0.90	75	4.50
5	Creation of Farm pond	Nos.	0.75	B3,B12,B14	35	26.25	35	26.25	35	26.25	35	26.25	35	26.25	175	131.25
6	Soil Moisture conservation strategies(contour bunding/Dust mulching/Polythene mulch etc.)	Ha.	0.1	B12	10	1.00	10	1.00	10	1.00	10	1.00	10	1.00	50	5.00
7	Promotion of Farmers club for Sustainable Dryland Agriculture	Cluster	84.9415	B3,B5,B6, B7,B8,B9, B11,B12, B13,B14	6	509.65	12	1019.30	1.05	89.19	1.1025	93.65	1.157	98.33	21.31	1810.10
	Grand Total					**596.05**		**1111.20**		**186.59**		**196.55**		**206.73**		**2297.11**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musiri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

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
2. Field days
3. Integrated Pest Management Villages (Musiri and Thottiyam blocks)
4. Establishment of Coconut Parasite Breeding Station
5. Establishment of Sugar cane Parasite Breeding Station
6. Establishment of Bio-pesticide production unit
7. IPM School in Vaiyampatti block

Budget

It is proposed to incur **₹. 119.20 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 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

(₹.in lakhs)

Sl. No	Components	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	Farmers Field Schools (FFS)	Nos.	20000	All blocks	25	5.00	29	5.80	32	6.40	42	8.40	46	9.20	174	34.80
2	Field days	No.	20000	B2,B3,B5,B6 ,B7,B8,B9, B12,B13,B14	14	2.80	16	3.20	18	3.60	25	5.00	29	5.80	102	20.40
3	Integrated Pest Management Villages	Nos.	100000	B7,B11	8	8.00	10	10.00	11	11.00	12	12.00	13	13.00	54	54.00
4	IPM School	Nos.	40000	B14	5	2.00	5	2.00	5	2.00	5	2.00	5	2.00	25	10.00
	Total					**17.80**		**21.00**		**23.00**		**27.40**		**30.00**		**119.20**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musisri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

4.1.14. Machineries

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 **₹.7662.46 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 Machineries

(₹.in lakhs)

Sl. No	Components	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
	Farm Mechanization															
1	Solar light trap	No.	4000	All Blocks	705	28.20	800	32.00	915	36.60	980	39.20	1040	41.60	4440	177.60
2	Battery operated sprayer	Nos.	4000	All Blocks	113	4.52	114	4.56	116	4.64	132	5.28	197	7.88	672	26.88
3	Power operated sprayer	Nos.	8000	All Blocks	197	15.76	222	17.76	249	19.92	286	22.88	278	22.24	1232	98.56
4	Hand operated sprayer	Nos.	1500	All Blocks	150	2.25	172	2.58	194	2.91	215	3.23	210	3.15	941	14.12
5	Distribution of Baler	Nos	350000	All Blocks	21	73.50	20	70.00	20	70.00	20	70.00	80	280.00	161	563.50
6	Distribution of chaff cutter	Nos	25000	All Blocks	10	2.50	15	3.75	15	3.75	15	3.75	65	16.25	120	30.00
7	Distribution of combine harvester	Nos	1700000	All Blocks	0	0.00	0	0.00	0	0.00	0	0.00	60	1020.00	60	1020.00
8	Distribution of cono weeder	Nos	2000	All Blocks	0	0.00	0	0.00	0	0.00	0	0.00	60	1.20	60	1.20
9	Distribution of Laser leveller	Nos	380000	All Blocks	0	0.00	0	0.00	0	0.00	0	0.00	60	228.00	60	228.00
10	Distribution of Manual Weeder	Nos	2000	All Blocks	0	0.00	0	0.00	0	0.00	0	0.00	60	1.20	60	1.20
11	Distribution of MB plough	Nos	80000	All Blocks	0	0.00	0	0.00	0	0.00	0	0.00	60	48.00	60	48.00
12	Distribution of Mini Tractor	Nos	300000	All Blocks	8	24.00	7	21.00	7	21.00	7	21.00	67	201.00	96	288.00
13	Distribution of Mobile Sprinklers	Ha	30000	All Blocks	46	13.80	61	18.30	72	21.60	82	24.60	123	36.90	384	115.20
14	Distribution of multicrop thrasher	Nos	400000	All Blocks	0	0.00	0	0.00	0	0.00	0	0.00	60	240.00	60	240.00
15	Distribution of Paddy transplanter	Nos	1200000	All Blocks	0	0.00	0	0.00	0	0.00	0	0.00	60	720.00	60	720.00
16	Distribution of Power Weeder	Nos	65000	All Blocks	0	0.00	0	0.00	0	0.00	0	0.00	60	39.00	60	39.00
17	Distribution of Powertiller	Nos	150000	All Blocks	97	145.50	101	151.50	110	165.00	115	172.50	169	253.50	592	888.00
18	Distribution of Pumpset	Nos	30000	All Blocks	22	6.60	24	7.20	24	7.20	24	7.20	75	22.50	169	50.70
19	Distribution of Rain guns	Ha	40000	All Blocks	75	30.00	90	36.00	100	40.00	110	44.00	150	60.00	525	210.00

Sl. No	Components	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
20	Distribution of Rotary Power weeder	Nos	70000	All Blocks	5	3.50	5	3.50	5	3.50	5	3.50	65	45.50	85	59.50
21	Distribution of Rotavator	Nos	80000	All Blocks	83	66.40	87	69.60	93	74.40	100	80.00	154	123.20	517	413.60
22	Distribution of Tarpaulins	Nos	8000	All Blocks	159	12.72	179	14.32	199	15.92	239	19.12	229	18.32	1005	80.40
23	Distribution of Tractor	Nos	600000	All Blocks	24	144.00	31	186.00	35	210.00	37	222.00	89	534.00	216	1296.00
24	Distribution of Tractor Drawn Seed cum Fertilizer Drill	Nos	70000	All Blocks	2	1.40	2	1.40	2	1.40	2	1.40	62	43.40	70	49.00
25	PVC Pipes to carry Irrigation water from source to field	Unit	40000	All Blocks	159	63.60	174	69.60	192	76.80	222	88.80	263	105.20	1010	404.00
26	Solar power pump system	Nos	600000	All Blocks	6	36.00	11	66.00	11	66.00	11	66.00	61	366.00	100	600.00
	Total					**674.25**		**775.07**		**840.64**		**894.46**		**4478.04**		**7662.46**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musiri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

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 in Lalkudi and Musiri blocks
- Provision of Irrigation facilities viz., laying of pipelines and Farm Pond in Lalkudi and Musiri blocks.
- Supply of machineries *viz.* Dunnage and Tarpaulin to Lalkudi and Musiri blocks

Budget

It is proposed to incur **₹. 70.45 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 (SSF)

(₹.in lakhs)

Sl. No	Components	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	B2,B7	10	20.00	10	20.00	10	20.00	0	0.00	0	0.00	30	60.00
II	**Irrigation Component**															
1	Laying of pipelines	mt	0.05	B2,B7	80	4.00	0	0.00	0	0.00	0	0.00	0	0.00	80	4.00
2	Farm Pond	nos	1	B2,B7	2	2.00	0	0.00	0	0.00	0	0.00	0	0.00	2	2.00
III	**Machineries**															
3	Dunnage (Poly Pallets)	nos	0.075	B2,B7	50	3.75	0	0.00	0	0.00	0	0.00	0	0.00	50	3.75
4	Tarpaulin	nos	0.1	B2,B7	7	0.70	0	0.00	0	0.00	0	0.00	0	0.00	7	0.70
	Total					**30.45**		**20.00**		**20.00**		**0.00**		**0.00**		**70.45**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musiri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

4.1.16. 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 **₹. 3.97 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.

4.16. Budget requirement for Information Technologies (IT)

(₹.in lakhs)

Sl. No	Components	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	Procurement of Hardware for replacement of old hardware	Nos	50000	B4	2	1.00	0	0.00	0	0.00	0	0.00	0	0.00	2	1.00
2	Connectivity Charges	Nos	11000	B4	2	0.22	0	0.00	0	0.00	0	0.00	0	0.00	2	0.22
3	Printer cum Scanner	Nos	20000	B4	4	0.80	0	0.00	0	0.00	0	0.00	0	0.00	4	0.80
4	UPS and Electrical Accessories	Nos	35000	B4	2	0.70	0	0.00	0	0.00	0	0.00	0	0.00	2	0.70
5	Laptop/Desktop	Nos	50000	B4	2	1.00	0	0.00	0	0.00	0	0.00	0	0.00	2	1.00
6	Anti -virus software	Nos	2500	B4	10	0.25	0	0.00	0	0.00	0	0.00	0	0.00	10	0.25
	Total					**3.97**		**0.00**		**0.00**		**0.00**		**0.00**		**3.97**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musisri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

4.17. Budget requirement for Agriculture Sector

(₹.in lakhs)

Sl. No	Components	2017-18	2018-19	2019-20	2020-21	2021-22	Total
1	Paddy	969.27	1013.67	1115.05	1234.23	1258.19	5590.41
2	Millets	274.79	292.66	307.85	346.41	360.04	1581.75
3	Pulses	283.92	331.51	361.04	406.45	438.71	1821.63
4	Oilseeds	423.25	411.68	546.44	540.08	636.09	2557.54
5	Oilpalm	157.78	165.52	179.51	181.84	189.60	874.25
6	Cotton	96.39	97.02	98.06	100.56	103.70	495.73
7	Sugarcane	93263.52	93274.91	93292.33	93312.13	93322.02	466464.91
8	Coconut	1906.20	2396.15	2620.65	2245.12	1869.68	11037.80
9	Training	239.50	328.86	416.92	504.98	593.04	2083.30
10	Infrastructure	65.00	50.00	500.00	0.00	0.00	615.00
11	Soil Health Management	164.42	144.02	151.43	174.98	178.53	813.38
12	Rainfed Area Development	596.05	1111.20	186.59	196.55	206.73	2297.12
13	Integrated Pest Management	17.80	21.00	23.00	27.40	30.00	119.20
14	Farm Mechanization	674.25	775.07	840.64	894.46	4478.04	7662.46
15	Strengthening of State Seed Farm	30.45	20.00	20.00	0.00	0.00	70.45
16	Agriculture Information Technology	3.97	0.00	0.00	0.00	0.00	3.97
	Total	**99166.56**	**100433.27**	**100659.51**	**100165.19**	**103664.37**	**504088.90**

4.1.17. Agriculture research infrastructure and development

Protected cultivation is also a booming alternative production system involving hi-tech and intensive cultivation practices mainly for urban and export demands of horticultural crops. This system provides opportunities for increasing the productivity by optimal utilization of resources and protecting the crops from extreme temperatures, high wind, velocity heavy rains, destructive storms, pests and diseases.

India’s economy is based on rural development. Women play a vital role in developing the rural economy. Women face a lot of hurdle in all their endeavours, particularly the rural

women strive hard for achieving financial sustainability. Hence, they need to be empowered for attaining economic liberty. In view of the above, a project on establishment of incubation centre and conduct of farm women training was proposed in Horticultural College and Research Institute for Women, Trichy to serve the farm women in Trichy and its adjoining districts and Cauvery Delta Zone of Tamil Nadu. The centre aims at enhancing the knowledge of the farm women in various production technologies of agricultural and horticultural crops and creating women entrepreneurs. With this background, a project on establishment of incubation centre and conduct of farm women training is proposed in Horticultural College and Research Institute for Women, Trichy.

Food Processing Unit has gained prominence in the recent years. Easy availability of raw materials, changing lifestyles and favourable fiscal policies has given a considerable push to the growth of both scientific as well as farming community. This kind of facility serves as a vital link between the agriculture and manufacturing sectors of the economy. Strengthening this link is critical to reduce wastage of agricultural raw materials, improve the value of agricultural produce by increasing shelf-life as well as by fortifying the nutritive value of the food products and ensure remunerative prices to farmers as well as affordable prices to consumers. Therefore, establishment of food processing laboratory and value addition will help in fulfilling the nutritional requirement and income generation among resource poor farmers.

Much progress has been made in developing efficient procedures for extracting nematodes from soil, but investigations of nematode numbers as related to crop damage and other studies dealing with population dynamics are frequently of limited value because of unmanageable variation in sampling and extraction**.** A major problem with all extraction procedures is obtaining a representative sub sample of larger soil samples collected from plots or fields. Vermicompost organic fertilizer production has now become a major component of agri-business models across the country with a very low initial investment. Vermicompost is the product or process of composting utilizing various species of worms to create a mixture of decomposing vegetable or food waste, bedding materials, and vermicast. Most fruits and vegetables are seasonal. For a business to operate throughout the year, crops must be either part-processed for temporary storage, or a succession of crops must be processed as they come into season. Raw materials have to be bought during a relatively short harvest period when prices are lowest. There is therefore the need to have sufficient cash available to buy a year's supply of crop. Therefore, fruits and vegetables processing industries can help farmers to get sure income for their produce and also avoid market glut.

The most damaging ecological disturbance of injudicious use of pesticides in the existence of high concentration of pesticide residues in food chain including vegetables and other crops. To produce pesticide free agricultural produce, it is highly necessary to introduce bio control as one of the major tool for pest management in vegetable crops. Training and demonstrations on precision water and nutrient usage, INM,IPM, use of natural plant enemies, cultivation under protected structures etc. imparts confidence with in the farmers in agriculture and make them to adopt to harvest bumper crop and to get triple the income. In this regard setting up of training institute will be off immense use in changing the economic and social status of the farmers, skilled workers, rural women and self-entrepreneurship development among the stake holders

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 Trichy district.

Research Infrastructure

- Establishment and demonstration of protected growing model for quality production of Capsicum and cucumber
- Establishment of Incubation Centre and Conduct of Farm Women Training at Horticultural College and Research Institute, Tiruchirappalli
- Establishment of Food processing Laboratory
- Establishment of automated nematode extraction units, seed processing & storage godown, animal clinic and workshops
- Establishment of vermi compost unit
- Establishment of plant tissue culture laboratory
- Establishment of Mushroom research laboratory
- Establishment of NABL Accredited laboratory
- Development of gardens and farms, glass house, polyhouse, shade net house
- Establishment of surveying & land levelling lab (1), Remote sensing & GIS lab (1), Workshops (3),
- Establishment of Department laboratories at horticultural college for women (Communication lab, Field lab, Experiential learning lab)

- Establishment of Dry flower processing unit
- Establishment of concrete extraction unit
- Establishment of Fruit and Vegetable Processing unit
- Development of Farm Women Development Centre
- Establishment of grain quality analysis laboratory
- Construction of Farmers Trainees Hostel
- Establishment of biocontrol laboratory

Production and Growth

- Expansion of Pesticide free area and introduction of bio control agents for vegetables pest management in Tamil Nadu
- Improving crop productivity in intensively cultivated areas of Tiruchirappalli district by bridging yield gap through soil health management with issue of soil health cards

Budget

The budget requirement for the above research and development activities is estimated at ₹.**2041.38** lakhs over a period of five years in Table 4.18.

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 and development

(₹ in lakhs)

Sl. No.	Interventions	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
I	**Research Infrastructure**														
1	Establishment and demonstration of protected growing model for quality production of Capsicum and cucumber	170	Manikandam	1	170.00	0	0.00	0	0.00	0	0.00	0	0.00	1	170.00
2	Establishment of Incubation Centre and Conduct of Farm Women Training at Horticultural College and Research Institute, Tiruchirapalli	135	Manikandam	1	135.00	0	0.00	0	0.00	0	0.00	0	0.00	1	135.00
3	Establishment of Fruit/Vegetable and Food processing Laboratory	50	Manikandam	1	50.00	1	50.00	0	0.00	0	0.00	0	0.00	2	100.00
4	Establishment of automated nematode extrction units, seed processing & storage godown, animal clinic and workshops	10	Manikandam	1	10.00	1	10.00	1	10.00	1	10.00	0	0.00	4	40.00
5	Estrablishment of vermi compost unit	1	Manikandam	1	1.00	0	0.00	1	1.00		0.00	0	0.00	2	2.00
6	Establishment of plant tissue culture laboratory	250	Manikandam	0	0.00	1	250.00	0	0.00	0	0.00	0	0.00	1	250.00
7	Establishment of Mushroom research laboratory	20	Manikandam	1	20.00	0	0.00	0	0.00	0	0.00	0	0.00	1	20.00
8	Establishment of NABL Accredited laboratory	200	Manikandam	0	0.00	0	0.00	0	0.00	1	200.00	0	0.00	1	200.00
9	Development of gardens and farms, glass house, polyhouse, shadenet house	6	Manikandam	2	12.00	1	6.00	1	6.00	1	6.00	1	6.00	6	36.00
10	Establishment of surveying & land levelling lab (1), Remote sensing & GIS lab (1), Workshops (3),	10	Pullampady	1	10.00	1	10.00	1	10.00	1	10.00	1	10.00	5	50.00

Sl. No.	Interventions	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
12	Establsihment of Department laboratories at horticultural college for women (Communication lab, Field lab, Experiential learning lab)	10	Manikandam	1	10.00	2	20.00	1	20.00	1	10.00	1	10.00	6	70.00
13	Establishment of Dry flower processing unit	5	Manikandam	1	5.00	0	0.00	0	0.00	0	0.00	0	0.00	1	5.00
14	Establishment of concrete extraction unit	25	Manikandam	0	0.00	0	0.00	0	0.00	1	25.00	0	0.00	1	25.00
15	Establishemnt of Fruit and Vegetable Processing unit	50	Manikandam	1	50.00	0	0.00	0	0.00	0	0.00	0	0.00	1	50.00
16	Developemnt of Farm Women Development Centre	100	Manikandam	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	1	100.00
17	Establishment of grain qulaity analysis laboratory	50	Vaiyampatty	0	0.00	1	50.00	0	0.00	0	0.00	0	0.00	1	50.00
18	Construction of Farmers Trainees Hostel	100	Vaiyampatty	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	1	100.00
19	Establishment of biocontrol laboratory	80	Vaiyampatty	1	80.00	0	0.00	0	0.00	0	0.00	0	0.00	1	80.00
	Subtotal (I)				**553.00**		**396.00**		**147.00**		**261.00**		**126.00**		**1483.00**
II	**Production and Growth**														
1	Expansion of Pesticide free area and introduction of bio control agents for vegetables pest management in Tamil Nadu	69.00	Manikandam	1	69.00	0	0.00	0	0.00	0	0.00	0	0.00	1	69.00
2	Improving crop productivity in intensively cultivated areas of Tiruchirappalli district by bridging yield gap through soil health management with issue of soil health cards	120	Manikandam	1	120.00	0	0.00	0	0.00	0	0.00	0	0.00	1	120.00
	Development of market specific supply chain strategies for onion	369.38	Manikandam	0	0.00	1	188.69	0	180.69	0	0.00	0	0.00	1	369.38
	Subtotal (II)				**189.00**		**188.69**		**180.69**		**0.00**		**0.00**		**558.38**
	Total				**742.00**		**584.69**		**327.69**		**261.00**		**126.00**		**2041.38**

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 ₹ **27842.43 Lakhs.** The details of budget requirement for each intervention across the blocks are shown in Table.4.19.

Implementing agency

The projects will be implemented by the Department of Horticulture

Table 4.19. Budget for Horticulture Development

(₹.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	Grapes	Ha	1.25	B14	2	2.50	2	2.50	3	3.75	3	3.75	5	6.25	15	18.75
2	Banana / Hill Banana sucker & Pine apple sucker	Ha	0.875	B1,B2,B5, B7,B8,B12	945	826.88	1057	924.88	1162	1016.75	1280	1120.00	1404	1228.50	5848	5117.00
3	UHDP in Papaya, Mango, Guava, Pomegranate, Acidlime	Ha	1.25	B3,B9,B10,B 13	7	8.75	8	10.00	9	11.25	11	13.75	13	16.25	48	60.00
4	HDP in Mango, Guava, Litchi, Pomegranate	Ha	1	All blocks except B2,B8,B9, B14	39	39.00	55	55.00	75	75.00	93	93.00	106	106.00	368	368.00
5	Area expansion fruits with traditional varieties	Ha	0.6	B1,B2,B5, B6,B7,B8	41	24.60	53	31.80	61	36.60	74	44.40	86	51.60	315	189.00
6	Normal Planting in lime / lemons	Ha	0.6	B6,B7,B11,B 12	23	13.80	30	18.00	45	27.00	51	30.60	57	34.20	206	123.60
7	Normal Planting in Mango	Ha	0.6	B4,B14	20	12.00	20	12.00	24	14.40	28	16.80	30	18.00	122	73.20
8	Normal planting in Guava	Ha	0.6	B1,B2,B4, B5,B6,B7, B8,B11, B14	49	29.40	63	37.80	80	48.00	98	58.80	113	67.80	403	241.80
9	Normal planting in Sapota	Ha	0.6	B4,B9	5	3.00	6	3.60	10	6.00	12	7.20	15	9.00	48	28.80
10	Normal planting in Amla	Ha	0.6	B12	2	1.20	3	1.80	3	1.80	4	2.40	4	2.40	16	9.60
11	Normal planting in Papaya	Ha	0.6	B11	3	1.80	5	3.00	5	3.00	5	3.00	5	3.00	23	13.80
12	Normal planting in Pomegranate	Ha	0.6	B2	5	3.00	10	6.00	15	9.00	20	12.00	25	15.00	75	45.00

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
II	**Area expansion of vegetable crops**															
13	Brinjal	Ha	0.5	All blocks except B3	131	65.50	166	83.00	200	100.00	242	121.00	279	139.50	1018	509.00
14	Bhendi	Ha	0.5	All blocks except B3,B7,B9, B10	99	49.50	131	65.50	160	80.00	193	96.50	223	111.50	806	403.00
15	Tomato	Ha	0.5	All blocks except B3,B7,B9, B10	118	59.00	141	70.50	175	87.50	200	100.00	224	112.00	858	429.00
16	Gourds including pumpkin and tinda	Ha	0.5	B13	4	2.00	4	2.00	5	2.50	5	2.50	5	2.50	23	11.50
17	Greens	Ha	0.5	B11	3	1.50	3	1.50	3	1.50	3	1.50	3	1.50	15	7.50
18	Small Onion	Ha	0.5	B2,B3,B4, B6,B7,B10, B11,B13	955	477.50	1011	505.50	1050	525.00	1089	544.50	1125	562.50	5230	2615.00
19	Bellary Onion	Ha	0.5	B10	20	10.00	20	10.00	25	12.50	25	12.50	30	15.00	120	60.00
20	Annual Moringa	Ha	0.5	B2,B3,B4, B8,B11, B12,B13	27	13.50	40	20.00	52	26.00	64	32.00	80	40.00	263	131.50
21	Cucumber/gherkin	Ha	0.5	B11	3	1.50	3	1.50	3	1.50	4	2.00	4	2.00	17	8.50
22	Lab Lab	Ha	0.5	B11	4	2.00	5	2.50	5	2.50	5	2.50	5	2.50	24	12.00
23	Radish	Ha	0.5	B11	2	1.00	2	1.00	2	1.00	2	1.00	2	1.00	10	5.00
24	Melons	Ha	0.5	B10,B13	3	1.50	3	1.50	5	2.50	5	2.50	5	2.50	21	10.50
25	Cluster bean	Ha	0.5	B11	1	0.50	1	0.50	1	0.50	1	0.50	1	0.50	5	2.50
26	Tapioca	Ha	0.5	B7,B11	80	40.00	90	45.00	100	50.00	110	55.00	120	60.00	500	250.00
27	Yams and colacassia	Ha	0.5	B13	1	0.50	1	0.50	2	1.00	2	1.00	2	1.00	8	4.00

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
28	Commercial production of location specific traditional vegetables (Athalakkai, Palu Pavakkai, Mullu kathiri, Poiyur kathiri, Kottapatti kathiri etc.,)	Ha	0.5	B4	1	0.50	2	1.00	2	1.00	2	1.00	2	1.00	9	4.50
29	Cultivation of hybrid Vegetables under protected structures	1000 Sq.m	1.4	B14	500	700.00	500	700.00	500	700.00	500	700.00	500	700.00	2500	3500.00
III	**Area expansion of Medicinal and Aromatic plants**															
30	Gloriosa	Ha	1.6438	B4,B6,B14	65	106.85	80	131.50	87	143.01	100	164.38	110	180.82	442	726.56
31	Coleus	Ha	0.5141	B4,B6,B11,B13,B14	175	89.97	203	104.36	225	115.67	247	126.98	270	138.81	1120	575.79
32	Mint	Ha	0.15	B4,B6,B11,B13,B14	2	0.30	3	0.45	3	0.45	5	0.75	5	0.75	18	2.70
IV	**Area expansion of Spices crops**															
33	Seed and Rhizomatic spices (Coriander, Turmeric, Ginger, Dry Chilly, Cumin, Fennel, Fenu greek, Dil, Cardamom etc.,)	Ha	0.3	B2,B4,B6, B8,B9,B10,B11,B13, B14	262	78.60	302	90.60	342	102.60	373	111.90	400	120.00	1679	503.70
34	Perennial spices (Pepper, Curry leaf, All spice, Cinnamon, Clove, Tamarind, Nut meg etc.,)	Ha	0.5	B1,B4,B14	8	4.00	8	4.00	11	5.50	13	6.50	16	8.00	56	28.00
V	**Area expansion of Flower crops**															
35	Loose flowers - Jasminum sp, Crossandra, Marigold, Rose, Chrysanthemum	Ha	0.4	All blocks except B2,B8,B9, B10	131	52.40	156	62.40	184	73.60	206	82.40	228	91.20	905	362.00

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
36	Bulbous flowers - Tube rose, Gladioli, Dahlia, Bird of paradise, Heliconia, Tulip	Ha	1.5	B7,B11	7	10.50	8	12.00	10	15.00	17	25.50	20	30.00	62	93.00
VI	**Area expansion /Gap filling of Plantation crops**															
37	Cashew	Ha	0.5	B2,B8	32	16.00	37	18.50	42	21.00	47	23.50	52	26.00	210	105.00
38	Arecanut	Ha	0.5	B11,B13	7	3.50	7	3.50	7	3.50	12	6.00	12	6.00	45	22.50
VII	**Rejuvenation/INM-IPM/Mulching/Anti bird net**															
39	Mango/Cashew - Rejuvenation	Ha	0.4	B6	2	0.80	4	1.60	5	2.00	5	2.00	8	3.20	24	9.60
40	INM/IPM for Horticultural crops	Ha	0.04	All blocks except B9	290	11.60	359	14.36	417	16.68	453	18.12	505	20.20	2024	80.96
41	Mulching	Ha	0.32	All blocks except B3,B11,B12, B13	76	24.32	104	33.28	119	38.08	143	45.76	175	56.00	617	197.44
VIII	**Pollination Support through Bee Keeping**															
42	Bee hive & Colony	No	0.04	All blocks except B3	575	23.00	652	26.08	730	29.20	805	32.20	890	35.60	3652	146.08
43	Honey Extractor	No	0.2	All blocks except B2,B3	50	10.00	58	11.60	65	13.00	70	14.00	82	16.40	325	65.00
IX	**Organic Farming**															
44	Organic farming and PGS certification in 50 acre cluster	1 cluster	14.95	B11,B14	0	0.00	0	0.00	1	14.95	0	0.00	1	14.95	2	29.90
45	HDPE Vermibed	No	0.16	B5,B6,B7, B8,B9,B10,B 13,B14	18	2.88	25	4.00	28	4.48	34	5.44	37	5.92	142	22.72
X	**Rainfed Area development**															
46	Integrated farming system - Horticulture Based farming	Ha	0.5	B3,B7,B9, B11,B13	140	70.00	165	82.50	195	97.50	220	110.00	245	122.50	965	482.50

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
47	Moisture stress management - Minimum irrigation gurantee by PUSA hydrogel	Ha	0.1	All blocks	500	50.00	547	54.70	580	58.00	648	64.80	730	73.00	3005	300.50
B	**Infra structures and Assets creation**															
I	**Protected cultivation**															
1	Poly Green House	1000 Sq.m	9.35	B2	1	9.35	1	9.35	1	9.35	1	9.35	1	9.35	5	46.75
2	Shadenet	1000 Sq.m	7.1	All blocks except B12	9	63.90	10	71.00	10.5	74.55	11	78.10	11.5	81.65	52	369.20
II	**Mushroom production**															
3	Mushroom production and compost making	1 No.	20	B14	0	0.00	1	20.00	0	0.00	0	0.00	0	0.00	1	20.00
4	Spawn Production	1 No.	15	B14	0	0.00	1	15.00	0	0.00	0	0.00	0	0.00	1	15.00
5	Cottage mushroom unit	1 No.	1	B14	0	0.00	1	1.00	0	0.00	0	0.00	0	0.00	1	1.00
III	**Vermicompost unit**															
6	Permanent Vermicompost Unit	600 cu.ft	1	B5,B6,B7, B10,B13, B14	11	11.00	13	13.00	15	15.00	15	15.00	19	19.00	73	73.00
IV	**Supporting structures for Horticulture crop production**															
7	Staking/ Trellies/ Propping	Ha	1	B1,B2,B5, B12	50	50.00	64	64.00	72	72.00	82	82.00	93	93.00	361	361.00
8	Permanent Pandhal structure	Ha	4	B2,B3,B4, B6,B9,B10,B 11,B13, B14	27	108.00	29	116.00	37	148.00	41	164.00	47	188.00	181	724.00
C	**Special interventions**															
1	Farm deficiency correction	Ha	0.04	All blocks except B7,B8,B14	1115	44.60	1230	49.20	1330	53.20	1415	56.60	1500	60.00	6590	263.60

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
2	Promotion of Roof top Garden/ Potager garden Kit	No	0.005	All blocks except B7,B8,B14	9550	47.75	10100	50.50	10600	53.00	11100	55.50	11650	58.25	53000	265.00
3	Promotion of Roof top Garden/ Potager garden Kit with shadenet	No	0.0735	All blocks except B7,B8,B14	365	26.83	485	35.65	605	44.47	710	52.19	795	58.43	2960	217.56
4	Banana Bunch Sleeve	Ha	0.25	B1,B2,B5, B12	55	13.75	72	18.00	80	20.00	98	24.50	115	28.75	420	105.00
5	AESA based IPM in fruits and vegetables Pheramone trap	Ha	0.04	All blocks	340	13.60	374	14.96	424	16.96	465	18.60	515	20.60	2118	84.72
6	AESA Based IPM in fruits and vegetables Yellow sticky trap	Ha	0.04	All blocks	340	13.60	374	14.96	424	16.96	465	18.60	515	20.60	2118	84.72
7	AESA Based IPM in fruits and vegetables Light trap	Ha	0.08	All blocks	340	27.20	374	29.92	424	33.92	460	36.80	515	41.20	2113	169.04
D	**Post Harvest Management**															
1	Pack house (9m X 6m)	1No	4	B3,B6,,B7,B9,B10,B11,B13	10	40.00	10	40.00	13	52.00	14	56.00	14	56.00	61	244.00
2	Low cost onion structure 25 mt	1No	1.75	B4,B8,B9, B10,B11, B13	47	82.25	51	89.25	64	112.00	76	133.00	87	152.25	325	568.75
3	Drying yard	1No	5	B13	0	0.00	0	0.00	0	0.00	0	0.00	1	5.00	1	5.00
4	Collection centre	1No	15	B4,B10	0	0.00	0	0.00	1	15.00	0	0.00	1	15.00	2	30.00
5	Refer van/collection	1No	26	B11	0	0.00	0	0.00	0	0.00	1	26.00	0	0.00	1	26.00
6	Market intervention - Mobile venindg cart	1No	0.3	B4,B5,B6, B8	5	1.50	6	1.80	6	1.80	7	2.10	7	2.10	31	9.30
E	**Development of Farms, Nurseries and Parks**															
1	Developmental activities in new/ exsisting state Horticultural farm, Keelapalur	No	25	B5	0	0.00	1	25.00	0	0.00	0	0.00	0	0.00	1	25.00

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
2	Centre of Excellence for different crops	No	1000	B6,B14	0	0.00	1	1000.00	0	0.00	0	0.00	1	1000.00	2	2000.00
F	**Mechanization - Machineries, Equipments & Tools**															
1	Power tiller/Tractor/Minitractor	Nos	1	All blocks except B1,B2,B4, B5,B12,B14	8	8.00	8	8.00	8	8.00	9	9.00	9	9.00	42	42.00
2	Manual Sprayer-Knapsack/Foot operated Sprayer	Nos	0.12	B8,B11, B14	25	3.00	30	3.60	45	5.40	50	6.00	65	7.80	215	25.80
3	Fruit Plucker, Tree pruners, Fruit Harvester, Fruit Graders, Track Trolley, Nursery Media Filling Machine, Power operated horticulture tools for pruning, budding, grating, shearing etc.	No	2.5	B11	5	12.50	5	12.50	10	25.00	10	25.00	10	25.00	40	100.00
4	Power operated sprayer	Nos	0.05	All blocks	134	6.70	161	8.05	212	10.60	248	12.40	285	14.25	1040	52.00
5	Plastic crates for vegetable & fruits handling	No of sets containing 10crates	0.075	B1,B4,B5, B6,B12	22	1.65	29	2.18	43	3.23	54	4.05	64	4.80	212	15.90
6	Turmeric Boiler	No	2.5	B13	0	0.00	0	0.00	0	0.00	0	0.00	1	2.50	1	2.50
7	Turmeric Polishing Machine	No	0.88	B13	0	0.00	0	0.00	0	0.00	0	0.00	1	0.88	1	0.88
8	Pepper Spike Threasher Stripper, Pepper peeler cum Washer	No	0.15	B11	0	0.00	0	0.00	0	0.00	0	0.00	4	0.60	4	0.60
9	Oil engine	No	0.15	B11	0	0.00	0	0.00	0	0.00	0	0.00	4	0.60	4	0.60
10	Aluminium Ladders	No	0.2	B11	0	0.00	0	0.00	0	0.00	0	0.00	50	10.00	50	10.00

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
	for Harvesting															
11	Equipments for manure management (Motorized Shredder for cutting biomass for making Vermicomposts and organic mulching)	No	1.26	B11	0	0.00	0	0.00	0	0.00	0	0.00	2	2.52	2	2.52
G	**Water / Irrigation Management**															
1	Micro Irrigation - Drip	Ha	1.12	All blocks	332	371.84	396	443.52	438	490.56	509	570.08	560	627.20	2235	2503.20
2	Rain gun	Ha	0.34	B9,B11, B13	106	36.04	121	41.14	137	46.58	157	53.38	177	60.18	698	237.32
3	Sprinkler	No	0.195	All blocks	181	35.30	216	42.12	257	50.12	295	57.53	334	65.13	1283	250.19
H	**Capacity Building**															
1	Training to farmers within the State. 2 days Rs.1000/farmer/day	No	0.02	All blocks	515	10.30	585	11.70	630	12.60	715	14.30	775	15.50	3220	64.40
2	Training to farmers outside the state. 30 farmers/Batch	No	0.105	All blocks	51	5.36	59	6.20	62	6.51	76	7.98	78	8.19	326	34.23
3	Exposure visit to farmers for 5 days. Rs.1000/farmer/day	No	0.05	B2,B4,B5, B6,B8,B12	36	1.80	36	1.80	37	1.85	43	2.15	48	2.40	200	10.00
4	Exposure visit of farmers outside India	No	4	B1	20	80.00	25	100.00	25	100.00	30	120.00	35	140.00	135	540.00
5	Training to staff outside the state / Batch of 5 members	No	0.04		5	0.20	5	0.20	0	0.00	0	0.00	0	0.00	10	0.40
6	District level seminar	No	2	B2,B3,B4, B6,B11, B13	6	12.00	6	12.00	6	12.00	6	12.00	6	12.00	30	60.00
7	Computerization & governance	No	1	B2	0	0.00	0	0.00	1	1.00	1	1.00	0	0.00	2	2.00
8	Publicity and Documentation	No	0.5	All blocks except B11	13	6.50	13	6.50	13	6.50	13	6.50	13	6.50	65	32.50

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
I	**Crop Insurance and Risk Mitigating schemes**															
1	Crop Insurance	Ha	0.025	All blocks except B14	962	24.05	1063	26.58	1150	28.75	1210	30.25	1285	32.13	5670	141.75
	Grand Total					**4115.20**		**5677.98**		**5148.67**		**5681.88**		**7218.70**		**27842.43**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musisri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

4.3. 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
- Awareness to be created towards the usage of Sugarcane infielder, Bird scarer, Mechanized row crop cultivation and Modernization of tractor workshop which indirectly increase the production.
- 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

- Promotion of Bio-mass gasifier unit which hold huge potential technology for decentralized electricity generation in rural villages. Biomass is a CO2 neutral fuel and, therefore, unlike fossil fuels such as diesel does not contribute to net CO2 emissions, which makes biomass based power generation systems an attractive option in mitigating the adverse effects of climate change.
- 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
- Rehabilitation of irrigation network to bring water directly to the root zone of the crop, improve application and conveyance efficiency, thereby reduce the wastage of water due to flood irrigation.
- Prevention of sea water intrusion through construction of subsurface dyke, Village Pond / Community Pond, Farm Pond, Recharge shaft and Weir/Bed Dam.
- Reclamation of problem soils which needs special management for satisfactory crop production. Physical limitations can be managed by irrigation, drainage, mulching, manuring, tillage, and soil conservation measures such as terracing, contouring, and cover crops whichever is appropriate.

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 ₹ **7000.25 lakhs.**

Implementing agency

The projects will be implemented by the Department of Agricultural Engineering

Table.4.20. Budget requirement for Agricultural Engineering

(₹.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
1	Demonstration of Agricultural Machinery	No's/Ha	0.04	All Blocks	24	0.96	19	0.76	24	0.96	24	0.96	24	0.96	115	4.60
2	Training of farmers	No's/Ha	0.04	All Blocks	165	6.60	11	0.44	165	6.60	165	6.60	165	6.60	671	26.84
3	Training of Rural Youth in workshops	No's/Ha	0.04	All Blocks	70	2.80	70	2.80	70	2.80	70	2.80	70	2.80	350	14.00
4	Demonstration of Post Harvest Technologies	No's/Ha	0.04	All Blocks	6	0.24	11	0.44	6	0.24	6	0.24	6	0.24	35	1.40
5	Financial assistance for Post Harvest Equipment	No's/Ha	4	All Blocks	8	32.00	0	0.00	8	32.00	8	32.00	8	32.00	32	128.00
6	Tractor (8-15 PTO HP)	No's/Ha	3	All Blocks	5	15.00	5	15.00	5	15.00	5	15.00	5	15.00	25	75.00
7	Tractor (15-20 PTO HP)	No's/Ha	4	All Blocks	10	40.00	9	36.00	10	40.00	9	36.00	9	36.00	47	188.00
8	Tractor (Above 20-40 PTO HP)	No's/Ha	6	All Blocks	33	198.00	34	204.00	33	198.00	33	198.00	32	192.00	165	990.00
9	Tractor (40-70 PTO HP)	No's/Ha	8.5	All Blocks	7	59.50	7	59.50	8	68.00	8	68.00	8	68.00	38	323.00
10	Power Tiller (8 BHP & above)	No's/Ha	1.75	All Blocks	120	210.00	125	218.75	120	210.00	125	218.75	120	210.00	610	1067.50
11	Self Propelled Rice Transplanter (4 rows)	No's/Ha	2.5	All Blocks	5	12.50	5	12.50	5	12.50	5	12.50	5	12.50	25	62.50
12	Self Propelled Rice Transplanter (Above 4-8 rows)	No's/Ha	16	B1, B4,B12, B3	1	16.00	1	16.00	1	16.00	1	16.00	1	16.00	5	80.00
13	Reaper cum Binder	No's/Ha	3	All Blocks	4	12.00	4	12.00	4	12.00	4	12.00	4	12.00	20	60.00
14	Reaper	No's/Ha	1.1	All Blocks	5	5.50	5	5.50	5	5.50	5	5.50	5	5.50	25	27.50
15	Post Hole Digger / Augur	No's/Ha	0.63	All Blocks	2	1.26	2	1.26	2	1.26	2	1.26	2	1.26	10	6.30

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
16	Power Weeder (engine operated below 2 BHP)	No's/Ha	0.25	All Blocks	2	0.50	3	0.75	3	0.75	2	0.50	2	0.50	12	3.00
17	f. Chaff Cutter (Operated by engine / electric motor below 3 hp and by power tiller and tractor of below 20 BHP tractor)	No's/Ha	0.25	B1, B4,B12, B3	2	0.50	1	0.25	1	0.25	1	0.25	1	0.25	6	1.50
18	Rotavator	No's/Ha	0.8	B1, B4,B12, B3	0	0.00	0	0.00	2	1.60	2	1.60	3	2.40	7	5.60
19	Disc Plow	No's/Ha	0.6	All Blocks	10	6.00	9	5.40	10	6.00	9	5.40	10	6.00	48	28.80
20	Cultivator	No's/Ha	0.3	All Blocks	19	5.70	18	5.40	19	5.70	18	5.40	19	5.70	93	27.90
21	Rotavator	No's/Ha	0.95	All Blocks	85	80.75	80	76.00	75	71.25	75	71.25	80	76.00	395	375.25
22	Zero till seed cum fertilizer drill	No's/Ha	0.7	All Blocks	7	4.90	7	4.90	7	4.90	7	4.90	7	4.90	35	24.50
23	Post Hole digger	No's/Ha	1.05	All Blocks	1	1.05	1	1.05	1	1.05	1	1.05	1	1.05	5	5.25
24	Thresher/Multi Crop threshers	No's/Ha	4	All Blocks	10	40.00	9	36.00	9	36.00	9	36.00	9	36.00	46	184.00
25	Coconut Frond chopper	No's/Ha	1.05	All Blocks	3	3.15	3	3.15	3	3.15	3	3.15	3	3.15	15	15.75
26	Balers (Round)	No's/Ha	3.5	All Blocks	10	35.00	10	35.00	10	35.00	10	35.00	10	35.00	50	175.00
27	Manual sprayer: Knapsack/foot operated sprayer	No's/Ha	0.015	All Blocks	7	0.11	6	0.09	7	0.11	7	0.11	6	0.09	33	0.50
28	Powered Knapsack Sprayer/Power operated Taiwan sprayer (capacity 8-12 lts)	No's/Ha	0.06	All Blocks	8	0.48	9	0.54	8	0.48	9	0.54	9	0.54	43	2.58

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
29	Powered Knapsack Sprayer/Power operated Taiwan sprayer (capacity above 12-16 lts)	No's/Ha	0.08	All Blocks	19	1.52	20	1.60	19	1.52	19	1.52	19	1.52	96	7.68
30	Powered Knapsack Sprayer/Power operated Taiwan sprayer (capacity above 16 lts)	No's/Ha	0.1	All Blocks	20	2.00	20	2.00	20	2.00	20	2.00	20	2.00	100	10.00
31	Establishment of Farm Machinery Banks for Custom Hiring	No's/Ha	28	B1, B4,B12, B3	5	140.00	1	28.00	1	28.00	1	28.00	1	28.00	9	252.00
32	Promotion of Farm Mechanization in Selected Villages	No's/Ha	11.5	All Blocks	10	115.00	10	115.00	10	115.00	10	115.00	10	115.00	50	575.00
33	Financial assistance for promotion of Mechanized Farming operations	No's/Ha	0.04	All Blocks	10	0.40	10	0.40	14	0.56	16	0.64	18	0.72	68	2.72
34	Purchase of Tractors for AED	No's/Ha	8	B1, B4,B12, B3	1	8.00	1	8.00	1	8.00	0	0.00	1	8.00	4	32.00
35	Purchase of Tractor drawn implemnets for AED	No's/Ha	0.5	B1, B4	24	12.00	0	0.00	0	0.00	0	0.00	24	12.00	48	24.00
36	Purchase of Bull Dozers for AED	No's/Ha	80	All Blocks	0	0.00	0	0.00	0	0.00	1	80.00	1	80.00	2	160.00
37	Purchase of Balers for AED	No's/Ha	4.5	B1, B4,B12, B3	3	13.50	0	0.00	0	0.00	0	0.00	0	0.00	3	13.50
38	Purchase of Resitivity Metres for AED	No's/Ha	3	B1, B4,B12, B3	2	6.00	0	0.00	0	0.00	0	0.00	2	6.00	4	12.00
39	5 hp	No's/Ha	3.75	All Blocks	24	90.00	26	97.50	29	108.75	26	97.50	29	108.75	134	502.50
40	7.5 hp	No's/Ha	5.3	All Blocks	17	90.10	17	90.10	17	90.10	17	90.10	17	90.10	85	450.50
41	10 hp	No's/Ha	6.75	All Blocks	9	60.75	9	60.75	9	60.75	9	60.75	9	60.75	45	303.75
42	400-600sq.ft	No's/Ha	6.5	B1, B4,B12,	1	6.50	2	13.00	1	6.50	2	13.00	2	13.00	8	52.00

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
				B3												
43	Computer & its accessories	No's/Ha	0.8	B1, B4,B12, B3	0	0.00	3	2.40	1	0.80	1	0.80	0	0.00	5	4.00
44	Tablet (Tab)	No's/Ha	0.25	All Blocks	0	0.00	6	1.50	6	1.50	4	1.00	1	0.25	17	4.25
45	Xerox machine	No's/Ha	1.5	B1, B4,B12, B3	0	0.00	3	4.50	1	1.50	1	1.50	0	0.00	5	7.50
46	Mecanized row crop cultivation- Pilot mechanization Demonstration	No's/Ha	0.04	All Blocks	0	0.00	6	0.24	6	0.24	6	0.24	2	0.08	20	0.80
47	Modernisation of Tractor workshops of AED	No's/Ha	50	B1, B4,B12, B3	1	50.00	1	50.00	1	50.00	1	50.00	1	50.00	5	250.00
48	Chain saw/ Wheel barrow/ Mango grader/ planter and other suitable self propelled machineries and equipments for horticulture Crops	No's/Ha	1	B1, B4,B12, B3	0	0.00	1	1.00	1	1.00	1	1.00	1	1.00	4	4.00
49	Mini Rice Mill	No's/Ha	1.5	B1, B4,B12, B3	0	0.00	2	3.00	2	3.00	1	1.50	0	0.00	5	7.50
50	Mini Dal Mill	No's/Ha	1.7	B1, B4,B12, B3	0	0.00	2	3.40	1	1.70	1	1.70	1	1.70	5	8.50
51	Millet Mill	No's/Ha	1.5	B1, B4,B12, B3	0	0.00	2	3.00	2	3.00	2	3.00	1	1.50	7	10.50
52	Oil mill with filter press (for all type of Horticulture / Food grain / Oil seeds crop)	No's/Ha	1.2	B1, B4,B12, B3	0	0.00	2	2.40	2	2.40	2	2.40	1	1.20	7	8.40

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
53	All types of Power driven Dehusker/ sheller/ Threshers/ Harvesters/ De-spiking/ Deconing Machine/ Peeler/ Splitter/ Stripper (for all type of Horticulture / Food grain / Oil	No's/Ha	1.2	B1, B4,B12, B3	0	0.00	2	2.40	1	1.20	1	1.20	1	1.20	5	6.00
54	All types of Boiler/ Steamer/ Dryer solar (for all type of Horticulture / Food grain / Oil seeds crop)	No's/Ha	2	B1, B4,B12, B3	0	0.00	2	4.00	0	0.00	1	2.00	1	2.00	4	8.00
55	All types of Grinder/ Pulveriser/ Polisher (for all type of Horticulture / Food grain / Oil seed crop)	No's/Ha	0.3	B1, B4,B12, B3	0	0.00	1	0.30	1	0.30	1	0.30	0	0.00	3	0.90
56	All types of Cleaner cum grader/ Gradient separator/ Specific gravity separator (for all types of Horticulture / Food grain / Oil seed crop)	No's/Ha	0.75	B1, B4,B12, B3	0	0.00	1	0.75	1	0.75	1	0.75	0	0.00	3	2.25
57	Construction of Agricultural Engineering Extension centres (AEECs)	No's/Ha	75	B1, B4,B12, B3	0	0.00	2	150.00	1	75.00	1	75.00	1	75.00	5	375.00
58	Training of AED Engineers on " Agricultural Processing" and " Bio- Energy"	No's/Ha	0.04	All Blocks	0	0.00	6	0.24	6	0.24	6	0.24	0	0.00	18	0.72
	Total					**1386.27**		**1398.96**		**1350.91**		**1421.90**		**1442.21**		**7000.25**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musisri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

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

- Promotion of e learning centre in Andhanallur block
- Construction of additional shops in Musiri block
- Construction of drying yard in all blocks
- Construction of storage godown in all blocks except T.Pet and Thuraiyur blocks
- Formation of FPO in all blocks
- Provision of plastic crates and Tarpaulin
- Administrative Office Room (Vevichle shed ,waiting hall,washing Room,Borewell with Motor, water Tank) for Thuraiyur block
- SCM-PPC for Banana and Onion, Creating infrastructure, Ripening Chamber, Weigh Bridge, Grading and Packing hall,Onion Grading machine and other accessories
- SCM-Tiruchendurai banana market -Ripening Chamber in Andhanallur block
- Exposure visit (within state & outside state) for commodity group farmers to acquire value addition technologies.
- 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 in all blocks except Vaiyampatty

Budget

The district plan proposes an outlay of **Rs. 6308.71 lakhs** over a period of five years for Trichy district (Table 4.21).

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 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
	Promotion of Commodity Groups and Market Information															
1	e-learning Centre	1	80	B1	1	80.00	0	0.00	0	0.00	0	0.00	0	0.00	1	80.00
	Strengthening of Uzhavar Sandhai and Regulated Market															
2	Additional Shops	1	0.5	B10	10	5.00	0	0.00	0	0.00	0	0.00	0	0.00	10	5.00
3	Drying Yard	1	3	All Blocks	25	75.00	25	75.00	25	75.00	26	78.00	27	81.00	128	384.00
4	Storage godown	1	8	All Blocks except B12, B13	14	112.00	15	120.00	15	120.00	15	120.00	14	112.00	73	584.00
5	Ticker Board and External Electrification	1	2.75	B3, B7, B10, B13	14	39.00	15	41.25	15	41.25	15	41.25	14	38.50	73	200.75
6	Administrative Office Room (Vevichle shed ,waiting hall,washing Room,Borewell with Motor, water Tank)	1	25	B13	0	0.00	1	25.00	0	0.00	0	0.00	0	0.00	1	25.00
	Formation of FPO / Strengthening of Existing Commodity Groups															
7	FPO	1	0.05	All Blocks	435	22.00	135	6.75	150	7.50	135	6.75	125	6.25	980	49.00
	Provision of Market Access and Market Activities															
8	Plastic crates	10	0.04	B2, B5, B6, B7, B8, B11, B13	3595	144.00	3595	143.80	3605	144.20	2605	104.20	1605	64.20	15005	600.20

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
9	Tarpaulin	1	0.13	B2, B5, B6, B7, B8, B9, B11, B12, B13, B14	55	7.00	56	7.28	59	7.67	59	7.67	63	8.19	292	37.96
	Post Harvest Infrastructure and Machinaries															
10	SCM-PPC for Banana and Onion, Creating infrastructure, Ripening Chamber, Weigh Bridge, Grading and Packing hall,Onion Grading machine and other accessories	1	375	B2, B6, B7, B8, B9, B11, B12, B13, B14	11	4125.00	0	0.00	0	0.00	0	0.00	0	0.00	11	4125.00
11	SCM-Tiruchendurai banana market -Ripening Chamber-50MT	1	0.5	B1	1	1.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.50
	Capacity building Programme															
12	Exposure Visits - within state	1	0.75	All Blocks execpt B1	27	20.00	18	13.50	19	14.25	17	12.75	18	13.50	99	74.25
13	Exposure Visits - outside state - 3 days	1	1.5	All Blocks exccept B7	17	26.00	13	19.50	13	19.50	13	19.50	13	19.50	69	103.50
14	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	1	0.25	All Blocks except B6	30	8.00	31	7.75	32	8.00	31	7.75	34	8.50	158	39.50
	Total					**4662.00**		**459.83**		**437.37**		**397.87**		**351.64**		**6308.71**

B1-Andhanallur, B2-Manikandam, B3-Thiruverambur, B4-Manapparai, B5-Marungapuri, B6-Vaiyampatty, B7-Lalgudi, B8-Manachanallur, B9-Pullambady, B10-Musiri, B11-Thottiam, B12-T.pet, B13-Thuraiyur, B14-Uppiliyapuram

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 disseminating 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 Trichy. The overall budget requirement for implementation of above interventions is **₹ 217.76 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

(₹.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 laboratory facilities**															
1	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	0.00	0.00	0.00	0.00	0.00	0.00	1.00	13.36
II	**Strengthening of communication and networking facilities**															
1	Computer accessories	No's	0.50	All Blocks	20	10.00	0	0.00	0	0.00	0	0.00	0	0.00	20	10.00
III	**Capacity Building**															
1	Training to seed grower for quality seed production	No's	0.2	All Blocks	0	0.00	6	1.20	6	1.20	6	1.20	6	1.20	24	4.80
2	Training to seed producers on seed certification procedures	No's	0.1	All Blocks	0	0.00	1	0.10	1	0.10	1	0.10	1	0.10	4	0.40
IV	**Infrastructure and assets**															
1	Strengthening of office premises by constructing new buildings	m2	0.21	All Blocks	884.6	189.20	0	0.00	0	0.00	0	0.00	0	0.00	884.6	189.20
	Total					**212.56**		**1.30**		**1.30**		**1.30**		**1.30**		**217.76**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musisri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

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 ₹. **3378.86 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

(₹.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
	Increasing the Availability of Fodder through Field level Interventions															
1	Establishment of Vermicomposting unit (single bed)	Nos	0.05	All blocks except B13	61	3.05	61	3.05	61	3.05	61	3.05	61	3.05	305	15.25
2	Fodder production to the farmers by Hydrophonic methods	Nos	0.1	All blocks except B13	61	6.10	61	6.10	61	6.10	61	6.10	61	6.10	305	30.50
3	Distrbution of Azolla trays	Nos	0.03	All blocks	246	7.38	246	7.38	246	7.38	246	7.38	246	7.38	1230	36.90
4	Distribution of Silage bags for conservation of fodder crops	Nos	0.005	All blocks except B13	13	0.07	13	0.07	13	0.07	13	0.07	13	0.07	65	0.33
5	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
6	Meikal land development (incl infrastructure development)	acre	6	All blocks except B13	8	48.00	1	6.00	2	12.00	1	6.00	0	0.00	12	72.00
7	Distribution of Chaff Cutter to farmers	Nos	0.25	All blocks except B13	81	20.25	81	20.25	81	20.25	81	20.25	81	20.25	405	101.25
8	Distribution of Grass Cutter to farmers	Nos	0.2	All blocks except B13	81	16.20	81	16.20	81	16.20	81	16.20	81	16.20	405	81.00

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
9	Developemnt of Seed Production plots	acre	0.25	All blocks except B13	13	3.25	13	3.25	13	3.25	13	3.25	13	3.25	65	16.25
10	Distribution of Raingun to Livestock farmers	Nos	0.25	All blocks except B13	84	21.00	84	21.00	84	21.00	84	21.00	84	21.00	420	105.00
11	Distribution of sprinkler for fodder production	Nos	0.064	All blocks except B13	84	5.38	84	5.38	84	5.38	84	5.38	84	5.38	420	26.88
	Livestock Breeding Management															
12	CIDR (Controlled Internal Drug Release) for increasing Fertility in Cattle	Nos	0.01	All blocks	650	6.50	650	6.50	650	6.50	650	6.50	650	6.50	3250	32.50
13	Distribution of sex sorted semen to veterinary institution	Nos	0.015	B13	100	1.50	100	1.50	100	1.50	100	1.50	100	1.50	500	7.50
	Improving the Livestock Productivity															
14	Distibution of Sheep/Goat units -semi intensive system	Nos	0.6	All blocks	101	60.60	101	60.60	101	60.60	101	60.60	101	60.60	505	303.00

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
15	Distribution of Buffalo units(5 Buffaloes)	Nos	4.5	All blocks except B1, B3, B5, B8	12	54.00	12	54.00	12	54.00	12	54.00	12	54.00	60	270.00
16	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
17	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
18	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
19	Distribution of Piggery units (fattening-5 Nos)	Nos	1.25	All blocks except B9, B13,B14	8	10.00	8	10.00	9	11.25	8	10.00	9	11.25	42	52.50
	Improving the Service Delivery at Veterinary Institutions															
20	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
21	Establishment of Infrastructure facilities for Veterinary Institutions	Building	25	All Blocks	2	50.00	2	50.00	2	50.00	2	50.00	2	50.00	10	250.00

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
22	Establishment of Mobile Disease Diagnostic Labs	Nos	20	B6	1	20.00	0	0.00	0	0.00	0	0.00	0	0.00	1	20.00
23	Establishment of Mobile Veterinary Units	Nos	10	All Blocks except B5	3	30.00	2	20.00	2	20.00	3	30.00	2	20.00	12	120.00
24	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
25	Providing solar lighting panels at veterinary institution	Nos	1	All blocks except B9, B3, B10, B14	10	10.00	1	1.00	1	1.00	0	0.00	0	0.00	12	12.00
26	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
27	Establishment of Ambulance facility for animals	Nos	80	B1	1	80.00	1	80.00	0	0.00	0	0.00	0	0.00	2	160.00
	Livestock Management															
28	Animal Identification and Traceability	Unit of 1000 animal	0.1	All Blocks	300	30.00	30	3.00	30	3.00	30	3.00	30	3.00	420	42.00

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
29	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															
30	Establishment of Farmers training Centre	Nos	200	B1	0	0.00	1	200.00	0	0.00	0	0.00	0	0.00	1	200.00
31	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
32	Creating awarness of livestock management to the farmers through Training Programmes	Nos	0.1	All blocks	14	1.40	14	1.40	14	1.40	14	1.40	14	1.40	70	7.00
	Grand Total					**756.07**		**848.07**		**715.32**		**567.07**		**492.32**		**3378.86**

B1- Mannachanallur, B2- Uppiliyapuram, B3- Thuraiyur, B4- Thottiyam, B5- T.Pet, B6- Musiri, B7- Lalkudi, B8- Pullambadi, B9- Vaiyampatti, B10- Manapparai, B11- Manikandam, B12- Thiruverumbur, B13- Andhanallur

4.24. Budget requirement for Animal Research (TANVAS)

(₹.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	**Infrastructure and Assets**															
1	Animal Ambulance and referral hospitals for addressing rural veterinary care	No	141	All Blocks	1	141.00	1	141.00	1	141.00	0	0.00	0	0.00	3	423.00
	Total					**141.00**		**141.00**		**141.00**		**0.00**		**0.00**		**423.00**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musisri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

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 raisning 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. 23543.50 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

(₹.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
	Strengthening of milk storage and processing units															
1	Electrical installation like Tranformemr, UPS, Stabilisers, Control Panel MCC etc.,	1	25	All Blocks	1	25.00	1	25.00	1	25.00	1	25.00	1	25.00	5	125.00
2	Milk Storage Tanks of various capacities	1	15	All Blocks	2	30.00	2	30.00	2	30.00	2	30.00	2	30.00	10	150.00
3	Tub washer, Canwashers, Crate conveyor systems.	1	10	All Blocks	2	20.00	2	20.00	2	20.00	2	20.00	2	20.00	10	100.00
4	Point of Sale Machines and billing systems	1	0.25	All Blocks	50	12.50	50	12.50	50	12.50	50	12.50	50	12.50	250	62.50
5	SS pipes and fittings	1	5	All Blocks	2	10.00	2	10.00	2	10.00	2	10.00	2	10.00	10	50.00
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	2	36.00	2	36.00	2	36.00	2	36.00	10	180.00
8	Plate Heat type Chillers and pasteurizers	1	10	All Blocks	3	30.00	3	30.00	3	30.00	3	30.00	3	30.00	15	150.00
9	Milk Tankers of various capacities	1	25	All Blocks	5	125.00	5	125.00	5	125.00	5	125.00	5	125.00	25	625.00
10	Milk Pumps of Vaious capacities	1	0.5	All Blocks	7	3.50	7	3.50	7	3.50	7	3.50	9	4.50	37	18.50
11	Generator of various capacities	1	20	All Blocks	0	0.00	0	0.00	1	20.00	0	0.00	1	20.00	2	40.00
12	Curd processing equipments	1	50	All Blocks	0	0.00	1	50.00	0	0.00	0	0.00	0	0.00	1	50.00

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
13	Cleaning In Place equipments with accessories	1	75	All Blocks	0	0.00	0	0.00	1	75.00	0	0.00	0	0.00	1	75.00
	Enhancing milk production and milk processing units															
14	Veterinary Medicine	1	2	All Blocks	8	16.00	8	16.00	8	16.00	8	16.00	8	16.00	40	80.00
15	Two wheeler for AI technician	1	0.5	All Blocks	40	20.00	40	20.00	40	20.00	40	20.00	40	20.00	200	100.00
16	Computer system with accessories	1	0.5	All Blocks	40	20.00	40	20.00	40	20.00	40	20.00	40	20.00	200	100.00
17	Fodder seed materials	1	0.25	All Blocks	40	10.00	40	10.00	40	10.00	40	10.00	40	10.00	200	50.00
18	Fodder development equipments like chaff cutter, Mower etc.,	1	0.2	All Blocks	40	8.00	40	8.00	40	8.00	40	8.00	40	8.00	200	40.00
19	Bulk Milk coolers of Various capacities	1	15	All Blocks	10	150.00	10	150.00	10	150.00	10	150.00	10	150.00	50	750.00
20	Milk cans	1	0.035	All Blocks	1500	52.50	1500	52.50	1500	52.50	1500	52.50	1500	52.50	7500	262.50
21	Electronic weighing scales of various capacities.	1	0.3	All Blocks	50	15.00	50	15.00	50	15.00	50	15.00	50	15.00	250	75.00
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	100	80.00	100	80.00	100	80.00	100	80.00	100	80.00	500	400.00
24	Cow shed	1	5	All Blocks	100	500.00	100	500.00	100	500.00	100	500.00	100	500.00	500	2500.00
25	Society Buildings	1	20	All Blocks	50	1000.00	50	1000.00	50	1000.00	50	1000.00	50	1000.00	250	5000.00
26	Cryogenic containers	1	0.35	All Blocks	50	17.50	50	17.50	50	17.50	50	17.50	50	17.50	250	87.50
27	Equipments for Artificial Insemination	1	0.5	All Blocks	10	5.00	10	5.00	10	5.00	10	5.00	10	5.00	50	25.00

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
	Capacity building															
28	Training of personnel of MPCS, Union and Federation.	1	0.05	All Blocks	300	15.00	300	15.00	300	15.00	300	15.00	300	15.00	1500	75.00
29	Infertility Camps	1	0.2	All Blocks	300	60.00	300	60.00	300	60.00	300	60.00	300	60.00	1500	300.00
	Marketing structures															
30	Parlour structures	1	5		50	250.00	50	250.00	50	250.00	50	250.00	50	250.00	250	1250.00
31	Milk product storage cabinets	1	0.3	All Blocks	400	120.00	400	120.00	400	120.00	400	120.00	400	120.00	2000	600.00
32	Product Billing systems	1	0.3	All Blocks	50	15.00	50	15.00	50	15.00	50	15.00	50	15.00	250	75.00
	Quality control															
33	Adulteration detection equipments	1	4	All Blocks	2	8.00	2	8.00	2	8.00	2	8.00	2	8.00	10	40.00
34	Milk testing equipment and Laboratory.	1	5	All Blocks	1	5.00	2	10.00	2	10.00	2	10.00	2	10.00	9	45.00
	Processing and value addition															
35	Dairy Processing Plants	1	6000	All Blocks	0	0.00	0	0.00	0	0.00	0	0.00	1	6000.00	1	6000.00
36	Refrigeration Plants	1	500	All Blocks	0	0.00	0	0.00	0	0.00	0	0.00	1	500.00	1	500.00
37	Water Treatment Plants. Reverse Osmosis plant	1	100	All Blocks	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	1	100.00
38	Effluement treatment plant	1	100	All Blocks	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	1	100.00
39	Steam raisning plant with accessories	1	100	All Blocks	0	0.00	0	0.00	0	0.00	0	0.00	1	100.00	1	100.00
40	Dairy equipments	1	50	All Blocks	1	50.00	1	50.00	1	50.00	1	50.00	1	50.00	5	250.00

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
	Development of dairy sector															
41	Construction of Dairy	1	1500	All Blocks	0	0.00	0	0.00	0	0.00	1	1500.00	0	0.00	1	1500.00
42	BMC buildings	1	15	All Blocks	10	150.00	10	150.00	10	150.00	10	150.00	10	150.00	50	750.00
43	Ware house for Dairy products	1	200	All Blocks	0	0.00	0	0.00	1	200.00	0	0.00	0	0.00	1	200.00
44	Ware house for Dairy consumables	1	200	All Blocks	0	0.00	0	0.00	1	200.00	0	0.00	0	0.00	1	200.00
	Grand Total					**2931.50**		**2986.50**		**3431.50**		**4436.50**		**9757.50**		**23543.50**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musisri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

4.8. Fisheries Sector

Fisheries' as a sector is one of the thrust areas in the overall Economic development of the State playing a predominant role in its economic activity by its contribution to direct and indirect employment for more than 11 lakh fishers, contributing food security to a considerable portion of population and earning substantial revenue, especially from foreign exchange. The Fisheries sector over the years has transformed from subsistence-based artisanal activities to modern livelihood activities with the application of science and modern technologies in the field of capture fishing and culture fisheries. It is developing as a major industry with diversifications viz., exploring deep sea resources and eco-friendly aquaculture practices for culture of finfish and shell fish, ornamental fish culture, eco-tourism, fish processing parks, mid sea fish processing units, etc.

Enhancement of fisheries production

With increasing pressure on the world's inland and coastal marine fisheries, increases in production and quality of yield are being sought through the application of a range of enhancement techniques. Which of these is applied depends on the attitude to the natural resource by societies at different levels of economic development. The range of enhancement techniques involves increasing levels of human input and control which raise productivity significantly, but which also raise costs. Introductions have raised production in many areas of the world at the price of the risk of environmental disruption. Stocking is extremely widespread but has generally been applied uncritically. A variety of models are proposed to serve as a basis for more rigorous evaluation of biological and economic effectiveness of this practice. Fertilization of water bodies is used to raise levels of production further. Elimination of unwanted species then becomes necessary to maximize benefits from the target species. Adjustments to the habitats within the water body assist in raising general levels of productivity which culminate in the conversion of areas of the water into fish ponds or for cage culture. This process has important implications for the social, economic and policy context which necessitates shifts in ownership, finance and education among populations where these types of development occur**.**

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.

In the inland fisheries sector, aquaculture is poised to play a pivotal role in increasing fish production, ensuring food security and enhancing growth of the State's economy. To maximize fish production from an unit area and to generate maximum income to the fish farmers, the Government has initiated innovative approaches such as stocking of fast growing fish species in the short seasonal water bodies, integrating aquaculture in the existing irrigation systems / rain water harvesting systems, brood stock development to produce quality fish fingerlings, promotion of fish culture in farm ponds and introduction of cage culture in reservoirs etc. 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.

The interventions are

1. Biological Control of Aquatic Weeds by Stocking of Grass Carps in Aquatic Weed Infested water bodies
2. Introduction of IMC seeds in riverine check dams and weirs
3. Increasing Fishing Efficiency of Inland Fishermen and Fish Farmers
4. Enhancement of Fish production in irrigation tanks and panchayat tanks by stocking fish seeds
5. Promotion of quality fish marketing by traditional fishers by providing moped with ice box
6. Increasing safety at sea by providing life safety appliances
7. Increasing fish production in existing fish/shrimp farms by providing aerators and infrastructure
8. Resource enhancement by ranching of seeds in rivers and sea
9. Cage Culture of Cobia and Lobster
10. Introduction of short seasonal fish species in existing farm ponds
11. Organization of Fish festival

Infrastructure and assets

Fish Farming is an age old activity and in practice from ancient times. The successful fish culture requires ploughing 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.

Also, the fishery wealth in the inshore waters is being overexploited due to excessive fishing pressure on the resources. Artificial reefs help in augmenting the productivity of the marine ecosystem. Artificial reefs act as habitats to marine aquatic organisms enhance the fish production through increased breeding activity and survival of young ones and act as a barrier for bottom trawling operations.

The interventions are

1. Establishment of mini lab facilities in Government fish farms
2. Establishment of fish culture ponds and provision of inputs
3. Improvement of hygienic fish marketing by establishing modern fish kiosk TNFDC
4. Establishment of GIFT farms and provision of inputs

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 centres/data dissemination centres in Fishermen villages, animation camps in fisheries villages, seminars, exhibitions and workshop, and awareness centres for linking the fishing villages, marketing centres and the district offices.

Budget

The budget requirement for fulfilling the above interventions is ₹ **85.00 lakhs.**

Implementing agency

Department of Fisheries will be implementing the project

Table 4.26. Budget requirement for Fisheries

(₹.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
	Enhancement of fisheries															
1	Resource enhancement by ranching of seeds in rivers and sea	Nos	1	Anthanallur	0	0.00	1	1.00	0	0.00	0	0.00	0	0.00	1	1.00
2	Promotion of quality fish marketing by traditional fishers by providing mobbed with icebox	Nos	0.46	Manaparai	0	0.00	25	11.50	0	0.00	0	0.00	0	0.00	25	12.00
3	Introduction of short seasonal fish species in existing farm ponds	Nos	7.9	Lalgudi	0.1	0.79	0	0.00	0	0.00	0	0.00	0	0.00	0	1.00
4	Introduciton of IMC seeds in riverine check dams and weirs (ha.) (2000 AFL/ha. @Rs.2/seed- 100% subsidy)	ha	0.04	Lalgudi, Thiruverumbur	0	0.00	25	1.00	50	2.00	0	0.00	0	0.00	75	3.00
5	Installation of Artificial Reefs in The Inshore Areas of Tamil Nadu Coast (Unit)	Nos	10	Lalgudi	0	0.00	1	10.00	0	0.00	0	0.00	0	0.00	1	10.00
6	Increasing safety at sea by providing life buoy/life jackets	Nos	0.0616	Manaparai	0	0.00	25	1.54	0	0.00	0	0.00	0	0.00	25	2.00
7	Increasing fishing efficiency of inland fishermen and fish farmers	Nos	0.15	Lalgudi, Thiruverumbur	0	0.00	50	7.50	50	7.50	0	0.00	0	0.00	100	15.00
8	Increasing fish production in existing fish/shrimp farms by providing aerators and infrastructure	Nos	1.675	Thiruverumbur, Lalgudi	0	0.00	2	3.35	0	0.00	0	0.00	0	0.00	2	3.00
9	Improvement of hygienic fish marketing by establishing modern fish kiosk TNFDC	Nos	0.04	Manigandam, Thiruverumbur	0	0.00	0	0.00	0	0.00	50	2.00	50	2.00	100	4.00
10	Enhancement of Fish production in irrigation tanks and Panchayat tanks by stocking fish seeds	Ha	0.04	Pullampadi, Lalgudi, Manigandam	0	0.00	50	2.00	0	0.00	40	1.60	40	1.60	130	5.00

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
11	Cage Culture of Cobia and Lobster	Nos	2	Anthanallur	0	0.00	1	2.00	0	0.00	0	0.00	0	0.00	1	2.00
12	Biological Control of Aquatic Weeds by Stocking of Grass Carps in Aquatic Weed Infested water bodies	ha	0.02	Lalgudi, Manigandam, Pullampadi, Thiruverumbur	100	2.00	50	1.00	0	0.00	0	0.00	0	0.00	150	3.00
	Section Total					**3.00**		**41.00**		**10.00**		**4.00**		**4.00**		**60.00**
	Creation of infrastructure facilities															
13	Increasing seed availability by establishing seed rearing units	Nos	5	Lalgudi, Thiruverumbur	0	0.00	2	10.00	0	0.00	0	0.00	0	0.00	2	10.00
14	Establishment of fish culture ponds and provision of inputs	Nos	4.5	Thiruverumbur	1	4.50	0	0.00	0	0.00	0	0.00	0	0.00	1	5.00
	Section Total					**5.00**		**10.00**		**0.00**		**0.00**		**0.00**	**3**	**15.00**
	Capacity building programme															
15	Exposure visit to farmers to other states	Nos	0.06	Lalgudi	0	0.00	40	2.40	0	0.00	0	0.00	0	0.00	40	2.00
16	Organisation of Fish festivel	Nos	5	Anthanallur	0	0.00	1	5.00	0	0.00	0	0.00	0	0.00	1	5.00
17	Training to fish farmers	Nos	0.03	Thiruverumbur	0	0.00	40	1.20	40	1.20	0	0.00	0	0.00	80	2.00
	Section Total					**0.00**		**9.00**		**1.00**		**0.00**		**0.00**		**10.00**
	Grand Total					**7.00**		**59.00**		**11.00**		**4.00**		**4.00**		**85.00**

B1- Andanallur, B2- Lalgudi, B3- Manapparai, B4- Manikandam, B5- Mannachanallur, B6- Marungapuri, B7- Musisri, B8- Pullambadi, B9-T Pet, B10- Thiruverumbur, B11- Thottiyam, B12- Thuraiyur, B13- Uppiliyapuram, B14-Vaiyampatti

4.8.2. TNFU Research Infrastructure and Development

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.

The components required to implement the project are as follows,

- Strenghtening of farm infrastructure facilities in inland centres of TNFU
- Mobile aquaclinics for water quality analysis and disease diagnosis
- Creation of institutional fish retail outlets with the participation of stakeholders
- 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 sytems
- Supply of fish and fish products in mid day meal programme
- Supply chain management to promote consumption of farmed freshwater fishes
- Establishment of Farmers Training Facilities at regional outstations of CeSA in TNFU

Budget

The budget requirement for fulfilling the above requirements is ₹ **561.60 lakhs.**

Project implementing agency

The projects will be implemented by Tamil Nadu Fisheries University in the various colleges and research stations.

Project outcome

The creation of infrastructure will enhance the quality of the research and it paves way for the state-of-art for the young researchers. The research and developmental activities is a continuous process, the innovative ideas that emerges from the young minds will help in identifying solutions to the field problem.

Table.4.27. Budget outlay for Fisheries Research and Development

(₹.in lakhs)

Sl. No	Interventions	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	**Aquaculture**														
I	**Inland Aquaculture**														
1	Strenghtening of farm infrastructure facilities in inland centres of TNFU	150	Trichy	0	0	0	0	1	150	0	0	0	0	1	150
II	**Aquatic animal health and management**														
2	Mobile aquaclinics for water quality analysis and disease diagnosis	100	Trichy	1	100	0	0	0	0	0	0	0	0	1	100
III	**Harvest and Post harvest**														
3	**Branding of fish products and institutional marketing**														
4	Creation of institutional fish retail outlets with the participation of stakeholders	100	Trichy	0	0	1	100	0	0	0	0	0	0	1	100
IV	**Enhancement of per capita consumption of fish**														
5	Awareness campaign on health beneficial attributes of fish	0.005	Trichy	52	0.26	52	0.26	52	0.26	52	0.26	52	0.26	260	1.3
6	Production of short films on nutritive value of fish and screening in theatres and television channels	50	Trichy	0	0	0	0	1	50	0	0	0	0	1	50
V	**Ensuring nutritional security through fish and fishery products**														

Sl. No	Interventions	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
7	supply of preserved ready to eat and ready to cook fish products through public distribution sytems	12.9	Trichy	0	0	1	12.9	0	0	0	0	0	0	1	12.9
8	Supply of fish and fish products in mid day meal programme	12.9	Trichy	0	0	1	12.9	0	0	0	0	0	0	1	12.9
9	Supply chain management to promote consumption of farmed freshwater fishes	64.5	Trichy	0	0	1	64.5	0	0	0	0	0	0	1	64.5
VI	**Fisheries technology transfer**														
10	Establishment of Farmers Training Facilities at regional outstations of CeSA in TNFU	70	Trichy	1	70	0	0	0	0	0	0	0	0	1	70
	Grand total				**170.26**		**190.56**		**200.26**		**0.26**		**0.26**		**561.60**

4.9. Public Works Department

Public works department is a premier agency of the state government operating throughout the state for construction of works in Roads, Bridges, Buildings, maintenance and repairs of works and construction of works of other departments of the state government and centrally sponsored schemes. The main function of public works department is designing, construction and maintenance of roads and bridges, residential and non-residential building of state government, construction of national highway, construction of roads financed from NABARD, RIDF, CRF and construction of various works on Airport and Air landing ground.

With the declining and erratic rainfall, it has become necessary to go in for *in situ* water conservation. 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 for non-agricultural purposes result in the rainwater run-off. The *in situ* water conservation will help in reducing the water and soil erosion and also improve the ground water recharge which is the need of the day. 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 and there by crop cultivation area in tank ayacut area may be increased. Thus, the main objective of Public works department in this district is to construct check dam and Anicut across the river in order to increase the ground water level.

The major intervention proposed in Trichy districts are

1. Construction of PaganurAnicut in manikandam block and Palaiyur Tank Anicut, Edumalai Upper Anicut, Edumalai Lower Anicut, PalaiyurAnicut, ValaiyurAnicut, VengaramAnicut, AkkaraipattyAnicut, ShanmuganathiOdaiAnicut in Manachanallublock with project of ₹1035.00 lakhs.
2. Construction of anicut across Koraiyar river in Mathyanaipatti village of viralimalai taluk in Pudukottai District to feed Thorakudi tank and Consrtuction of checkdam across Koraiyar at Thirumalaisamudram village of Srirangam Taluk in Trichy with project cost of ₹1725.00 lakhs.
3. Rehabilitation of Adanur Big Tank in Adanur Village, TheerthanayakanAnicut, Construction of Checkdam across Gundar River in Murugur Village, across Kalingamudaiyanpatty Tank Surplus Course in Murugur Village and also construction of Check dam Across Upper (Tributory of Ayyar River) in Karuppampatty Village of Thuraiyur block with project cost of ₹1010.00 lakhs.
4. Rehabilitation of Thiruthalaiyur Big Tank and small tank in Thiruthalaiyur Village,Pulivalam Tank,SathanurVada&MelaEri,ThiruthalaiyurAnicut,ThiruthalaiyurOdaiKalingal and Constructoin of Check dam across Upper River near Kottathur

Village,SathanurVada&MelaEri and Ayyar River in Natchampattyand Chithambur Village in musiri block with project cost of ₹2195.00 lakhs.

5. Rehabilitation of PeriyakavundanAnicut in B.Mettur Village, BalakrishnampattyAnicut in Balakrishnampatty Village and EragudyAnicut in Eragudy Village of Uppiliyapuram block with project cost of ₹250.00 lakhs
6. Constructoin of CheckdamacrossMamundiyar River in Kannudaiyanpatty Village and Thombatchiriver at Karattupatti village of ManapparaiTaluk in Trichy District with project cost of ₹460.00 lakhs.
7. Rehabiliation of Krungulam Tank in Sekkanam village of Manapparai Taluk and Construction Checkdam across Ponnaniar River in Mugavanur Village of ManapparaiTaluk in Vayampatti block with project cost of ₹300.00 lakhs
8. Excavation of a link canal from Mettur Dam to Sarabanganathi, Ponniar, Thirumanimuthar and Ayyar Rivers to utilize the flood surplus and Augment irrigation potential through existing anicuts and tanks in Sarabanga, Thirumanimuthar and Musiri Minor Basins in Salem, Perambalur , Namakkal and Trichy Districts. LS 132.305 km to 169.305 km of Thuraiyur and Uppliayapuram block with project cost of ₹67500.00 lakhs
9. Rehabilitation of Senappanallur Tank, Kalingamudaiyanpatty Tank, Naganayankanpatty Tank, Karuppampatty Tank and TheerthanayakanAnicut of Thuraiyur block with project cost of ₹490.00 lakhs
10. Rehabilitation of Vadamalaipatty Tank in Vadamalaipatty Village of T.pet block with project cost of ₹50.00 lakhs
11. Construction of Checkdam Across Thalugai River in Uppiliyapuram block with project cost of ₹200.00 lakhs
12. Rehabilitation of Venkatachalapuram Tank outlet No.1, 2, 3 & 4 and Reddiapatty Tank Surplus Course Bed dam No.1, 2 & 3 in Uppiliyapuram block with project cost of ₹ 110.00 lakhs.
13. Construction of CheckdamAcrossKaraipottanar River in M.Kalathur Village of Thottiyam block with project cost of ₹ 450.00 lakhs.
14. Rehabiliation of MaravanurAnicut supply channel in Sevalur Village and Construction Checkdam across Ponnaniyar River in Vengaikuruchi Village of manapparai block with project cost of ₹ 575.00 lakhs.
15. Construction Checkdam across Vellar River in Valanadu Village of MarungapuriTaluk in Trichy District with project cost of ₹ 120.00 lakhs
16. Reconstruction of High Level Bridge cum Check Dam (Oosi Bridge) across Cauvery River Calingulah @ LS 4822m to Divert the flood water and Strengthening the Cauvery River LB from mile 0/0 to 4/0 in Melur Village of Srirangam Taluk of Trichy District

17. Improvements and strengthening of Coleroon RB and Cauvery LB Improvements and strengthening of from mile 4/0 to 8/2 (6800M)
18. Rehabilitation of SrirangamNattuvoikkal, Cauvery, Kattuputhur Channel, North Bank Canal, Ayyar and its branches and drains
19. Rehabilitation of North Bank Canal , Ayyar and its branches and drains
20. Construction of SUB SURFACE DYKE for Ground water augmentation across Ayyar drain and Cauvery River in Unniyur Village ThottiamTaulk of Trichy District

Budget

The budget requirement for fulfilling the above interventions is ₹ **2384.29** Crores as shown in table 4.28.

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 requirement for Public Works Department

(₹.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	Ariyavur Periyakulam	Nos	0.7	Manikandam	42.59	30.00	0	0.00	0	0.00	0	0.00	0	0.00	42.59	30.00
2	Paganur Anicut	Nos	0.25	Manikandam	60.25	15.00	0	0.00	0	0.00	0	0.00	0	0.00	60.25	15.00
3	Palaiyur Tank Anicut, Edumalai Upper Anicut, Edumalai Lower Anicut, Palaiyur Anicut, Valaiyur Anicut, Vengaram Anicut, Akkaraipatty Anicut and Shanmuganathi Odai Anicut	Nos	2.34	Manachanalur	422.37	990.00	0	0.00	0	0.00	0	0.00	0	0.00	422.37	990.00
4	Rehabilitation of Adanur Big Tank in Adanur Village	Nos	0.96	Thuraiyur	114.3	110.00	0	0.00	0	0.00	0	0.00	0	0.00	114.3	110.00
5	Construction of Checkdam Across Gundar River in Murugur Village	Nos	3.99	Thuraiyur	65.2	260.00	0	0.00	0	0.00	0	0.00	0	0.00	65.2	260.00
6	Construction of Checkdam Across Kalingamudaiyanpatty Tank Surplus Course in Murugur Village	Nos	5.12	Thuraiyur	52.7	270.00	0	0.00	0	0.00	0	0.00	0	0.00	52.7	270.00
7	Construction of Checkdam Across Upper (Tributory of Ayyar River) in Karuppampatty Village H/o Kottaiyur	Nos	5.3	Thuraiyur	47.2	250.00	0	0.00	0	0.00	0	0.00	0	0.00	47.2	250.00

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
8	Rehabilitation of Thiruthalaiyur Big Tank in Thiruthalaiyur Village	Nos	0.88	Musiri	171	150.00	0	0.00	0	0.00	0	0.00	0	0.00	171	150.00
9	Rehabilitation of Thiruthalaiyur Small Tank in Thiruthalaiyur Village	Nos	0.97	Musiri	92.33	90.00	0	0.00	0	0.00	0	0.00	0	0.00	92.33	90.00
10	Constructoin of Checkdam Across Upper River near Kottathur Village	Nos	3.8	Musiri	78.9	300.00	0	0.00	0	0.00	0	0.00	0	0.00	78.9	300.00
11	Rehabilitation of Periyakavundan Anicut in B.Mettur Village	Nos	0.31	Uppiliyapuram	159.2	50.00	0	0.00	0	0.00	0	0.00	0	0.00	159.2	50.00
12	Rehabilitation of Balakrishnampatty Anicut in Balakrishnam patty Village	Nos	0.79	Uppiliyapuram	113.3	90.00	0	0.00	0	0.00	0	0.00	0	0.00	113.3	90.00
13	Rehabilitation of Eragudy Anicut in Eragudy Village	Nos	0.57	Uppiliyapuram	193.8	110.00	0	0.00	0	0.00	0	0.00	0	0.00	193.8	110.00
14	Construction of Checkdam Across Ayyar River in Natchampatty Village	Nos	2.05	Musiri	195.4	400.00	0	0.00	0	0.00	0	0.00	0	0.00	195.4	400.00
15	Constructoin of Checkdam Across Mamundiyar River in Kannudaiyanpatty Village of Manapparai Taluk in Trichy District.	Nos	1.76	Manaparai	148	260.00	0	0.00	0	0.00	0	0.00	0	0.00	148	260.00

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
16	Rehabiliation of Krungulam Tank in Sekkanam village of Manapparai Taluk in Trichy District	Nos	0.79	Vaiampatti	127	100.00	0	0.00	0	0.00	0	0.00	0	0.00	127	100.00
17	Construction Checkdam across Ponnaniar River in Mugavanur Village of Manapparai Taluk in Trichy District	Nos	2.44	Vaiampatti	82	200.00	0	0.00	0	0.00	0	0.00	0	0.00	82	200.00
18	Excavation of a link canal from Mettur Dam to Sarabanganathi, Ponniar, Thirumanimuthar and Ayyar Rivers to utilize the flood surplus and Augment irrigation potential through existing anicuts and tanks in Sarabanga, Thirumanimuthar and Musiri Minor Basins in Salem, Perambalur , Namakkal and Trichy Districts. LS 132.305 km to 169.305 km	Nos	23.55	Uppiliyapuram and Thuraiyur	2866.6	67500.00	0	0.00	0	0.00	0	0.00	0	0.00	2866.6	67500.00
19	Construction of Checkdam across Ayyar in Chithambur Village in Musiri Taluk of Trichy District.	Nos	5.33	Musiri	120	640.00	0	0.00	0	0.00	0	0.00	0	0.00	120	640.00

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
20	Construction of anicut across Koraiyar river in Mathyanaipatti village of viralimalai taluk in Pudukottai District to feed Thorakudi tank in Srirangam Taluk of Trichy District.	Nos	7.5	Manikandam	150	1125.00	0	0.00	0	0.00	0	0.00	0	0.00	150	1125.00
21	Consrtuction of checkdam across Koraiyar at Thirumalaisamudram village of Srirangam Taluk in Trichy District.	Nos	600	Manikandam	1	600.00	0	0.00	0	0.00	0	0.00	0	0.00	1	600.00
22	Consrtuction of checkdam across Thombatchi river at Karattupatti village of ManapparaiTaluk in Trichy District.	Nos	200	Manaparai	1	200.00	0	0.00	0	0.00	0	0.00	0	0.00	1	200.00
23	Rehabilitation of Senappanallur Tank in Senappanallur Village	Nos	0.98	Thuraiyur	0	0.00	153.6	150.00	0	0.00	0	0.00	0	0.00	153.6	150.00
24	Rehabilitation of Kalingamudaiyanpatty Tank in Kalingamudaiyanpatty Village	Nos	0.88	Thuraiyur	0	0.00	102.02	90.00	0	0.00	0	0.00	0	0.00	102.02	90.00
25	Rehabilitation of Naganayankanpatty Tank in Naganayankanpatty Village	Nos	1.01	Thuraiyur	0	0.00	69.15	70.00	0	0.00	0	0.00	0	0.00	69.15	70.00

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
26	Rehabilitation of Karuppampatty Tank in Karuppampatty Village	Nos	1	Thuraiyur	0	0.00	60.14	60.00	0	0.00	0	0.00	0	0.00	60.14	60.00
27	Rehabilitation of Vadamalaipatty Tank in Vadamalaipatty Village	Nos	1.14	T. Pet	0	0.00	43.88	50.00	0	0.00	0	0.00	0	0.00	43.88	50.00
28	Rehabilitation of Pulivalam Tank in Pulivalam Village	Nos	1.24	Musiri	0	0.00	40.48	50.00	0	0.00	0	0.00	0	0.00	40.48	50.00
29	Rehabilitation of Sathanur Vada & Mela Eri in Sathanur Village	Nos	1.16	Musiri	0	0.00	43.2	50.00	0	0.00	0	0.00	0	0.00	43.2	50.00
30	Rehabilitation of Thiruthalaiyur Anicut in Thiruthalaiyur Village	Nos	0.83	Musiri	0	0.00	242.4	200.00	0	0.00	0	0.00	0	0.00	242.4	200.00
31	Rehabilitation of Thiruthalaiyur Odai Kalingal in Thiruthalaiyur Village	Nos	1.13	Musiri	0	0.00	30.9	35.00	0	0.00	0	0.00	0	0.00	30.9	35.00
32	Construction of Checkdam Across Sathanur Vada & Mela Eri Surplus Course in Sathanur Village	Nos	7.89	Musiri	0	0.00	35.5	280.00	0	0.00	0	0.00	0	0.00	35.5	280.00
33	Rehabilitation of Theerthanayakan Anicut	Nos	1	Thuraiyur	0	0.00	120.16	120.00	0	0.00	0	0.00	0	0.00	120.16	120.00
34	Construction of Checkdam Across Thalugai River in Uppiliyapuram Village	Nos	4.39	Uppiliyapuram	0	0.00	45.6	200.00	0	0.00	0	0.00	0	0.00	45.6	200.00

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
35	Rehabilitation of Venkatachalapuram Tank outlet No.1, 2, 3 & 4 in Uppiliyapuram Village	Nos	0.98	Uppiliyapuram	0	0.00	61.26	60.00	0	0.00	0	0.00	0	0.00	61.26	60.00
36	Rehabilitation of Reddiapatty Tank Surplus Course Bed dam No.1, 2 & 3 in Reddiapatty Village	Nos	1.83	Uppiliyapuram	0	0.00	27.34	50.00	0	0.00	0	0.00	0	0.00	27.34	50.00
37	Construction of Checkdam Across Karaipottanar River in M.Kalathur Village	Nos	2.55	Thottiyam	0	0.00	176.5	450.00	0	0.00	0	0.00	0	0.00	176.5	450.00
38	Rehabiliation of Maravanur Anicut supply channel in Sevalur Village of Manapparai Taluk in Trichy District	Nos	1.26	Manaparai	0	0.00	396.08	500.00	0	0.00	0	0.00	0	0.00	396.08	500.00
39	Construction Checkdam across Ponnaniyar River in Vengaikuruchi Village	Nos	0.61	Manaparai	0	0.00	122	75.00	0	0.00	0	0.00	0	0.00	122	75.00
40	Construction Checkdam across Vellar River in Valanadu Village of Marungapuri Taluk in Trichy District	Nos	1.76	Manaparai	0	0.00	68	120.00	0	0.00	0	0.00	0	0.00	68	120.00
41	Construction of Checkdam across Gundar in Murugur Village in Thuraiyur Taluk of Trichy District.	Nos	2.4	Thuraiyur	0	0.00	100	240.00	0	0.00	0	0.00	0	0.00	100	240.00

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
42	Consrtuction of checkdam across Mamundiyar river at Chittanatham village of ManapparaiTaluk in Trichy District.	Nos	200	Manaparai	0	0.00	1	200.00	0	0.00	0	0.00	0	0.00	1	200.00
43	Consrtuction of checkdam across Mamundiyar river at Sevalur village of ManapparaiTaluk in Trichy District.	Nos	225	Manaparai	0	0.00	1	225.00	0	0.00	0	0.00	0	0.00	1	225.00
44	Rehabilitation of Adanur Anicut in Kothampatty Village	Nos	1.56	Thuraiyur	0	0.00	0	0.00	38.45	60.00	0	0.00	0	0.00	38.45	60.00
45	Rehabilitation of Senappanallur Anicut in Senappanallur Village	Nos	1.36	Thuraiyur	0	0.00	0	0.00	36.8	50.00	0	0.00	0	0.00	36.8	50.00
46	Construction of Checkdam Across Upper near Vellakkalpatty Village	Nos	9.71	Musiri	0	0.00	0	0.00	30.9	300.00	0	0.00	0	0.00	30.9	300.00
47	Rehabilitation of Jambumadai Tank in Jambumadai Village	Nos	1.18	Musiri	0	0.00	0	0.00	42.22	50.00	0	0.00	0	0.00	42.22	50.00
48	Rehabilitation of Jamberi Tank in Vairichettipalayam Village	Nos	0.48	Uppiliyapuram	0	0.00	0	0.00	412.77	200.00	0	0.00	0	0.00	412.77	200.00
49	Rehabilitation of Venkatachalapuram Tank in Venkatachalapuram Village	Nos	1.02	Uppiliyapuram	0	0.00	0	0.00	49.24	50.00	0	0.00	0	0.00	49.24	50.00

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
50	Construction of Checkdam Across Uthrachakombaiyaru River in Valavanthi Village	Nos	1.74	T. Pet	0	0.00	0	0.00	143.4	250.00	0	0.00	0	0.00	143.4	250.00
51	Rehabiliation of Pannaiperiyakulam Tank in Thalampadi Village of Marungapuri Taluk in Trichy Distict	Nos	0.5	Manaparai	0	0.00	0	0.00	100	50.00	0	0.00	0	0.00	100	50.00
52	Rehabiliation of Thoppampatty Tank in Thoppampatty village of Manapaprai Taluk in Trichy District	Nos	0.43	Manaparai	0	0.00	0	0.00	115	50.00	0	0.00	0	0.00	115	50.00
53	Construction of Checkdam across Talugai River near Uppiliyapuram Village in Thuraiyur Taluk of Trichy District.	Nos	1.87	Thuraiyur	0	0.00	0	0.00	75	140.00	0	0.00	0	0.00	75	140.00
54	Construction of Checkdam across Uppar in Kottathur Village in Musiri Taluk of Trichy District.	Nos	5.6	Musiri	0	0.00	0	0.00	50	280.00	0	0.00	0	0.00	50	280.00
55	Consrtuction of checkdam across Ponnaniyar river at Vengaikurichi village of ManapparaiTaluk in Trichy District.	Nos	175	Manaparai	0	0.00	0	0.00	1	175.00	0	0.00	0	0.00	1	175.00

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
56	Consrtuction of checkdam across South Vellar river at T.Idayapatti village of MarungapuriTaluk in Trichy District.	Nos	100	Manaparai	0	0.00	0	0.00	1	100.00	0	0.00	0	0.00	1	100.00
57	Construction of check dam across Palar river in Thetthur village of Marungapuri taluk in Tiruchirappalli District.	Nos	3.51	Manaparai	0	0.00	0	0.00	122.42	430.00	0	0.00	0	0.00	122.42	430.00
58	Rehabilitation of Thuraiyur Big Tank in Thuraiyur Village	Nos	0.9	Thuraiyur	0	0.00	0	0.00	0	0.00	223.2	200.00	0	0.00	223.2	200.00
59	Rehabilitation of Thuraiyur Small Tank in Thuraiyur Village	Nos	1.59	Thuraiyur	0	0.00	0	0.00	0	0.00	31.45	50.00	0	0.00	31.45	50.00
60	Rehabilitation of Singalandapuram Tank in Singalandapuram Village	Nos	0.85	Thuraiyur	0	0.00	0	0.00	0	0.00	141.78	120.00	0	0.00	141.78	120.00
61	Rehabilitation of Nagalapuram Tank in Nagalapuram Village	Nos	1.08	Thuraiyur	0	0.00	0	0.00	0	0.00	46.27	50.00	0	0.00	46.27	50.00
62	Rehabilitation of Adanur Small Tank in Adanur Village	Nos	1.16	Thuraiyur	0	0.00	0	0.00	0	0.00	34.47	40.00	0	0.00	34.47	40.00
63	Rehabilitation of Pudhupatty Anicut in Pudhupatty Village	Nos	0.99	Uppiliyapuram	0	0.00	0	0.00	0	0.00	40.26	40.00	0	0.00	40.26	40.00
64	Rehabilitation of Sanniyasi Kalingal in Uppiliyapuram Village	Nos	1.54	Uppiliyapuram	0	0.00	0	0.00	0	0.00	19.54	30.00	0	0.00	19.54	30.00

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
65	Rehabilitation of Sithambur Tank in Sithambur Village	Nos	0.76	Musiri	0	0.00	0	0.00	0	0.00	65.87	50.00	0	0.00	65.87	50.00
66	Rehabilitation of Kolakkudi Tank in Kolakkudi Village	Nos	0.84	Thottiyam	0	0.00	0	0.00	0	0.00	119	100.00	0	0.00	119	100.00
67	Rehabilitation of Sittilarai Tank in Sittilarai Village	Nos	0.8	T.pet	0	0.00	0	0.00	0	0.00	99.88	80.00	0	0.00	99.88	80.00
68	Rehabilitation of M.Kalathur Tank in M.Kalathur Village	Nos	0.8	Thottiyam	0	0.00	0	0.00	0	0.00	314.2	250.00	0	0.00	314.2	250.00
69	Rehabilitation of Perur Tank in Perur Village	Nos	0.81	Musiri	0	0.00	0	0.00	0	0.00	110.8	90.00	0	0.00	110.8	90.00
70	Rehabilitation of Neyveli Tank in Neyveli Village	Nos	0.79	Musiri	0	0.00	0	0.00	0	0.00	94.7	75.00	0	0.00	94.7	75.00
71	Rehabilitation of Komangalam Tank in Komangalam Village	Nos	0.84	Musiri	0	0.00	0	0.00	0	0.00	29.92	25.00	0	0.00	29.92	25.00
72	Rehabiliation of Valanadu periyakulam in Valanadu Village of Marungapuri Taluk in Trichy District	Nos	0.21	Manaparai	0	0.00	0	0.00	0	0.00	480.82	100.00	0	0.00	480.82	100.00
73	Construction of Checkdam across Rudrakshakombai River in Valavandhi Village in Musiri Taluk of Trichy District.	Nos	4.27	Musiri	0	0.00	0	0.00	0	0.00	75	320.00	0	0.00	75	320.00
74	Consrtuction of checkdam across Palar river at Mettupatti village of MarungapuriTaluk in Trichy District.	Nos	100	Manaparai	0	0.00	0	0.00	0	0.00	1	100.00	0	0.00	1	100.00

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
75	Rehabilitation of Kottathur Tank in Kottathur Village	Nos	0.95	Musiri	0	0.00	0	0.00	0	0.00	0	0.00	94.3	90.00	94.3	90.00
76	Rehabilitation of Pulivalam Tank in Pulivalam Village	Nos	0.95	Musiri	0	0.00	0	0.00	0	0.00	0	0.00	126.8	120.00	126.8	120.00
77	Rehabilitation of Mahadevi Upper & Lower Tank in Mahadevi Village	Nos	1.04	T.pet	0	0.00	0	0.00	0	0.00	0	0.00	114.9	120.00	114.9	120.00
78	Rehabilitation of Veeramachanpatty Upper Anicut in Veeramachanpatty Village	Nos	1.06	Thuraiyur	0	0.00	0	0.00	0	0.00	0	0.00	66.1	70.00	66.1	70.00
79	Rehabilitation of Veeramachanpatty Lower Anicut in Veeramachanpatty Village	Nos	1.06	Thuraiyur	0	0.00	0	0.00	0	0.00	0	0.00	66.09	70.00	66.09	70.00
80	Rehabilitation of Okkarai Tank in Okkarai Village	Nos	0.63	Uppiliyapuram	0	0.00	0	0.00	0	0.00	0	0.00	103.12	65.00	103.12	65.00
81	Rehabilitation of Sikkathambur Tank in Sikkathambur Village	Nos	0.61	Thuraiyur	0	0.00	0	0.00	0	0.00	0	0.00	203.71	125.00	203.71	125.00
82	Rehabiliation of Sirunavalur Tank in Sirunavalur Village	Nos	0.67	Uppiliyapuram	0	0.00	0	0.00	0	0.00	0	0.00	165.2	110.00	165.2	110.00
83	Rehabilitation of Alathudaiyanpatty Big Tank in Alathudaiyanpatty Village	Nos	0.69	Uppiliyapuram	0	0.00	0	0.00	0	0.00	0	0.00	131.2	90.00	131.2	90.00
84	Rehabilitation of Maruvathur Tank in Maruvathur Village	Nos	0.78	Thuraiyur	0	0.00	0	0.00	0	0.00	0	0.00	57.86	45.00	57.86	45.00
85	Rehabilitation of Keerambur Tank in Keerambur Village	Nos	0.61	Thuraiyur	0	0.00	0	0.00	0	0.00	0	0.00	245.36	150.00	245.36	150.00

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
86	Rehabilitation of Sobanapuram Tank in Sobanapuram Village	Nos	0.63	Uppiliyapuram	0	0.00	0	0.00	0	0.00	0	0.00	157.9	100.00	157.9	100.00
87	Rehabilitation of Kuravan Kalingal Anicut in Kottapalayam Village	Nos	0.84	Uppiliyapuram	0	0.00	0	0.00	0	0.00	0	0.00	83.35	70.00	83.35	70.00
88	Rehabilitation of Kamatchiamman Kalingal Anicut in Vairichettipalayam Village	Nos	0.82	Uppiliyapuram	0	0.00	0	0.00	0	0.00	0	0.00	61.26	50.00	61.26	50.00
89	Rehabilitation of Maradi Tank in Maradi Village	Nos	0.74	Uppiliyapuram	0	0.00	0	0.00	0	0.00	0	0.00	81.23	60.00	81.23	60.00
90	Rehabiltation of Nagaiyanallur Tank in Nagaiyanallur Village	Nos	0.79	Thottiyam	0	0.00	0	0.00	0	0.00	0	0.00	215.98	170.00	215.98	170.00
91	Rehabilitation of Pidaramangalam Tank in Pidaramangalam Village	Nos	0.8	Thottiyam	0	0.00	0	0.00	0	0.00	0	0.00	93.69	75.00	93.69	75.00
92	Rehabilitatino of Murungai Tank in Murungai Village	Nos	0.86	Thottiyam	0	0.00	0	0.00	0	0.00	0	0.00	17.42	15.00	17.42	15.00
93	Rehabilitation of Serugudy Tank in Serugudy Village	Nos	0.97	T.pet	0	0.00	0	0.00	0	0.00	0	0.00	41.45	40.00	41.45	40.00
94	Rehabilitation of Soorampatty Tank in Soorampatty Village	Nos	0.86	T.pet	0	0.00	0	0.00	0	0.00	0	0.00	46.55	40.00	46.55	40.00
95	Rehabilitation of Ammangudy Tank in Ammangudy Village	Nos	0.84	Thottiyam	0	0.00	0	0.00	0	0.00	0	0.00	47.9	40.00	47.9	40.00

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
96	Rehabilitation of Appanallur Tank in Appanallur Village	Nos	0.83	Thottiyam	0	0.00	0	0.00	0	0.00	0	0.00	96.79	80.00	96.79	80.00
97	Rehabilitation of Sevalur Tank in Sevalur Village of Manapaprai Taluk in Trichy District	Nos	0.3	Manaparai	0	0.00	0	0.00	0	0.00	0	0.00	246.02	75.00	246.02	75.00
98	Construction of anicut across keel Koraiyar river in Sengalakudi village of viralimalai taluk in Pudukottai District to feed Kolkottakudi tank in Srirangam Taluk of Trichy District.	Nos	2.5	Manikandam	0	0.00	0	0.00	0	0.00	0	0.00	120	300.00	120	300.00
99	Construction of Checkdam across Karaipottanar in M.Kalathur Village in Thottiyam Taluk of Trichy District	Nos	6.75	Thottiyam	0	0.00	0	0.00	0	0.00	0	0.00	80	540.00	80	540.00
100	Reconstruction of High Level Bridge cum Check Dam (Oosi Bridge) across Cauvery River Calingulah @ LS 4822m to Divert the flood water and Strengthening the Cauvery River LB from mile 0/0 to 4/0 in Melur Village of Srirangam Taluk of Trichy District	Nos	1200	Andanaullur	1	1200.00	0	0.00	0	0.00	0	0.00	0	0.00	1	1200.00

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
101	Improvements and strengthening of Coleroon RB from mile 3/7 to 8/7 (8000M)	Nos	2400	Andanaullur	1	2400.00	0	0.00	0	0.00	0	0.00	0	0.00	1	2400.00
102	Improvements and strengthening of Cauvery LB from mile 4/0 to 8/2 (6800M)	Nos	2100	Andanaullur	1	2100.00	0	0.00	0	0.00	0	0.00	0	0.00	1	2100.00
103	Rehabilitation of Srirangam Nattu voikkal from mile 6/0 to 12/2 (10000M) and its branches and drains	Nos	4.03	Andanaullur	1364.77	5500.00	0	0.00	0	0.00	0	0.00	0	0.00	1364.77	5500.00
104	Rehabilitation of Cauvery LB from mile 77/7 to 110/0	Nos	6527	Thottiyam	1	6527.00	0	0.00	0	0.00	0	0.00	0	0.00	1	6527.00
105	Rehabilitation of Kattuputhur Channel and its branches and drains	Nos	3.6	Thottiyam	2011.34	7236.00	0	0.00	0	0.00	0	0.00	0	0.00	2011.34	7236.00
106	Reconstruction of High Level Bridge cum Check Dam (Oosi Bridge) across Cauvery River Calingulah @ LS 4822m to Divert the flood water and Strengthening the Cauvery River LB from mile 0/0 to 4/0 in Melur Village of Srirangam Taluk of Trichy District	Nos	1200	Andanaullur	0	0.00	1	1200.00	0	0.00	0	0.00	0	0.00	1	1200.00

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
107	Improvements and strengthening of Coleroon RB from mile 3/7 to 8/7 (8000M)	Nos	2400	Andanaullur	0	0.00	1	2400.00	0	0.00	0	0.00	0	0.00	1	2400.00
108	Improvements and strengthening of Cauvery LB from mile 4/0 to 8/2 (6800M)	Nos	2100	Andanaullur	0	0.00	1	2100.00	0	0.00	0	0.00	0	0.00	1	2100.00
109	Rehabilitation of Srirangam Nattu voikkal from mile 6/0 to 12/2 (10000M) and its branches and drains	Nos	4.03	Andanaullur	0	0.00	1364.7	5500.00	0	0.00	0	0.00	0	0.00	1364.77	5500.00
110	Rehabilitation of Cauvery LB from mile 77/7 to 110/0	Nos	6527	Thottiyam	0	0.00	1	6527.00	0	0.00	0	0.00	0	0.00	1	6527.00
111	Rehabilitation of Kattuputhur Channel and its branches and drains	Nos	3.6	Thottiyam	0	0.00	2011.3	7236.00	0	0.00	0	0.00	0	0.00	2011.34	7236.00
112	Rehabilitation of North Bank Canal and its branches and drains	Nos	3.55	Thottiyam and Musiri	0	0.00	0	0.00	4210.5	14944.00	0	0.00	0	0.00	4210.53	14944.00
113	Rehabilitation of Ayyar drain from LS 0M to 4800M	Nos	28812	Musiri	0	0.00	0	0.00	1	28812.00	0	0.00	0	0.00	1	28812.00
114	Construction of SUB SURFACE DYKE for Ground water augmentation across Ayyar drain	Nos	1000	Musiri	0	0.00	0	0.00	1	1000.00	0	0.00	0	0.00	1	1000.00

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
115	Construction of SUB SURFACE DYKE for Ground water augmentation across Cauvery River in Unniyur Village Thottiam Taulk of Trichy District	Nos	3500	Thottiyam	0	0.00	0	0.00	1	3500.00	0	0.00	0	0.00	1	3500.00
116	Construction of SUB SURFACE DYKE for Ground water augmentation across Cauvery River in Ayyampalayam Village Musiri Taluk of Trichy District .	Nos	3600	Musiri	0	0.00	0	0.00	1	3600.00	0	0.00	0	0.00	1	3600.00
117	Rehabilitation of North Bank Canal and its branches and drains	Nos	3.55	Thottiyam and Musiri	0	0.00	0	0.00	0	0.00	4210.53	14944.00	0	0.00	4210.53	14944.00
118	Rehabilitation of Ayyar drain from LS 0M to 4800M	Nos	28812	Musiri	0	0.00	0	0.00	0	0.00	1	28812.00	0	0.00	1	28812.00
119	Construction of SUB SURFACE DYKE for Ground water augmentation across Ayyar drain	Nos	1000	Musiri	0	0.00	0	0.00	0	0.00	1	1000.00	0	0.00	1	1000.00
120	Construction of SUB SURFACE DYKE for Ground water augmentation across Cauvery River in Unniyur Village Thottiam Taulk of Trichy District	Nos	3500	Thottiyam	0	0.00	0	0.00	0	0.00	1	3500.00	0	0.00	1	3500.00

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
121	Construction of SUB SURFACE DYKE for Ground water augmentation across Cauvery River in Ayyampalayam Village Musiri Taluk of Trichy District .	Nos	3600	Musiri	0	0.00	0	0.00	0	0.00	1	3600.00	0	0.00	1	3600.00
122	Reconstruction of Thirumangalam Anicut in Thirumangalam Village	Nos	0.52	Lalkudi	0	0.00	0	0.00	0	0.00	0	0.00	1098.14	570.00	1098.14	570.00
123	Reconstruction of Nagar Check dam across Upper Panguni drainage channel at mile 12/3 in Nagar Village.	Nos	1.08	Lalkudi	0	0.00	0	0.00	0	0.00	0	0.00	182.19	196.00	182.19	196.00
124	Reconstruction of Athu Voikkal Check Dam across Upper Panguni channel at mile 15/7 in Thirumangalam Village	Nos	1.81	Lalkudi	0	0.00	0	0.00	0	0.00	0	0.00	107.69	195.00	107.69	195.00
125	Rehabilitation of Sangenthi Tank in Sangenthi Village	Nos	0.45	Lalkudi	0	0.00	0	0.00	0	0.00	0	0.00	441.5	200.00	441.5	200.00
	Total					**98703.00**		**28238.00**		**54041.00**		**53576.00**		**3871.00**		**238429.00**

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

- Construction of Office Building in Andhanallur, Lalkudi, Manapparai, Musiri, T.Pet, Thiruverumbur and Uppiliyapuram blocks
- Construction of compound wall in all blocks except Manikandam and Thuraiyur blocks
- Office Building Renovation in Manapparai, Pullambadi, Thottiyam and Thiruverumbur
- Vegetable collection centre in Manapparai block
- Godown Renovation in all blocks except Andhanallur and Manikandam blocks
- Processing unit in Thuraiyur block
- Godown construction in Manapparai, Marungapuri and Thiruverumbur blocks
- Agricultural Equipments

Budget

It is proposed to incur **Rs. 903.36 lakhs** over a period of five years.

Implementing agency

Department of Cooperation will be implementing the project

4.29. Budget requirement for Cooperative Sector

(₹.in lakhs)

Sl. No	Interventions	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
	Infrastructure													
1	Construction of Compound wall	All blocks except B5,B11	8	31.75	10	54.40	14	69.00	9	84.95	4	15.00	45	255.10
2	Construction of Godown	B4,B6,B12	0	0.00	1	15.00	1	20.00	0	0.00	0	0.00	2	35.00
3	Construction of Office Building	B1,B2,B4,B7,B9 ,B12,B13	5	100.00	5	102.00	0	0.00	0	0.00	1	22.00	11	224.00
4	Establishment of Processing unit	B11	0	0.00	0	0.00	0	0.00	1	40.00	1	22.00	2	62.00
5	Renovation of Godown	All blocks except B1,B5	6	9.65	8	49.00	2	11.00	1	4.00	0	0.00	17	73.65
6	Renovation of Office Building	B4,B8,B10,B12	7	20.00	4	23.00	3	26.00	2	5.00	2	3.61	18	77.61
7	Vegetable Collection Centre	B4	0	0.00	0	0.00	1	11.00	0	0.00	0	0.00	1	11.00
8	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	All Blocks	1	55.00	1	55.00	1	55.00	0	0.00	0	0.00	3	165.00

Sl. No	Interventions	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
	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)													
	Total			**216.40**		**298.40**		**192.00**		**133.95**		**62.61**		**903.36**

B1- Andanallur, B2- Lalgudi, B3- Mannachanallur, B4- Manapparai, B5- Manikandam, B6- Marungapuri , B7- Musiri, B8- Pullambadi, B9-T Pet, B10- Thottiyam, B11- Thuraiyur, B12- Thiruverumbur, , B13- Uppiliyapuram, B14-Vaiyampatti

Table 4.30 Budget Abstract for Trichy District

(₹.in lakhs)

Sl. No	Sectors	2017-18	2018-19	2019-20	2020-21	2021-22	Total
1	Agriculture	99166.56	100433.27	100659.51	100165.19	103664.37	504088.90
2	Agricultural Research (TNAU)	742.00	584.69	327.69	261.00	126.00	2041.38
3	Horticulture	4115.20	5677.98	5148.67	5681.88	7218.70	27842.43
4	Agricultural Engineering	1386.27	1398.96	1350.91	1421.90	1442.21	7000.25
5	Agricultural Marketing	4662.00	459.83	437.37	397.87	351.64	6308.71
6	Seed Certification & Organic Certification	212.56	1.30	1.30	1.30	1.30	217.76
7	Animal Husbandry	756.07	848.07	715.32	567.07	492.32	3378.85
8	Animal Science Research (TANVAS)	141.00	141.00	141.00	0.00	0.00	423.00
9	Dairy Development	2931.50	2986.50	3431.50	4436.50	9757.50	23543.50
10	Fisheries	7.00	59.00	11.00	4.00	4.00	85.00
11	Fisheries Research (TNFU)	170.26	190.56	200.26	0.26	0.26	561.60
12	Water Resource Organization (PWD)	98703.00	28238.00	54041.00	53576.00	3871.00	238429.00
13	Civil Supplies & Co-Operation	216.40	298.40	192.00	133.95	62.61	903.36
	Total	**213209.82**	**141317.56**	**166657.53**	**166646.92**	**126991.91**	**814823.74**


KARNATAKA
KERALA
SRI LANKA