NATIONAL AGRICULTURE DEVELOPMENT PROGRAMME (NADP)

DISTRICT AGRICULTURE PLAN

RAMANADHAPURAM

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

Ramanathapuram District situated in the southeast corner of Tamil Nadu State falls in the rain shadow region and therefore is a highly drought prone and most backward in development. It is surrounded by Pudukottai District in the North, Sivagangai and Virudunagar District in the Northwest and West, Tirunelveli, Thoothukudi and Gulf of Mannar on the South, Palk Strait on the East. The district in its present form came into existence on 15th March 1985 by trifurcating the composite Ramanathapuram district originally created in 1910. The District lies between $9^{o}05$ and $9^{o}50$ Northern Latitude and $78^{o}10$ and $79^{o}27$ Eastern Longitude . The district has a total area of 4104 Km ^{2}. The unique feature of this district is the longest coastal line measuring about 271 km accounting for nearly 1/4th of the total length of the coastal line of the State. There are 7 revenue taluks namelyThiruvadanai, Paramakudi, Kamuthi, Mudukulathur, Kadaladi, Ramanthapuram and Rameswaram. The district constitutes 8 panchayat unions and 10 town panchayats.

Average literacy rate of Ramanathapuram in 2011 was 80.72 per cent with 9,78,946 compared to 72.96 per cent in 2001. The total workers population in 11 blocks is about 6,02,977 numbers i.e. 44.55 per cent of total population. The workers from other sectors constitute about 41.48 per cent. The soils of Ramanathapuram District includes sandy soil, clay soil, sandy clay soil, alluvial soil, sandy loam soil, coastal alluvial soil and red soil.The major soil type of the district is clay soil which covers about 1,82,463 ha i.e., 44.62 per cent followed by coastal alluvial soil (17%) and sandy loam (15%) .

The total reporting geographical area of the district is 4,08,957ha, of which net sown area accounted for 2,00,779 ha i.e., 49.15 per cent for the triennium ending 2011. The total forest area of the district is 4488 ha i.e., 1.09 per cent. Agricultural area under irrigation is up to 32 per cent (63,591 ha). Paddy, groundnut, black gram, cotton and cholam are the major agricultural crops cultivated in the district. With regards to horticultural crops chilli and coconut are major crops grown. Besides other crops like ragi, cumbu, kudiraivalli, sunflower, coriander and sugarcane are also grown in the district.

The allied sectors include animal husbandry, agricultural engineering, fisheries, forestry, seed certification etc. The strategies identified in the block level meetings were formulated as detailed project proposal and budget were arrived for the five year period. Some of the strategies were increasing productivity of semi dry rice, cotton, millet cultivation, augmenting pulses, promotion of livestocks, promotion of inland fisheries, seed certification,

custom hiring of farm machineries, promotion of IPM and farm mechanization in horticulture sector, soil conservation structures etc.

Budget Abstract for Ramanathapuram District

(₹. in lakhs)

Sl. No	Sectors	2017-18	2018-19	2019-20	2020-21	2021-22	Total
1	Agriculture	5618.73	4678.08	4508.10	5585.12	5417.68	25807.71
2	Agricultural Research (TNAU)	0.00	448.55	521.65	13.34	0.00	983.54
3	Horticulture	638.23	613.43	647.28	665.68	685.58	3250.20
4	Agricultural Engineering	1084.18	1466.01	1888.16	2043.06	2079.86	8561.25
5	Agricultural Marketing	1360.79	1276.91	428.13	344.15	446.15	3856.13
6	Seed Certification & Organic Certification	18.36	13.36	362.29	0.00	0.00	394.00
7	Animal Husbandry	655.50	847.50	676.50	615.50	573.50	3368.50
8	Dairy Development	449.25	790.25	740.25	449.25	459.25	2888.25
9	Fisheries	10.00	2671.14	270.52	220.64	220.52	3392.80
10	Fisheries Research (TNFU)	570.73	1072.53	1170.73	425.73	111.73	3351.43
11	Water Resource Organization (PWD)	4675.00	2380.00	1613.00	1035.00	2552.00	12255.00
12	Civil Supplies & Co-Operation	389.32	244.87	183.70	157.54	152.16	1127.59
	Total	**15470.09**	**16502.63**	**13010.31**	**11555.01**	**12698.43**	**69236.4**

The total budget requirement for the implementation of various interventions by different departments in Ramanathapuram district is**₹69236.40 Lakhs**.

CHAPTER I

INTRODUCTION

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

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

Objectives of RKVY

a. To strengthen the farmers' efforts through creation of required pre and post-harvest agri-infrastructure that increases access to quality inputs, storage, market facilities etc. and enables farmers to make informed choices.
b. To provide autonomy, flexibility to States to plan and execute schemes as per local/ farmers' needs.
c. To promote value chain addition linked production models that will help farmers increase their income as well as encourage production/productivity
d. To mitigate risk of farmers with focus on additional income generation activities - like integrated farming, mushroom cultivation, bee keeping, aromatic plant cultivation, floriculture etc.
e. To attend national priorities through several sub-schemes.
f. To empower youth through skill development, innovation and agri- entrepreneurship based agribusiness models that attract them to agriculture.

District and State Agriculture Plans

As per the recent guidelines issued by the Government of India under Remunerative Approaches for Agriculture and Allied sector Rejuvenation (RAFTAAR), the new projects proposed and are to be implemented under NADP/RKVY must be in consonant with District Agricultural Plans (DAP), State Agriculture Plans (SAP) and State Agriculture

Infrastructure Development Program (SAIDP) prepared by the individual States. Thus, such action-oriented plan documents will remain as a cornerstone of planning and implementation of the NADP/RKVY and other schemes.

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

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

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

The Process

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

Revision and Updation of DAP and SAP in Tamil Nadu

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

Methodology followed

The revision of the District Agricultural Plan of Ramanathapuram 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

In this chapter, the following details are discussed elaborately at Block and District level.

2.1 District at a glance

Ramanathapuram district situated in the southeast corner of Tamil Nadu state falls in the rain shadow region and thereby is a highly drought prone and most backward in development. It is surrounded by Pudukottai District in the North, Sivagangai and Virudunagar District in the Northwest and West, Tirunelveli, Thoothukudi Districts and Gulf of Mannar on the South, Palk Strait on the East. The district in its present form came into existence on 15th March 1985 by trifurcating the composite Ramanathapuram district. The district has a total area of 4101 Km ^{2} ha. The unique feature of this district is the longest coastal line measuring about 236.80 km accounting for nearly 1/4th of the total length of the coastal line of the State. The district takes the honour of being the birth place of Bharat Ratna Dr. A.P.J. Abdul Kalam, former President of India.

2.2 Area, Location and Geographical features

Ramanathapuram district is located in between 9° 05' N and 9° 50' N latitude and 78° 10' E and 79° 27' E Longitude. The geographical area of the district is 4,08,957 ha.Ramanathapuram district is divided into 7 Taluks. The taluks are further divided into 11 Blocks, which further divided into 400 revenue villages. The details of Taluks, Blocks and Agricultural divisions (11) of Ramanathapuram district are furnished in Table 2.1.

Table 2.1 Taluks, Blocks and Agricultural Divisions in the Ramanathapuram District

Name of the Taluks (7)	Name of the Blocks (11)	Name of Agrl. Division(11)
Thiruvadanai	Mandapam	Mandapam
Paramakudi	Ramanathapuram	Ramanathapuram
Kamuthi	R.S. Mangalam	R.S. Mangalam
Mudukulathur	Thiruppullani	Thiruppullani
Kadaladi	Thiruvadanai	Thiruvadanai
Ramanathapuram	Bogalur	Bogalur
Rameswaram	Kadaladi	Kadaladi
	Kamuthi	Kamuthi
	Mudukulathur	Mudukulathur
	Nainarkoil	Nainarkoil
	Paramakudi	Paramakudi

***Source**: Records of the Office of the Joint Director of Agriculture, Ramanathapuram*

2.3 Administrative Structure of Ramanathapuram District

There are 7 Revenue Taluks namely Thiruvadanai, Paramakudi, Kamuthi, Mudukulathur, Kadaladi, Ramanthapuram and Rameswaram. The District constitutes 8 Panchayat Unions and 10 Town Panchayats. The administrative structure of the district is shown in the Figure 1, 2 & 3.

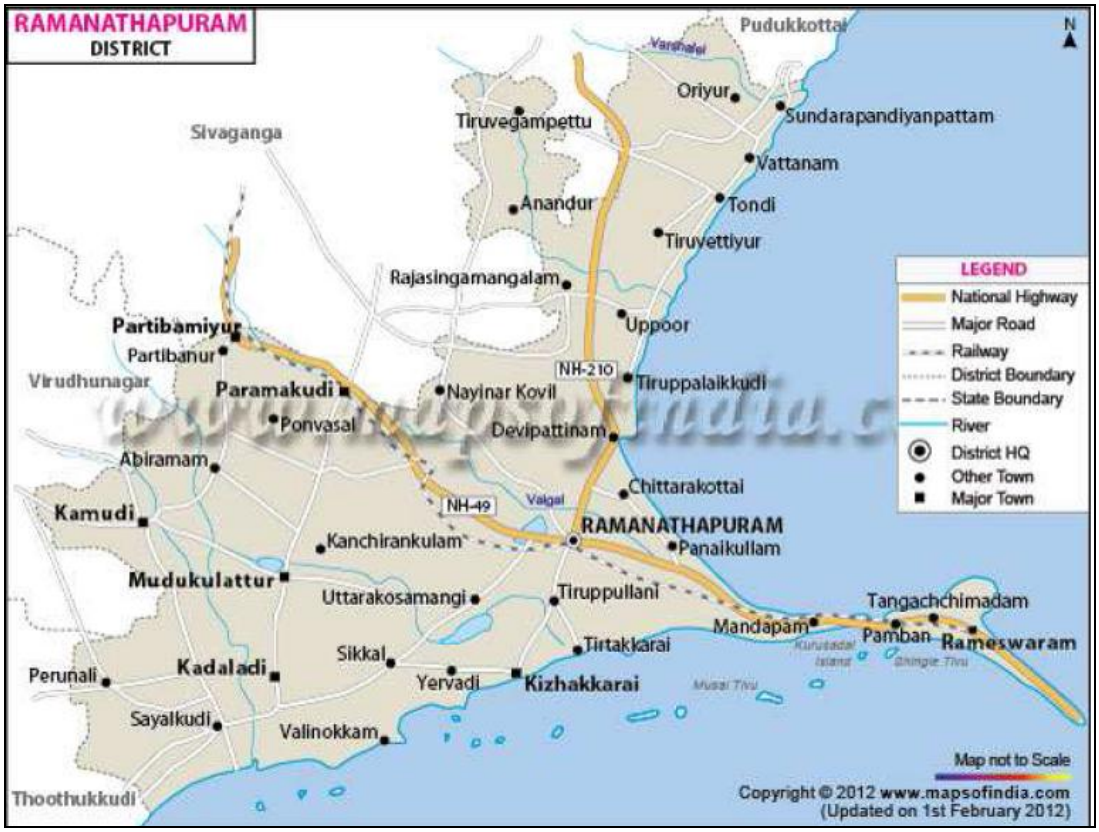


Fig. 1 Location map of Ramanathapuram district

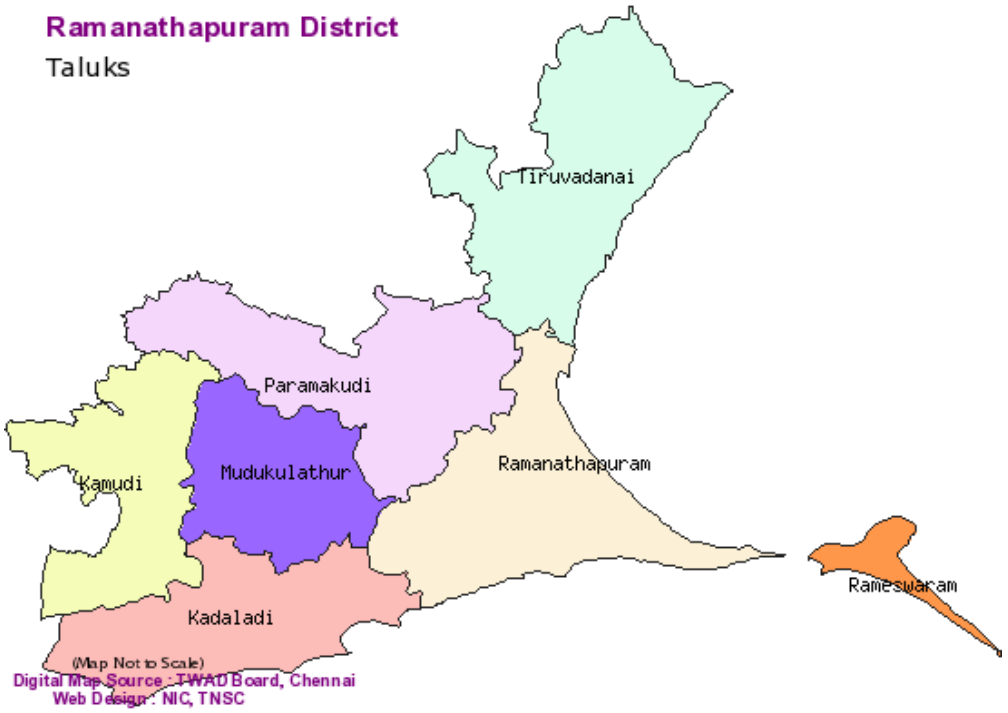


Fig. 2 Taluk Map of Ramanathapuram

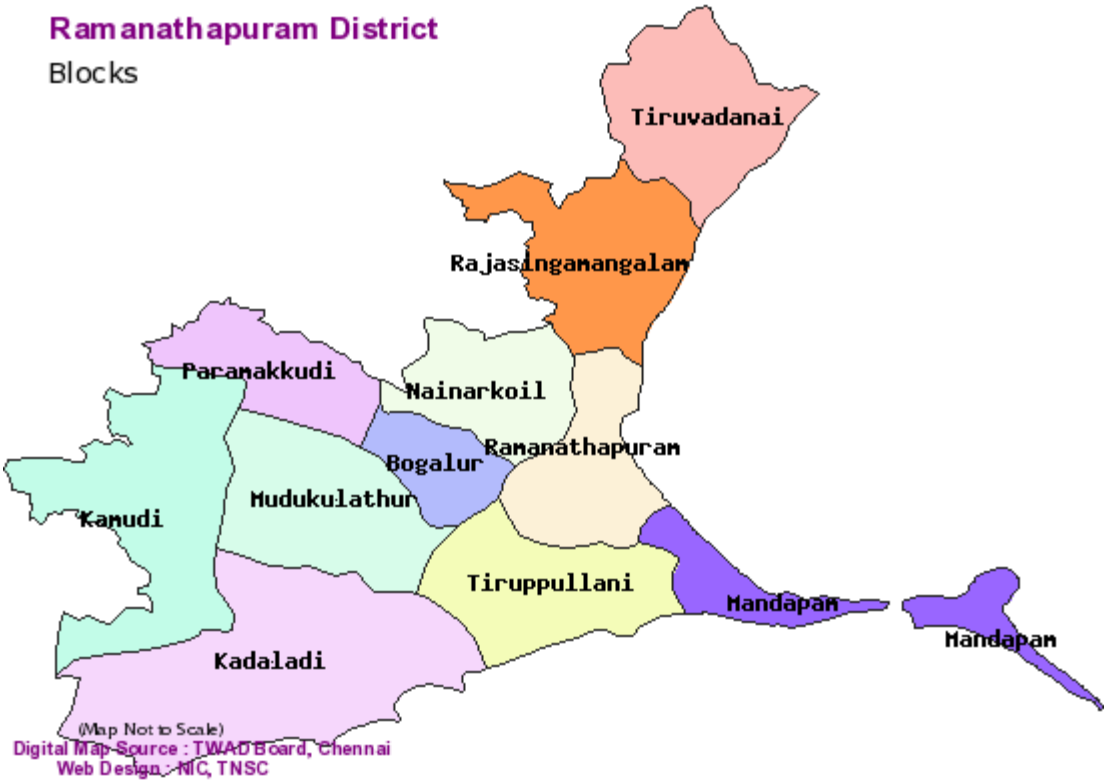


Fig.3 Blocks in Ramanathapuram District

There are two Revenue Divisions *viz.,* Ramanathapuram and Paramakudi in the District. Details of total number of hamlets, revenue villages, firkas and taluks in each division are presented in Table 2.1. Further, details of blocks and number of panchayats and hamlets in each block are presented in Table 2.2.

Table 2.2 Revenue Administrative particulars of Ramanathapuram District

Revenue Administrative Divisions	
Revenue Divisions	2
Revenue Taluks	7
Revenue Firkas	38
Revenue Villages	400
Local Bodies	
i. Municipalities	4
ii. Panchayat Unions	11
iii. Town Panchayats	7
iv. Village Panchayats	429
Community Development	
No of Development divisions	2
No of Blocks Covered	11
Populations Covered (In Lakhs)	13,53,445
Area covered (in Sq. km)	4104.00

Source: *Department of economics and statistics, Ramanathapuram*

2.4 Demographic profile

The Demography of the district is summarized in Tables 2.3 & 2.4.

2.4.1 Population

In 2011, Ramanathapuram had a population of 13,53,445 of which male and female were 6,82,658 and 6,70,787 respectively, whereas during 2001 census, it was 11,87,604 of which 5,83,376 were males and 6,04,228 were females. There was change of 13.96 per cent increase in the population compared to population as per 2001 census. The initial provisional

data released by Census India 2011, showed that density of Ramanathapuram district for 2011 was 330 people per sq. km which was 284 people per sq. km during 2001. With regards to Sex Ratio in Ramanathapuram, it stood at 983 per 1000 males compared to 2001 census figure of 1036. In 2011 census, child sex ratio was 961 girls per 1000 boys compared to figure of 964 girls per 1000 boys of 2001 census data. There were 1,40,644 children under age of 0-6 during 2011 Census as against 1,49,587 in 2001 census. Of the total 1,40,644 children, male and female were 71,705 and 68,939 respectively.

Table.2.3 Population Details of Ramanathapuram District

Description	2011	2001
Actual Population	13,53,445	11,87,604
Male	6,82,658	5,83,376
Female	6,70,787	6,04,228
Population Growth	13.96%	6.12%
Area sq. km	4104.00	4104.00
Density/km^2	330	284
Sex Ratio (Per 1000)	983	1036
Child Sex Ratio (0-6 Age)	961	964
Total Child Population (0-6 Age)	1,40,644	1,49,587
Male Population (0-6 Age)	71,705	76,169
Female Population (0-6 Age)	68,939	73,418

Source: *Census of India 2011, District census handbook Ramanathapuram*

Table 2.4 Block wise – Area and Population details (2011)

Sl. No	Name of the Block	Area (Sq. Km.)	Population (in No's)		
			Persons	Male	Female
1	Mandapam	226.37	142352	71650	70702
2	Ramanathapuram	313.24	88711	44655	44056
3	R.S. Mangalam	388.32	70780	34979	35801
4	Thiruppullani	288.90	87766	45017	42749
5	Thiruvadanai	441.93	108219	54503	53716
6	Bogalur	215.14	41984	21296	20688
7	Kadaladi	693.87	146566	73772	72794
8	Kamuthi	591.68	113144	57234	55910
9	Mudukulathur	431.70	62169	40931	41238
10	Nainarkoil	272.97	46359	23024	23335
11	Paramakudi	318.37	81220	41193	40027
	Total	4104.00	**1353445**	**682658**	**670787**

Source: *Census of India 2011, District census handbook Ramanathapuram*

The Block wise population in the district are furnished in the Table 2.4. There were 13,53,445 persons in 11 Blocks of the district. Of which, Kadaladi Block had the highest population (1,46,566 persons) including 73,772 males and 72,794 females. This was followed by Mandapam Block which had 1,42,352 persons with 71,650 males and 70,702 females. The least populous Block in the district was Bogalur with 41,984 persons in the district. The population of female was higher than the male in the Blocks, R.S. Mangalam, Mudukulathur and Nainarkoil respectively.

2.4.2 Literacy level

The total literates in the district and for different blocks of the district are furnished in the Table 2.5 and 2.6 respectively. Average literacy rate of Ramanathapuram in 2011 was 80.72 per cent with 9,78,946 compared to 72.96 per cent in 2001. The gender wise literacy rate was 5,36,487 males i.e, 87.81 per cent and 4,42,459 females i.e., 73.52 per cent. For 2001 census, same figures i.e., male and female literacy rate stood at 83.01 per cent and 63.36 per cent in Ramanathapuram District, which indicates the increased awareness. Increase of literacy rate in any district indicated the development of the district folk, of the total literates rural and urban population includes 6,51,919 (male - 3,62,778, female - 2,89,141) and 3,27,027 (male - 1,73,709, female - 1,53,318) respectively.

Table 2.5 Literacy Rate in Ramanathapuram District

Description	No. of persons	Literacy rate %
Total	9,78,946	80.72
i. Rural	6,51,919	
ii. Urban	3,27,027	
Male	5,36,487	87.81
i. Rural	3,62,778	-
ii. Urban	1,73,709	-
Female	4,42,459	73.52
i. Rural	2,89,141	-
ii. Urban	1,53,318	-

Source: *Census of India 2011, District census handbook Ramanathapuram*

Table 2.6 Literate Population in Ramanathapuram District at Block level

Sl. No	Name of the Block	Persons	Male	Female
1	Mandapam	108802	57344	51458
2	Ramanathapuram	65201	35054	30147
3	R.S. Mangalam	48195	26654	21541
4	Thiruppullani	60876	34071	26805
5	Thiruvadanai	77626	43109	34517
6	Bogalur	28675	16448	12227
7	Kadaladi	99093	55221	43672
8	Kamuthi	75261	42860	32401
9	Mudukulathur	53958	30682	23276
10	Nainarkoil	30403	17397	13006
11	Paramakudi	56657	32042	24615
	Total	**978946**	**536487**	**442459**

Source: *Census of India 2011, District census handbook Ramanathapuram*

As per the block wise literacy details furnished in Table 2.6, the literates was the highest in Mandapam with 1,08,802 persons followed by Kadaladi with 99,093 persons. Bogalur had the least number of 28675 literates.

2.4.3 Households

Ramanathapuram District had 3,23,905 households. Of the total population, Kadaladi block was having more number of households (34,618). Next to this, Mandapam block had more households (32,626). Number of scheduled caste households was high in Paramakudi block i.e., 6,729. Scheduled tribes mostly spread over in Ramanathapuram and Thiruvadanai which was followed by Paramakudi block. Block wise households details are presented in table 2.7.

Table 2.7 Distribution of households (Block wise)

Sl.No	Name of the Block	Number of households	Number of Scheduled Caste households	Number of Scheduled Tribe households
1	Mandapam	32626	1381	8
2	Ramanathapuram	21219	5629	42
3	R.S. Mangalam	17491	4209	5
4	Thiruppullani	20586	5414	1
5	Thiruvadanai	25381	4304	42
6	Bogalur	10325	4280	1
7	Kadaladi	34618	5324	3
8	Kamuthi	27627	6566	-
9	Mudukulathur	21156	6540	2
10	Nainarkoil	12358	2698	1
11	Paramakudi	20150	6729	15
	Total	**323905**	**61185**	**246**

Source: *Census of India 2011, District census handbook Ramanathapuram*

2.4.4 Working population

The working population in the District and the Blocks level is furnished in the Table 2.8. The working forces were classified as cultivators, agricultural labourers, industrial labourers and other workers. The total workers population in 11 Blocks was about 6,02,977 numbers i.e. 44.55 per cent of total population. The workers from other sectors constitute about 41.48 per cent. The share of cultivators and agricultural labourers in the total number of workers in Ramanathapuram district constituted 28.82 per cent and 25.52 per cent of the total working population, respectively. The lowest population group (4.18 per cent) was under the household industries. The total unemployed persons in the District constitutes about 7,50,468.

Table 2.8 Total Workers Classification in Ramanathapuram District (2011 census)

Classification of workers	Population	Percentage
Total workers	602977	44.55
i. Rural workers	459780	
ii. Urban workers	143197	
a. Main workers	486150	35.92
b. Marginal workers		
1. Cultivators	149959	28.82
2. Agricultural labourers	103592	25.52
3. Household industry workers	18546	4.18
4. Other workers	214053	41.48
Non workers	7,50,468	55.45

Table 2.9 Block wise Workforce in the Ramanathapuram district during 2011-12 (Numbers)

Blocks	Cultivators	Agricultural labours	Household industry workers	Other workers	Marginal workers	Total workers
Mandapam	3126	4423	1693	33653	7876	50771
Ramanathapuram	9208	4797	916	13363	7814	35998
R.S. Mangalam	19060	4573	444	5977	7108	37162
Thiruppullani	9212	7890	1950	11714	7237	38003
Thiruvadanai	13780	5546	734	11867	18079	50006
Bogalur	6211	5311	211	3669	7711	23113
Kadaladi	18873	13336	1034	18257	18887	70387
Kamuthi	13460	26355	555	9552	11451	61373
Mudukulathur	26806	9760	259	3082	6632	46539
Nainarkoil	11287	7035	295	2928	5320	26865
Paramakudi	15669	10720	2486	8315	4814	42004
Total	**152808**	**103592**	**18546**	**214053**	**116827**	**602977**

Source: *Census of India 2011, District census handbook Ramanathapuram*

Among the Blocks of the Ramanathapuram district Kadaladi Block registered maximum number of workers i.e. 70,387, whereas Bogalur Block recorded lesser workers population i.e., 23,113.

2.5 Topography

Ramanathapuram is situated in South-eastern part of Tamil Nadu and it is in dumper shape.

2.6 Soil type

The soils of Ramanathapuram District includes sandy soil, clay soil, sandy clay soil, alluvial soil, sandy loam soil, coastal alluvial soil and red soil. The major soil type is clay soil which covers about 1,82,463 ha i.e., 44.62 per cent. Next predominant soil type is coastal alluvial (71,357 ha) and sandy loam soil (63,602 ha). Coastal alluvium occurs in Ramanathapuram, Kadaladi, Thiruvadanai and Mudhukulathur Taluks. Rameswaram Island contains mainly sandy soil i.e., 80 per cent. Soil type of the Ramanathapuram District and taluk wise data is given in Table 2.10 and 2.11.

Table 2.10 Soil Type Distribution (Area in Ha.)

Sl. No	Soil Type	Area	Percentage
1	Sandy Soil	7328	1.79
2	Clay soil	182463	44.62
3	Sandy clay soil	22138	5.40
4	Alluvial soil	43769	10.70
5	Sandy loam soil	63602	15.54
6	Coastal Alluvial soil	71357	17.45
7	Red soil	18390	4.50
	Total	**408957**	**100.00**

Source: *Records of the Office of the Joint Director of Agriculture, Ramanathapuram*

Table 2.11 Taluk wise soil type in Ramanathapuram (%)

Sl. No	Name of the Taluk	Sand	Clay	Sandy loam	Alluvial	Coastal Alluvial	Red soil	Total
1	Ramanathapuram	-	37	23	-	40	-	100
2	Thiruvadanai	-	60	-	15	25	-	100
3	Rameswaram	80	20	-	-	-	-	100
4	Paramakudi	-	55	30	15	-	-	100
5	Mudukulatur	-	27	35	12	15	11	100
6	Kamuthi	-	67	13	9	-	11	100
7	Kadaladi	8	22	17	9	26	18	100

Source: *Records of the Office of the Joint Director of Agriculture, Ramanathapuram*

2.7 Climatic condition and rainfall

The district has a hot tropical climate temperature ranging from 22.3 °C (min) to 37.8 °C (max) and the relative humidity is high at 79% on an average and it ranges between 80 to 90% in coastal areas. District average annual rainfall is 827 mm, (from January to December) but the quantum of rainfall is not only uneven, but also erratic. The data pertaining to the district rainfall month wise and season wise is presented in table 2.12 and 2.13.

The season wise average rainfall for ten years (2000-2012) is depicted in Fig.4.

Table 2.12 Rainfall pattern (mm)

Sl.No	Month	Normal Rainfall	2015	2016	2017
	Winter				
1	January	48.5	1.95	0.56	72.77
2	February	18.9	4.9	1.29	5.58
Total		**67.4**	**6.85**	**2.45**	**78.35**
Summer					
3	March	25	20.67	0.59	31.86
4	April	57.4	162.29	5.68	0.00
5	May	40.3	141.87	91.38	23.92
Total		**122.7**	**324.78**	**97.65**	**55.78**
South West Monsoon					
6	June	14.4	2.32	8.82	35.87
7	July	27	33.80	18.03	13.64
8	August	44.4	60.39	15.23	68.49
9	September	49.5	58.55	32.59	69.14
Total		**135.3**	**155.06**	**74.67**	**187.14**
North East Monsoon					
10	October	182.6	140.71	40.79	61.82
11	November	206.3	302.09	92.25	163.83
12	December	112.7	184.5	40.83	53.02
Total		**501.6**	**627.30**	**173.87**	**278.67**
Grand Total		**827**	**1115.6**	**348.6**	**599.9**

Source: *Records of the Office of the Joint Director of Agriculture, Ramanathapuram*

Table 2.13 Month wise / season wise rainfall distribution in Ramanathapuram District

Season / Month	2014-15 (in mm)	
	Normal	**Actual**
South West Monsoon		
June	14.4	0
July	27.0	0
August	44.4	32.4
September	49.5	59.64
Total	**135.3**	**92.05**
North East Monsoon		
October	182.6	315.52
November	206.3	235.03
December	112.7	80.09
Total	**501.6**	**630.64**
Winter Season		
January	48.5	39.18
February	18.9	17.15
Total	**67.4**	**56.33**
Hot Weather		

Season / Month	2014-15 (in mm)	
	Normal	Actual
March	25.0	0
April	57.4	0
May	40.3	167.52
Total	**122.7**	**167.52**
Annual rainfall	**827**	**946.54**

Source: *Reports of the offices of JDA,Government of Tamil Nadu*

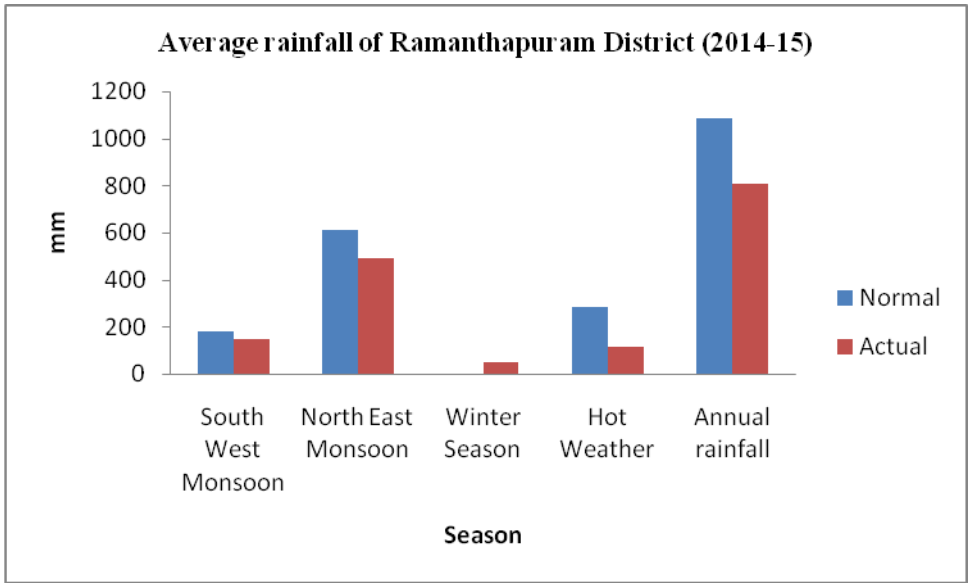


Fig 4.Season Wise Average Rainfall (2014-2015)

2.8 Land

2.8.1 Types of land

The total geographical area of the district is 4,08,957 ha, of which net sown area accounted for 2,00,779 ha i.e.,49.15 per cent for the triennium ending 2011. The total forest area of the district is 4488 ha i.e., 1.09 per cent only, however as per the National Forest Policy – 1988, the area under forest cover should be one third of the total geographical area in order to maintain the ecological balance. The productivity of the crops has to be increased so as to compensate the reduction in land under agriculture by adopting modern practices and high yielding hybrid varieties.

2.8.2 Land use pattern

The land use pattern in Ramanathapuram district and among its different Blocks is furnished in the Table 2.14 and 2.15. Area under cultivation is about 48.62 per cent i.e., 198818 ha of total geographical area. The share of district area under cultivable waste, current fallow and other fallow accounted for about 19.43 per cent of the total area and this would reveal that implementation of land reclamation, strengthening of irrigation facilities and so on through schemes by various departments increases the net sown area or area under forest.

Table 2.14 Land Use Pattern of Ramanathapuram District

Sl.No.	Classification	Area (ha)	Percent
1	Geographical Area	408957	100.00
2	Forest	4488	1.10
3	Barren & Unculturable Area	4524	1.11
4	Land Put to Non-agricultural Uses	87045	21.28
5	Permanent Pastures & Other grazing lands	154	0.04
6	Misc. tree crops & groves not incl. in the net area sown	30941	7.57
7	Current Fallow	38299	9.37
8	Other Fallow	41155	10.06
9	Net area sown	198818	48.62
10	Gross area sown	198818	48.62

Source: *Season and Crop Report (2014-15), Department of Economics and Statistics,Tamil Nadu*

Among the different Blocks, Kadaladi Block possessed the maximum area under forest of about 2,817 ha which is followed by Mandapam (1,325 ha). The net cultivated area is highest in Kadaladi (32,975ha) and next is Mudukulathur block (28,224ha). The land put to non-agricultural uses was highest in Kadaladi block (14,096 ha) which is followed by Mandapam (11,174 ha). Major agricultural area comes under Kadaladi (32,975 ha), Mudukulathur (28,224 ha), Kamuthi (25,577 ha) and Thiruvadanai (23,591 ha). The block with least agricultural activities is Chathirakudi with an area of 7,629 ha.

2.8.3 Land Holding Pattern

The details of land holding pattern for the Ramanathapuram district are furnished in Table 2.15. Block wise distribution of marginal and small farmers and their respective area are presented in Table 2.16. Percentage of marginal farms to total in the district was found to be the largest in Kamuthi (17.68), Muthukulathur (17.02), Kadaladi (14.62) and Thiruvadanai (13.13) Blocks. Of the total area 3,15,489 ha, 76.18 per cent (2,40,339 ha) constitutes of marginal farmers, 21.49 per cent (67,799 ha) small farmers, 2.11 per cent (6,656 ha) medium farmers and only 0.22 per cent (695 ha) of large farmers.

Table 2.15 Land Use Pattern in Ramanathapuram District (Block wise)

Sl. No.	Classification	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11
1	Forest	1325	0	257	0	89	0	2817	0	0	0	0
2	Barren and Uncultivable uses	0	1955	533	0	1993	0	0	31	0	27	5
3	Land put to Non-Agricultural uses	11174	5453	4244	8291	8704	3541	14096	9290	9190	6548	8022
4	Cultivable Waste	0	744	238	411	676	31	1130	329	686	88	157
5	Permanent pastures and other Grazing Land	0	0	0	0	97	26	8	4	16	3	0
6	Land Under Miscellaneous Tree Crops and Gross not included in Net Area Sown	4711	8355	357	6325	569	1648	5405	364	1877	2414	2471
7	Current Fallow	372	1155	3019	1100	2059	2725	1736	13166	3553	3115	4577
8	Other Fallow Land	648	417	9106	334	6157	1832	11519	9086	4539	2749	3720
9	Net Area Sown	10644	10752	19770	12376	23591	7629	32975	25577	28224	12360	10108
10	Total Geographical Area	28874	28831	37524	28837	43935	17432	69686	57847	48085	27304	29060
11	Area Sown More Than Once											
12	Total Cropped Area	28874	28831	37524	28837	43935	17432	69686	57847	48085	27304	29060

*B1 –Mandapam, B2 –Ramanathapuram,B3 - R.S. Mangalam, B4 –Thiruppullani,B5 – Thiruvadanai,B6 – Bogalur (**Chathirakudi**),*

B7 – Kadaladi,B8 – Kamuthi, B9 –Mudukulathur,B10 – Nainarkoil,B11 – Paramakudi.

***Source:** Records of the Office of the Joint Director of Agriculture, Ramanathapuram*

Table 2.16 Details of Block wise Land Holding Pattern in Ramanathapuram District

Sl. No	Block	No. of Marginal Farms (%)	No. of Small Farms (%)	Total area under Marginal Farms (in ha) (%)		Total area under Small Farms (inha) (%)		No. of landless Agrl. labourers (%)
				Wet	Dry	Wet	Dry	
1	Ramanathapuram	21410 (9.43)	2466 (3.93)	1150 (4.32)	4610 (6.14)	970 (5.81)	2310 (4.38)	2180 (4.38)
2	Thirupullani	13808 (6.08)	3534 (5.64)	1120 (4.21)	5102 (6.80)	760 (4.55)	3950 (7.50)	6294 (12.66)
3	Mandapam	12264 (5.40)	2102 (3.35)	954 (3.59)	4220 (5.62)	298 (1.78)	2031 (3.85)	1560 (3.14)
4	Thiruvadanai	29807 (13.13)	6193 (9.88)	3027 (11.38)	8129 (10.83)	2274 (13.62)	5084 (9.64)	4109 (8.26)
5	R.S.Mangalam	18758 (8.26)	3424 (5.46)	3868 (14.55)	4496 (6.00)	2130 (12.76)	3066 (47.60)	3181 (6.40)
6	Paramakudi	17286 (7.61)	7046 (11.25)	3077 (11.57)	4789 (6.38)	2126 (12.74)	3882 (5.81)	4714 (9.48)
7	Bogalur	16870 (7.43)	4389 (7.00)	1975 (7.43)	5536 (7.38)	1139 (6.82)	3324 (6.30)	1868 (3.76)
8	Nainarkoil	14822 (6.53)	5871 (9.37)	1427 (5.37)	4765 (6.35)	1309 (7.84)	3894 (7.38)	2608 (5.24)
9	Kamuthi	40145 (17.68)	9855 (15.73)	2178 (8.19)	11962 (15.94)	1383 (8.29)	10301 (19.53)	4991 (10.04)
10	Mudukulathur	38628 (17.02)	10483 (16.73)	4887 (18.38)	11503 (15.33)	2823 (16.91)	6444 (12.22)	7143 (14.37)
11	Kadaladi	33189 (14.62)	7292 (11.64)	2925 (11.00)	9924 (13.22)	1476 (8.84)	7575 (14.36)	11070 (22.27)
Total		**226987 (100.00)**	**62653 (100.00)**	**26588 (100.00)**	**75038 (100.00)**	**16690 (100.00)**	**52731 (100.00)**	**49718 (100.00**

(*Figures in parentheses indicate percentages to column totals)*

Source: *Records of the Office of the Joint Director of Agriculture, Ramanathapuram*

Table 2.17 Details of Consolidated Land Holding Pattern in Ramanathapuram District

Land holding pattern	Percentage (%)	Area (Ha)
Marginal (less than 1ha,)	76.18	240339
Small (between1.1 to 2.0 ha)	15.06	47513
Small medium (between 2.1 to 4.0 ha)	6.43	20286
Medium (between 4.1 to 10.0 ha)	2.11	6656
Large(above10.0 ha)	0.22	695
Total	100.00	**315489**

Source: *http://www.ramnad.tn.nic.in/agri.htm*

2.9 Sources of Irrigation

It could be noticed from Table 2.18 that there were more number of wells followed by tanks in the district. But all the wells are not supporting irrigation as they are normally dry most part of the year. However, tanks formed the major source of irrigation as they got filled up during monsoon periods.

Table 2.18 Irrigation by Different Sources in Ramanathapuram District during 2014-15

(Hectares)

Sl. No.	Particulars		2012-13	2013-14	2014-15	Average
1	Canals	Gross	0	0	0	0.00
		Net	0	0	0	0.00
2	Tanks	Gross	51863	50522	52398	51594.33
		Net	51863	50522	52398	51594.33
3	Tube wells / Bore wells	Gross	1494	1449	1886	1609.67
		Net	1494	1449	1886	1609.67
4	Open wells	Gross	10688	11709	12749	11715.33
		Net	10688	11708	12749	11715.00

Source: *Season and Crop Report (2014-15), Department of Economics and Statistics,Tamil Nadu*

The details of irrigation tanks and ayacut area irrigated by these tanks are presented in table 2.19 and 2.20. A total of 1694 tanks are in the district of which 1192 are minor irrigation tanks and 502 are PWD tanks. Thiruvadanai block had 287 tanks which was followed by Kamuthi (252 Nos.) and R.S.Mangalam (251 Nos.). Mandapam block was having only one tank which irrigated about 38 ha. Among the blocks more area under tank irrigation

is R.S. Mangalam i.e., 13068.80 ha area and it is followed by Kadaladi with an area of 9,613.20 ha.

Table 2.19 Block wise irrigation tank particulars in Ramanathapuram district

Sl. No	Name of the block	Minor irrigation tanks		PWD Tanks – Basin wise			Total
		Ex-zamin	Panchayat	Vaigai	Gundar	Manimuthar	
1	Ramanathapuram	5	42	34	-	-	81
2	Thiruppullani	5	52	22	-	-	79
3	Mandapam	-	-	1	-	-	1
4	Paramakudi	77	12	49	-	-	138
5	Bogalur	49	5	33	-	-	87
6	Nainarkoil	47	7	45	-	-	99
7	Thiruvadanai	83	115	62	-	27	287
8	R.S.Mangalam	68	106	77	-	-	251
9	Kamuthi	45	169	-	38	-	252
10	Mudukulatur	38	104	12	28	-	182
11	Kadaladi	20	143	-	74	-	237
	Total	**437**	**755**	**335**	**140**	**27**	**1694**

Source: *Records of the Office of the Joint Director of Agriculture, Ramanathapuram*

Table 2.20 Area under different irrigation source (ha)

Sl. No.	Name of the Block	Irrigation sources			Total
		PWD Tanks	Panchayat Union Tanks	Ex-zamin Tanks	
1	Ramanathapuram	5180.80	660.00	102.40	5943.20
2	Thiruppullani	2478.40	784.80	64.80	3328.00
3	Mandapam	38.00	-	-	38.00
4	Paramakudi	5819.60	276.40	1312.80	7408.80
5	Bogalur	3000.40	66.80	632.00	3699.20
6	Nainarkoil	4198.00	133.60	914.40	5246.00
7	Tiruvadanai	5114.80	2029.20	968.80	8132.80
8	R.S.Mangalam	10059.60	1944.00	1065.20	13068.80
9	Kamuthi	3676.40	2454.40	468.80	6599.60
10	Mudukulathur	3740.40	1773.20	532.40	6046.00
11	Kadaladi	7025.60	2352.00	235.60	9613.20
	Total	**50,332.00**	**12,494.40**	**6297.20**	**69,123.60**

Source: *Records of the Office of the Joint Director of Agriculture, Ramanathapuram*

2.10 Cropping Pattern

Paddy, groundnut, blackgram, cotton and cholam are the major agricultural crops cultivated in the district. With regard to horticultural crops chilli and coconut are major crops grown. Besides ragi, cumbu, minor millets, sunflower, coriander and sugarcane are also grown in the district. The details of the cropping pattern, triennium average and normal area, production and productivity of the district are furnished in the Table 2.21 and 2.22.

Table 2.21 Area (ha) under major crops (2014-15 and Triennium ending 2014-15)

Sl. No.	Crops	2014-15	Triennium Ending 2014-15
1	Paddy	114981.00	116117.67
2	Cholam	3237	3213.00
3	Black gram	2109.00	2301.00
4	Ground nut	3572.00	3367.33
5	Coconut	8213.00	8302.33
6	Gingelly	2429.00	1606.33
7	Chilli	17152.00	17801.00
8	Cotton	2790.00	2121.67
	Total	154483.00	154830.33

Table 2.22 Normal area, productivity and production of major crops (Triennium ending 2014-15)

Sl. No	Particulars	Area (in ha)	Production (in tonnes)	Productivity (in kg/ha)
1	Paddy	116117.67	175216.33	1501.33
2	Maize	1023.00	4565.33	5107.00
3	Cholam	3213.00	5295.00	1517.33
4	Cumbu	1205.33	1965.00	1551.33
5	Ragi	397.00	682.33	1493.67
6	Bengal Gram	11.67	7.00	599.33
7	Red Gram	135.67	160.33	1003.33
8	Black Gram	2301.00	968.67	415.00
9	Green Gram	471.33	304.67	635.33
10	Horse Gram	4.67	3.00	594.67
11	Groundnut	3367.33	4889.00	1067.00

Sl. No	Particulars	Area (in ha)	Production (in tonnes)	Productivity (in kg/ha)
12	Sunflower	95.67	97.33	798.33
13	Gingelly	1606.33	326.33	152.67
14	Cotton	2121.67	4327.00	265.33
15	Coconut	8302.33	644.00	5507.33
16	Sugarcane	379.33	38616.33	70.33
17	Onion	204.00	1687.00	8275.67
18	Brinjal	91.67	831.00	9034.00
19	Bhendi	52.00	384.33	7361.33
20	Tomato	20.00	274.67	13678.67
21	Banana	205.67	8256.33	39706.00
22	Mango	280.33	1905.67	6823.00
23	Jack Fruit	1.33	17.00	12870.67
24	Pine Apple	0.33	10.00	10059.33
25	Guava	55.00	234.67	6151.67
26	Chillies	17801.00	7703.67	434.00
27	Coriander	1456.67	1033.00	674.00
28	Turmeric	12.00	45.67	2486.67
29	Tamarind	134.67	444.67	3302.33
30	Tapioca	6.33	189.67	9974.00
	Total	**161074.00**	**261085.00**	**153110.67**

Source: *Season and Crop Report (2014-15), Department of Economics and Statistics,Tamil Nadu*

2.11 Consumption of Chemical Fertilizers and Pesticides

The consumption of fertilizers and pesticides during 2014-15 is given in Table 2.23. Among nitrogenous, phosphates and potassium fertilizers (9363 Mt), nitrogenous fertilizer alone accounted for 6373 Mt and urea consumption is up to 15462 Mt.

Table 2.23 Consumption of chemical fertilizers and pesticides (2014-15)

Fertilizers (in Mt)				Dust (kg)	Liquid (Litres)	Urea (Mt)
Nitrogenous (N)	Phosphates ($P_2 0_5$)	Postassic (K_2O)	Total			
6373	2364	626	9363	30.00	15.00	15462

Source: *JDA office, Ramanathapuram district.*

2.12 Agricultural Engineering - Machineries and Implements

The Block wise details of agricultural machineries and implements in Ramanathapuram district is furnished in Table 2.24. Ramanathapuram has the following agricultural machineries and implements viz., Electric Motor (3551 Nos.), Oil engine (5837 Nos.), Tractor (1158 Nos.), Power Tiller (75 Nos.), Seed-Drill (20 Nos.), Rotavator (29 Nos.), Drum seeder (34 Nos.), Cono- weeder (1632 Nos.), Marker (1627 Nos.), Hand operated sprayer (6396 Nos.) and Power sprayer (1274 Nos.).

Table 2.24 Agricultural Implements and Machinery (in Nos.)

Blocks	Electric Motor	Oil engine	Tractor	Power Tiller	Paddy Transplanter	Seed-Drill	Rotavator	Drum seeder	Cono-weeder	Marker	Hand operated sprayer	Power sprayer
B1	887	1489	36	2	0	0	0	2	5	5	110	10
B2	631	273	280	6	0	2	0	2	280	280	1217	182
B3	51	250	139	5	0	1	0	2	350	350	1150	215
B4	349	655	138	5	0	2	0	5	100	100	1100	300
B5	61	218	60	13	0	1	20	3	152	152	560	75
B6	70	257	33	4	0	1	1	2	40	35	145	28
B7	60	400	50	20	0	2	0	4	100	100	210	75
B8	631	1264	84	8	0	6	8	2	125	125	650	62
B9	410	510	67	3	0	2	0	5	220	220	598	210
B10	185	258	12	3	0	0	0	2	100	100	144	36
B11	216	263	259	24	0	3	0	5	160	160	512	81
Total	**3551**	**5837**	**1158**	**75**	**0**	**20**	**29**	**34**	**1632**	**1627**	**6396**	**1274**

Source: *Block statistical hand book & Local enquiry of JDA office*

B1 - Mandapam, B2 - Ramanathapuram, B3 - R.S. Mangalam, B4 - Thiruppullani, B5 - Thiruvadanai, B6 - Bogalur, B7 - Kadaladi, B8 - Kamuthi, B9 - Mudukulathur, B10 - Nainarkoil, B11 - Paramakudi

2.13 Agricultural Marketing and Regulated Markets

Regulated markets are run by the Government to facilitate proper marketing of commodities produced by the farmers and to safe guard the farmers and to facilitate them to get assured price for their commodities. The details of Regulated market is presented in the Table 2.25.

Table 2.25 Market committee or Regulated markets of Ramanathapuram District

Sl. No	Market Committee/ Regulated Markets	Address	Std Code	Phone No	Commodities
1	Ramanathapuram	2-B, Lathams Bungalow Road, Ramanathapuram -623501	04567	220378	Paddy, Chillies, Coriander, Coconut
2	Paramakudi	12/133.(6) Ramanathapuram Road, Paramakudi - 623 707	04564	226359	Paddy, Chillies, Cotton, Groundnut
3	Kamuthi	Aruppukkoottai Road, Kamuthi- 623 603	04576	223239	Paddy, Cotton, Chillies, Coriander
4	Thiruvadanai	Oriyur Road, Thiruvadanai - 623 407	-	-	Paddy, Groundnut, Gingelly, Cotton
5	Raja SingaMangalam	Near Veterinary Hospital, Raja Singamangalam-623 525	-	-	Paddy, Chillies, Gingelly, Cotton
6	Mudhukulathur	Lawer Ramalingam Pillai Road, Mudhukulathur- 623 704	-	-	Paddy, Chillies, Cotton, Groundnut

Source:*http://agridr.in/agricultural_marketing/agrimark_Regulated%20markets_list.html#ramanathapuram*

2.14 Storage Facilities

Cold Storage Godown Paramakudi

During the normal monsoon years, the peak harvest falls during February to April. Due to lack of storage facilities farmers are forced to sell their produce in the market with prevailing rate. The glut of produce leads to lower prices. Hence, farmers are not getting premium prices. Creation of Cold Storage facilities at affordable cost at village level may improve farm income.

2.15 Animal Husbandry and Dairy Development

2.15.1 Livestock population

Table 2.26 Details of livestock population of Ramanathapuram District

(Numbers)

Sl. No.	Particulars	Population
1	Cattle	85843
2	Buffaloes	1291
3	Sheep	242956
4	Goats	224388
5	Horses and ponies	22
6	Donkeys	113
7	Camels	0
8	Pigs	2426
	Total Livestock	**557039**
9	Elephants	0
10	Dogs	14308
11	Rabbits	300
	Poultry	
12	Back yard Poultry	334211
13	Farm Poultry	26004
	Total Poultry	**360215**

Source: *19th Livestock Census, 2012.*

2.15.2 Veterinary Hospital

Details of dispensaries, hospitals and mobile veterinary units were presented in the table 2.28.

Table 2.27 Veterinary institutions of the District

Veterinary Institutions	In Nos.
a. Veterinary dispensaries	17
b. Veterinary sub-centres	45
c. Veterinary Hospitals	1
d. Mobile Veterinary units	Nil

Source: *19th Livestock Census, 2012.*

2.15.3 Dairy development

Table 2.28 Milk production in Ramanathapuram District (2014-15)

District	Milk Production (000' tonnes)
Ramanathapuram	60.1

Source: *Tamil Nadu - An Economic Appraisal 2013-14 to 2014-15 Report, Govt. of Tamil Nadu, Chennai – 108*

2.15.4 Poultry development

Table 2.29 Poultry population in Ramanathapuram District

District	Poultry birds		
	Backyard poultry	Farm poultry	Total poultry
Ramanathapuram	413183	-	413183

Source: *Tamil Nadu - An Economic Appraisal 2011-12 to 2013-14 Report, Govt. of Tamil Nadu, Chennai - 108*

2.15.5 Egg production

Table 2.30 Egg production in Ramanathapuram District (2014-15)

District	Egg Production (in lakhs)
Ramanathapuram	103.65

Source: *Tamil Nadu - An Economic Appraisal 2011-12 to 2013-14 Report, Govt. ofTamil Nadu, Chennai - 108*

2.16 Fisheries

Presence of coastal line in the district makes fisheries as one of the potential sectors of economic development in the district. Brief description of this sector i.e. the coastal length, fisheries general details, fishing crafts, fishing gears and gear wise fishing production were furnished in Table 2.31, 2.32, 2.33, 2.34 and 2.35.

Table 2.31 Coastal Length

Coastal Length	Palk Bay	Gulf of Mannar	Total
Coromandel Coast	130	141	271

Source: *Tamil Nadu - An Economic Appraisal 2011-12 to 2013-14 Report, Govt. ofTamil Nadu, Chennai - 108*

Table 2.32 Fisheries - General Details

Fisheries details	Nos.
Mechanized boats	2861
Country boats	8403
Jetties	4
Fishermen populations	124387
Marine fishing villages	78
Landing centers	17

Source: *Tamil Nadu - An Economic Appraisal 2011-12 to 2013-14 Report, Govt. ofTamil Nadu, Chennai - 108*

Table 2.33 Fishing Crafts

Fishing crafts	Mechanized	Vallam	Latemarines
Mandapam	605	372	-
Rameswaram	1434	1747	-
Ramnad	764	5763	-
Total	2803	7882	-

Source: *Tamil Nadu - An Economic Appraisal 2011-12 to 2013-14 Report, Govt. ofTamil Nadu, Chennai - 108*

Table 2.34 Fishing Gears

FISHING GEARS						
Total	**Trawling net**	**Gill net**	**Longline**	**Traps**	**Shoresrine**	**Others**
72885	3539	59232	1399	2412	583	572

Source: *Tamil Nadu - An Economic Appraisal 2011-12 to 2013-14 Report, Govt. ofTamil Nadu, Chennai - 108*

Table 2.35 Gear wise Fish Production

Fishing gears	Tonnes
Trawl net	49381
Surrounding net	1273
Gill net	32375
Seine net	536
Tangie net	-
Lift net	-
Line fishing	3529
Bag net	-
Falling gears	-
Others	414
Total	**87508**

Source: *Tamil Nadu - An Economic Appraisal 2011-12 to 2013-14 Report, Govt. ofTamil Nadu, Chennai - 108*

2.17 Banking and Insurance

Banking sector are to cater to the short and long term credit needs of farmers, especially marginal and small farmers, so as to facilitate them in procuring the required farm inputs at appropriate time. The Block wise credit institutions present in the district is given in Table no. 2.37. Totally 110 commercial banks, 139 co-operative banks and 20 rural banks were available for credit facilities.

Table 2.36 Block wise Credit Institutions in Ramanathapuram district

Sl. No	Name of the block	Commercial Banks	Co-operative Banks	Regional Rural Banks	Total
1	Ramanathapuram	25	5	1	**31**
2	Thiruppullani	5	6	2	**13**
3	Mandapam	19	6	0	**25**
4	Thiruvadanai	6	20	2	**28**
5	R.S.Mangalam	4	13	1	**18**
6	Paramakudi	33	10	1	**44**
7	Chathirakudi	3	7	1	**11**
8	Nainarkoil	3	7	3	**13**
9	Kamuthi	6	28	3	**37**

Sl. No	Name of the block	Commercial Banks	Co-operative Banks	Regional Rural Banks	Total
10	Mudukulathur	3	16	3	**22**
11	Kadaladi	3	21	3	**27**
	Total	**110**	**139**	**20**	**269**

Source: *Ramanathapuram, JDA Office.*

The details of scheduled commercial banks offices, aggregate deposits and gross bank credit of Ramanathapuram district is presented in Table 2.37. The aggregate deposit value and gross bank credit value of 106 scheduled commercial banks were Rs. 4,01,183 and 4,66,031 crores respectively.

Table 2.37 Distribution of scheduled commercial banks offices, aggregate deposits and gross bank credit of Ramanathapuram District (2014-15)

District	Number of banks/ offices	Aggregate deposits (Rs. crores)	Gross bank credit (Rs. crores)
Ramanathapuram	120	2651.6	3480.8
Tamil Nadu	8678	510694..2	608006.3

Source: *Tamil Nadu - An Economic Appraisal 2011-12 to 2014-15 Report, Govt. of Tamil Nadu, Chennai – 108*

District wise and major sector wise fund allocation and the achievement details were presented in Table 2.38.

Table 2.38 District wise / major sector wise allocation and achievement under annual credit plan (ACP) 2014-15

Allocation				Achievement				% of Achievement			
Farm sector	NFS	OPS	Total	Farm sector	NFS	OPS	Total	Farm sector	NFS	OPS	Total
278.83	**4849**	101.40	428.72	209.48	44.61	98.35	352.44	75	92	97	82

Source: *State Level Bankers Committee Meeting Tamil Nadu 2015, Lead Bank Department, Indian Overseas Bank, Chennai-2 (Economic appraisal)*

2.18 Co-operation

There are four Land Development Bank, one Co-op Apex Bank (TNSC), sixteen Central Co-operative Bank, four Urban Bank, one hundred and thirty one Primary Agricultural Co-operative Society and five Housing Societies. The details are furnished in the Table 2.39.

Table 2.39 Details of cooperative societies of Ramanathapuram district

(Numbers)

Co-operative	
Land Development Bank	4
Co-op Apex Bank (TNSC)	1
Central Co-operative Bank	16
Urban Bank	4
Primary Agrl. Co-operative Society	131
Housing Societies	5

Source:*http://www.ramnad.tn.nic.in/profile.htm*

2.19 Industries

The details of large and medium scale industries in the district are furnished in Table 2.41. Totally six large and medium scale industries are in Ramanathapuram district which includes two spinning and two cotton mills, textiles, etc. and they are in Kamuthakudi, Kamuthi, Tiruvadanai, Abiramam and Ramanathapuram.

Table 2.40 Details of large and medium scale industries

Sl. No	Name and address of the industry	Address
1	Pioneer spinnings, National Textile Corporation	Kamuthakudi
2	Co-operative Spinning Mills	Achankulam, Kamuthi
3	Sri Nithiyakalyani Textiles	Tiruvadanai
4	Mannan Cotton Mills	Veerasozhan Road, Abiramam
5	Ayisha Cotton Mills	Abiramam
6	Tvl. Srinithi Industries Limited	Achunthanvayal, Ramanathapuram

Source:*http://www.ramnad.tn.nic.in/industries1.htm*

The details of the registered small scale industrial units of Ramanathapuram district is given in Table 2.41. There were totally 349 units with 456 employees.

Table 2.41 Details of Permanently Registered SSI Units

Sl. No	Activity	No of units	Employment generated	Investment		Annual installed capacity
				Plant &machinery	Land &building	
1	Tailoring on Job work only	253	262	37.80	75.60	88.20
2	Repairing and Servicing of Electrical Items	15	29	4.25	4.55	5.20
3	Repairing and Servicing of Bicycles	42	48	9.60	12.60	14.70
4	Installation and Operation of Cable TV	2	2	1.05	1.50	0.98
5	Stiching of Leather chepals	2	2	0.50	0.70	1.05
6	Repairing and Servicing of Two wheeler	5	8	0.75	1.05	1.35
7	Manufacturing of Detergent cake only	3	3	0.60	0.75	1.05
8	Food Processing	7	14	1.80	2.85	3.90
9	Internet Browsing centre	4	12	6.60	5.40	4.80
10	Screen Printing	2	3	0.75	1.05	1.20
11	Common Salt	1	50	2.60	6.41	4.00
12	Vulcanizing	2	3	0.25	0.75	1.20
13	Fancy Articles from Sea shell	3	10	0.85	1.45	1.20
14	Fabrication of Grill gates and Steel Tables	2	2	0.40	0.60	0.75
15	Flower Mill	2	2	0.25	0.55	0.90
16	Chamber Bricks	2	4	0.50	1.25	0.90
17	Xerox	2	2	0.25	0.80	1.25
	Total	**349**	**456**	**68.80**	**117.86**	**132.63**

Source: *http://www.ramnad.tn.nic.in/industries1.htm*

CHAPTER III

DEVELOPMENT OF AGRICULTURAL AND ALLIED SECTOR

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 2005-06 to 2014-15.

The compound growth rate was calculated for area, production and productivity for major crops using following formulae. The CGR measures the annual growth of any variable over a period of time and it is expressed in percentage.

$$Y_t = ab^t e$$

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 value of 'b' is computed by using Ordinary Least Square (OLS) method and the Compound Growth Rate of area under major crops grown in Ramanathapuram district is given in Table 3.2. The area and production and productivity (CGR) of major crops like paddy, cholam, blackgram, groundnut, coconut, gingelly, chilli, and cotton of Ramanathapuram district are given in Table 3.1.

Table 3.1 Area under major crops in Ramanathapuram District

(Triennium average 2014-15)

Sl. No.	Crops	Area	Production	Productivity/Yield
1	Paddy	116117.67	175216.33	1501.33
2	Cholam	3213.00	5295.00	1517.33
3	Black gram	2301.00	968.67	415.00
4	Groundnut	3367.33	4889.00	1067.00
5	Coconut*	8302.33	644.00	5507.33
6	Gingelly	1606.33	326.33	152.67
7	Chilli	17801.00	7703.67	434.00
8	Cotton	2121.67	4327.00	265.33
	Total	**154830**	**199370**	**10860**

***In lakh nuts

The compound growth rates of the Ramanathapuram district are given in Table 3.2.

Table 3.2 Compound Growth Rates (CGR) of area, production and productivity of major crops in Ramanathapuram district (1990-91 to 2014-15)

Sl. No.	Crop	CGR during 1990-91 to 2014-15 (%)		
		Area	Production	Productivity
1	Paddy	-0.23	-0.04	-0.03
2	Cholam	0.36	2.36	1.99
3	Ragi	-5.10	-5.24	-0.15
4	Green gram	11.47	8.73	-2.46
5	Black gram	4.44	1.80	-2.53
6	Gingelly	-1.09	-5.98	-4.94
7	Groundnut	-1.86	-1.19	0.69
8	Cotton	-6.91	-9.46	-2.74
9	Sugar cane	3.24	3.13	-0.11
10	Chilli	2.28	-3.71	-5.86
11	Onion	38.82	41.36	1.84
12	Coriander	-3.39	9.09	12.92
13	Banana	-1.59	-0.41	1.19
14	Mango	3.50	2.04	-1.41
15	Coconut	0.84	4.21	3.34

Source: *Estimated based on data from Season and crop Reports (2005-06 to 2014-15)*

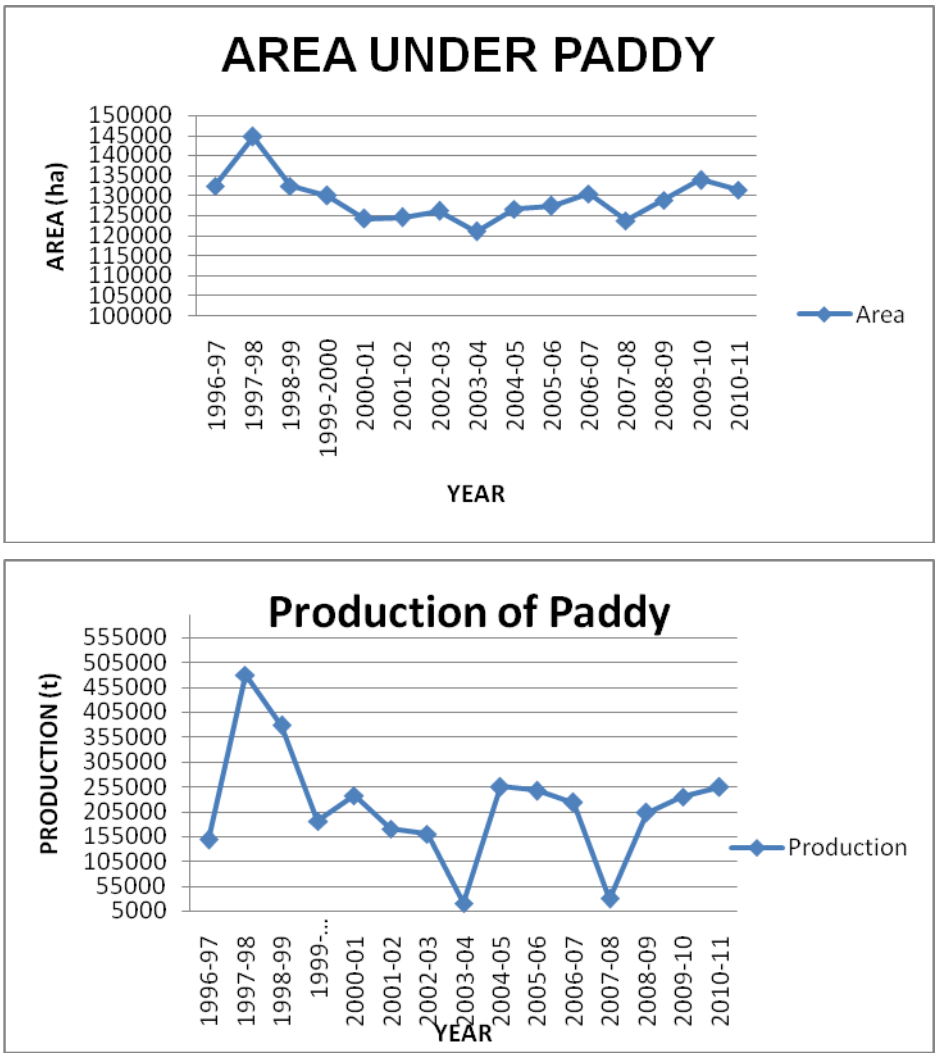
It is evident from the Table 3.2,Onion was the predominant crop grown and occupies 38.82 per cent of the gross cropped area in Ramanathapuram district which was followed by

Greengram (11.47 per cent), chilli (2.28 per cent), coconut (0.84 per cent), groundnut (-1.86 per cent), blackgram (4.44 per cent), cholam (0.36), cotton (-6.91 per cent) and gingelly (-1.09 per cent). These eight crops need to be focused for further development in the future, since there are scopes to increase their production. The estimated Compound Growth Rate of mango, onion and chilli had a positive CGR with regards to area, however, mango and chilli had negative CGR in production and productivity respectively. Banana and coriander had a positive CGR in productivity inspite of declining trend in area and production. Therefore, the commercial / horticultural crops like fruits and vegetables are also to be covered under larger area by improved technologies to obtain maximum yield potential.

As could be seen from Table 3.2, the area of the selected potential crops like paddy, gingelly and cotton have been projected to decline in 2022-23 owing to their negative Annual Compound Growth Rates. The production of coconut and cholam has been projected to increase due to its positive growth rate. Further, the CGR of productivities of paddy, gingelly and cotton also have shown a decline trend during the period. Hence, planned efforts are essential to sustain the current area. Also, we are in a position to increase the production and productivity within the available land area. Hence, the triennium average ending 2010-11 for the existing land area is taken for calculating production and productivity of the major potential crops identified for 2022-23.

Therefore, planned efforts are utmost necessary to sustain the areas under these crops so as to enhance the agricultural production by means of raising the productivities of these crops. Further, as could be seen in table 3.3, the yield gaps for these selected crops were much wider therefore the best option for raising the production is to take efforts to bridge the existing yield gaps in a situation where the scope for increasing the area under the crops is limited. In view of the above reasons, projection for rising the productivities of the selected crops alone was resorted to assess the estimated yield and production for the period from 2011-12 to 2022-23 and the results are discussed below. Projection was made within the existing land area of the potential crops. The trend in area, production and productivity of major crops of Ramanathapuram District are depicted in Fig. 5 to 12.

Fig. 5 Trend in Area, Production and Productivity of Paddy



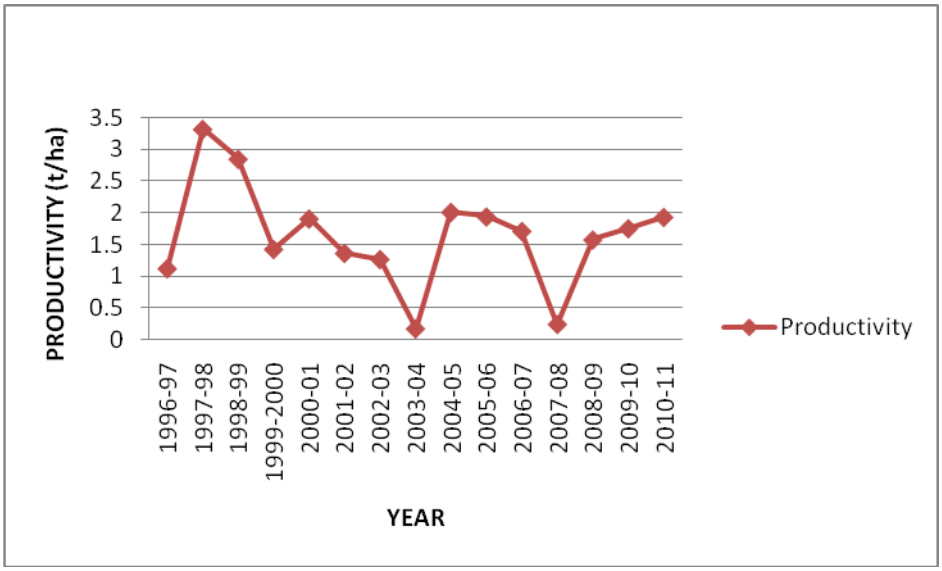
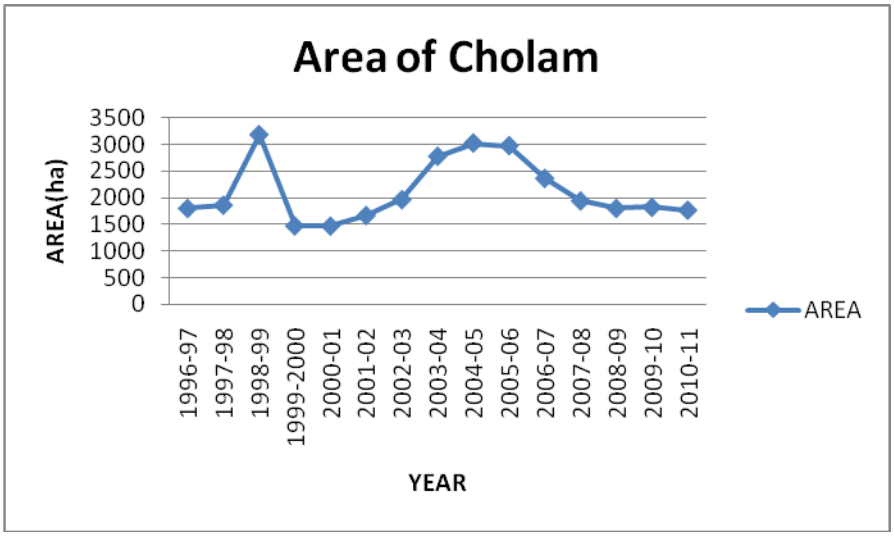
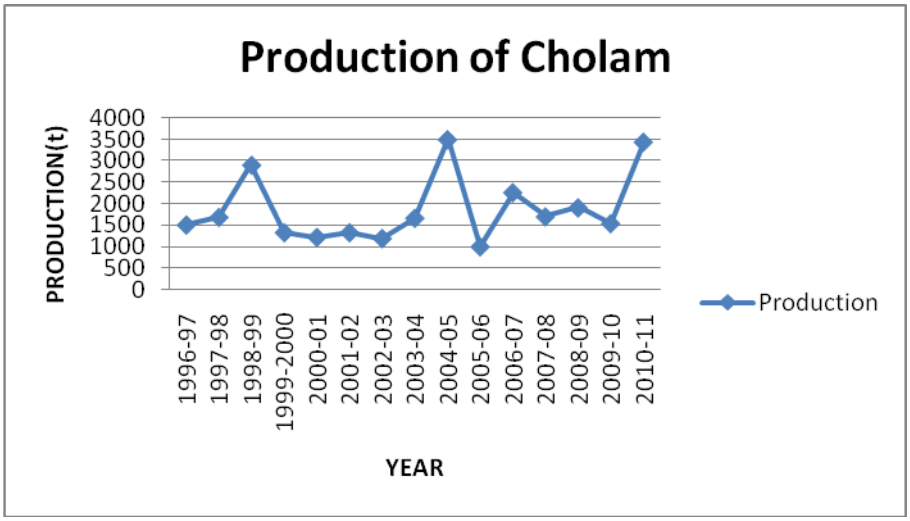


Fig. 6 Trend in Area, Production and Productivity of Cholam





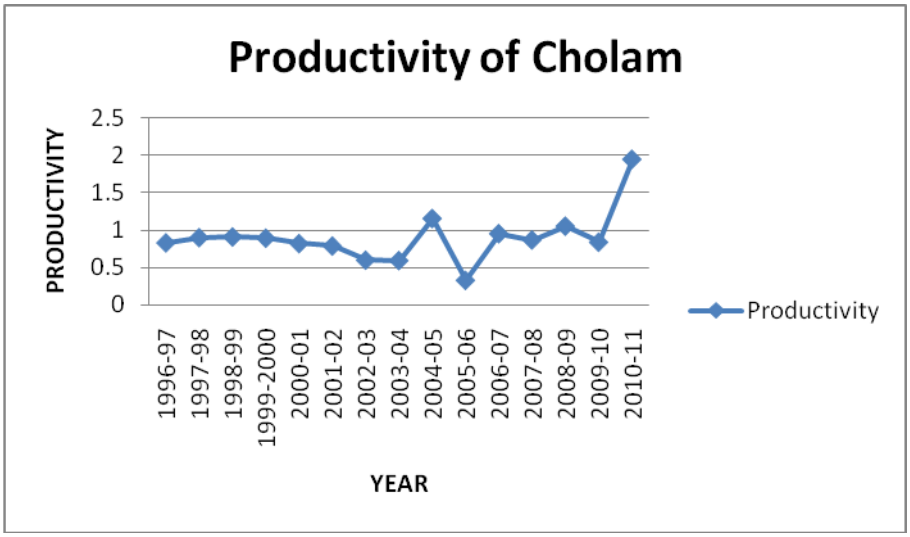
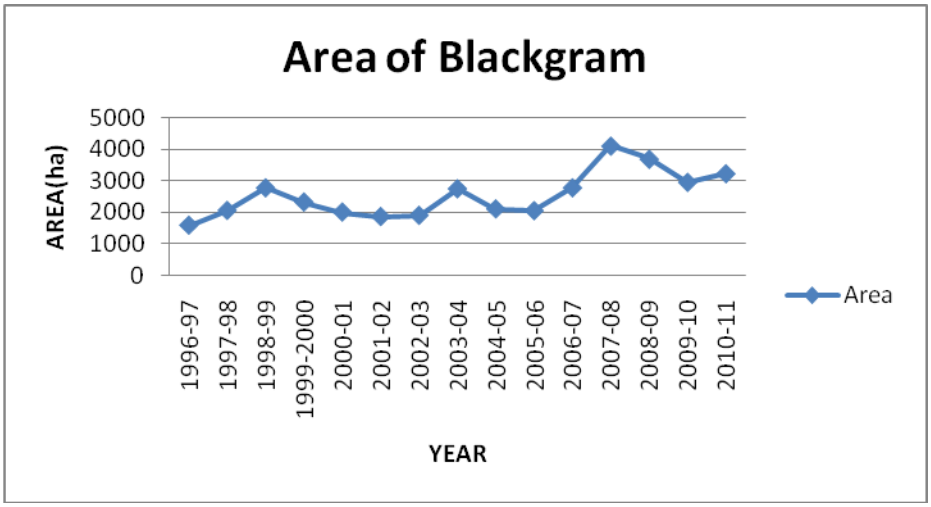
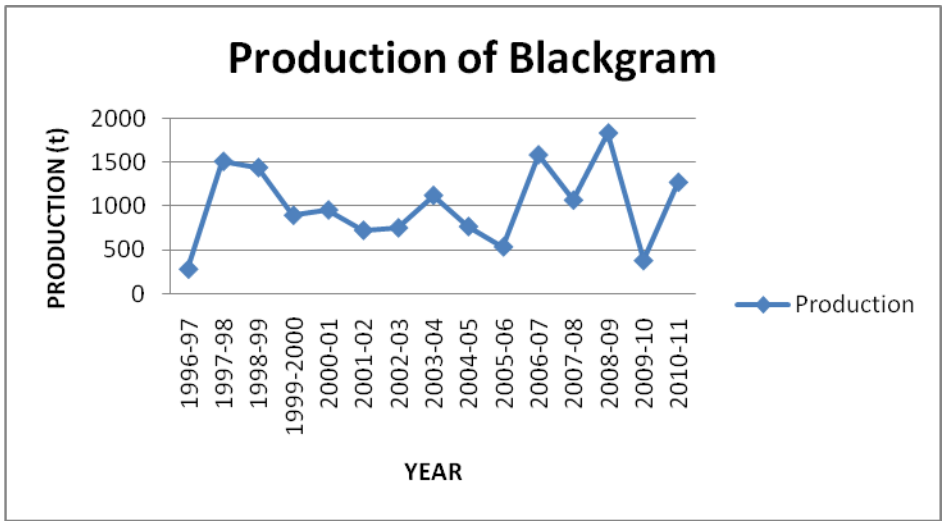


Fig. 7 Trend in Area, Production and Productivity of Blackgram





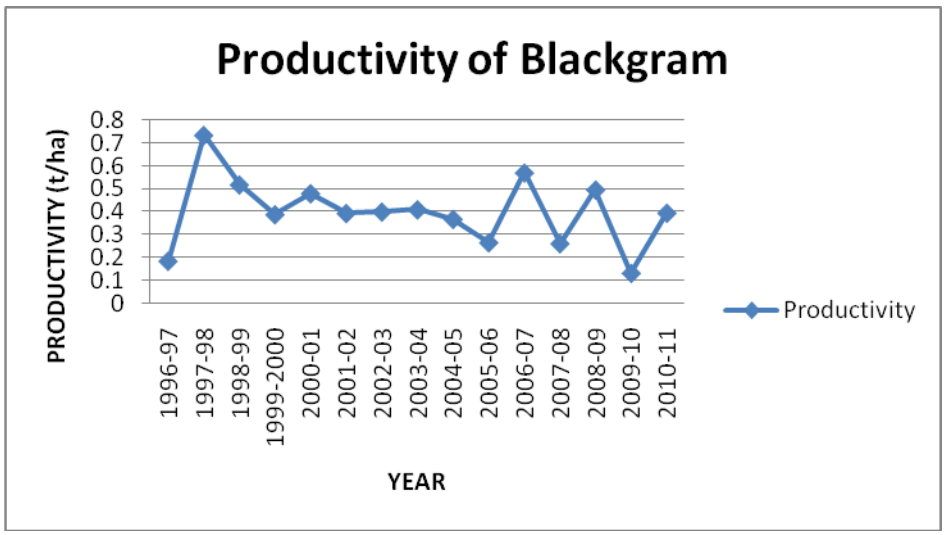
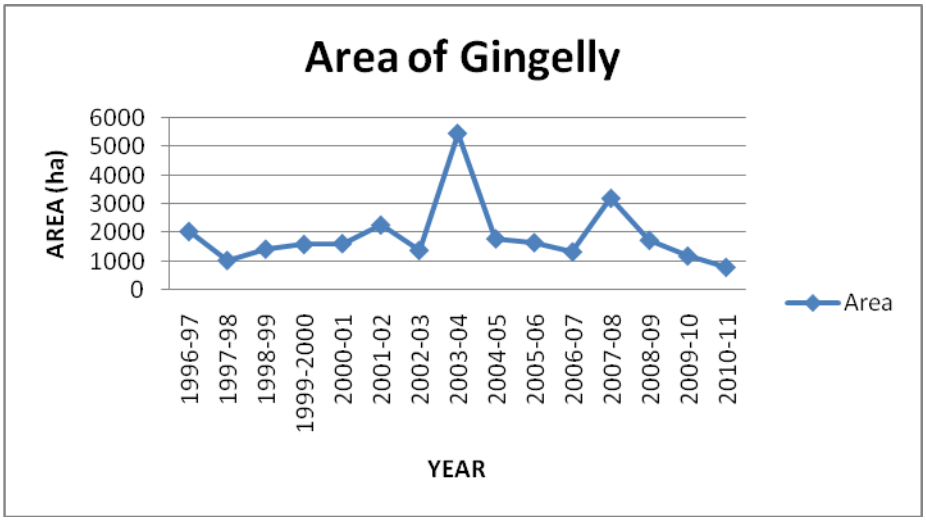
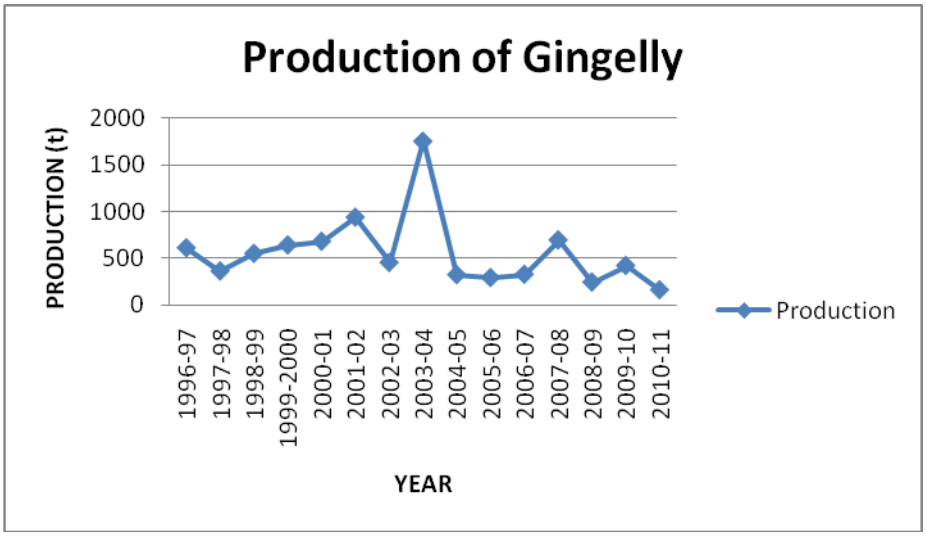


Fig. 8 Trend in Area, Production and Productivity of Gingelly





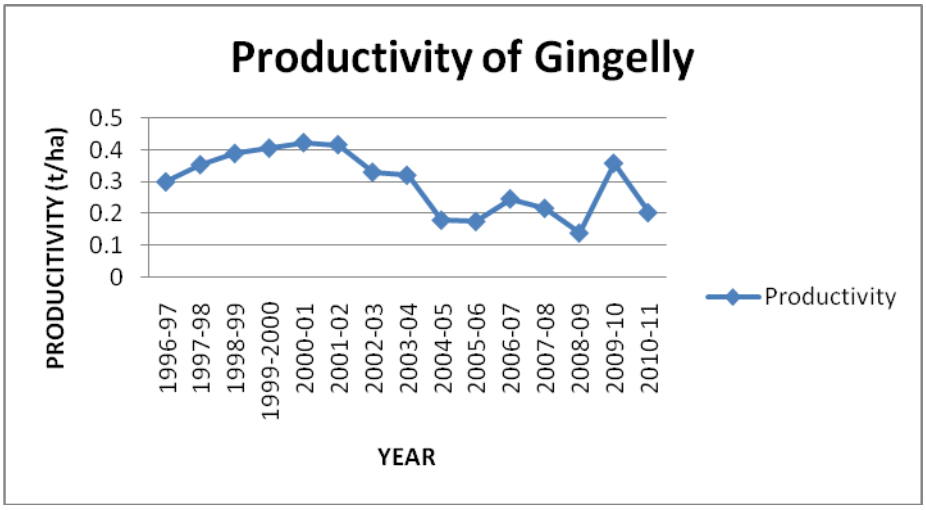
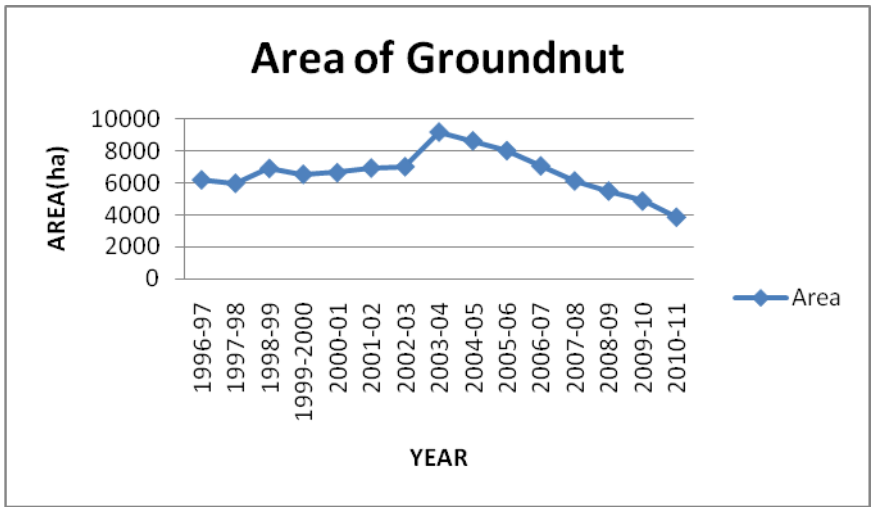
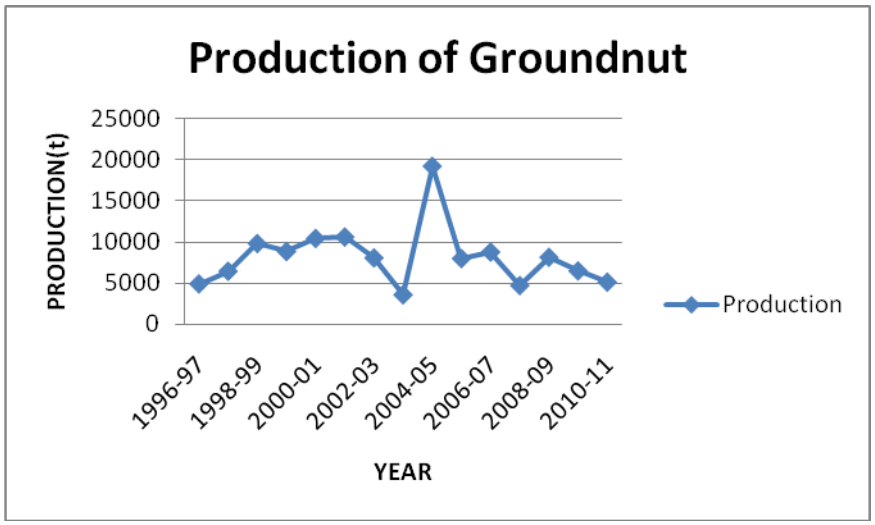


Fig. 9 Trend in Area, Production and Productivity of Groundnut





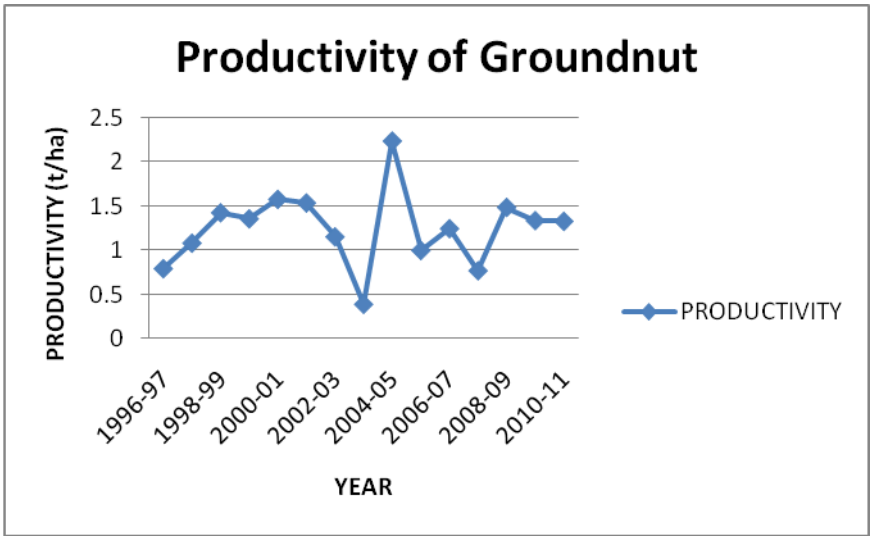
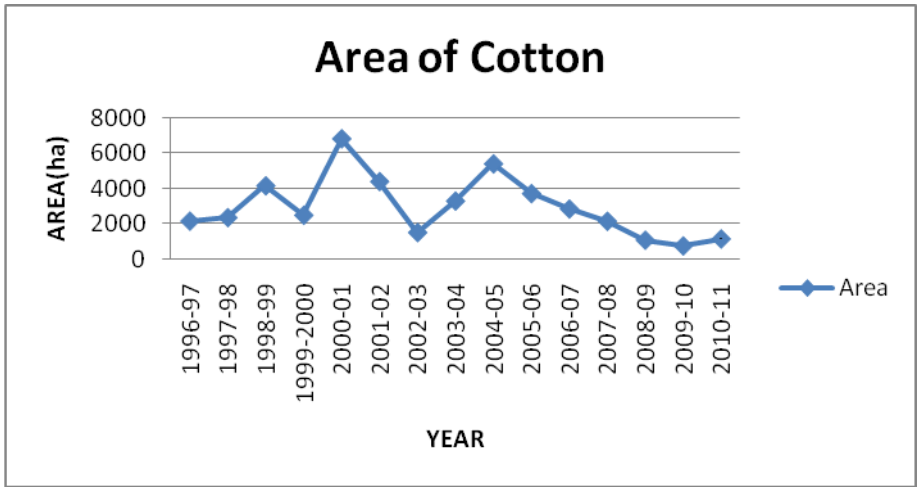
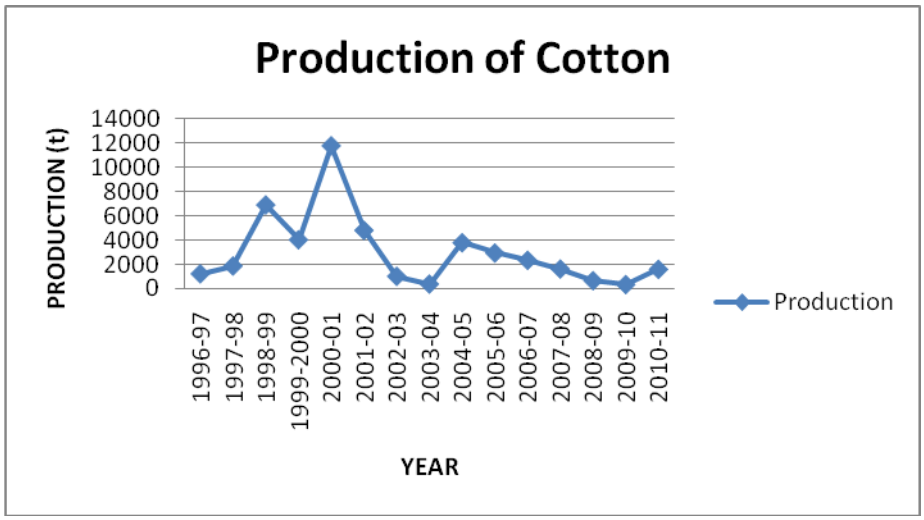


Fig. 10 Trend in Area, Production and Productivity of Cotton





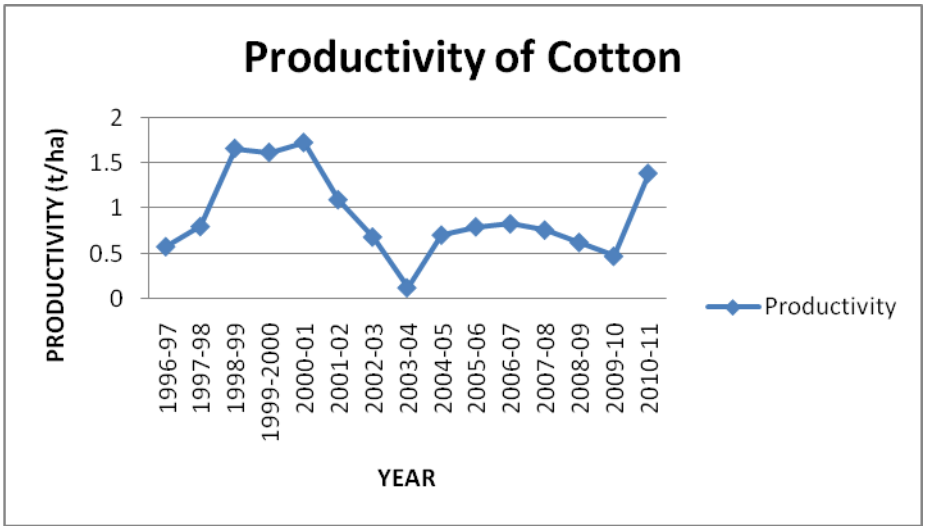
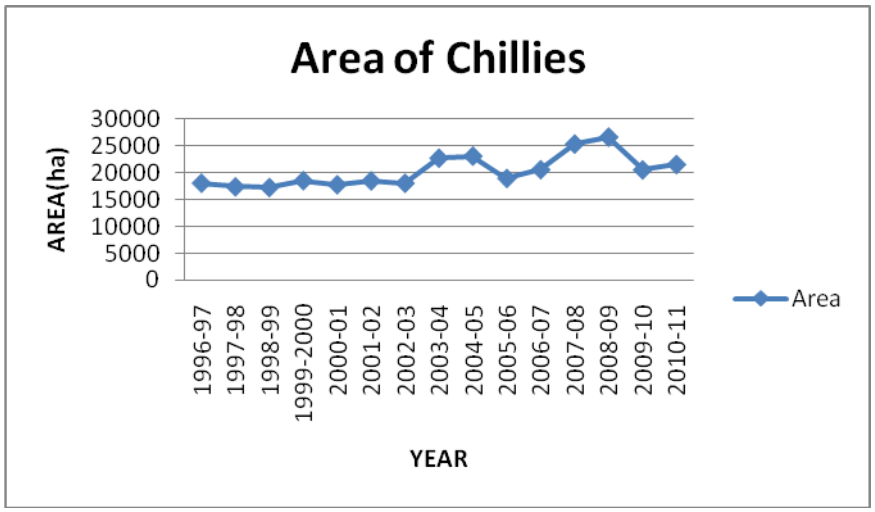
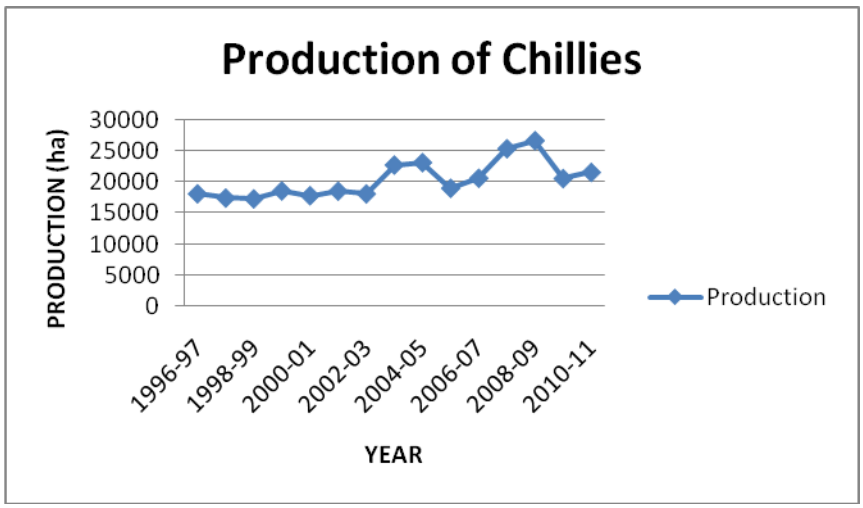


Fig. 11 Trend in Area, Production and Productivity of Chilli





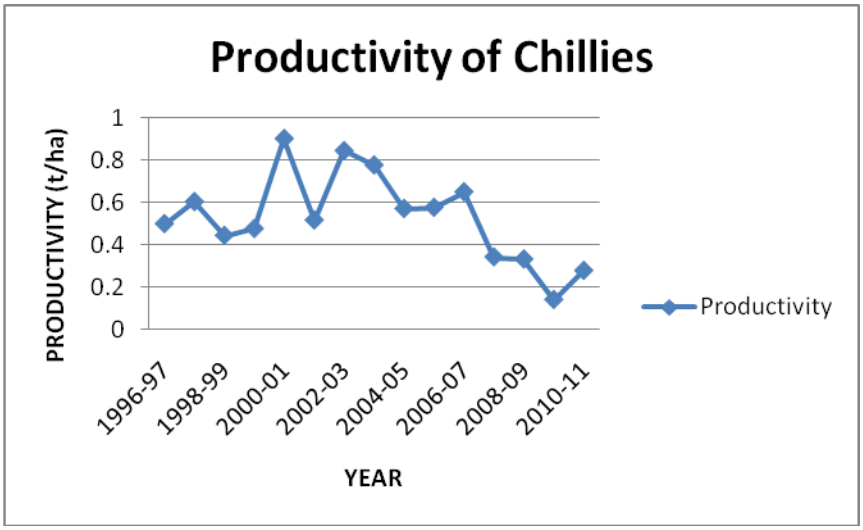
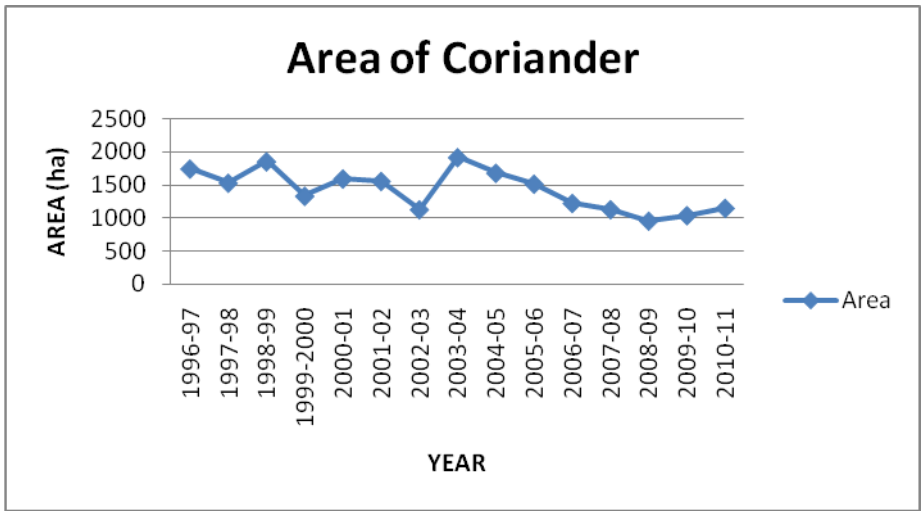
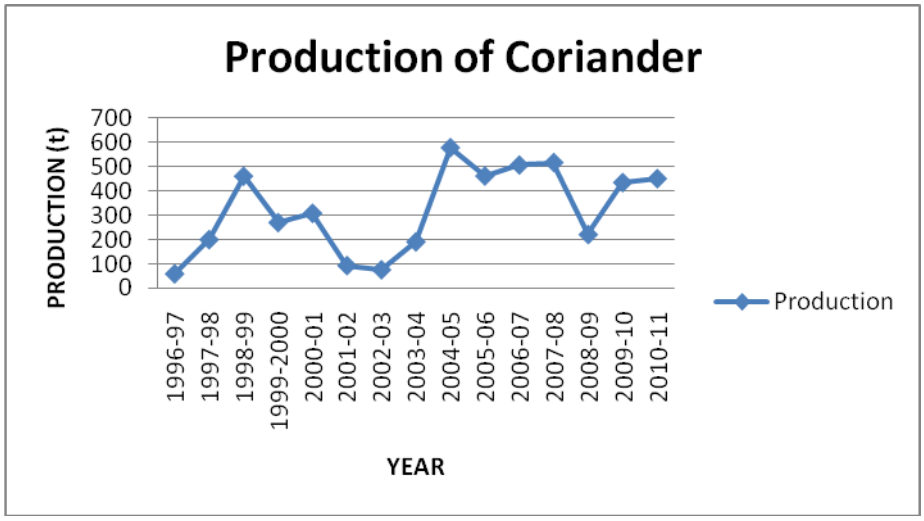


Fig. 12 Trend in Area, Production and Productivity of Coriander




Production of Coriander
PRODUCTION (t)
700
600
500
400
300
200
100
0
1996-97
1997-98
1998-99
1999-2000
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
YEAR
Production

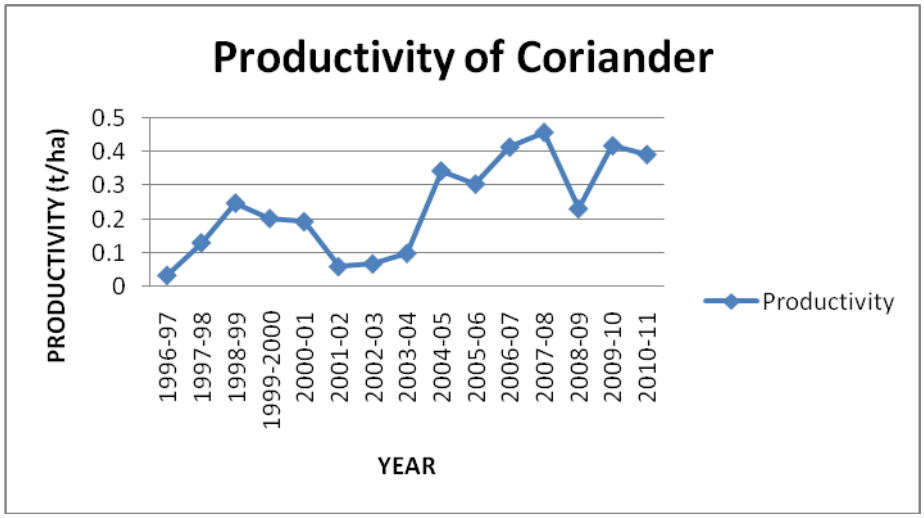
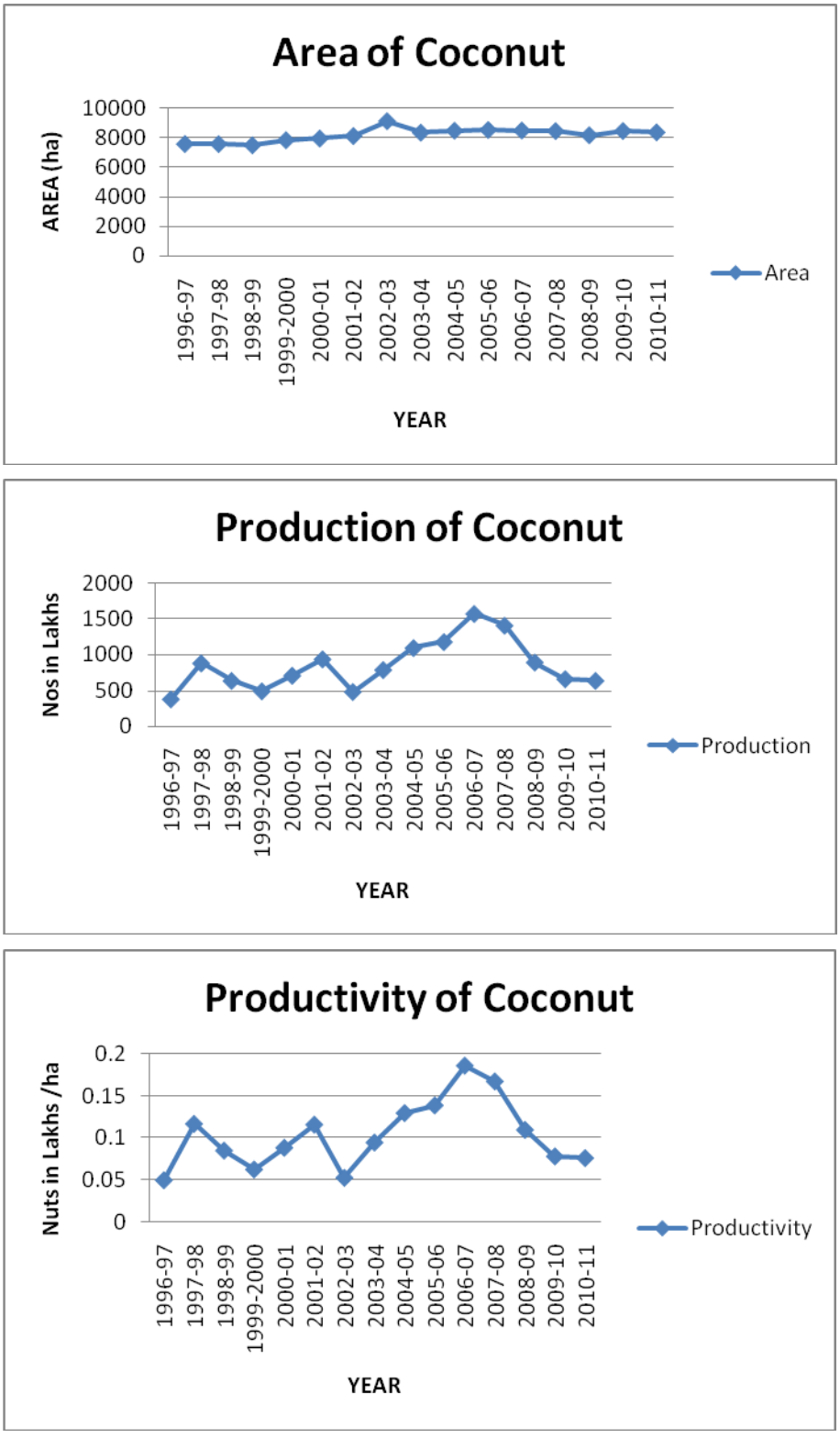

Productivity of Coriander
PRODUCTIVITY (t/ha)
0.5
0.4
0.3
0.2
0.1
0
1996-97
1997-98
1998-99
1999-2000
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
YEAR
Productivity

Fig. 13 Trend in Area, Production and Productivity of Coconut



The Compound Growth Rate of major crops of Ramanathapuram district is furnished in the Table. 3.3.

Table 3.3 Compound Growth Rate of Area, Production and Productivity under major crops in Ramanathapuram District during 2001-2014 (% per year)

Sl. No.	Crops	CGR %		
		Area	Production	Productivity
1	Paddy	0.552	6.474	5.885
2	Cholam	-0.675	4.678	5.374
3	Black gram	6.195	3.216	-2.944
4	Ground nut	-8.312	-5.409	2.995
5	Coconut	-0.012	-11.642*	-11.615*
6	Gingelly	-7.136	-10.486	-3.643
7	Chilli	1.866	-11.647	-11.293
8	Cotton	-12.617	-9.400	3.667

* Denotes growth rates during 2014-15

3.2 Projection on area, production and yield by 2023

For the identified potential crops of the district area, production and yield were projected using CGR for the year 2023 and the result is presented in Table.3.2.The planned efforts are utmost necessary to sustain the areas, production and productivity under these crops so as to enhance the agricultural production by means of raising the productivities of these crops. The area, production and yield were projected using CGR for the years up to 2015-16 and the results are furnished in the Table 3.4.

The major potential commodities like paddy, cholam, blackgram, groundnut, coconut, chillies, gingelly and cotton were identified for Ramanathapuram District. These crops account for the major share in the crop production in the District. Therefore, these eight crops were focused as potential crops of the district and the scope for further expansion of their potentiality in terms of production has been explored.

The current pattern of changes (Growth rates) in the area, production and yield of potential crops could be inferred from the Table 3.4. The area under Paddy crop in 2011-12 is around 1,31,414ha while in 2015-16 it is increased to 1,34,047 ha with a gain of 2,633 ha. The production and yield follows a negative trend, with a change of 17,316 and 187 kg/ha, respectively, during 2011-12 and 2015-16. This negative trend in production and productivity instead of increasing trend in area indicates the need of improved technologies adoption.

The next potential crop is the cholam, and it is grown in an area of 1,777 ha (Triennium average ending 2011-12). During 2015-16, the crop had potential of increase in area around 149 ha over 2011-12. However, the area under cholam is following a decreasing trend from 2012-13. A positive trend is seen with regards to production and productivity of cholam. The area under blackgram and chillies has been increased over years i.e. 1,511 and 4,013 ha. Despite of increased area, the production of chillies (2230 kg) and productivity of Chillies (108 kg/ha) and blackgram (38 kg/ha) had decreased over years.

The crops groundnut, coconut, gingelly and cotton showed reduction of area over the period of time from 2010-11 to 2015-16, which might be attributed to reduced production and productivity of the same. Reduction in area might be due to reduction in rainfall over the years of time. The increase in drought prone areas in the district led to decrease in the area of cultivation of major crops.

Among the potential crops, paddy, cholam, blackgram and chillies showed an increasing trend in area except the crops like groundnut, coconut, cotton and gingelly. However paddy, blackgram and chillies showed the decreasing trend in production and productivity except for blackgram. In order to sustain the overall production of major crops in the district, there is a need to arrest further decline in area and adequate measures have to be taken to increase the productivity of the crops. Crops like groundnut, chillies, gingelly and cotton were in a declining trend in area, production and productivity which indicated that these crops should be given more importance so as to sustain the available area and to bridge the yield gap. Though, the production and productivity for some crops have been increased over the period, there are certain yield gaps, which can be overcome by the advanced production technologies that evolved during the recent times.

Table.3.4. Projected Area, Production and Yield for the Major Potential Crops Identified

	Paddy			Cholam			Blackgram			Groundnut		
	Area	**Production**	**Yield**	**Area**	**Production**	**Yield**	**Area**	**Production**	**Yield**	**Area**	**Production**	**Yield**
CGR	0.552	6.474	5.885	-0.675	4.678	5.374	6.195	3.216	-2.944	-8.312	-5.409	2.995
Triennium Average ending (2011-12)	131414	309038	2362	1777	2203	1242	3146	1025	320	4140	5578	1351
2012-13	131853	241679	1832	1966	2318	1178	3889	1167	308	2917	5176	1831
2013-14	132580	257325	1940	1953	2426	1241	4130	1205	299	2675	4896	1886
2014-15	133312	273984	2054	1940	2540	1308	4386	1243	291	2453	4631	1943
2015-16	134047	291722	2175	1926	2658	1378	4657	1283	282	2249	4380	2001
CGR	-0.012	-11.642*	-11.615*	-7.136	-10.486	-3.643	1.866	-11.647	-11.293	-12.617	-9.400	3.667
Triennium Average ending (2011-12)	8361	632	7553	952	306	312	21121	5433	256	1328	2118	226
2012-13	8312	543	6551	1032	216	209	23778	4644	213	1003	983	167
2013-14	8311	479	5790	958	193	201	24222	4103	189	877	891	173
2014-15	8310	424	5117	890	173	194	24673	3625	167	766	807	179
2015-16	8309	374	4523	826	155	187	25134	3203	148	669	731	186

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

3.3 Yield gap analysis

Ramanathapuram district is deficient in rainfall. There are no major rivers providing perennial water supply for cultivation. Though a dry district, agriculture is extensively undertaken by irrigating the land from tanks and wells. The rainfall during the Southwest monsoon is rather poor. The rainfall during Northeast monsoon season is the major one but is not steady. Whatever rainfall occurs, it is utilized to the best advantage through a large number of tanks and wells in the district. Paddy is the most important food crop of the district. The average yield was derived from the Assistant Directors during the Stake Holder Analysis. Further, yield gap analysis was carried with the available data and the result is furnished below in Table 3.5.

Table 3.5 Yield gap analysis (kg/ha)

Crop	Potential yield	Progressive yield	Average yield	Yield gap I	Yield gap II	Gap I + II
I. Paddy						
ADT 45	3985	3782	3200	203	582	785
BPT 5204	4000	3850	3025	150	825	975
Anna 4	4200	3920	3500	280	420	700
Land races and others	3000	2400	1600	600	800	1400
II. Coconut						
East coast tall	14000	12000	7605	2000	4395	6395
III. Chillies						
Local mundu	800	750	420	150	230	380

Source: *Commodity Potential Report, TNAU 2013.*

From the table 3.5 it can be inferred that the yield gap for paddy among different varieties ranged from 700 to 1400 kg/ha and it was found to be more in rainfed area than the irrigated area. Due to uncertainty of rainfall, farmers hardly take inter cultivation practices might be the major reason for such yield gap.

I. Paddy

In Ramanathapuram district paddy is cultivated in irrigated as well as rainfed conditions. In the irrigated condition ADT 45, BPT 5204 and Anna 4 are the predominant cultivated rice varieties. The potential yield of the above mentioned varieties are derived through averaging the maximum yield obtained by the progressive farmers for the last 5 years in this district. In rainfed condition, drought tolerant local races and improved varieties like ADT45, BPT 5204, ASD 16 and Anna 4 are commonly being cultivated and the potential yield of those varieties in rainfed conditions are obtained from the RRS Paramakudi is used for calculation of potential yield under rainfed condition.

Progressive farmers yield was derived through averaging the average yield of crop cutting experiments conducted in this district by the state agricultural department for the last 5 years. The average yield was derived from the Assistant Directors during the stake holder analysis. Further, yield gap analysis was carried with the available data and the result is furnished below.

From the table it can be inferred that yield gap was found to be more in rainfed area than the irrigated area. Due to uncertainty of rainfall farmers hardly take inter cultivation practices might be the major reason for such yield gap.

Coconut

This crop is cultivated as a rainfed crop in coastal area and mostly east coast tall variety is being cultivated by the farmers as it can withstand drought, saline and humid conditions . Here too, farmers are not taking any intercultural practices that might be the reason for more yield gap.

B. HORTICULTURAL CROPS

Among the horticultural crops cultivated in Ramanathapuram district, spices and condiments occupies a predominant position and in particular chilliis being cultivated in an average area of 23,000 hectare which comes around 91 percent of gross sown area of total horticulture crops. As the cultivation of other horticultural crops is negligible the only predominant crop chilly has been identified as a potential crop of this district (Table 3.6).

Table 3.6 Identification of potential horticulture crops of Ramanathapuram district

Sl. No	Crop	Annual area under cultivation (ha)			Average (ha)	Gross sown area of horticulture crops (ha)	%	Cumulative average
		2008-09	2009-10	2010-11				
1	Total spices	27773	21777	22882	24144	25154	95.98	95.98
	A. Chillies	26634	20579	21569	22927	25154	91.15	
	B. Other spices	1139	1198	1313	1217	25154	4.84	
2	Total fresh fruits	640	329	392	454	25154	1.80	97.78
3	Total citrus fruits	10	31	56	32	25154	0.13	97.91
4	Total dry fruits	125	137	163	142	25154	0.56	98.48
5	Total vegetables	244	237	230	237	25154	0.94	99.42
6	Total drugs& narcotics	27	120	38	62	25154	0.25	99.66
7	Total flowers	83	75	93	84	25154	0.33	100.00

Source: *Deputy Director of Horticulture and Regional Research Station, Paramakudi*

Further, farmers in this district cultivate only the local mundu chilly variety as it could withstand alkaline and saline soil condition and adverse dry weather condition. Moreover this variety is also having more market preferability. As it is raised in rainfed condition the yield gap also found to be more.

Table 3.7 Potential and average yield of Local mundu in Ramanathapuram

Ruling Varieties	Local mundu (kg/ha)
Potential Yield	800
Progressive farmer yield	750
Average Yield	420
Overall Yield Gap	380
Required Growth Rates	90.48
Annual Growth Rate	8.23

Source: *Deputy Director of Horticulture and Regional Research Station, Paramakudi*

Table 3.8 Yield gap analysis of chilly crop in Ramanathapuram

Chilly variety	Yield GAP I (kg /ha)	Yield GAP II (kg/ha)	Overall yield gap (kg/ha)
Local mundu	150	230	380

Source: *Deputy Director of Horticulture and Regional Research Station, Paramakudi*

Table 3.9 Technological Interventions and strategies to reduce the yield gaps for major crops in the Ramanathapuram District

Sl. No.	Crop	Constraints	Technologies/solutions to overcome the constraints
	Paddy		
1		Improper sowing methods and more population	1. Use of Tractor drawn Seed Driller developed by the ARS, Paramakudi for large scale direct sowing and to maintain plant population. 2. Use of manually operated TNAU Drum Seeders for small scale direct sowing area to maintain plant population. 3. Organizing SRI Demonstrations in irrigated area.
2		Use of high seed rate with poor quality seeds	Distribution of quality seeds of preferable varieties like ADT 45, ADT 49, Co49, Co51, BPT 5204, Anna 4 through Agricultural Department. Training on thinning and SRI method of cultivation developed for rainfed conditions must be promoted.
3		Improper fertilizer & imbalance nutrient application	Application of fertilisers as per Soil Health card. Spraying of PPFM for partial drought tolerance
4		Improper weed management	Popularizing the garden land weeder and motorized power weeder
5		Indiscriminate use of pesticide	Organising Farmers Field School
6		Labour shortage after implementation of MNREGS	Combine the MNREGS work with agricultural activities in private holdings on public fund sharing mode.
7		Lower price to the produce	Fixing of minimum selling price every year through adequate legal control.
8		Only very few (9 Nos.) godowns are available to store the produce	Awareness and availability of godowns must be enhanced by the state department of agricultural marketing

	Coconut		
9		Significant decline in the production due to incidence of Eriophyid mite attack and drought. During 2005 to 2010, every year around 2 per cent of trees have become senile and unproductive	They need to be replaced urgently with high yielding and drought tolerant Tall X Dwarf varieties.
10		The incidence of debilitating pest and diseases like root wilt, stem weevil attack can be observed in 20 per cent of the trees	A massive and concerted programme has to be launched involving research and extension backed by suitable subsidy schemes so that the spread of diseases and pests is controlled and regeneration initiatives are started.
11		The trees face water stress during the dry season and hot summer months. During these months, they need supplementary irrigation	In view of the high investment cost and the need to give relief to the small and marginal farmers, subsidy pattern of drip and sprinkler irrigation should be reviewed and revised upward.
12		The price support operations require huge working capital and adequate godown facilities	The government should consider decentralising procurement by allowing state level agencies to purchase.
13		The procurement agencies do not have sufficient godown facilities for keeping the stock bought by them.	The govt should explore the possibility of entering into arrangements with private parties for the storage of copra and other oilseeds similar to the seven year guarantee scheme of FCI for construction of modern warehouses for the storage of copra and other oilseeds.
14		The cost of labour increased by 30 per cent this year and there was an acute shortage of labour	Combine the MGNREGA work with agricultural activities in private and public fund sharing mode.
15		There are very few workers available today to climb the trees, pluck nuts and post-harvest operations.	Farm machineries for harvesting and post-harvest operations have to be popularized and provisions may be made at panchayat level to hire those machineries.

	Chilli		
16		Due to lack of storage facilities farmers are forced to sell their produce in the market with prevailing rate.	Creation of Cold Storage facilities at affordable cost at village level may improve farm income.
17		Varietal Need	Variety may be evolved by retaining all good characters enshrined in the local race (Mundu)
18		Hi- Tech Production Technologies	Demonstrations for Hi-tech production technologies like Shade net, Poly house technology and other protected cultivation technologies
19		Grading of Chillies ensures better prices to producers and better quality to consumers.	Awareness should be created on post-harvest technologies like grading to get additional income.
20		The farmers are not properly trained in harvesting, transportation and marketing of Chillies.	Training will improve their skill for better marketing of their produce.
	Others		
21		Due to inadequate marketing infra-structural facilities with producers, traders and at market level, the marketing efficiency is affected adversely.	Improved infra-structure facilities should be created
22		Lack of market finance is one of the major marketing constraints in operating of marketing chain.	

CHAPTER IV

DISTRICT PLAN

The interventions proposed, the associated outlays, the physical targets, budgetary requirements, time frame for achievements in the Agriculture, Agricultural Research, Horticulture, Agricultural Engineering, Agricultural Marketing, Seed Certification, Animal Husbandry, Dairy Development, Fisheries, Fisheries Research, Public Welfare Department and Cooperation and Civil Supplies sectors are discussed in this chapter. This would comprehend the activities and the achievements to be made in beyond twelfth plan.

4.1. Agriculture

The development of agriculture sector has been aimed at by mainly pushing up the productivity levels of the major crops *viz.,* paddy, millets, pulses, oilseed, oilpalm, cotton, coconut and others interventions like training, infrastructure development, soil health management, rainfed area development, integrated pest management, farm mechanization and agricultural information technology in the district. Activities planned for and the costs involved under each crop are detailed below.

4.1.1. Enhancing the rice productivity in Ramanathapuram District

Paddy is one of the major crops being grown in this District. It is cultivated under dry and semi-dry conditions hence productivity is low. Since productivity of paddy mainly depends on the use of quality seed materials, production and distribution of high yielding varieties is highly essential. So the popularization of semi dry rice varieties in the district will help the farmers go for area expansion. Having this in mind, it is proposed to distribute machineries and implements like power tiller, rotavator, tractor drawn seed drill to farmers. Also, it is proposed to distribute combine harvester and construction of threshing floor to reduce the cost of labour and post-harvest losses.

Project components

- ✓ Promotion of SRI (All Blocks)
- ✓ Distribution of MN mixture and biofertilizer (All blocks)
- ✓ Distribution of Polyvinyl coated tarpaulin and direct sown paddy with seed drill sowing (All Blocks)
- ✓ Distribution of zinc sulphate and herbicides (All blocks except Kadaladi, Mudukulathur, Paramakudi Blocks)
- ✓ Distribution of biocontrol agents/biopesticides (All Blocks except Mandapam Block)

Budget

The budget requirement for fulfilling the various interventions is **₹. 3465.68 Lakhs**. The details of budget requirement for each intervention across the Blocks are shown in **Table 4.1.**

Expected outcome

Supply of quality seeds of certified varieties will certainly increase the production and productivity. Reduction in cost of cultivation of crops due to supply of fertilizers and plant protection chemicals at a cost lower than market price. Assured supply of fertilizers and plant protection chemicals even in the condition of shortage of supply in market.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.1. Budget Requirement for Rice Crop in Ramanathapuram District

(₹. 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	Distribution of High Yielding Varieties	MT	0.35	All Blocks	50	17.50	255	89.25	300	105.00	345	120.75	390	136.50	1340	469.00
2	Distribution of Foundation	MT	0.4	All Blocks Except B11	3	1.20	115	45.80	146	58.40	176	70.40	206	82.40	646	258.20
3	seed production - Foundation	MT	0.32	B2 ,B4, B6, B8	1	0.32	17	5.44	17	5.44	17	5.44	17	5.44	69	22.08
4	seed production - Certified class	MT	0.26	All Blocks	232	60.32	410	106.60	445	115.70	475	123.50	505	131.30	2067	537.42
5	Distribution of MN mixture/ Copper Sulphate	Ha	0.01	All Blocks	2996	29.96	3800	38.00	4410	44.10	5020	50.20	5650	56.50	21876	218.76
6	Distribution of biofertilizer / PPFM / bioinputs / plant nutrient mobilizing bacteria	Ha	0.003	All Blocks	5460	16.38	6150	18.45	6960	20.88	7770	23.31	8600	25.80	34940	104.82
7	Distribution of Zinc sulphate (Soil application & foliar)	Ha	0.01	All Blocks Except B1,B3,B5	200	2.00	1650	16.50	1860	18.60	2020	20.20	2400	24.00	8130	81.30
8	Distribution of biocontrol agents/biopesticides	Ha	0.01	All Blocks Except B11	200	2.00	1800	18.00	2100	21.00	2450	24.50	2750	27.50	9300	93.00
9	Gypsum application	Ha	0.015	All Blocks Except B1,B2,B3,B5	100	1.50	1110	16.65	1110	16.65	1110	16.65	1110	16.65	4540	68.10

Sl. No.	Interventions	Unit	Unit Cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
10	Distribution of herbicides	Ha	0.01	All Blocks Except B1,B3,B5	200	2.00	7650	76.50	7650	76.50	7750	77.50	7750	77.50	31000	310.00
11	Polyvinyl coated Tarpaulin (6m x 5m)	No	0.02	All Blocks	20	0.40	535	10.70	575	11.50	615	12.30	655	13.10	2400	48.00
12	Direct sown paddy with seed drill sowing	Ha	0.07	All Blocks	1100	77.00	2200	154.00	3300	231.00	4400	308.00	5500	385.00	16500	1155.00
13	Demonstration of drip irrigation	ha	1	All Blocks	20	20.00	20	20.00	20	20.00	20	20.00	20	20.00	100	100.00
	Total					**230.58**		**615.89**		**744.77**		**872.75**		**1001.69**		**3465.68**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.1.2. Enhancing the millets productivity in Ramanathapuram District

Millet is one of the major crops being grown in Ramanathapuram District and its area is increasing in recent years due to increase in profitability and demand for starch and poultry feed industries. The production and productivity of maize could be increased mainly by way of using hybrid seeds and hence, the production and distribution of hybrid seeds at nominal / subsidized cost is essential as the price of hybrid seeds is very high. In addition to the distribution of hybrid seeds, distribution of micronutrient mixture, bio fertilizers and bird scarer units is essential.

Project components

- ✓ Demonstration (supply of seed, seed treatment & MN mixture) (Sorghum, Maize, Cumbu and Ragi)
- ✓ Distribution of biofertilizers - Liquid / Carrier (Sorghum, Maize, Cumbu and Ragi)
- ✓ Distribution of herbicides (Kamuthi, Mudukulathur Block)
- ✓ Drip irrigation for maize (Kamuthi Block)
- ✓ Expansion of area under Minor Millets (Chathirakudi, Kadaladi, Kamuthi, Mudukulathur, Nainarkoil, Paramakudi Block)
- ✓ Minor millet processing unit (Kamuthi, Mudukulathur, Paramakudi block)

Budget

The total cost of the project for five years works to **₹. 499.06 Lakhs**. The details of budget requirement for each intervention across the Blocks are shown in **Table 4.2**.

Expected outcome

There is a scope to increase the area under millets in Ramanathapuram district. By distributing improved varieties / hybrids of millets will certainly improve the living standard of the farmers of this tract. Supply of quality seeds of newly released varieties will certainly increase the production and productivity.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.2. Budget Requirement for Millets in Ramanathapuram District

(₹. 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,B4	56	5.60	56	5.60	56	5.60	56	5.60	56	5.60	280	28.00
2	Distribution on biofertilizer - Liquid / Carrier	Ha	0.003	B1,B2,B3,B4,B5,B6	1738	5.21	1520	4.56	1470	4.41	1670	5.01	1770	5.31	8168	24.50
3	Expansion of area under Minor Millets (Demo - supply of seed, seed treatment, MN mixture & Organic package)	Ha	0.05	B1,B2,B3,B4,B5,B6	573	28.65	310	15.50	420	21.00	330	16.50	340	17.00	1973	98.65
4	Formation of small millet groups	Nos.	0.2	B3,B4	20	4.00	20	4.00	20	4.00	20	4.00	20	4.00	100	20.00
5	Millet Processing unit-Minor millet	Nos.	2.5	B3,B4,B6	7	17.50	7	17.50	8	20.00	7	17.50	7	17.50	36	90.00
6	Seed Production / Incentives for quality seed	MT	0.63	B5,B8,B9	1	0.64	1	0.64	1	0.64	1	0.64	1	0.64	5	3.19
	Sorghum															
7	Demonstration (Supply of seed, seed treatment, MN mixture & Organic package)	Ha	0.05	B2,B3	20	1.00	20	1.00	20	1.00	20	1.00	20	1.00	100	5.00
8	Distribution of biofertilizers Liquid / Carrier	Ha	0.003	B2,B3	110	0.33	110	0.33	110	0.33	110	0.33	110	0.33	550	1.65
9	Distribution of MN mixture (12.5kg/ha)	Ha	0.007	B3	100	0.70	100	0.70	100	0.70	100	0.70	100	0.70	500	3.50
10	Seed distribution	MT	0.7	B2,B3	2	1.05	2	1.05	2	1.05	2	1.05	2	1.05	8	5.25
	Maize															
11	Demonstration (Supply of seed, seed treatment & MN mixture, organic package)	Ha	0.05	B3,B4,B9	65	3.25	65	3.25	70	3.50	70	3.50	85	4.25	355	17.75
12	Distribution of biofertilizers Liquid / Carrier	Ha	0.003	B3,B4	200	0.60	200	0.60	200	0.60	200	0.60	200	0.60	1000	3.00
13	Distribution of herbicides	Ha	0.008	B3,B4	300	2.40	300	2.40	300	2.40	300	2.40	300	2.40	1500	12.00
14	Distribution of Maize maxim (15 kg/ha)	Ha	0.045	B3,B4	60	2.70	60	2.70	60	2.70	60	2.70	60	2.70	300	13.50
15	Drip irrigation for maize	Ha	1	B3	1	1.00	1	1.00	1	1.00	1	1.00	1	1.00	5	5.00

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
16	Seed Distribution	MT	0.4	B3,B4	2	0.80	2	0.80	2	0.80	2	0.80	2	0.80	10	4.00
17	Seed Distribution Hybrid seeds for maize	MT	1.8	B4	1	1.80	1	1.80	1	1.80	1	1.80	1	1.80	5	9.00
	Cumbu															
18	Demonstration (Supply of seed, seed treatment & MN mixture, organic package)	Ha	0.05	B2,B3	20	1.00	20	1.00	20	1.00	20	1.00	20	1.00	100	5.00
19	Distribution of biofertilizers Liquid / Carrier	Ha	0.003	B2,B3	400	1.20	400	1.20	400	1.20	400	1.20	400	1.20	2000	6.00
20	Distribution of MN mixture (12.5kg/ha)	Ha	0.007	B3	100	0.70	100	0.70	100	0.70	100	0.70	100	0.70	500	3.50
21	Seed Distribution	MT	0.53	B3,B4	2	0.80	2	0.80	2	0.80	2	0.80	2	0.80	8	3.98
	Ragi															
22	Demonstration (supply of seed, seed treatment, MN mixture & organic package)	Ha	0.05	B6,B5,B4,B3,B1	310	15.50	355	17.75	267	13.33	375	18.75	385	19.25	1692	84.58
23	Distribution of biofertilizers Liquid / Carrier	Ha	0.003	B6,B5,B4,B3,B1	588	1.76	675	2.03	725	2.18	825	2.48	925	2.78	3738	11.21
24	Distribution of MN mixture	Ha	0.007	B6,B5,B4,B3,B1	603	4.22	610	4.27	610	4.27	610	4.27	610	4.27	3043	21.30
25	Seed distribution	MT	0.66	B1,B3,B4,B5,B6	6	3.86	5	3.17	4	2.84	7	4.49	8	5.15	30	19.50
	Total					**106.27**		**94.33**		**97.83**		**98.81**		**101.82**		**499.06**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.1.3. Enhancing the pulses productivity in Ramanathapuram District

In Ramanathapuram District, pulses are important food crop cultivated in 3362 ha. Black gram followed by green gram and red gram are cultivated under rainfed condition. The average productivity of Pulses is 491 kg/ha. Block wise analysis showed that Mudukulathur and Kadaladi are the two major pulses growing blocks of the district followed by Ramanathapuram, Thirupullani and Mandapam. Production of pulses had been hovering around 1650 tonnes. Since Pulses are being cultivated in rainfed condition, reduced productivity is obtained. Moreover pulses are raised in single season owing to complete dependence of rainfall. If season favours, crop will be raised successfully. The productivity of pulses can be increased by the adoption of improved practices, latest varieties, supply of inputs and biocontrol agents for pest and disease management.

Project components

- ✓ Production of foundation/certified pulses seeds (All Blocks except R.S.Mangalam Block)
- ✓ Distribution of certified seeds (All Blocks except R.S.Mangalam Block)
- ✓ Distribution of biofertilizer (Rhizobium + Phosphobacteria) - liquid / carrier (All blocks except Chathirakudi, Nainarkoil, R.S.Mangalam Block)
- ✓ Cropping system based demonstration (Kadaladi, Kamuthi, Mudukulathur, Paramakudi, Ramanathapuram Block)
- ✓ Pure crop demonstration - black gram and green gram (Kamuthi, Mudukulathur, Paramakudi, Ramanathapuram Block)
- ✓ Demonstration on intercropping of pulses with other crops (Kamuthi, Mudukulathur, Ramanathapuram Block)

Budget

The total budget for the proposed intervention is **₹. 566.73 Lakhs**. The details of budget requirement for each intervention across the blocks are shown in **Table 4.3**.

Expected outcome

The timely supply of seed material of ruling varieties and distribution of machineries through Department of Agriculture at block level will facilitate the farmers to adopt high yielding varieties in turn to get higher income.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.3. Budget Requirement for Pulses in Ramanathapuram District

(₹. 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	Purchase of breeder seeds	MT	250000	B3,B9,B10,B5	0.12	0.30	0.14	0.36	0.14	0.36	0.14	0.36	0.16	0.41	1	1.77
2	Production of Foundation/ Certified pulses seeds	MT	86000	All Blocks Except B7	38	32.81	41	35.26	41	35.26	41	35.26	41	35.26	202	173.85
3	Distribution of Certified Seeds	MT	100000	All Blocks Except B7	28	27.50	32	32.00	32	32.00	32	32.00	32	32.00	156	155.50
4	Distribution of Gypsum	ha	400	B11,B9,B8,B6,B3,B4	612	2.45	697	2.79	697	2.79	747	2.99	747	2.99	3500	14.00
5	Distribution of Biofertilizer/ Organic packages (Rhizobium + Phosphobacteria) - Liquid / Carrier	Ha	600	All Blocks Except B1,B5,B7	400	2.40	535	3.21	535	3.21	535	3.21	535	3.21	2540	15.24
6	Distribution of Micro Nutrients(5 kgs/ Ha)	Ha	350	B8,B6,B4,B3	300	1.05	310	1.09	310	1.09	310	1.09	310	1.09	1540	5.39
7	DAP Spray	Ha	700	B8,B6,B4,B3,B2,B1	710	4.97	710	4.97	710	4.97	710	4.97	710	4.97	3550	24.85
8	Pulse wonder - 5 kg/ha	Ha	1000	B4,B3,B2	520	5.20	520	5.20	520	5.20	520	5.20	520	5.20	2600	26.00
9	Bund Cropping	Ha	300	B8,B3,B4	120	0.36	170	0.51	170	0.51	170	0.51	170	0.51	800	2.40
10	Line sowing	Ha	2250	B4,B3,B2	120	2.70	120	2.70	120	2.70	120	2.70	120	2.70	600	13.50
11	Distribution of Yellow sticky trap /pheromone trap	ha	1000	B8,B4,B3,B1	85	0.85	90	0.90	90	0.90	90	0.90	90	0.90	445	4.45
12	Cropping system based demonstration	Ha	12500	B8,B6,B4,B3,B2	46	5.75	66	8.25	66	8.25	66	8.25	66	8.25	310	38.75
13	Distribution of weedicide	Ha	1000	B3,B4	150	1.50	150	1.50	150	1.50	150	1.50	150	1.50	750	7.50
14	Plant Protection Chemicals	Ha	1000	B3,B4,B6	200	2.00	200	2.00	200	2.00	200	2.00	200	2.00	1000	10.00

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
15	Seed treatment and soil application with Trichoderma viridi	Ha	700	B8,B6,B4,B3	395	2.77	405	2.84	405	2.84	405	2.84	405	2.84	2015	14.11
16	Pure crop demonstration - Black gram and green gram	Ha	6300	B8,B6,B4,B3	70	4.41	72	4.54	72	4.54	72	4.54	72	4.54	358	22.55
17	Demonstration on intercropping of pulses with other crops	Ha	8300	B3,B4,B8	60	4.98	65	5.40	65	5.40	65	5.40	65	5.40	320	26.56
18	Demonstration through NGOs	Ha	8250	B4	25	2.06	25	2.06	25	2.06	25	2.06	25	2.06	125	10.31
	Total					**104.05**		**115.55**		**115.55**		**115.75**		**115.80**		**566.73**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.1.4. Enhancing the oilseeds productivity in Ramanathapuram District

In Ramanathapuram district, oilseeds crops are cultivated in around 7900 ha. Block wise analysis showed that Paramakudi, Nainarkoil and Bogalur are the three major oilseeds growing blocks followed by Mudukulathur and Kadaladi. Groundnut and Gingelly are the two major oilseed crops cultivated in an area of 6112 and 1636 ha respectively. Since oilseed crops are raised under rainfed condition, productivity is low in this district. If season favours, oilseed crops could be raised successfully. The supply of critical inputs to the farmers will improve the livelihood of the people.

Project components

- ✓ Certified seed production (All Blocks except Thiruvadanai Block)
- ✓ Foundation seed production (Chathirakudi, Nainarkoil, Mandapam Block)
- ✓ Application of Gypsum (Kadaladi, Kamuthi, Paramakudi, Ramanathapuram, Thiruppullani, Mandapam Block)
- ✓ Distribution of certified seeds, MN mixture, gypsum and liquid biofertilizer (All Blocks)
- ✓ Application of herbicide, biopesticide/fungicide and light trap (Kamuthi Block)
- ✓ Bund cropping - castor (Kamuthi Block)
- ✓ Polythene mulch Inclusive of erection (Kamuthi, Thiruvadanai Block)
- ✓ Seed Drill Sowing / Line sowing of Groundnut with Pulses as intercrop (Chathirakudi, Kadaladi, Kamuthi, Nainarkoil, Paramakudi Block)
- ✓ CBD - groundnut (Kadaladi, Kamuthi, Paramakudi Block) and Gingelly

Budget

The total cost of the project for five years works to **₹. 597.42 Lakhs**. The details of budget requirement for each intervention across the blocks are shown in **Table 4.4**.

Expected outcome

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

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.4. Budget Requirement for Oilseeds in Ramanathapuram District

(₹. 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	Purchase of Breeder seed	Mt	1.50	B2,B5,B9	1	0.90	1	0.90	1	0.90	1	0.90	1	0.90	3	4.50
2	Polythene mulch Inclusive of erection	Ha	0.50	B3,B10	11	5.60	11	5.60	11	5.60	11	5.60	11	5.60	56	28.00
3	Herbicide	Ha	0.01	B3	100	1.00	100	1.00	100	1.00	100	1.00	100	1.00	500	5.00
4	Light trap (NCIPM)	Nos.	0.01	B3	10	0.10	10	0.10	10	0.10	10	0.10	10	0.10	50	0.50
5	Bio pesticide/fungicide	Ha	0.01	B3	100	1.00	100	1.00	100	1.00	100	1.00	100	1.00	500	5.00
6	Compact Block Demonstration - Groundnut	Ha	0.20	B2,B3,B6	25	5.00	25	5.00	25	5.00	25	5.00	25	5.00	125	25.00
7	Compact Block Demonstration - Gingelly / Castor	Ha	0.06	B11,B9,B8, B6,B5, B1	5	0.30	135	8.10	155	9.30	175	10.50	195	11.70	665	39.90
8	Strengthening seed chain by foundation seed production	Mt	0.76	B2,B3	6	4.18	6	4.18	6	4.18	6	4.18	6	4.18	28	20.90
9	Strengthening seed chain by certified seed production	Mt	0.73	All Blocks Except B10	12	8.76	17	12.05	19	13.51	21	14.97	23	16.43	90	65.70
10	Distribution of Certified seeds	Mt	0.84	B6,B5,B3, B2,B1	10	8.40	12	10.08	14	11.76	16	13.44	18	15.12	70	58.80
11	Distribution of Seed Treatment Chemicals and Bioagents (*T.Viridi*)	Kg	0.00	B3,B6	110	0.17	110	0.17	110	0.17	110	0.17	110	0.17	550	0.83
12	Application of Gypsum to Groundnut Crop	Ha	0.02	B2,B3,B6, B8,B9, B11	585	9.36	585	9.36	585	9.36	585	9.36	585	9.36	2925	46.80
13	Distribution of Micro Nutrient Mixture	Ha	0.02	B11,B9, B6,B3	530	7.95	530	7.95	530	7.95	530	7.95	530	7.95	2650	39.75
14	Distribution of Biofertilizer	Ha	0.01	All Blocks Except B4,B7, B10	855	5.13	1035	6.21	1235	7.41	1435	8.61	1635	9.81	6195	37.17

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
15	Distribution of Liquid Biofertilizer	Ha	0.01	B11,B9,B8, B6,B5, B3,B2,B1	855	5.13	1050	6.30	1250	7.50	1450	8.70	1650	9.90	6255	37.53
16	Distribution of Rhizobium/ PSB Culture	Ha	0.01	B6,B5,B3, B1	740	4.44	920	5.52	1120	6.72	1320	7.92	1520	9.12	5620	33.72
17	Distribution of Pheromone Traps	Nos.	0.02	B3,B6	15	0.30	15	0.30	15	0.30	15	0.30	15	0.30	75	1.50
18	Distribution of Light Traps	Nos.	0.02	B3	10	0.20	10	0.20	10	0.20	10	0.20	10	0.20	50	1.00
19	Castor as Bund crop	Ha	0.01	B3	115	0.69	115	0.69	115	0.69	115	0.69	115	0.69	575	3.45
20	Combined Nutrient Spray	Ha	0.02	B11,B9, B8,B3	10	0.15	10	0.15	10	0.15	10	0.15	10	0.15	50	0.75
21	Seed Drill Sowing / Line sowing of Groundnut with Pulses as intercrop(hiring charges only)	Ha	0.03	B1,B2,B3, B5,B6	270	8.10	290	8.70	310	9.30	330	9.90	350	10.50	1550	46.50
22	Production of Foundation Seeds	Mt	1.13	B1,B5, B11	4	3.96	6	6.78	9	10.17	12	13.56	15	16.95	46	51.42
23	Production of Certified Seeds	Mt	1.09	B9,B8,B6, B5,B1, B11	4	4.36	5	4.91	7	7.09	9	9.27	11	11.45	34	37.06
24	Distribution of certified seeds	Mt	1.25	B6	1	0.63	1	0.63	1	0.63	1	0.63	1	0.63	3	3.13
25	Distribution of Micro nutrients (Manganese sulphate/ Zinc sulphate)	Ha	0.00	B11,B9, B8,B6	80	0.32	200	0.80	200	0.80	200	0.80	200	0.80	880	3.52
	Total					**86.12**		**106.66**		**120.77**		**134.88**		**148.99**		**597.42**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7,Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.1.5. Enhancing the oilpalm productivity in Ramanathapuram District

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 contains an equal proportion of saturated and unsaturated fatty acid with 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 Tocopherols 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. In view of the rich content of vitamins, palm oil can be utilized for the preparation of cosmetics. 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) in which Mini Mission-II (MM-II) is dedicated to oil palm area expansion and productivity increases.

Project components

- ✓ Neem/Pungam Area Expansion Programme (All blocks)
- ✓ Cultivation maintenance (All blocks)
- ✓ Inputs for intercropping (All blocks)

Budget

It is proposed to incur **₹. 20.40 Lakhs** over a period of five years **(Table 4.5)** 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

Table 4.5. Budget Requirement for Oil palm in Ramanathapuram District

(₹. 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	Neem/Pungam Area Expansion Programme	Ha	0.2	All Blocks	24	4.80	11	2.20	11	2.20	11	2.20	11	2.20	68	13.60
2	Cultivation maintenance	Ha	0.05	All Blocks	24	1.20	11	0.55	11	0.55	11	0.55	11	0.55	68	3.40
3	Inputs for Intercropping	Ha	0.05	All Blocks	24	1.20	11	0.55	11	0.55	11	0.55	11	0.55	68	3.40
	Total					**7.20**		**3.30**		**3.30**		**3.30**		**3.30**		**20.40**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.1.6. Enhancing the cotton productivity in Ramanathapuram District

In Ramanathapuram district, Cotton is an important commercial crop cultivated in 2733 ha. The average productivity in cotton is 2.40 bales/ha. Block wise analysis showed that Mudukulathur and Kadaladi are the two major cotton growing blocks of the District. Since cotton is raised under dry condition during February, March months, the reduced productivity is obtained. Hence, it is aimed to achieve high productivity in cotton. Therefore, it is necessary to provide the needed assistance to the farmers by way of subsidized inputs and promotion of technology.

Project components

- ✓ Distribution of MN mixture and biofertilizer/biopesticides (Mudukulathur, Paramakudi Blocks)
- ✓ Distribution of PP chemicals (Mudukulathur, Paramakudi Block)
- ✓ Application of weedicide (Mudukulathur Block)
- ✓ Distribution of Pheromone and Yellow Sticky trap (Mudukulathur Block)
- ✓ Soil reclamation with gypsum (Kamuthi, Mudukulathur, Paramakudi Block)
- ✓ TNAU Cotton plus distribution (Mudukulathur Block)
- ✓ Frontline demo on ICM in cotton (Mudukulathur Block)
- ✓ Demonstration of IPT (Mudukulathur Block)
- ✓ Trials on High Density Planting system in cotton (Mudukulathur Block)
- ✓ Exposure visits, Farmers training and Field days (Mudukulathur, Paramakudi Block)
- ✓ Summer ploughing (Mudukulathur, Paramakudi Block)

Budget

The total cost of the project for five years works to **₹. 725.88 Lakhs**. The details of budget requirement for each intervention across the blocks are shown in **Table 4.6**.

Expected outcome

The timely supply of inputs like MN mixture, biofertilizer, PP chemicals, weedicide and machineries will certainly increase the production and productivity of cotton.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.6. Budget Requirement for Cotton in Ramanathapuram District

(₹. 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
1	Cotton seed treatment	Ha	300	B4	500	1.50	500	1.50	500	1.50	500	1.50	500	1.50	2500	7.50
2	Demonstration of IPT	Ha	15000	B4	100	15.00	100	15.00	100	15.00	100	15.00	100	15.00	500	75.00
3	Distribution of biofertilizer	Ha	300	B4,B6	1200	3.60	1200	3.60	1200	3.60	1200	3.60	1200	3.60	6000	18.00
4	Distribution of biopesticides / Bio agents	Ha	1000	B4,B6	520	5.20	520	5.20	520	5.20	520	5.20	520	5.20	2600	26.00
5	Distribution of cotton picking machine	No	5000	B4	50	2.50	50	2.50	50	2.50	50	2.50	50	2.50	250	12.50
6	Distribution of MN Mixture	Ha	1000	B4,B6	150	1.50	150	1.50	150	1.50	150	1.50	150	1.50	750	7.50
7	Distribution of Pheromone trap	No	6000	B4	100	6.00	100	6.00	100	6.00	100	6.00	100	6.00	500	30.00
8	Distribution of PP chemicals	Ha	1000	B4,B6	1050	10.50	1050	10.50	1050	10.50	1050	10.50	1050	10.50	5250	52.50
9	Distribution of Yellow Sticky trap	No	3000	B4	500	15.00	500	15.00	500	15.00	500	15.00	500	15.00	2500	75.00
10	Exposure visits	No	40000	B4,B6	6	2.40	6	2.40	6	2.40	6	2.40	6	2.40	30	12.00
11	Farmers training	No	20000	B4,B6	21	4.20	21	4.20	21	4.20	21	4.20	21	4.20	105	21.00
12	Field days	No	10000	B4,B6	11	1.10	11	1.10	11	1.10	11	1.10	11	1.10	55	5.50
13	Intercropping with pulses	Ha	10000	B4	10	1.00	10	1.00	10	1.00	10	1.00	10	1.00	50	5.00
14	Soil reclamation with gypsum	Ha	1000	B3,B4,B6	650	6.50	650	6.50	650	6.50	650	6.50	650	6.50	3250	32.50
15	TNAU Cotton plus distribution (6 Kg./ Ha)	Ha	1200	B4	500	6.00	500	6.00	500	6.00	500	6.00	500	6.00	2500	30.00
16	Frontline demo on ICM in cotton	Ha	7000	B4	100	7.00	100	7.00	100	7.00	100	7.00	100	7.00	500	35.00
17	Trials on High Density Planting system in cotton	Ha	9000	B4	50	4.50	50	4.50	50	4.50	50	4.50	50	4.50	250	22.50
18	Application of weedicide	Ha	3000	B4	50	1.50	50	1.50	50	1.50	50	1.50	50	1.50	250	7.50

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
19	Summer ploughing	Ha	7500	B4,B6	600	45.00	600	45.00	600	45.00	600	45.00	600	45.00	3000	225.00
20	Distribution of Certified seed	MT	115000	B6,B5,B4 ,B3,B2	4.5	5.18	4.5	5.18	4.5	5.18	4.5	5.18	4.5	5.18	22.5	25.88
	Grand total					**145.18**		**145.18**		**145.18**		**145.18**		**145.18**		**725.88**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.1.7. Enhancing the coconut productivity in Ramanathapuram District

Coconut is cultivated as a rain fed crop in coastal area and mostly east coast tall variety is being cultivated by the farmers as it can withstand drought, saline and humid conditions. The area under coconut in Ramanathapuram district is 7942 ha. Block wise analysis showed that Ramanathapuram, Thirupullani and Uchipuli were the three major coconut growing tracts of the district. The growth rate analysis indicates the area of coconut is increasing at the rate of 0.84%, production and productivity at the rate of 4.21 and 3.34 per cent respectively.

Project components

- ✓ Distribution of T × D hybrid seedlings and tall seedlings (All Blocks except R.S.Mangalam Block)
- ✓ Distribution of MN mixture and power operated coconut leaf shredder (Ramanathapuram, Thiruppullani, Thiruvadanai, Mandapam Block)
- ✓ Replanting and rejuvenation of coconut gardens and demonstration on integrated fertiliser management (Thiruppullani, Thiruvadanai, Mandapam Block)
- ✓ Establishment and training on Neera processing unit (Thiruppullani, Thiruvadanai, Mandapam Block)
- ✓ Collective farming - corpus fund release for FPG (All blocks except Kadaladi Block)

Budget

The total cost of the project for five years works to **₹. 3144.77 Lakhs**. The details of budget requirement for each intervention across the blocks are shown in **Table 4.7**.

Expected outcome

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

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.7. Budget Requirement for Coconut in Ramanathapuram District

(₹. 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	Distribution of T x D hybrid seedlings	No	0.0006	All Blocks Except B7	11800	7.08	8800	5.28	8800	5.28	8800	5.28	8800	5.28	47000	28.20
2	Distribution of Tall Seedlings	No	0.0004	All Blocks Except B7	9000	3.60	8700	3.48	8700	3.48	8700	3.48	8700	3.48	43800	17.52
3	Boom sprayer	No	0.2	B8,B9,B10, B11	17	3.40	17	3.40	17	3.40	17	3.40	17	3.40	85	17.00
4	Distribution of D x T hybrid Seedlings	No	0.0015	B2,B4	0	0.00	200	0.30	200	0.30	200	0.30	200	0.30	800	1.20
5	Distribution of power operated coconut leaf shredder	No	0.6	B8,B9,B10, B11	16	9.60	16	9.60	16	9.60	16	9.60	16	9.60	80	48.00
6	Distribution of MN mixture	Ha	0.1	B8,B9,B10, B11	400	40.00	700	70.00	1000	100.00	1600	160.00	1600	160.00	5300	530.00
7	Distribution of Pheromone traps for Red palm weevil/ Rhinocerous beetle	Ha	0.016	B8,B9,B10, B11	160	2.56	160	2.56	310	4.96	310	4.96	310	4.96	1250	20.00
8	Distribution of power operated rocker sprayer	No	0.1	B9,B10, B11	15	1.50	15	1.50	15	1.50	15	1.50	15	1.50	75	7.50
9	Distribution of Solar copra drier	No	0.2	B9,B10, B11	3	0.60	3	0.60	3	0.60	3	0.60	3	0.60	15	3.00
10	Distribution of tree climbers	No	0.15	B9,B10, B11	6	0.90	6	0.90	6	0.90	6	0.90	6	0.90	30	4.50
11	Intercropping with green manures	Ha	0.03	B9,B10, B11	30	0.90	30	0.90	30	0.90	30	0.90	30	0.90	150	4.50
12	Replanting and Rejuvenation of coconut gardens	Ha	0.45	B9,B10, B11	30	13.50	30	13.50	30	13.50	30	13.50	30	13.50	150	67.50
13	Demonstration on Integrated fertiliser management	Ha	0.75	B9,B10, B11	15	11.25	15	11.25	15	11.25	15	11.25	15	11.25	75	56.25
14	Distribution of coconut seedlings to school children	No	0.0004	B8,B9,B10, B11	1550	0.62	1550	0.62	1550	0.62	1550	0.62	1550	0.62	7750	3.10

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
15	Establishment of Neera processing unit	No	600	B9,B10, B11	3	1800.00	0	0.00	0	0.00	0	0.00	0	0.00	3	1800.00
16	Training on neera production	Batches	0.25	B9,B10, B11	6	1.50	0	0.00	0	0.00	0	0.00	0	0.00	6	1.50
17	Corpus fund release for FPG (2000 nos.)	No	5	All Blocks Except B2	107	535.00	0	0.00	0	0.00	0	0.00	0	0.00	107	535.00
	Grand Total					**2432.01**		**123.89**		**156.29**		**216.29**		**216.29**		**3144.77**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.1.8. Enhancing the livelihood of farmers through training in Ramanathapuram District

Agricultural extension is being provided at the Block level and Village level, under the Extension Reforms Scheme. Farmers can contact any functionary of the State Government in Agriculture and allied departments to get answers for the queries, information about any Programme / Scheme and appropriate technologies. 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

- ✓ Interstate trainings to farmers (All Blocks)
- ✓ Training of farmers under National Mission on Soil Health Card (All Blocks)
- ✓ Within the state and district training of farmers (All Blocks)
- ✓ Within the state and district exposure visits (All Blocks)
- ✓ Rodent Pest Management Demonstration (All Blocks)
- ✓ Organisation of Kisan gosthies on Soil test based nutrient application (All Blocks)

Budget

It is proposed to incur **₹. 236.50 Lakhs** over a period of five years **(Table 4.8)** with the finance facilities under the NADP and other sources.

Expected outcome

The project will result in better income to farmers. They may learn newer technologies and update their knowledge and skill of cultivation if they attend these programme which will result in improving the income of farmers.

Implementing agency

The Department of Agriculture will implement the project.

Table 4.8. Budget Requirement for Training of Farmers in Ramanathapuram District

(₹. 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
	Training of Farmers															
1	Inter State Training of Farmers	Nos.	1.25	All Blocks	11	13.75	11	13.75	11	13.75	11	13.75	11	13.75	55	68.75
2	Training of Farmers under Mission on Soil Health Card	Nos.	0.15	All Blocks	11	1.65	11	1.65	11	1.65	11	1.65	11	1.65	55	8.25
3	Wit in the district training of Farmers	Nos.	0.1	All Blocks	11	1.10	11	1.10	11	1.10	11	1.10	11	1.10	55	5.50
4	Within the State training of Farmers	Nos.	1.2	All Blocks	11	13.20	11	13.20	11	13.20	11	13.20	11	13.20	55	66.00
	Training of Farmers With in the district															
5	Paddy	Nos.	0.1	All Blocks	11	1.10	11	1.10	11	1.10	11	1.10	11	1.10	55	5.50
6	Rodent Pest Management Demonstration	Nos.	0.04	All Blocks	110	4.40	110	4.40	110	4.40	110	4.40	110	4.40	550	22.00
7	With in State Exposure visit	Nos.	0.4	All Blocks	22	8.80	22	8.80	22	8.80	22	8.80	22	8.80	110	44.00
8	Organisation of Kisan gosthies on Soil test based nutrient application (Campaign)	Nos.	0.15	All Blocks	11	1.65	11	1.65	11	1.65	11	1.65	11	1.65	55	8.25
9	With in the district exposure visit	Nos.	0.15	All Blocks	11	1.65	11	1.65	11	1.65	11	1.65	11	1.65	55	8.25
	TOTAL					**47.30**		**47.30**		**47.30**		**47.30**		**47.30**		**236.50**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S. Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.1.9. Infrastructure Development in Ramanathapuram District

Quality control assumes use of standard critical inputs in agriculture. Quality Control Laboratories are established by the Government for the supply of quality seed, fertilizers and pesticide and services like soil testing to the farmers. Storage Godown, Seed Processing Unit Machineries, Construction of Uzhavar Maiyam/Farmers Hub, IAEC and Sub-AEC, Strengthening of STL, MSTL, FCL, CCL, BFQCL, PTL, Organic Fertilizer Testing Lab and Bio-fertilizer production unit operating in the State extend services to the farming community and public by providing technical advices and expertise for the holistic development of the farmers. Strengthening the existing and creating new assets/amenities would bring profound influence on the constructive and technical services effectively.

Project components

- ✓ Strengthening of FCL (Paramakudi, Ramanathapuram Block)
- ✓ Establishment of Threshing floor/Drying Yards (All Blocks)
- ✓ Dunnage, Moisturemeter, Bag closure, Electronic platform balance, Seed rack and Tarpaulin (All Blocks)
- ✓ Office furnishings and other amenities (All Blocks)
- ✓ Strenthening of training institute/KVK/Nursery/FTC

Budget

It is proposed to incur **₹. 810.65 Lakhs** over a period of five years **(Table 4.9)** with the finance facilities under the NADP and other sources.

Expected outcome

The implementation of the above project will result in better activities which in turn results in better infrastructure facilities and higher agricultural production.

Implementing agency

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

Table 4.9. Budget Requirement for Infrastructure Development in Ramanathapuram District

(₹. 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	Strengthening of Fertilizer Control Lab	Nos.	6000000	B6, B8	1	60.00	1	60.00	0	0.00	0	0.00	0	0.00	2	120
2	Establishment of Threshing floor/drying yard	Nos.	500000	All Blocks	0	0.00	11	55.00	0	0.00	0	0.00	0	0.00	11	55
3	Dunnage	Nos.	7500	All Blocks	110	8.25	110	8.25	110	8.25	110	8.25	110	8.25	550	41.25
4	Moisture meter	Nos.	25000	All Blocks	11	2.75	0	0.00	0	0.00	0	0.00	0	0.00	11	2.75
5	Bag closure	Nos.	10000	All Blocks	11	1.10	0	0.00	0	0.00	0	0.00	0	0.00	11	1.1
6	Electronic platform balance	Nos.	150000	All Blocks	11	16.50	0	0.00	0	0.00	0	0.00	0	0.00	11	16.5
7	Seed rack	Nos.	30000	All Blocks	11	3.30	0	0.00	0	0.00	0	0.00	0	0.00	11	3.3
8	Tarpaulin	Nos.	25000	All Blocks	11	2.75	0	0.00	0	0.00	0	0.00	0	0.00	11	2.75
9	Office Furnishings and other amenities	Nos.	200000	All Blocks	9	18.00	0	0.00	0	0.00	0	0.00	0	0.00	9	18
10	Strengthening of training institute / nursery / FTC / KVK	Nos.	50000000	All Blocks	0	0.00	0	0.00	0	0.00	1	500.00	0	0.00	1	500
11	Infrastructure for empowerment of coconut nurseries	Nos.	5000000	All Blocks	0	0.00	0	0.00	1	50.00	0	0.00	0	0.00	1	50
	Grand total					**112.65**		**123.25**		**58.25**		**508.25**		**8.25**		**810.65**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.1.10. Soil Health Management in Ramanathapuram District

It has been observed that the average productivity of major crops in Tamil Nadu is only about 60 per cent of the potential yield. The reason may be due to decline in organic matter content of the soil 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 subsidized rates as reclamation measures for the acid and alkali soils. Efficient earthworm cultures have to be provided for vermicompost unit together with subsidy for establishment of vermicompost units with training in vermicomposting.

Project component

- ✓ Establishment of permanent and HDPE vermicompost units (All Blocks)
- ✓ Production of Enriched FYM and Composting of Farm Waste (All Blocks)
- ✓ Distribution of Soil Health Card (All Blocks)
- ✓ Reclamation of Alkali Soil (All Blocks)
- ✓ Adoption of PGS certification through cluster approach (All Blocks)
- ✓ Establishment of Model Organic Villages (All 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 Ramanathapuram District is **₹. 3059.95 Lakhs (Table 4.10)**.

Expected outcome

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 4.10. Budget Requirement for Soil Health Management in Ramanathapuram District

(₹. 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	Permanent Vermi compost units	Cluster Nos.	50000	All Blocks	30	15.00	35	17.50	35	17.50	45	22.50	50	25.00	195	97.50
2	HDPE Vermi compost units	Kit Nos	12000	All Blocks	30	3.60	35	4.20	35	4.20	45	5.40	55	6.60	200	24.00
3	Reclamation of Alkali Soil	MT	50000	All Blocks	110	55.00	110	55.00	110	55.00	110	55.00	110	55.00	550	275.00
4	Establishment of Model organic villages	Ha	1000000	All Blocks	0	0.00	11	110.00	0	0.00	0	0.00	0	0.00	11	110.00
5	Adoption of PGS certification through cluster approach	Nos	1495000	All Blocks	0	0.00	11	164.45	11	164.45	11	164.45	11	164.45	44	657.80
6	Production of Enriched FYM	MT	2500	All Blocks	50	1.25	550	13.75	550	13.75	550	13.75	550	13.75	2250	56.25
7	Composting of Farm Waste Through Pluerotus (Production and Distribution of Kits)	MT	200	All Blocks	550	1.10	550	1.10	1050	2.10	1050	2.10	1050	2.10	4250	8.50
8	Distribution of Soil Health Card	Ha	300	All Blocks	103000	309.00	103000	309.00	104900	314.70	149000	447.00	150400	451.20	610300	1830.90
	Total					**384.95**		**675.00**		**571.70**		**710.20**		**718.10**		**3059.95**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.1.11. Rainfed Area Development in Ramanathapuram District

Rainfed areas in Ramanathapuram District often face abiotic stresses and consequently there is no assured crop production. This is a negative force in small holder systems. 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.

Project components

- ✓ Stress Management in crops by the application of Pink Pigmented Facultative Methylotrophs (PPFM spray)/KCl Spray (All Blocks)
- ✓ Milch Animal (1 No) + 1 ha cropping farming system (Cropping system with inter crop & border plantation like castor/sesbania etc.) (All Blocks except Kadaladi, Mudukulathur, R.S.Mangalam)
- ✓ Small ruminant (9+1)+1 ha Tree based farming system (Cropping system with inter crop & border plantation like castor/sesbania etc.) (All Blocks)
- ✓ Creation of Farm ponds (All Blocks except Chathirakudi)
- ✓ Promotion of Farmers club for Sustainable Dryland Agriculture (All blocks except Chathirakudi, Ramanathapuram, Mandapam)

Budget

It is proposed to incur **₹. 8407.07 Lakhs** over a period of five years **(Table 4.11)** 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

The Department of Agriculture will implement the project.

Table 4.11. Budget Requirement for Rainfed Area Development in Ramanathapuram District

(₹. 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	Stress Management in crops by the Application of Pink Pigmented Facultative Methylotrophs (PPFM spray)/ Kcl Spray	Ha	0.004	All Blocks	1900	7.60	2400	9.60	3100	12.40	5200	20.80	6200	24.80	18800	75.20
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	All Blocks ExceptB2,B4, B7	0	0.00	56	30.80	67	36.85	83	45.65	100	55.00	306	168.30
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	All Blocks	1100	517.00	1500	705.00	1800	846.00	2100	987.00	2400	1128.00	8900	4183.00

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
4	Creation of Farm pond	Nos.	0.75	All Blocks Except B1	290	217.50	320	240.00	320	240.00	320	240.00	320	240.00	1570	1177.50
5	Promotion of Farmers club for Sustainable Dryland Agriculture	Cluster	84.9415	All Blocks Except B1,B8,B11	5	424.71	10	849.42	6	509.65	6	509.65	6	509.65	33	2803.07
	Grand Total					**1166.81**		**1834.82**		**1644.90**		**1803.10**		**1957.45**		**8407.07**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.1.12. Integrated Pest Management in Ramanathapuram District

Integrated Pest Management 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. 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.

Interventions

- ✓ Farmers Field Schools (FFS) (All Blocks except Ramanathapuram block)
- ✓ Field days (All Blocks except Ramanathapuram block)
- ✓ IPM School (All Blocks except Ramanathapuram block)

Budget

It is proposed to incur **₹. 35.60 Lakhs** over a period of five years **(Table 4.12)** with the finance facilities under the NADP and other sources.

Expected outcome

Farmers will tailor their IPM practices to diverse and dynamic ecological conditions.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.12. Budget Requirement for Integrated Pest Management in Ramanathapuram District

(₹. 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
1	Farmers Field Schools (FFS)	Nos.	20000	All Blocks Except B8	9	1.80	10	2.00	10	2.00	10	2.00	10	2.00	49	9.80
2	Field days	No.	20000	All Blocks Except B8	9	1.80	10	2.00	10	2.00	10	2.00	10	2.00	49	9.80
3	IPM School	Nos.	40000	All Blocks Except B8	0	0.00	10	4.00	10	4.00	10	4.00	10	4.00	40	16.00
	Total					**3.60**		**8.00**		**8.00**		**8.00**		**8.00**		**35.60**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.1.13. Farm Mechanization in Ramanathapuram District

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 steadily 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 other intercultural operations, harvesting and threshing are proposed for introduction in the farmers field of Ramanathapuram district.

Project components

- ✓ Solar powered pump system (All Blocks)
- ✓ Distribution of tractor and power tiller (All Blocks)
- ✓ Distribution of pump set and PVC pipes to carry irrigation water from source to field (All Blocks)
- ✓ Distribution of sprayers (All Blocks)
- ✓ Distribution of Tractor Drawn Seed Drill (All Blocks except Kadaladi, Kamuthi, Paramakudi Block)
- ✓ Distribution of solar light trap, combine harvester, laser leveller, mobile sprinklers, multicrop thresher, rain guns, rotavator and tarpaulins (All Blocks)

Budget

Agricultural mechanization programs are proposed to increase the agricultural production and to popularize the agricultural machinery among the farmers of this district with a budget of **₹. 4154.15 Lakhs (Table 4.13)**.

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.

Implementing agency

The projects will be implemented by the Department of Agriculture.

Table 4.13. Budget Requirement for Farm Mechanization in Ramanathapuram District

(₹. 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	0	0.00	55	2.20	110	4.40	165	6.60	220	8.80	550	22.00
2	Battery operated sprayer	Nos.	4000	All Blocks	110	4.40	110	4.40	110	4.40	110	4.40	110	4.40	550	22.00
3	Power operated sprayer	Nos.	8000	All Blocks	550	44.00	1100	88.00	1100	88.00	2200	176.00	2200	176.00	7150	572.00
4	Hand operated sprayer	Nos.	1500	All Blocks	1100	16.50	1100	16.50	110	1.65	1100	16.50	1100	16.50	4510	67.65
5	Distribution of combine harvester	Nos	1700000	All Blocks	11	187.00	11	187.00	11	187.00	11	187.00	11	187.00	55	935.00
6	Distribution of Laser leveller	Nos	380000	All Block	11	41.80	11	41.80	11	41.80	11	41.80	11	41.80	55	209.00
7	Distribution of Mobile Sprinklers	Ha	30000	All Blocks	55	16.50	55	16.50	55	16.50	55	16.50	55	16.50	275	82.50
8	Distribution of multicrop thrasher	Nos	400000	All Blocks	11	44.00	11	44.00	11	44.00	11	44.00	11	44.00	55	220.00
9	Distribution of Powertiller	Nos	150000	All Block	55	82.50	55	82.50	55	82.50	55	82.50	55	82.50	275	412.50
10	Distribution of Rain guns	Ha	40000	All Blocks	110	44.00	110	44.00	110	44.00	110	44.00	110	44.00	550	220.00
11	Distribution of Rotavator	Nos	80000	All Block	55	44.00	55	44.00	55	44.00	55	44.00	55	44.00	275	220.00
12	Distribution of Tarpaulins	Nos	8000	All Block	110	8.80	110	8.80	110	8.80	110	8.80	110	8.80	550	44.00
13	Distribution of Tractor	Nos	600000	All Block	11	66.00	11	66.00	11	66.00	11	66.00	11	66.00	55	330.00

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
14	Distribution of Tractor Drawn Seed cum Fertilizer Drill	Nos	70000	All Blocks Except B2,B3,B6	55	38.50	55	38.50	55	38.50	55	38.50	55	38.50	275	192.50
15	PVC Pipes to carry Irrigation water from source to field	Unit	40000	All Blocks	110	44.00	165	66.00	220	88.00	275	110.00	330	132.00	1100	440.00
16	Solar power pump system	Nos	30000	All Blocks	110	33.00	110	33.00	110	33.00	110	33.00	110	33.00	550	165.00
	Total					**715.00**		**783.20**		**792.55**		**919.60**		**943.80**		**4154.15**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.1.14. Agricultural Information Technology in Ramanathapuram District

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.

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.

Project components

- ✓ Input devices, output devices, processors, storage devices, software, networking devices, transmission media and other accessories (All Blocks)
- ✓ LCD projector and air conditioner for computer room (All Blocks except Ramanathapuram Block)

Budget

It is proposed to incur **₹. 83.85 Lakhs** over a period of five years **(Table 4.14)** with the finance facilities under the NADP and other sources.

Expected outcome

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

Implementing Agency

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

Table 4.14. Budget Requirement for Information Technology in Ramanathapuram District

(₹. 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
1	Procurement of Hardware for replacement of old hardware	Nos	50000	B11	1	0.50	1	0.50	1	0.50	1	0.50	1	0.50	5	2.50
2	Connectivity Charges	Nos	11000	All Blocks	11	1.21	11	1.21	11	1.21	11	1.21	11	1.21	55	6.05
3	Printer cum Scanner	Nos	20000	All Blocks	11	2.20	0	0.00	0	0.00	0	0.00	0	0.00	11	2.20
4	UPS and Electrical Accessories	Nos	35000	All Blocks	11	3.85	0	0.00	0	0.00	0	0.00	0	0.00	11	3.85
5	Xerox machine	Nos	75000	All Blocks	11	8.25	0	0.00	0	0.00	0	0.00	0	0.00	11	8.25
6	Laptop/Desktop	Nos	50000	All Blocks	11	5.50	0	0.00	0	0.00	0	0.00	0	0.00	11	5.50
7	Anti -virus software	Nos	2500	All Blocks	11	0.28	0	0.00	0	0.00	0	0.00	0	0.00	11	0.28
8	Television	Nos	100000	All Blocks	11	11.00	0	0.00	0	0.00	0	0.00	0	0.00	11	11.00
9	Colour printer	Nos	15000	All Blocks	11	1.65	0	0.00	0	0.00	0	0.00	0	0.00	11	1.65
10	4G Internet - Dongle	Nos	2500	All Blocks	11	0.28	0	0.00	0	0.00	0	0.00	0	0.00	11	0.28
11	**Equipments for Documentation**															
a	Handycam	Nos	30000	All Blocks	11	3.30	0	0.00	0	0.00	0	0.00	0	0.00	11	3.30
b	Camera	Nos	25000	All Blocks	11	2.75	0	0.00	0	0.00	0	0.00	0	0.00	11	2.75
c	GPS instrument	Nos	20000	All Blocks	11	2.20	0	0.00	0	0.00	0	0.00	0	0.00	11	2.20
d	Android mobile	Nos	15000	All Blocks	11	1.65	0	0.00	0	0.00	0	0.00	0	0.00	11	1.65
e	External Hard disk	Nos	5000	All Blocks	11	0.55	0	0.00	0	0.00	0	0.00	0	0.00	11	0.55
12	Audio - visual Aids	Nos	150000	All Blocks	11	16.50	0	0.00	0	0.00	0	0.00	0	0.00	11	16.50
	LCD projector	Nos	75000	All Blocks Except B8	10	7.50	0	0.00	0	0.00	0	0.00	0	0.00	10	7.50
	pico Projector	Nos	35000	All Blocks	11	3.85	0	0.00	0	0.00	0	0.00	0	0.00	0	3.85
13	Air conditioner for computer room	Nos	40000	All Blocks Except B8	10	4.00	0	0.00	0	0.00	0	0.00	0	0.00	10	4.00
	Total					**77.01**		**1.71**		**1.71**		**1.71**		**1.71**		**83.85**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

Table 4.15. Budget requirement Agriculture Sector

(₹. in lakhs)

Sl. No	Components	2017-18	2018-19	2019-20	2020-21	2021-22	Total
1	Paddy	230.58	615.89	744.77	872.75	1001.69	3465.68
2	Millets	106.27	94.33	97.83	98.81	101.82	499.06
3	Pulses	104.05	115.55	115.55	115.75	115.80	566.73
4	Oilseeds	86.12	106.66	120.77	134.88	148.99	597.42
5	Oilpalm	7.20	3.30	3.30	3.30	3.30	20.40
6	Cotton	145.18	145.18	145.18	145.18	145.18	725.88
7	Coconut	2432.01	123.89	156.29	216.29	216.29	3144.77
8	Training	47.30	47.30	47.30	47.30	47.30	236.50
9	Infrastructure	112.65	123.25	58.25	508.25	8.25	810.65
10	Soil Health Management	384.95	675.00	571.70	710.20	718.10	3059.95
11	Rainfed Area Development	1166.81	1834.82	1644.90	1803.10	1957.45	8407.07
12	Integrated Pest Management	3.60	8.00	8.00	8.00	8.00	35.60
13	Farm Mechanization	715.00	783.20	792.55	919.60	943.80	4154.15
14	Agriculture Information Technology	77.01	1.71	1.71	1.71	1.71	83.85
	Total	**5618.73**	**4678.08**	**4508.10**	**5585.12**	**5417.68**	**25807.71**

4.2. Agricultural Research

Integrating Agri-Silvi-Pasture to sustain soil health, crop productivity and improving the livelihood of rainfed farmers

It is the combination of agri-silviculture and silvi-pastoral system. This is the system (Tree Crops + Grain crops + animals) in which the forest tree crops are taken with intercrops of grasses as well as the food grain crops are taken in between the strips of forest tree species. The forest tree species are planted at 10 to 12 m distance and in the lines the grasses and food grains are cultivated as intercrops. It is practiced where soil fertility is poor with low water availability and crops cannot be grown profitably. This system not only reduces surface runoff but also facilitates infiltration and storage of rainwater in the soil profile and finally improves the livelihood of farmers. The proposed budget of above intervention is ₹. 80.00 lakhs.

Project components

- ✓ Integrating Agri-Silvi-Pasture to sustain soil health, crop productivity and improving the livelihood of rainfed farmers (Ramanathapuram Block)
- ✓ Restoration of soil health in Prosopis cleared farm lands through Agri-Silvi-pasture system for rainfed farmers (Ramanathapuram Block)

Budget

The budget requirement for the above research and development activities is estimated at **₹. 983.54 Lakhs** over a period of five years **(Table 4.16)**.

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 involving the Coastal Saline .Research Centre, Ramanathapuram.

Table 4.16. Budget Requirement for Agricultural Research Infrastructure in Ramanathapuram District

(₹. in lakhs)

Sl. No.	Interventions	Blocks Covered	Unit Cost	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		Total	
				Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
I	**Production and Growth**														
1	Integrating Agri-Silvi-Pasture to sustain soil health, crop productivity and improving the livelihood of rainfed farmers	Ramanathapuram	80	0	0	0	0.00	1	80	0	0.00	0	0.00	1	80.00
2	Restoration of soil health in Prosopis cleared farm lands through Agri-Silvi-pasture system for rainfed farmers	Ramanathapuram	903.54	0	0	1	448.55	0	441.65	0	13.34	0	0.00	1	903.54
	Total				**0**		**448.55**		**521.65**		**13.34**		**0**		**983.54**

4.3. Horticulture

4.2.1 Enhancing the productivity of horticultural crops

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.

f. 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.

g. 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.

h. 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.

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.

Pollination support

Pollination of fruits, vegetables, spices and plantation crops would be enhanced through the establishment of bee hives and colonies.

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.

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.

Special Interventions

a. 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.

b. 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*.

c. 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.

d. 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.

e. 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.

f. 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.

g. 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 and the 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.

h. 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.

i. 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.

j. 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.

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.

Infra structures and Assets

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.

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.

Vermicompost unit

Earthworms are often referred to as farmer's friend s and nature's ploughmen. Earthworms are extremely important in soil formation, principally through their activities in consuming organic matter, fragmenting and mixing it intimately with mineral particles to form aggregates. During their feeding, earthworms promote microbial activity greatly, which in turn accelerates the breakdown of organic matter and stabilization of soil aggregates. The end product, commonly termed vermicompost and obtained as the organic wastes pass through the earthworm gut, is quite different from the parent waste material. Therefore it's necessary to establish a permanent vermicompost unit.

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 centre also houses a training centre 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 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.

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.

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.

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, 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.

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.

Project components

- ✓ Area expansion of fruit crops (Mango, guava) (Kadaladi, Kamuthi, Nainarkoil Block)
- ✓ Area expansion of vegetable crops (All Blocks except Mudukulathur, Ramanathapuram, Thiruppullani, Mandapam Block)
- ✓ Area expansion of spice crops (All Blocks)
- ✓ Pollination support through bee keeping (All Blocks)
- ✓ Organic farming (Ramanathapuram Block)
- ✓ Moisture stress management (All Blocks)
- ✓ Special Interventions (All Blocks)
- ✓ Mechanization, machineries, equipments and tools (All Blocks)
- ✓ Capacity building (All Blocks except few)
- ✓ Crop insurance and risk mitigating scheme (All Blocks)

Budget

The budget requirement for fulfilling the various interventions is **₹. 3250.20 Lakhs**. The details of budget requirement for each intervention across the blocks are shown in **Table 4.17**.

Implementing agency

The projects will be implemented by the Department of Horticulture.

Table 4.17. Budget Requirement for Horticulture in Ramanathapuram District

(₹. 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.
A	**Production Growth**															
I	**Area expansion of fruit crops**															
1	HDP in Mango, Guava, Litchi, Pomegranate	Ha	1	B4,B10,B2, B5,B3	20	20.00	20	20.00	20	20.00	20	20.00	20	20.00	100	100.00
2	Normal planting in Guava	Ha	0.6	B2,B3,B5	10	6.00	10	6.00	10	6.00	10	6.00	10	6.00	50	30.00
II	**Area expansion of vegetable crops**															
3	Green Chillies	Ha	0.5	B6,B10,B7, B2,B5,B1, B3	100	50.00	110	55.00	120	60.00	130	65.00	150	75.00	610	305.00
III	**Area expansion of Spices crops**															
4	Seed and Rhizomatic spices (Coriander, Turmeric, Ginger, Dry Chilly, Cumin, Fennel, Fenu greek, Dil, Cardamom etc.,)	Ha	0.3	All Blocks	300	90.00	300	90.00	300	90.00	300	90.00	300	90.00	1500	450.00
	Rejuvenation/INM-IPM/Mulching/Anti bird net															
5	INM/IPM for Horticultural crops	Ha	0.04	B7	0	0.00	10	0.40	10	0.40	10	0.40	10	0.40	40	1.60
	Pollination Support through Bee Keeping															
6	Bee hive & Colony	No	0.04	All Blocks	200	8.00	220	8.80	250	10.00	280	11.20	300	12.00	1250	50.00
7	Honey Extractor	No	0.2	All Blocks	20	4.00	22	4.40	25	5.00	28	5.60	30	6.00	125	25.00
IV	**Organic Farming**															
8	Organic farming and PGS certification in 50 acre cluster	1 clus - ter	14.95	B7	0	0.00	0	0.00	1	14.95	1	14.95	1	14.95	3	44.85

Sl. No.	Interventions	Unit	Unit cost	Block Covered	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
9	HDPE Vermibed	No	0.16	B10,B7,B2, B5,B3	50	8.00	60	9.60	70	11.20	80	12.80	100	16.00	360	57.60
V	**Rainfed Area development**															
10	Integrated farming system - Horticulture Based farming	Ha	0.5	B2,B3	10	5.00	20	10.00	30	15.00	40	20.00	50	25.00	150	75.00
11	Moisture stress management - Minimum irrigation gurantee by PUSA hydrogel	Ha	0.1	All Blocks	500	50.00	500	50.00	500	50.00	500	50.00	500	50.00	2500	250.00
VI	**Infra structures and Assets creation**															
12	Poly Green House	1000 Sq.m	9.35	B2,B3,B5	1	9.35	1	9.35	1	9.35	1	9.35	1	9.35	5	46.75
VII	**Mushroom production**															
13	Spawn Production	1 No.	15	B6	1	15.00	0	0.00	0	0.00	0	0.00	0	0.00	1	15.00
14	Cottage mushroom unit	1 No.	1	B7	0	0.00	1	1.00	1	1.00	1	1.00	0	0.00	3	3.00
VIII	**Supporting structures for Horticulture crop production**															
15	Permanent Pandhal structure	Ha	4	B2,B3,B10	2	8.00	2	8.00	3	12.00	4	16.00	4	16.00	15	60.00
IX	**Special interventions**															
16	Farm deficiency correction	Ha	0.04	All Blocks	1000	40.00	1000	40.00	1000	40.00	1000	40.00	1000	40.00	5000	200.00
17	Promotion of Roof top Garden/ Potager garden Kit	No	0.005	All Blocks	1000	5.00	1200	6.00	1500	7.50	1700	8.50	2000	10.00	7400	37.00
18	AESA based IPM in fruits and vegetables Pheramone trap	Ha	0.04	All Blocks	100	4.00	100	4.00	100	4.00	100	4.00	100	4.00	500	20.00
19	AESA Based IPM in fruits and vegetables Yellow sticky trap	Ha	0.04	All Blocks	100	4.00	100	4.00	100	4.00	100	4.00	100	4.00	500	20.00
20	AESA Based IPM in fruits and vegetables Light trap	Ha	0.08	All Blocks	100	8.00	100	8.00	100	8.00	100	8.00	100	8.00	500	40.00

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.
X	**Post Harvest Management**															
21	Low cost onion structure 25 mt	1 No	1.75	B3	2	3.50	2	3.50	2	3.50	2	3.50	2	3.50	10	17.50
XI	**Development of Farms, Nurseries and Parks**															
22	Developmental activities in new/ exsisting state Horticultural farm, Keelapalur	No	25	B11	1	25.00	0	0.00	0	0.00	0	0.00	0	0.00	1	25.00
XII	**Mechanization - Machineries, Equipments & Tools**															
23	Power tiller/Tractor/Minitractor	Nos	1	All Blocks	20	20.00	20	20.00	20	20.00	20	20.00	20	20.00	100	100.00
24	Manual Sprayer-Knapsack/Foot operated Sprayer	Nos	0.12	All Blocks	200	24.00	200	24.00	200	24.00	200	24.00	200	24.00	1000	120.00
25	Hand operated sprayer with face mask	Nos	0.025	All Blocks	50	1.25	50	1.25	50	1.25	50	1.25	50	1.25	250	6.25
26	Power operated sprayer	Nos	0.05	All Blocks	50	2.50	50	2.50	50	2.50	50	2.50	50	2.50	250	12.50
27	Plastic crates for vegetable & fruits handling	No of sets containing 10crates	0.075	All Blocks Except B11	10	0.75	10	0.75	10	0.75	10	0.75	10	0.75	50	3.75
28	5 layered Polythene spread sheets for drying horticulture produce	No	0.16	All Blocks	100	16.00	100	16.00	100	16.00	100	16.00	100	16.00	500	80.00
XIII	**Water / Irrigation Management**															
29	Sprinkler	No	0.195	All Blocks	100	19.50	100	19.50	100	19.50	100	19.50	100	19.50	500	97.50
30	Water harvesting system for individuals	No	1.5	B3,B5	10	15.00	10	15.00	10	15.00	10	15.00	10	15.00	50	75.00

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.
XIV	**Capacity Building**															
31	Training to farmers within the State. 2 days Rs.1000/farmer/day	No	0.02	All Blocks	500	10.00	500	10.00	500	10.00	500	10.00	500	10.00	2500	50.00
32	Training to farmers outside the state. 30 farmers/Batch	No	0.105	B2,B3,B5,B7,B10	5	0.53	5	0.53	5	0.53	5	0.53	5	0.53	25	2.63
33	Exposure visit to farmers for 5 days. Rs.1000/farmer/day	No	0.05	All Blocks	50	2.50	50	2.50	50	2.50	50	2.50	50	2.50	250	12.50
34	Training to farmers at HTC	No	0.0025	All Blocks Except B11	10	0.03	10	0.03	10	0.03	10	0.03	10	0.03	50	0.13
35	Exposure visit of farmers outside India	No	4	B3,B5	2	8.00	2	8.00	2	8.00	2	8.00	2	8.00	10	40.00
36	Training to staff outside the state / Batch of 5 members	No	0.04	B3,B6	2	0.08	2	0.08	2	0.08	2	0.08	2	0.08	10	0.40
37	Training to staff outside India	No	6	B3	1	6.00	1	6.00	1	6.00	1	6.00	1	6.00	5	30.00
38	HRD for supervisors and enterpreuners	No	20	B3,B5	2	40.00	2	40.00	2	40.00	2	40.00	2	40.00	10	200.00
39	HRD for gardeners	No	15	B2,B3,B5,B7,B10	5	75.00	5	75.00	5	75.00	5	75.00	5	75.00	25	375.00
40	District level seminar	No	2	B3,B5	2	4.00	2	4.00	2	4.00	2	4.00	2	4.00	10	20.00
41	Computerization & governance	No	1	All Blocks	11	11.00	11	11.00	11	11.00	11	11.00	11	11.00	55	55.00
42	Publicity and Documentation	No	0.5	All Blocks	11	5.50	11	5.50	11	5.50	11	5.50	11	5.50	55	27.50
XV	**Crop Insurance and Risk Mitigating schemes**															
43	Crop Insurance	Ha	0.025	All Blocks	550	13.75	550	13.75	550	13.75	550	13.75	550	13.75	2750	68.75
	Grand Total					**638.23**		**613.43**		**647.28**		**665.68**		**685.58**		**3250.20**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.4. 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.
- ✓ 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.

- ✓ 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 seed extractor, Custard apple pulper, Dehydration unit, Pricking Machine, Humidifier, Packing machine, power driven dehusker, thresher, Harvester, De-spiking, Deconing, Peeler, Splitter, Stripper, Boiler, Steamer, Dryer solar, Washing Machine, Grinder, Pulveriser, Polisher, Cleaner cum grader, gradient separator, Specific gravity separator) this would make sure that more value is added to farm outputs locally.
- ✓ Establishment of Agricultural Engineering Extension centres in order to collect information related to Government subsidy on agricultural / machineries / equipment / irrigation systems etc., compilation of latest technologies related to Agricultural Engineering and Development of video cassettes library related to Processing of agricultural products, Working of important agricultural machines and equipment and Repair, maintenance and proper setting of the different agricultural Machines / and equipment.
- ✓ Imparting training to AED engineers on post-harvest techniques and bio energy.

Project components

- ✓ Farmers training (Nainarkoil, Paramakudi, R.S.Mangalam Block)
- ✓ Tractor, power tiller, post hole digger / augur, seed drill, power weeder, disc plough, laser land leveller, rotavator, zero till seed cum fertilizer drill, sprayers (All Blocks)
- ✓ Establishment of Farm Machinery Banks for Custom Hiring (All Blocks)
- ✓ Purchase of Tractor drawn implements for AED (All Blocks)
- ✓ Purchase of Balers for AED (Kadaladi, Kamuthi Block)

- ✓ Chain saw/ wheel barrow/mango grader/planter and other suitable self propelled machineries and equipments for horticulture crops (All blocks)
- ✓ Aluminium Ladder (All blocks)
- ✓ Millet mill and all types of boiler/steamer/dryer solar (Kadaladi, Kamuthi block)
- ✓ Construction of Agricultural Engineering Extension centres (AEECs) (Paramakudi, R.S.Mangalam block)
- ✓ Subsurface dyke, village pond/community pond, farm Pond (All blocks)
- ✓ Reclamation of problem (alkaline & saline) soils (All Blocks)

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

The overall budget requirement for implementation of above interventions is **₹. 8561.25 Lakhs**. The details of budget requirement for each intervention across the blocks are shown in **Table 4.18**.

Implementing agency

The projects will be implemented by the Department of Agricultural Engineering.

Table 4.18. Budget Requirement for Agricultural Engineering in Ramanathapuram District

(₹. 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	B1, B2, B3, B5, B6, B7	4.00	0.16	4.00	0.16	4.00	0.16	4.00	0.16	4.00	0.16	20.00	0.80
2	Training of farmers	No's/ Ha	0.04	B5,B6,B7	80.00	3.20	80.00	3.20	80.00	3.20	80.00	3.20	80.00	3.20	400.00	16.00
3	Demonstration of Post Harvest Technologies	No's/ Ha	0.04	B2,B3,B5, B6,B7	4.00	0.16	4.00	0.16	4.00	0.16	4.00	0.16	4.00	0.16	20.00	0.80
4	Tractor (15-20 PTO HP)	No's/ Ha	4.00	All Blocks	15.00	60.00	15.00	60.00	15.00	60.00	15.00	60.00	15.00	60.00	75.00	300.00
5	Tractor (Above 20-40 PTO HP)	No's/ Ha	6.00	All Blocks	5.00	30.00	5.00	30.00	10.00	60.00	10.00	60.00	10.00	60.00	40.00	240.00
6	Tractor (40-70 PTO HP)	No's/ Ha	8.50	All Blocks	25.00	212.50	30.00	255.00	40.00	340.00	50.00	425.00	60.00	510.00	205.00	1742.50
7	Power Tiller (8 BHP & above)	No's/ Ha	1.75	All Blocks	25.00	43.75	30.00	52.50	30.00	52.50	35.00	61.25	35.00	61.25	155.00	271.25
8	Reaper	No's/ Ha	1.10	B2,B3,B5, B6,B7	1.00	1.10	1.00	1.10	1.00	1.10	1.00	1.10	1.00	1.10	5.00	5.50
9	Post Hole Digger / Augur	No's/ Ha	0.63	All Blocks	2.00	1.26	2.00	1.26	2.00	1.26	2.00	1.26	2.00	1.26	10.00	6.30
10	Seed drill	No's/ Ha	0.50	All Blocks	10.00	5.00	10.00	5.00	10.00	5.00	10.00	5.00	10.00	5.00	50.00	25.00
11	Power Weeder (engine operated above 2 BHP)	No's/ Ha	0.70	All Blocks	15.00	10.50	15.00	10.50	15.00	10.50	20.00	14.00	20.00	14.00	85.00	59.50
12	Disc Plough	No's/ Ha	0.60	All Blocks	2.00	1.20	2.00	1.20	2.00	1.20	2.00	1.20	2.00	1.20	10.00	6.00
13	Laser Land Leveller	No's/ Ha	3.80	All Blocks	1.00	3.80	1.00	3.80	1.00	3.80	1.00	3.80	1.00	3.80	5.00	19.00
14	Rotavator	No's/ Ha	0.95	All Blocks	25.00	23.75	25.00	23.75	25.00	23.75	30.00	28.50	30.00	28.50	135.00	128.25

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
15	Zero till seed cum fertilizer drill	No's/ Ha	0.70	All Blocks	12.00	8.40	12.00	8.40	12.00	8.40	12.00	8.40	12.00	8.40	60.00	42.00
16	Balers (Round)	No's/ Ha	3.50	B2,B3,B5, B6,B7	1.00	3.50	1.00	3.50	1.00	3.50	1.00	3.50	1.00	3.50	5.00	17.50
17	Manual sprayer: Knapsack/foot operated sprayer	No's/ Ha	0.015	All Blocks	10.00	0.15	15.00	0.23	15.00	0.23	15.00	0.23	15.00	0.23	70.00	1.05
18	Powered Knapsack Sprayer/Power operated Taiwan sprayer (capacity above 16 lts)	No's/ Ha	0.10	All Blocks	30.00	3.00	30.00	3.00	30.00	3.00	30.00	3.00	30.00	3.00	150.00	15.00
19	Establishment of Farm Machinery Banks for Custom Hiring	No's/ Ha	28.00	All Blocks	5.00	140.00	6.00	168.00	5.00	140.00	6.00	168.00	5.00	140.00	27.00	756.00
20	Purchase of Tractor drawn implements for AED	No's/ Ha	0.50	All Blocks	2.00	1.00	2.00	1.00	0.00	0.00	0.00	0.00	2.00	1.00	6.00	3.00
21	Purchase of Balers for AED	No's/ Ha	4.50	B2,B3	1.00	4.50	1.00	4.50	0.00	0.00	0.00	0.00	0.00	0.00	2.00	9.00
22	5 hp	No's/ Ha	3.75	All Blocks	30.00	112.50	35.00	131.25	35.00	131.25	35.00	131.25	35.00	131.25	170.00	637.50
23	7.5 hp	No's/ Ha	5.30	All Blocks	25.00	132.50	30.00	159.00	35.00	185.50	35.00	185.50	40.00	212.00	165.00	874.50
24	upto 400sq.ft	No's/ Ha	4.25	B2,B3,B5	1.00	4.25	0.00	0.00	1.00	4.25	0.00	0.00	1.00	4.25	3.00	12.75
25	400-600sq.ft	No's/ Ha	6.50	All Blocks	0.00	0.00	1.00	6.50	0.00	0.00	1.00	6.50	0.00	0.00	2.00	13.00
26	Mini Drill (Chain Type) with 14 HP slow speed engine	No's/ Ha	4.00	B2,B3,	2.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	8.00
27	Computer & its accessories	No's/ Ha	0.80	B2,B3,B5, B6,B7	0.00	0.00	0.00	0.00	3.00	2.40	1.00	0.80	2.00	1.60	6.00	4.80
28	Tablet (Tab)	No's/ Ha	0.25	All Blocks	0.00	0.00	0.00	0.00	16.00	4.00	5.00	1.25	0.00	0.00	21.00	5.25
29	Xerox machine	No's/Ha	1.50	B5,B6,B7	0.00	0.00	0.00	0.00	3.00	4.50	0.00	0.00	0.00	0.00	3.00	4.50

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
30	Chain saw/ Wheel barrow/ Mango grader/ planter and other suitable self propelled machineries and equipments for horticulture Crops	No's/ Ha	1.00	All Blocks	0.00	0.00	55.00	55.00	250.00	250.00	250.00	250.00	250.00	250.00	805.00	805.00
31	Aluminium Ladder/ Ladder	No's/ Ha	0.20	All Blocks	0.00	0.00	25.00	5.00	50.00	10.00	50.00	10.00	50.00	10.00	175.00	35.00
32	Millet Mill	No's/ Ha	1.50	B2,B3	0.00	0.00	0.00	0.00	2.00	3.00	0.00	0.00	0.00	0.00	2.00	3.00
33	All types of Boiler/ Steamer/ Dryer solar (for all type of Horticulture / Food grain / Oil seeds crop)	No's/ Ha	2.00	B2,B3	0.00	0.00	0.00	0.00	1.00	2.00	0.00	0.00	0.00	0.00	1.00	2.00
34	Construction of Agricultural Engineering Extension centres (AEECs)	No's/ Ha	75.00	B6,B7	0.00	0.00	0.00	0.00	1.00	75.00	1.00	75.00	0.00	0.00	2.00	150.00
35	Subsurface dyke	No's/ Ha	15.00	All Blocks	0.00	0.00	12.00	180.00	12.00	180.00	10.00	150.00	10.00	150.00	44.00	660.00
36	Village pond/community pond	No's/ Ha	5.50	All Blocks	0.00	0.00	6.00	33.00	7.00	38.50	10.00	55.00	10.00	55.00	33.00	181.50
37	Farm Pond	No's/ Ha	1.00	All Blocks	0.00	0.00	200.00	200.00	250.00	250.00	300.00	300.00	300.00	300.00	1050.0	1050.00
38	Weir/ Bed Dam	No's/ Ha	30.00	B2,B3,B5	3.00	90.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	90.00
39	Reclamation of Problem(Alkaline & Saline) soils	No's/ Ha	0.60	All Blocks	300.0	180.00	100.00	60.00	50.00	30.00	50.00	30.00	100.00	60.00	600.00	360.00
	Total					**1084.18**		**1466.01**		**1888.16**		**2043.06**		**2079.86**		**8561.25**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.5. 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.

Project components

- ✓ Logistic support (All Blocks)
- ✓ Construction of cold storage (Paramakudi, Ramanathapuram, Mandapam block)
- ✓ Construction of drying yards (All Blocks)
- ✓ Strengthening of RM (Kamuthi, Mudukulathur, Paramakudi, R.S.Mangalam, Ramanathapuram Block)
- ✓ Upgradation of rural shandies (Kamuthi, Paramakudi, Ramanathapuram Block)
- ✓ Formation of Farmer Producer Organizations (FPO) (Kamuthi, Mudukulathur, Paramakudi Block)
- ✓ Solar dryer (All Blocks)
- ✓ Dhall processing unit (Kamuthi block) and millet mini mill (Mudukulathur Block)
- ✓ Coconut ladder (Chathirakudi, Kadaladi, Mudukulathur, Nainarkoil Block)
- ✓ Cotton plucker (Kamuthi, Mudukulathur, Paramakudi Block)
- ✓ Exposure visit (within state & outside state) for commodity group farmers to acquire value addition technologies (All Blocks)

Budget

The district plan proposes an outlay of **₹. 3856.13 Lakhs** over a period of five years for Ramanathapuram district. The details of budget requirement for each intervention across the blocks are shown in **Table 4.19**.

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 4.19. Budget for Strengthening of Agricultural Marketing and Agri-Business in Ramanathapuram District

(₹. 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	Nos.														
1	Logistic Support	Nos.	0.08	All Blocks	220	17.60	220	17.60	220	17.60	220	17.60	220	17.60	1100	88.00
2	Cold Storage	Nos.	20	B6, B8, B11	1	20.00	0	0.00	2	40.00	0	0.00	2	40.00	5	100.00
3	Drying Yard	Nos.	6	All Blocks	31	186.00	21	126.00	21	126.00	21	126.00	21	126.00	115	690.00
4	Storage godown	Nos.	10	B3, B5, B6, B9, B11	0	0.00	0	0.00	1	10.00	1	10.00	3	30.00	5	50.00
5	Strengthening of RM	Nos.	20	B2, B3, B8, B9, B11	1	20.00	0	0.00	1	20.00	1	20.00	2	40.00	5	100.00
6	Traders shop	Nos.	20	B11		0.00		0.00	1	20.00		0.00	1	20.00	2	40.00
7	Transaction Shed	Nos.	20	B9, B11		0.00	0	0.00	1	20.00	0	0.00	1	20.00	2	40.00
8	Upgradation of Uzhavar Shadhais	Nos.	10	B2, B8, B11	2	20.00	0	0.00	1	10.00	1	10.00	0	0.00	4	40.00
	Formation of FPO / Strengthening of Existing Commodity Groups	Nos.														
9	Dept of Agricultural Engineering: Farm Pond and Oil Engine, Doutaile under AED scheme	Nos.		B8, B9, B11		355.50		355.50		0.00	0	0.00	0	0.00	0	711.00

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
10	Dept of Horticulture: Area expansion and MI, Doutaile under NHM 2017 -18	Nos.		B8, B9, B11		31.76		31.76		0.00	0	0.00	0	0.00	0	63.52
11	Dunnage	Nos.	0.04	B2, B3, B5, B6, B8, B11	140	5.60	200	8.00	130	5.20	50	2.00	70	2.80	590	23.60
12	Infrastructure Civil work	Nos.		B8, B9, B11		472.50		472.50		0.00	0	0.00	0	0.00	0	945.00
13	Machinaries	Nos.		B8, B9, B11		45.00		45.00		0.00	0	0.00	0	0.00	0	90.00
14	Plastic crates	Nos.	0.004	B6, B8, B11	170	0.68	100	0.40	170	0.68	100	0.40	150	0.60	690	2.76
15	Tarpaulin	Nos.	0.1	All Blocks	150	15.00	130	13.00	120	12.00	130	13.00	130	13.00	660	66.00
16	Vending Cart	Nos.		B8, B9, B11		30.00		30.00		0.00	0	0.00	0	0.00	0	60.00
	Post Harvest Infrastructure and Machinaries	Nos.														
17	Coconut Ladder	Nos.	0.05	B1, B2, B4, B5	65	3.25	65	3.25	65	3.25	65	3.25	65	3.25	325	16.25
18	Cotton Plucker	Nos.	0.05	B8, B9, B11	80	4.00	80	4.00	80	4.00	80	4.00	80	4.00	400	20.00
19	Dhal processing Unit	Nos.	20	B8		0.00	1	20.00		0.00		0.00		0.00	1	20.00
20	Millet Mini Mill	Nos.	20	B9		0.00	1	20.00		0.00		0.00		0.00	1	20.00
21	Solar Dryer	Nos.	2	All Blocks	60	120.00	60	120.00	60	120.00	60	120.00	60	120.00	300	600.00
	Capacity building Programme	Nos.														
22	Exposure Visits - within state	Nos.	1.5	All Blocks		0.00	1	1.50	6	9.00	4	6.00	0	0.00	11	16.50

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
23	Exposure Visits - outside state - 3 days	Nos.	0.5	All Blocks	11	5.50	0	0.00	4	2.00	7	3.50	1	0.50	23	11.50
24	Training on Market led Extension, Agmark grading&Food safety, post harvest technology, Supply Chain Management, Grading-sorting-packing, Market linkages & Exports, Food processing and value addition at district level	Nos.	0.4	All Blocks	21	8.40	21	8.40	21	8.40	21	8.40	21	8.40	105	42.00
	Total					**1360.79**		**1276.91**		**428.13**		**344.15**		**446.15**		**3856.13**

B1-Mandapam, B2-Ramanathapuram, B3-R.S.Mangalam, B4-Thiruppullani, B5-Tiruvadanai, B6-Bogalur, B7-Kadaladi, B8-Kamuthi, B9-Mudukulathur, B10-Nainarkovil, B11-Paramakudi

4.6. 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 Tamil nadu 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 at various stages in the laboratory as quickly as possible so that result may be sent to sender promptly. The space provided for seed testing, the arrangement of that space and furnishing available would contribute greatly in the efficient functioning of the laboratory. In order to carry out seed quality tests and maintaining the purity in the seed testing

laboratory the equipments such as Dehumidifier, R.O. System, Humidifier, Thermo hydrometer, Digital Moisture meter, Microscope, Working table, Working Chair, Air conditioner, Sample Racks, Geaser, Heater, Trolley for Carriages, Generator 30KV, Induction Stove, Fabricated Display Racks, Conductivity Meter, Dehuller/Scarifier, Seed Grinder, Blower, Hot Air oven, Incubator and Miscellaneous are required.

- Creation of infrastructure facilities in seed testing laboratories

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

- Capacity building

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

- Strengthening of communication and networking facilities

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

Project components

- ✓ Strengthening of laboratory facilities (Blower, Conductivity meter, Dehuller/Scarifier, Hot air oven, Humidifier, Incubator, Seed Grinder and Miscellaneous) (All blocks)
- ✓ Strengthening of communication and networking facilities (Computer accessories) (All blocks)
- ✓ Strengthening of office premises by constructing new buildings (All blocks)

Expected outcome

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

Budget

The overall budget requirement for implementation of above interventions is **₹. 394 Lakhs**. The details of budget requirement for each intervention across the blocks are shown in **Table 4.20.**

Implementing agency

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

Table 4.20. Budget for Seed and Organic Certification in Ramanathapuram District

(₹. in lakhs)

Sl. No.	Interventions	Blocks Covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
I	**Strengthening of Seed Certification lab**															
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,	All Blocks	No's	13.36	1	13.36	1	13.36	0	0.00	0	0.00	0	0.00	2	26.72
II	**Strengthening of communication and networking facilities**															
2	Computer accessories	All Blocks	No's	0.50	10	5.00	0	0.00	0	0.00	0	0.00	0	0.00	10	5
IV	**Infrastructure and assets**															
3	Strengthening of office premises by constructing new buildings	All Blocks	m2	0.26	0	0.00	0	0.00	1400	362.29	0	0.00	0	0.00	1400	362.289
	Total					**18.36**		**13.36**		**362.29**		**0.00**		**0.00**		**394.00**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.7. 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:

- ✓ Increasing the availability of fodder through field level interventions
- ✓ Increasing the availability of fodder by strengthening farm infrastructure
- ✓ Livestock breeding management
- ✓ Livestock health
- ✓ Improving the livestock productivity
- ✓ Improving the service delivery at veterinary institutions
- ✓ Enhancing livestock management
- ✓ 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.* fulfils 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.

- ✓ Establishment of vermicomposting unit
- ✓ Distribution of Azolla trays
- ✓ Fodder plot development
- ✓ Meikal land development
- ✓ Distribution of seedlings, sprinklers, grass cutter and raingun to the farmers
- ✓ 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 centres where best practices can be disseminated to the farmers. The following infrastructure facilities will strengthen the fodder availability such as

- ✓ Establishment of farm production cover
- ✓ Construction of silo pit and overhead tanks
- ✓ Establishment of feed mixing units
- ✓ Installation of rain gun and sprinklers
- ✓ 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

- ✓ CIDR
- ✓ Establishment and distribution of sex-sorted semen facility
- ✓ Establishment of IVF lab
- ✓ Establishment of LN2 and embryo transfer lab
- ✓ 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

- ✓ Upgradation of vaccine production facilities for bacteria and virus
- ✓ Procurement of vaccines, medicine, diagnostic kit
- ✓ Animal quarantine facility in govt. farm
- ✓ 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

- ✓ Distribution of sheep, goat, buffalo, piggery, poultry units
- ✓ Establishment of modern poultry, rabbit , piggery, sheep, goat and bull shed
- ✓ Popularizing quail rearing
- ✓ 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

- ✓ Deep freezer facility for storage of vaccines and medicines
- ✓ Establishment of infrastructure facilities, disease diagnostic lab, mobile veterinary units, surgical theatres 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 is helpful to enhancing livestock management. The intervention have been propose are

- ✓ Animal identification and traceability
- ✓ Conservation of indigenous breeds
- ✓ Improvement of livestock shandy
- ✓ 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.

- ✓ Establishment of farmers training Centre
- ✓ Creating awareness of livestock management to the farmers through training programmes.

Project components

- ✓ Fodder plot development and CIDR for increasing Fertility in Cattle (All blocks)
- ✓ Distribution of sex sorted semen to veterinary institution and raingun to Livestock farmers (All blocks)
- ✓ Distribution of Sheep/Goat/ Buffalo units (All blocks)
- ✓ Integrated farming and development of native chicken farms (All blocks)
- ✓ Establishment of disposal pits for poultry unit, Infrastructure facilities for Veterinary Institutions, Mobile Disease Diagnostic Labs, Mobile Veterinary Units, surgical theatres at veterinary institution and Ambulance facility for animals (All blocks)
- ✓ Providing solar lighting panels at veterinary institution and package of modern veterinary diagnostic aids to veterinary institutions such as Computerised X rays, Ultrasound, Diathermy etc. (All blocks)
- ✓ Animal Identification and Traceability and Conservation of Indigenous breeds (All blocks)
- ✓ Livestock Shandy improvement works and development of slaughter house infrastructure (Kadaladi, Kamuthi, Nainarkoil, R.S.Mangalam, Ramanathapuram block)
- ✓ Establishment of Farmers training Centre (Thiruppullani block)
- ✓ Creating awarness of livestock management to the farmers through Training Programmes (All blocks)

Budget

The major themes proposed in the plan for animal husbandry sector with a total budget out lay of **₹. 3368.50 Lakhs (Table 4.21).**

Implementing agency

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

Table 4.21. Budget requirement for Animal Husbandry Sector in Ramanathapuram District

(₹. 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	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
2	Distribution of Raingun to Livestock farmers	Nos	0.25	All Blocks	44	11.00	44	11.00	44	11.00	44	11.00	44	11.00	220	55.00
3	CIDR (Controlled Internal Drug Release) for increasing Fertility in Cattle	Nos	0.01	All Blocks	1100	11.00	1100	11.00	1100	11.00	1100	11.00	1100	11.00	5500	55.00
4	Distribution of sex sorted semen to veterinary institution	Nos	0.015	All Blocks	5500	82.50	5500	82.50	5500	82.50	5500	82.50	5500	82.50	27500	412.50
5	Distribution of Sheep/Goat units -semi intensive system	Nos	0.6	All Blocks	55	33.00	55	33.00	55	33.00	55	33.00	55	33.00	275	165.00
6	Distribution of Buffalo units(5 Buffaloes)	Nos	4.5	All Blocks	11	49.50	11	49.50	11	49.50	11	49.50	11	49.50	55	247.50
7	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
8	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
9	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
10	Deep freezer facility for Storage of vaccines and Medicines	Nos	10	All Blocks	0	0.00	0	0.00	11	110.00	0	0.00	0	0.00	11	110.00
11	Establishment of Infrastructure facilities for Veterinary Institutions	Nos	30	All Blocks Except B8, B11	1	30.00	2	60.00	2	60.00	2	60.00	2	60.00	9	270.00
12	Establishment of Mobile Disease Diagnostic Labs	Nos	20	All Blocks	2	40.00	2	40.00	2	40.00	2	40.00	3	60.00	11	220.00

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
13	Establishment of Mobile Veterinary Units	Nos	10	All Blocks	3	30.00	2	20.00	2	20.00	2	20.00	2	20.00	11	110.00
14	Establishment of surgical theatres at veterinary institution	Nos	30	All Blocks	2	60.00	2	60.00	2	60.00	3	90.00	2	60.00	11	330.00
15	Providing solar lighting panels at veterinary institution	Nos	1	All Blocks	13	13.00	12	12.00	11	11.00	10	10.00	8	8.00	54	54.00
16	Package of Modern Veterinary Diagnostic Aids to Veterinary Institutions such as Computerised X rays, Ultrasound, Diathermy etc.	Nos	30	All Blocks	2	60.00	2	60.00	2	60.00	3	90.00	2	60.00	11	330.00
17	Establishment of Ambulance facility for animals	Nos	80	B9	1	80.00	1	80.00	0	0.00	0	0.00	0	0.00	2	160.00
	Livestock Management															
18	Animal Identification and Traceability	Unit of 1000 animals	0.1	All Blocks	300	30.00	30	3.00	30	3.00	30	3.00	30	3.00	420	42.00
19	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
20	Livestock Shandy improvement works	Nos	10	B2, B3, B5, B7, B8	1	10.00	1	10.00	1	10.00	1	10.00	1	10.00	5	50.00
21	Development of slaughter house infrastructure	Nos	20	B2, B3, B5, B7, B8	1	20.00	1	20.00	1	20.00	1	20.00	1	20.00	5	100.00
	Capacity Building															
22	Establishment of Farmers training Centre	Nos	200	B9	0	0.00	1	200.00	0	0.00	0	0.00	0	0.00	1	200.00

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
23	Creating awarness of livestock management to the farmers through Training Programmes	Nos	0.1	All Blocks	55	5.50	55	5.50	55	5.50	55	5.50	55	5.50	275	27.50
	Grand Total					**655.50**		**847.50**		**676.50**		**615.50**		**573.50**		**3368.50**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.8. 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 per cent of the world's buffaloes and 20 per cent 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,

- ✓ Milk storage tanks of various capacities
- ✓ Milk tankers
- ✓ Milk pumps
- ✓ Processing equipment’s
- ✓ Pasteurizers

- ✓ Heaters and chillers
- ✓ Washer and conveyors
- ✓ Pipes and fittings
- ✓ Cleaning equipment's
- ✓ 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.

- ✓ Provision of veterinary medicine
- ✓ Fodder development equipment and seed material
- ✓ Milk testing equipment's
- ✓ Equipment's for artificial insemination
- ✓ Milk society buildings and cow shed
- ✓ Cryogenic containers
- ✓ Weighing machines
- ✓ 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 per cent 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.

- ✓ Training of personnel of MPCS, Union and federation
- ✓ 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

- ✓ Parlour structure
- ✓ Milk product storage cabinets
- ✓ 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

- ✓ Adulteration detection equipment’s
- ✓ 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

- ✓ Skim milk powder plant
- ✓ Dairy processing plants
- ✓ Water and effluent treatment plants
- ✓ Steam raisning plant
- ✓ 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.

Project components

- ✓ Strengthening of milk storages and processing units (Electrical installation, Milk Storage Tanks, Tub washer, Canwashers, Crate conveyor systems, SS pipes and fittings, Solar system for water heating, Packing Machineries, Plate Heat type Chillers and pasteurizers, Milk Pumps, Generator, Cleaning in place equipments with accessories) (All blocks)
- ✓ Enhancing milk production and milk processing units (Veterinary Medicine, Two wheeler for AI technician, Computer system with accessories, Fodder seed materials, Fodder development equipments, Bulk Milk coolers, Milk cans, Electronic weighing scales, Electronic milk testing equipments, Milking machine, Cow shed, Society Buildings, Cryogenic containers, Equipments for Artificial Insemination) (All blocks)
- ✓ Capacity building (Training of personnel of MPCS, Union and Federation, Infertility Camps) (All blocks)
- ✓ Marketing structures (Parlour structures, Milk product storage cabinets, Product Billing systems) (All blocks)
- ✓ Quality control (Adulteration detection equipments, Milk testing equipment and Laboratory) (All blocks)
- ✓ Processing and value addition (Effluent treatment plant, Fat handling equipments Dairy equipments) (All blocks)
- ✓ Development of dairy sector (BMC buildings, Ware house for Dairy products) (All blocks)

Budget

An outlay of **₹. 2888.25 lakhs** is proposed to fulfill the aforementioned interventions for five years. This foresighted implementation of developmental schemes in Dairy Sector has enabled to increase the per capita income of rural households in backward Districts. The details of budget requirement for each intervention across the blocks are shown in **Table 4.22**.

Implementing agency

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

Table 4.22. Budget requirement for Dairy Development Sector in Ramanathapuram District

(₹. 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
	Strengthening of milk storages and processing units															
1	Electrical installation like Tranformemr, UPS, Stabilisers, Control Panel MCC etc.,	1	25	All blocks	1	25.00	1	25.00	0	0.00	0	0.00	0	0.00	2	50.00
2	Milk Storage Tanks of various capacities	1	15	All blocks	0	0.00	2	30.00	2	30.00	2	30.00	2	30.00	8	120.00
3	Tub washer, Canwashers, Crate conveyor systems.	1	10	All blocks	0	0.00	0	0.00	0	0.00	1	10.00	1	10.00	2	20.00
4	SS pipes and fittings	1	5	All blocks	1	5.00	1	5.00	1	5.00	1	5.00	1	5.00	5	25.00
5	Solar system for water heating	1	2	All blocks	2	4.00	2	4.00	2	4.00	2	4.00	2	4.00	10	20.00
6	Packing Machineries for milk, Butter, Ghee, SMP and Other Milk products	1	18	All blocks	0	0.00	2	36.00	2	36.00	0	0.00	0	0.00	4	72.00
7	Plate Heat type Chillers and pasteurizers	1	10	All blocks	1	10.00	0	0.00	0	0.00	1	10.00	0	0.00	2	20.00
8	Milk Pumps of Various capacities	1	0.5	All blocks	5	2.50	5	2.50	5	2.50	5	2.50	5	2.50	25	12.50
9	Generator of various capacities	1	20	All blocks	0	0.00	0	0.00	0	0.00	0	0.00	1	20.00	1	20.00
10	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															
11	Veterinary Medicine	1	2	All blocks	2	4.00	2	4.00	2	4.00	2	4.00	2	4.00	10	20.00
12	Two wheeler for AI technician	1	0.5	All blocks	5	2.50	5	2.50	5	2.50	5	2.50	5	2.50	25	12.50
13	Computer system with accessories	1	0.5	All blocks	5	2.50	5	2.50	5	2.50	5	2.50	5	2.50	25	12.50

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
14	Fodder seed materials	1	0.25	All blocks	5	1.25	5	1.25	5	1.25	5	1.25	5	1.25	25	6.25
15	Fodder development equipments like chaff cutter, Mower etc.,	1	0.2	All blocks	15	3.00	15	3.00	15	3.00	15	3.00	15	3.00	75	15.00
16	Bulk Milk coolers 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
17	Milk cans	1	0.035	All blocks	200	7.00	200	7.00	200	7.00	200	7.00	200	7.00	1000	35.00
18	Electronic weighing scales of various capacities.	1	0.3	All blocks	5	1.50	5	1.50	5	1.50	5	1.50	5	1.50	25	7.50
19	Electronic milk testing equipments	1	1.25	All blocks	5	6.25	5	6.25	5	6.25	5	6.25	5	6.25	25	31.25
20	Milking machine	1	0.8	All blocks	5	4.00	5	4.00	5	4.00	5	4.00	5	4.00	25	20.00
21	Cow shed	1	5	All blocks	5	25.00	5	25.00	5	25.00	5	25.00	5	25.00	25	125.00
22	Society Buildings	1	20	All blocks	5	100.00	5	100.00	5	100.00	5	100.00	5	100.00	25	500.00
23	Cryogenic containers	1	0.35	All blocks	5	1.75	5	1.75	5	1.75	5	1.75	5	1.75	25	8.75
24	Equipments for Artificial Insemination	1	0.5	All blocks	5	2.50	5	2.50	5	2.50	5	2.50	5	2.50	25	12.50
	Capacity building															
25	Training of personnel of MPCS, Union and Federation.	1	0.05	All blocks	50	2.50	50	2.50	50	2.50	50	2.50	50	2.50	250	12.50
26	Infertility Camps	1	0.2	All blocks	50	10.00	50	10.00	50	10.00	50	10.00	50	10.00	250	50.00
	Marketing structures															
27	Parlour structures	1	5	All blocks	10	50.00	10	50.00	10	50.00	10	50.00	10	50.00	50	250.00
28	Milk product storage cabinets	1	0.3	All blocks	100	30.00	50	15.00	50	15.00	50	15.00	50	15.00	300	90.00
29	Product Billing systems	1	0.3	All blocks	100	30.00	100	30.00	100	30.00	100	30.00	100	30.00	500	150.00

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
	Quality control															
30	Adulteration detection equipments	1	4	All blocks	1	4.00	1	4.00	1	4.00	1	4.00	1	4.00	5	20.00
31	Milk testing equipment and Laboratory.	1	5	All blocks	1	5.00	1	5.00	1	5.00	1	5.00	1	5.00	5	25.00
	Processing and value addition															
32	Effluent treatment plant	1	100	All blocks	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	1	100.00
33	Fat handling equipments	1	200	All blocks	0	0.00	0	0.00	1	200.00	0	0.00	0	0.00	1	200.00
34	Dairy equipments	1	50	All blocks	1	50.00	1	50.00	1	50.00	1	50.00	1	50.00	5	250.00
	Development of dairy sector															
35	BMC buildings	1	15	All blocks	2	30.00	2	30.00	2	30.00	2	30.00	2	30.00	10	150.00
36	Ware house for Dairy products	1	200	All blocks	0	0.00	1	200.00	0	0.00	0	0.00	0	0.00	1	200.00
	Grand Total					**449.25**		**790.25**		**740.25**		**449.25**		**459.25**		**2888.25**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

4.9. Fisheries

Increasing fish production in Coastal District

Project rationale

Fisheries have emerged as an important food production sector in the district contributing to the livelihood as well as food security of a large section of the people. Fishing activity, starting as a traditional livelihood activity in early fifties has now transformed into commercial enterprise contributing to the State and National economy, livelihood and nutritional security, rural employment generation and foreign exchange earnings significantly.

Aquatic weeds are the most important obstacle for rearing of fishes in the lakes and ponds. The eradication or control of aquatic weeds is essential to improve the fish production. There are only a few biological agents available which are expected to be of real importance in the near future, i.e. phytophagous fishes, such as grass carp, and arthropods which feed specifically on water hyacinth. Possibly, biological agents in combination with mechanical/manual methods, or to a lesser extent chemical means of control, could offer a promising perspective for the control of aquatic weeds in the tropics. Mopped ice boxes are the modern tools to maintain the quality of the fish products. So supply of ice boxes to the fishermen helps them to maintain the quality of fish.

Varieties of freshwater, brackish water and marine fish along with crabs and lobsters would be sold in hygienic condition; the fishery products like dry fish, canned fish and fish pickle would also be sold to the consumers in a good condition. This can be achieved by creating infrastructures like modern fish kiosk and installation of modern fish marketing vehicles.

Short seasonal fish species in existing farm ponds

Homestead seasonal ponds and road-side canals, which are formed either due to burrowing of soil for house or road construction or ponds dug for household uses (bathing, washing) or irrigation, can be used for aquaculture of short-cycle species. The culture practice is simple, requiring very low labour input and hence, can be undertaken by women and children, producing fish for household consumption and for market. Landless farmers can also benefit from this technology by culturing fish.

Seed Weed Culture

The Southern Coast of India bears luxuriant growth of seaweeds. More than 200 species of seaweeds have been found in this area. In coastal waters they grow almost like grass in large areas, extending over hundreds of kilometers. Agar yielding Red Algae such as *Gelidiella acerpsa, Oracilaria adulis, Gracilaria crassa* and *Gracilaria follifera* are collected throughout the year while Algin yielding Brown Algae such as Sargassum and Turbinaria are collected seasonally from August to January. In coastal Tamil Nadu and in many other places, seaweeds are made into halwa or used for making porridge. At present, *K. alvarezii* production is carried out in this district. There is a need to strengthen the sea weed culture in the State by creating awareness and popularization of the technology.

Establishment of marine fish seed production and rearing centre

Fish production from the existing water body resources can be achieved only if sufficient seed materials are available for stocking. It is inevitable to bridge the fish seed gap by making private participation in the fish seed production as it is not possible by the Government to take the responsibility of bridging the gap by creating the infrastructure on its own. Hence, it is necessary to encourage private sector in developing fish seed production hatcheries.

Popularization of fishing technologies

Cross-cutting most activities of the fish rearing is the provision of training. The development of knowledge and skills of small-scale fishers, traders and processors, as well as extension workers and public sector staff, is a fundamental aspect of most interventions to improve standards, fish handling, management and ultimately improved business. Training on fish rearing technology and exposure visits to the fishermen will helps them to increase their income by rearing new fish varieties and adoption of advanced fishing technologies.

Project goal

The main objective of the project is to increase the fish production through assured supply of IMC fish seeds and distribution of mopped ice box for fish handling and dissemination of technologies through organizing fish festival. The marine fishing is enhanced by establishment of marine fish rearing units and rearing centre. These activities will increase the livelihood of the fishermen and fish catchers.

Project components

The major components of the fish production are

- ✓ Direct stocking of fish fingerlings in irrigation tanks and Panchayat tanks (Mandapam, Kadaladi, Kamuthi, Mudukulathur, Nainarkoil, Thiruppullani, Thiruvadanai block)
- ✓ Establishment of modern fish stall/ fish kiosk (Paramakudi block)
- ✓ Providing trainers training and exposure visits (Mandapam, Ramanathapuram block)
- ✓ Exposure visit to farmers to other states (All blocks except Paramakudi, R.S.Mangalam, Bogalur block)
- ✓ Promotion of cage farming of fishes in back waters and open sea (Mandapam, Kadaladi block)
- ✓ Promotion of quality fish marketing by providing mobbed with icebox (Mandapam, Kadaladi, R.S.Mangalam, Ramanathapuram, Thiruppullani, Thiruvadanai block)
- ✓ Provision of life buoy/life jackets (Mandapam, Kadaladi, Thiruvadanai block)
- ✓ Providing ice boxes hygienic fish handling (Mandapam, Kadaladi, R.S.Mangalam, Ramanathapuram, Thiruppullani, Thiruvadanai block)
- ✓ Promotion of sea weed culture (Mandapam, Kadaladi, Thiruvadanai block)
- ✓ Establishment of Marine fish seed production centre (Mandapam block)
- ✓ Establishment of marine fish seed rearing units (Mandapam block)
- ✓ Establishment of marine ornamental units (Mandapam block)

Budget

The budget requirement for fulfilling the above interventions is **₹. 1392.80 Lakhs (Table 4.23).**

Expected outcome

The implementation of the above interventions will improve the fish production in the district and helps in sustainable fish production. The distribution of IMC seeds will increase the production of varieties of fishes. Also the supply of mopped ice boxes to the fish catchers will ensure supply of quality fishes.

Implementing agency

The project will be implemented by the Department of Fisheries. The progress of the work will be monitored by the heads of officials of the district headquarters.

Table 4.23. Budget Requirement for Fisheries in Ramanathapuram District

(₹. 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
A	**Enhancement of fisheries**															
1	Promotion of quality fish marketing by traditional fishers by providing mobbed with icebox	1	0.5	Mandapam; Ramanathapuram; R.S Mangalam; Thirupullani; Thiruvadanai; Kadaladi	0	0.00	25	12.50	25	12.50	25	12.50	25	12.50	100	50.00
2	Promotion of cage farming of fishes in back waters and open sea	1	5.363	Mandapam, Kadaladi	0	0.00	25	134.08	25	134.08	25	134.08	25	134.08	100	536.30
3	Introduction of short seasonal fish species in existing farm ponds	0.01 ha	0.08	Ramanathapuram; Thirupullani; Thiruvadanai; Bogalur, Kadaladi, Kamuthi; Muthukulathur	0	0.00	5	0.40	5	0.40	5	0.40	5	0.40	20	1.60
4	Increasing safety at sea by providing life buoy/life jackets	1	0.02	Mandapam, Thiruvadanai; Kadaladi	0	0.00	2000	35.00	2000	35.00	2000	35.00	2000	35.00	8000	140.00
5	Improvement of hygenic fish handling by providing ice boxes	1	0.07	Mandapam;Ramanathapuram; R.S Mangalam; Thirupullani; Thiruvadanai;Kadaladi	0	0.00	250	16.25	250	16.25	250	16.25	250	16.25	1000	65.00
6	Improvement of hygienic fish marketing by establishing modern fish stall/fish kiosk/	1	10	Paramakudi	1	10.00	0	0.00	0	0.00	0	0.00	0	0.00	1	10.00
7	Direct stocking of advancd fingerlings in irrigation tanks and panchayat tanks	1 ha	0.04	Mandapam; Thirupullani; Thiruvadanai; Kadaladi; Kamuthi; Muthukulathur; Nainarkoil	0	0.00	100	4.00	100	4.00	100	4.00	100	4.00	400	16.00

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
	Section Total					**10.00**		**202.23**		**202.23**		**202.23**		**202.23**		**818.90**
B	**Infrastructure and Assets**															
8	Establishment of Marine fish seed production centre	1	400	Mandapam	0	0.00	1	400.00	0	0.00	0	0.00	0	0.00	1	400.00
9	Establishment of marine fish seed rearing units	1	50	Mandapam	0	0.00	1	50.00	1	50.00	0	0.00	0	0.00	2	100.00
10	Establishment of marine ornamental units	1	3	Mandapam	0	0.00	2	6.00	2	6.00	2	6.00	2	6.00	8	24.00
	Section Total					**0.00**		**456.00**		**56.00**		**6.00**		**6.00**		**524.00**
C	**Capacity building programme**															
11	Exposure visit to farmers to other states	1	0.06	All Blocks Except R.S Mangalam; Bogalur; Paramakudi	0	0.00	11	0.66	9	0.54	11	0.66	9	0.54	40	2.40
12	Promotion of sea weed culture	1	0.45	Mandapam, Thiruvadanai, Kadaladi	0	0.00	25	11.25	25	11.25	25	11.25	25	11.25	100	45.00
13	Providing trainers training and exposure visit to Departmental staff	1	0.1	Mandapam; Ramanathapuram	0	0.00	10	1.00	5	0.50	5	0.50	5	0.50	25	2.50
14	Creation of Marine infrastructure facilities for the fisher-folk of coastal towns and villages to enhance Marine fish production, hygienic handling of catch and prevention of Post-harvest losses	Nos	500	All Blocks	0	0	4	2000	0	0	0	0	0	0	4	2000
	Section Total					**0.00**		**12.91**		**12.29**		**12.41**		**12.29**		**49.90**
	Grand Total					**10.00**		**2671.14**		**270.52**		**220.64**		**220.52**		**3392.80**

4.10. Fisheries Research

Establishment of marine cage system with feeding support system will be helpful to develop and maintain the broodstock needed for the hatchery. Establishing essential facilities in the center like road formation, compound formation, water supply systems etc has to be provided for effectively functioning the centre. Strengthening the larval rearing system with Re-circulatory Units needs to be enhanced to provide adequate seed to the farmers. Creation of ornamental broodbank and supply center will help to develop the marine ornamental fish rearing in a sustainable manner. A 5 ha area is earmarked for seaweed culture activity at Ariaman beach. It will be developed in to a seaweed center with necessary facility to maintain genetic diversity and culture demo plots. It will be assist the farmers to stock the disease free stock and regularly monitor the water quality. It helps to document the resource and disseminate the information to the locals. Alternate livelihood option will be created based on ecotourism and fishing. Initiative will be taken to create livelihood option by protecting the fisheries habitat through Fish Aggregation sites and organized line fishing or ecofriendly fishing practice. This will help to develop the complex into a full-fledged Institute to offer course in Mariculture/resource conservation and management.

Project components

- ✓ Mariculture (Ramanathapuram block)
- ✓ Aquatic animal health and management (Ramanathapuram block)
- ✓ Reduction of post-harvest losses (Ramanathapuram block)
- ✓ Enhancement of per capita consumption of fish (Ramanathapuram block)
- ✓ Utilization of seaweeds and other marine resources for food security (Ramanathapuram block)
- ✓ Ensuring nutritional security through fish and fishery products (Ramanathapuram block)
- ✓ Utilization of fish processing waste and by catch (Ramanathapuram block)
- ✓ Fishing technology(Ramanathapuram block)
- ✓ Aquacultural engineering (Ramanathapuram block)
- ✓ Fisheries technology transfer (Ramanathapuram block)

Budget

The budget requirement for fulfilling the above interventions is **₹. 3351.43 Lakhs (Table 4.24)**.

Expected 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.

Implementing agency

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

Table 4.24. Budget Requirement for Fisheries Research in Ramanathapuram District

(₹. in lakhs)

Sl. No	Interventions	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
I	**Aquaculture**														
I	**Mariculture**														
1	Seed bank and nursery for sea weeds	500	Ramanathapuram	0	0.00	0	0.00	1	500.00	0	0.00	0	0.00	1	500.00
2	Yield enhancement through innovative farming techniques for commercially important marine fishes	300	Ramanathapuram	0	0.00	1	300.00	0	0.00	0	0.00	0	0.00	1	300.00
3	Development of low cost feed using local agro waste	200	Ramanathapuram	0	0.00	0	0.00	0	0.00	1	200.00	0	0.00	1	200.00
II	**Aquatic animal health and management**														
4	Mobile aquaclinics for water quality analysis and disease diagnosis	100	Ramanathapuram	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	1	100.00
2	**Harvest and Post harvest**														
III	**Reduction of post harvest losses**														
5	Awareness to fishers on hygienic handling of fish	0.005	Ramanathapuram	133	0.67	133	0.67	133	0.67	133	0.67	133	0.67	665	3.33
6	Creation of awareness among fishers on fish processing technologies	0.6	Ramanathapuram	25	15.00	25	15.00	25	15.00	25	15.00	25	15.00	125	75.00
7	Capacity building and skill development programmes on fish processing technologies	6.6	Ramanathapuram	13	85.80	13	85.80	13	85.80	13	85.80	13	85.80	65	429.00

Sl. No	Interventions	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
IV	**Enhancement of per capita consumption of fish**														
8	Awareness campaign on health beneficial attributes of fish	0.005	Ramanathapuram	52	0.26	52	0.26	52	0.26	52	0.26	52	0.26	260	1.30
9	Production of short films on nutritive value of fish and screening in theatres and television channels	50	Ramanathapuram	0	0.00	0	0.00	1	50.00	0	0.00	0	0.00	1	50.00
V	**Utilization of seaweeds and other marine resources for food security**														
10	Popularization of seaweed products through mass media	0.005	Ramanathapuram	400	2.00	400	2.00	400	2.00	400	2.00	400	2.00	2000	10.00
11	Development of seaweed snack foods	50	Ramanathapuram	1	50.00	0	0.00	0	0.00	0	0.00	0	0.00	1	50.00
VI	**Ensuring nutritional security through fish and fishery products**														
12	supply of preserved ready to eat and ready to cook fish products through public distribution systems	12.9	Ramanathapuram	0	0.00	1	12.90	0	0.00	0	0.00	0	0.00	1	12.90
13	Supply of fish and fish products in mid day meal programme	12.9	Ramanathapuram	0	0.00	1	12.90	0	0.00	0	0.00	0	0.00	1	12.90
14	Supply chain management to promote consumption of farmed freshwater fishes	64.5	Ramanathapuram	0	0.00	1	64.50	0	0.00	0	0.00	0	0.00	1	64.50

Sl. No	Interventions	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
VII	**Utilization of fish processing waste and by catch**														
15	installation of waste rendering plant at selected fishing harbors and fish markets	130	Ramanathapuram	0	0.00	1	130.00	0	0.00	0	0.00	0	0.00	1	130.00
16	Development of fish compost for production of organic agricultural and horticultural crops	65	Ramanathapuram	0	0.00	1	65.00	0	0.00	0	0.00	0	0.00	1	65.00
17	Installation of unit for biogas from fish waste	161.5	Ramanathapuram	0	0.00	1	161.50	0	0.00	0	0.00	0	0.00	1	161.50
18	Development of technologies for effective utilization of shrimp shell waste	100	Ramanathapuram	0	0.00	1	100.00	0	0.00	0	0.00	0	0.00	1	100.00
VIII	**Fishing technology**														
19	Establishment of trap setting vessel to impart eco friendly fish trapping technology among the fishermen of Tamil Nadu	300	Ramanathapuram	1	300.00	0	0.00	0	0.00	0	0.00	0	0.00	1	300.00
4	**Fisheries Engineering**														
IX	**Aquacultural engineering**														
i	**Farm implements**														
20	Design and development of e interface gadgets for sustainable aquaculture	20	Ramanathapuram	0	0.00	1	20.00	0	0.00	0	0.00	0	0.00	1	20.00

Sl. No	Interventions	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
ii	**Automation technologies**														
21	Development of mobile gadgets/apps for remote monitoring system for aquaculture farms	15	Ramanathapuram	0	0.00	0	0.00	1	15.00	0	0.00	0	0.00	1	15.00
iii	**Advanced aquaculture systems**														
iv	**Navigation and Fisheries Engineering**														
22	Development of cost effective gadgets for effective fishing	15	Ramanathapuram	1	15.00	0	0.00	0	0.00	0	0.00	0	0.00	1	15.00
23	Development of mobile apps for effective fishing	8	Ramanathapuram	0	0.00	0	0.00	0	0.00	0	0.00	1	8.00	1	8.00
v	**Post-harvest fisheries engg**														
vi	**Handling, transportation and storage**														
24	Design and development of solar powered tricycle for fish vendors	2	Ramanathapuram	1	2.00	1	2.00	1	2.00	1	2.00	0	0.00	4	8.00
vii	**Processing machines**														
25	Design and development of gadgets for fish processing	20	Ramanathapuram	0	0.00	0	0.00	0	0.00	1	20.00	0	0.00	1	20.00

Sl. No	Interventions	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
	Fisheries technology transfer														
26	Establishment of Fisheries Knowledge Centres for farming and fishing community	500	Ramanathapuram	0	0.00	0	0.00	1	500.00	0	0.00	0	0.00	1	500.00
27	Establishment of Fisherfolk alternative livelihood complex at Mandapam unit of TNFU	100	Ramanathapuram	1	100.00	0	0.00	0	0.00	1	100.00	0	0.00	2	200.00
	Grand total				**570.73**		**1072.53**		**1170.73**		**425.73**		**111.73**		**3351.43**

4.11. Public Works Department

The livelihood of the people in Ramanathapuram district is depends on agriculture only. There are more number of wells followed by tanks in the district. The district consists of 7,493 open wells and 317 bore wells and 1,694 tanks. But all the wells are not supporting irrigation as they are normally dry during most part of the year. However, tanks formed the major source of irrigation as they got filled up during monsoon rains. Total of 1694 tanks were in the district of which 1192 are minor irrigation tanks and 502 are PWD tanks. Thiruvadanai block has 287 tanks which is followed by Kamuthi (252 Nos.) and R.S.Mangalam (251 Nos.). Mandapam block is having only one tank which irrigates about 38 ha. Among the blocks more area under tank irrigation is R.S. Mangalam *i.e.,* 13068.80 ha area and it is followed by Kadaladi with an area of 9,613.20 ha. Most of the canals and tanks are silted and bushes like *Prosopis*, *Acassia* spp and water hyacinth occupied major part of the tanks and canals, there by storage capacity of the tank is very much reduced. Hence, to raise the water table level, construction of check dams and bed 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 can be increased.

Project components

- ✓ Construction of check dams across the rivers (Kadaladi, Kamuthi, Mudukulathur, Nainarkoil, Paramakudi, Thiruvadanai block)
- ✓ Construction of anicut in different rivers (Kamuthi, Nainarkoil, Paramakudi, Thiruvadanai block)
- ✓ Construction of bed dams (Thiruvadanai block)

Budget

The budget requirement for fulfilling the above interventions is **₹. 12255.00 Lakhs (Table 4.25)**.

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 Water Resources Development will be implementing the project.

Table 4.25. Budget Requirement for PWD in Ramanathapuram District

(₹. in lakhs)

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Construction of anicut across Palar river to feed Perumi tank in Thiruvudayarpatti village of Thiruppathur taluk in Sivagangai district.	Kamuthi	Ha	3.31	95.15	315.00	0	0.00	0	0.00	0	0.00	0	0.00	95.15	315.00
2	Construction of check dam across Gundar river in chinna udappankulam of kamuthi village in Kamuthi taluk of Ramanathapuram District.	Kamuthi	Ha	2.37	166.83	396.00	0	0.00	0	0.00	0	0.00	0	0.00	166.83	396.00
3	Construction of check dam across Gundar (malattar) river in Mangalam of Appanur village in Kadaladi taluk of Ramanathapuram District.	Kadaladi	Ha	2.36	166	391.00	0	0.00	0	0.00	0	0.00	0	0.00	166	391.00
4	Construction of check dam across Gundar (malattar) river in Sayalkudi village in Kadaladi taluk of Ramanathapuram District.	Kadaladi	Ha	2.35	149.8	352.00	0	0.00	0	0.00	0	0.00	0	0.00	149.8	352.00
5	Construction of check dam across Gundar river in kakkudi village in Kamuthi taluk of Ramanathapuram District.	Kamuthi	Ha	3.93	100	393.00	0	0.00	0	0.00	0	0.00	0	0.00	100	393.00
6	Construction of check dam across Gundar (malattar) river in Koorankottai of A.Usilankulam village in	Kadaladi	Ha	2.37	152	360.00	0	0.00	0	0.00	0	0.00	0	0.00	152	360.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
	Kadaladi taluk of Ramanathapuram District.															
7	Construction of anicut across Paralaiyar river to feed Keelasivankulam tank etc., in Melaparthibanur village in Paramakudi taluk of Ramanathapuram District	Paramakudi	Ha	1.98	126.52	250.00	0	0.00	0	0.00	0	0.00	0	0.00	126.52	250.00
8	Construction of check dam across Gundar river in Pudukottai village in Kamuthi taluk of Ramanathapuram District.	Kamuthi	Ha	2.45	102	250.00	0	0.00	0	0.00	0	0.00	0	0.00	102	250.00
9	Construction of check dam across Vaigai river in Sevvur village in Paramakudi taluk of Ramanathapuram District.	Bogalur	Ha	2.47	170.04	420.00	0	0.00	0	0.00	0	0.00	0	0.00	170.04	420.00
10	Construction of anicut across Paralaiyar river to feed Mangudi, Devaneri tank etc., in Kothankulam village in Paramakudi taluk of Ramanathapuram District	Paramakudi	Ha	8.01	124.77	1000.00	0	0.00	0	0.00	0	0.00	0	0.00	124.77	1000.00
11	Construction of check dam across Gundar river in Nerijipatti of Kovilankulam village in Kamuthi taluk of Ramanathapuram District.	Kamuthi	Ha	2.47	101.21	250.00	0	0.00	0	0.00	0	0.00	0	0.00	101.21	250.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
12	Construction of bed dam across Virusuliyar river to feed Mangalakudi tank and other tanks in Tiruvadanai Taluk of Ramanathapuram District.	Tiruvadanai	Ha	0.07	1050.19	75.00	0	0.00	0	0.00	0	0.00	0	0.00	1050.19	75.00
13	Construction of an anicut across Virusuliyar river to feed Mallanur tank and other tanks in Tiruvadanai Taluk of Ramanathapuram District.	Tiruvadanai	Ha	1	222.39	223.00	0	0.00	0	0.00	0	0.00	0	0.00	222.39	223.00
14	Construction of check dam across Vaigai river in Sudiyur village in Paramakudi taluk of Ramanathapuram District.	Paramakudi	Ha	2.47	0	0.00	425.1	1050.00	0	0.00	0	0.00	0	0.00	425.1	1050.00
15	Construction of check dam across Paralaiyar river in Anaiyur village in Kamuthi taluk of Ramanathapuram District.	Kamuthi	Ha	2.47	0	0.00	51.01	126.00	0	0.00	0	0.00	0	0.00	51.01	126.00
16	Construction of check dam across Regunatha cauvery channel in Thavasikurichi village in Kamuthi taluk of Ramanathapuram District.	Kamuthi	Ha	2.47	0	0.00	68.02	168.00	0	0.00	0	0.00	0	0.00	68.02	168.00
17	Construction of check dam across Gundar (malattar) river in Kovilankulam village in Kamuthi taluk of Ramanad District.	Kamuthi	Ha	2.47	0	0.00	102.02	252.00	0	0.00	0	0.00	0	0.00	102.02	252.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
18	Construction of anicut across lower nattarkal channel to feed Manicheyendal, S.V.Mangalm, Kiliyur and P.Kodikulam tank near Panthappanendal village in Nainarkoil block of Paramakudi taluk of Ramanathapuram District	Nainarkoil	Ha	2.47	0	0.00	127.53	315.00	0	0.00	0	0.00	0	0.00	127.53	315.00
19	Construction of anicut across upper nattarkal channel near Memangalam village to feed varavani tank in Nainarkoil block in Paramakudi taluk of Ramanathapuram District.	Nainarkoil	Ha	2.47	0	0.00	127.53	315.00	0	0.00	0	0.00	0	0.00	127.53	315.00
20	Construction of check dam across Thiruppakottai surplus course at Palangulam village of Tiruvadanai TalukinRamanadthapuram District.	Tiruvadanai	Ha	4.93	0	0.00	31.23	154.00	0	0.00	0	0.00	0	0.00	31.23	154.00
21	Construction of check dam across Gundar river in Usampottal Karisalkulam village in Kamuthi taluk of Ramanathapuram District.	Kamuthi	Ha	2.47	0	0.00	0	0.00	111.34	275.00	0	0.00	0	0.00	111.34	275.00
22	Construction of check dam across Paralaiyar river in Natham village in Kamuthi taluk of Ramanathapuram District.	Kamuthi	Ha	2.47	0	0.00	0	0.00	53.4	132.00	0	0.00	0	0.00	53.4	132.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
23	Construction of check dam across Regunatha cauvery channel in Pakkuvetti village in Kamuthi taluk of Ramanathapuram District.	Kamuthi	Ha	2.47	0	0.00	0	0.00	71.26	176.00	0	0.00	0	0.00	71.26	176.00
24	Construction of check dam across Gundar (malattar) river in Pakkuvetti village in Kamuthi taluk of Ramanathapuram District.	Kamuthi	Ha	2.47	0	0.00	0	0.00	178.14	440.00	0	0.00	0	0.00	178.14	440.00
25	Construction of anicut across upper nattarkal channel near thalaiyadikottai village to feed thalaiyadikottai tank in Nainarkoil block in Paramakudi taluk of Ramanathapuram District.	Nainarkoil	Ha	2.47	0	0.00	0	0.00	66.8	165.00	0	0.00	0	0.00	66.8	165.00
26	Construction of check dam across lower nattarkal channel near Nagaram village in Nainarkoil block in Paramakudi taluk of Ramanathapuram District.	Nainarkoil	Ha	2.47	0	0.00	0	0.00	106.88	264.00	0	0.00	0	0.00	106.88	264.00
27	Construction of bed dam across Virusuliyar river to feed Thuthakudi tank and other tanks in Tiruvadanai Taluk of Ramanathapuram District.	Tiruvadanai	Ha	2.56	0	0.00	0	0.00	62.89	161.00	0	0.00	0	0.00	62.89	161.00
28	Construction of check dam across Gridhumal river in A.tharaikudi village in Kamuthi taluk of Ramanathapuram District.	Kamuthi	Ha	2.47	0	0.00	0	0.00	0	0.00	46.56	115.00	0	0.00	46.56	115.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
29	Construction of anicut across upper nattarkal channel to feed vaniyavallam tank near valasai village in Nainarkoil block of Paramakudi taluk of Ramanathapuram District	Nainarkoil	Ha	2.47	0	0.00	0	0.00	0	0.00	111.74	276.00	0	0.00	111.74	276.00
30	Construction of check dam across Gridhumal river in Nagarathar kurichi village in Kamuthi taluk of Ramanathapuram District.	Kamuthi	Ha	2.47	0	0.00	0	0.00	0	0.00	46.56	115.00	0	0.00	46.56	115.00
31	Construction of check dam across Paralaiyar river in Achankulam village in Kamuthi taluk of Ramanathapuram District.	Kamuthi	Ha	2.47	0	0.00	0	0.00	0	0.00	55.87	138.00	0	0.00	55.87	138.00
32	Construction of check dam across Regunatha cauvery channel in Anaiyur village in Kamuthi taluk of Ramanathapuram District.	Kamuthi	Ha	2.47	0	0.00	0	0.00	0	0.00	111.74	276.00	0	0.00	111.74	276.00
33	Construction of check dam across lower nattarkal channel near Panithavayal village in Nainarkoil block in Paramakudi taluk of Ramanathapuram District.	Nainarkoil	Ha	2.52	0	0.00	0	0.00	0	0.00	45.56	115.00	0	0.00	45.56	115.00
34	Construction of check dam across lower nattarkal channel near Attangudi village in Nainarkoil block in Paramakudi taluk of Ramanathapuram District.	Nainarkoil	Ha	2.47	0	0.00	0	0.00	0	0.00	0	0.00	46.15	114.00	46.15	114.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
35	Construction of anicut across upper nattarkal channel near Arambakottai village to feed Arambakottai tank in Nainarkoil block in Paramakudi taluk of Ramanathapuram District.	Nainarkoil	Ha	2.47	0	0.00	0	0.00	0	0.00	0	0.00	65.59	162.00	65.59	162.00
36	Construction of check dam across Regunatha cauvery channel in Pulvaikulam village in Mudhukulathur taluk of Ramanathapuram District.	Mudhukulathur	Ha	2.47	0	0.00	0	0.00	0	0.00	0	0.00	68.02	168.00	68.02	168.00
37	Construction of check dam across Regunatha cauvery channel in kanjarankulam village in Mudhukulathur taluk of Ramanathapuram District.	Mudhukulathur	Ha	2.47	0	0.00	0	0.00	0	0.00	0	0.00	58.3	144.00	58.3	144.00
38	Construction of check dam across Gridhumal river in Sadayanendal village in Kamuthi taluk of Ramanathapuram District.	Kamuthi	Ha	2.47	0	0.00	0	0.00	0	0.00	0	0.00	48.58	120.00	48.58	120.00
39	Construction of anicut across upper nattarkal channel near Punithaval village to feed Punithaval tank in Nainarkoil block in Paramakudi taluk of Ramanathapuram District.	Nainarkoil	Ha	2.47	0	0.00	0	0.00	0	0.00	0	0.00	58.3	144.00	58.3	144.00

Sl. No.	Intervention	Blocks covered	Unit	Unit cost	2017-18		2018-19		2019-20		2020-21		2021-22		Total	
					Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
40	Construction of anicut across upper nattarkal channel near Ariyankottai village to feed Ariyankottai tank in Nainarkoil block in Paramakudi taluk of Ramanathapuram District.	Nainarkoil	Ha	2.47	0	0.00	0	0.00	0	0.00	0	0.00	60.73	150.00	60.73	150.00
41	Construction of check dam across Vaigai river in Emaneshwaram village in Paramakudi taluk of Ramanathapuram District.	Paramakudi	Ha	2.47	0	0.00	0	0.00	0	0.00	0	0.00	404.86	1000.00	404.86	1000.00
42	Construction of check dam across tributory of Gundar river in Pudukottai village in Kamuthi taluk of Ramanathapuram District.	kamuthi	Ha	2.47	0	0.00	0	0.00	0	0.00	0	0.00	50.61	125.00	50.61	125.00
43	Construction of check dam across Regunatha cauvery channel in Kakkur village in Mudhukulathur taluk of Ramanathapuram District.	Mudhukulathur	Ha	2.47	0	0.00	0	0.00	0	0.00	0	0.00	50.61	125.00	50.61	125.00
44	Construction of check dam across Regunatha cauvery channel in Anaiyur village in Kamuthi taluk of Ramanathapuram District.	Kamuthi	Ha	2.47	0	0.00	0	0.00	0	0.00	0	0.00	70.85	175.00	70.85	175.00
45	Construction of check dam across Regunatha cauvery channel in Kumarakurichi village in Mudhukulathur taluk of Ramanathapuram District.	Mudhukulathur	Ha	2.47	0	0.00	0	0.00	0	0.00	0	0.00	50.61	125.00	50.61	125.00
	Total					**4675.00**		**2380.00**		**1613.00**		**1035.00**		**2552.00**		**12255.00**

4.12. Cooperatives

Agricultural cooperatives or farmers' cooperatives are cooperatives where farmers pool their resources for mutual economic benefit. Agricultural cooperatives are broadly divided into agricultural service cooperatives, which provide various services to their individual farming members, and agricultural production cooperatives, where production resources such as land or machinery are pooled and members farm jointly. Agricultural supply cooperatives aggregate purchases, storage, and distribution of farm inputs for their members. By taking advantage of volume discounts and utilizing other economies of scale, supply cooperatives bring down members' costs. Supply cooperatives may provide seeds, fertilizers, chemicals, fuel, and farm machinery. Some supply cooperatives also operate machinery pools that provide mechanical field services (*e.g.,* plowing, harvesting) to their members. Agricultural marketing cooperatives are often formed to promote specific commodities.

Project components

- ✓ Construction of office building (All blocks except Chathirakudi, Kadaladi, Kamuthi, Nainarkoil Block)
- ✓ Construction of compound wall (All blocks except Chathirakudi Block)
- ✓ Purchase of computer and peripherals (All Blocks except Paramakudi, R.S.Mangalam, Ramanathapuram, Mandapam Block)
- ✓ Godown Renovation (Kadaladi, Kamuthi, Mudukulathur, Nainarkoil, Mandapam Block)
- ✓ Godown construction (Thiruppullani Block)

Budget

The budget requirement for fulfilling the above interventions is **₹. 1127.59 Lakhs (Table 4.26)**.

Expected outcome

Agricultural marketing cooperatives will provide the services involved in moving a product from the point of production to the point of consumption. Agricultural marketing includes a series of interconnected activities involving planning production, growing and harvesting, grading, packing, transport, storage, food processing, distribution and sale.

Implementing agency

Department of Cooperative Societies will be implementing the project.

Table 4.26. Budget Requirement for Cooperatives in Ramanathapuram District

(₹. in lakhs)

Sl. No.	Co-operation	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	Construction of Compound wall	All Blocks except B1	18	170.52	14	123.87	12	108.31	9	75.74	9	82.06	62	560.50
2	Construction of Godown	B9	1	50.00	0	0.00	0	0.00	0	0.00	0	0.00	1	50.00
3	Construction of Office Building	B4, B6, B7, B8, B9,B10, B11	11	119.00	9	106.00	10	62.00	7	75.00	5	64.30	42	426.30
4	Renovation of Godown	B2, B3, B4, B5 and B11	5	43.00	3	9.50	2	4.10	1	2.00	1	2.00	12	60.60
5	Strengthening of Cooperation Centres (Furniture's, Solar panel, Modern counter, Xerox machine, Air Conditioner, CCTV Camera, Bore well, Generator, UPS Battery, Cash Counting Machine, Invertor, Jewel Weighing Machine, Packing Machine, Purchase of computer and peripherals, Hand Billing machine, LED Display for tender process, Purchase of Jewel Carat Meter, Smart Card Printing Machine, Burglary Alarm, Agricultural Equipments, Safety Locker, Purchase of Display racks, Defender Door, Purchase of Paddy drying machine, Automatic Printer	All Blocks	13	6.80	12	5.50	10	9.29	9	4.80	7	3.80	51	30.19

Sl. No.	Co-operation	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
	machine, Conveyer, E-Tender process, Fork Lifter, Gunny Bag Stitching machine, Jewel tester, Pallets, Tarpaulin, Trolley and Printing Press machineries)													
	Total			**389.32**		**244.87**		**183.70**		**157.54**		**152.16**		**1127.59**

Chathirakudi -B1, Kadaladi-B2, Kamuthi-B3, Mudukulathur-B4, Nainarkoil-B5, Paramakudi-B6, R.S.Mangalam-B7, Ramanathapuram-B8, Thiruppullani-B9, Thiruvadanai-B10, Mandapam-B11

Table 4.27 Budget Abstract for Ramanathapuram District

(₹. in lakhs)

Sl. No	Sectors	2017-18	2018-19	2019-20	2020-21	2021-22	Total
1	Agriculture	5618.73	4678.08	4508.10	5585.12	5417.68	25807.71
2	Agricultural Research (TNAU)	0.00	448.55	521.65	13.34	0.00	983.54
3	Horticulture	638.23	613.43	647.28	665.68	685.58	3250.20
4	Agricultural Engineering	1084.18	1466.01	1888.16	2043.06	2079.86	8561.25
5	Agricultural Marketing	1360.79	1276.91	428.13	344.15	446.15	3856.13
6	Seed Certification & Organic Certification	18.36	13.36	362.29	0.00	0.00	394.00
7	Animal Husbandry	655.50	847.50	676.50	615.50	573.50	3368.50
8	Dairy Development	449.25	790.25	740.25	449.25	459.25	2888.25
9	Fisheries	10.00	2671.14	270.52	220.64	220.52	3392.80
10	Fisheries Research (TNFU)	570.73	1072.53	1170.73	425.73	111.73	3351.43
11	Water Resource Organization (PWD)	4675.00	2380.00	1613.00	1035.00	2552.00	12255.00
12	Civil Supplies & Co-Operation	389.32	244.87	183.70	157.54	152.16	1127.59
	Total	**15470.09**	**16502.63**	**13010.31**	**11555.01**	**12698.43**	**69236.4**

The total budget requirement for the implementation of various interventions by different departments in Ramanathapuram district is **₹. 69236.40 Lakhs.**


KARNATAKA
KERALA
SRI LANKA