NATIONAL AGRICULTURAL DEVELOPMENT PROGRAMME (NADP)

DISTRICT AGRICULTURE PLAN

VIRUDHUNAGAR DISTRICT

Centre for Agricultural and Rural Development Studies (CARDS)
Tamil Nadu Agricultural University
Coimbatore – 641 003

2008

NATIONAL AGRICULTURE DEVELOPMENT PROJECT –

DISTRICT AGRICULTURE PLAN

PROJECT TEAM

Overall Coordination : **Dr. K. Palanisami, Director, CARDS and Nodal Officer (NADP)**

Dr. R. Venkatram, Professor and Principal Coordinator (NADP)

District Level Coordination : **S. Moghana Lavanya**
Assistant Professor
Directorate of Open and Distance Learning
Tamil Nadu Agricultural University
Coimbatore 641 003

Dr. R. Durai Singh
Professor and Head
Regional Research Station
Aruppukottai

Mr. A. Ramamurthy
Joint Director of Agriculture
Virudhunagar District

Tamil Nadu Agricultural University

Prof. C.RAMASAMY
Vice-Chancellor

COIMBATORE-641 003
TAMIL NADU
INDIA.

FOREWORD

Date .....

The National Development Council resolved that Agricultural Development strategies must be reoriented to meet the needs of farmers and called upon the Central and State governments to evolve a strategy to rejuvenate agriculture with a commitment to achieve four per cent annual growth in the agricultural sector during the 11th plan. The council also recommended special Additional Central Assistance Scheme named National Agriculture Development Programme (NADP) be launched. To implement this, formulation of District level action plans is the pre-requisite and thus District Agriculture Plan of various districts in Tamil Nadu has been prepared with the financial assistance of Government of India.

The task of preparing the District Agriculture Plan has been given to Tamil Nadu Agricultural University by Government of Tamil Nadu. Thus 29 Districts level Plans, excluding Chennai and Nilgris, were prepared by the Centre for Agricultural and Rural Development Studies, Tamil Nadu Agricultural University. Several meetings were held at TNAU during the last few months. Steering committee, district planning unit and plan finalizing team were putting their efforts in shaping up the District Agriculture Plans. All the District Collectors representing the 29 districts have actively participated in the sensitizing meeting organized by TNAU and officials of line departments in the respective districts. The plan documents have identified the major thrust areas in agriculture and allied sectors for achieving the envisioned growth in the district and also in Tamil Nadu state. I appreciate the team work of TNAU scientists and the officials from line departments for bringing out the valuable action plans for each district. I am sure that these plans would also lead to more fruitful exercises like formulation of State level plans and project proposals for funding through NADP.

I solicit the cooperation of the line department officials in implementing these action plans and commit to achieve a better growth in agriculture and allied sectors in each and every district of Tamil Nadu during the 11th plan.

(C. RAM AS AMY)

Coimbatore
June 30, 2008

Tel : Off.:+91-422 2431788 • Res.:+91-422 2430887 • Fax:+91-422 2431672
Email : vc@tnau.ac.in / c_ramasamy@yahoo.com

Dr. K. Palanisami
Director, CARDS

Tamil Nadu Agricultural University
Coimbatore-3

PREFACE

The District Agriculture Plan is brought out based on the details provided by the line department officials of the respective districts. The District Agriculture Plan thus identifies the problems, needed interventions and the financial requirement for the developments in Agriculture and allied sectors of Agriculture viz. Horticulture, Agricultural Engineering, Animal husbandry, Fisheries, Sericulture, Agricultural marketing and Agricultural business and Public Works Department.. The Government sponsored various on-going schemes and programmes in the development of agriculture have also been dovetailed in the preparation of plan. Besides, the plan would also help in formulating the State Agriculture Plan and the project proposals under Stream I and Stream II to be funded by Government of India for the remaining four year plan periods viz. 2008-2012.

My sincere thanks to District Collectors of the respective districts in Tamil Nadu who have been instrumental in providing the felt needs of the farmers and other stakeholders. The help and full cooperation rendered by the line department officials in each district is highly appreciable. Without their assistances, the formulation of the plan will be a mere academic exercise.

My sincere thanks to Shri. Surjit K. Chaudhary I.A.S., Agricultural Production Commissioner and Principal Secretary to Government of Tamil Nadu who is instrumental in integrating the multi-level functionaries and providing valuable guidance in bringing out this plan document.

My sincere thanks to Dr. C. Ramasamy, Vice-Chancellor, Dr. P. Santhana Krishnan, Registrar of Tamil Nadu Agricultural University, for their full administrative and technical support without which the time schedule in preparing the document could not have been adhered to. Special thanks to Dr.S. Natarajan, Director, Soil and Crop Management Studies and Dr. E. Vadivel, Director of Extension Education, for their sustained support in the preparation of the district plans. All the Principal Investigators of the NADP I Phase projects also provided the needed inputs.

I take this opportunity to express my deep sense of gratitude to Commissioner of Agriculture, Commissioner of Horticulture and Plantation crops, Chief Engineer (Agricultural Engineering), Executive Director, Tamil Nadu Watershed Development Agency, Commissioner of Animal Husbandry and Veterinary Services, Commissioner of Fisheries, Commissioner for Milk Production and Dairy Development, Commissioner of Agricultural Marketing and Agri Business, Director of Seed Certification, and Director of Sericulture for providing constructive support and guidance in preparing the document.

I also place on record my sincere thanks to Vice-Chancellor of TANUVAS and his colleagues for providing the action plans for Animal Husbandry and Fisheries in Tamil Nadu.

Sincere thanks to Deans, Heads of Research Stations/KVK's and scientists of TNAU representing different districts and scientists of Directorate of CARDS for helping in collection of data, organising district level workshops and group meetings with stakeholders and preparation of this document.

Date: 30.06.2008

K. Palanisami
Director, CARDS & Nodal Officer (NADP)

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EXECUTIVE SUMMARY

With a view to attain four percent growth in Agriculture during XIth plan period, the NDC resolved that a special additional Central Assistance Scheme named National Agricultural Development Programme (NADP /RKVY) may be launched. To implement the scheme, formulation of actoin plan palns by means of developing District Agricultural Plan (DAP) is attempted, as a first step. The DAP covers both agriculture sector and allied sectors like horticulture, animal husbandry, fisheries, agricultural engineering, agricultural marketing and irrigation systems.The DAP aims at integerating the programmes / schemes, that are already in operation and the additional resources with the existing resource potential of the district, so as to push-up the production frontiers that culminate in the desired growth rate in agriculture .

The complete resource mapping of the district has been attempted by perusing through the details of the various agro-economic features of the district like demography, soil and topography, land-use pattren and land holdings distribution, livestock population, fisheries wealth, agricultural markets, irrigtaion systems and the like in chapter II. Based on the socio-economic perspectives and the resource-base, the vision development has been precisely defined and the strategies have been clearly spelt out.

The strengths, weaknesses, opportunities and threats have been identified through the SWOT analysis of the district. Similar exercise for the various sectors has also been attempted and the results are highlighted in chapter III. The growth indices were worked out to understand the relative position of the district in the growth path of the state. The results of the SWOT analysis were also tuned to identify and highlight the emerging issues in Chapter III.

Based on the resource- potentials assessed and the results of SWOT analysis, the development issues were listed, the on-going programmes/ schemes have been described, the yield and the technological gaps were also assessed. Finally, the needed interventions

for development have been spell out with reference to agriculture sector in Chapter IV. Similarly, the development issues were highlighted, the on-going schemes were described, the constrains were indicated, and the possible interventions have been recommended for the allied sectors like horticulture, agricultural engineering, animal husbandry, fisheries and irrigation systems as well in Chapter V.

The District plan proper has deen presented and the individual projects formulated under each sector have also been listed with the associated financial requirements. In agricultural sector, the productivity increase in major crops like paddy, millets, maize, pulses, oilseeds and cotton through the application of latest technologies, was aimed at in the plans / projects. Crop diversification through the introduction of new and more profitable crops was also planned.

The horticulture department with high – tech application and huge investment has been planned to boost up the fruits and vegetables production in the district. The water harvesting and conservation and farm machanisation were the thrust areas of development in agricultural engineering. Milk productivity increase, hygienic milk production, scientific rearing of calves and heifers, infrastructure support the development of milk marketing were the thrust areas of development of animal husbandry activities. As regards fisheries sector, the production boost through infrastructure support and development was attempted in the action plans.

The district plan in overall consisted of five projects in crop development and setting up of are seed testing laboratory. In, addition, thirteen projects have been planned in horticulture sector. Six projects for the development of animal husbandry activities and six projects in the fisheries development have also been formulated and presented along with the financial implications. Introduction of newly developed farm machineries and their popularization, creation of water harvesting structures soil conservation measures were given full thrust in agricultural engineering development in the district of Virudhunagar. The budget estimates sector-wise are summarized below.

Budget Outlays over all sectors of Development in Virudhunagar District during XIth plan period

(Rs. in lakhs)

Sl. No	Department	2008-09	2009-10	2010-11	2011-12	Total
1	Agriculture	407.690	358.690	358.690	358.690	1484.760
2	Horticulture	34.750	78.780	107.430	120.680	341.640
3	Animal husbandry	456.977	84.505	83.385	82.085	706.952
4	Fisheries	38.500	30.75	30.750	26.250	126.250
5	Agricultural Engineering	307.400	334.320	334.320	334.310	1310.350
6	Agricultural Marketing	24.570	179.672	177.238	169.679	551.159
	Total	**1269.89**	**1066.72**	**1091.81**	**1091.69**	**4521.12**

As could be discerned from the above table, the financial requirement for agricultural development on the whole has been estimated at Rs.4521.12 lakhs during XIth plan period for Virudhunagar District, under NADP.

CHAPTER - I

INTRODUCTION

Concerned by the slow growth in the Agriculture and allied sectors, the National Development Council (NDC), resolved that a special Additional Central Assistance Scheme, named National Agriculture Development Programme (NADP/RKVY) be launched. The NDC also felt that Agriculture Development strategies must be reoriented to meet the needs of farmers and called upon the Central and State governments to evolve a strategy to rejuvenate agriculture with a commitment to achieve four per cent annual growth in the agricultural sector during the X^{th} plan. To implement this, formulation of action plans by means of developing District Agriculture Plans (DAP) is recommended. It is of the view that such plans would also reflect the felt needs of the farmers and stakeholders. Such District Agriculture Plans aim at moving towards projecting the requirements for development of Agriculture and allied sectors of the district including animal husbandry and fishery, minor irrigation projects, rural development works, agricultural marketing schemes and schemes for water harvesting conservation, etc. keeping in view the natural resources and technological possibilities in each district. These plans thus, present the vision for Agriculture and allied sectors within the overall development perspective of the district apart from the financial requirement and the sources of financing the agriculture development plans in a comprehensive way.

Once the preparation of District level agriculture planning exercise is completed, the operationalization of such plan is essential. This follows the preparation of a comprehensive State Agricultural Plan (SAP) by integrating the above District level agriculture plans. The DAP therefore could integrate multiple programmes that are in operation in the district concerned, include the resources and activities indicated by the state, combine the resources available from the other programmes and finalize the plan. With this in mind, the District Agriculture Plan for each district of Tamil Nadu is prepared.

Methodology Adopted for Preparation of District Agriculture Plan

The preparation of the District Agriculture Plan (DAP) is thus an elaborate, exhaustive and iterative process and therefore every care is taken in ensuring that the DAPs are properly and comprehensively made. The task of preparing such District Agriculture Plan is given to Tamil Nadu Agricultural University, Coimbatore. In Coordination with scientists from TANUVAS and officials from Department of Agriculture, Horticulture, Agricultural Engineering, Marketing, Animal Husbandry and Fisheries, Seed certification PWD etc. the task is fulfilled. In what follows, the procedure adopted to prepare the plan is discussed.

Major Areas of Focus

(a) Integrated development of major food crops like paddy, coarse cereals, minor millets, pulses, oilseeds;

(b) Agriculture mechanization;

(c) Activities related to enhancement of soil health;

(d) Development of rainfed farming systems in and outside watershed areas, as also Integrated development of watershed areas, wastelands, river valleys;

(e) Integrated Pest Management schemes;

(f) Strengthening of Market Infrastructure and marketing development;

(g) Strengthening of Infrastructure to promote Extension Services;

(h) Activities relating to enhancement of horticultural production and popularization of micro irrigation systems;

(i) Animal husbandry and fisheries development activities;

(j) Study tours of farmers;

(k) Organic and bio-fertilizers;

(l) Innovative schemes.

Collection of Data

The preparation of district level plan involved basically collection of base -line and bench mark details. So, a template is developed to collect these particulars from the different districts (29 districts) of Tamil Nadu. In order to dovetail the ongoing schemes,

with the action plans, the current ongoing agriculture programs were listed with their physical and financial performance and finally converged as the plan under National Agriculture Development Programme.

Formation of District Planning Unit

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

a) Deans of other campuses / Heads of Krishi Vigyan Kendra or Research Station in respective district and one scientist from each campus

b) Co-ordinating staff from Directorate of Centre for Agricultural and Rural Development Studies to represent each district

c) Officials of Line Departments from Agriculture, Horticulture, Agricultural Engineering, Marketing, Animal Husbandry and Fisheries, Seed certification, Public Works Department.

Sensitization Workshop

A series of Sensitization Workshop was conducted from 4.3.08 to 18.3.08 at TNAU Campus. The TNAU Staff from Krishi Vigyan Kendras and Research Stations, officials from line Departments *viz.,* Agriculture, Horticulture, Agricultural Engineering and Tamilnadu Veterinary and Animal Sciences University attended the workshop. Also several meetings were held in Chennai for the National Agriculture Development Programme under the Chairmanship of Agriculture Production Commissioner and Secretary to Government of Tamil Nadu.

The objectives of National Agriculture Development Programme, preparation of District Agriculture Plans, State Agriculture Plan and Formulation of Project proposals under stream - I and stream - II were discussed in the workshop.

Preparation of Draft Action Plan and Presentation in District Collectors Meeting

Based on the baseline information and proposals, draft action plan was prepared and this was presented in the District Collectors Meeting held on 16.05.2008 under the chairmanship of District Collector. This meeting was attended by the scientists from TNAU, officials from line departments and the representatives of local bodies. Wide coverage was given in the media also.

Finalisation

The feedback received in the District Collectors Meeting was incorporated before finalization of the District Agriculture Plan. The Strategic Research - Extension Plan and Agriculture Technology Management Agency reports were also reviewed and relevant details have been incorporated in the draft report.

CHAPTER - II
GENERAL DESCRIPTION OF THE DISTRICT

2.1 Introduction

The District of Virudhunagar was carved out as a separate district in the year 1985 as a result of trifurcating Ramanathapuram district of Tamilnadu state (vide State Government Notification, G.O. Ms. 347 dated 8.3.85). According to the said notification, eight taluks viz. Rajapalayam, Srivilliputtur, Virudhunagar, Tiruchuli, Kariapatti, Aruppukkottai, Sattur and Sivakasi were separated from Ramanathapuram district and formed as a new district. At present, the district consists of eight taluks and eleven Community Development Blocks.

2.2 District at a Glance

2.2.1 Location

Virudhunagar District is located in the southern part of Tamil Nadu. It is bounded on the north by the districts of Madurai and Sivagangai, on the east by the districts of Sivagangai and Ramanathapuram, on the south by the districts of Thoothukudi and Tirunelveli and on the west by a portion of Kerala State and the district of Madurai. It has an area of 4432.55 sq. kms. The administrative headquarters is located at Virudhunagar town. The District lies between 90°20' and 90 ° 72' north latitude and 77 ° 20' and 78 ° 70' east longitude.

Physiographically it consists of two distinct regions. The eastern slopes of the Western Ghats in Srivilliputtur and Rajapalayam taluks and the black soil plains of Sivakasi, Virudhunagar, Sattur, Aruppukkottai, Tiruchuli and Kariapatti. The average height of the hills of the eastern slopes of the Western Ghats is 1500m, though a few peaks rise to the extent of 1700m. The highest peaks are *Peyimalai Mottai* and *Kottamalai*. The foothills have rich loamy soil with good vegetation cover. The plains with black cotton soil (locally known as *karisal*) have underlying calcarious formations.

Virudhunagar district does not have any perennial rivers. The Vaippar, Arjuna nadi, and Gundar constitute the river network of the District. Numerous streams and rivulets, activated by the monsoon, feed these rivers. The Mandiri odai and Girudhamal nadi flow into the Gundar, which irrigates the north eastern region of the District. The Sengundrapuram odai, Kausika manadi, Uppodai and Mannarkottaiyar are feeder streams of the Arjuna nadi, which flows through the central portion of the District. The Kayalkudiyar and Nichepa nadi join the Vaippar, which runs through the southern part of the District. The Arjuna and the Vaippar meet at Irukkangudi.

2.2.2 Administrative Divisions

The District is divided into two Revenue Divisions comprising four taluks each and has thirty six firkas and six hundred villages.

The Aruppukkottai Revenue Division comprises Kariapatti, Tiruchuli, Aruppukkottai and Virudhunagar *taluks*, and Sivakasi Revenue Division of Sattur, Sivakasi, Srivilliputur and Rajapalayam taluks (Table 2.1).

Table 2. 1. Number of Revenue Administrative Divisions in Virudhunagar District

S.No.	Details	Numbers
1.	Revenue Divisions	2
2.	Revenue Taluks	8
3.	Revenue Firkas	36
4.	Revenue Villages	600

Source: District Revenue Administrative Office, Virudhunagar.

Virudhunagar District comprises of 8 Taluks, 11 Blocks and 600 Villages. As regards the hierarchy of administrative arrangement, there are 7 Municipalities, 10 Town Panchayats and 457 Village Panchayats in the District. Community Development Blocks: Srivilliputtur, Watrap, Virudhunagar, Sivakasi, Tiruchuli, Narikudi, Kariapatti, Aruppukkottai, Sattur, Vembakottai and Rajapalayam (Table.2.2).

Table 2.2 Taluk-wise Revenue Villages in Virudhunagar District

Number of Taluks : 8
Number of Revenue Villages : 600

Taluk	Revenue Villages
Arupukottai	83
Kariapattai	107
Rajapalayam	39
Sathur	65
Sivakasi	45
Srivilliputhur	50
Tiruchuli	150
Virudhunagar	61

Source: District Revenue Administrative Office, Virudhunagar

Local Bodies

The details of the local bodies in the district are as follows

Table 2.3 Details of the Local Bodies in Virudhunagar District

S.No.	Details	Numbers
1.	Municipalities	7
2.	Development districts	2
3.	Panchayat Unions	11
4.	Town Panchayats	9
5	Village Panchayats	450

Source: District Rural Development Agency, Virudhunagar

Srivilliputhur, Sattur, Rajapalayam, Aruppkottai, Sivakasi, Thiruthangal, and Virudhunagar are the seven municipalities in the district. The district comprises of 11 Panchayat Unions, nine Town Panchayats and 450 Village Panchayats.

2.2.3 Demography

It could be noted from table 2.5 that the total population of the district is 17.51 lakhs as per 2001 census. The population increase is less (11.90 percent) during 1991-2001 as compared to that of the previous ten years (16.71percent).The following table indicates the population (census 2001) of Virudhunagar district over the years.

Table 2.4 Population of Virudhunagar District with Decennial Growth

Period (Census year)	Population	Percentage Variation Since Previous Census
1971	1151449	--
1981	1340907	16.45
1991	1565037	16.71
2001	1751301	11.90

Source: Census of India 2001

The block-wise urban and rural population details of Virudhunagar district are presented in Table 2.5.

Table 2.5 Block - wise Population Details of Virudhunagar District

Sl. No	Name of the Block	Urban Population in Percent	Rural Population in Percent	Density per Sq.Km.
1.	Aruppukottai	48.68	51.32	505
2.	Kariapatti	28.17	71.83	204
3.	Narikudi	-	100	153
4.	Rajapalayam	54.92	45.08	507
5.	Sattur	25.96	74.04	858
6.	Sivakasi	66.26	33.74	905
7.	Srivilliputhur	51.02	48.98	227
8.	Tiruchuli	-	100	178
9.	Vembakottai	17.90	82.10	298
10.	Virudhunagar	51.10	48.90	509
11.	Watrap	40.46	59.54	419

Source: Census of India 2001

It could be seen from the above table that the density of population is very high in Sivakasi taluk followed by Sattur block, Virudhunagar, Rajapalayam, Pudukkottai block in order. While the urban population is around 50 percent in the blocks of Arupukkottai, Rajapalayam, Sivakasi, Srivilliputhur and Virudhunagar. The rural population is more pronounced in the blocks of Kariapatti, Sattur,Vemabapatti etc.

Table 2.6 Block-wise details of BPL - APL Families

Sl. No	Name of the Panchayat Union	Total No.of families	Total No.of APL families	Total No. of BPL Families (0-17)	BPL Percentage
1	Rajapalayam	49116	34075	15041	30.62
2	Srivilliputhur	30504	22664	7840	25.70
3	Watrap	25113	16900	8213	32.70
4	Sivakasi	63625	47767	15858	24.92
5	Vembakottai	40358	29795	10563	26.17
6	Sattur	36344	25884	10460	28.78
7	Virudhunagar	48332	33456	14876	30.78
8	Aruppukottai	27215	20377	6838	25.13
9	Kariapatti	27663	18796	8867	32.05
10	Thiruchuli	26513	18962	7551	28.48
11	Narikudi	24969	17343	7626	30.54
	Total	**399752**	**286019**	**113733**	**28.45**

Source: Census of India 2001

The above table indicates total number of families under below poverty line and above poverty line in the district .About 28.45 per cent of the families in the district is below poverty line and is found to be high in Watrap and Kariapatti blocks

2.2.4 Soils and Topography

Soil Type

The soils of the district can be classified under 4 categories. The block wise distribution of soil is as follows.

Virudhunagar Soils and Area in Hectare

Soil Description	Area (ha)
Very deep, fine, montmorillonitic, Vertisols	54915.91
Deep, fine, montmorillonitic, Vertisols	39389.57
Deep, fine loamy, mixed, Inceptisols	31885.03
Moderately deep, fine, montmorillonitic, Inceptisols	29994.78
Deep, fine, mixed, Alfisols	21915.82
Very deep, fine loamy, mixed, Inceptisols	21479.74
Very deep, fine, mixed, Alfisols	21289.11
Moderately deep, fine loamy, mixed, Inceptisols	21128.76
Deep, fine loamy, mixed, Alfisols	17707.80
Deep, coarse loamy, mixed, Alfisols	11432.88
Very deep, fine, mixed, Inceptisols	10264.62
Shallow, loamy, mixed, Entisols	9776.14
Very deep, fine, montmorillonitic, Inceptisols	9703.29
Moderately deep, fine, mixed, Alfisols	8204.97
Deep, fine, mixed, Inceptisols	7147.73
Moderately shallow, fine, mixed, Inceptisols	6890.90
Very deep, fine loamy, mixed, Alfisols	6381.52
Deep, clayey skeletal, mixed, Inceptisols	5391.38
Moderately shallow, fine loamy, mixed, Alfisols	5086.18
Moderately shallow, fine loamy, mixed, Entisols	4731.05
Moderately deep, very fine, montmorillonitic, Vertisols	4386.28
Moderately deep, loamy skeletal, mixed, Alfisols	4146.13
Moderately shallow, loamy skeletal, mixed, Entisols	4136.48
Very deep, fine, kaolinitic, Alfisols	4086.03
Shallow, loamy, mixed, Inceptisols	4070.38

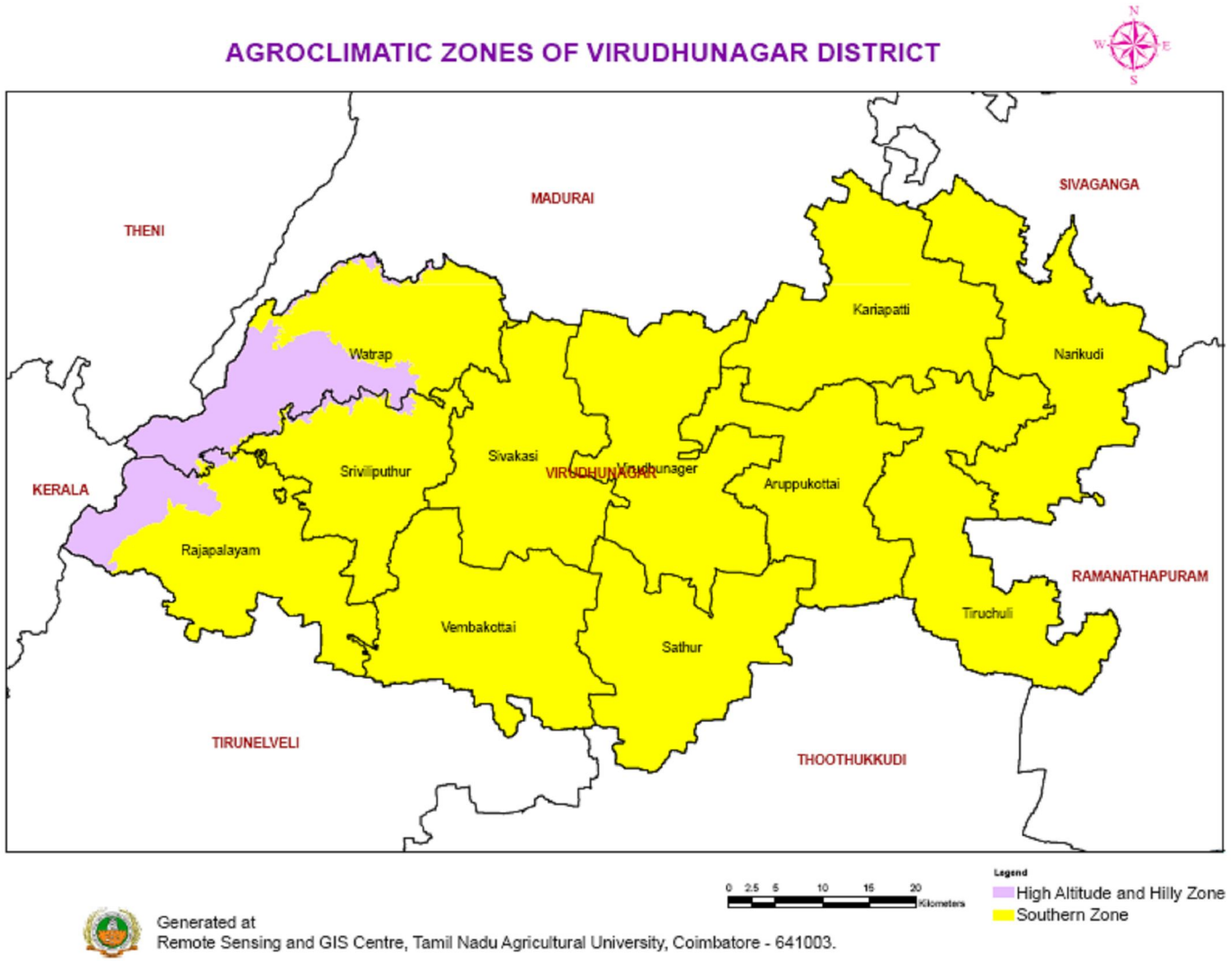
Moderately deep, fine, mixed, Inceptisols	4005.28
Shallow, loamy skeletal, mixed, Inceptisols	3996.00
Very deep, clayey skeletal, kaolinitic, Alfisols	2675.84
Very deep, coarse loamy, mixed, Mollisols	1335.36
Shallow, clayey skeletal, mixed, Inceptisols	981.45
Moderately shallow, loamy skeletal, mixed, Inceptisols	973.50
Deep, coarse loamy, mixed, Mollisols	870.19
Very deep, coarse loamy, mixed, Inceptisols	821.47
Very shallow, loamy, mixed, Entisols	763.92
Deep, clayey skeletal, mixed, Alfisols	762.65
Shallow, clayey, mixed, Inceptisols	537.67
Deep, fine, montmorillonitic, Inceptisols	350.79
Shallow, clayey, mixed, Ultisols	274.52
Deep, contrasting particle size, mixed, Entisols	262.94
Shallow, clayey, mixed, Alfisols	255.92
Shallow, clayey, mixed, Entisols	201.12
Moderately deep, fine loamy, mixed, Alfisols	78.86
Very deep, contrasting particle size, mixed, Inceptisols	66.55
Very deep, sandy, mixed, Entisols	20.21
Very deep, fine, mixed, Mollisols	0.42

Table 2.7 Details of Soil Classification

Sl. No.	Type of Soil	Places in District
1.	Red loam	Rajapalayam,watrap,Srivilliputhur
2.	Lateritic soil	Tiruchuli,Kariapatti
3.	Black soil	Sattur,Srivilliputhur,Aruppukottai, Virudhunagar
4.	Sandy coastal alluvial	Narikudi,Kariaptti

Source: Soil Testing Lab, Agricultural Department, Virudhunagar

The soils of the District are of poor productivity and are mainly black loamy soil (locally known as (*Karisal*). The area comprising of Sattur, Srivilliputtur and Aruppukkottai are mainly covered by black loamy soil. This soil is very much suited for the cultivation of cotton and also for chillies and millets. The district has two naturally district regions viz. (i) Eastern slopes of the Western Ghats in the Srivilliputtur taluk and (ii) the plains of the Sattur, and Aruppukkottai. The eastern slopes of the Western Ghats starts from the northern-most points along the boundary between Virudhunagar & Madurai districts and proceed southwards in an unbroken line as far as the Deviar, with an average elevation of 1500 metres approximately. The highest peak of this mountain range is Pemalai Mottai with a height of 1700 metres above mean sea level. Tea and coffee estates have sprung up on the slopes of the Ghats, where spices are also grown. Teak is also grown in some parts. The plain of Sattur and Aruppukkottai taluks mostly has black cotton soil, locally known as `Karisal'. This soil is mostly used for growing cotton and cultivation of dry crops.


AGROCLIMATIC ZONES OF VIRUDHUNAGAR DISTRICT
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MADURAI
SIVAGANGA
KERALA
VIRUDHUNAGAR
RAMANATHAPURAM
TIRUNELVELI
THOOTHUKKUDI
Watrap
Srivilliputhur
Sivakasi
Virudhunager
Kariapatti
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Kilometers
Legend
High Altitude and Hilly Zone
Southern Zone
Generated at
Remote Sensing and GIS Centre, Tamil Nadu Agricultural University, Coimbatore - 641003.

NORTH EASTERN ZONE

Districts of Thiruvallur, Vellore, Chinglepattu, Thiruvannamalai, Viluppuram, Cuddalore (excluding Chidambaram and Kattumannarkoil taluks), some parts of Perambalur including Ariyalur taluk and also Chennai.

NORTH WESTERN ZONE

Dharmapuri district (excluding hilly areas), Salem, Namakkal district (excluding Tiruchengode taluk) and Perambalur taluk of Perambulur district.

WESTERN ZONE

Erode, Coimbatore, Dindugal, Theni districts, Tiruchengode taluk of Namakkal district, Karur taluk of Karur district and some western part of Madurai district.

CAUVERY DELTA ZONE

Thanjavur, Thiruvarur, Nagapattinam districts and Musiri, Tiruchirapalli, Lalgudi, Thuraiyur and Kulithalai taluks of Tiruchirapalli district, Aranthangi taluk of Pudukottai district and Chidambaram and Kattumannarkoil taluks of Cuddalore district.

SOUTHERN ZONE

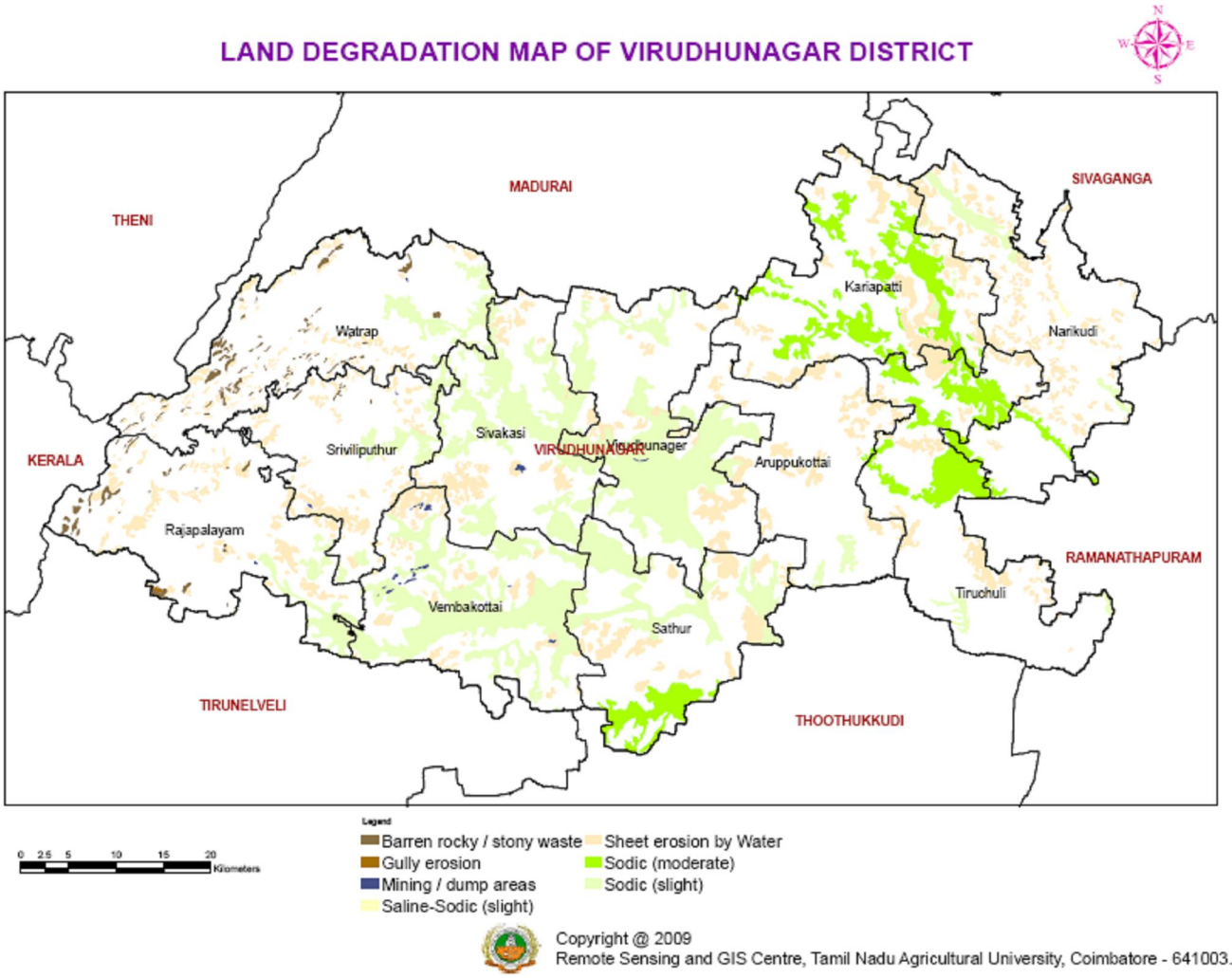
Sivagangai, Ramanathapuram, Virudunagar, Tuticorin and Tirunelveli districts and Natham and Dindigul taluks of Dindigul district, Melur, Tirumangalam, Madurai South and Madurai North taluks of Madurai district and Pudukkottai district excluding Aranthangi taluk.

HIGH RAINFALL ZONE

Kanayakumari district.

HIGH ALTITUDE AND HILLY ZONE

Hilly regions, namely the Nilgiris, Shevroys, Elagiri-Javvadhu, Kollimalai, Patchaimalai, Anamalais, Palanis and Podhigaimalais.


LAND DEGRADATION MAP OF VIRUDHUNAGAR DISTRICT
N
W
E
S
THENI
MADURAI
SIVAGANGA
KERALA
VIRUDHUNAGAR
RAMANATHAPURAM
TIRUNELVELI
THOOTHUKKUDI
Watrap
Kariapatti
Narikudi
Sivakasi
Srivilliputhur
Virudhunager
Aruppukottai
Rajapalayam
Vembakottai
Sathur
Tiruchuli
0 2.5 5 10 15 20
Kilometers
Legend
Barren rocky / stony waste
Gully erosion
Mining / dump areas
Saline-Sodic (slight)
Sheet erosion by Water
Sodic (moderate)
Sodic (slight)
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Remote Sensing and GIS Centre, Tamil Nadu Agricultural University, Coimbatore - 641003.

EXPLANATION OF DIFFERENT LAND DEGRADATION CATEGORIES

Land degradation, in general, implies temporary or permanent recession from a higher to a lower status of productivity through deterioration of physical, chemical and biological aspects. The physical processes, which contribute to land degradation, are mainly water and wind erosion, compaction, crusting and water logging. The chemical processes include salinization, alkalization, acidification, pollution and nutrient depletion. The biological processes, on the other hand are related to the reduction of organic matter content in the soil, degradation of vegetation and impairment of activities of micro-flora and fauna.

Water Erosion

Water erosion is the most widespread form of degradation and occurs widely in all agro-climatic zones. The displacement of soil material by water can result in either loss of top soil or terrain deformation or both. This category includes processes such as splash erosion, sheet erosion, rill and gully erosion. The soil erosion is initiated when raindrops fall onto the bare soil surface. The impact of raindrops breaks up the surface soil aggregates and splashes particles into the air. On sloping land relatively more of the detached material will fall down slope resulting in runoff. This subsequently lead to different types of water erosion depending on the gravity of the problem, susceptibility of land and continuity of the process.

1. Sheet erosion

It is a common problem resulting from loss of topsoil. The loss of topsoil is often preceded by compaction and/or crusting, resulting in a decrease of infiltration capacity of the soil. The soil particles are removed from the whole soil surface on a fairly uniform basis in the form of thin layers. The severity of the problem is often difficult to visualize with naked eyes in the field.

2. Rills

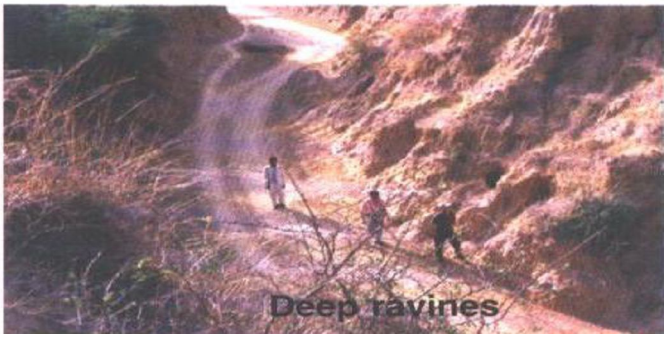
When the surface runoff goes in the form a concentric flow, a tiny water channels are formed in the field. These are small rivulets of such a size that they can be worked over with farm machinery. Rills are generally associated with the cultivated lands and are visible in the ploughed soil after first heavy showers. One important feature of rills is that they do not occur at the same place repeatedly. This is a temporary concentric flow of runoff, which could vanish after ploughing the land.

3. Gullies

Gullies are formed as a result of localized surface run-off affecting the unconsolidated material resulting in the formation of perceptible channels causing undulating terrain. If rills are neglected and the erosion continues for a long time, it develops in to gullies. They are commonly found in sloping lands, developed as a result of concentrated run-off over fairly long time. They are mostly associated with stream courses, sloping grounds with good rainfall regions and foot hill regions. These are the first stage of excessive land dissection followed by their networking which leads to the development of ravenous land.

4. Ravines

The word ravine is usually associated not with an isolated gully but an intricate network of gullies formed generally in deep alluvium and entering a nearby river, flowing much lower than the surrounding tablelands. Ravines are basically extensive systems of gullies developed along river courses. Further classification of this category is possible based on the depth, width, bed slope, frequency and morphology of bed material of the ravines. Based on the depth of the ravines, which has a characteristic manifestation on the satellite image, two subcategories are possible for delineation viz., shallow ravinous and deep ravenous lands.



Wind Erosion

It implies uniform displacement of topsoil by wind action. It can result in loss of topsoil and the deposition of the eroded material elsewhere leads to formation dune complexes. The risk of wind erosion is severe in the arid and semi-arid areas. It includes both the removal and deposition of soil particles by wind action and the abrasive effects of moving particles as they are transported. Not only can the wind remove topsoil from good farmland; it can result in additional damage by burying land, buildings, machinery, etc. with unwanted soil. It occurs when soil is left devoid of vegetation either because of poor rainfall to support any vegetal cover or loss of vegetation due to overgrazing. In the sand deposited areas with rainfall the sand gets stabilized partially of fully depending on vegetal cover it establishes.

During high winds the finer, and commonly more fertile, particles are swept high in the air and are sometimes carried for great distances as dust storms; while coarser particles are rolled or swept along on or very near the soil surface to be piled into depressions. The process is highly dynamic and requires careful evaluation of the site and process.

5. Sheet Erosion

It implies uniform displacement of topsoil by wind action as thin layers / sheets. During wind storms, the dry finer soil particles which could be suspended into air will be transported longer distances, while the heavier particles creeps on the surface and generally will be transported to a shorter distances. It may seriously influence the infrastructures (roads. railway lines. buildings. waterways, etc.). The uneven displacement of soil material by wind action leads to deflation hollows and dunes. The lifted medium to coarse soil particles may reduce the productivity of adjacent fertile land when they are deposited in the form of sand castings.

6. Stabilized Dunes / Partially stabilized Dunes

Depending on the rainfall and protection available from grazing, the bare sand dunes gradually establishes vegetal cover thus making them to get stabilized. In partially stabilized dunes, the erosion / deposition will be still active to some extent. When they established a good vegetal cover either in the form of grasses, shrubs and scrubs, they get stabilized and the erosion / deposition activity will be at minimal. By virtue of vegetal cover and physiography, they are discernible on satellite imagery.

Stabilized sandune

Partially stabilized sanddune

7. Un-stabilized dunes

Due to their inherent vulnerability because of lack of vegetal cover, these are quite active during summer season. The sand starts moving and engulfing the adjoining agricultural lands, engineering structures and demands immediate attention for their stabilization. The unstabilized sand dunes changes their location and shape from season to season and hence they are often called shifting dunes.

Water logging

Water logging is considered as physical deterioration of land. It is the affected by excessive ponding / logging of water for quite some period and affects the productivity of land or reduces the choice of taking crops.

8. Surface Ponding

This category addresses the water logging caused by flooding of river water, submergence by rainwater and human intervention in natural drainage systems that adversely affect the natural drainage, where the water stagnates for quite a long time. Depending the number of crops it affects it has been sub-divided into two severity classes, slight- affecting one crop and moderate – affecting more than one crop. Flooding of paddy fields is not included as it is a unique cultural practice rather than degradation of soil.

Waterlogging may be seasonal or permanent. Seasonally waterlogged areas are those low lying or depression areas that get saturated due to heavy rains and are normal in post-monsoon season. Permanent waterlogged areas are those areas where there is continuous surface ponding of water or soil profile is saturated for one or more seasons.

9. Sub-surface Water logging

If the water table is with in 2 m from the surface it adversely affects crop by virtue of saturating the root zone due to capillary rise. These areas are potential threat to get surface ponded in due course of time, if the water accumulation continues. The sub-surface waterlogged areas can be reclaimed with little ease.

10. Salinization / Alkalization

Salinization can result from improper management of canal irrigation water resulting in the rise of water table and consequent accumulation of salts in the root zone in arid, semi-arid and sub humid (dry) conditions and ingress of sea water in coastal regions and/or use of high-salt containing ground water. They also become saline when soils have developed on salt-containing parent materials or have saline ground water. The soils with EC more than 2ds/m in vertisols and >4ds/m in non-vertisols was considered as saline in the present project. Increase in soil pH beyond 8.5 results in sodicity or alkalization that result in increase of exchangeable sodium percentage in soils (> 15). Based on the type of problem, it has been divided into saline, sodic and salinesodic.

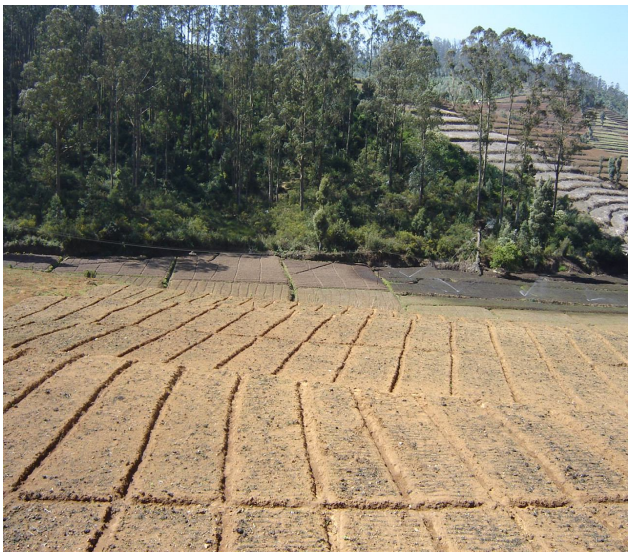
Salinity

Sodic

11. Acidification

pH is one of the most-important soil property that affects the nutrient uptake by plants and there by influencing the crop productivity. Any soil processes or management practices which lead to buildup of hydrogen cations (also called protons) in the soil will result in soil acidification. It also occurs when base cations such as Calcium, Magnesium, Potassium and Sodium are lost from the soil leading to high hydrogen ion concentration. This results in decrease of soil pH below 6.5. It occurs in laterite regions, coastal regions upon drainage or oxidation of pyrite containing soils.

If the pH is 4.5 to 5.5 then they are called *moderate* and if the pH is < 4.5,then they are mapped under *severe* category. The soils respond to lime application, which results in improvement of crop productivity.



Glacial

These are the areas under perpetual snow covered areas confined to Himalayan region. The type of degradation includes frost heaving and snow covered areas.

12. **Frost Heaving**

Frost heaving is defined as a process in glacial and periglacial environment where intense frost action and freezing of water evolves peculiar forms of rock, regolith and soil. The water crystallizes to ice below the surface horizon leading to micro-relief variations on the surface. This process affects the germination and root growth of several crops there by limiting the productivity of land.

13. **Snow covered areas**

The area covered with permanent snow cover will limit any vegetation to come up in these areas leading to a desert like conditions. These areas are generally associated with very high mountainous regions. The glacier regions are also included in this category.

Degradation due to anthropogenic factors

Human economic activities like mining, industries etc., have also contributed to decreased biological productivity, diversity and resilience of the land. Mining, brick kiln activities and industrial effluent affected areas are included under this type of degradation.

14. **Industrial effluent affected areas**

These are areas where the human activity is observed in the form of industry along with other supporting establishments of maintenance. Heavy metallurgical industry, thermal, cement, leather, petrochemical, engineering plants etc., are included under this. These are the lands which have been deteriorated due to large scale industrial effluent discharge. These areas are seen around urban areas and other areas where industrial activity is prominent.

15. **Mining and dump areas**

These are the areas subjected to removal of different earth material (both surfacial and sub-surfacial) by manual and mechanized operations. Large scale quarrying and

mechanizations results in mining and mine dumps. It includes surface rocks and stone quarries, sand and gravel pits, brick kilns, etc. Mine dumps are those areas where waste debris is accumulated after extraction of required minerals. Generally these lands are confined to the surroundings of the mining area.

***16.* Brick kiln areas**

These areas are associated with human activity and are generally seen in the vicinity of urban activity. The areas include brick kiln per se and area dugged for making bricks.

Others

Some of the degraded lands, which could not be included in the above type of land degradation, are included here. They are mass movement/ mass wastage, barren rocky / stony waste areas.

17. **Mass movement/ Mass wastage**

Landslide areas are mostly included under mass movement/ mass wastage type of land degradation. On sloping land when soil is saturated, the weight of the soil may exceed the forces holding the soil in place. Under such circumstances mass movement in the form of landslides or mudflows may occur. On steep slopes this mass movement may be very rapid, involving the movement of large volumes of soil, usually on an isolated event and localized basis. In geologically recent and unstable mountain areas, such as the Himalayas, and areas prone to seismic and volcanic activity, landslides may be natural phenomena. This class also includes the areas with mass wastage in terms of foothill depositions like scree and bazada zones, where the coarse material like sand and pebbles gets deposited because of erosion in upper catchment area. However, their frequency and severity may greatly increase following destruction of the natural vegetative cover by logging and/or clearing for cultivation

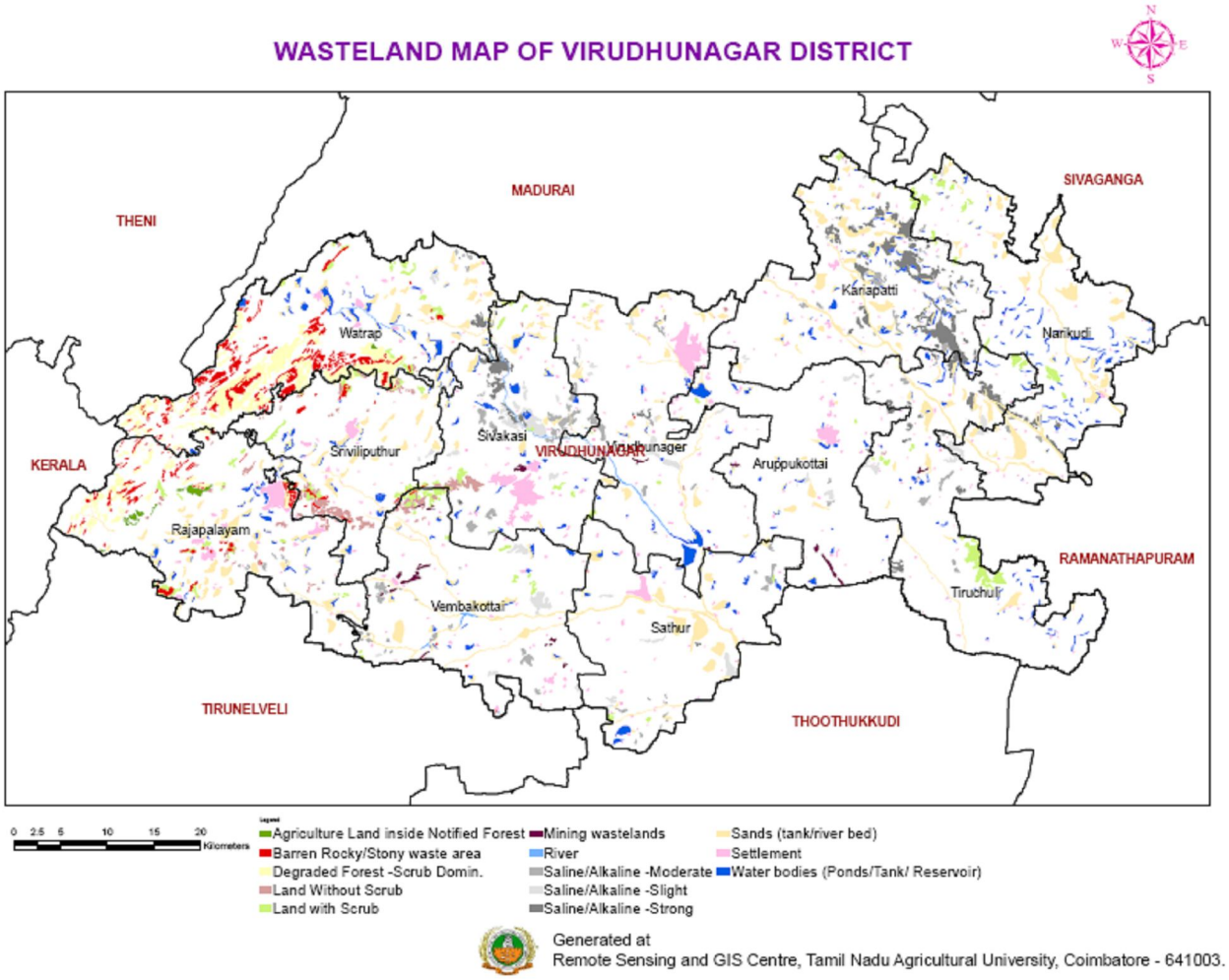
18. **Barren rocky / stony areas**

Barren / rocky / stony areas are the rock exposures of varying lithology often barren and devoid of soil and vegetal cover. They occur in hill forests as openings or as isolated exposures on plateau and plains. These can be easily delineated from other type of degraded land because of their severe nature of degradation and typical spectral signature.

19. Miscellaneous

This includes riverine sand areas, sea ingression areas mainly with sand deposition excluding the sandy areas of desert region.

Sea Ingress areas


WASTELAND MAP OF VIRUDHUNAGAR DISTRICT
N
W
E
S
THENI
MADURAI
SIVAGANGA
KERALA
VIRUDHUNAGAR
RAMANATHAPURAM
TIRUNELVELI
THOOTHUKKUDI
Watrap
Kariapatti
Narikudi
Sivakasi
Srivilliputhur
Virudhunagar
Aruppukottai
Rajapalayam
Vembakottai
Sathur
Tiruchuli
0 2.5 5 10 15 20
Kilometers
Agriculture Land inside Notified Forest
Barren Rocky/Stony waste area
Degraded Forest -Scrub Domin.
Land Without Scrub
Land with Scrub
Mining wastelands
River
Saline/Alkaline -Moderate
Saline/Alkaline -Slight
Saline/Alkaline -Strong
Sands (tank/river bed)
Settlement
Water bodies (Ponds/Tank/ Reservoir)
Generated at
Remote Sensing and GIS Centre, Tamil Nadu Agricultural University, Coimbatore - 641003.

WASTELAND CLASSIFICATION

Culturable Wastelands

Land which is capable or has the potential for the development of vegetative cover and is not being used due to different constraints of varying degrees is termed as culturable wastelands. Culturable wastelands comprise the following categories.

i. **Agricultural Land inside notified forest:** Lands put under cultivation within the restricted forest areas.

ii. ***Degraded forest – Scrub domination:*** Lands as noticed under the Forest Act and those lands with various types of forest cover, in which vegetative cover is less than 20% are classified as degraded forest land. Among the vegetative types scrubs and thorny bushes are dominated species.

iii. ***Degraded land under plantation crops:*** This includes degraded lands containing plantations inside and outside of the notified forest area.

iv. ***Degraded pastures / grazing land***: All those grazing land in non-forest areas, whether or not they are permanent pastures or meadows, which have become degraded due to lack of proper soil conservation and drainage measures fall under this category.

v. ***Gullied / ravenous land***: The gullies are formed as a result of localised surface run off affecting the friable unconsolidated material resulting in the formation of perceptible channels resulting in undulating terrain. The gullies are the first stage of excessive land dissection followed by their networking which leads to the development of ravinous land. The world 'ravine' is usually associated not with an isolated gully but a network of gullies formed generally in deep alluvium and entering nearby river flowing much lower than the surrounding table lands. The ravines then are extensive systems of gullies developed along river courses.

vi. ***Land with or without scrub***: This is the land which is generally prone to degradation and may or may not have scrub over. Such land occupies topographically high locations in the respective systems. This excludes hilly and mountainous terrain.

vii. ***Water-logged and marsh:*** Surface water-logged land is that land where the water is near the surface and water stands for most of the year. Marsh is a land which permanently or periodically inundated by water and is characterised by vegetation which includes grasses and reeds.

viii. ***Salt Affected Lands (Saline / Alkaline):*** The salt affected land is generally characterised as the land that has adverse effects on the growth of most of the plants due to the action or presence of excess soluble salts or excess exchangeable sodium. The saline soils have more of soluble salts with electrical conductivity of more than 4 dSm-1. Alkali land has an exchangeable sodium percentage (ESP) of above 15 which is generally considered as the limit between normal and alkali soils. The predominant salts are carbonates and bicarbonates of sodium.

ix. ***Sands*** **:** Sandy areas are those areas which have stabilized accumulation of sand, in situ or transported, in tank / river bed, coastal, riverine or inland areas**.**

x. **Mining / industrial Waste lands**: These are lands where large-scale mining operations bring about the degradation of land and resultant mine dumps.

Unculturable Wastelands

Lands which cannot be developed for vegetative cover are defined as unculturable wastelands. Unculturable wastelands are divided into:

i. Barren rocky / stony wastes / sheet rock area.
ii. Steep sloping area – Land with very steep slopes (greater than 35 degrees); Prone to erosion and mass wasting (Landslides).

2.2.5 Climate and Rainfall

The normal rainfall of Virudhunagar district is 812 mm mainly contributed by north east monsoon.The monthly average rainfall in the district worked out to 74.58 mm. The months of October, November and December receive a rainfall that is more than the annual average rainfall. Nearly 53 percent of the total rainfall is received during the NEM season. The remaining 40 percent of the rainfall is received during south west and summer season. The details are provided below, in Table 2.8

Table 2.8 Monthly Actual Average Rainfall Data From 2001-2002 and 2005-2006

(in Millimeter)

Period Month	Normal Rainfall	Actual Average Rainfall				
		2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
1. South West Monsoon Period						
June	21.5	11.8	15.9	36.4	14.8	17.8
July	26.8	69.6	4.0	27.7	31.4	39.0
August	53.8	18.5	42.3	64.8	12.7	78.9
September	67.6	112.6	36.9	45.9	174.9	43.7
Total	169.7	212.5	99.1	174.8	233.8	179.4
2. North East Monsoon Period						
October	191.7	196.0	0.2	208.9	191.2	231.3
November	168.3	225.9	140.9	101.9	170.3	213.9
December	65.1	30.6	25.4	29.9	19.7	146.8
Total	425.1	452.5	166.5	340.7	381.2	592.0
3. Winter Period						
January	30.3	0.1	--	14.0	3.3	12.9
February	22.3	52.2	14.5	7.0	70.2	2.0
Total	52.6	52.3	14.5	21.0	73.5	14.9
4. Hot Weather Period						
March	30.5	19.0	46.1	26.3	54.2	179.2
April	74.1	77.3	114.5	48.3	147.8	37.5
May	29.7	66.0	37.9	74.0	71.4	49.9
Total	164.3	162.3	198.5	148.6	273.4	266.6
Grand Total	811.7	879.6	478.6	685.1	961.9	1052.9

Source: Office of the Assistant Director of Statistics, Virudhunagar

The range of maximum and minimum temperature and relative humidity experienced in the district are as follows:

Table 2.9 Average Maximum and Minimum Temperature Experienced during Different Months in Select Stations

(Degrees in Centigrade)

Months	Agri. Research Station, Kovilangulam				Cotton Research Station, Sriviliiputhur			
	Mean Maximum		Mean Minimum		Mean Maximum		Mean Minimum	
	Normal	Actual	Normal	Actual	Normal	Actual	Normal	Actual
June, 2005	37.7	38.5	36.1	36.0	36.1	36.0	24.5	25.2
July	36.8	37.8	35.8	35.1	35.8	35.1	24.2	24.3
August	36.4	38.2	35.8	36.3	35.8	36.3	24.4	24.6
September	35.6	36.6	35.8	35.5	35.8	35.5	24.2	24.2
October	33.0	33.9	33.2	33.5	33.2	33.5	23.4	24.5
November	30.5	30.3	31.1	29.4	31.1	29.4	22.8	23.5
December	29.8	31.4	29.6	30.0	29.6	30.0	21.8	23.1
January 2006	30.4	31.2	30.5	30.0	30.5	30.0	20.1	21.3
February	32.9	33.3	33.3	32.5	33.3	32.5	20.8	20.4
March	36.6	35.5	35.7	33.4	35.7	33.4	22.3	23.4
April	36.8	37.1	37.2	36.3	37.2	36.3	24.4	24.6
May	37.3	37.9	37.5	36.3	37.5	36.3	23.3	24.7

(Source: Agricultural Research Stations, Arupukottai and Srivilliputhur)

In general, the district records higher relative humidity due to the surrounding hill areas. The details are given in Table 2.10 below.

Table 2.10 Humidity Experienced during Different Months in Select Stations

Months	Agri. Research Station, Kovilangulam		Cotton Research Station, Sriviliiputhur	
	8.30hrs	14.30 hrs	8.30hrs	14.30 hrs
June, 2005	78.0	50.0	85.2	56.7
July	77.0	50.0	84.4	57.8
August	74.0	48.0	83.7	54.6
September	79.0	55.0	84.6	57.8
October	87.0	68.0	90.6	63.7
November	84.0	72.0	89.5	76.4
December	92.0	65.0	87.3	73.7

Table 2.10 contd…

Months	Agri. Research Station, Kovilangulam		Cotton Research Station, Sriviliiputhur	
	8.30hrs	14.30 hrs	8.30hrs	14.30 hrs
January, 2006	90.0	52.0	89.9	74.3
February	87.0	41.0	90.5	67.9
March	89.0	47.0	88.5	65.4
April	85.0	41.0	82.9	55.2

Source: Agricultural Research Stations, Arupukottai and Srivilliputhur

2.2.6 Land Use Pattern

The land use statistics with reference to Virudhunagar district are furnished in Table 2.11 below.

Table 2.11. Land Use Pattern in Virudunagar District

Sl. No.	Land Classification	Area in ha	Percent to the Total
1.	Forest	26466	6.24
2.	Uncultivable waste	4525	1.07
3.	Land put to Non-Agricultural use	70286	16.56
4.	Cultivable waste	9663	2.28
5.	Permanent pastures / grazing lands	804	0.19
6.	Land under miscellaneous tree crops	6568	1.55
7.	Current fallow	3063	0.72
8.	Other fallow	160066	37.72
9.	Net area sown	142882	33.67
10.	Area sown more than once	5961	1.40
11.	Gross cropped area	148843	35.08
12.	Geographical areas	424323	100.00

The total geographical area of the district was 4243.23sq.km.in 2005-06. Cropped area accounts for about 35.08 percent of the total area. Forest cover is very minimum accounting for only about 6.24 percent of the land which is far below the state average of 17 percent.

The other fallows accounts for 37 percent and land put to non - agricultural uses is the next highest (17percent) and is higher compared to many other districts in the state primarily because of the higher levels of industrial activity .The major industries found in the district are handloom weaving of textiles, spinning and weaving of textiles in factories, cement, crackers, fireworks, printing and allied industries contribute to the non-agricultural uses of the land. The gross cropped area forms 35 per cent of the total area and the net sown area accounts for 33.67 percent.

2.2.7 Land Holding Pattern of the Farmers (2006)

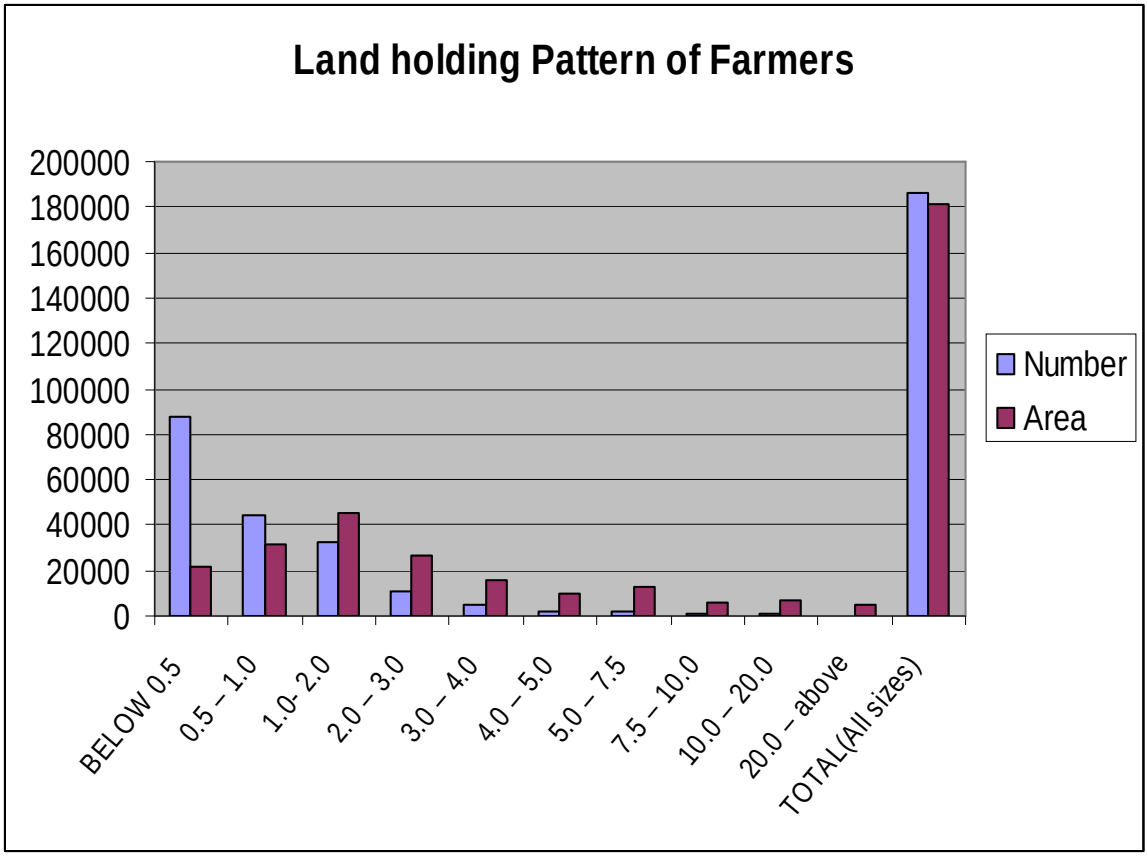
The details of the distribution of land holdings according to land size are depicted in Table 2.12, below.

Table 2.12 Number and Area of Operational Land Holdings

S.No.	Size of Holding	Number	Percent to the total	Area in Ha	Percent to the total
1	Below 0.5	88034	47.20	21524	11.87
2	0.5 – 1.0	44268	23.74	31222	17.21
3	1.0- 2.0	32742	17.56	45751	25.22
4	2.0 – 3.0	11139	5.97	26881	14.82
5	3.0 – 4.0	4537	2.43	15496	8.54
6	4.0 – 5.0	2266	1.21	10086	5.56
7	5.0 – 7.5	2230	1.20	13275	7.32
8	7.5 – 10.0	696	0.37	5905	3.26
9	10.0 – 20.0	520	0.28	6632	3.66
10	20.0 – above	76	0.04	4612	2.54
Total (All sizes)		**186508**	**100.00**	**181384**	**100.00**

Source: Agriculture Census 2000-2001

There are about 1.86 lakh farmers holding a total area of 1.81 lakh hectares. It could be seen from the table that nearly 47.20 percent of the farmers in the district hold only 11.29 per cent of the land and 75 per cent of the farmers hold less than 2 hectares. About 15 per cent of the farmers hold 2 to 4 hectares of land indicating the predominance of small and medium holdings in the district.



2.2.8 Cropping Pattern and Seasons

The cropping scheme adopted in the three environments of tank fed, well irrigated and rainfed areas in Virudhunagar district is as follows.

Table 2.13 Cropping Pattern Followed in Virudhunagar District

Sl. No.	Crop	2003-04		2004-05		2005-06	
		Area (ha)	Percentage	Area (ha)	Percentage	Area (ha)	Percentage
1	Paddy	29713	25.54	30776	25.82	32735	28.48
2	Cholam	11431	9.82	9819	8.24	7115	6.19
3	Cumbu	5585	4.80	6246	5.24	4408	3.84
4	Ragi	414	0.36	385	0.32	204	0.18
5	Korra	12	0.01	21	0.02	12	0.01
6	Varagu	15	0.01	43	0.04	29	0.03
7	Samai	3	0.00	1	0.00	1	0.00
8	Maize	8236	7.08	11186	9.38	13293	11.57
9	Other Cereals	1610	1.38	819	0.69	1953	1.70
10	Redgram	381	0.33	697	0.58	400	0.35
11	Bengalgram	128	0.11	150	0.13	146	0.13
12	Greengram	9917	8.52	11393	9.56	9860	8.58
13	Blackgram	5455	4.69	6996	5.87	6983	6.08
14	Horsegram	329	0.28	93	0.08	92	0.08
15	Other pulses	1177	1.01	1181	0.99	1110	0.97
16	Groundnut	7487	6.43	9383	7.87	7198	6.26
17	Gingelly	3783	3.25	2706	2.27	1863	1.62
18	Sunflower	584	0.50	493	0.41	664	0.58
19	Cotton	17439	14.99	13867	11.63	11536	10.04
20	Sugarcane	2194	1.89	3209	2.69	4211	3.66
21	Topioca	9	0.01	7	0.01	29	0.03
22	Indigo	1747	1.50	658	0.55	550	0.48
23	Banana	510	0.44	791	0.66	973	0.85
24	Coriander	3137	2.70	4715	3.96	5117	4.45
25	Chillies	3595	3.09	2132	1.79	2820	2.45
26	Onion	1179	1.01	1153	0.97	1343	1.17
27	Cardamom	279	0.24	279	0.23	279	0.24
Total		**116349**	**100.00**	**119199**	**100.00**	**114924**	**100.00**

Source: G Return 2005 - 2006

a. Tank-fed Areas : Heavy clay soils

- Rice (Sep.-Jan.) - cotton (Feb.-Aug.)

- Rice (June-Sep.) - chillies (Oct.-Feb.)

b. Well-irrigated Areas : Red, black and Laterite soils

- Chillies / groundnut (July-January-cotton (February.-June)
- Pearl millet (June-August) - chillies (October.-April)

c. Rainfed Areas : Red, black and laterite soils

- Cotton + blackgram / chillies (September-February)
- Sorghum/groundnut /sesame/sunflower (September-January)

d. Cropping Seasons

The normal cropping seasons followed in the district are indicated in the following table.

2.14 Peak Havesting and Sowing Seasons

S.No.	Crop	Peak Sowing season	Peak Harvesting Season
1	Samba / thaladi / pishanam	March April	July Aug
2	Kar / kuruvai / sornavari	Sep Oct	Jan Feb March
3	Cholam (irrigated)	Feb March	Feb March
4	Cholam (un-irrigated)	Sep Oct	Dec Jan
5	Cumbu (irrigated)	Jan February	April May
6	Cumbu (un - irrigated)	Sep October	Jan December
7	Ragi (irrigated)	May June	Dec Jan
8	Ragi (un - irrigated)	Aug Sep Oct	Nov Dec Jan
9	Green gram	Oct Nov	Nov Dec Jan
10	Black gram	Oct Nov	Nov Dec
11	Redgram	June July Aug	Dec Jan Feb
12	Sugarcane	July Aug Sep	May June July Oct Nov
13	Cotton (irrigated)	Aug Sep Oct	Apr May
14	Cotton (un - irrigated)	Feb Mar	--
15	Groundnut(irrigated)	June July Aug	Apr May
16	Groundnut (un - irrigated)	Dec Jan	Sep Oct Nov
17	Gingelly (irrigated)	Sep Oct	Oct Nov Dec
18	Gingelly (un - irrigated)	May June	June July

The area under cultivation accounts for 37 per cent of the total geographic area. Agriculture provides sustenance to 52 per cent of the working population. Productivity of

agriculture is influenced by numerous factors such as soil, climate, irrigation, marketing and credit facilities and agricultural practices and techniques. The soils of the District are of poor productivity and are mainly black loamy soil (locally known as (*Karisal*). Cotton, pulses, oilseeds and millets, which do not require much irrigation, are the main crops grown. Paddy and sugarcane are grown where tank or well irrigation is available.

Blackgram – Raised in both irrigated and rain fed conditions. In rain fed conditions the sowing commences in September and extends up to the middle of October as pure crop and inter crop. In irrigated conditions sowing commences in February.

Greengram - In rain fed conditions the sowing commences in September and extends up to the middle of October as pure crop and inter crop. In irrigated conditions sowing commences in February.

Cowpea – The crop is raised in rain fed and irrigated conditions as pure crop and inter crop. In rain fed conditions the owing takes place in June/July and September/October. In irrigated conditions sowing takes place in February/March.

Lablab – Is mainly cultivated as a rain fed crop during the months of June/July.

Cholam - In rain fed conditions the sowing commences in August/September. In irrigated conditions sowing commences in February/March.

Cumbu - In rain fed conditions it is sown from September to November. In irrigated conditions sowing commences in February/March.

Ragi - The crop is mainly cultivated under rain fed conditions Sowing commences in the month of September and extends to the middle of October.

Small Millets – Thinai, Varagu, Samai and Kuthraivali are cultivated under rain fed conditions alone. Thinai, Samai and Kuthiraivali are sown in the months of September and extends to October. Varagu is sown in the month of July.

Maize - The crop is mainly cultivated under rain fed conditions Sowing commences in the month of September and extends to the middle of October.

Sunflower – The crop is cultivated only under rain fed conditions in the month of November.

Groundnut – It is raised both under rain fed and irrigated conditions. Under rain fed conditions sowing is taken up in the months of July/August and September/October. Under irrigated conditions the sowing is taken up in the months of April/May.

Gingelly - It is raised both under rain fed and irrigated conditions. Under rain fed conditions sowing is taken up in the months of June/July and again February/March. Under irrigated conditions the sowing is taken up in the months of February/March.

Cotton – is the major commercial crop cultivated over an area of 0.49 lakh hectares. The District is a major cotton-producing centre for the State. In rain fed conditions the sowing commences in September/October. In irrigated conditions sowing commences in February/March.

Chilli - is raised under both rain fed and irrigated conditions. Sowing commences in September and continues till November. Over 4500 hectares are under chilli cultivation.

Paddy – is cultivated both under rain fed and irrigated conditions. Rain fed sowing commences during August and extend to September. Under tank fed conditions the crop is sown in the month of September and extends to October.

The Productivity levels of the major crops cultivated in the district are exhibited in Table 2.15, below.

Table 2.15 Average Productivity of Crops (2007-08)

Name of the Crop	Productivity (Kgs/Hec)	
	Irrigated	Rainfed
Rice	5100	-
Millets - (Other than Maize)	1300	-
Maize	5000	3600
Cotton	1700	800
Oilseeds	2500	1400

The above table indicates the average productivity of major crops in. It could be seen from the table that there exists a wide gap in productivity between the rainfed and irrigated crops in the district.

2.2.9 Forest, Fauna and Flora

The forests are found on the eastern slopes of the Western Ghats. Only 6.3percent of the total geographical area is under forests. The type range from west coast tropical evergreen forests, west coast semi evergreen forests, dry teak forests, southern mixed deciduous forests and dry grasslands. According to the *National Forestry Resolution* the optimum area under forests should be 1/3rd of the total geographic area. Given the nature of the topography of the District, the soil profile and the rainfall pattern this is an unattainable target. However measures have been undertaken to increase the area under forest coverage and to ensure among other things adequate pasture for live stock, supply of firewood for domestic consumption and raw material for industries. Social forestry programmes have enlarged their range of activities and the area covered by plantations is 3216 hectares.

Many rare and endemic varieties of flora and fauna are found along the mountain slopes. A wildlife sanctuary spread over 480 sq. kms. was established in 1989 at Shenbagathopu in Srivilliputur *taluk*.. This sanctuary is contiguous with the Periyar tiger reserve on the south-western side and the Megamalai reserve forest on the north-western side. The altitude varies from 100m to 2010 m above the mean sea level. The sanctuary is home to the endangered, arboreal grizzled giant squirrel *Ratufa macrora*. This grayish brown squirrel weighs 1 to 1.8 kg. and is the size of a small cat. It measures about 73.5 cms. from nose to tail with the tail being 36 – 40 cm. long. They construct drays at forked branches where the crowns of neighbouring trees meet. This enables the squirrel to move away from the site by jumping from tree to tree when threatened. The home range of an individual is between 0.197 hectares and 0.611 hectares.

The sanctuary also hosts a variety of birds, mammals, reptiles and butterflies. Resident and migratory elephants are common. Other animals sighted are tiger, leopard, Nilgiri thar, spotted deer, barking deer, sambar, wild boar, porcupine, Nilgiri langur, lion-tailed macaque, common langur, slender loris, bonnet macaque, sloth bear and flying squirrel. Over 100 species of birds have been identified. The rare Great Indian horn bill is also found.

Special steps have been taken to conserve the forest areas in the sanctuary. The annual leases given for the collection of fruit and other minor forest produce has been stopped. Fruit bearing trees and other trees have been planted. This will increase the food sources as well as ensure continuity in the canopy. Soil conservation and water harvesting measures have been undertaken to improve the habitat.

The forests of Alagarkoil valley in Srivilliputur *taluk* and Saduragiri are known for rare medicinal plants. The medicinal value of 275 plants has been recorded and reported. The forests host a rich variety of orchids and ferns.

2.2.10 Irrigation

Source of Irrigation

Rivers, Canals and Waterways

The Arjuna Nadi and Sevalaperi River flowers across Srivilliputtur and Sattur taluks and join Vaipar in Sattur taluk and then enters the Tirunelveli district, east of Sattur. The Mudangiar is a drainage channel in Srivilliputtur taluk and Uppodai is a drainage channel in Sattur taluk. The Vijaya Nadi and Mannarkottai Nadi are the two affluent of the Arjuna Nadi in Sattur taluk. The Gundar originates in the eastern slopes of the Varushanadu and Andipatty ranges above Watrap flows through Aruppukkottai and empties into the Gulf of Mannar. The Kanal Odai is a drainage channel in Aruppukkottai taluk.

River Basins and their Catchment Areas

Catchment Areas:Arjuna, Gundar, Vaigai and Vaippar are the four catchment areas of the river basins in the district. Details of Dams and Reservoirs

There are three reservoirs existing in this district – namely Anaikuttam, Vembakottai andKulllur Sandai reservoir, which gets water from Arjuna and Vaippar There are 156 Tanks existing in this district. Out of 156 Tanks, 76 Tanks are rainfed tanks. Total area of tanks spread in the district is 10068.85 Ha. Area of rainfed tanks and panchayat tanks are 5981.20 Ha. and 4087.65 Ha. respectively in the district.

Irrigation by Different Sources

The main sources of irrigation in Virudhunagar district are Tanks and Wells. Canal system is not used for irrigation in the district. The total area irrigated by tanks, wells and other sources is 73,284 hectares. The gross area irrigated by tanks and wells are 28,292 hectares, 31,841 hectares respectively. On an average about 50.81percent of the total cropped area is irrigated. The block wise details were not available in the district.

Table 2.16 Sources of Irrigation – Taluk-wise Year 2005-2006

(Numbers)

Sl. No.	Name of the Taluk	Canal No.	Length (km.)	Wells used for irrigation purpose only	Tube Wells	Wells used for Domestic purpose only	Reservoirs	Tanks
1.	Rajapalayam	--	--	8785	--	1511	--	114
2.	Srivilliputhur	--	--	9198	--	3201	Kovilar Periyar	155
3.	Sivakasi	--	--	5713	--	1296	Vembakottai	57
4.	Sattur	--	--	3298	--	1258	Golvarpatti	49
5.	Virudhunagar	--	--	2677	--	1333	Anaikuttam	39
6.	Aruppukottai	--	--	2529	--	550	Kulloorsandai	103
7.	Kariapatti	--	--	2077	--	567	--	151
8.	Thiruchuli	--	--	1810	--	366	--	329
	Total	**--**	**--**	**36087**	**--**	**10082**	**6**	**997**

Source " G" Return 2005 – 2006

It could be seen from the above table that the open wells constituted the major source of irrigation (56 Percent) followed by the large tanks (26 Percent) and small tanks (8 Percent).

The details of the gross area irrigated, net area irrigated and the irrigation intensity in Virudhunagar District are furnished below in Table 2.17.

Table 2.17 Total Area Irrigated

(hectares)

Particulars	Gross area irrigated	Percentage of Gross area irrigated to Gross area sown	Net area irrigated (excl.suppl. wells)	Percentage of Net area irrigated to Net area sown	Area irrigated more than once	Irrigation Intensity
Virudhunagar	59909	40.3	55365	38.8	4544	1.1
State	3396700	56.3	2919545	55.7	477155	1.2

The source-wise net area irrigated in the district is furnished below, in Table. 2.18.

Table 2.18 Source-wise Net Area Irrigated
(Hectares)

Sl.No.	Source	2005-06
1	Canal	--
2	Tank (Small)	9198
3	Tank (Large)	17225
4	Wells	33765
5	Others, if any	--
	Total	**60188**

The most striking feature of this drought prone district is the absence of dependable irrigation sources such as perennial rivers. Though 33 percent of the cultivated area is classified as irrigated area, assured irrigation is available only for 57percent through the wells, the remaining area being irrigated by rainfed tanks. Two reservoirs, namely Periyar and Kovilar at Pilavakkal in Watrap irrigate about 3800 hectares through 40 tanks. There are also irrigation reservoirs like Anaikootam, Kullursandai, Vembakottai and Golwarpatti. The details of Reservoir systems in the district are :

- Pilavukkal Reservoir System, Anaikuttam Reservoir Scheme, Vembakottai Reservoir.
- Kullursandai Reservoir, Golwarpatti Reservoir, Chennampatti Anicut .
- Athikulam Anicut Scheme, Ambalathadi Anicut Scheme, Irukkankudi Reservoir Project.
- Nagariar Reservoir near Sasthakoil, Nilayur Extension Canal

There are nearly forty six thousand wells and ten thousand bore wells in Virudhunagar district. There are about six reservoirs in the district. There are totally 997 tanks in the district owned by the PWD and the Panchayats. Largest number (329) of tanks is located in the Trichuli taluk followed by the Srivilliputhur taluk. (Table. 2.19).

Table 2.19 Details of Dams, Tanks, Wells and Bore-wells

Year 2005-2006

Sl. No	Name of the Taluk	Dams					Tanks					No. of wells in use	No.of Bore wells	
		Catch-ment area	Water Spread area	Height	Capa-city	Length of Canals	Catch-ment area	Water Spread area	Height	Capa-city	Length of Canals		Do-mestic	Other wells
1.	Rajapalayam	--	--	--	--	-	-	-	-	-	-	-	1105	406
2.	Srivilliputhur	Periyar	--	14.50	192	--		6815	-	-	-	8785	194	3007
		Kovilar	--	13.00	133	--		7491				9198		
3.	Sivakasi	Vembakottai	--	7.00	--	--	-	3125	-	-	-	5713	348	948
4.	Sattur	Kolvarpatti	--	5.50	--	--	-	2497	-	-	-	3298	240	1018
5.	Virudhunagar	Anaikuttam	--	--	--	--	-	1309	-	-	-	2677	296	1037
6.	Kariapatti	--	--	--	--	--	-	3541	-	-	-	2529	90	477
7.	Aruppukottai	Kulloorsandai	--	2.45	--	--	-	4394	-	-	-	1810	--	550
8.	Thiruchuli	--	--	--	--	--	-	7475	-	-	-	2077	--	366

Source: 'G" return 2005-2006

2.2.11 Animal Husbandry

The baseline information of Livestock / poultry sector of the district is provided below.

(a) Population (2004)

Livestock	
Dairy Cattle	168491
Buffalo	11505
Sheep	389421
Goat	363313
Poultry	608030
Pigs	7163
Dogs	21210

(b) Average Production of Livestock Commodities (2004-05 to 2006-07)

Livestock	
Cow milk (in '000 tonnes)	132.25
Buffalo milk (in '000 tonnes)	16.66
Improved egg (in lakh nos.)	128.18
Desi egg (in lakh nos.)	184.35
Mutton (in tonnes)	89.05
Chevon (in tonnes)	322.76
Poultry meat (in tonnes)	174.33

(c) Livestock Population Growth Rates (1997 to 2004) – Annual Compound growth rate in percent)

Cattle	12.35
Buffalo	1.41
Sheep	9.25
Goat	8.05
Poultry	9.08
Draught animal	1.024
Female Exotic cattle	21.319
Female Indigenous Cattle	0.651
She Buffaloes	-0.419

(d) Growth Rate of Livestock Productivity (per Animal / Bird) (1998-1999 to 2006 – 2007)

1.	Indigenous Cow Milk	-0.52
2.	Cross bred cow milk	5.97
3.	Buffalo Milk	-1.18
4.	Desi Egg	20.98
5.	Improved Egg	21.04

(e) Green Fodder Availability (MT per year)

Type of fodder	Demand (Million tonnes/ year)	Supply (Million tonnes/ year)	Deficit (Million tonnes/ year)	Percent Deficit
Green fodder	2.6005	0.3444	2.2561	86.80
Dry fodder	0.998	0.592	0.406	40.70

No. of Breedable Bovine Population (2004) : 130300

No. of AI done (AI coverage) (2007) : 94,836 (from April'07 to Feb'08)

This District offers considerable scope for development of sheep rearing. This district has a sizeable sheep population of 165416 but they are often of low genetic potential. Sheep population is rich in Aruppukottai, Sattur and Srivilliputur Taluks. Hot climate, high mortality rate of birds high cost of feed etc. are some of the significant factors that arrest the development of poultry in this district.

As per 2001 census ,there are 5 veterinary hospitals, 28 veterinary dispensaries, 70 Govt. veterinary sub-centres, 70 visiting centres and 11 mobile veterinary dispensaries render veterinary service to the livestock**.** An Intensive Cattle Development Project with 39 artificial insemination centres was launched to improve the quality of the cattle. There are two milk chilling plants one at Virudhunagar and another at Srivilliputur. The details on the veterinary institutions and the animals treated are furnished below in the Table 2.20.

Table 2.20 Veterinary Institutions and Animals Treated Block-wise

Year: 2005-2006

Sl. No	Name of the Block	Veterinary Institutions				Sub Centres	Units Mobile Units	Cast Ration Perfor-med	Animals Treated
		Poly Clinic	Hos-pitals	Dispen-saries	Clinical centres				
1.	Virudhunagar	--	1	1	--	8	--	887	
2	Aruppukottai	--	1	3	--	8	--	1774	37704
3	Kariapatti	--	--	3	--	5	--	2078	31660
4.	Thiruchuli	--	--	3	--	3	--	1952	27767
5.	Narikudi	--	--	2	--	5	--	1778	20653
6.	Rajapalayam	--	1	4	--	8	--	2657	40730
7.	Srivilliputhur	--	--	3	--	5	--	3012	37738
8.	Watrap	--	--	4	--	4	--	2526	41017
9.	Sivakasi	--	1	3	--	6	--	2287	33642
10.	Vembakottai	--	--	3	--	6	--	1800	28798
11.	Sattur	--	1	2	--	5	--	2112	29119
Total		**--**	**5**	**31**	**--**	**63**	**--**	**22863**	**339123**

2.2.10 Fisheries

As Virudhunagar is land-locked with no coastline, fishing is restricted to inland water sources. Fish farms have been established at Periyar and Vembakottai dams. Around 8.09 lakh fingerlings were reared in these farms. The fish catch in these reservoirs during 1999-2000 was 3558 tonnes. Fish ponds have been developed at the Pilavakkal dam under the drought area development programme.

Table 2.21 Fisheries Production in Virudhanagar District during 2005-2006

Name and address of Fishing centres	Inland Fish Catch (Tonne)	Value	Number of Fisherman engaged
Government			
1. Periyar	5.513	1.20	20
2. Kovilar	1.841	0.36	
3. Vembakottai	13.286	2.81	26
4. Kulloor Sandai	10.623	2.00	50
Sub Total	**31.263**	**6.37**	**96**
Private (Community ponds/ irrigation tanks)	5018.737	1003.80	419
Grand Total	**5050.00**	**1016.54**	**515**

The other baseline details with reference to fisheries sector in Virudhunagar district are given below.

- Government reservoirs - 8 nos (2280 ha) & Panchayat tanks of 974 (4794 ha) & Municipalities having 2 nos (27 ha) and HR & CE tanks 16 nos (19 ha)
- River stretch - 517.87 kms - providing a livelihood for local fisher folk
- Inland fish production - 387 tonnes, (reservoir production 60.581 tonnes & irrigation tanks production 3026.419 tonnes)
- 5 fishermen cooperative societies (Members 1644)
- Fingerling production - 7.5 lakhs / year against total requirement of 63.0 lakhs fingerlings
- One seed rearing centre at Pilavakkal Dam (4004 m2)
- Four major fish whole sale markets - Virudhunagar, Sivakasi, Srivilliputhur & Rajapalayam
- Great scope for development of Inland fish farming
- Indian major carps along with *Barbus sp* and Tilapia - major species landed in Inland water bodies.
- 15 small private farmers -doing fish culture activities
- Vast gap between seed supply and demand.

2.2.11 Inputs

The Current fertilizer use level in the major crops in Virudhunagar district are detailed below in Table 2.22.

Table 2.22 Consumption of Major Nutrients (2007)

Sl. No.	Name of the Crop	Area in (Ha.)	Total Consumption (MT)			Total (MT)
			N	P	K	
1.	Paddy	26046	5449	2013	2630	10092
2.	Millet	36244	924	187	170	1281
3.	Pulses	24285	380	189	-	569
4.	Cotton	11579	510	170	131	811
5.	Sugarcane	2938	318	109	99	526
6.	Oilseeds	12043	550	210	147	907
	Others	820	600	90	191	881
Total			**8731**	**2968**	**3368**	**15067**

It could be seen from the table that nearly 60 percent of the total fertilizer use was contributed by Nitrogen followed by Potash (22 percent) and Phosphorus (19 percent). Totally fifteen thousand tonnes was consumed in the district during the year 2007. The year wise fertilizer consumption details are also provided below in Table 2.23.

Table 2.23 Year wise Fertilizer Consumption in Virudhunagar District

Year	Consumption of Nutrients			Total (MT)
	N	P	K	
2005-06	9755	3457	4544	17756
2006-07	9545.97	3195.98	3279.22	16021.17

Source: Joint Director of Agriculture, Virudhunagar.

The above table presents the consumption of fertilizers. There is a slight decrease in the usage compared to 2005.

The Year-wise, Pesticides use in Virudhunagar District are as follows

Year	Utilization of Pesticide	
	Dust (mt)	Liquid (lt)
2005-06	6.0068	90069
2006-07	6.995	38550

The reduction in use of liquid form and the increase in use of dust form of pesticides are observed in the recent times.

2.2.12 Agricultural Institutions

The following Research Organizations are functioning in this district

a. Cotton Research Station, Srivilliputur

Engaged in Research on summer Irrigated cotton, Implements the All India \ Co-ordinated Cotton Improvement Project

b. Palmyrah Research Centre, Near Srivilliputur

Conducts Research on the utilization of the whole palm tree right from the palm crown to its roots.

c. Regional Research Station, Aruppukottai

The centre caters to the needs of the dry land farmers and operates a Research Centre for Arid-zone fruit research. It conducts studies on various fruit crops for assessing their suitability for growing under rainfed conditions, apart from its other objects. It implements the All India Co-ordinated Fruit Improvement Project and certain other schemes started for the welfare of the Dry Land Farmers especially for Adi Dravidas.

d. Horticulture : Orchard-cum-Nursery

The Department of Horticulture with its headquarters at Srivilliputur is running an Orchard-cum-Nursery for the production of quality seedlings of Mango, Guava, Citrus, Sapota etc.

e. State Seed Farm at Devadanam

This farm produces and distributes quality seeds of paddy, millets, pulses, oilseeds and vegetables. The farm also serves as a model farm on farm maintenance and scientific methods of cultivation.

f. Poultry Research and Development Centre, Rajapalayam

The centre conducts systematic survey of the poultry industry and conducts investigation of all problems affecting the poultry industry. It tenders technical help in the establishment of poultry units and supply project profiles.

2.2.13 Industries

The establishment of textile mills, cement factories and a number of industries in the small and medium sectors coupled with the encouragement given by the state Government in the form of incentives and setting up of industrial centres has accelerated the rate of industrialization in the District.

Cotton is a major commercial crop of the District and the cotton industry therefore occupies an important place in the economy. Rajapalayam is the important centre for spinning mills and ginning factories. Surgical cotton and bandage cloth are manufactured here. Textile mills in the district produce a variety of cotton yarn.

As the District has deposits of limestone and gypsum, the cement industry has gained a strong foothold. *Tamil Nadu Cements* – a Public Sector undertaking at Alangulam and *Madras Cements* – a Private Sector undertaking at Thulukkanpatti are two large cement producing units. Tamil Nadu Cements has an annual production capacity of 4 lakh tonnes of Portland cement, while Madras Cements has an annual capacity of 4.15 lakh tonnes.

Tamil Nadu Asbestos is another Public Sector unit in the District producing asbestos cement sheets.

Sivakasi and Sattur are famous for the match industry. There are over 4500 match units. Crackers and fireworks is another important industry with about 400 units in the District. Explosives for blasting are also manufactured here. Over 70 percent of the total production of matches and fireworks in India is manufactured in Virudhunagar District. A large percentage of crackers are exported.

The printing industry was originally established to supply labels for the match and firework industries. Soon the industry developed and diversified into other areas of printing like books, posters, greeting cards and diaries. Sivakasi now offers state of the art, world class printing facilities.

Sundaram Fasteners and Brakes India Ltd. private sector enterprises of the TVS group are located at Aviyur and Kanjanaiyakampatti in Kariapatti taluk. The former manufactures high density bolts and nuts while, the latter manufactures automobile brakes. Cottage and village industries are dispersed throughout the rural areas. Some common cottage industries are: making of boxes and other articles from Palmyra leaves, metal

artifacts fashioned from copper and brass, and aluminium vessel manufacture for domestic use. Gem cutting has been introduced to provide employment for women.

2.2.14 Roads, Railways, Education

Infrastructure :

Roads

The district is well served by road networks. Three National Highways run through the district. NH 208 - Thenkasi, Rajapalayam, Sriviliputur, Tirumangalam – 49.8kms. NH 45B - Trichy, Viralimalai, Thuvarankuruchi, Madurai, Aruppukkottai, Tuticorin–32.6 km. - 12 - NH 7 - Madurai to Kanyakumari – 50.40. In addition to the National highways there are 162.13 km. of State Highways, 122.20 kms of major District Roads and 1378.48 kms of other District roads. There are 256 government owned and 175 private stage carriers operating in the district. Buses serve about 4 lakhs people and cover a distance of 61,523 kms per day. Other towns and most of the villages are connected by motorable roads.

Table 2.24 Length of Roads (in Kilometres)

Item	Cement concrete	Surfaced Roads			Unsur-faced Roads	Grand Total
		Bitu-minous Mecadam	Water bound mecadam	Total		
NH-7, NH 45B, NH 208	--	147.600	--	147.600	--	147.600
State Highways	--	163.763	--	163.763	--	163.763
Municipal Roads	175.393	266.237	19.470	461.100	20.348	481.448
Major District Roads	--	122.200	--	122.200	--	122.200
Other District Roads	0.120	1382.855	--	1382.975	1.600	1384.575
Panchayat Union Road	0.500	950.220	246.630	1197.350	625.560	1817.910
Town Panchayat Roads	48.753	45.785	14.045	108.583	49.304	157.887

2.9 Railways

Both Broad Gauge and Metre Gauge sections of the Southern Railway serve Virudhunagar. The newly laid Broad Gauge line links Tuticorin with Chennai. In the District, the Broad Gauge route line covers 43.16 km. and the Meter Gauge 125.17 km. At present, gauge conversion takes place from Virudhunagar to Rajapalayam and once this project is over, the entire district will be ready for Broad gauge railway transportation.

2.10 Education

According to the 2001 census the percentage of literate population in the District is 62.91. The percentage of male literacy is 75.67 percent and female literacy is 50.17 percent.

Table 2.25 Educational Infrastructure Available in Virudhunagar District

Category	No. of Institutions
1. Primary Schools	1426
2. Middle Schools	171
3. High Schools	76
4. Higher Secondary Schools	107
5. Colleges for Arts & Science	12
6. Teacher Training Institutions	4
7. Engineering Colleges	5
8. Polytechnics	8
9.No.of Industrial Training Institute	15

2.2.15. Minerals

Virudhunagar District is comprised of Archaean Charnockite, unclassified genesis and Pleistocene Laterite.

- Archaean Charnockite rock types are available in Rajapalayam, Srivilliputhur, Sivakasi and Sattur Taluks.
- Unclassified Genisis formations are available in Sattur, Sivakasi and Aruppukottai Taluks.
- Laterites are available in Tiruchuli, Kariapatti, Sattur and Srivilliputur Taluks.
- Western Ghats are represented in Rajapalayam and Srivilliputhur Taluks and other parts of the district is plain. The district is drained by Arjuna river, Vaippar river, Kowsika river and Gundar.

Major mineral like Limestone and Limekankar .Minor minerals like Multi-coloured Granite, Charnockite, unclassified gneissic rocks, Pleistocene Laterite, Sand and Brick earth.

Table 2.26 Major Minerals in the District

Particulars	Taluk	Villages	Usage
Major Mineral			
Limestone	Rajapalayam	Vadakarai, Cholapuram.	Two major cement plants located in this district utilising the Limestone deposits are Tamil Nadu Cements, a Government of Tamil Nadu undertaking is located in Alangulam of Sivakasi Taluk and Private sector cement plant, Madras cements at Tulukkapatti of Virudhunagar taluk.
	Sivakasi	Lakshmipuram, Edirkottai, Pernaickanpatti,Alangulam, Duraisamypuram, Vetrilaioorani.	
	Sattur	Subramaniapuram, Kanjampatti, Papakudi.	
	Virudhunagar	K.Puthur, Virudhunagar.	
Limekankar	Arupukkottai	Kurundamadam, Palavanatham. Maravarperungudi.	
	Tiruchuli	Kambikudi, Pannaimoondradaippu.	
	Kariappatti	Ayan Reddiappati	
Minor Minerals			
Multi-coloured Granite	Sivakasi	Thiruthangal, Keelathiruthangal, Panayadipatti, Sevalur, Anaiyur.	Exporting to other countries.
Charnockite and unclassified Gneissic rocks	Rajapalayam	Vadakarai, Muthusamypuram, Sethur, M.Duraisamypuram, Ayankollankondan.	Used in construction of road making and building construction purposes.
	Srivilliputhur	Kunnoor, kottaiyur, Movaraivendran, Villuppanur, S. Kodikulam,Venkateswarapuram, Idayankulam, Singammalpuram.	
	Sivakasi	Panayadipatti, Duraisamypuram, Appanaickenpatti, Nathikudi, Vijarangapuram, Kangaraseval. Naranapuram,Sevalur,Ethirkottai.	
	Sattur	Sippiparai, Kosugundu, Banduvarpatti, Gankarakottai, Chinnakamanpatti, O.Mettupatti, Nallamanaickenpatti.	
	Virudhunagar	Pullalakottai, Mannarkottai, Semgundrapuram, Kottaiyur, Kottanatham, Thammanaickenpatti, Endapuli.	
	Aruppukottai	Chettikurichy, Koothiparai, Soolakarai, Aladipatti, Sundakottai, Puliooran, Sawaspuram, Malaipatti.	
	Kariapatti	Kurandi, Jogilpatti, Thonukal, T.Kadambankulam, Alaginallur, Vakkanankundu.	
Laterite and Gravel	Kariapttai, Tiruchuli		

Besides limestone, there is a small occurrence of gypsum deposit in Thenkarai and Korukkampatti village of Rajapalayam and Sattur Taluks.

2.2.16 Trade and Commerce

Virudhunagar is a traders' town. It has been involved in the marketing and distribution of commodities since British times and has a well developed network for purchase of goods and commodities. Virudhunagar, Rajapalayam, Sattur, Watrap, Aruppukkottai, and Kamudi are important centres for wholesale and retail trade. Cotton, groundnut, chillies, and spices are the main agricultural goods of trade. Matches, crackers, cement, and textiles are marketed both within and outside the State. Two warehouses at Virudhunagar and Rajapalayam offer facilities for storage of food grains, spices, pulses, chillies, jaggery and cotton.

2.3. Vision and Strategy

a. Vision

To uplift the level of living of the farming community through the enhancement of family income by crop diversification, productivity increase, farming systems approach and application of science – based latest agricultural technologies.

b. Strategy

i) Increased crop productivity

ii) Enterprises mix and systems approach

iii) Crop Diversification

iv) Farm Mechanisation

v) Soil and water conservation and Water harvesting

vi) Irrigation systems development

vii) Animal Husbandry and Fisheries Development

CHAPTER – III

SWOT ANALYSIS OF THE DISTRICT

3.1 Introduction

Having pictured the natural resource - bases and their potentials in the earlier chapter, an attempt has been made to identifying the various potentials for development of agriculture and allied sectors in this district through SWOT analysis, which is a planning tool normally employed by the development managers. The acronym SWOT indicates the following.

S	=	Strengths
W	=	Weaknesses
O	=	Opportunities and
T	=	Threats

3.2 SWOT Analysis of the District

The strengths, weaknesses opportunities and threats identified from the perspective of agricultural development in the district are listed below.

Strengths

- The district is well connected with good roads. NH 7, NH 208 and NH 45B pass through the district and all the villages in the district have well tar topped roads.
- The foothills have rich loamy soil with good vegetation cover. The plains with black cotton soil is suitable for cultivating cotton
- The district possesses wide range of climatic conditions favourable for cultivation of different crops.
- Rice is the predominant crop grown in this division during winter. There is a great potential to rice bran oil.
- Cotton, pulses, oilseeds and millets, which do not require much irrigation, are the main crops grown. Paddy and sugarcane are grown where tank or well irrigation is available.
- Two reservoirs, namely Periyar and Kovilar at Pilavakkal in Watrap irrigate about 3800 hectares through 40 tanks.

- Cotton is a major commercial crop of the District and the cotton industry therefore occupies an important place in the economy.
- The prevailing climate and soil condition in Virudhunagar district especially in the western ghats area is highly favourable for many varieties of vegetable crop especially Onion, Tomato, Chillies, Brinjal, Coriander etc. The normal vegetable cultivation area of Virudhunagar district is around 6500 ha.
- Availability and cultivation of medicinal plants such as Senna in a large area.
- Virudhunagar is a traders' town. It has been involved in the marketing and distribution of commodities since British times and has a well developed network for purchase of goods and commodities. Virudhunagar, Rajapalayam, Sattur, Watrap, Aruppukkottai and Kamudi are important centres for wholesale and retail trade. Cotton, groundnut, chillies and spices are the main agricultural goods of trade.
- Two warehouses at Virudhunagar and Rajapalayam offer facilities for storage of food grains, spices, pulses, chillies, jaggery and cotton.
- The district has high sheep (3.89 lakhs) and goat (3.63 lakhs) population
- Government reservoirs - 8 nos (2280 ha) & Panchayat tanks of 974 (4794 ha) and Municipalities having 2 nos (27 ha) and HR and CE tanks 16 nos (19 ha) River stretch - 517.87 kms - providing a livelihood for local fisher folk and Inland fish production - 387 tonnes, (reservoir production 60.581 tonnes and irrigation tanks production 3026.419 tonnes) 5 fishermen cooperative societies
- The farmers in the district are predominantly small and have a strong positive attitude in implementation of the government schemes as experienced.
- Sivakasi is the hub of industrial activities for the whole of southern India specially in crackers and printing press
- Presence of cement factories in Alangulam and Thulukkalathi are the added industrial strength of the district.

Weaknesses

- Soil is one of the major inputs for dry land agriculture. Lack of knowledge in keeping the soil health is the major constraint.
- Periodical non-application of organic manures is another constraint. This is due to the reduced population of livestock in villages because of their maintenance cost.
- Leaving the land barren will make the land susceptible for soil erosion and ultimately the soil will be unsuitable for cultivation. This is mainly due to urbanization, industrialization, increased cost of cultivation and increased demand for agricultural labour.

- Climate change is a serious public concern. Industrial pollution and rapid deforestation are the prime factors leading to climate change. This leads to changes in rainfall pattern and distribution and ultimately on the crop productivity.
- Low and skewed distribution in rainfall pattern especially during the North East monsoon period and it results in water stress especially for winter rain fed summer irrigated crops
- Non-availability of adequate farm labourers for timely farm operations in due to mushrooming of small scale industries like matches, crackers and Fires.
- Because of the increased demand of agricultural labour, the farmers themselves are leaving the lands fallow and seeking jobs in the nearby industries like matches and fire-works.
- Lack of plant protection knowledge in the usage of pesticides in crops viz., cotton, chillies and paddy.
- Lack of motivation and technical know how in the adoption of latest technologies in crop production as well as protection.
- Non-availability of quality seeds especially in cotton
- Lack of net work for getting remunerative prices for farm produce like onion, maize and rice
- Lack of storage facilities for the perishable commodities like guava, onion, tomato, mango and lime which are produced abundance in this region.
- Lack of technical know how in production and processing of export oriented horticulture produce and value added products. High price fluctuations for the agricultural commodities.
- In Virudhunagar district vast area is available barren for want of irrigation facilities many of the potential lands are under rain fed condition with low value crops.
- The Vegetable growing farmers of this district are still practicing the low value and less efficient plant protection equipments.
- The cost of farm machines like planters harvester is very high and it is not affordable by a small farmer.
- Irrigated area under canal system from the reservoirs / dams are very meager.
- Majority of the farmers are marginal and small and their resource – base is also poor.

Opportunities

- Soil erosion should be arrested and rain water must be conserved by adopting suitable management technologies.
- Soil health care by application of organic manures, bio-fertilizers and soil amendments
- Encouraging the farmers to raise the green manure crops like Daincha and sunnhemp in the cropping system will improve the soil condition
- Establishment of rice bran oil mills and Cotton seed oil extraction industries will greatly enhance the economic status in this region besides filling the oil gap of the nation.
- Development and introduction of alkaline tolerant crop varieties to improve production and productivity.
- Adoption of low and no cost technologies and inter cropping of pulses for getting higher net income in rain fed areas.
- Senna is grown in an area of 430 Ha and there is a good potential to improve the quality and export by following GAP
- Mechanised farming may be encouraged in a cooperative manner in labour scarce areas. Tree cropping and growing medicinal plants in marginal lands and growing fruit trees in medium fertile soils
- Mushroom cultivation and goat rearing for marginal farmers and land less people.
- Exploration of short duration drought evading crops to tide over rainfall aberrations Adopting suitable contingent cropping system for aberrant weather situations
- Contingency plans like farm pond, formation of broad bed, contour bed and other allied water harvesting techniques for effective utilization of available water.
- Imparting plant protection knowledge for effective and timely use of pesticides.
- Motivating the farmers to adopt latest technologies on production and protection Introduction of seed village and motivating the farmers to grow their own seed.
- Formation of registered cooperative societies in marketing net work (as in Dairy) to fetch higher remunerative prices.
- Establishment of cold storage units for perishable commodities.
- In general there exist scope for increasing productivity and hence production of major crops namely paddy, jowar, bazra, cotton etc., through the application of latest agricultural production technologies.
- There exists vast export potentials for chilli and coriander based processed cutlery departments as well as for raw chillies.

- Presence of cotton ginning and spinning mills indicates the scope for increasing cotton yield and production and for contract farming.
- The Mango variety locally called as "sapattai" is tan excellent taste. Hence, there is scope for increasing productivity, area and production of mango particularly in the western packet of the district.
- Mango and pineapple cultivation in western parts of the district give way for the growth for mango /pineapple fruit based processing industry in that part of the district.
- Maize and sunflower cultivation in the recent years is fast picking up in this district and further support and encouragement would boost the production of the same in the years to come. More over this also indicates the scope for starting maize based feed mixing unit in this district.
- Predominants of dryland agriculture indicates the opportunities for developing agro forestry.
- Cotton research station at Srivilliputhur develop new varieties and technologies constantly and the same reach out to the farmers of the district.

Threats

- The poor economic condition of the dry land farmers
- Profitability of agriculture in comparison to the other livelihood activities
- Conversion of Agricultural land for residential and industrial purpose.
- Increased area under barren and fallow lands due to high cost of cultivation
- Increased demand of agricultural labour.
- Acute fodder shortage (deficit 86.80 per cent)
- High level of industrialisation like textile mills, cement factories, matches printing and fire-works.

3.3 SWOT Analysis - Dairy Sector

Strengths

- High population of non descript cows that can be exploited by grading up
- High demand for fluid milk

Weaknesses

- Acute fodder shortage (deficit 86.80 per cent)
- Unscientific management
- Reproductive problems in cross breeds due to green fodder shortage
- Lack of good source for purchase of quality cross bred bulls Opportunities

Opportunities

- Steady increase in demand for milk and milk products

Threats

- Occurrence of major livestock diseases especially foot and mouth, which cause heavy morbidity in, crossbred cattle.
- Increasing cost of milk production due to steady increase in the prices of feed ingredients without proportionate increase in milk prices production.

3.4 SWOT Analysis– Small Ruminants

Strengths

- Good sheep (3.89 lakhs) and goat (3.63 lakhs) population
- Huge demand for mutton and chevon
- Easy marketability

Weaknesses

- Poor quality of grazing lands
- High incidence of parasitic diseases
- Lack of awareness regarding scientific management
- Threat from killer diseases like Blue Tongue, PPR and Sheep pox

Opportunities

- Increasing demand for and chevon and mutton
- Increasing peoples interest in sheep & goat rearing which is reflected by steady increase in their population

Threats

- Frequent occurrence of killer disease especially PPR, Sheep pox and Blue tongue.
- Lack of availability of sufficient quantity of blue tongue vaccine.

3.5 SWOT Analysis– Poultry Sector

Strengths

- Favourable climate – hot and dry weather
- Vast availability of land

Weaknesses

- Higher capital requirement for establishing commercial broiler / layer units.
- Lack of awareness

Opportunities

- Very High demand for chicken meat
- Promotion of broiler integration by private hatcheries

Threats

- Fluctuating prices of egg & chicken meat due to fear of bird flu.

3.6 SWOT Analysis – Fisheries sector

Strengths

- River stretch - 517.87 kms - providing a livelihood for local fisherfolk
- Great scope for development of Inland fish farming

- Four major fish whole sale markets - Virudhunagar, Sivakasi, Srivilliputhur and Rajapalayam
- Five fishermen cooperative societies (Members 1644)

Weaknesses

- Vast gap between seed supply and demand.
- Virudhunagar district is located at the foothills of Western Ghats . Because of this geographical position, the south west monsoon is very scanty as, this area becomes the shadow region.
- Due to non availability of major carps seeds during north east monsoon, there is a huge gap between the demand and supply.
- Rainfall in this district is highly erratic.
- The district occasionally gets copious amount of rainfall during some years and during majority of the years the rain fall is very scanty thereby there is a lesser production of fishery.
- Presently the fish farmers depend upon the availability of fish seeds for stocking from the Government fish farms which could not cater the need of all.

Opportunities

- Scope for backyard ornamental fish breeding unit
- Composite fish culture in dug out ponds for rearing fast growing carp fish species for about 5 months rearing period

Challenges

- Technology transfer of ornamental fish farming.
- Limited awareness for freshwater fish farming

3.6 Accommodating SWOT

- Irrigated Cotton cultivation in the mid west and rainfed cotton cultivation in the middle and mid west parts required financial and technical supports to the farmers The cotton research station at Srivilliputhur also requires further strengthening and supports.

- Predominants of dry land agriculture warrants the soil and moisture conservation as well as Water harvesting activities in a big way.

- The western part of the district requires strengthening of Horticulture development activities.

- Scientific Cotton cultivation on contract – farming and active involvement of ginning and spinning mills are the need of the hour in strengthening the cotton industry in the district.

- The agri – export possibilities is huge and this requires development support

3.7 Composite Index of Agricultural Development of Virudhunagar District

Agricultural Development of a district is a comprehensive multidimensional process involving large number of related indicators. Hence, it can be well represented by composite indices which are used as yardsticks not only to gauge the development of each district but also to compare its performance in relation to other districts. These indices help to classify the sub-regions based on a set of large multivariate data. The information contained in the large set is transformed into a small set of indices which would provide a convenient method for classification. There are many methods of classification based on multivariate data. Among them, one method which is statistically sound is that developed by Iyengar and Sudarshan (1982). This method is simple and easy to apply and it helps to classify the districts into various stages of development, viz, 'highly developed', 'developed', 'developing', 'backward' and 'very backward'. In this method for each district a 'composite index' is constructed. The index lies between 0 and 1 with 1 representing 100 percent development and 0 representing no development at all.

It is assumed that there are 'n' districts and 'm' development indicators and that X_{id} is the observed value of i^{th} development indicator for the d^{th} district (i = 1,2,3 … m, d = 1,2,3…n). First these values of development indicators for each district is to be standardized. When the observed values are related positively to the development(as in the case of cropping intensity), the standardization is achieved by employing the formula

$$y_{id} = (X_{id} - Min\ X_{id}) / (Max\ \ X_{id} - Min\ X_{id})$$

where $Min\ X_{id}$ and $Max\ X_{id}$ are the minimum and maximum of $(X_{i1}, X_{i2}, ...X_{in})$ respectively. When the values of X_{id} are negatively related to the development (as in the case of area under wastelands, problem soils etc.,) the standardized values will be computed by the formula

$$y_{id} = (Max\ X_{id} - \ X_{id}) / (Max\ \ X_{id} - Min\ X_{id})$$

Obviously the standardized indices lie between 0 and 1. The indices are then used to determine the weights of individual variable and then they are subjected to further statistical analysis by fitting suitable probability distribution to determine the cut-off points for classification of the districts into five categories as mentioned above. The detailed methodology can be found in Iyengar and Sudarshan (1982).

The data base for the current study on Virudhunagar district is taken from various government publications like Season and Crops Report and Economic Appraisal of Tamil Nadu for the four periods 1990-91, 1995-96, 2000-01 and 2005-06. In all, 25 indicators of agricultural development as given in Table 3.1 were used for estimating the composite index of development for the district. The 25 indicators were grouped into six different 'components': i) Crop-Area-Variables - 10 ii) Irrigation - 7 iii) Livestock - 3 iv) Fisheries – 1 v) Fertilizer - 3 and vi) Cultivators and Labourers two.

The analysis showed that Virudhunagar district was classified as 'backward' in agricultural development in all the four periods. In terms of overall agricultural development its rank among the 29 districts of Tamil Nadu varied from 27 to 28 during the 1990-91 to 2005-06. As an individual components of agricultural development are concerned, its rank in the above periods are summarized in Table 3.2. The table shows that except fisheries, in all other components, its performance in the period of study is not satisfactory. For example, in irrigation it ranks between 28th and 29th in all the four periods. Similarly in crop variables also it occupied the ranks between 27th and 28th.

Table 3.1. Selected Indicators of Agricultural Development for Virudhunagar District

Component	Indicators	No. of Indicators
Crop-Area-Variables	Cropping Intensity	10
	Percent of Gross Cropped Area to Total geographical area	
	Percent Share of food grains to Gross Cropped Area	
	Percent Share of food crops to Gross Cropped Area	
	Percent Share of non food crops to Gross Cropped Area	
	Percent Share of cultivable waste to total geographical area	
	Percent Area under High Yielding Variety-Paddy	
	Percent Area under High Yielding Variety-Cholam	
	Percent Area under High Yielding Variety-Cumbu	
	Percent Area under High Yielding Variety-Ragi	
Irrigation	Irrigation Intensity	7
	Percent of Gross Irrigated Area to Gross Cropped Area	
	Percent of Net Irrigated Area to net area sown	
	Percent Area under Canal Irrigation to Gross Irrigated Area	

Table 3.1. contd…

Component	Indicators	No. of Indicators
	Percent Area under Tank Irrigation to Gross Irrigated Area	
	Percent Area under Well Irrigation to Gross Irrigated Area	
	Percent Area under other sources Irrigation to Gross Irrigated Area	
Livestock	Milk production (lakh tons)	2
	Egg production (lakhs)	
Fisheries	Inland + Marine fish production in tons	1
Fertilizer	Consumption of Nitrogen per hectare of Gross Cropped Area (tonnes)	3
	Consumption of Phosphorus per hectare of Gross Cropped Area (tonnes)	
	Consumption of Potassium per hectare of Gross Cropped Area (tonnes)	
Cultivators-Labourers	Percent of Cultivators to total population	2
	Percent of Agri.labourers to total workers	
	TOTAL	25

Table 3.2. Rank of Virudhunagar District in terms of Agricultural Development Among Other Districts of Tamil Nadu during 1990-91 to 2005-06

Component of Composite Index		Crop Area Variables	Irrigation	Livestock	Fisheries	Fertilizer	Cultivators-Labourers	Overall
Period	1990-91	28	28	23	-	-	13	28
	1995-96	28	29	23	1	26	12	28
	2000-01	27	28	24	1	29	17	28
	2005-06	28	28	28	1	22	7	27

CHAPTER - IV

DEVELOPMENT OF AGRICULTURE - SECTOR

4.1 Introduction

The contribution of agriculture and allied sectors in the district are very crucial for the overall development as the district heavily depends on them for additional income and employment generation. Further the farmers of the district are highly committed and early adopters of new technologies introduced. In this chapter, an attempt is made to capture the agricultural scenario and examine the ongoing schemes for dovetailing the necessary interventions. The interventions were evolved and priorotised through participatory planning exercise at the district level with the official machinery and the elected members of the local bodies. The interventions are listed department - wise at the end of the chapter.

4.2 Development Issues

i. Wastelands are in sizable area and this requires development efforts
ii. The special thrust is needed for the area expansion under maize and sunflower.
iii. Cotton yield must be stepped up further through the application of latest technologies.
iv. The yield levels of food crops and oilseeds crops must also be given due consideration.
v. Horticulture development requires priority specially in western parts of the district
vi. Development of agro - processing units
vii. Export promotion of agricultural commodities
viii. Marketing development

4.3 Existing Development schemes in Virudhunagar District

The currently implemented development programmes in the district are listed below.

I. Agricultural Schemes

a. ISOPOM - Pulses programme 2006-07

Seed Component	**Unit**	
Purchase of Breeder seeds Rs.5000/Qtl.	Phy. (Qtl.)	3.80
	Fin. (Rs.)	19000
Production of Foundation seeds Rs.500/ Qtl.	Phy. (Qtl.)	47.20
	Fin. (Rs.)	23600
Production of Certified seeds Rs.500/ Qtl.	Phy. (Qtl.)	472.00
	Fin. (Rs.)	236000
Distribution of Certified seeds Rs.800/ Qtl.	Phy. Qtl.)	472.00
	Fin. (Rs.)	377600
Seed Component Total (Rs.)		656200
Transfer of Technology		
Compact Block Demonstration	Phy(Nos.)	29
Rs.2000/Demonstration	Fin. (Rs.)	58000
IPM Block demonstration	Phy(Nos.)	1
	Fin. (Rs.)	12315
Distribution of Gypsum Rs.500/ ha.	Phy(ha.)	290
	Fin. (Rs.)	145000
Distribution of Biofertilisers Rs.50/ ha.	Phy(ha.)	2948
	Fin. (Rs.)	147400
Distribution of Biopesticides Rs.250/ ha.	Phy. (Qtl.)	58
	Fin. (Rs.)	14500
Distribution of NP Virus Rs.250/ ha.	Phy(ha.)	104.4
	Fin. (Rs.)	26100
Distribution of PP Chemicals Rs.500/ ha.	Phy(ha.)	98.6
	Fin. (Rs.)	49300
Distribution of Weedicides Rs.500/ ha.	Phy(ha.)	29
	Fin. (Rs.)	14500
Distribution of P.P. Equipments Rs.800/ No.	Phy(No.)	109
	Fin. (Rs.)	87200
Distribution of Sprinkler sets Rs.15000/ unit	Phy(No.)	11
	Fin. (Rs.)	165000
Distribution of Pipes carrying water from source to	Phy(No.)	10
field Rs.15000/ unit	Fin. (Rs.)	150000
Farmers Training Rs.15000/ Training	Phy(No.)	2
	Fin. (Rs.)	30000
Officers Training	Phy(No.)	0
	Fin. (Rs.)	0
Innovative Component		0
Village campaigns Rs.1000/ campaign	Phy(No.)	14
	Fin. (Rs.)	14000
Farmers Interest Groups Rs.12500/ Group	Phy(No.)	1
	Fin. (Rs.)	12500
Contract Farming	Fin. (Rs.)	0
Rainfed Farming	Fin. (Rs.)	0
Publicity	Fin. (Rs.)	0
Staff and Contingencies	Fin. (Rs.)	25000
Non Seed Component Total (Rs.)	950815	
Grand total		**1607015**

Table.4.1 Adoption of Improved Technologies Particularly in Rice other than SRI

(Rs. in lakhs)

S.No.	Technologies Identified	Unit	2007-08		
			No.of units	Cost/unit (Rs.)	Financial
	I. Seed				
1	One time grant to TANWABE / FIG to take certified seed production and distribution @ Rs.50000/- per group for 23 districts (30 MT / Annum)	Nos.	2	50000	1.000
2	Incentive for seed production to Self Help Groups @ Rs.3 / kg. - TABWAVE Groups	Tonnes	60	3000	1.800
3	Seed distribution subsidy for the seeds produced by Self Help Groups @ Rs.5 / kg.	Tonnes	60	5000	3.000
4	Supply of Quality Certified seeds at nominal cost to enhance the SRR @ Rs.5/- per kg.	Tonnes	60	5000	3.000
5	Seed Minikit of new HYV @ Rs.100/- minikit	Nos.	0	100	0.000
6	Hybrid Rice seed production subsidy@ Rs.20/- kg FIG / TANWABE Groups @ 10 Ac / group (4 MTs) (100 groups)	No.of groups	0	80000	0.000
7	Hybrid Rice seed distribution subsidy - 75percent cost or Rs.100/- whichever is less	Tonnes	0	100000	0.000

Table 4.2 On-going schemes in Agriculture

Sl. No.	Head of Account Scheme	Unit
1	**ISOPOM - Oilseeds**	
a.	Purchase of Breeder seed	Qtls
b.	F seed production	Qtls
c.	C seed production	Qtls
d.	C seed distribution	Qtls
e.	Distribution of Minikits	Nos.
f.	Infrastructure Dev. For Irrigation facilities	Nos.
g.	Pipe for carrying water from sources to field	Nos.
h.	Block demonstration in Groundnut	Nos.
i.	IPM demonstration	No.
j.	Distribution of gypsum	Ha.
k.	Distribution of biofertiliser	Ha.
l.	Distribution of bio pesticides	Ha.
m.	Distribution of PP equipments(Power)	Nos.
n.	Distribution of PP equipments(Hand)	Nos.
o.	Distribution of weedicide	Ha.
p.	Farmers Training	Batch
q.	Combined Nutrient spray	Nos
r.	CBD on sunflower	Nos
s.	CBD on Gingelly	Nos.
t.	Polythene	Nos.
2	**Pulses**	
a.	Breeder seed Purchase	Qtls
b.	Foundation seed production subsidy	Qtls
c.	Cetified seed production subsidy	Qtls
d.	Certified seed distribution subsidy	Qtls
e.	Compact Block Demonstraction	Nos.
f.	IPM Demonstration	Nos.
g.	Distribution of Biofertilisers and Bio Agents	Ha.
h.	Distribution of Biopesticide	Ha.
i.	Distribution of NPV virus	L.Ha.
j.	Distribution of PP equipments	Nos.
k.	Distribution of sprinkler sets	No/set
l.	Pipe for carrying water from sources to field	Nos
m.	Farmers Training	Batch

Table 4.2 contd…

Sl. No.	Head of Account Scheme	Unit
n.	M.N.Mixture	Ha.
o.	DAP spraying	Ha.
3	**ISOPOM – Maize**	
a)	Production of C seeds through Dept.	Qtls.
b)	Distribution of C seeds	Qtls.
c)	Distribution of Minikits	Nos.
d)	Block demonstration by Dept.	Nos.
e)	IPM by Dept.	Nos.
f)	Officers training	Nos.
g)	Seminar	Nos.
h)	Training to farmers	Nos.
i)	Tour-Exposure visit to CFF	Batch
j)	Publicity	LS
k)	Village campagin A.V.Aids	Nos.
l)	Pipe line for carrying water from Water Source to the field	Nos.
4	**ICDP - Cotton**	
a)	Supply of Breeder seed	Kgs
b)	Certified seed Distribution	Qtls
c)	Seed Delimiting Plant	Nos.
d)	Farmers Training	Nos.
e)	Seed Treatment	Qtls
f)	Surveillance and Monitoring of pest and diseases	Nos.
g)	Distribution of per Traps/ light traps	Ha.
h)	Supply of Bio agents and Biopesticides	Ha.
i)	Manually operated sprayers	No.
j)	Supply of Power sprayers	No.
k)	State Level Training to Extension Officers	No.
l)	Field Level Demonstration on Production Technology	No.
5	**New Inventions**	
a)	Distribution of biofertilisers	Nos.
b)	Distribution of Micronutrients	Kgs
c)	Intercropping with pulses	Kgs
d)	Bt Cotton/Cotton Hybrid detection kits distribution	Nos.

Table 4.2 contd…

Sl. No.	Head of Account Scheme	Unit
e)	Contingency / staff	
f)	Production of 'F' seed by Dept.	Qtls
g)	Production of 'F' seed by SIMA, CD & RA	Qtls
h)	Production of 'C' seed by Dept.	Qtls
i)	FFS	Nos
6	**Cereal Development**	
a)	Distribution of Certified seeds	Tonnes
b)	Crop Production Demonstration in SRI pattern	Nos.
c)	IPM	Nos
d)	POL, Maintenance of vehicles and contingencies	Nos.
7	**Innovative Schemes**	
i)	**Farmers Interest Group**	
a)	New Group Formation	Nos.
b)	Training	Nos.
ii)	I.D. Cards	Nos
a)	District Level Meeting	Nos
b)	Contingencies	Nos
8	**TANWABE**	
a)	Training and assistance to training (15 No/group) Rs.1000/group	No.
b)	Setting of Micro enterprises Rs.10000/Group	No.
9	Coconut Dev. Board Schemes (50:50)	
	T x D seedlings Production	Nos.
	Seedlings distribution	L.Nos.
10	Integrated farming in Coconut holding for productivity improvement	
a)	Maintenance of disease affected palms	Nos.
b)	Demonstration Plots	Ha.
	New	Ha.
	Maintenance	Ha.
c)	Organic Manure pits	Units

Table 4.2 contd…

Sl. No.	Head of Account Scheme	Unit
	Training cluster	Nos.
	Removal of root wilt trees	Nos.
	Seed Village Programme	
a)	Paddy	Tonnes
b)	Pulses	Tonnes
c)	Oilseeds	Tonnes
d)	Training	Nos

4.4 Constraints

The technological gaps identified in the major crops for the district are abstracted in the table below.

Table 4.3 Major Technological Gaps in Major Crops (2007)

Sl. No.	Crop	Technological gaps
1.	Paddy	High yielding varieties SRI Technology IPM, INM, Irrigation Management
2.	Millet	Hybrid seeds
3.	Cotton	Bt seeds, Hybrid seeds, INM, IPM, Irrigation Management
4.	Sugarcane	Irrigation Management, High Yielding varieties, INM
5.	Oilseeds	Hybrid seeds, INM, IPM, Irrigation Management

The above table identifies the technological gaps that bring down the production and productivity levels of major crops in the district. All these identified technology gaps are taken into consideration for proposing suitable strategies and interventions on project mode.

4.5 Interventions

The developmental issues were discussed at different levels of participation and most suitable interventions for the identified priority areas of various departments were finalised as the outcome of the planning process.

I. Agriculture

Paddy Irrigated

S. No	Component
1	One time grant to TANWABE / FIG to take certified seed production and distribution @ Rs.50000/- per group for 23 districts (30 Tonnes / Annum)
2	Incentive for seed production to Self Help Groups @ Rs.3 / kg. - TANWABE Groups
3	Seed distribution subsidy for the seeds produced by Self Help Groups @ Rs.5 / kg.
4	Seed Minikit of new HYV @ Rs.100/- minikit
5	Distribution of Green Manure seeds at 75percent subsidy of Rs.15/kg.
6	Distribution of Soil Health Card @ Rs.100/- per card (Soil + Water testing)
7	Assistance to start vermicompost production unit @ Rs.10000 per unit (Self Help Group women farmers)
8	Distribution of Micro Nutrient Mixture @ Rs.500 / Ha. or 50 percent subsidy
9	Gypsum 500 kg/ ha @ Rs.500/Ha. or 50percent subsidy

10	Farmers Field School @17000/ No.
11	Massive Rat control campaign in village @ Rs.5000/village
12	Publicity & Training @ Rs.50000/- per district
13	Promotion of SRI Distribution of Marker, Conoweeder and other items @ Rs.3000 / Ha.
14	Transplanter to TANWABE / FIG / farmers @ Rs.75000 each or 50percent subsidy
15	Power Tiller @ Rs.65000/- each or 50 percent subsidy
16	Power Thrasher @ Rs.50000/- per No.or 50 percent subsidy
17	Demonstration on SRI / Rs.3000/demo (to be organised in cluster of 10 Ha.)
18	Village campaigns - Kharif / Rabi @ Rs.1000/- per campaign
19	Tarpaulin @ Rs.5000/- Nos. or 50percent subsidy
20	Biofertiliser @ 50percent subsidy @ Rs.3 per No.
21	Publicity / POL & Hiring of Vehicle @ Rs.50000/- per district
23	Community Thrashing floor @ Rs.2 lakhs/- per No. (20'x20')
Millet	
1	HYV Seed distribution @50percent Subsidy limited to Rs.8/Kg
2	Technology Demonstration including minor millets Subsidy @ Rs.2000/Ha
3	Distribution of Bio fertilizer @ 50percent subsidy limited to Rs.3/pocket
4	Distribution of Tarpaulin @ 50percent subsidy limited to Rs.5000/No
Maize (Irrigated)	
1	Hybrid seed distribution @50percent subsidy limited to Rs.200/Kg
Maize (Rainfed)	
1	Hybrid seed distribution @50percent subsidy limited to Rs.200/Kg

Groundnut	
a)	**Irrigated**
1	Purchase and distribution of Breeder seeds @ Rs.50/Kg.
2	Seed Production subsidy @ Rs.10/Kg.
3	Seed Distribution subsidy @ 50percent limited to Rs.12/Kg.
4	Pipes carrying water from source to field @ 50percent subsidy
5	Bio-fertiliser distribution @ Rs.3/Nos.
6	Distribution of Gypsum subsidy @ 50percent cost + TC limited to Rs.750/Ha.
7	MN Mixture distribution @ 50percent cost limited to Rs.500/Ha.
8	Farmers field school @ Rs.22680/No.
9	Distribution of Tarpaulin subsidy @ Rs.5000/No.
10	Farmers Training @ Rs.20000/Training 2 days for 50 farmers
11	Publicity /POL/Hiring of Vehicle @ Rs.100000/year/District
13	Construction of Rural godowns and Marketing Centre to stock and distribute seeds and other inputs for TANWABE/FIG @ Rs.10 Lakhs/each
14	Seed Village Scheme- Seed distribution @ 50percent cost limited to Rs.20/Kg.
b)	**Groundnut (Rainfed)**
1	Seed Distribution subsidy @ 50percent limited to Rs.12/Kg.
2	Distribution of Gypsum subsidy @ 50percent cost + TC limited to Rs.750/Ha.
3	MN Mixture distribution @ 50percent cost limited to Rs.500/Ha.

2)	**Gingelly**
1	Seed Production subsidy @ Rs.10/Kg.
2	Seed Distribution subsidy @ 50percent limited to Rs.12/Kg.
3)	**Sunflower**
1	Hybrid seed distribution @ 50percent subsidy limited to Rs.150/Kg.
2	Crop production technology demonstration @ 50percent subsidy limited to Rs.5000/ha.
3	Hybrid Seed Minikit @ free of cost 1 Kg kit (Rs.400/Kit)
Cotton -Irrigated	
1.	Precision farming compact block demonstration 10 Ha cluster 90percent subsidy limited to Rs.6.0lakh/cluster
2.	Seed distribution subsidy for Bt. Cotton @ 50percent limited to Rs.375/pocket of 450 gram
3.	FFS to TANWABE/ FIG Rs.17000/ FFS
4.	Distribution of MN Mixture @ 50percent subsidy limited to Rs.500/ha
Cotton (Rainfed)	
1	Seed distribution subsidy @ Rs.20/Kg

CHAPTER - V

DEVELOPMENT OF ALLIED SECTORS

5.1 Introduction

Considering the resource potentials and the results of SWOT analysis, the development issues, on - going programmes, constraint analysis and recommendation if, interventions have been outlined in this chapter for the allied agricultural sectors viz., horticulture, animal husbandry, fisheries, agricultural engineering and agricultural marketing and irrigation sectors.

5.2 Horticulture Sector

5.2.1 Development Issues

i. Increasing the production of fruits, specially the mangoes and pineapple particularly in western parts of the district.

ii. Vegetable production in this district must also be encouraged

iii. Medicinal plants like senna require scientific approach

iv. The dry agriculture is predominant in this district and hence the cultivation of fruits like custard apple, ber, amla etc.,

v. Encouragement of fruit processing units in western parts

vi. Developing marketing infrastructure for fruits and vegetables

5.2.2 Existing Horticultural Schemes

1. Integrated horticulture development scheme
2. Western ghats development programme
3. Tn - IAMWARM - Arjuna river sub basin
4. Micro irrigation

5.2.3 Horticulture Sector Interventions

1	Net House structure
	a. Nursery and Vegetable production @ Rs.1.00 lakh/300 Sq.m with 50 percent subsidy
2	Pandal for vegetable production @ Rs.1.00 lakh/ha with 50 percent subsidy
3	Plant protection Equipment @ Rs.3,000/ No with 50 percent subsidy
4	Plastics Crates for Vegetable handling and transport @ Rs.250/crate with 50 percent subsidy
5	Borewell with casing pipe @Rs.1.5lakh/ No. with 50 percent subsidy
6	Banana Bunch cover @ Rs.10/piece with 50 percent subsidy
7	Support system for crops
	a. Banana @Rs.1.5lakhs/ha @ 75 percent subsidy
8	Sales outlet points in districts (Rent and infrastructure) Rs.2.60.lakh/No
9	District Level Farmers Workshop @ Rs.400/farmer/day
10	Inter State Exposure visit (5 day) @ Rs.5,000/ farmer
11	Banana / Amla in noon meal scheme (TANWABE) @ Rs. 50,000/group / district
12	10 hectare mega demo plot for the districts @ Rs.25.00 lakhs each
13	Enterprising framers associations @ Rs.25.00 lakhs each
14	Support senna cultivation @ Rs.15,000/ha with 50percent subsidy

5.3 Animal Husbandry

5.3.1 Introduction

This District offers considerable scope for development of sheep rearing. This district has a sizeable sheep population of 165416 but they are often of low genetic potential. Sheep population is rich in Aruppukottai, Sattur and Srivilliputur taluks. Hot climate, high mortality rate of birds high cost of feed etc. are some of the significant factors arrest the development of poultry in this district.

5.3.2 Development Issues

- Fodder production must be encouraged
- Upgradation of non - descript breeds
- Development of small ruminants
- Strengthening the veterinary facilities
- Strengthening dairy development activities
- Frequent occurrences of diseases in cattle and small ruminants

5.3.3 On-going Government Development Schemes for Livestock and Poultry

Department of Animal Husbandry, Virudhunagar

a) Western Ghats Development Programme (WGDP)

b) ASCAD

c) ATMA

d) IAMWARM

e) KPT (Kaalnadai pathukappu thittam)

f) Aavin Part-II scheme to provide infrastructural facilities to societies

5.3.4 Constraints

- Acute fodder shortage
- Unhygienic milk production
- Lack of knowledge on scientific rearing of calfves and hiefers
- Fluctuating prices of eggs and chicken
- Non-availability of veterinary facilities within in the easy reaching distance.

5.3.5 Recommended Interventions

The recommended interventions for livestock and poultry development in Virudhunagar district are as follows

I	**Cattle and Buffalo**
1	Fodder production by SHGs @ 10 acre/Bl/yr for 11 blocks (DAH)
2	Identification and traceability of breedable bovine population (DAH)
3	Crossbred heifer calves nutrition programme (DAH)
4	Mobile veterinary clinics @ 1/TK (DAH)
5	Popularizing mineral mixture to improve livestock production (DAH) @ 1.0 kg/month for one year
6	Control of parasitic diseases through treatment to enhance vaccine response (DAH)
7	Mobile veterinary diagnostic laboratory (DAH)
II	**Sheep & Goat**
1	Semi intensive sheep/goat farming to improve meat production by SHG/tribes @ 1/Bl (DAH)
2	Supply of Rams/Bucks to elite farmers (DAH)
III	**Poultry**
1	Popularizing backyard poultry units (DAH)
2	Health care for existing desi birds in backyard (DAH)
IV	**Others**
1	Renovation of existing VDs (DAH)
V	**Improvement of Sheep Farm - Sattur (DAH)**
1	Livestock component
2	Fodder component
	DAH-Total

5.4 Fisheries

5.4.1 Introduction

Inland Fresh Water area is 30005 hectares. There have been no Estuaries and brackish water area and Marine fishing villages in the district, as this is an inland. As Virudhunagar is land-locked with no coastline, fishing is restricted to inland water sources. Fish farms have been established at Periyar and Vembakottai dams.

Table 5.1. Fisheries Development and Production During 2005-2006

(Rs. in lakhs)

Name and address of Fishing centres	Inland Fish Catch (Tonne)	Value	Number of Fisherman engaged
Government			
1, Periyar	5.513	1.20	20
2. Kovilar	1.841	0.36	
3. Vembakottai	13.286	2.81	26
4. Kulloor Sandai	10.623	2.00	50
Sub Total	31.263	6.37	96
Private (Community ponds/ irrigation tanks)	5018.737	1003.80	419
Grand Total	**5050.00**	**1016.54**	**515**

5.4.2. On-going Schemes Pertaining to Inland fisheries Development

- Fishermen Group Accidental Insurance – (Central scheme)
- Fishermen savings – cum Relief scheme
- Construction of new ponds and tanks in beneficiaries own land with proper screened inlet, outlet and shallow tube well.
- Reclamation / Renovation of ponds / tanks
- First year inputs (Fish seed, fish seed fertilizers, manures and preventive measures for fish disease (EUS)
- Integrated fish farming
- IAMWARM –
- Fisheries Development Minor programme – popularization of scampi culture
- Interior inland fish culture and marketing schemes.

5.4.3. Intervention Required

- Infrastructure development like establishing fish seed banks, improvement to existing fish seed rearing centres etc., to attain self sufficiency in seed production through private and Government.
- Expansion of fish seed rearing by private entrepreneurs is going to be given a fillip by providing seed rearing through cages.
- Improving fishing efficiency in inland water bodies like providing crafts & tackles to the need based.
- Subsidy assistance to private fish seed rearing / fish seed production (50 percent subsidy)
- Expansion of fish culture in hither to unutilized water bodies by stocking (50 percent subsidy)
- Modern fish Retail Outlet (50 percent subsidy)
- Provision of subsidy for the purchase of net (50 percent subsidy)
- Desilting of Vembakotai tank
- Training for fish farmers

5.5. Agricultural Engineering

5.5.1 Introduction

The Virudhunagar district consists of sizeable area under black and red soils. Moreover, dry farming is predominant. Therefore, the water and soil conservation measures as well as water harvesting techniques are the need of the hour for getting good crops under dryland farming.

5.5.2 Development Issues

- Popularisation of latest water harvesting techniques
- Water and soil conservation measures are to be adopted on large scale.
- Popularisation of agricultural machineries especially sowing equipments etc.

5.5.3 Constraints

Heavy initial investment on farm machineries and paucity of funds among the majority of the farmers are the major constraints in taking up quick tillage and sowing operations in a shorted time span immediately after the rainfall occurrence.

5.5.4. Interventions Recommended

I	**Introduction of Newly Developed Agrl. Machinery / Implements**
1.	Power weeder with attachment (all models)
2.	Power Thrasher
3.	Maize Husker Sheller
4.	Ground nut decorticator
5.	Chisel plough
6.	Power Weeder - Oleo mac
7.	Combine harvester - Tractor operated
8.	Gender friendly equipments
II	Innovative water harvesting structures
1	Rejuvenation of percolation ponds with 2 recharge shafts

5.6. Agricultural Marketing and Agri business

5.6.1 Introduction

Virudhunagar is an important market centre located in centre of the district. Rajapalayam is yet another important cotton market in the district in the west. Similarly, Aruppukottai is also an important market centre. Regulated markets are also functioning in the district. Virudhunagar is also involved in export marketing activities especially in chillies, coriander, senna etc.

5.6.2 Development Issues

- Promotion of export marketing
- Toning-up the functioning of regulated markets in the district
- Dissemination of market information

5.6.3 Recommended Interventions

The following interventions have been recommended for strengthening the marketing activities in Virudhunagar district.

S. No.	Components
1	Commodity group formation
	Paddy
	Maize
	Chillies
	Mango
2	Market Intelligence dissemination
	Touch Screen
	Farmers Traders Meet
	Purchase of marketing materials
3	Facilitation of contract farming
4	Exposure visit to markets
	Within State
	Outside state
5	Arrangement of buyer seller meetings
6	Strengthening of market extension centre
7	Market price surveillance
8	Publicity - regulated market
9	Trainings on
	Warehousing and Storage
	Grading
	Market Intelligence
	Post-harvest
	Trainings - Commodity Markets
	Export promotion
	Minimizing PH losses
10	Market infrastructure activities

5.7. Agricultural Credit

5.7.1. Credit Disbursement

Government of India, State Government, Reserve Bank of India and NABARD have taken a number of steps and policy measures for the growth and development of Agriculture and Rural sectors. Besides, they have introduced several innovations in Agricultural Credit flow system to augment access of the rural people to the banking system. Some of the important policy measures / innovations are outlined in what follows.

I. Policy Innovations of Government of India:

1. Agricultural Debt Waiver (For Small Farmers / Marginal Farmers) and Debt Relief (for other Farmers) Scheme covering direct Agricultural Credit.
2. Short Term Crop Loans continued to be disbursed at seven per cent with interest subvention.
3. National Agricultural Insurance Scheme (NAIS) to continue in the present form for Kharif and Rabi 2008-09.
4. Adoption of concept of Total Financial Inclusion (TFI) and meeting the entire credit requirement of Self-Help-Groups.
5. Implementation of Rain-fed Area Development Programme with an allocation of Rs.348 crores with priority to areas not benefited by Watershed Development Schemes.
6. Central Banks and Rural Regional Banks (RRBs) to add 250 accounts every year in Rural and Semi-urban branches.

II. Policy initiatives of Reserve Bank of India:

1. Guidelines on Priority Sector Lending (PSL) revised enlarging its scope.
2. Limits for loans under DRI scheme raised from Rs.6500 to Rs.15000 and that for housing loan under scheme from Rs.5000 to 20000.
3. CBs/RRBs to introduce on a pilot basis in one district, a simplified cyclical credit product whereby the farmers can use core component of 20 per cent of credit limit throughout the year, provided interest is serviced.

4. Banks are allowed to utilize the services of retired bank / Government employees and ex-servicemen as business correspondents.

III. Policy and Development Initiatives of NABARD:

1. NABARD to play an active and supportive role in the implementation of 'Rural Business Hub' Scheme of Ministry of Panchayat Raj envisaging Public-Private-Panchayat Partnership to develop holistic and integrated partnership between decentralized rural production units and larger corporate entities.
2. A new find "Farmers' Technology Transfer Fund" created to support programmes, workshops / seminars on technology transfer, marketing of agriculture produce and imparting training on new technologies / agriculture practices
3. NABARD in collaboration with Department of Posts, Government of India, to set up showcases in 100 post offices across the country to showcase the products of SHGs and rural artisans.
4. Krishak Saathi Scheme introduced to provide refinance to banks to provide loans to farmers to free themselves from the clutches of money lenders.
5. RIDF loan at 90 per cent of the project cost allowed for roads and social sector projects in Hill States; also, higher mobilsation advance at 30 per cent of total RIDF loans allowed for these states.

IV. Policy Initiatives of Government of Tamil Nadu:

1. Rs.1150 crores allocated in 2008-09 for compensating co-op. banks for waiver of crop loans.
2. It is proposed to disburse new crop loans to the tune of Rs.1,500 crores during 2008-09.
3. The rate of interest on crop loan reduced from five per cent to four per cent for prompt repayments in 2008-09.
4. Rs.40 crores to provide 50 per cent Insurance Premium for 25 lakhs farmers towards crop insurance.

5. SRI cultivation of paddy to be extended to all districts at an estimated cost of Rs.64 crores.
6. 25 per cent subsidy to farmers for purchasing farm machinery under NADP.
7. Afforestation Progrmme in 51,500 hectares at a cost of Rs.113 crores. 1,000 check dams and 300 percolation ponds to be constructed throughout the State. Rupees three crores provided for forest roads. Rs.10 crores allocated for planting one crore saplings in private lands.
8. Tamil Nadu Co-operative Milk Producers Federation to provide 10,000 crossbred milch animals to Women Self Help Groups in 200 villages covering 5000 women. This scheme will be implemented at a cost of Rs.22 crores for a period of two years.
9. IAMWARD Project extended to another 16 sub-basins.
10. Construction of 48,500 checkdams and perculation tanks in 232 over exploited blocks for conserving ground water at a cost of Rs.550 crores.
11. State Government to open 4 SEZs in Tirunelveli, Tiruvannamalai, Erode and Vellore Districts.
12. A sum of Rs.504 crores is allocated under “Anaithu Grama Anna Marumalarchi Scheme” for undertaking basic infrastructure related works in 2521 village panchayats.
13. Rs.50 crores provided in 2008-09 for 1625 community developmental works under ‘Namakku Naame Thittam’.

Activity wise credit disbursement and projection under agricultural and allied sectors in Virudhunagar district is furnished in Table 5.2.

Table 5.2.Activity Wise Credit Disbursement and Projections under Agricultural and Allied Sectors in Virudhunagar District

(Rs in Lakhs)

Sectors	2008-09	2009-10	2010-11	2011-12
Crop loan	28585.71	30015.00	31515.75	33091.53
Term loan		0.00	0.00	0.00
Micro Irrigation	1068.99	1122.44	1178.56	1237.49
Land Development	906.58	951.91	999.50	1049.48
Farm Mechanization	3747.03	3934.38	4131.10	4337.66
Plantation & Horticulture	1161.87	1219.96	1280.96	1345.01
Forestry & Waste land Development	108.05	113.45	119.13	125.08
Dairy Development	3497.43	3672.30	3855.92	4048.71
Poultry	759.24	797.20	837.06	878.92
Sheep/Goat/ Piggery	780.38	819.40	860.37	903.39
Fisheries	13.82	14.51	15.24	16.00
Storage Godown & Market yards	419.60	440.58	462.61	485.74
Bio-gas	0.00	0.00	0.00	0.00
Sericulture	0.00	0.00	0.00	0.00
Others	1497.91	1572.81	1651.45	1734.02
Sub total - Term loan	13960.90	14658.94	15391.90	16161.50
Total Agriculture Credit (1+2)	42546.61	44673.94	46907.65	49253.03
Non Farm sector	52166.27	54774.58	57513.31	60388.98
Other Priority Sector	24439.88	25661.87	26944.97	28292.22
Grand Total	**119152.76**	**125110.39**	**131365.93**	**137934.23**

From the table it could be seen the projected flow of credit disbursement for agriculture and allied sectors during 2009-10, 2010-11 2011-2012 would be Rs. 125110.39 Rs. 131365.93 and Rs. 137934.23 lakhs respectively. The total flow of agriculture credit in terms of crop loan and term loan in 2011-12 would be Rs. 49253.03 lakhs. The flow of credit for non farm sector and other priorty sectors in 2011-12 would be Rs. 60388.98 and Rs. 28292.22 lakhs respectively.

CHAPTER - VI

DISTRICT PLAN

6.1 Introduction

Keeping in view the development vision, the eight line departments of Virudhunagar district viz. Agriculture, Horticulture, Agricultural Marketing and Agribusiness, Agricultural Engineering, Animal Husbandry and Dairy Development, Fisheries and PWD participated in preparing the overall development plan for agriculture. Various issues were identified department - wise and priorotized for the preparation of specific proposals for four years from 2008-2012. The details of the projects proposed sector-wise are presented in this chapter. The agriculture sector is taken up first.

6.2 Agriculture Sector

Project: I

i) Project Title: Increasing the Production of Paddy in Virudhunagar District

ii) Project Background

Paddy is cultivated both under rain fed and irrigated conditions. Rain fed sowing commences during August and extend to September. Under tank fed conditions the crop is sown in the month of September and extends to October. The normal rainfall of Virudhunagar district is 812 mm mainly contributed by north east monsoon. Paddy is cultivated in about 35000 ha with average production of 1.68 Lakh tones. The productivity is only 4.8 tonnes / hectare. The major paddy cultivating areas of the district are Rajapalayam, Srivilliputtur, Watrap, Sattur, Karipatty, M.Reddiyapatty blocks.

iii) Project Rationale

Paddy is the most important food crop of this district and the farmers are well experienced in Paddy cultivation. The present direct procurement by Tamil Nadu Civil Supplies Corporation at the rate of Rs. 8.25 per Kg. is profitable to the farmers. The Paddy straw is also valuable to the farmers as cattle feed and also has good market value. Paddy cultivation is mainly through tank fed irrigation. There is a scope for better water management practices in Paddy cultivation in the District. The major cultivating season happens to be in Samba which coincides with the North-East monsoon for the preparation of the main fields as well as nursery rising.

iv) Project Strategies

- In Paddy, the System of Rice Intensification (SRI) can be popularized to increase the area in the Virudhunagar district.
- Introduction and popularization of High Yielding varieties of Paddy in this district.
- TANWABE and Farmers Interest Groups can be motivated to produce C seeds by giving assistance as subsidy.
- One Mobile Soil Testing Lab is situated at Aruppukottai and One Stationary Soil Testing Lab at Virudhunagar block. With these soils testing labs the soil health card distribution and water testing component can be achieved. Distribution of new High Yielding varieties of seed mini-kits also helps to increase the area under new varieties.
- Distribution of Green Manure Seeds also facilitates the farmers to reduce the fertilizer cost.
- Distributions of micro nutrient mixtures, gypsum will also increase the productivity and production.
- Farmers Field Schools are not only reducing the Plant Protection cost and also helps the farmers in organic farm production and will also reduce the cost of cultivation .
- Rat control also reduces the post - harvest loss to paddy growing farmers.
- Innovative technologies could reach farmers very massively by village campaigns.
- The community thrashing floor is very useful for the farmers for their post - harvest operations and will help in minimizing the loss during thrashing

v) Project Components

To achieve the project goal the following components are proposed for this district in Paddy cultivation.

S.No	Component
1	One time grant to TANWABE / FIG to take certified seed production and distribution @ Rs.50000/- per group for 23 disricts (30 MT / Annum)
2	Incentive for seed production to Self Help Groups @ Rs.3 / kg. - TABWAVE Groups
3	Seed distribution subsidy for the seeds produced by Self Help Groups @ Rs.5 / kg.
4	Seed Minikit of new HYV @ Rs.100/- minikit
5	Distribution of Green Manure seeds at 75 percent subsidy of Rs.15/kg.
6	Distribution of Soil Health Card @ Rs.100/- per card (Soil + Water testing)
7	Assistance to start vermicompost production unit @ Rs.10000 per unit (Self Help Group women farmers)
8	Distribution of Micro Nutrient Mixture @ Rs.500 / Ha.or 50 percent subsidy
9	Gypsum 500 kg/ ha @ Rs.500/Ha. or 50 percent subsidy
10	Farmers Field School @17000/ No.
11	Massive Rat control campaign in village @ Rs.5000/village
12	Publicity & Training @ Rs.50000/- per district
13	Promotion of SRI Distribution of Marker, Conoweeder and other items @ Rs.3000 / Ha.
14	Transplanter to TANWABE / FIG / farmers @ Rs.75000 each or 50 percent subsidy
15	Power Tiller @ Rs.65000/- each or 50 percent subsidy
16	Power Thrasher @ Rs.50000/- per No.or 50 percent subsidy
17	Demonstration on SRI / Rs.3000/demo (to be organised in cluster of 10 Ha.)
18	Village campaigns - Kharif / Rabi @ Rs.1000/- per campaign
19	Tarpaulin @ Rs.5000/- Nos. or 50 percent subsidy
20	Biofertiliser @ 50 percent subsidy @ Rs.3 per No.
21	Publicity / POL & Hireing of Vehicle @ Rs.50000/- per district
23	Community Thrashing floor @ Rs.2 lakhs/- per No. (20'x20')

vi) Project Goals

The proposed components will ensure production of Rice and increase the income of Paddy farmers to the tune of 15-20 percent as against the present level.

vii) Project Cost and Financing

The budget requirement for the year 2008-09 is Rs.151.44 lakhs and the total budget requirement for four years from 2008-20012 is Rs.602.76 lakhs. The detailed component - wise budget is given in the annexure.

viii) Implementation Chart of the Project

S. No.	Component	Month of Operation
1.	Selection of Self-help Groups / Farmers Interest Groups / TANWABE	April - May
2.	Soil sample collection and analysis	April - May
3.	Distribution of Green Manure Seeds	May
4.	Assistance to start Vermi Compost Production	Through out the Year
5.	Publicity and Training	April, May, June
6.	Distribution of Bio Fertilizer seeds	May
7.	Selection of SRI demonstration plot	May, June
8.	Village Campaigns	May, June, July
9.	Seeds, MNS, Gypsum, inputs distribution	June, July
10.	Farmers Field School	July to December
11.	Rat Campaign	December, January

Paddy crop season is mainly during the month of Aug-September (Samba Crop).

ix) Reporting

Monthly report of the progress made will be sent to the concerned JDA. Annual consolidated report of the progress will be submitted to the concerned JDA.

Project: 2

i) Project Title : Increasing the Production of Millets and Maize Crop

ii) Background

Cumbu, Cholam, Ragi, Varagu, Samai, and Kudiravali are the millets produced in the district. Large area in the taluks of Sattur and Aruppukottai come under Cumbu, whereas Cholam is grown in the taluks of Aruppukottai. Fodder Cholam in Sattur, Srivilliputtur and Aruppukottai taluks, Varagu in Aruppukottai, and Samai in Aruppukottai and Srivilliputtur taluks are grown in larger areas. Cholam is cultivated both under irrigated and rainfed conditions and the sowing commence in August/September in rain fed condition and February/March in irrigated condition. Thinai, Varagu, Samai and Kuthraivali are cultivated under rain fed conditions alone. Thinai, Samai and Kuthiraivali are sown in the months of September and extend upto October. Varagu is sown in the month of July.

Maize is mainly cultivated under rain fed conditions Sowing commences in the month of September and extends to the middle of October. The area under Maize is increasing over the years. The farmers prefer private hybrid seeds. The farmers are taking maize cultivation in the same field after Paddy harvest in summer depending upon the water availability. The farmers are not using drip irrigation for maize cultivation. The area production and productivity of crop in the district are as follows.

Crop	Normal Area (in ha)	Production (Tonnes)	Productivity (Kg/ha)
Millets other than Maize	20000	24000	1200
Maize Rainfed	9000	30600	3400
Maize (Irrigated)	2500	12500	500

iii) Project Rationale

The parts of the district namely, Sattur, Aruppukottai, Rajapalayam, Srivilliputtur, Watrap, Sivakasi, Vembakottai, Virudhunagar, Kariapatty, M.Reddiapatty are the major Millets/ Maize growing areas.

Introduction of Hybrid seed distribution/ variety seed distribution and the Technology demonstration and bio-fertilizer distribution are the main components through this project which will definitely increase the production of Millets/ Maize in Virudhunagar district.

iv) Project Strategy

- To increase the production and productivity using Hybrid variety/ Hybrid seed distribution
- To reduce the cost of cultivation by way of the introduction of mechanization
- To popularize the new technologies in the farmers field technology demonstrations including minor millets to be laid in the farmers holdings.
- Bio - fertilizers and Micro - nutrient Mixtures can be given to the farmers under subsidized cost.

v) Project Goals

The proposed components will ensure production of Millets/Maize and increase the income of the Millets growers to the tune of 20 per cent as against the present status.

vi) Project Components

To achieve the above project goal the following components are proposed for this district in millets and maize cultivation.

S.No	Components
	Millets
1	HYV Seed distribution @50 percent Subsidy limited to Rs.8/Kg
2	Technology Demonstration including minor millets Subsidy @ Rs.2000/Ha
3	Distribution of Bio fertilizer @ 50 percent subsidy limited to Rs.3/pocket
4	Distribution of Tarpaulin @ 50 percent subsidy limited to Rs.5000/No
	Maize (Irrigated)
1	Hybrid seed distribution @50 percent subsidy limited to Rs.200/Kg
	Maize (Rainfed)
1	Hybrid seed distribution @50 percent subsidy limited to Rs.200/Kg

vii) Project Cost and Financing

The budget requirement for maize (both irrigated and rainfed) for the year 2008-09 is Rs.46.20 lakhs and the total budget requirement for four years from 2008-20012 is Rs.130.80 lakhs for increasing the production.

viii) Reporting

Monthly report of the progress made will be sent to the concerned. Annual consolidated report of the progress will be submitted to the concerned.

Project: 3

i) Project Title: Increasing the Production of Oilseeds

ii) Background

Parts of the district namely Kariapatty, M.Reddiapatti, Narikudi, Sattur, Virudhunagar are the major groundnut growing areas. The soil is highly suitable for cultivation of rainfed groundnut. The Gingelly is mainly grown in the blocks of Narikudi, Kariapatty, Srivilliputtur and Watrap. Sunflower occupies the major area in Virudhunagar, Sattur, Vembakottai, Sivakasi, Srivilliputtur and Aruppukottai.

Crop	Normal Area	Production Tonnes	Productivity Kg/ ha
Oilseeds (RF)	13000	15600	1200
Oilseeds (I)	400	850	220

iii) Project Rationale

The soil of Virudhunagar district is highly suitable for groundnut cultivation. Major area under rainfed Groundnut is covered by older varieties. Farmers are well experienced in Groundnut cultivation under rainfed areas and suitable marketing infrastructure is available in the form of Regulated Market Committees.

In case of sunflower mainly private Hybrid seeds are used which are costlier. If subsidy is provided for private Hybrid seeds also, the farmers will come forward to cultivate more area under Sunflower.

iv) Project Strategies

- Seed Production and distribution subsidy (Production Subsidy @ Rs.10/kg, Distribution Subsidy @ Rs.12/kg).
- In Groundnut crop , Pipes carrying water from source to field at 50 percent subsidy and farmers field school @ 22680/School and Gypsum distribution
- Seed Village Scheme 50 percent cost subsidy will definitely promoter the production level by the present status.
- In Gingelly crop ,the distribution and production subsidy which will be very useful for the benefit of the farmers.
- Hybrid Seed distribution and crop production demonstration in Sunflower crop will bring the major area under Sunflower.

v) Project Outcome

The proposed scheme will surely ensure the production of oilseeds and the per capita income could be increased to the tune of 15 percent as against the previling status.

vi) Project Components

The following components will increase the production and the cost of cultivation should be minimized by way of the project.

1) Groundnut

a) Irrigated

1 Purchase and distribution of Breeder seeds @ Rs.50/Kg.

2 Seed Production subsidy @ Rs.10/Kg.

3 Seed Distribution subsidy @ 50 percent limited to Rs.12/Kg.

4 Pipes carrying water from source to field @ 50 percent subsidy

5 Bio-fertiliser distribution @ Rs.3/Nos.

6 Distribution of Gypsum subsidy @ 50 percent cost + TC limited to Rs.750/Ha.

7 MN Mixture distribution @ 50 percent cost limited to Rs.500/Ha.

8 Farmers field school @ Rs.22680/No.

9 Distribution of Tarpaulin subsidy @ Rs.5000/No.

10 Farmers Training @ Rs.20000/Training 2 days for 50 farmers

11 Publicity /POL/Hiring of Vehicle @ Rs.100000/year/District

13 Construction of Rural godowns and Marketing Centre to stock and distribute seeds and other inputs for TANWABE/FIG @ Rs.10 Lakhs/each

14 Seed Village Scheme- Seed distribution @ 50 percent cost limited to Rs.20/Kg.

b) Groundnut (Rainfed)

1 Seed Distribution subsidy @ 50 percent limited to Rs.12/Kg.

2 Distribution of Gypsum subsidy @ 50 percent cost + TC limited to Rs.750/Ha.

3 MN Mixture distribution @ 50 percent cost limited to Rs.500/Ha.

2) Gingelly

1 Seed Production subsidy @ Rs.10/Kg.

2 Seed Distribution subsidy @ 50 percent limited to Rs.12/Kg.

3) Sunflower

1 Hybrid seed distribution @ 50 percent subsidy limited to Rs.150/Kg.

2 Crop production technology demonstration @ 50 percent subsidy limited to Rs.5000/ha.

3 Hybrid Seed Minikit @ free of cost 1 Kg kit (Rs.400/Kit)

vii) Project Cost and Financing

The budget requirement for the year 2008-09 is Rs.144.98 lakhs and the total budget requirement for four years from 2008-20012 is Rs. 579.92 lakhs.

viii) Project Implementation Chart

S. No.	Component	Month of Operation
1)	Village campaigns and farmers training	November, December
2)	Distribution of Hybrid seed mini-kits	November, December
3)	Distribution of Hybrid seed at subsidized cost	November, December
4)	Laying of technology demonstration plots	December, January

Mainly the rainfed oilseed crops will be covered during South-west Monsoon (Kharif) and the Irrigated area is covered during Rabi.

ix) Reporting

Monthly report of the progress made will be sent to the concerned. Annual consolidated report of the progress will be submitted to the concerned.

Project : 4

i) Project Title : Increasing the Production of Cotton

ii) Background

Cotton is the important commercial crop in the black cotton soils .The western and central parts of the district namely Rajapalayam, Srivilliputtur, Watrap, Sattur, Sivakasi, Vembakottai, Virudhunagar, Aruppukottai, M.Reddiapatty are the major growing areas of Cotton crop.

Crop	Normal Area	Production Tonnes	Productivity by Kg/ha
Cotton (I)	4500	6750	1500
Cotton (RF)	10000	7500	750

iii) Project Rationale

Among the commercial crops of the district, the most important one is cotton .There is a good scope for increasing the area and productivity of Cotton crop against the present declining trend. The district has suitable soil and climatic conditions for the cultivation of cotton. The farmers are also well experienced in cotton cultivation.

iv) Project Strategy

- The cotton farmers are to be given awareness training in pest management through Farmers Field schools by TANWABE/ Farmers interest Groups.
- To improve the productivity under rainfed cotton, new High Yielding Varieties seeds are to be distributed to farmers under subsidized cost.

v) Project Outcome

The proposed scheme will increase the area and productivity 0f Cotton cultivation.

vi) Project Component

To achieve the said goal, the following components are proposed for this district in cotton cultivation.

Cotton -Irrigated

- Precision farming compact block demonstration 10 Ha cluster 90 percent subsidy limited to Rs.6.0lakh/cluster
- Seed distribution subsidy for Bt. Cotton @ 50 percent limited to Rs.375/pocket of 450 gram
- FFS to TANWABE/ FIG Rs.17000/ FFS
- Distribution of MN Mixture @ 50 percent subsidy limited to Rs.500/ha

Cotton (Rainfed)

- Seed distribution subsidy @ Rs.20/Kg

vii) Project Cost and Financing

The budget requirement for the year 2008-09 is Rs.17.72 lakhs and the total budget requirement for four years from 2008-20012 is Rs.70.86 lakhs.

viii) Implementation

Rain fed	-	August-September
Irrigated	-	January-February

ix) Reporting

Monthly and annual progress report will be sent to the concerned JDA periodically.

6.2.1 Total Budget for Agriculture Sector

For all the five projects proposed for agriculture development, the budget requirements are detailed in Table 6.1

6.1 Department of Agriculture – Budget Abstract

(Rs. in lakhs)

S.No.	Projects	2008-09	2009-2010	2010-11	2011-12	Total
1.	Increasing the production of paddy in Virudhunagar district	151.44	150.44	150.44	150.44	**602.76**
2.	Increasing the production of millets and maize crop	46.20	28.20	28.20	28.20	**130.80**
3.	Increasing the production of oil seeds in Virudhunagar district	144.98	144.98	144.98	144.98	**579.92**
4.	Increasing the production of cotton	17.72	17.72	17.72	17.72	**70.88**
5	DAP 2 percent spray	9.00	-	-	-	**9.00**
6.	Extension	32.35	17.35	17.35	17.35	**84.40**
	Total	**401.69**	**358.69**	**358.69**	**358.69**	**1477.76**

The budget outlay for all the five projects proposed under agriculture sector works out to a total of Rs.1477.76 lakhs for the whole XI plan period under NADP for Virudhunagar district ad could be evidenced fro the above table.

6.3 Seed Sector

i) Project Title : Establishment of Seed Testing Laboratory at Virudhunagar District

ii) Background

Seed the living embryo is considered as the basic and cheapest input in modern agriculture in enhancing and stabilizing the productivity. The cost of seed usually is usually negligible when compared to total production cost. Yet seed can affect the yield potential of a crop more than any other input factor. The cost of seed is one with high physical purity, germinability, vigor, genetic purity and free of pest diseases.

Quality control programs are pointless unless they involve seed testing. Conversely, a seed testing laboratory has little value unless it is apart of a seed certification program, a seed law enforcement program or a production and marketing activity.

The main aim of seed testing is to obtain accurate and reproducible results. The seed testing laboratory is a part of the institution in carrying out the seed production and certification program to meet the increasing demand of farming community, Seed growers, seed producers, seed dealers of Tamil Nadu and for easy accessibility to the poor farming community for the purpose of enhancing Agricultural production in the district.

iii) Project Rationale

The Seed Testing laboratory is an important institution in carrying out the seed production and seed certification program. The accuracy and reproducibility in the analysis results is of paramount importance to the producer, processor, certification and seed law enforcement officials. At present the certified seed samples from Seed Certification wing, Official seed samples from Seed Quality Control wing and Service samples from Seed Producers. Seed dealers and farmers are being sent to Dharmapuri

district for analysis. Establishment of Seed testing laboratory at Virudhunagar district will help the farming community, seed dealers and producers in getting the results in time and in getting quality seeds at the sowing period and curtailing the sale of substandard seeds to the farmers well ahead of sowing so that agricultural production of the district is enhanced.

A considerable quantum of quality seeds are being distributed through licensed seed selling points. The labelled seeds distribution is dominating. Under these circumstances, ensuring the quality of the seed lots before its usage by the farming community is very much essential. The quality of such seed lots can be ensured only by testing these seed lots in the Seed Testing Laboratories for its seed standards. The seed testing of these seed lots which are not covered under the preview of Seed Certification and that are covered to some extent under seed quality control program can be ensured only by inculcating the practice of sending service samples by seed producers, seed dealers and farmers by establishing Seed Testing Laboratory in the district. Accordingly, a Seed Testing Laboratory is proposed to be established in Virudhunagar district.

iv) Project Strategy

It is a must to check the quality of seeds before being used for sowing and the Seed testing Laboratory is the hub of Quality Control. Seed testing services are required to gain information regarding planting value of seed lots. To carry out the responsibilities effectively, it is necessary that Seed Testing Laboratory is established, manned and equipped in a manner such that whatever samples are received could be analyzed in the least possible time, so that seed quality control work and the need of the seed industry are effectively met.

v) Project Goal

The main goal of Seed Testing in the seed testing laboratory will be to obtain accurate and reproducible results regarding the purity composition, moisture content, the occurrence of weed seeds and the percentage of germination to produce normal seedlings under favorable conditions. In some instances such additional information such as the presence of seed borne diseases and pests and varietal purity is desired. Seed testing will be a guide to the person who will plant the seed and for seed quality control purposes. In all these cases, the ultimate purpose of making the test is to determine the value of seed for planting.

vi) Project Components

To establish a Seed Testing Laboratory to test moisture, purity, germination and ODV of the given seed sample the following equipments are necessary.

1. Mixing and Dividing Equipments

Seed samples entering a laboratory should be thoroughly mixed before they are divided for making a purity analysis. Soil type divider is proposed to be purchased as these mixers and dividers are faster and more accurate.

2. Moisture Testing Equipment

Moisture testing equipment for making rapid moisture determinations to provide quick moisture percentage on seed lots. Digital moisture meter is to be purchased.

3. Weighing Equipments

It is proposed to purchase Top loading weighing balance and Electronic Weighing balance (to weigh a minimum of 0.1 mg) for weighing the submitted samples and moisture determinations.

4. Purity Analysis Equipment

Purity analysis equipments are used to analyze the physical purity of submitted seed sample which is pre requisite for conducting germination test. The Illuminated purity work board is to be purchased for physical purity analysis.

5. Germination Equipment

Seed Germination in the laboratory should be made under ideal conditions. This necessitates controlled temperature and humidity. For conducting germination test under prescribed temperature and humidity for various agricultural and horticultural crop seed samples Cabinet germinator is very much required. Germination Trays, Petri dishes are necessary for conducting Germination Test. Germination paper, filter paper are the media that are to be purchased for the new Seed Testing Laboratories.

6. Storage Equipment

The Seeds received for testing should be stored at controlled conditions for future use. Hence it is proposed to purchase seed storage racks.

7. General

Thermometer, Hygrometer to measure temperature and humidity respectively are needed. Trolley (Movable) for transporting sand, Air Conditioner to maintain prescribed temperature is required. Work table and work chair are necessary for carrying out various works like germination, purity analysis and for working of equipments etc.

8. Computers with accessories

Computer with accessories are needed for declaring the results in the internet and storing data on seed analysis.

vii) Project Cost and Finance

The Seed Testing Laboratory that is to be established will be at an approximate cost of Rs.6.00 lakhs.

viii) Implementation Chart of the Project

The staff pattern as proposed in the restructuring shall be accommodated. The recurring expenditure towards pay and allowances for the staffs proposed as per restructure proposal and the recurring expenditure towards other items shall be borne by the State Government. The equipments for Seed Testing Laboratory are expected to be purchased during 2008-09.

ix) Monitoring and Evaluation

Implementation of the proposed project shall be evaluated then there by Department of Seed Certification.

x) Budget

The Seed Testing Laboratories that are to be established should have the following equipments for the purpose of analyzing seed samples for moisture, physical purity, germination and Other Distinguishable Varieties. The budget requirement is furnished below in Table 6.2.

Table 6.2 The Budget Allotment for Establishing Seed Testing Laboratory in Virudhunagar District

Sl. No.	Name of the Instrument/ Equipment	Approx. Qty. required for One lab	Approx. Cost /unit Rs.	Aprox.cost For one lab. Rs.
1	Weighing Balance-Top Loading	1	5000	5000
2	Illuminated purity Work board	1	4000	4000
3	Electronic Weighing balance (0.1 mg)	1	30000	30000
4	Soil type divider	1	7500	7500
5	Digital moisture meter with stabilizer	1	17500	17500
6	Germination trays	200	175	35000
7	Petri dishes	50	300	15000
8	Thermometer	1	300	300
9	Hygrometer	1	1500	1500

Table 6.2 contd…

Sl. No.	Name of the Instrument/ Equipment	Approx. Qty. required for One lab	Approx. Cost /unit Rs.	Aprox.cost For one lab. Rs.
10	Cabinet Germinator (Double door) along with stabliser	1	225000	225000
11	Air Conditioner (split type) along with stabilizer	2	35000	70000
12	Work Table	5	4000	20000
13	Work Chair	4	2500	10000
14	Trolley(Movable)	1	5000	5000
15	Computer with accessories	1	60000	60000
16	Germination Paper (Roll towel) in Kgs	200	165	33000
17	Filter paper (Nos)	50	35	1750
18	Seed Storage Rack	2	6000	12000
19	Telephone Connection with Broad band	1	1250	1250
20	Miscellaneous items			46200
	Total			**600000**

Note :The above list of equipments is tentative. Based on the actual price of the equipments, the quantity and cost indicated for each of the above mentioned items may be altered and some of the equipments may be deleted so as to accommodate the purchase of equipments within the overall provision.

Thus , for establishing a seed testing laboratory in Virudhunagar district a budget outlay of Rs 6.00 lakhs is required, as detailed in the table, above.

6.4 Horticulture Sector

6.4.1 Introduction

For the development of Horticulture in Virudhunagar district the following eleven projects have been proposed and the details are presented project-wise, below.

Project: 1

i) Project Title: Net-House Structure for Nursery and Vegetable Production

ii) Project Back Ground / Problem Focus

The prevailing climate and soil condition in Virudhunagar district especially in the western ghats area is highly favorable for cultivation of many varieties of vegetable

crops especially Onion, Tomato, Chillies, Brinjal, Coriander etc. The normal vegetable cultivation area of Virudhunagar district is around 6500 ha including Chillies, yams and Onion.

iii) Project Rationale

The scheme component will be implemented in eleven blocks periodically in four years. Assistant Director of Horticulture, Horticulture Officers. Deputy Horticulture Officer and Assistant Agriculture Officer of the particular blocks will select the suitable and appropriate farmers based on the nature of land, available water source in the site. They are responsible for verifying the land records of the beneficiary. The extension functionary team will give technical advice for maintaining net house and production of super seedlings for further cultivation.

iv) Project Goals

i. To achieve the increased production and productivity of the Horticultural Crops especially Vegetable crops by the supply of super seedlings of hybrid varieties produced under the net house structure.
ii. By providing the technical know hour to farmers regarding the cultivation of hybrid varieties of Vegetable crops.
iii. To increase the productivity per unit area by making the farmer to grow hybrid varieties of different vegetable crops.

v) Project Strategy

Fifty percent subsidy will be provided for the execution of net house structure with a view to produce, quality hybrid seedlings, 19 Nos of net house will be erected in potential places of 11 blocks 2 Nos in 8 potential blocks and 1 no in balance 3 blocks.

vi) Project Components

Nineteen numbers of net house units with 50-75 percent shade net units will be established in 300sqm in 11 blocks. The total project cost for 300sqm will be Rs. 1.00 lakh out of the total 1.00 lakh Rs.0.50 lakh will be provided by NADP as subsidy.

vii) Project Cost

The financial requirement for this project year-wise has been given in Table 6.3 below.

Table 6.3 Year-Wise Budget Estimates for the Project-Net House Structure

(Phy: sqm Fin: Rs. lakhs)

S. No	Scheme Component	2008-09		2009-10		2010-11		2011-12		Total	
		Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.	Phy	Fin.
1.	Net House Structure	600	1.00	1500	2.50	1800	3.00	1800	3.00	5700	9.5

Total project cost = 19.00 lakh

Subsidy = 9.5 lakh provided by NADP

Farmers contribution = 9.5 lakh

viii) Implementation Chart of the Project

S. No	Name of the Block	Year- wise Target and Implementation			
		2008-09	2009-10	2010 -11	2011-12
1.	Rajapalayam	2	-	-	1
2.	Srivilliputtur	-	2		-
3.	Watrap	-	2		-
4.	Sivakasi	-	-	2	-
5.	Vembakottai	-	1		-
6.	Virudhunagar	-	-	1	-
7.	Sattur	-	-	2	-
8.	Kariapatti	-	-	-	2
9.	Aruppukottai	-	-	-	2
10.	Trichuli	-	-	-	1
11.	Narikudi	-	-	1	-
	Total	**2 (600 sqm)**	**5 (1500 sqm)**	**6 (1800 sqm)**	**6 (1800 sqm)**

Step – 1	**:**	Selection of beneficiary by adopting the operational guidelines given by the NADP.
Step – 2	**:**	Soil, water analysis.
Step – 3	**:**	Preparation of estimates.
Step – 4	**:**	Getting approval from concerned authorities.
Step –5	**:**	Execution of the work with involvement of the beneficiary.
Step – 6	**:**	Completion and handing over of the structure.
Step – 7	**:**	Technical guidance for growing of vegetables
Step – 8	**:**	Documentation.

ix) Reporting

The progress of the scheme will be reviewed by the Deputy Director of Horticulture every month and report will be submitted to the Directorate of Horticulture and Plantation Crops before the end of month.

Project: 2

i) Project Title : Pandal for Vegetable Production

ii) Back Ground / Problem Focus

In Virudhunagar district an area of around 106 Ha is under gourds, cucumber, lab-lab which are all suitable for pandal cultivation. In the prevailing area, the crops are grown in conventional methods with low - cost technology for want of proper guidance and funding. The prevailing production is very low with poor quality. The area is likely to be reduced due to the non - availability of labourers.

iii) Project Rationale

The project will be implemented in potential places of 7 blocks and it will act as model for the other farmers. The produce of these projects can be sold for higher prices because of the superior quality due to the pandal method. The scheme will be further improved by the department of Horticulture field functionaries by adding technical knowhow both for cultivation and post - harvest handling.

iv) Project Goals

i. To increase the production of Quality Vegetables.
ii. Pesticides free cultivation by providing nets around the pandal to protect damage from insets
iii. Minimizing labour in harvesting charges and weeding charges.
iv. Increasing profitability per unit area.

v) Project Strategy

Fifty percent subsidy will be provided for the execution of pandal Vegetable cultivation. The project will be implemented in selected 7 blocks of the district in the period of four years.

vi) Project Components

The cost of construction of pandal for one ha will be 1.00 lakh. The NADP will provide 50 per cent subsidy of Rs. 0.50 lakh for one ha. The pandal will consist of stone pillar and G.I wire and necessary nets for protecting insect pest.

vii) Project Cost

The year-wise project costs are as detailed in Table 6.4 below

Table 6.4 Year-Wise Budget Estimates for the Project – Pandal Structure

(Phy: sqm, Fin: Rs. lakhs)

S. No	Scheme Component	2008-09		2009-10		2010-11		2011-12		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1.	Pandal Vegetable cultivation	1	0.5	2	1.00	2	1.00	2	1.00	7	3.5
	Total	**1**	**0.5**	**2**	**1.00**	**2**	**1.00**	**2**	**1.00**	**7**	**3.5**

Total project cost = 7.00 lakh
Subsidy = 3.50 lakh
Farmers contribution = 3.50 lakh

viii) Implementation Chart of the Project

S. No	Name of the Block	Year-wise target and implementation				
		2008-09	2009-10	2010-11	2011-12	Total
1.	Rajapalayam	1				1
2.	Srivilliputtur		1			1
3.	Watrap		1			1
4.	Sivakasi			1		1
5.	Aruppukottai			1		1
6.	Narikudi				1	1
7.	Kariapatti				1	1
	Total	**1**	**2**	**2**	**2**	**7**

Initially the scheme will be implemented in potential blocks and then extended to other places by drawing attention of the other farmers in the success of the scheme.

ix) Reporting

The progress of the scheme will be received by deputy Director of Horticulture at every months and report will be submitted to the Directorate of Horticulture and Plantation Crops before the end of every month.

Project : 3

i) Project Title : Plant Protection Equipments For Vegetable Crops

ii) Back Ground / Problem Focus

The pest management in vegetable crops is great task to the farmers. The third generation chemicals and equipments are yet to reach the remote villages of the district. This condition is prevailing due to lack of knowledge and economic status of the farmer. The Vegetable growing farmers of this district are still practicing the low value and less efficient plant protection equipments.

iii) Project Rationale

The scheme component will be implemented in all 11 blocks of the district, since the vegetables are grown sporadically in all blocks. The Assistant Director of Horticulture Officer/ Deputy Horticulture Officers/Assistant Agriculture Officer will select the farmers who are in need of the package and they will be supported by their component for effective control of pest in vegetable crops.

iv) Project Goals

1. To increase the production of vegetables in the district
2. To minimize the farmers expenditure in plant protection.
3. Introduction of latest machines in plant protection aspect.

v) Project Strategy

Fifty percent subsidy will be provided for the execution of the plant protection package. The quality plant protection equipments will be distributed for effective control of pest and disease for the vegetable growing farmers of all 11 blocks in the district.

vi) Project Component

Each of the plant protection equipment will be provided with 50 percent subsidy to a maximum of Rs. 1500/No The 50 percent subsidy will be provided by NADP.

vii) Project Cost

The year-wise project costs are as detailed in Table 6.5 below.

Table 6.5 Year-Wise Budget Estimates for the Project - Plant Protection

(Phy: sqm, Fin: Rs. lakhs)

S. No	Scheme component	2008-09		2009-10		2010-11		2011-12		Total	
		Phy	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
1.	Plant Protection equipment	10	0.15	20	0.30	30	0.45	30	0.45	90	1.35
	Total	**10**	**0.15**	**20**	**0.30**	**30**	**0.45**	**30**	**0.45**	**90**	**1.35**

Total project cost = 2.70 lakh
Subsidy = 1.35 lakh
Farmers contribution = 1.35 lakh

viii) Implementation Chart of the Project

The scheme will be implemented in all 11 blocks for the period of four years from 2008-09 to 2011-12.

ix) Reporting

The progress of the scheme will be reviewed by Deputy Director of Horticulture every month and report will be submitted to the Directorate of Horticulture and Plantation Crops before the end of month.

Project: 3

i) Project Title : Plastic Crates for Vegetable Handling

ii) Back ground / Problem Focus

In Virudhunagar district around 6500 Ha is under Vegetables including Chillies, Yam and onion. Most of the farmers are practicing the conventional methods of packing the vegetables to the markets. These practices cause damage to the produce and intern lead for loss to the farmers. The market for fresh vegetables is only based on the post harvest handling technologies. The plastic crates method of packing seems to be cheap and effective to the farmers.

iii) Project Rationale

The scheme component will be implemented in all 11 blocks of the district. The Assistant Director of Horticulture / Horticulture Officers/Deputy Horticulture Officer/ Assistant Agriculture Officers will select the suitable and appropriate farmers based on the nature of vegetable crops raised. The extension functionaries will give proper guidance for packing method for better transport to the markets.

iv) Project Goals

1. To minimize the post harvest damages to the vegetables
2. To minimize the packing cost and transport cost.
3. To improve the quality of the produce.
4. To support in the market linkage with the high standard super markets.

v) Project Strategy

Fifty percent subsidy will be provided for the distribution of plastic crates for Vegetable crops. The project will be implemented in all 11 blocks of the district in the period of four years.

vi) Project Component

The cost of one plastic crates will be Rs. 250. The NADP will provide 50 percent subsidy of Rs. 125/ plastic crates, each farmer will get maximum 50 plastic crates at a time.

V) Project Cost

The year-wise project costs are as detailed in Table 6.6 below

Table 6.6 Year-Wise Budget Estimates for the Project – Plastic Crates

(Phy: sqm, Fin: Rs. lakhs)

Scheme compo-nent	Unit cost Total cost	Pattern of subsidy	2008-09		2009-10		2010-11		2011-12		Total	
			Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
Plastic crates for vegetable handling.	Rs.250/ crates	50 percent	1000	1.25	1000	1.25	1000	1.25	2000	2.5	5000	6.25

Total Project cost = 12.5 lakh

50 percent Subsidy Cost = 6.25 lakh

Farmers Contribution = 6.25 lakh

vi) Implementation Chart of the Project

(Phy : No, Fin : lakh)

S. No	Name of the Block	Year-wise Target and Implementation			
		2008-09	2009-10	2010-11	2011-12
1.	Rajapalayam	100	100	100	200
2.	Srivilliputtur	100	100	100	200
3.	Watrap	100	100	100	200
4.	Sivakasi	100	100	100	200
5.	Vembakottai	100	100	100	200
6.	Virudhunagar	100	100	100	200
7.	Sattur	100	100	100	200
8.	Kariapatti	100	100	100	200
9.	Aruppukottai	100	100	-	200
10.	Trichuli	100	-	100	100
11.	Narikudi	-	100	100	100
	Total	**1000**	**1000**	**1000**	**2000**

The distribution of plastic crates will be gradually done in all 11 blocks for four years.

vii) Reporting

The progress of the scheme will be reviewed by Deputy Director of Horticulture every month and report will be submitted to the Directorate of Horticulture and Plantation Crops before the end of month.

Project : 4

i) Project Title: Banana Bunch Cover

ii) Back ground / Problem Focus

Banana is grown in this district in an area of about 800 ha. The major varieties grown are Rasthali, Monthan and Robusta. The Robusta banana grown in this district is fetching lower market price due to poor quality. The main cause for poor quality is due to insect attack and other calamities. The average weight of the bunch is less than 10 kg and the farmers are not getting better price.

iii) Project Rationale

The scheme component will be implemented in selected varieties of banana like Robusta and Grand Naine. The Assistant Director of Horticulture / Horticulture Officers/Deputy Horticulture Officer/ Assistant Agriculture Officers will select the suitable and appropriate farmers based on the nature of varieties, season etc. The extension functionaries will give proper guidance for usage of the Banana cover.

iv) Project Strategy

Fifty percent subsidy will be given for banana bunch covers. The high yielding varieties like Robusta, G.9, and cultivating farmers will be selected for the distribution of the Banana bunch covers.

v) Project Goals

1. To improve the quality of Banana bunches.
2. To increase the market value of the bunch.
3. To reduce the post harvest wastage by increasing the shelf life of the banana.

vi) Project Component

The Banana bunch covers @ Rs. 10/cover will be distributed at 50 percent subsidy and the maximum subsidy will be given 3000 nos/ farmer.

vii) Project Cost

The year-wise project costs are as detailed in Table 6.7 below

Table 6.7 Year-Wise Budget Estimates for the Project – Banana Bunch Cover

(Phy: sqm, Fin: Rs. lakhs)

Scheme component	Unit cost Total cost	Pattern of subsidy	2008-09		2009-10		2010-11		2011-12		Total	
			Phy	Fin	Phy.	Fin	Phy	Fin	Phy	Fin.	Phy	Fin.
Banana bunch cover	Rs. 10 / Cover	50 percent	-	-	-	-	30000	1.5	30000	1.5	6000	3

Total Project cost	=	6.0	lakh
50 percent Subsidy Cost	=	3.0	lakh will be provided NADP
Farmers Contribution	=	3.0	lakh

viii) Implementation Chart of the Project

The project will be implementing during to 2011-12 in a two years span. The beneficiary will be selected one year prior to the implementation and they will be trained and motivated to grow improved varieties and next year the bunch cover will be distributed.

ix) Reporting

The progress of the scheme will be reviewed by Deputy Director of Horticulture every month and report will be submitted to the Directorate of Horticulture and Plantation Crops before the end of month.

Project : 5

i) Project Title: Bore Well

ii) Back Ground / Problem Focus

In Virudhunagar district vast area is available barren for want of irrigation facilities many of the potential lands are under rainfed condition with low value crops. To improve the land and add value to the land, irrigation facilities is fore most important

iii) Project Rationale

The scheme component will be implemented in all 11 blocks of the district where the need is felt very much. The value of the land will be increased and the high value crop will be grown. By implementation of this component, farmer's economic status will be improved

iv) Project Strategy

Fifty percent subsidy will be provided for the execution of Bore well with casing pipe. The beneficiary without irrigation facilities will be selected and the work executed.

v) Project Goals

1. To increase the irrigated area
2. To increase the productivity of crops under irrigation.
3. To increase the high value crop area.

vi) Project Component

The Bore well with casing pipe to a maximum 50 percent subsidy @ 0.75 lakh is provided for one bore well. The 50 percent cost will be covered under NADP as subsidy.

vii) Project Cost

The year-wise project costs are as detailed in Table 6.8 below

Table 6.8 Year-Wise Budget Estimates for the Project - Borewell

(Phy: sqm, Fin: Rs. lakhs)

S. No	Scheme Component	2008-09		2009-10		2010-11		2011-12		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1.	Bore well with casing pipe	4	3.00	4	3.00	6	4.5	6	4.5	20	15
	Total	**4**	**3.00**	**4**	**3.00**	**6**	**4.5**	**6**	**4.5**	**20**	**15**

Total project cost = 30.00 lakh

50 percent subsidy cost = 15.00 lakh

Farmers contribution = 15.00 lakh

viii) Implementation Chart of the Project

S.No.	Name of the Block	Year wise Target and Implementation				Total Nos
		2008-09	2009-10	2010-11	2011-12	
1.	Rajapalayam	1	-	-	-	1
2.	Srivilliputtur	1	-	-	-	1
3.	Watrap	1	-	-	-	1
4.	Sivakasi	1	-	-	-	1
5.	Vembakottai	-	1	-	-	1
6.	Virudhunagar	-	1	-	1	2
7.	Sattur	-	1	-	1	2
8.	Kariapatti	-	1	-	1	2
9.	Aruppukottai	-	-	2	1	3
10.	Trichuli	-	-	2	1	3
11.	Narikudi	-	-	2	1	3
	Total	**4**	**4**	**6**	**6**	**20**

ix) Reporting

The progress of the scheme will be reviewed by the Deputy Director of Horticulture every month and report will be submitted to the Directorate of Horticulture and Plantation Crops before the end of the month.

Project : 6

i) Project Title : Support System for Crops - Banana

ii) Back Ground / Problem Focus

In Virudhunagar district 800 ha of banana is grown. Due to the monsoon and other natural calamities, the unseasonable rain and wind affects banana crop often in this district and the farmers are knocking the doors of district administration for getting relief from the damage. This is happening every year in this district.

iii) Project Rationale

The scheme component will be implemented in 5 blocks of this district, where the wind velocity is high during monsoon and other season

iv) Project Strategy

Seventy five percent subsidy will be provided for the execution of support to the banana crop. The support system will be provided to wind prone area

v) Project Goals

- To prevent the damages to the banana crop.

vi) Project Component

The support system for banana will cost Rs.50 /bunch at 75 percent subsidy. The total cost for support system will be Rs.75/bunch. Each eligible farmer will avail a maximum of 1 Ha.

vii) Project Cost

The year-wise project costs are as detailed in Table 6.9 below

Table 6.9 Year-Wise Budget Estimates for the Project - Support For Banana

(Phy: sqm, Fin: Rs. lakhs)

S. No	Scheme component	2008-09		2009-10		2010-11		2011-12		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1.	Support for Banana crop	10	10	25	25	25	25	25	25	85	85
	Total	**10**	**10**	**25**	**25**	**25**	**25**	**25**	**25**	**85**	**85**

viii) Implementation Chart of the Project

S.No.	Name of the Block	Year-wise Target and Implementation				Total Nos
		2008-09	2009-10	2010-11	2011-12	
1.	Srivilliputtur	2	5	5	5	17
2.	Sivakasi	2	5	5	5	17
3.	Rajapalayam	2	5	5	5	17
4.	Watrap	2	5	5	5	17
5.	Virudhunagar	2	5	5	5	17
	Total	**10**	**25**	**25**	**25**	**85**

ix) Reporting

The progress of the scheme will be reviewed by Deputy Director of Horticulture every month and report will be submitted to the Directorate of Horticulture and Plantation Crops before the end of month.

Project: 6

i) Project Title : Sales Out-let Point in District

ii) Back Ground / Problem Focus

In Virudhunagar district there are 241 private retail points dealing with agriculture inputs. The dealers are profit oriented rather than service oriented to the farmers. Most of the farmers are applying agriculture inputs to the crops recommended by the private dealers. These practices create lot of problem in pest management of crops and varietal purity of the crop.

iii) Project Rationale

The retail out-let will attract the farmers to innovative varieties of different crops. The retail out let will act as a contact point between department officials and the farmers. They can easily access the selling point and get the quality agricultural inputs like seeds and manures. The potential four places will be selected which is the center point of the

zone. The out let point will be connected with transport facilities for easily access by the farmers. The extension official who is not below the rank of Deputy Horticulture Officer will be in charge of the out let and will be supported by one sales Assistant.

iv) Project Strategy

1. Setting up of retail out let in places of the district which will represent one zone.
2. Quality seeds, Plants, manures will be sold to the farmers.
3. The centre will act as contact point.

v) Project Goals

1. Quality seeds and planting material distribution to farmers.
2. Dissemination of latest know how and information to farmers.
3. Act as contact point between Horticulture department officers and farmers.

vi) Project Component

One sale out-let will be set up with a cost of Rs.2.6 lakh in a rented building with infrastructure. The centre will be managed by one Horticulture Officer/Deputy Horticulture Officer with a help of one sales Assistant.

vii) Project Cost

The year-wise project costs are as detailed in Table 6.10 below

Table 6.10 Year-Wise Budget Estimates for the Project –Retail Outlet

(Phy: sqm, Fin: Rs. lakhs)

S. No	Scheme component	2008-09		2009-10		2010-11		2011-12		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1.	Setting up of retail out let	1	2.6	1	2.6	1	2.6	1	2.6	4	10.4
	Total	**1**	**2.6**	**1**	**2.6**	**1**	**2.6**	**1**	**2.6**	**4**	**10.4**

Total project cost : Rs. 10.4 lakh

Subsidy : Rs. 10.4 lakh

Full grant by NADP to department

viii) Implementation Chart of the Project

S. No	Name of the Place	2008-09		2009-10		2010-11		2011-12		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1	Rajapalayam	1	2.6							1	2.6
2	Srivilliputtur			1	2.6					1	2.6
3	Virudhunagar					1	2.6			1	2.6
4	Aruppukottai							1	2.6	1	2.6
	Total	**1**	**2.6**	**1**	**2.6**	**1**	**2.6**	**1**	**2.6**	**4**	**10.4**

ix). Reporting

The progress of the scheme will be reviewed by Deputy Director of Horticulture every month and report will be submitted to the Directorate of Horticulture and Plantation Crops before the end of month.

Project: 7

i) Project Title : District Level Farmer Work Shop

ii) Background / Problem Focus

The following horticulture crops are being grown in Virudhunagar district

S.No	Crops	Area (Ha.)
1	Spices and condiments	9919
2	Fruits crops	3957
3	Vegetables	2319
4	Medicinal plants	697
Total		**16890**

About 25000 small and marginal farmers are involved in Horticulture crop cultivation. The small and marginal farmers are still following the conventional methods of cultural practices in the district. The need for supporting such farmers through conducting work shops with modern techniques is necessary to update the knowledge in the filed of Horticulture.

iii) Project Rationale

The average Horticulture production of this district is less because of the problematic soil and non adoption of modern technique in the field of Horticulture. If the workshop with an expenditure of Rs.10 Lakh for 2500 farmers will definitely help to improve the knowledge to the small and marginal farmers.

iv) Project Strategy

Full aid will be given for the participants in the workshop. The selection of farmers will be done by the Assistant Director of Horticulture / Horticulture Officer/Deputy Director of Horticulture/Assistant Agriculture Officer. The farmers will be given exposure and motivated to practice the modern Horticulture.

v) Project Goals

1. To educate Hi Tec. Horticultural practice to the farmers.
2. To strengthen the capacity of the farmers.
3. To motivate the farmers to involve in the modern Horticulture.

vi) Project Component

The allotment for each farmer for conducting works shop will be

a. Hall Rent	:	20/-
b. Printed materials	:	100/-
c. Working lunch	:	50/-
d. Honorarium for Trainers	:	20/-
e. TA for participants	:	100/-
f. Training materials	:	150/-
g. Other expenses (lumsum)	:	60/-
Total	**:**	**400/-**

vii) Project Cost

The year-wise project costs are as detailed in Table 6.11 below.

Table 6.11 Year-Wise Budget Estimates for the Project – Farmers Workshop

(Phy: sqm, Fin: Rs. lakhs)

S. No	Scheme component	2008-09		2009-10		2010-11		2011-12		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1.	Farmers workshop	500	2.00	500	2.00	500	2.00	1000	4.00	2500	10.00
	Total	**500**	**2.00**	**500**	**2.00**	**500**	**2.00**	**500**	**4.00**	**2500**	**10.00**

Total project cost : Rs. 10.00 lakh

Subsidy : Rs. 10.00 lakh

The full aid will be given by NADP as it comes training aspect**.**

viii) Implementation Chart of the Project

(Physical: no Financial: lakh)

S. No	Year of Implementation	Block	Season				Total	
			Kharif		Rabi			
			Phy	Fin.	Phy.	Fin.	Phy	Fin
1	2008-09	Entire district	250	1.00	250	1.00	500	2.00
2	2009-10	Entire district	250	1.00	250	1.00	500	2.00
3	2010-11	Entire district	250	1.00	250	1.00	500	2.00
4	2011-12	Entire district	500	2.00	500	1.00	1000	4.00
		Total	**1250**	**5.00**	**1250**	**5.00**	**2500**	**10.00**

ix) Reporting

The progress of the scheme will be reviewed by Deputy Director of Horticulture every month and report will be submitted to the Directorate of Horticulture and Plantation Crops before the end of month.

Project : 8

i) Project Title : Inter State Exposure Visit

ii) Background / Problem Focus

In Virudhunagar district. The following Horticulture crops are being grown by the farmers.

A. Spices and condiments	:	9919 Ha
B. Fruits crops	:	3957 Ha
C. Vegetables	:	2319 Ha
D. Medicinal plants	:	697 Ha
Total	**:**	**16890 Ha**

About 25000 small and marginal farmers are involved in Horticulture crop cultivation. The small and marginal farmers are still following the conventional methods of cultural practices in the district. The need for supporting such farmers though conducting Exposure visit to successful project area in other state is necessary to update their knowledge in the filed of Horticulture.

iii) Project Rationale

The Exposure visit with the cost of Rs.5000/- per farmer is necessary because most of the small and marginal farmers are not capable of spending their own money in seeing the successful projects far away from their native place. Hence it is a needy proposal for this district.

iv) Project Strategy

The eligible farmers will be selected by Assistant Director of Horticulture / Horticulture Officer/Deputy Horticulture/Assistant Agriculture Officer of this district. The selected farmers will be taken to the proposed states where the successful projects are implemented. The necessary proposal for the tour will be prepared by the Deputy Director of Horticulture and submitted to Director of Horticulture and Plantation Crops for approval.

v) Project Goals

1. To update the knowledge of the small and marginal farmers.
2. To improve the cultural practice of the Horticulture by witnessing the success projects operated in other states.
3. To make the farmer confident on his mission

vi) Project Component

Each farmer will be provided with Rs.5000/- for 5 days exposure visit to other states.

a. Travel Expense : 2000/-

b. Stay : 1000/-

c. Training materials : 500/-

d. TA to participants : 1000/-

e. Other Expenses like entry fees etc : 500/-

Total : 5000/-

vii) Project Cost

The year-wise project costs are as detailed in Table 6.12 below.

Table 6.12 Year-Wise Budget Estimates for the Project-Exposure Visit

(Phy: sqm, Fin: Rs. lakhs)

S. No	Scheme component	2008-09		2009-10		2010-11		2011-12		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1.	Inter State Expose Visit to farmers (5 days)	200	10	200	10	200	10	400	20	1000	50
	Total	**200**	**10**	**200**	**10**	**200**	**10**	**400**	**20**	**1000**	**50**

Total project cost : Rs. 50.00 lakh

viii) Implementation Chart of the Project

The scheme will be implemented by selecting the farmers from entire district. The following is the chart.

S. No	Year	Place of implementation	Phy.	Fin.	Remarks
1	2008-09	Farmers will be selected from entire District	200	10.00	The Selection of farmers will be done by Assistant Director of Horticulture/Horticulture Officer/ Deputy Horticulture/ Assistant Agriculture Officer of this district preference to small and marginal farmers should be given.
2	2009-10		200	10.00	
3	2010-11		200	10.00	
4	2011-12		400	20.00	
		Total	**1000**	**50.00**	

ix) Reporting

The progress of the scheme will be reviewed by Deputy Director of Horticulture every month and report will be submitted to the Directorate of Horticulture and Plantation Crops before the end of month.

Project: 9

i) Project Title: Banana and Amla in Noon Meal Scheme (TANHOPE)

ii) Background / Problem Focus

In Virudhunagar district around 800 Ha of Banana and 150 Ha of Amla is being cultivated. The produce is sold to the local markets for low price through middle man to the merchants. To increase the profit for the farmers, the interested farmers group will be formed through Tan hope and the produce will be procured and supplied to noon meal scheme.

iii) Project Rationale

In Virudhunagar district 876 noon meal centres and functioning. At present nutrition through fruits are not provided to children. The fruit like Banana and Amla have high nutrition value and also contains medicinal value. Amla is notified by the

medicinal board under medicinal value crop. The banana fruit is rich in fibre and other nutrients which will improve the digestive system of the children. If the programme implemented, the children will benefit though noon meal scheme and about 1500 farmers will get benefit by direct marketing.

iv) Project Strategy

Full grant of Rs.50000/- may be given to the farmers group cultivating banana and amla by utilizing the seed money the banana, amla fruits will be procured from the members of the group and will be supplied to the noon meal programs. One percent of the sales value will be taken as implementing expenditure for the group and the money will be saved in their group account and thus, this accumulated funds will be utilized for the development activities of the group.

iv) Project Goals

1. To improve the nutrition value in noon meal programme.
2. To support the Banana and Amla growers.
3. To make a group of farmers to involve in a profitable venture.

v) Project Component

Rs.0.50 lakh will be given as one time seed money to the eligible group of Tanhope register group of farmers

vi) Project Cost

The year-wise project costs are as detailed in Table 6.13 below

Table 6.13 Year-Wise Budget Estimates for the Project (TANHOPE)

(Phy: sq.m, Fin: Rs. lakhs)

S. No	Scheme component	2008-09		2009-10		2010-11		2011-12		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1.	Banana / Amla in noon meal scheme (TANHOPE)	1	0.50	1	0.50	1	0.50	1	0.50	4	2.00
Total		**1**	**0.50**	**1**	**0.50**	**1**	**0.50**	**1**	**0.50**	**4**	**2.00**

Total project cost : Rs.2.00 lakh

The Rs.2.00 lakh will be fully aided by NADP

vii) Implementation Chart of the Project

(Phy : No , Fin : Lakh)

S. No	Year	Place of implement-tation	Phy.	Fin.	Remarks
1	2008-09	Rajapalayam	1	0.50	The group under TANHOPE under get the benefits.
2	2009-10	Srivilliputtur	1	0.50	
3	2010-11	Watrap	1	0.50	
4	2011-12	Aruppukottai	1	0.50	
		Total	**4**	**2.00**	

viii) Reporting

The progress of the scheme will be reviewed by Deputy Director of Horticulture every month and report will be submitted to the Directorate of Horticulture and Plantation Crops before the end of month.

Project: 10

i) Project Title :Hectare Mega Demo Plot for the District

ii) Back Ground / Problem Focus

In Virudhunagar district out of gross cropped area of 110633 Ha only 16890 Ha are under Horticulture crops. To increase the Horticulture crops area, different types of Horticulture development programmes are under implementation in this district. Even though the on - going programme is under progress. The farmers are reluctant to take

risk in modern, horticulture venture in their fields because of the non - availability of labuorers, and lack of knowledge on the latest techniques of Hi - tech Horticulture. It is necessary a 10 Ha mega demo plot with all modern aspects of cultivation in labour savings and input saving techniques.

iii) Project Rationale

In Virudhunagar district even though 80 percent of population is depended on Agriculture the main economy of the working class is match works, fire works and cotton industry. The demand for Agriculture labour in this district is increasing. The input cost for Horticulture crops are also increased due to the conventional cultivation operation. These lead the farmers in dejected mood for farming and they are indenting to migrate to near by towns and cities or keeping the land barren (or) selling to big corporate investors. To stop this attitude of the farmers and for creating a condusive atmosphere for farming is necessary in every zone of the district.

iv) Project Strategy

Cent percent subsidy for establishing 10 Ha demonstrations in one place. A 10 Ha land may be selected in the particular zone and the farmers/owners of the land may be requested to give their concern to lay the 10 Ha demonstration the land will be taken into the programme and the and the demonstration will be handed over to the group of farmers for further maintenance.

v) Project Goals

1. To make the demo as model for the zone.
2. To create a conducive atmosphere for Horticulture in the zone.
3. To introduce machines in cultivation operation for the different horticulture crops.

vi) Project Component

Area of Demonstration	: 10 Ha
Project cost	: 25 Ha

vii) Demonstration High Lights

1. Precision farming : 25 percent
2. Mechanized farming : 50 percent
3. Organic farming : 25 percent

The project cost of Rs.25 lakh will be fully allotted 100 percent subsidy will be allotted to their programme.

viii) Project Cost

The year-wise project costs are as detailed in Table 6.14 below

Table 6.14 Year-Wise Budget Estimates for the Project –Mega Demonstration

(Phy: sqm, Fin: Rs. lakhs)

S. No	Scheme Compo-nent	2008-09		2009-10		2010-11		2011-12		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1.	10 Ha Mega demons-tration	-	-	1	25	1	25	1	25	3	75
	Total	**-**	**-**	**1**	**25**	**1**	**25**	**1**	**25**	**3**	**75**

Total project cost : Rs.75.00 lakh

Subsidy : Rs.75.00 lakh

Farming contribution : Nil

ix) Implementation Chart of the project

(Phy : No Fin : Lakh)

S. No	Name of the Block	2009-10		2010-11		2011-12		Total	
		Phy	**Fin**	**Phy**	**Fin**	**Phy**	**Fin**	**Phy**	**Fin**
1	Rajapalayam	1	25					1	25
2	Watrap			1	25			1	25
3	Aruppukottai					1	25	1	25
	Total							**3**	**75**

x) Reporting

The progress of the scheme will be reviewed by Deputy Director of Horticulture every month and report will be submitted to the Directorate of Horticulture and Plantation Crops before the end of month.

Project : 11

i) Project Title: Enterprising Farming Association

ii) Background / Problem Focus

In Virudhunagar district 110633 Hectares are under cultivation both in Agriculture and Horticulture Crops. In Virudhunagar district the industrial activities are extensive and the high labour wages are offered by industries. The Agriculture labourers are being converted in to industrial labour in this district. The scope for farming is diminishing day – by - day because of the labour shortage. Every year more of cultivable lands are becoming current fallow lands because of the high cost in labour. The cost of farm machines like planters, harvesters is very high and it is not affordable by the small farmers. Hence the support for mechanization to a group of enterprising farmers is necessary.

iii) Project Rationale

The Agriculture scenario in this district diminished due the following reason.

- Non availability of laborers
- Problem soil
- Irrigation of farmers to nearby town and city.
- Low profit because of high input cost and labour charge.

The over come the problem a condusive atmosphere must be created for farm operation. Mechanization is the one way to succeed in the mission

iv) Project Strategy

Full aid for the farm machines like harvester, planter will be allowed. For this enterprising farmers group will be formed and registered. The machinery will be supplied to the farmers jump group. The machinery will be rented to needy farmers as per the rent fixed by the NADP. The rent collected by the farmers group will be accounted and the maintenance expenditure may be carried out from the revenue. The profit out the operation will be kept accumulated for future expansion activities.

v) Project Goals

1. To introduce farm mechanization in small and marginal farmers land.
2. To reduce the cost of cultivation and over come the labour shortage problem
3. To support the enterprising farmers association.

vi) Project Component

Full assistance to the enterprising farmers group for procurement of needy farm machines like harvester planter, ploughing machines for the tune of Rs.25.00 lakh/group.

vii) Project Cost

The year-wise project costs are as detailed in Table 6.15 below

Table 6.15 Year-Wise Budget Estimates for the Project –Farmers Association

(Phy: sqm, Fin: Rs. lakhs)

S. No	Scheme component	2008-09		2009-10		2010-11		2011-12		Total	
		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
1.	Enterprising farmers association	-	-	-	-	1	25	1	25	2	50.00
	Total	**-**	**-**	**-**	**-**	**1**	**25**	**1**	**25**	**2**	**50.00**

Total project cost : Rs.50.00 lakh

Subsidy : Rs.50.00 lakh

Farming contribution : Nil

viii) Implementation Chart of the Project

(Phy : No , Fin : Lakh)

S. No	**Name of the Block**	**2010-11**		**2011-12**		**Total**	
		Phy	**Fin**	**Phy**	**Fin**	**Phy**	**Fin**
1	Rajapalayam	1	25			1	25
2	Aruppukottai			1	25	1	25
	Total					**2**	**50**

ix) Reporting

The progress of the scheme will be reviewed by Deputy Director of Horticulture every month and report will be submitted to the Directorate of Horticulture and Plantation Crops before the end of month.

Total Budget for Horticulture Development

Budgetary requirements for the projects proposed for Horticulture Development in Virudhunagar District are given in Table 6.16, below

Table 6.16 Total Budget for Horticulture Development in Virudhunagar District

(Rupees in Lakhs)

S.No	Project Component	2008-09	Total Outlay (2008-2012)
1	Net House structure		
	a. Nursery and Vegetable production @ Rs.1.00 lakh/300 Sq.m with 50 percent subsidy	1	9.5
2	Pandal for vegetable production @ Rs.1.00 lakh/ha with 50 percent subsidy	0.5	3.5
3	Plant protection Equipment @ Rs.3,000/ No with 50 percent subsidy	0.15	1.35
4	Plastics Crates for Vegetable handling and transport @ Rs.250/crate with 50 percent subsidy	1.25	6.25
5	Borewell with casing pipe @Rs.1.5lakh/ No. with 50 percent subsidy	3	15
6	Banana Bunch cover @ Rs.10/piece with50 percent subsidy	0	3
7	Support system for crops		
	a. Banana @Rs.1.5lakhs/ha @ 75 percent subsidy	10	85
8	Sales outlet points in districts (Rent and infrastructure) Rs.2.60.lakh/No	2.6	10.4
9	District Level Farmers Workshop @ Rs.400/farmer/day	2	10
10	Inter State Exposure visit (5 day) @ Rs.5,000/ farmer	10	50
11	Banana/Amla in noon meal scheme (TANHOPE) @ Rs. 50,000/group /district	0.5	2
12	10 hectare mega demo plot for the districts @ Rs.25.00 lakhs each	0	75
13	Enterprising framers associations @ Rs.25.00 lakhs each	0	50
14	Support senna cultivation @ Rs.15,000/ha with 50 percent subsidy	3.75	* 20.64
	Grand Total	**34.75**	**341.64**

* Distributed for four years as follows

2008-09	2009-10	2010-11	2011-12
3.75	**5.63**	**5.63**	**5.63**

6.5. Agricultural Engineering Sector

i) Project Title : Comprehensive Project for Developing Agricultural Engineering Activities in Virudhunagar District

ii) Project Cost Abstract

The main aim of the National Agriculture Development Programme (NADP-RKVY) is to achieve 4 per cent annual growth in agriculture sector during XI plan period by ensuring holistic development of agriculture and allied sectors. The areas of focus are emphasized under NADP and among them Agriculture Mechanization, Enhancement of soil fertility, Development of rain fed farming systems in and outside watershed areas as integrated development of watershed areas, Special schemes for beneficiaries of land reforms, and Innovative schemes are taken care by Agricultural Engineering Department to implement NADP with involvement of farming community on participatory approach, to attain the goals/objectives prescribed under NADP. The project proposals pertaining to Agricultural Engineering Department, are prepared for Virudhunagar District for inclusion in District Agriculture Plan and then State Agriculture Plan, on Stream-I (Innovative works) & Stream-II (on going programmes) for implementation of NADP over the period of 4 years (2008-2012).

iii) Project Rationale

The following problems are being faced by the farmers in agriculture:

- Inadequate labour availability for agricultural operations viz., transplantation, weeding, harvesting, thrashing etc., resulting in decrease in cropping area, migration and low productivity.
- Declining ground water table and so decrease in ground water/irrigation potential.
- Low farm productivity due to soil erosion and less soil moisture retention.
- Lack of knowledge in adoption of new agriculture and post harvest technologies.
- No matching market prices with respect to cost of cultivation and hence low farm income.

The following tasks are to be carried out under NADP to redress the above problems, for beneficial to farmers and will also help in overcoming the problem of labour shortage and also in timely agricultural operations and in the reduction of the recurrent cost of agricultural operations to a major extent. This will indirectly result in the enhancement in the farmers' income.

1. Agriculture Mechanisation- to minimise the labour dependability
2. Maximisation of soil moisture retention
3. Rain water harvesting and use
4. Ground water recharge and exploitation
5. Adoption of effective water management practices.
6. Adoption of innovative agriculture and post harvest technologies.
7. Adoption of integrated agriculture with horticulture, agro forestry, Dairy, Fish culture for sustainable income.

iv) Project Strategy

Under NADP, the District Agriculture Plan (DAP) is to be formulated for each district which shall not be the usual aggregation of the existing schemes but would aim at moving towards projecting requirements for development of agriculture and allied sectors of the district. The DAP shall present the vision for Agriculture and allied sectors within overall development perspective of the district. The DAP would present the financial requirement and the sources of financing the agriculture development plans in comprehensive way.

The DAP would comprise two streams of work components as follows

Stream - I

The innovative work components shall be proposed in Stream-I which would be beneficial to the farming community in respect of introduction new technology measures, adoption of new methodologies and promotion of new concepts.

Stream - II

The work components which were approved under on-going programmes are proposed under Stream-II in order to strengthen the on going programmes and to supplement the required financial outlay

v) Project Goals

The main objectives of NADP are

a. To achieve 4 per cent annual growth in agriculture sector during XI Plan period.
b. To ensure the preparation of agriculture plans for the Districts and States based on agro-climatic conditions, availability of technology and natural resources.
c. To achieve the goal of reducing the yield gaps in important crops, through focussed interventions.
d. To maximise the income to the farmers in agriculture and allied sectors.
e. To bring about quantifiable changes in the production and productivity of various components of Agriculture and allied sectors by addressing them in a holistic manner.

vi) Project Components

To achieve the above goals, Under Stream-I, the following work components are proposed by Agricultural Engineering Department:

(a) **Introduction of Newly Developed Agricultural Machinery / Implements Including Gender Friendly Equipments**

In view of inadequate labour availability for farm operations, the promotion of farm mechanisation is inevitable. Besides the conventional type of farm machinery and implements like tractors, tillers, disc ploughs, mould board ploughs etc., various types of

agricultural machinery/farm implements suitable for different farm operations are designed and developed. The Agricultural Engineering faculty of Tamil Nadu Agricultural University (TNAU) has developed various models of farm machinery and implements which would suit to all types of operations for wide range of crops like paddy, maize, pulses, millets, coconut, sugarcane, banana, horticultural crops etc., Such newly developed machinery/implements are proposed to be distributed to farming community in all parts of districts under 50 percent subsidy. Also, the cost effective gender friendly farm equipments are developed by TNAU which will be useful to farmers, in particular to women. The gender friendly farm equipments are proposed to be distributed with 75 percent subsidy. With help of farm machinery and implements, the agricultural operations would be carried out in efficient and effective manner in time and the farmers would fetch more farm income with increased crop productivity.

(b) Innovative Water Harvesting Structures

i) The farm ponds are ideal rain water harvesting structures in which run off would be collected and used. Farm ponds control the soil erosion and augment ground water potential. Due to permeable nature of soil, the harvested rain water percolates into sub-soil zone by infiltration. The farm ponds shall be lined with plastic sheets to avoid infiltration and the collected rain water shall be used for irrigation of annual crops. To improve the irrigation efficiency, the mobile sprinkler irrigation kits shall be used to irrigate the annual crops. The cropping area may considerably be increased and the crop productivity will be enhanced. The farmers would fetch more farm income with help of lined farm ponds and sprinkler irrigation system.

ii) The Percolation ponds were constructed under various schemes in the district across wide gullies/streams to harvest rain water and also to regulate the water courses from severe soil erosion. The ground water table would be replenished by percolation ponds and so the wells located in the zone of influence would be benefited with the increased water table. In due course, the percolation ponds would be silted and the percolation of harvested rain water would not happen effectively. In order to put then

into use in long period, the percolation ponds shall be rejuvenated with desilting and provision of recharge shafts. By taking into account of geological factors, the recharge shafts shall be designed and constructed to recharge the ground water aquifers. Two recharge shafts/pits are proposed in each percolation pond, in deepest bed levels, in order to collect rain water and fed them in recharge shafts to recharge the aquifers. By this, the ground water potential in and around the percolation pond would be augmented and irrigation potential from open wells/open wells will be enhanced. The drinking water bore wells located in villages/hamlets shall also be benefited out of such recharge shafts.

c) Promoting the concept of Mechanised Villages

In order to promote farm mechanisation and also to create more awareness about different types of farm machinery/implements among farming community, the distribution of crop based package of agricultural machinery/implements on cluster basis shall be done in villages adopted for this project.

The crop based package of agricultural machinery/implements is arrived for Paddy, Groundnut and Maize which are predominantly raised by farmers. In respect of paddy crop, rotovator for tractor, SRI market paddy transplanter, cono weeder, light weight whole straw combine harvester shall be distributed as package. For groundnut, ridger, raised bed seed drill, rotovator for tractor, leveller, sub soil coir pith applicator, ground nut digger, stripper and ground nut decordicator shall be distributed as package. For maize crop, chisel plough, ridger, sub soil coir pith applicator, raiser bed seed drill, power weeder, rotovator for tractor, leveller, PTO Operated maize husker/sheller shall be distributed as package.

The above said crop based package of agricultural machinery/implements shall be distributed to the farmers of the adopted village with 75 percent subsidy subject to the condition that all the prescribed machinery/implements for particular crop, should be

procured by the farmers of the village without any omission. The crop based packages for paddy and maize are proposed in Virudhunagar District.

The following work components are proposed under Stream-II:

(a) Popularisation of Agricultural Mechanisation Through Conventional Farm Machinery / Implements

The farm implements like Power tillers, rotovators, cultivators, disc ploughs, offset disc harrows etc., are distributed to the farmers under the centrally sponsored on going programme, "Distribution of agricultural machinery/implements" with 25 percent subsidy. This programme created much awareness among the farming community through effective publicity measures taken by Agricultural Engineering Department. The farmers in large numbers come forward with willingness to procure the farm machinery/ implements, in particular, power tillers, tractor drawn rotovators, paddy transplanters, power weeders etc., in Virudhunagar District and the funds allotted under the above programme are not sufficient to meet out the needs. Hence, to supplement the financial outlay under the above programme, the farm machinery/implements are proposed to be distributed to the farmers with 25 percent subsidy as popularisation measure.

(b) Water Harvesting Structures to Augment the Ground Water Potential

The water harvesting structures are essential to harvest run off for recharging the ground water and also to use for supplemental irrigation. Presently, the watershed management programmes like Western Ghats Development programme (WGDP), Rain water harvesting and run off management programme, DPAP are being implemented in Virudhunagar District. Under these programmes, the soil/moisture conservation works, rain water harvesting structures and plantation works are being carried out. But, the above work components are to be implemented in the particular micro watersheds approved under each programme over the period of time.

There is much hope for implementation of soil conservation works and rain water harvesting structures outside the designated micro watersheds. So, the work components

like Farm Ponds-Unlined in private lands, Check dams-minor, medium and major in gullies/streams located in public and private lands, Recharge shafts/pits, sunken ponds in public lands, rejuvenation of wells in private lands (by collection of rain water and fed into wells through filter pits) are proposed and the works would be implemented with subsidy pattern prescribed for on going programmes.

c) Soil / Moisture Conservation Works

The work components viz., land shaping and compartmental bunding are proposed as soil and moisture conservation measures to be implemented in and outside the designated watersheds of the on going watershed management programmes in need specific and site specific manner. In major blocks of Madurai Districts, the lands located near hillocks are in undulated shape with slope range 5-15 percent. The farmers face hardships to perform agricultural operations due to severe soil erosion and less moisture retention. Hence, the land shaping is proposed to be carried out and subsequently compartmental bunds will be provided to avoid soil erosion and to conserve moisture. By this, the farmers shall raise dry/irrigated crops and the crop productivity would be enhanced.

(d) Water Management Works

For irrigated lands, to maximise irrigation efficiency with minimising conveyance losses, the PVC pipe laying works and ground level reservoir/collection tanks are proposed. In the irrigated lands with slope range 5-15 percent, the farmers face hardships to irrigate the annual / perennial crops due to permeable nature of soil with much conveyance losses and soil erosion. In such lands, the PVC pipe laying shall be done to minimize the conveyance losses and time taken for irrigation. The ground level reservoirs/collection taken shall be constructed in uplands to collect the irrigation water from open/bore wells located in lower areas and the irrigation shall be done through PVC Pipes by gravity flow. By this, the irrigation efficiency and crop productivity would be enhanced in irrigated lands.

vii) Project Cost

For the project components proposed under Stream I and Stream II, the total budget requirement is estimated as detailed below in Table 6.17 for Virudhunagar District.

Table.6.17 Budget for Agricultural Engineering in Virudhunagar District

(Rs. in lakhs)

S.No	Project Component	2008-09	Total Outlay (2008-2012)
	Stream : I		
1	Introduction of newly developed Agrl.Machinery/Implements	13.25	33.50
2	Innovative water harvesting structure	75.00	300.00
	Total	**88.25**	**333.50**
	Stream II		
1	Popularization of Agricultural mechanization through conventional machinery/equipments	18.65	74.60
2	Water harvesting structures	109.50	507.25
3	Soil conservation works	61.00	245.00
4	Water management works	30.00	150.00
	Total	**219.15**	**976.85**
	Grand Total	**307.4**	**1310.35**

In sum, the total cost of the project is estimated at Rs.1310.35 lakhs as could be seen from the table above. For the components under stream I, the budget requirement is Rs. 333.50 lakhs, while under stream II it is Rs.976.85 lakhs. The above project cost is the subsidy portion to be matched with the farmers' contribution during implementation of the project. The subsidy pattern is proposed as 50 percent under distribution of newly developed farm machinery/implements, 75 percent for gender friendly implements and

mechanised village concept, 90 percent for individual oriented works under rain water harvesting, soil conservation and water management works and 100 percent for community beneficial works.

viii) Implementation Chart of the Project

There are two sub-divisions headed by Asst. Executive Engineer (Agrl. Engg.) at Virudhunagar and Srivilliputhur to implement NADP in Virudhunagar District which will be monitored by Executive Engineer (Agrl. Engg.),Virudhunagar. In each sub-division, 8 Asst./Junior Engineers are working and assigned with potential based block wise jurisdiction. With help of above HR, NADP will be implemented with vigour to benefit the farming community with participatory approach.

The block wise implementation charts for 4 years period- 2008-09, 2009-10, 2010-11 & 2011-12, showing the work components proposed under Stream-I & II, are furnished in the annexure.

ix) Reporting

The reporting in respect of monitoring and evaluation on implementation of NADP (for Agrl. Engg.work components) in Virudhunagar District will be carried out by the Executive Engineer (Agrl. Engg.), Virudhunagar and the required periodical reports will be submitted to the authorities concerned.

6.6 Animal Husbandry Sector

For the development of animal husbandry activities including livestock and poultry in Virudhunagar district, six projects have been proposed and the details are outlines below

Project : 1

i) Project Title: Feed and Fodder Development

1. Fodder production by Self Help Groups (DAH)
2. Fodder development activates in dairy or chilling centres (DDD)
3. Popularizing mineral mixture
4. Crossbred heifer calves nutrition programme
5. Supply of mineral mixture at subsidized rate
6. Supply of bypass protein feed to milch animals.

ii) Project Abstract

1. Fodder Production by Self Help Groups

Acute shortage of green fodder is one of the major factors limiting dairy development in Virudhunagar District. Hence, to augment the availability of green fodder, intensive fodder production will be taken up by the Department of Animal Husbandry, Virudhunagar covering a total area of 440 acres a the rate of 10 aces per block per year in all the 11 bocks of the district for a total period of 4 years through self help groups and women entrepreneurs at a total cost of 103.40 lakhs. The Aavin, Virudhunagar will produce fodder slips and seeds in three acres of land available at dairy and chilling centres. The total cost of fodder and fodder seeds and slips production through Aavin, Virudhunagar will be Rs. 6.30 lakhs.

2. Fodder Development Activates in Dairy or Chilling Centres (DDD)

3. Popularizing Mineral Mixture

Quality mineral mixture containing all the essential macro and micro nutrients will be supplied to the dairy cows through the Department of Animal Husbandry, Virudhunagar to the small dairy farmers at the rate of Rs.600 per cow per year (one Kg per animal per month; 12.0 Kg for one year @ Rs. 50 per Kg) for 2000 farmers per year for four years. A total of 8000 cross bred milch cows will be supplemented with mineral mixture at a total cost of Rs. 48.0 lakhs.

4. Crossbred Heifer Calves Nutrition Programme

Crossbred heifer calves between the age group of 6 month and one year will be supplemented with concentrated mixture, mineral mixture and heath cover. The concentrate mixture will be provided @ 1.0 Kg per animal for one year. Each calf identified will also be supplemented with mineral mixture 10 pockets of 50 Kg each per year. All the calves will be identified by tagging and will also be dewormed and vaccinated. For all these, the total cost works out to Rs. 5011 per calf per year. 100 calves will be covered each year for a period of 4 years. In total 400 heifer calves will be covered with the total cost of Rs. 20.44 lakhs. This programme will be implemented by the Department of Animal Husbandry, Virudhunagar District.

5. Supply of Mineral Mixture at Subsidized Rate

The Aavin, Virudhunagar will supply mineral mixture to the milch animals of the society members at subsidized cost (50 per cent) @ Rs. 500 per cow for 18 Kg per year per cow. A total number of 2000 animals will be benefited at a total cost of Rs. 10 lakhs.

6. Supply of Bypass Protein Feed to Milch Animals

The Aavin, Virudhunagar will supply bypass protein feed to the milch animals of the members of the society (360 Kg per year per animals @ 50 per cent subsidized cost of Rs.9.0 per Kg). For 150 cows for four years a total of 600 cows will be covered with the total cost of Rs. 19.80 lakhs.

7. Project Cost

The cost of the project works out Rs. 207.94 lakhs.

iii) Project Background / Problem Focus

With shrinkage of pastureland, rapid urbanization and conversion of agricultural lands to other purposes, Virudhunagar District is facing acute shortage of green fodder. At present Virudhunagar District having 40.7 per cent deficit in dry fodder and 86.80 per cent deficit in green fodder. Due to lack of awareness, most of the farmers in

Virudhunagar District do not supplement mineral mixture in feeding of milch animals. Mineral mixture supplementation will help in improving the milk quality and quantity and also it will reduce infertility problems in dairy cows. Poor dairy farmers whose only concern is the milk producing cow, could not afford quality concentrate feed and proper health care for their heifer calves. As a result, heifer calves become stunted leading to delayed maturity and associated fertility problems. Hence, the dairy farmers have to be encouraged to rear their heifer calves on scientific lines by providing them with quality concentrate feed and the necessary health cover. By pass protein feeding is a newer technology in dairy nutrition. It enhances milk production and productivity in dairy cows. Conventional feeding although is cheaper, it does not provide a complete feed to the dairy cows leading to nutritional deficiencies and decreased production and productivity.

iv) Project Rationale

There is an acute shortage of fodder and the farmers find difficult to maintain high yielding dairy cows owing to huge demand for green and dry fodder. Hence, intensive fodder production activity has to be taken up to meet this heavy demand. Supplementation of mineral mixture and bypass protein leads to dairy cows is seldom practiced by dairy farmers and hence, farmers have to be sensitized through supply of mineral mixture and by pass protein to their cows at subsidized prices. In order to ensure proper growth of heifer claves so that they can attain sexual maturity at an early age farmers has to be encouraged to rear their heifer calves on modern scientific lines by providing them with concentrate feed, mineral mixture and quality health care.

v) Project Strategy

1. Self Help Groups and interested women entrepreneurs will be selected from each block. Augmentation in quality and quantity of fodder from common property resources through group approach is proposed. Fodder slips will be procured from Chettinad Livestock Farm and members who have water source alone will be selected. 10 acres of CO-3 fodder will be produced per block involving the SHGs and interested women entrepreneurs. They will be supplied with all inputs for fodder

production. Training on scientific fodder production will be given to the SHGs @ Rs.0.035 Lakh/SHG. Inputs for fodder production will be provided @ Rs.0.20 Lakhs/acre. A total number of 12 Groups will be involved in fodder production in all the 12 blocks @ 10 acres/block/year for a period of 4 years. The project will be implemented by the Department of Animal Husbandry, Virudhunagar. The Aavin, Virudhunagar will produce fodder slips and seeds in three acres of land available at dairy and chilling centres. The total cost of fodder and fodder seeds and slips production through Aavin, Virudhunagar will be Rs. 6.30 lakhs.

2. There are 11 blocks in the district with a significant cross-bred cattle population. Infertility is the major problem and deficiency of minerals in the feed of cattle is common since most of the farmers do not provide a complete feed to their cows. Hence supply of 40 grams of mineral mixture per cow per day for one year will largely help to augment milk production and to improve the fertility rate in the cows. The cost of a kg of mineral mixture is Rs.50/- and is sufficient to feed a cow for one month. A total of Rs.600/- is necessary to provide 40 grams of mineral mixture per day per cow for one year. A total of 8000 cows will be supplied with mineral mixture. This project will be taken up by the Department of Animal Husbandry, Virudhunagar. Mineral mixture will also be supplied to the milch animals of the members of the society at subsidized cost (50 percent), @ 18 kg/year/cow @ Rs.500/cow/year. A total number of 2000 cows will be benefited at a total cost of Rs.10.00 Lakhs.
3. Concentrate feed, mineral mixture and health care will be provided to 100 selected heifer calves each year @ Rs.5110 per calf. A total of 400 heifer calves will be covered at a total cost of Rs. 20.44 lakhs.

4. The Aavin, Virudhunagar will supply bypass protein feed to the milch animals of the members of the society (360 Kg per animal per year) for 600 cows @ 50 per cent subsidy of Rs. 9.0 per Kg. The total cost will be Rs. 19.8 lakhs.

vi) Project Goals

1. Augmenting the fodder availability to meet the shortage of green fodder.
2. Fodder seeds and slips production by Aavin Virudhunagar
3. Supplementation of mineral mixture in the feed of dairy cows to improve their productivity and reproductive performance.
4. Supplementation of concentrate feed, mineral mixture and providing health care to heifer calves to ensure optimum growth and earlier age at maturity.
5. Supply of rumen bypass protein to milch animals to enhance their milk production.

vii) Project Component

1. Fodder production – 440 acres (DAH)
2. Fodder slips and seeds production in three acres of land available at dairy and chilling centres. The total cost of fodder and fodder seeds and slips production through Aavin, Virudhunagar will be Rs. 6.30 lakhs.
3. Supply of mineral mixture to 10000 cows (8000 cows - DAH and 2000 cows - DDD)
4. Crossbred heifer calves nutrition programme to cover 400 heifer calves.
5. Supply of bypass protein feed to 600 milch cows

viii) Project Cost

a. Cost of Fodder Production by Department of Animal Husbandry

The cost of fodder production by the Department of Animal Husbandry, Virudhunagar District works out to Rs. 0.235 lakhs per acre as detailed below.

S.No.	Details		Amount (in Rs.)
	I.Training Cost		
1.	Incentive @ Rs.100/person/day, for 2 days, for 15 members	:	3,000.00
2.	Refreshment expenses @ Rs.10/day/person, for 2 days, 15 persons	:	300.00
3.	Study materials including scribbling pad, pen etc.@ Rs.15/person, for 15 members	:	225.00
	Total training cost per SHG	**:**	**3,525.00**
II.	**Fodder Cultivation of Fodder (CO-3) per Acre**		
1 a)	Bush clearance and land reclamation	:	2,600.00
1.b)	Cost of ploughing	:	1,600.00
2.	Formation of ridges and furrows/beds and irrigation channels	:	500.00
3.a)	Cost of FYM 10 mt. @ Rs.300/mt.	:	3,000.00
3.b)	Labour cost for transportation and application, loading and unloading	:	1,000.00
4.a)	Cost of slips 16,000 numbers @ Rs.0.25 /slip	:	4,000.00
4.b)	Planting cost	:	840.00
5.a)	Cost of chemical fertilizers N 150 Kg @ Rs.5.48/kg – 822.00 P 50 Kg @ Rs.10.88/kg – 544.00 K 40 Kg @ Rs.3.85/Kg - 154.00		1,520.00
5. b)	Cost of labour for application	:	200.00
6.	After cultivation weeding	:	840.00
7.	Cleaning the channels	:	500.00
8.	Irrigation charges	:	800.00
9.	Harvesting charges and transportation	:	1,600.00
10.	Miscellaneous expenses	:	800.00
	Total Cost Required Per Acre	**:**	**20,000.00**

Sl. No.	Financial Requirement Per Self Help Group		Rs. in lakhs
1.	Cost of training per SHG	:	0.035
2.	Cost of fodder cultivation	:	0.20
	Total Requirement per SHG	:	0.235
	Total requirement for 1 block with 1 SHG @ 10 Acres / Block/ year for 4 years for 11 Blocks, 440 acres totally	:	103.4

b. Cost of Fodder Seeds and Slips Production by Aavin, Virudhunagar

The Aavin, Virudhunagar will produce fodder slips and seeds in three acres of land available at dairy and chilling centres. The total cost of fodder and fodder seeds and slips production through Aavin, Virudhunagar will be Rs. 6.30 lakhs for three acres @ Rs. 2.10 lakhs per acre.

c. Supply of mineral mixture to dairy cows @ Rs.600 per cow per year for 8000 cows (DAH) Rs. 48 lakhs.

d. Heifer Calves Nutrition Programme

1. Cost of concentrate feed @ 1.0 Kg per animal per day @ Rs.12.0 per Kg for one year Rs.4380.00
2. Cost of mineral supplementation @ 10 Kg per animal per year @ Rs. 50 per Kg Rs.500.00
3. Identification of calves @ Rs.50.0 per calf
4. Deworming and vaccination cost @ Rs, 50.00 per calf
5. Miscellaneous expenditure @Rs.130 per calf Unit cost 5110x400 units (DAH) Rs.20.44 lakhs.

e. Supply of mineral mixture to members of milk society at subsidized cost (50 per cent) @ 18.0 Kg per year per cow @ 500 cows per year for a total of 2000 cows in four years (DDD) Rs. 10 lakhs

f. Supply of Bypass Protein to Milch Animals of Dairy Co-operation

Supply of bypass protein feed to the milch animals of the members of the milk society (360 Kg per animal per year) for 600 cows @ 50 per cent subsidy of Rs. 9.0 per Kg Rs. 19.80 lakhs.

g. Total Budget

The total cost of the project works out to Rs.207.94 lakhs as detailed below in Table 6.18.

Table 6.18 Total Project Cost for Feed and Fodder Production

(Rs. in lakhs)

Sl. No.	Particulars	Amount
1	Augmenting fodder production (CO 3) through SHGs/Women entrepreneurs. Rs. 0.235 lakhs per acre. 10 acres per block per year, 11 blocks for four years. 440 acres in total (DAH)	103.40
2.	The total cost of fodder and fodder seeds and slips production through Aavin, Virudhunagar will be Rs. 6.30 lakhs for three acres. Fodder development activates in dairy or chilling centres (DDD)	6.30
3.	Popularizing mineral mixture to improve livestock production @ Rs.600 per cow per year for 2000 cows for four years Total 8000 cows (DAH)	48.00
4.	Crossbred heifer calves nutrition programme @ Rs.5110 per calf 100 calves per year. Total for 400 calves (DAH)	20.44
5.	Supply of mineral mixture to milch animals at subsidized cost @ Rs.500 per cow, 500 cows per year for 2000 cows in four years (DAH)	10.00
6.	Supply of bypass protein feed to milch animals @ Rs.3300 per cow 150 cows per year, for 600 cows four years	19.80
	Total	**207.94**

Thus, the total cost of the project is estimated at Rs. 207.94 lakhs

ix) Project Implementation Chart

Activity	2008-2009	2009-2010	2010-2011	2011-2012
Augmentation of fodder production (CO-3) through SHG/women entrepreneurs, Rs. 0.235 Lakhs/acre, 10 acres/block/year, 11 blocks, for 4 years, 440 acres totally (DAH)	110acres	110acres	110acres	110acres
Fodder slips and seeds production in three acres of land available at dairy and chilling centres. The total cost of fodder and fodder seeds and slips production through Aavin, Virudhunagar will be Rs. 6.30 lakhs for three acres @ Rs. 2.10 lakhs per acre.	3.0 acres	-	-	-
Supply of mineral mixture to dairy cows @ Rs.600/cow/year, for 8,000 cows (DAH)	2000 cows	2000 cows	2000 cows	2000 cows
Supply of mineral mixture at 50 percent subsidy @ Rs. 500/- for 18 kg (one year supply) for 2000 animals (DDD)	500 cows	500 cows	500 cows	500 cows
Crossbred Heifer calves nutrition programme @ Rs.5110 per calf for 400 calves	100 calves	100 calves	100 calves	100 calves
Supply of by-pass protein feed to the milch animals (360 kg/animal/year) @ 50 percent subsidy, Rs.9/kg, Rs.3,300/- per animal /year, for 600 cows in a period of 4 years	150 cows	150 cows	150 cows	150 cows

x) Reporting

a. Fodder and Fodder Seeds and Slips Production

The Regional Joint Director of Animal Husbandry, Virudhunagar and Aavin, Virudhunagar will implement the projects. Monthly progress of the project will be submitted to the concerned higher authorities.

b. Supply of Mineral Mixture and By-pass Protein Feed to the Dairy Cows:

The General Manager, The Virudhunagar District Co-operative Milk Producers Union Limited, Virudhunagar and the Regional Joint Director of Animal Husbandry, Virudhunagar, will implement the projects. Monthly progress of the projects will be submitted to the concerned higher authorities.

c. Crossbred Heifer Calves Nutritional Programme

The regional Joint Director of Animal Husbandry, Virudhunagar will implement the project. Monthly progress of the project will be submitted to the concerned higher authorities.

Project : 2

i) Project Title: Genetic Upgradation of Cattle, Buffaloes, Sheep and Goats, Improvement of Livestock Health, Supply of Goat Units to SHG, popularizing backyard poultry units and health care for existing desi birds in backyard.

ii) Project Abstract

a) Tracking the Breedable Bovines in the District

It is estimated that the district has a total number of 103030 breedable bovine population. Tracking the breedable bovines with an ear tag and a passbook at a cost of Rs.20/- per animal is proposed. The total outlay is Rs. 20.61Lakhs. The project will be jointly implemented by the Department of Animal Husbandry, Virudhunagar and Aavin, Virudhunagar.

b) Synchronized Breeding of Cattle and Buffaloes

Estrus synchronization will be carried out in 3600 numbers of cattle and buffaloes to increase the conception rate at a total cost of Rs. 25.20 Lakhs @ Rs.700 / animal. Aavin, Virudhunagar, will implement the project**.**

c) Establishment of Mobile Veterinary Clinics

Mobile veterinary clinics (8 units) will be established at a total cost of Rs. 46.66 Lakhs @ Rs.5.832 Lakhs/unit under the Department of Animal Husbandry, Virudhunagar for provision of health cover facilities in remote areas in the district.

d) Establishment of Mobile Veterinary Diagnostic Laboratory

Mobile veterinary diagnostic laboratory (one unit) will be established at a cost of Rs. 12.00 lakhs under the Department of Animal Husbandry, Virudhunagar for collecting samples during disease out breaks and sero monitoring of important livestock diseases.

e) Strengthening of Veterinary Institutions

A total number of 18 veterinary institutions in the district will be strengthened with basic facilities like fencing, provision of bore-wells, water troughs and minor repair works also will be carried out at a total cost of Rs. 90.0 Lakhs @ Rs.5.00 Lakhs / institution. The project will be implemented by the Department of Animal Husbandry, Virudhunagar.

f) Control of Parasitic Diseases to Enhance Vaccine Response

The sheep, goats and calves below one year of age will be dewormed 4 times in a year before vaccinating them to enhance the vaccine response in them. The cost of the project will be Rs. 8.5 Lakhs per year. The total cost will be Rs. 34.00 Lakhs for 4 years. The project will be implemented by the Department of Animal Husbandry, Virudhunagar.

g) Supply of Stall-fed Goat Units

Goat units (20+1) will be supplied to the self help groups in the district @ Rs.0.42 Lakhs /unit. One unit/block/year, for 4 years, 11 blocks, 44 units totally at a total cost of Rs. 18.48 Lakhs. The project will be implemented by the Department of Animal Husbandry, Virudhunagar.

h) Popularizing Back-yard Poultry Units

Members of the women self help group will be provided with improved desi chicken/turkeys to augment their house hold income. 10 women per village @ 20 villages per year will be covered. Each selected woman will be provided with one unit (turkey /desi chicken comprises of 8 females and 2 male chicks) @ 200 units per year. A total of 8000 units will be provided at a rate of Rs. 500 per unit and the total cost of the project will be Rs. 4.00 lakhs. The project will be implemented by the Department of Animal Husbandry, Virudhunagar.

i) Health-care for Existing Desi Birds in Back-yard

All the back yard poultry in Virudhunagar district will be vaccinated against Ranikhet disease to prevent mortality in birds. A total of 50000 birds @ Rs. 1.0 per bird will be covered and the total cost of the project will be Rs. 2.0 lakhs for four years. The project will be implemented by the Department of Animal Husbandry, Virudhunagar.

j) Supply of Rams/Bucks to Elite Farmers

Superior germplasm – Vembur rams and Kanni bucks will be maintained by the Self Help Group Women in the district for cross-breeding of the non-descript poorly performing sheep and goats to augment the mutton and chevon production. Each active SHG will be provided with one Vembur rams and one Kanni bucks @ Rs. 5330/- per ram/buck. A total number of 50 rams and 50 bucks will be supplied at a total cost of Rs. 2.67 Lakhs per year. A total of 200 rams/bucks will be supplied at a total cost of 10.66 lakhs. The project will be implemented by the Department of Animal Husbandry, Virudhunagar.

k. Budget

The total cost of the project works out to Rs.263.61 lakhs

iii) Background/ Problem Focus

a) Tracking the Breedable Bovines in the District

It is estimated that the district has a total number of 103030 breedable bovine population. Tracking the breedable bovines with an ear tag and a passbook will help to follow the animals and will be the first step in the registration of bovines with accurate details about the animal, its health status etc.

b) Synchronized Breeding of Cattle and Buffaloes

Estrus synchronization will be planned in indigenous cattle and buffaloes to increase conception rate. Estrus synchronization will help in over coming the problem of silent heat in buffaloes and there by improve their fertility.

c) Establishment of Mobile Veterinary Clinics

There is a 49 per cent shortfall in the number of veterinarians in the district as against the total livestock population. Further, door-to-door timely health cover facilities especially in the remote villages of the district is very essential.

d) Establishment of Mobile Veterinary Diagnostic Laboratory

Establishing mobile veterinary diagnostic laboratory is very much needed especially during disease out breaks for early diagnosis of the disease so that proper control measures could be initiated.

e) Strengthening of Veterinary Institutions

A total number of 18 veterinary institutions in the district are not provided with certain basic facilities like fencing, provision of bore-wells, water troughs and minor repair works need to be carried out.

f) Control of Parasitic Diseases to Enhance Vaccine Response

The sheep, goats and calves below one year of age have to be dewormed 4 times in a year before vaccinating them to enhance the vaccine response in them. At present the practice of deworming the sheep, goat and calves before vaccinating them is not in vogue.

g) Supply of Stall-fed Goat Units

Intensive management with stall-feeding of goats is becoming popular due to decreased availability of grazing lands.

h) Popularizing Back-yard Poultry Units

Encouraging rural women folk to take up backyard poultry, as an income-generating venture will help in increasing their house hold income. More over, it will also supplement the vital protein needs of their family.

i) Health-care for Existing Desi Birds in Back -yard

Farmers are experiencing heavy mortality in desi birds during the out break of Ranikhet disease. Timely and prophylactic vaccination of desi birds will help in the prevention of this killer disease.

j) Supply of Rams/bucks to Elite Farmers

The present stock of sheep and goats available with the farmers in the district are inferior in terms of production and performance. Vembur is a proven mutton sheep breed and Kanni goat breed performs well under field conditions. Cross-breeding of the non-descript sheep and goats with such superior germplasm will augment mutton and chevon production in the district.

iv) Project Rationale

a) Tracking the Breedable Bovines in the District

It is estimated that the district has a total number of 103030 breedable bovine population. Tracking the breedable bovines with an ear tag and a passbook will help to follow the animals and will be the first step in the registration of bovines with accurate details about the animal, its health status etc.

b) Synchronized Breeding of Cattle and Buffaloes

Buffaloes exhibit silent heat and it becomes difficult to provide timely insemination services leading to huge economic losses. Because of this reason, the farmers are reluctant to rear buffaloes. Estrus synchronization will bring all the animals to heat at a specific time and will help to provide timely insemination.

c) Establishment of Mobile Veterinary Clinics

Each mobile veterinary clinic will consist of one VAS and one driver. The staff for the clinic will be sourced from the available staff in the department. The unit will be provided with one vehicle at a cost of Rs. 4.75 Lakhs. The VAS will be in-charge of the vehicle. The vehicle will cover remote and inaccessible villages on a scheduled programme of operation. Medicines will be sourced from the veterinary institutions available in the block itself. Necessary equipment like gags, scalpels, scissors, suture needles, forceps, A.I. guns etc. apart from Liquid Nitrogen containers and sheath will be provided to each unit. Diesel worth Rs.45,000/- will be provided per year to each unit. The unit will prepare a tour programme on 6 days a week basis and the farmers will be intimated well in advance.

d) Establishment of Mobile Veterinary Diagnostic Laboratory

The mobile veterinary diagnostic laboratory will periodically collect blood, serum, dung and other samples from different locations of Virudhunagar District for disease surveillance. This will help in forecasting the occurrence of major livestock diseases and the severity of parasitic diseases there by help in taking timely control measures.

e) Strengthening of Veterinary Institutions in the District

A total number of 18 veterinary institutions in the district will be strengthened with basic facilities like fencing, provision of bore-wells, water troughs and minor repair works also will be carried out at a total cost of Rs. 90.00 Lakhs @ Rs.5.00 Lakhs / institution.

f) **Control of Parasitic Diseases to Enhance Vaccine Response**

The sheep, goats and calves below one year of age will be dewormed 4 times in a year before vaccinating them to enhance the vaccine response in them. The cost of deworming will be Rs.1/- per sheep or goat and Rs. 3 /- for a calf below 1 year of age. The deworming will be done 4 times a year, before vaccination. The total cost of the project will be Rs.8.5 Lakhs per year. The total cost will be Rs. 34.0 Lakhs for 4 years. The project will be implemented by the Department of Animal Husbandry, Virudhunagar.

g) Supply of Stall-fed Goat Units to SHG

Intensive management with stall-feeding of goats is becoming popular due to decreased availability of grazing lands.

h) Popularizing Back-yard poultry units

Encouraging rural women folk to take up backyard poultry, as an income-generating venture will help in increasing their house hold income. More over, it will also supplement the vital protein needs of their family.

i) Health- care for Existing Desi Birds in Back-yard

Farmers are experiencing heavy mortality in desi birds during the out break of Ranikhet disease. Timely and prophylactic vaccination of desi birds will help in the prevention of this killer disease. Hence, desi birds have to be protected by proper vaccination.

j) Supply of Rams/Bucks to Elite Farmers

The present stock of sheep and goats available with the farmers in the district are inferior in terms of production and performance. Vembur is a proven mutton sheep breed and Kanni goat breed performs well under field conditions. Cross-breeding of the non-descript sheep and goats with such superior germplasm will augment mutton and chevon production in the district.

v) Project Strategy

a) Tracking the Breedable Bovines in the District

It is estimated that the district has a total number of 103030 breedable bovine population. Tracking the breedable bovines with an ear tag and a passbook at a cost of Rs.20/- per animal is proposed. The total outlay is Rs. 20.61 Lakhs.

b) Synchronized Breeding of Cattle and Buffaloes

Buffaloes exhibit silent heat and it becomes difficult to provide timely insemination services leading to huge economic losses. Because of this reason, the farmers are reluctant to rear buffaloes. Estrus synchronization will bring all the animals to heat at a specific time and will help to provide timely insemination.

c) **Establishment of Mobile Veterinary Clinics**

Each mobile veterinary clinic will consist of one VAS and one driver. The staff for the clinic will be sourced from the available staff in the department. The unit will be provided with one vehicle at a cost of Rs. 4.75 Lakhs. The VAS will be in-charge of the vehicle. The vehicle will cover remote and inaccessible villages on a scheduled programme of operation. Medicines will be sourced from the veterinary institutions available in the block itself. Necessary equipment like gags, scalpels, scissors, suture needles, forceps, A.I. guns etc. apart from Liquid Nitrogen containers and sheath will be provided to each unit. Diesel worth Rs.45,000/- will be provided per year to each unit. The unit will prepare a tour programme on 6 days a week basis and the farmers will be intimated well in advance.

d) Establishment of Mobile Veterinary Diagnostic Laboratory

The mobile veterinary diagnostic laboratory will periodically collect blood, serum, dung and other samples from different locations of Virudhunagar District for disease surveillance. This will help in forecasting the occurrence of major livestock diseases and the severity of parasitic diseases there by help in taking timely control measures.

e) Strengthening of Veterinary Institutions in the District

A total number of 18 veterinary institutions in the district will be strengthened with basic facilities like fencing, provision of bore-wells, water troughs and minor repair works also will be carried out at a total cost of Rs. 90.00 Lakhs @ Rs.5.00 Lakhs / institution.

f) Control of Parasitic Diseases to Enhance Vaccine Response

The sheep, goats and calves below one year of age will be dewormed 4 times in a year before vaccinating them to enhance the vaccine response in them. The cost of deworming will be Rs.1/- per sheep or goat and Rs. 3 /- for a calf below 1 year of age. The deworming will be done 4 times a year, before vaccination. The total cost of the project will be Rs.8.5 lakhs per year. The total cost will be Rs. 34.0 lakhs for four years. The project will be implemented by the Department of Animal Husbandry, Virudhunagar.

g) Supply of Stall-fed Goat Units to SHG

Supply of stall-fed goat units (20+1) to SHG @ Rs.0.42 Lakhs/unit, one unit/block/year, for 4 years, 11 blocks, 44 units totally.

h) Popularizing Back-yard Poultry Units

Encouraging rural women folk to take up backyard poultry, as an income-generating venture will help in increasing their house hold income. More over, it will also supplement the vital protein needs of their family.

i) Health-care for Existing Desi Birds in Back-yard

All the desi birds will be vaccinated against Ranikhet disease at periodical intervals in order to protect them from Ranikhet disease,

j) Supply of Rams/Bucks to Elite Farmers

Superior germplasm – Vembur rams and Kanni bucks will be maintained by the Self Help Group Women in the district for cross-breeding of the non-descript poorly performing sheep and goats to augment the mutton and chevon production. Each active SHG will be provided with one Vembur rams and one Kanni bucks @ Rs. 5330/- per ram/buck. A total number of 50 rams and 50 bucks will be supplied at a total cost of Rs. 2.67 lakhs per year. A total of 200 rams/bucks will be supplied at a total cost of 10.66 lakhs. The project will be implemented by the Department of Animal Husbandry, Virudhunagar.

vi) Project Goals

- Tracing the breedable bovines in the district.
- Estrus synchronization in selected 3600 cattle and buffaloes
- Establishment of 8 mobile veterinary clinics.
- Establishment of one mobile veterinary diagnostic laboratory
- Strengthening of 18 veterinary institutions in the district with basic facilities.
- Control of parasitic diseases in sheep, goats and calves (below one year of age) through deworming to enhance vaccine response.
- To establish 44 stall-fed goat units to promote intensive management of goats.
- Popularizing backyard poultry units to improve the livelihood of rural women
- Providing health care for existing desi birds in back yard
- Supply of rams/bucks to elite farmers

vii) Project Components

Tracking the Breedable Bovines in the District

Tracking the breedable bovines with an ear tag and a passbook when the animal comes for A.I.

a) Synchronized Breeding of Cattle and Buffaloes

Estrus synchronization will be carried out in 3600 numbers of cattle and buffaloes at a total cost of Rs. 25.20 Lakhs @ Rs.700/animal. It involves use of hormones, deworming, monitoring etc.

b) Establishment of Mobile Veterinary Clinics

Each mobile veterinary clinic will consist of one VAS and one driver. The staff for the clinic will be sourced from the available staff in the department. The unit will be provided with one vehicle at a cost of Rs. 4.75 lakhs. The VAS will be in-charge of the vehicle. The vehicle will cover remote and inaccessible villages on a scheduled programme of operation. Medicines will be sourced from the veterinary institutions available in the block itself. Necessary equipment like gags, scalpels, scissors, suture needles, forceps, A.I. guns etc. apart from Liquid Nitrogen containers and sheath will be provided to each unit. Diesel worth Rs.43,200/- will be provided per year to each unit. The unit will prepare a tour programme on 6 days a week basis and the farmers will be intimated well in advance.

Non-recurring Expenditure

1) Equipments (Rs.30, 000) = Rs.0.30 lakh
2) LN2 container (Rs. 30,000) = Rs.0.30 lakh
3) Small LN2 container (Rs.5000) = Rs.0.05 lakh
4) Jeep = Rs.4.75 lakh

Recurring Expenditure

Diesel 90 Lit x 12 x Rs.40	=	Rs.0.432 lakh
Total cost	**=**	**Rs. 5.832 lakh**

c) Establishment of Mobile Veterinary Diagnostic Laboratory

One mobile veterinary diagnostic laboratory will be established at Virudhunagar at a cost of Rs. 12.0 lakhs for disease surveillance and monitoring.

The cost of the vehicle along with equipments will be approximately Rs.12/- lakh. The cost of the vehicle is approximately Rs.11.00 lakh. The cost of microscope will be Rs.0.50 lakh, cost of refrigerator will be Rs.0.25 lakh, cost of centrifuge will be Rs.0.15 lakh, cost of post mortem kits and other chemicals and chemical reagents will be Rs.0.10 lakh. In addition, they will be provided a recurring cost of Rs.1.00 lakh towards petroleum, Oil and Lubricants, Maintenance and purchase of stationeries etc.

d) Strengthening of Veterinary Institutions in the District

A total number of 18 veterinary institutions in the district will be strengthened with basic facilities like fencing, provision of bore-wells, water troughs and minor repair works also will be carried out at a total cost of Rs. 90.00 Lakhs @ Rs.5.00 Lakhs / institution.

e) Control of Parasitic Diseases to Enhance Vaccine Response:

The sheep, goats and calves below one year of age will be dewormed 4 times in a year before vaccinating them to enhance the vaccine response in them. The cost of deworming will be Rs.1/- per sheep or goat and Rs. 3 /- for a calf below 1 year of age. The deworming will be done 4 times a year, before vaccination. The total cost of the project will be Rs.8.5 Lakhs per year. The total cost will be Rs. 34.0 Lakhs for 4 years. The project will be implemented by the Department of Animal Husbandry, Virudhunagar.

f) Supply of Stall-fed Goat Units to SHG

Supply of stall-fed goat units (20+1) to SHG @ Rs.0.42 Lakhs/unit, one unit/block/year, for 4 years, 11 blocks, 44 units totally

g) Popularizing Back-yard Poultry Units

Members of the women self help group will be provided with improved desi chicken/turkeys to augment their house hold income. 10 women per village @ 20 villages per year will be covered. Each selected woman will be provided with one unit (turkey /desi chicken comprises of 8 females and 2 male chicks) @ 200 units per year. A total of 8000 units will be provided at a rate of Rs. 500 per unit and the total cost of the project will be Rs. 4.00 lakhs. The project will be implemented by the Department of Animal Husbandry, Virudhunagar.

h) Health-care for Existing Desi Birds in Back-yard

All the back yard poultry in Virudhunagar district will be vaccinated against Ranikhet disease to prevent mortality in birds. A total of 50000 birds @ Rs. 1.0 per bird will be covered and the total cost of the project will be Rs. 2.0 lakhs for four years. The project will be implemented by the Department of Animal Husbandry, Virudhunagar.

i) Supply of Rams / Bucks to Elite Farmers

Superior germplasm – Vembur rams and Kanni bucks will be maintained by the Self Help Group Women in the district for cross-breeding of the non-descript poorly performing sheep and goats to augment the mutton and chevon production. Each active SHG will be provided with one Vembur rams and one Kanni bucks @ Rs. 5330/- per ram/buck. A total number of 50 rams and 50 bucks will be supplied at a total cost of Rs. 2.67 Lakhs per year. A total of 200 rams/bucks will be supplied at a total cost of 10.66 lakhs. The project will be implemented by the Department of Animal Husbandry, Virudhunagar.

viii) Project Cost

The activity-wise and year-wise costs and the total cost of the project are detailed below in Table 6.19.

Table 6.19 Total Cost for Genetic Upgradation of Cattle

(Rs.in lakhs)

Activity	2008-2009	2009-2010	2010-2011	2011-2012	Total Cost
1.Tracking the breedable bovine population with an ear tag and a passbook @ Rs.20/- animal, for 103030 animals (DAH and DDD)	20.61	-	-	-	20.61
2. Programmed breeding of cattle buffaloes @ Rs.700/animal, for 3600 cows and buffaloes (DDD)	6.30	6.30	6.30	6.30	25.20
3. Establishment of mobile veterinary clinics @ Rs.5.832 Lakhs/unit, 8 units totally (DAH)	46.66	-	-	-	46.66
4. Establishment of mobile veterinary diagnostic laboratory @ one unit	12.0	-	-	-	12.0
5. Strengthening of 18 veterinary institutions with basic facilities like fencing, provision of bore-wells, water troughs and minor repair works @ Rs.5.00 Lakhs/unit (DAH)	90.0	-	-	-	90.0
6. Control of parasitic diseases to enhance vaccine response @ Rs.1/- per sheep or goat and Rs.3/- per calf below one year, 4 times /year, Rs. 8.5 Lakhs/year, for 4 years (70014 calves, 325946 sheep and 305111 goat) (DAH)	8.5	8.5	8.5	8.5	34.0
7. Supply of stall-fed goat units (20+1) to SHG @ Rs.0.42 Lakhs/unit, one unit/block/year, for 4 years, 11 blocks, 44 units totally	4.62	4.62	4.62	4.62	18.48

Table 6.19 contd...

(Rs.in lakhs)

Activity	2008-2009	2009-2010	2010-2011	2011-2012	Total Cost
8. Health care for existing desi birds in back yard: All the back yard poultry in Virudhunagar district will be vaccinated against Ranikhet disease to prevent mortality in birds. A total of 50000 birds @ Rs. 1.0 per bird will be covered and the total cost of the project will be Rs. 2.0 lakhs for four years. The project will be implemented by the Department of Animal Husbandry, Virudhunagar.	0.5	0.5	0.5	0.5	2.0
9. Supply of rams/bucks to elite farmers Each active SHG will be provided with one Vembur rams and one Kanni bucks @ Rs. 5330/- per ram/buck. A total number of 50 rams and 50 bucks will be supplied at a total cost of Rs. 2.67 Lakhs per year. A total of 200 rams/bucks will be supplied at a total cost of 10.66 lakhs. The project will be implemented by the Department of Animal Husbandry, Virudhunagar.	2.67	2.67	2.67	2.67	10.66
Total	**192.86**	**23.59**	**23.59**	**23.59**	**263.61**

The total cost of the project is estimated at Rs. 263.61 lakhs as could be observed from the table above.

ix) Implementation Chart of the Project

Activity	2008-2009	2009-2010	2010-2011	2011-2012
1. Tracking the breedable bovine population with an ear tag and a passbook @ Rs.20/- animal, for 103030 animals (DAH and DDD)	103030 cows	-	-	-
2. Programmed breeding of cattle buffaloes @ Rs.700/animal, for 3600 cows and buffaloes (DDD)	900 animals	900 animals	900 animals	900 animals
3. Establishment of mobile veterinary clinics @ Rs.5.832 Lakhs/unit, 8 units totally (DAH)	8 units	-	-	-
4. Establishment of mobile veterinary diagnostic laboratory @ one unit	1 unit	-	-	-
5. Strengthening of 18 veterinary institutions with basic facilities like fencing, provision of bore-wells, water troughs and minor repair works @ Rs.5.00 Lakhs/unit (DAH)	18 units	-	-	-
6. Control of parasitic diseases to enhance vaccine response @ Rs.1/- per sheep or goat and Rs.3/- per calf below one year, 4 times /year, Rs. 8.5 Lakhs/year, for 4 years (DAH)	-	-	-	-
7. Supply of stall-fed goat units (20+1) to SHG @ Rs.0.42 Lakhs/unit, one unit/block/year, for 4 years, 11 blocks, 44 units totally	11 units	11units	11 units	11 units
8. Popularizing backyard poultry units 10 women per village @ 20 villages per year will be covered. Each selected woman will be provided with one unit of turkey/desi chicken. (one unit comprises of 8 females and 2 male chicks) @ 200 units per year. A total of 8000 units will be provided at a rate of Rs. 500 per unit and the total cost of the project will be Rs. 4.00 lakhs.	200 units	200 units	200 units	200 units

Activity	2008-2009	2009-2010	2010-2011	2011-2012
9. Health care for existing desi birds in back yard: All the back yard poultry in Virudhunagar district will be vaccinated against Ranikhet disease to prevent mortality in birds. A total of 50000 birds @ Rs. 1.0 per bird will be covered and the total cost of the project will be Rs. 2.0 lakhs for four years. The project will be implemented by the Department of Animal Husbandry, Virudhunagar.	-	-	-	-
10. Supply of rams/bucks to elite farmers Each active SHG will be provided with one Vembur rams and one Kanni bucks @ Rs. 5330/- per ram/buck. A total number of 50 rams and 50 bucks will be supplied at a total cost of Rs. 2.67 Lakhs per year. A total of 200 rams/bucks will be supplied at a total cost of 10.66 lakhs. The project will be implemented by the Department of Animal Husbandry, Virudhunagar.	50 rams/ bucks	50 rams/ bucks	50 rams/ bucks	50 rams/ bucks

x) Reporting

a) Tracking the Breedable Bovines in the District

The project will be jointly implemented by the Department of Animal Husbandry, Virudhunagar and Aavin, Virudhunagar and periodical monthly reports will be submitted to the appropriate authorities.

b) Synchronized Breeding of Cattle and Buffaloes

The project will be implemented by the Aavin, Virudhunagar and periodical monthly reports will be submitted to the appropriate authorities.

c) Establishment of Mobile Veterinary Clinics

The Regional Joint Director of Animal Husbandry, Virudhunagar will implement the Scheme and he will submit the report after the establishment of mobile veterinary clinics.

d) Establishment of Mobile Veterinary Diagnostic Laboratory

The Regional Joint Director of Animal Husbandry, Virudhunagar will implement the Scheme and he will submit the report after the establishment of mobile veterinary diagnostic laboratory.

e) Strengthening of 18 Veterinary Institutions with Basic Facilities like Fencing, Provision of Bore-wells, Water Troughs and Minor Repair Works

The Regional Joint Director of Animal Husbandry, Virudhunagar will implement the Scheme and he will submit periodical monthly reports to the appropriate authorities.

f) Control of Parasitic Diseases to Enhance Vaccine Response:

The Regional Joint Director of Animal Husbandry, Virudhunagar will implement the Scheme and he will submit periodical monthly reports to the appropriate authorities.

g) Supply of Stall-fed Goat Units to SHG

The Regional Joint Director of Animal Husbandry, Virudhunagar will implement the Scheme and he will submit periodical monthly reports to the appropriate authorities.

h) Popularizing Back-yard Poultry Units

The Regional Joint Director of Animal Husbandry, Virudhunagar will implement the Scheme and he will submit periodical monthly reports to the appropriate authorities.

i) Health Care for Existing Desi Birds in Back-yard

The Regional Joint Director of Animal Husbandry, Virudhunagar will implement the Scheme and he will submit periodical monthly reports to the appropriate authorities.

j) Supply of Rams / Bucks to Elite Farmers

The Regional Joint Director of Animal Husbandry, Virudhunagar will implement the Scheme and he will submit periodical monthly reports to the appropriate authorities.

Project : 3

i) Project Title : Improvement of Milk Collection, Processing, Value-addition and Marketing Facilities

ii) Project Abstract

Two mobile input units will be established at a cost of Rs.9.0 lakhs @ of Rs. 4.5 lakhs per unit. Ten portable milking machines will be supplied to the members of the society at a total cost of Rs.1.80 Lakhs @ Rs.0.18 Lakhs/unit. Provision of milking machines will help to improve the collection and quality of milk. One-bulk milk coolers will be established to improve the keeping quality of milk until it is processed. The total cost will be Rs.30.0 Lakhs. One unit of walk-in-cooler will be established at a cost of Rs. 30.0 Lakhs. Five Khoa manufacturing units (@ Rs.0.77 Lakhs/unit) at a cost of 3.85 lakhs and two ice-cream making units (@ Rs. 1.12 Lakhs/unit) will be established at a cost of Rs. 2.24 Lakhs to promote value-addition of milk. A total of 12 numbers (Rs. 0.17 lakh per unit) of milk weighing machines will be established at milk producers' co-operative societies for accurate weighment of milk at a total cost of 2.04Lakhs. A total number of 4 PC-based automatic milk collection stations will be established at IDF villages and milk producers' co-operative societies at a total cost of Rs.7.0 Lakhs @ Rs.1.75 Lakhs/unit. The quality assurance laboratory at Virudhunagar dairy will be strengthened at a total cost of Rs. 10.0 Lakhs. A project on energy management system will be implemented at a total cost of Rs.10.0 Lakhs. The total cost of the project is Rs.105.93 lakhs

iii) Background/ Problem Focus

Lack of mobile input unit hinders efficient health care of dairy animals. Presently hand-milking is practiced by the farmers. There is shortage of milkmen and problems of mastitis are common in hand milking. Automatic milking machines saves time, labour

and prevents the occurrence of mastitis in cows. Establishment of a bulk milk coolers and walk in coolers will help to maintain the quality of milk until it is processed and marketed. Facilities for the manufacture of value-added milk products like Khoa and ice cream have to be strengthened to utilize surplus milk during certain seasons. Also this will meet to the demand for this products by the urban population. Electronic weighing balances are to be provided to small societies to weigh milk. Further, in societies handling more than 500 litres of milk per day, it is essential to establish PC- based automatic milk collection stations. The quality assurance laboratory at the Aavin main dairy needs to be strengthened with certain basic facilities for assessment of milk quality at different stages of processing and marketing. Energy management system in the main processing plant will save power and will be economical. Energy management system in the main processing plant will save power and will be economical.

iv) Project Rationale

Lack of mobile input unit hinders efficient health care of dairy animals. Presently hand-milking is practiced by the farmers. There is shortage of milkmen and problems of mastitis are common in hand milking. Automatic milking machines saves time, labour and prevents the occurrence of mastitis in cows. Establishment of a bulk milk coolers and walk in coolers will help to maintain the quality of milk until it is processed and marketed. Facilities for the manufacture of value-added milk products like Khoa and ice cream have to be strengthened to utilize surplus milk during certain seasons. Also this will meet to the demand for this products by the urban population. Electronic weighing balances are to be provided to small societies to weigh milk. Further, in societies handling more than 500 litres of milk per day, it is essential to establish PC- based automatic milk collection stations. The quality assurance laboratory at the Aavin main dairy needs to be strengthened with certain basic facilities for assessment of milk quality at different stages of processing and marketing. Energy management system in the main processing plant will save power and will be economical. Energy management system in the main processing plant will save power and will be economical.

v) Project Strategy

Two mobile input units will be established at a cost of Rs.9.0 lakhs @ of Rs. 4.5 lakhs per unit. Ten portable milking machines will be supplied to the members of the society at a total cost of Rs.1.80 Lakhs @ Rs.0.18 Lakhs/unit. Provision of milking machines will help to improve the collection and quality of milk. One-bulk milk coolers will be established to improve the keeping quality of milk until it is processed. The total cost will be Rs.30.0 Lakhs. One unit of walk-in-cooler will be established at a cost of Rs. 30.0 Lakhs. Five Khoa manufacturing units (@ Rs.0.77 Lakhs/unit) at a cost of 3.85 lakhs and two ice-cream making units (@ Rs. 1.12 Lakhs/unit) will be established at a cost of Rs. 2.24 Lakhs to promote value-addition of milk. A total of 12 numbers (Rs. 0.17 lakh per unit) of milk weighing machines will be established at milk producers' co-operative societies for accurate weighment of milk at a total cost of 2.04Lakhs. A total number of 4 PC-based automatic milk collection stations will be established at IDF villages and milk producers' co-operative societies at a total cost of Rs.7.0 Lakhs @ Rs.1.75 Lakhs/unit. The quality assurance laboratory at Virudhunagar dairy will be strengthened at a total cost of Rs. 10.0 Lakhs. A project on energy management system will be implemented at a total cost of Rs.10.0 Lakhs.

vi) Project Goals

- To establish mobile input unit to provide Veterinary care at the doorsteps.
- Clean milk production, saving labour and time and prevention of mastitis through installation of milking machines.
- Improvement of the milk quality until processing and marketing through establishment of bulk milk coolers and walk in coolers.
- Value-addition of milk by establishing khoa and ice cream making units.
- Accurate weighment of milk in societies through supply of weighing machines.
- Saving time, labour and accurate weighment of milk through establishment of automatic PC-based milk collection stations.
- Energy conservation in the main dairy processing plant.
- Strengthening quality assurance laboratory

vii) Project Components

Two mobile input units will be established at a cost of Rs.9.0 lakhs @ of Rs. 4.5 lakhs per unit. Ten portable milking machines will be supplied to the members of the

society at a total cost of Rs.1.80 Lakhs @ Rs.0.18 Lakhs/unit. Provision of milking machines will help to improve the collection and quality of milk. One-bulk milk coolers will be established to improve the keeping quality of milk until it is processed. The total cost will be Rs.30.0 Lakhs. One unit of walk-in-cooler will be established at a cost of Rs. 30.0 Lakhs. Five Khoa manufacturing units (@ Rs.0.77 Lakhs/unit) at a cost of 3.85 lakhs and two ice-cream making units (@ Rs. 1.12 Lakhs/unit) will be established at a cost of Rs. 2.24 Lakhs to promote value-addition of milk. A total of 12 numbers (Rs. 0.17 lakh per unit) of milk weighing machines will be established at milk producers' co-operative societies for accurate weighment of milk at a total cost of 2.04Lakhs. A total number of 4 PC-based automatic milk collection stations will be established at IDF villages and milk producers' co-operative societies at a total cost of Rs.7.0 Lakhs @ Rs.1.75 Lakhs/unit. The quality assurance laboratory at Virudhunagar dairy will be strengthened at a total cost of Rs. 10.0 Lakhs. A project on energy management system will be implemented at a total cost of Rs.10.0 Lakhs.

Quality Assurance Lab

(Rs. in lakhs)

Sl. No.	Name of the equipment	Amount
1.	Incubator	0.35
2.	Hot air oven	0.35
3.	Water bath	0.35
4.	Auto clave	0.30
5.	Microscope	0.50
6.	Laminar air flow	0.50
7.	Refrigerator	0.35
8.	Air conditioner	0.35
9.	Analytical Balance	2.00
10.	Water Distillation Plant	0.35
11.	Glass ware	0.50
12.	Chemicals & Bacteriological media	0.50
13.	Furniture and work tables	0.50
14.	Colony counter	0.10
15.	PH, TDS meter	1.00
16.	Civil work	2.00
	Total	**10.00**

viii) Project Cost

The year-wise as well as component-wise costs and the total costs of the project are outlined below in Table 6.20.

Table 6.20 Total Project Cost for Milk Production and Marketing

(Rs. in lakhs)

S. No.	Project	2008-2009	2009-2010	2010-2011	2011-2012	Total Cost
1.	Establishment of two mobile input units at a cost of Rs.9.0 lakhs @ of Rs. 4.5 lakhs per unit. The cost is inclusive of salary for the veterinarian, medicines, veterinary equipment and other expenses (DDD)	9.0	-	-	-	9.0
2.	Supply of portable milking machines to members of the Society @ Rs. 0.18 Lakhs, 10 Units totally (DDD)	0.72	0.36	0.36	0.36	1.80
3.	Provision of bulk milk coolers @ Rs.30.0 Lakhs/unit, 1 units (DDD)	30.0	-	-	-	30.0
4.	Provision of a walk-in-cooler @ Rs. 30.0 Lakhs/unit (DDD)	30.0	-	-	-	30.0
5.	Establishment of five khoa manufacturing units @ Rs. 0.77 Lakhs/ unit (DDD)	2.31	0.77	0.77	-	3.85
6.	Establishment of two ice-cream manufacturing units @ Rs. 1.12 Lakhs /unit (DDD)	1.12	1.12	-	-	2.24
7	Supply of 12 milk weighing machines to milk producers' co-operative societies @ Rs. 0.17 Lakhs/unit (DDD)	0.51	0.51	0.51	0.51	2.04
8	Provision of PC-based automatic milk collection stations to IDF villages and milk producers' co-operative societies @ Rs. 1.75 Lakhs/unit, 4 units (DDD)	1.75	1.75	1.75	1.75	7.0
9	Strengthening of the quality assurance laboratory @ Rs. 10.0 Lakhs (DDD)	10.0	-	-	-	10.0
10	Energy management system (DDD)	10.0	-	-	-	10.0
	Total	**95.41**	**4.51**	**3.39**	**2.62**	**105.93**

The total cost of the project thus, works out to Rs.105.93 for the project.

ix) Implementation Chart of the Project

S. No.	Project	2008-2009	2009-2010	2010-2011	2011-2012
1.	Establishment of two mobile input units at a cost of Rs.9.0 lakhs @ of Rs. 4.5 lakhs per unit.	2 units	-	-	-
2.	Supply of portable milking machines to members of the Society @ Rs. 0.18 Lakhs, 10 Units totally (DDD)	4 units	2 units	2 units	2 units
3.	Provision of bulk milk coolers @ Rs.30.0 Lakhs/unit, 1 units (DDD)	1 unit	-	-	-
4.	Provision of a walk-in-cooler @ Rs. 30.0 Lakhs/unit (DDD)	1 unit	-	-	-
5.	Establishment of five khoa manufacturing units @ Rs. 0.77 Lakhs/unit (DDD)	3 units	1 unit	1 unit	-
6.	Establishment of two ice-cream manufacturing units @ Rs. 1.12 Lakhs/unit (DDD)	1 unit	1 unit	-	-
7.	Supply of 12 milk weighing machines to milk producers' co-operative societies @ Rs. 0.17 Lakhs/unit (DDD)	3 units	3 units	3 units	3 units
8.	Provision of PC-based automatic milk collection stations to IDF villages and milk producers' co-operative societies @ Rs. 1.75 Lakhs/unit, 4 units (DDD)	1 unit	1 unit	1 unit	1 unit
9.	Strengthening of the quality assurance laboratory @ Rs. 10.0 Lakhs (DDD)	1 unit	-	-	-
10.	Energy management system (DDD)	1 unit	-	-	-

x) Reporting

The projects will be implemented by the Aavin, Virudhunagar and periodical progress reports will be submitted to the concerned authorities.

Project : 4

i) Project Title: Training Programme and Village Level Campaign on Livestock Farming and Study Tour of Farmers

ii) Project Abstract

The following training programmes will be conducted by the Veterinary University Training and Research Centre, Rajapalayam to the farmers and women SHGs at a total cost of Rs. 10.60 Lakhs

The following training programme will be conducted by the Veterinary University Training and Research Centre, Rajapalayam.

Training Programme on Livestock Farming

Livestock farmers will be provided with skill up gradation training on recent aspects of management of farm animals.

Study Tour of Farmers to Livestock and Poultry Farms and Research Stations

Interested and progressive livestock farmers will be taken in to livestock and poultry farms and research stations so that they can see improved livestock/ poultry breeds and their management.

The following training programme will be conducted by Aavin, Virudhunagar.

1. Farmers study tour
2. Skill development for technical staff
3. Orientation training for milk producers

Training programme will be conducted by the Veterinary University Training and Research Centre, Rajapalayam. The total budget outley for the project is Rs. 23.50 lakhs

(Rs. in lakhs)

Activity	2008-2009	2009-2010	2010-2011	2011-2012	Total Cost
1 Training programme on livestock farming	1.65	1.65	1.65	1.65	6.60
2. Study tour of farmers to livestock and poultry farms and research stations	1.0	1.0	1.0	1.0	4.0
Total	**2.65**	**2.65**	**2.65**	**2.65**	**10.6**

Training Programmes by the Aavin, Virudhunagar

(Rs. in lakhs)

Activity	2008-2009	2009-2010	2010-2011	2011-2012	Total Cost
1. Farmers study tour	2.0	2.0	2.0	1.50	7.50
2. Skill development for technical staff	0.55	0.55	0.55	0.55	2.20
3. Orientation training for milk producers	0.80	0.80	0.80	0.80	3.20
Total	**3.35**	**3.35**	**3.35**	**2.85**	**12.9**
Total Budget for Training	**6**	**6**	**6**	**5.5**	**23.5**

iii) Project Background/ Problem Focus

The farmers are not aware of the latest technologies available in the areas of livestock farming.

iv) Project Rationale

The training programmes are planned to provide the latest technological developments in the field of animal husbandry.

v) Project Strategy

The Training Programmes will be conducted by the Krishi Vigyan Kendra, Kundrakudi and Aavin, Virudhunagar.

vi) Project Goals

Capacity building in the areas of livestock farming, value-addition of milk and meat, sheep and goat rearing and hygienic meat production.

Enlightening the dairy farmers on latest developments in the dairy industry through training programmes and study tours.

vii) Project Components

The following training programmes will be conducted by the Veterinary University Training and Research Centre, Rajapalayam to the farmers and women SHGs at a total cost of Rs. 10.60 Lakhs.

The following training programme will be conducted by the Veterinary University Training and Research Centre, Rajapalayam.

1. Training Programme on Livestock Farming

Livestock farmers will be provided with skill up gradation training on recent aspects of management of farm animals.

2. Study Tour of Farmers to Livestock and Poultry Farms and Research Stations

Interested and progressive livestock farmers will be taken in to livestock and poultry farms and research stations so that they can see improved livestock/ poultry breeds and their management.

The following training programme will be conducted by Aavin, Virudhunagar

1. Farmers study tour
2. Skill development for technical staff
3. Orientation training for milk producers

ix) Project Cost

The year-wise and activity-wise budgetary requirements are furnished below in Table.6.21.

Table 6.21 Total Project Cost for Training and Study Visit

(Rs. in lakhs)

Activity	2008-2009	2009-2010	2010-2011	2011-2012	Total Cost
1 Training programme on livestock farming 20 farmers / batch, Rs. 750/farmer, Rs.15,000 /batch, 44 batches @ 11 batches/year,	1.65	1.65	1.65	1.65	6.60
2. Study tour of farmers to livestock and poultry farms and research stations @ Rs.2000/farmer, 200 farmers for 4 years / 50 farmers / batch	1.0	1.0	1.0	1.0	4.0
Total	**2.65**	**2.65**	**2.65**	**2.65**	**10.6**

Training Programmes by the Aavin, Virudhunagar

(Rs. in lakhs)

Activity	2008-2009	2009 -2010	2010-2011	2011-2012	Total Cost
1. Farmers study tour @ Rs.5000/farmer, 150 farmers for 4 years (120 farmer for first three years and 30 farmers for fourth year)	2.0	2.0	2.0	1.50	7.50
2. Skill development for technical staff @ Rs.5000/- per staff, 44 for 4 years 11 staff per year	0.55	0.55	0.55	0.55	2.20
3. Orientation training/workshop for milk producers' at society level Rs.20,000 per programme, 4 programmes/year, for 4 years	0.80	0.80	0.80	0.80	3.20
Total	**3.35**	**3.35**	**3.35**	**2.85**	**12.9**
Total Budget for Training	**6**	**6**	**6**	**5.5**	**23.5**

This project requires a budget provision of Rs. 23.5 lakhs as could be discerned from the table above.

x) Implementation Chart of the Project

Training Programmes by the TANUVAS Centres at Coimbatore and Tiruppur

(No. of Programmes)

Activity	2008-2009	2009 -2010	2010-2011	2011-2012	Total
1 Training programme on livestock farming	11 batches	11 batches	11 batches	11 batches	44 batches
2. Study tour of farmers to livestock and poultry farms and research stations (50 persons per batch)	4 batches	4 batches	4 batches	4 batches	16 batches

Training Programmes by the Aavin, Virudhunagar

(No. of Programmes)

Activity	2008-2009	2009 -2010	2010-2011	2011-2012	Total
1. Farmers study tour	40 farmers	40 farmers	40 farmers	30 farmers	150 Farmers
2. Skill development for technical staff	11 staff members	11 staff members	11 staff members	11 staff members	11 staff members
3. Orientation training for milk producers	4 batches	4 batches	4 batches	4 batches	16 batches

xi) Reporting

The Head of Veterinary University Training and Research Centre, Rajapalayam and the General Manager, Aavin, Virudhunagar will conduct the training programmes and will submit the periodical progress report on the training programmes conducted to the higher authorities.

Institutional Development

Project : 4

i) Project Title : Strengthening the Facilities at Veterinary University Training and Research Centre, Rajapalayam for Effective Transfer of Technology and Extension Services in Virudhunagar District

ii) Project Abstract

The Veterinary University Training and Research Centre, Rajapalayam will be strengthened for effective transfer of technology and extension services at a total cost of Rs.10.00 Lakhs, as detailed below.

(Rs. in Lakhs)

Sl.No.	Particulars	Amount
1.	Strengthening of the Veterinary University Training and Research Centre, Rajapalayam with facilities for Transfer of Technology – Training @ Rs.10.00 Lakhs.	10.00
	Total	**10.00**

iii) Background/ Problem Focus

The Veterinary University Training and Research Centre, Rajapalayam is one of the peripheral centres of the Tamil Nadu Veterinary and Animal Sciences University, Chennai. The services rendered by the staff of the Centres to the Animal Husbandry Department in tackling problems in repeat breeders, infertility and abortion are immense and it has been well appreciated by the dairy farmers in the district. Infectious infertility and mastitis cases are studied by culture and antibiogram and the service to dairy farmers in the district ensures successful treatment of such economic diseases. The services are extended to the poultry industry in tackling the disease problems like Infectious Bursal Disease, Infectious Bronchitis, Ranikhet disease, and Infectious Hydropericarditis. The training programmes offered on various disciplines of livestock farming by this Centre has motivated and helped the farmers to start successful livestock farms. This Centre does not have certain basic facilities. Strengthening of the Veterinary University Training and Research Centre, Rajapalayam will help in the effective surveillance and monitoring of livestock diseases and conduct of extension activities in the district.

iv) Project Rationale

The Veterinary University Training and Research Centre, Rajapalayam is one of the peripheral centres of the Tamil Nadu Veterinary and Animal Sciences University, Chennai. The services rendered by the staff of the Centres to the Animal Husbandry Department in tackling problems in repeat breeders, infertility and abortion are immense and it has been well appreciated by the dairy farmers in the district. Infectious infertility and mastitis cases are studied by culture and antibiogram and the service to dairy farmers in the district ensures successful treatment of such economic diseases. The services are extended to the poultry industry in tackling the disease problems like Infectious Bursal Disease, Infectious Bronchitis, Ranikhet disease, and Infectious Hydropericarditis. The training programmes offered on various disciplines of livestock farming by this Centre has motivated and helped the farmers to start successful livestock farms. This Centre does not have certain basic facilities. Strengthening of the Veterinary University Training and Research Centre, Rajapalayam will help in the effective surveillance and monitoring of livestock diseases and conduct of extension activities in the district.

v) Project Strategy

The Veterinary University Training and Research Centre, Rajapalayam will be strengthened with provision of information and communication technology devices and audio-visual aids at a total cost of Rs.10.00 Lakhs.

vi) Project Goals

To strengthen the Veterinary University Training and Research Centre, Rajapalayam of Tamil Nadu Veterinary and Animal Sciences University with latest information and communication technology devices and audio-visual aids for effective transfer of technology and extension activities in the district.

vii) Project Components

The Veterinary University Training and Research Centre, Rajapalayam will be strengthened with provision of information and communication technology devices and audio-visual aids at a total cost of Rs.10.00 Lakhs.

viii) Project Cost

The budget outlay for the project is displayed below in Table 6.22.

Table 6.22 Project Cost for Strengthening VUTRC, Rajapalayam

(Rs. in Lakhs)

S. No	Scheme Component	Unit cost	No of Units /year	2008-2009	2009-2010	2010-2011	2011-2012	Total units	Total cost
1	Strengthening of TANUVAS centre with facilities for transfer of technology - Training								
	1. Van	7.50	1	7.50	-	-	-	1	7.50
	2. LCD projector with laptop computer	1.35	1	1.35	-	-	-	1	1.35
	3. P.A. system	0.25	1	0.25	-	-	-	1	0.25
	4. Digital video camera	0.25	1	0.25	-	-	-	1	0.25
	5. Generator	0.50	1	0.50	-	-	-	1	0.50
	6. Charts & displays	0.15	1	0.15	-	-	-	1	0.15
	Total	**10.00**		**10.00**					**10.00**

ix) Implementation Chart of the Project

Activity	2008-2009	2009-2010	2010-2011	2011-2012
1. Strengthening of the The Veterinary University Training and Research Centre, Rajapalayam	Purchase of ICT devices and AV aids	-	-	-

x) Reporting

The Head, Veterinary University Training and Research Centre, Rajapalayam will implement the project and the progress of the project will be submitted to the Tamil Nadu Veterinary and Animal Sciences University, Chennai.

Project : 5

i) Project Title: Institution Development - Improvement of Government Sheep Farm, Sattur.

Name of the Farm : Government sheep Farm, Sattur

Total Area : 154.00 acres

ii) Project Components

Land Utilisation

Sl. No	Present Status		Proposed	
	Content	**Acres**	**Content**	**Acres**
1.	Farm Buildings and roads	24.0	Farm Buildings and roads	24.0
2.	Fodder cultivation	30.0	Fodder cultivation	60.0
3.	Pasture / grazing land (uncultivated)	30.00	Pasture / grazing land (uncultivated)	70.0
4.	Shrubs and bushes	70.00	Shrubs and bushes	Nil
	Total	**154.00**		**154.00**

Livestock

Sl.No	Present stock (Adult)		Proposed (Adult)	
	Species / Breed	**Total No.**	**Species / Breed**	**Total No.**
	Sheep			
1.	Vembur	165	Vembur	400
2.	Kilakaraisal	73	Kilakaraisal	Nil
	Goat			
3.	Kanni	100	Kanni	300
4	Jamunapari	5	Jamunapari to be culld and disposed off	Nil
5	Koduvalli	20	Koduvalli To be culled and disposed off	Nil
	Total	**363**		**700**

iii) Project Rationale

- Proposed to increase population of vembur sheep owing to local demand and good performance in the tract
- Proposed to scale uo present population of kanni goat, matching the carrying capacity of the farm as this breed is study and will be used to upgrade local goats
- The small population of kilakaraisal is converged to develop a nucleus herd at Abishekapatti for breed development
- Expansion of area under fodder cultivation and pasture development to a tune of 70 acres to meet the bio-mass for proposed stock

iv) Project Costs

The Budget Outlays are detailed below in Table 6.23 (A+B)

Table 6.23 Project Cost for Improvement of Govt. Sheep Farm, Sattur

A. Livestock Component

(Rs. in lakhs)

Particulars	Amount
Non-Recurring Cost	
Construction of animal sheds @ Rs.250/sq.ft for 16 sheds each measuring 600 sq.ft	24.00
Renovation and repair of old sheds @ Rs.100/sq.ft for 375 sq.ft for 8 sheds	3.00
Renovation and repair of isolation sheds @ Rs.100/sq.ft for 375 sq.ft for 2 sheds	0.75
Renovation and repair of other buildings (lumpsum)	0.90
Purchase of 220 sheep (19 rams & 221 ewes@Rs.3000 per ram and Rs.2500 per female)	5.64
Purchase of 200 goats (20 males & 180 females @ Rs.3000/male and Rs.2500/female	5.24
Electrical installations for animal sheds	1.00
Chain link fencing @ Rs.3.50lakh per km for 7.50 km	26.25
Levelling of farm roads @ Rs.0.20lakh per km for 2.5 km	0.50
Purchase of equipments including animal balance, 2 nos. of treatment/PM tables, 5 nos. wheel barrows	1.60
Total Non-Recurring Cost	**68.88**
Recurring Cost	
Cost of feed	1.31
Cost of Medicine	0.50
Miscellaneous	0.30
Total Recurring Cost	**2.11**

B. Fodder Development

Area under fodder cultivation (acres) : 30

Development of pasture and grazing land (acres) : 70

(Rs. in lakhs)

Particulars	
Non-recurring	
Renovation of existing wells in 10 wells (construction of walls, desilting etc.)	5.00
Construction of pump room for 5 wells	3.00
Laying of pipe lines connecting 5 wells with purchase of 5 submersible motors	9.25
Sprinklers system for 20 acres	2.00
Bush clearance for sylvipasture @ Rs.5500/acre for 70 acres	3.85
Total Non recurring cost	**23.10**
Recurring Cost	
Cost of maintenance of fodder plots @Rs.6400/acre	1.92
Total Recurring cost	**1.92**

The total cost of the project is estimated at Rs.96.01 lakhs

v) Anticipated Benefits

- Over 350 vembur lambs and 400 kanni kids will be obtained every year subsequently after full operation of the farm
- About 150 superior vembur ram lambs and 150 superior kanni he kids will be supplied to farmers every year to upgrade their stock
- Fodder slips and seeds will be sold to farmers to meet the bio-mass needs of their livestock
- Serve as a model unit for sheep and goat farming and fodder production to local farmers.
- Improvement in the economic status of small farmers and landless labourers in that area

i. Total Budget

The Overall Budget for Animal Husbandry Development year-wise and component-wise are indicated below, in Table 6.24

It could be noted the below table that the budgetary requirement for the projects under animal husbandry development in Virudhunagar district has been worked out to Rs.706.92 lakhs during XIth plan period under NADP.

Table 6.24 Total Budget outlay for the Projects in Animal Husbandry Development

(Rs. in Lakhs)

Sl. No	Project Title	Unit Cost	2008-2009		2009-10		20010-11		20011-12		Grand Total	
			Units	Cost	Units	Cost	Units	Cost	Units	Cost	Total Units	Total Cost
I	**Cattle & Buffalo**											
1	Fodder production by SHGs @ 10 acre/Bl/yr for 11 blocks (DAH)	0.235	110	25.85	110	25.85	110	25.85	110	25.85	440	103.40
2	Identification and traceability of breedable bovine population (DAH)	0.0002	103030	20.606							103030	20.606
3	Crossbred heifer calves nutrition programme (DAH)	0.0511	100	5.11	100	5.11	100	5.11	100	5.11	400	20.44
4	Mobile veterinary clinics @ 1/tk (DAH)	5.83	8	46.656							8	46.656
5	Popularizing mineral mixture to improve livestock production (DAH) @ 1.0 kg/month for one year	0.006	2000	12.00	2000	12.00	2000	12.00	2000	12.00	8000	48.00
6	Control of parasitic diseases through treatment to enhance vaccine response (DAH)			8.50		8.50		8.50		8.50		34.00
7	Mobile veterinary diagnostic laboratory (DAH)	12	1	12.00							1	12.00
II	**Sheep & Goat**											
1	Semi intensive sheep/goat farming to improve meat production by SHG/tribes @ 1/Bl (DAH)	0.42	11	4.62	11	4.62	11	4.62	11	4.62	44	18.48
2	Supply of Rams/Bucks to elite farmers (DAH)	0.0533	50	2.665	50	2.665	50	2.665	50	2.665	200	10.66
III	**Poultry**											
1	Popularizing backyard poultry units (DAH)	0.005	200	1.00	200	1.00	200	1.00	200	1.00	800	4.00
2	Health care for existing desi birds in backyard (DAH)	0.00001	50000	0.50	50000	0.50	50000	0.50	50000	0.50	200000	2.00

Table 6.24 contd...

(Rs. in lakhs)

Sl. No	Project Title	Unit Cost	2008-2009		2009-10		20010-11		20011-12		Grand Total	
			Units	Cost	Units	Cost	Units	Cost	Units	Cost	Total Units	Total Cost
IV	**Others**											
1	Renovation of existing VDs (DAH)	5	18	90.00							18	90.00
V	**Improvement of Sheep Farm - Sattur (DAH)**											
1	Livestock component			70.99								70.99
2	Fodder component			25.02								25.02
	DAH-Total			**325.517**		**60.245**		**60.245**		**60.245**		**506.252**
1	Programmed breeding indigenous cattle & buffalo to increase conception rate (DDD)	0.007	900	6.30	900	6.30	900	6.30	900	6.30	3600	25.20
2	Mobile input units (one per 50 DCS) (DDD)	4.50	2	9.00							2	9.00
3	Supply of mineral mixture to the milch animals at subsidised cost (50%) @ 18 kg/ year (DDD)	0.005	500	2.50	500	2.50	500	2.50	500	2.50	2000	10.00
4	Supply of by-pass protein feed to the milch animals (360kgs/ year/animal @ 50% subsidised cost of Rs.9/- per kg.) (DDD)	0.033	150	4.95	150	4.95	150	4.95	150	4.95	600	19.80
5	Portable milking machines for farmers (DDD)	0.18	4	0.72	2	0.36	2	0.36	2	0.36	10	1.80
6	Bulk milk cooler (DDD)	30.00	1	30.00							1	30.00
7	Walk-in coolers (DDD)	30.00	1	30.00							1	30.00
8	Fodder development activities (for production of fodder seed/ slips in dairy or chilling centres & land of DDD) acres (DDD)	2.10	3	6.30							3	6.30

Table 6.24 contd... **(Rs. in lakhs)**

Sl. No	Project Title	Unit Cost	2008-2009		2009-10		20010-11		20011-12		Grand Total	
			Units	Cost	Units	Cost	Units	Cost	Units	Cost	Total Units	Total Cost
9	Manufacturing facilities for milk khoa (DDD)	0.77	3	2.31	1	0.77	1	0.77			5	3.85
10	Manufacturing facilities for ice cream (DDD)	1.12	1	1.12	1	1.12					2	2.24
11	Milk weighing machine for milk producers co-op. societies (DDD)	0.17	3	0.51	3	0.51	3	0.51	3	0.51	12	2.04
12	P.C.based automatic milk collection stations to idf villages milk producers cooperative societies (DDD)	1.75	1	1.75	1	1.75	1	1.75	1	1.75	4	7.00
13	Quality assurance lab strengthening (DDD)	10.00	1	10.00							1	10.00
14	Farmers study tour @ Rs.5000/- per farmer (DDD)	0.05	40	2.00	40	2.00	40	2.00	30	1.50	150	7.50
15	Skill development for technical staff (DDD)	0.05	11	0.55	11	0.55	11	0.55	11	0.55	44	2.20
16	Energy management system (DDD)	10.00	1	10.00							1	10.00
17	Oreintation training / workshop for milk producers at society level (DDD)	0.20	4	0.80	4	0.80	4	0.80	4	0.80	16	3.20
	DDD-TOTAL			**118.810**		**21.610**		**20.490**		**19.220**		**180.130**
1	Training programmes and village level campaign on livestock farming (TANUVAS)	0.15	11	1.65	11	1.65	11	1.65	11	1.62	44	6.57
2	Strengthening of training equipments for technology dissemination at VUTRC, Rajapalayam (TANUVAS)	10	1	10.00							1	10.00
3	Study tour of farmers to livestock and poultry research station (TANUVAS) @ 50 persons/batch	0.25	4	1.00	4	1.00	4	1.00	4	1.00	16	4.00
	TANUVAS - Total			**12.65**		**2.65**		**2.65**		**2.62**		**20.57**
	Grand total			**456.977**		**84.505**		**83.385**		**82.085**		**706.952**

6.7. Fisheries Sector

6.7.1. Introduction

Virudhunagar is an inter-land locked district with no coast line. Therefore, the fisheries development is to be fully concentrated in inland fisheries. The district has got a number of reservoirs, tanks under local bodies and under HR and CE. With this perspective in view, the following six projects have been formulated for fisheries development in Virudhunagar district.

Project - I

i) Project Title : Subsidy Assistance to Private Fish Seed Rearing / Fish Seed Production (50 Percent Subsidy)

ii) Project Abstract

In Virudhunagar tanks receive water mostly from October every year. Depending upon the water availability, these tank waters dwindle from February to June. Therefore, these waters are available for fish culture for a minimum period of 4 months from October to January and a maximum period of 9 months ie. October to June. Therefore, the inland fish production in this District is directly proportional to the period of water retention in irrigation tanks.

iii) Budget: Rs. 2.50 lakhs

iv) Background / Problem Focus

- Inadequate infrastructure development causing problems to attain self Sufficiency in seed production
- Fish seed production / Rearing is not adequate.
- Fish seed production / rearing in private sector has been not encouraged to minimize intake from neighboring States.
- Fish culture activity shall be encouraged by extending 50% subsidy on inputs.
- Virudhunagar district's water potential gives more opportunity for fish seed production

v) Project Rationale

- Infrastructure development to attain self sufficiency in seed production.
- Fish seed production / rearing in private sector should be encouraged to minimize import from other States.

vi) Project Strategy

Mismatch of major carp breeding season and water availability period in tanks. Inadequate infrastructure facilities for seed rearing and fish marketing. So seed of carps in enhance.

vii) Project Goals

- To increase good quality fish Seed and fish production capacity
- To expand fish culture in hitherto unutilized water bodies.
- To produce 10 lakhs carp seeds every year.

viii) Project Components

Repair / Renovation of Carp nurseries, Provision of bore well, Water supply arrangement, Crap seeds and 50% subsidy.

ix) Project cost – Unit cost (@50% subsidy)

a.	Subsidy for renovation of nurses tanks @ Rs.1000/- per M^2 – maximum 200 m^2	:	Rs.2,00,000
b.	Subsidy for purchase pumps & Motors nets and hoper feed and need	:	Rs. 50,000

	Total	**:**	**Rs.2,50,000**
			----------

x) Implementation Chart of the Project

S. No.	Particulars	2008-2009			
		I Qtr	II Qtr	III Qtr	IV Qtr
1.	Rearing of seeds	√		√	√
2.	Completion of civil works		√	√	√

xi) Reporting

The project will be implemented and evaluated by Department of Fisheries.

Project : 2

i) Project Title: Expansion of Fish Culture in Hitherto Unutilized Water Bodies by Stocking (50% Subsidy)

ii) Project Abstract

It is proposed to cover 5250 ha of water bodies additionally to bring under fish culture by extending 50% subsidy assistance for stocking fingerlings. The total cost would be Rs. 70 lakhs for the supply of 105 lakhs fingerlings 50 percent subsidy.

iii) Budget : Rs. 57.50 lakhs

iv) Background / Problem focus

The Indian major carps along with / and Tilapia are the major species are captured in a inland water bodies in the district. Fish culture in a natural small water system is being practiced by stock and harvest system and not by scientific culture method.

v) Project Rationale

Subsidy will be extended to registered fish farmers

vi) Project Strategy

To enhance the fish production targeting the potential

vii) Project Goals

To increase the area under fish culture to 4600 ha.

viii) Project Cost

Unit cost (per ha.subsidy for fish seed purchase)	:	Rs.0.0125 lakh
Area to be covered	:	4600 ha
Total fingerlings required	:	100 lakh @ 2000 per ha.
Total cost	:	57.50 lakh

ix) Project Implementation chart

Sl. No	Particulars	2008-12			
		I Qtr	II Qtr	III Qtr	IV Qtr
1.	Expansion of fish culture in unutilized water bodies of 1000 ha.	√			
2.	Expansion of fish culture in unutilized water bodies of 1000 ha.		√		
3.	Expansion of fish culture in unutilized water bodies of 1000 ha.			√	
4.	Expansion of fish culture in unutilized water bodies of 1600 ha.				√

x) Reporting

The project will be evaluated by Department of Fisheries.

Project III

i) Project Title : Modern fish Retail Outlet (50 percent subsidy)

ii) Project Abstract

In Virudhunagar district, there are established fish markets run by the municipalities concerned. The improperly stored unsold fish kept overnight result in fish spoilage and loss of quality and revenue. To avoid this, intervention is necessary to establish modern fish retail outlets at Dindigul.

iii) Budget : Rs. 30.00 lakhs

iv) Background / Problem Focus

The modern fish retail outlet will be used to keep the excess stock until selling.

v) Project Rationale

To avoid fish spoilage & loss of quality and revenue

vi) Project Strategy

The facility will be established at Virudhunagar.

vii) Project Goals

To avoid loss of revenue this outlet will be established.

viii) Project Components

Total Units	:	3
I year 2008-2009	:	One retail market
II year 2009-2010	:	One retail market
III year 2010-2011	:	One retail market

ix) Project Cost

(Rs. in lakhs)

S. No.	Particulars	Amount
1.	Land development for 750 Sq.ft. including water facilities, compound wall, drainage grill gates and flooring etc.	2.00
2.	Fabrication and Installation of modern fish stall (Alco panel structure)	6.00
3.	Fish storage cabin	1.00
4.	Glass display cabinet	1.00
Total		**10.00**

x) Project Implementation

TNFDC will implement and fisheries Department will monitor the functioning of the retail outlet.

xi) Reporting

By Department of Fisheries

Project : 4

i) Project Title: Training for fish farmers

ii) Project Abstract

In Virudhunagar District fishery activities are actually clustered around Rajapalayam, Srivalliputhar and Virdhunagar Taluks. These fisher folks will immensely benefited by the training given in the recent technology regarding the advanced fish culture methods. As these fishermen are very poor and they must be supported with financial help to undergo the training programme. In order to meet out the training cost and the exposure visit expenses for learning the technologies a sum of Rs.10, 000/- to be paid to one farmer.

iii) Budget : Rs. 10.00 lakhs

iv) Background / Problem focus

The inland fisheries sector of Tamilnadu is endowed with a total water spread area of 3,18,790 ha with as major irrigation and long seasonal tanks (97,690 ha), short seasonal tanks/ponds (1,58,100 ha), estuaries and backwaters (56,000 ha) derelict waters, swamps etc. (7,000 ha). While these resources have a potential to yield 2.46 lakh tonnes of fish, the present yield is only 1.14 lakh tonnes. About 60% cultivable area has been brought under culture practices.

v) Project Rationale

Imparting training in such fish culture practices would generate employment opportunities and make them self reliant and socially and economically empowered.

vi) Project Strategy

To conduct training programme on freshwater fish culture for the farmers so as to improve their socio economic conditions.

vii) Project Goals

- To conduct training program for 100 participants
- To conduct follow up studies.

viii) Project components

- Composite fish culture
- Ornamental fish culture
- Integrated fish farming
- Cat fish culture
- Economies and Marketing

ix) Project cost

S.No.	Particulars	App. Budget
1	Stipend for 25 participants/ 3days	Rs.0.1 lakhs
2	Extension materials	
3	Miscellaneous	
Total (0. 1 x 100)		**10.00 lakhs**

x) Project Implementation chart

Sl. No.	Particulars	2008-11			
		I Qtr	II Qtr	III Qtr	IV Qtr
1.	Identification of villages	√	√	√	√
2.	Selection of participants	√	√	√	√
3.	Conducting training programmes	√	√	√	√
4.	Evaluation of training programmes	√	√	√	√

Reporting

The progress of the project will be reported to the concerned authorities quarterly.

Project : 5

i) Project Title : Provision of Subsidy for the Purchase of Net (50 percent Subsidy)

ii) Project Abstract

In Virudhunagar district, the fishermen do fishing mostly in irrigation tanks and ponds. For effective fishing they need good quality nets. The fishermen in this district are economically poor, because fishing profession is irregular. To uplift them and as an encouragement, fishing nets may be given on subsidy basis for fishing in the natural water bodies. The fish farmers also do not have good quality fishing nets. Hence, it is necessary to intervene and provide them with drags at subsidized cost. The mesh size is one inch. Length of the net is 100 m with a height of 3 m with head rope and foot rope.

iii) Budget: Rs. 1.25 lakhs

iv) Project cost

Unit cost	:	Rs.10,000/- (purchase of net)
Subsidy for purchase of 1net	:	Rs.5, 000/- (50% subsidy)
Total No. of Units	:	25

v) Project Rationale

The fishermen will be greatly helped to exploit the fishery wealth of all water bodies effectively. The landings will be greatly improved; Fish quality will also be good. It will also help seed producers to collect and select good quality breeders

vi) Reporting

State Fisheries Department

Project : 6

i) Project Title: Desilting of Vembakottai Tank

ii) Project Abstract

In order to meet out the demand of freshwater fishes of this district, its proposed to renovated the existing damaged nurseries at Vembakottai.

iii) Budget : Rs. 25.00 lakhs

iv) Background / Problem Focus

At present there are two Government fish seed production centres in this district. One at Vaigai Dam and another at Vembakottai tank which able to produce only 17.50 lakhs fingerlings per year. Therefore it is proposed to desilt Vembakotai tank in order to increase water holding capacity and fish production.

v) Project Rationale

Desilting of Vembakotai tank to increase the water holding capacity and improve fish production

vi) Project Strategy

To increase the fish production through desilting of Vembakottai tank

vii) Project Goals

Desilting of Vembakotai tank in order to increase the water holding capacity so that year around fish production can be done.

viii) Project Components

Desilting of Vembakottai tank

ix) Project cost

Project cost	:	Rs. 25.00 lakhs
Area of the tank to be desilted	:	250 ha
Desilting cost	:	Rs. 10000 per hectare

x) Project Implementation Chart

Sl. No	Particulars	2008-09	2009-10	2010-11	2011-12
1.	Desilting of Vembakotai tank	√	√		
2.	Strengthening of bunds, beam, sloping, crown designing, leveling etc.		√	√	√

xi) Reporting

Quarterly progress will be reported to the Fisheries Department

6.7.2. Total Budget

The total budget outlay earmarked for the six projects, year-wise under fisheries development in the district is displayed below, in Table 6.25

Table 6.25 Budget Outlay for Fisheries Development for Virudhunagar District

(Rs.in lakhs)

Sl. No.	Components	Implementing Agency	Unit cost	Total units	2008-09		2009-10		2010-11		2011-12		Total cost
					Units	Cost	Units	Cost	Units	Cost	Units	Cost	
1	Subsidy assistance to private fish seed rearing / fish seed production (50% subsidy)	Fisheries Department	2.50	1	1	2.50							2.50
2	Expansion of fish culture in hither to unutilized water bodies by stocking (50% subsidy)	Fisheries Department	0.0125/ha	4600	1000 ha	12.50	1000	12.50	10000	12.50	1600	20.00	57.50
3	Modern fish Retail Outlet (50% subsidy)	TNFDC	10.00	3	1	10.00	1	10.00	1	10.00			30.00
4	Provision of subsidy for the purchase of net (50% subsidy)	Fisheries Department	0.05	25	10	0.50	5	0.25	5	0.25	5	0.25	1.25
5	Desilting of Vembakotai tank	Fisheries Department	5 / ha	5	2	10.00	1	5.00	1	5.00	1	5.00	25.00
	Fisheries Total					**35.50**		**27.75**		**27.75**		**25.25**	**116.25**
1	Training for fish farmers	TANUVAS	0.10	100	30	3.00	30	3.00	30	3.00	10	1.00	10.00
	TANUVAS Total					**3.00**		**3.00**		**3.00**		**1.00**	**10.00**
	Grand Total					**38.50**		**30.75**		**30.75**		**26.25**	**126.25**

6.8. Agricultural Marketing

6.8.1. Introduction

Virudhunagar district is an important market centre for agriculture products. There also exists export potentials for chilli and other processed products. With a view to modernise the agricultural marketing and agribusiness systems in the district, the following eight projects have been formulated and the details are given here-under.

Project: 1

i) Project Title: Establishment/ Organization of Commodity Groups for Marketing

ii) Project Background

According to Government sources, the inefficient marketing system leads to an avoidable waste of around Rs 50,127 crores. A major part of this can be saved by introducing scale and technology in agricultural marketing. Milk and eggs marketing are two success areas of role of scale and technology in marketing. The extent to which the farmer-producers will benefit (out of saving of avoidable waste) depends on the group-marketing practices adopted by the farmers. In this sense, Farmers' Groups / Commodity Groups need to be promoted for undertaking marketing activities on behalf of the individual members of the group.

Based on the international experience, in view of expanding retail trade, organizing the farmers and equipping the commodity groups can facilitate the aggregation of produce and also enhance the bargaining power of the farmers. The experience in Malaysia, Thailand and Philippines indicated that the retail chains will depend on some intermediary agency for sourcing the produce. If this role can be taken by the farmers' commodity groups, the commodities can move directly to the market without any intermediary. Further, adoption of technology both in production and post-harvest management which is expected to flow from the organized retailers and other research institutions can be efficient through the farmers' commodity groups. There is no single model for organizing the farmers for the whole country. Depending on the strength

of the existing farmers' institutions, various models could be adopted. It can be cooperatives, SHGs or any other form. Therefore it is proposed to organize the commodity groups for marketing of agricultural commodities in Tamil Nadu over a period of five years.

iii) Project Strategy

Formation of commodity groups for facilitating group marketing in Virudhunagar district

iv) Project Goals

Organizing group marketing of major agricultural commodities for realizing better prices through establishment of commodity groups

v) Project Components

1. Organising meetings with large number of farmers
2. Identification of willing / co operating Farmers
3. Organising the willing farmers into groups and
4. Periodical meeting with groups and coordinating the activities

vi) Project Cost and Financing

Arranging / organising Commodity Groups involves several rounds of meeting with large number of farmers to begin with and finally arriving at about required number of farmers for group cultivation of marketing. To organize the groups, an amount of Rs.20000/- is provided per group. The project cost for the year 2008-09 is Rs. 3.2 lakhs and the total budget for four years is Rs.4.72 lakhs.

vii) Reporting

1. Quarterly progress reports to be sent to the Deputy Director (Agricultural Marketing and Agri Business) by the concerned Agricultural officer (Agricultural Marketing and Agri Business) and Secretaries of Marketing Committees and

2. Periodical Inspection to be undertaken by the Deputy Director (Agricultural Marketing and Agri Business)

Project: 2

i) Project Title: Dissemination of Market Intelligence

ii) Project Rationale

Rural (primary and periodic) Markets are the first contact points of farmers with the market economy, both for selling and buying. As there have been high price differentials between the Wholesale Markets and the Rural Markets, there is room for arbitrage which is being exploited by the traders to their advantage. Therefore, it is imperative to make the Wholesale Markets as the price discovery point and the Rural Markets as the price takers with due consideration on transport and other costs. As the Rural Markets have few traders, the tendency to collude among them is high. In the Wholesale Markets, as traders are many, one can expect a fair price. In a country like India, with 70 percent of its population living in about 6.25 lakhs villages and depending on agriculture as their main occupation, accurate and timely information about the market prices of the agricultural commodities is of extreme significance.

The most important marketing information is price data. Agricultural price data are based on thousands or millions of transactions, many of them on a small scale, that are taking place every day all over the country. Collecting an adequate sample and making sure that these are representative enough to be useful is not an easy task. As farmers become more market oriented, extension workers need to be in a position to advise them not only on how to grow crops but also on how to market them. Knowledge of produce handling, storage and packaging is also essential. An understanding of costs and margins is essential for all those involved with agricultural marketing. Before any agro-processing venture is started, or before an existing venture decides to expand its product line, an understanding of the market for the planned products is absolutely essential. Market research can never guarantee success but it can certainly increase the likelihood that the new business will turn out to be profitable. Hence this project is on the dissemination of market intelligence provided by the Domestic and Export Market Intelligence Cell, Centre for Agricultural and Rural Development Studies, Tamil Nadu Agricultural University, Coimbatore and other agencies.

iii) Project Strategy

Dissemination of Market intelligence provided by the Domestic and Export Market Intelligence Cell, Centre for Agricultural and Rural Development Studies, Tamil Nadu Agricultural University, Coimbatore and other agencies through different mass media

iv) Project Components

1. Procurement of market intelligence reports and

2. Dissemination of Market intelligence to all the Stake holders through different mass media.

v) Project Cost

In this project, it is proposed to disseminate Market intelligence of agricultural commodities to all the Stake holders through different mass media. To facilitate the market dissemination activities in Virudhunagar district, a budget of Rs.2.2 lakhs is required for the year 2008-09. The total budget required for all the four years from 2008 – 2012 is Rs.6.16 lakhs.

vi) Reporting

1. Quarterly progress reports to be sent to the Deputy Director (Agricultural Marketing and Agri Business) by the concerned Agricultural Officers (Agricultural Marketing and Agri Business) and Secretaries of Marketing committees.

2. Periodical inspection undertaken by the Deputy Director (Agricultural Marketing and Agri Business)

Project : 3

i) Project Title: Facilitation of Contract Farming Between Farmers and bulk buyers

ii) Project Rationale

Apart from linking the farmers to consumers through farmers organizations, another initiative for reducing transaction cost is the establishment of direct channel between farmer-processor and bulk consumers, through contract farming (CF). For different reasons, both farmers and farm product processors/distributors may prefer contracts to complete vertical integration. A farmer may prefer a contract which gives access to additional sources of capital and a more certain price by shifting part of the risk of adverse price movement to the buyer. Farmers also get an access to new technology and inputs, including credit through contracts which otherwise may be beyond their reach. For a processor or distributor, contracts are more flexible in the face of market uncertainty making smaller demands on scarce capital resources and imposing less of an additional burden of labour relations, ownership of land, and production activities on management.

At more macro economic level, contracting can help to remove market imperfections in produce, capital (credit), land, labour, information and insurance markets; facilitate better coordination of local production activities which often involve initial investment in processing, extension etc.; and can help in reducing transaction costs. It has also been used in many situations as a policy step by the state to bring about crop diversification for improving the farm incomes and employment. Contract Farming is also seen as a way to reduce costs of cultivation as it can provide access to better inputs and more efficient production methods. The increasing cost of cultivation was the main reason for the emergence of Contract Farming in Japan and Spain in the 1950s and in the Indian Punjab in the early 1990s. Though there are concerns about the ability of the small farms and firms to survive in the changing environment of agribusiness, still there are opportunities for them to exploit like in product differentiation with origin of product or

organic products and other niche markets. But, the major route has to be through exploitation of other factors like external economies of scale through networking or clustering and such other alliances like Contract Farming.

Marketing tie-ups between farmers and processors or bulk purchasers have special significance for small farmers, vested with small marketed surplus and no staying power. Such arrangements are being encouraged to help in reducing price risks of farmers and also expanding the markets for farm products. It is to be noted that contract farming of sugarcane is going on for more than 50 years in Tamil Nadu. In case of cotton, maize and medicinal plants, there are few cases of contract farming. Contract farming in milk, eggs and broiler production is successfully taking place on a large scale in Tamil Nadu. The lessons learnt in the case of sugarcane, cotton and other commodities have to be taken into account during formulation of the project. For this, in this NADP programme, facilitation of contract farming, between the traders and producers is proposed.

iii) Project Strategy

Facilitation contract farming between the traders and producers by organizing buyers and sellers meet in the block levels.

iv) Project Components

1. Organising meeting with farmers, large scale buying firms, crop insurance companies and banks.
2. Identification of willing / co operating Farmers/ commodity clusters
3. Organising the willing farmers into groups
4. Arranging the groups to have contract and agreement with select large scale buyers, banks and crop insurance firms and
5. Periodical watching of contracts and conflict management.

v) Project cost

To facilitate the contract farming activities in Virudhunagar district, a budget of Rs.0.5 lakhs is required for the year 2008-09. The total budget required for all the four years from 2008 – 2012 is Rs.2.3 lakhs.

vi) Reporting

1. Quarterly progress reports to be sent to the Deputy Director (Agricultural Marketing and Agri Business) by the concerned Agricultural Officers (Agricultural Marketing and Agri Business) and Secretaries of Marketing committees and
2. Periodical Inspection undertaken by the Deputy Director (Agricultural Marketing and Agri Business)

Project: 4

i) Project Title : Organizing Exposure Visits to Important Markets with in and Out Side the State By Commodity Groups / Farmers and Extension Functionaries

ii) Project Rationale

The goal of 4% growth in agriculture can only be achieved by increasing productivity per unit of land. Considering the costs and constraints of resources such as water, nutrients and energy, the genetic enhancement of productivity should be coupled with input use efficiency. This can be made possible only by creation and utilization of new and improved technology. Since new technology creation and development is a slow process, for attaining the desired 4% growth during the XIth Plan period, we have to rely more on known and proven technology. Agricultural research system claims to have a large number of promising technologies to achieve high growth and promote farming systems that improve natural resource base. However, these are not seen at farmers'

fields at large. Visit to other areas, where new technologies are implementing successfully i.e., exposure visits, is an important thing to enlighten the farmers for implementing those technologies in their areas also. It is easy to know the new technology through demonstration. Farmers will be selected to visit different places within the State where the technologies are well adopted. Therefore it is proposed to organize the exposure visit to important markets with in the state and out side the state by commodity groups / farmers and extension functionaries in the state for marketing of agricultural commodities in Tamil Nadu over a period of five years.

iii) Project Strategy

Organizing the exposure visits to important markets within the state and outside the state by commodity groups / farmers and extension functionaries.

iv) Project Goals

Organizing the exposure visit to important markets with in the state and out side the state by commodity groups / farmers and extension functionaries in the state for marketing of agricultural commodities in Tamil Nadu over a period of five years from NADP funding

v) Project Components

1. Organizing the exposure visit to important markets within the state by commodity groups / farmers
2. Organizing the exposure visit to important markets outside the state by commodity groups / farmers and
3. Organizing the exposure visit to important markets within the state and outside the state by extension functionaries

vi) Project Cost

Visit to important markets, where new opportunity for marketing of the commodity and consumer preference, i.e., exposure visits to SAFAL market Bangalore, is an important thing to enlighten the farmers for marketing their produce as well as for knowing the consumer' s preference. It is easy to know the marketing of the commodity through observation and participation in the well developed markets. Farmers will be selected to visit different market places within the State where the new opportunities for marketing of commodities exist. The details are presented in Annexure. To facilitate the exposure visit activities in Virudhunagar district, a budget of Rs.0.95 lakhs is required for the year 2008-09. The total budget required for all the four years from 2008 – 2012 is Rs.7.79 lakhs.

vii) Reporting

1. Quarterly progress reports to be sent to the Deputy Director (Agricultural Marketing and Agri Business) by the concerned Agricultural Officcers (Agricultural Marketing and Agri Business) and Secretaries of Marketing committees.
2. Periodical Inspection undertaken by the Deputy Director (Agricultural Marketing and Agri Business)

Project : 5

i) Project Title: Arrangement of Buyers - Sellers Meet

ii) Project Rationale

Indian farmers usually produce diverse goods and services to meet the family requirements. Marketable surpluses, if any, are disposed off immediately after harvest to meet the cash requirements when prices are generally at depressed level and often to specific buyers who have provided credit.

There is limited market for all goods and services produced by the farmers in the vicinity. In contrast, quite often, they buy goods and services in lean period when prices are generally higher. Therefore, the nature, degree and the complexity of the problems varied among the farmers, regions, and markets.

Several alternatives are available within each market for the farmers. However critical evaluation of the alternatives is important in deciding a profitable set to determine the overall profitability of the farms.

The most important aspect of the agricultural market intelligence is to create awareness about the demand and quality requirements for various agricultural produce among farmers and also to build knowledge on the availability of various agricultural commodities among the traders.

There is an increasing pressure on all segments of the agricultural produce economy to respond to the challenges that the global markets pose in the new post: WTO world trade order.

"Buyers and sellers meet" functions as a platform in linking agribusiness community namely farmers, traders, commission agents, agricultural processed food organizations, millers, machinery manufacturers in an egalitarian exchange of ideas and materials.

It could be beautifully explained as a business partnership between producers and buyers to enhance their knowledge for mutual gain.

Arrangement of these meetings brings together the two important aspects of success i.e. technology and human resources. . Besides by display of agricultural commodities through exhibitions, the meet covers all the latest market related interventions and provides a need based solutions to farmers through direct contact with experts.

iii) Project Cost

To facilitate the arrangement of buyer-seller activities in Virudhunagar district, a budget of Rs.2.00 lakhs is required for the year 2008-09. The total budget required for all the four years from 2008 – 20012 is Rs.9.20 lakhs.

Project: 6

i) Project Title : Strengthening of Market Extension Centre at Each District/ Block Level for Capacity Building and Dissemination of Marketing Information

ii) Project Rationale

Over the last few years, mass media has seen a phenomenal growth in the country both in terms of reach and advance in technology. This medium has not been exploited to its full potential for the purpose of agricultural extension specifically market led extension. A concerted and well-coordinated effort now needs to be made to use the electronic media in the Extension strategy by strengthening infrastructure facility. Market led Extension is now becoming more diversified, technology intensive, knowledge oriented and more demand-driven. This requires the extension workers at the cutting edge level to be master of so many trades, which is neither practicable nor possible. Use of IT in extension enables the extension workers to be more effective in meeting the information needs of farmers. The growing Information and communication technology is used widely in the entire developmental sector except in agricultural sector. Use of interactive multimedia and such other tools will help the extension workers to serve the farmers better. Similarly, extension systems have to utilize the existing print and electronic mass media for faster dissemination of information to farmers. The

technological advancement in telecommunication and space technology has to be fully tapped for devising appropriate programs for farmers. Hence there is an urgent need for strengthening of market extension centre at each district/ block level with LCD projectors and lap top computers including internet facilities.

iii) Project Strategy

Strengthening of market extension centre at each district/ block level for capacity building and dissemination of marketing information.

iv) Project Goals

Strengthening of market extension centre at each district/ block level for capacity building and dissemination of marketing information in Virudhunagar district over a period of five years.

v) Project Components

Strengthening of market extension centre at each district/ block level.

vi) Project cost

In this project it is proposed to strengthen market extension centre in Virudhunagar district over a period of five years. The details are presented in Annexure. To facilitate the strengthening the market extension centre activities in Virudhunagar district, a budget of Rs.7.50 lakhs is required for the year 2008-09. The total budget required for all the four years from 2008 – 2012 is Rs.7.50 lakhs.

vii) Reporting

1. Quarterly progress reports to be sent to the Deputy Director (Agricultural Marketing and Agri Business) by the concerned Agricultural Officers (Agricultural Marketing and Agri Business) and Secretaries of Marketing committees.
2. Periodical Inspection undertaken by the Deputy Director (Agricultural Marketing and Agri Business)

Project: 7

i) Project Title : Publicity Strengthening of Regulated Markets and Uzhavar Shandies

In this project it is proposed to strengthen Village Shandies in Tamil Nadu over a period of five years. This will require resources of RS.644.00 Lakhs for a period of five years. The details are presented in Annexure I & II.

ii) Project Cost

To facilitate the publicity activities in Virudhunagar district, a budget of Rs.5.00 lakhs is required for the year 2008-09. The total budget required for all the four years from 2008 – 2012 is Rs.23.00 lakhs.

iii) Reporting

1. Quarterly progress reports to be sent to the Deputy Director (Agricultural Marketing and Agri Business) by the concerned Agricultural Officer (Agricultural Marketing and Agri Business) and Secretaries of Marketing committees and Periodical inspection will be undertaken by the Deputy Director (Agricultural Marketing and Agri Business)

Project : 8

i) Project Title: Capacity Building of Farmers' Skill

ii) Project Rationale

Apart from pursuing policies and creating formal organizations to intervene in agricultural marketing, governments have adopted several programmes of providing market support services. It appears that the types of programmes initiated cover a very wide spectrum of possible solutions to help small and marginal farmers. However, the benefits have not adequately reached the intended target groups. The main reason is that agricultural marketing and business related aspects of training, education and research have remained neglected in our country.

The role of the market as knowledge and information exchange amongst the converging farmers needs to be appreciated and harnessed. Farmers get benefit from deregulation of markets, minimum guaranteed price scheme, contract farming, and crop/income insurance, only to the extent they organize in marketing groups, self-help groups, cooperatives or companies and learn skills suited to the new marketing environment. Understanding quality standards (including FAQ), learning the terms of contract and insurance, and choosing and preparing the produce for the market are going to be essential skills for farmers. There is a need for greater synergy between extension services and market. State Marketing Departments and Boards, APMCs, Krishi Vigyan Kendras (KVKs), Marketing Cooperatives, NGOs and PRIs should pay increasing attention to train the farmers in marketing related skills. All stakeholders in the Supply Chain (i.e. from farmers to consumers) should be exposed to the following characteristics and complexities of the marketing system to make it more efficient. Hence in this project the following training programmes are proposed with budget requirement of Rs. 6.44 Lakhs

- Training on Warehousing and storage
- Training on Grading
- Training on Market intelligence
- Training on Post Harvest Management of selected commodities
- Massive awareness programme is to be undertaken to demystify the commodity futures markets and enable the farmers to enter into futures contract so as to insure their price risk.
- Training to farmers on selected commodities for Export Promotion.

iii) Project Strategy

Training will be organized for farmers / commodity groups on Warehousing and storage, Grading, Market intelligence, Post Harvest Management of selected commodities and awareness programme is to be undertaken to demystify the commodity futures markets and enable the farmers to enter into futures contract so as to insure their price risk in the state with financial assistance from NADP.

iv) Project Components

Organizing training to farmers / commodity groups on Warehousing and storage, Grading, Market intelligence, Post Harvest Management of selected commodities and awareness programme is to be undertaken to demystify the commodity futures markets and enable the farmers to enter into futures contract so as to insure their price risk.

v) Project Cost

In this project it is proposed to organize about 100 trainings under Capacity Building of Farmers Skill over the period of four years. This will require a budgetary provision of Rs 11.86 Lakhs for the period of four years.

vi) Reporting

1. Quarterly progress reports to be sent to the Deputy Director (Agricultural Marketing and Agri Business) by the concerned Agricultural Marketing (Agricultural Marketing and Agri Business) and Secretaries of Marketing committees.
2. Periodical Inspection undertaken by the Deputy Director (Agricultural Marketing and Agri Business)

Project : 9

i) Project Title: Infrastructure Strengthening in Selected Markets

ii) Project Rationale

Considering the importance of different Markets, there is an urgent need to develop these markets in a phased manner with necessary infrastructural amenities to have a strong base of the marketing channel. Suitability and adequacy of marketing infrastructure depends on the type and quantity of marketed surpluses of agricultural produce in the State. The estimated marketed surpluses of various commodities are given in the following table which reflect the need for improvement in the market infrastructure in coming years.

Estimates of Marketed Surpluses of Various Commodities (in percent)

Sl.No	Commodity	Marketed surplus ratio
1	Rice	51.9
2	Wheat	53.8
3	Jowar	39.7
4	Bajra	45.4
5	Maize	46.2
6	Other Coarse Cereals	57.1
7	Pulses	53.9
8	Food grains	
9	Oilseeds	79.6
10	Sugarcane	92.9
11	Fruits and Vegetables**	88.2
12	Cotton	100.0
13	Fish	100.0
14	Milk	60.0
15	Mutton and Goat Meat	100.0
16	Beef and Buffalo Meat	100.0
17	Meat(Total)	100.0
18	Eggs	88.2

Agricultural Statistics at a Glance 2001, Agricultural Statistics Division, Directorate of Economics and Statistics, Ministry of Agriculture, New Delhi

iii) Project Components

1. Purchasing and establishing price display board and mobile controlled display board
2. Purchasing and establishing collection centers
3. Purchasing and establishing chilli dryers
4. Purchasing and establishing cool Chambers/cold storage
5. Purchasing and establishing Price Display Mechanism and Electronic Weighing Machines
6. Purchasing and establishing moisture meter and
7. Purchasing and distribution of Tarpaulins, Plastic crates and storage pins

iv) Project Cost

In this project, it is proposed to strengthen Village Shandies in Virudhunagar district over a period of five years. The details are presented in Annexure. To facilitate the market infrastructure activities in Virudhunagar district, a budget of Rs.0.72 lakhs is required for the year 2008-09. The total budget required for all the four years from 2008 – 2012 is Rs.3.31 lakhs.

v) Reporting

1. Quarterly progress reports to be sent to the Deputy Director (Agricultural Marketing and Agri Business) by the concerned Agricultural Officer (Agricultural Marketing and Agri Business) and Secretaries of Marketing committees.
2. Periodical inspection undertaken by the Deputy Director (Agricultural Marketing and Agri Business)

vi) Implementation

Department of Agricultural Marketing and Agribusiness, Government of Tamil Nadu will be the implementing agency for proposed project.

6.8.2. Project Performance Monitoring System

Outcomes of the project will be measured against initial baseline data which will provide a benchmark for future interventions. The details of each monitoring and evaluation activity will be refined and finalized during the first six months of the project, as a joint effort of the management of the project , the stakeholders and technical assistance by the Performance Monitoring Evaluation unit.

6.8.3. Sustainability

Project sustainability refers to the continuation of benefits generated by the project even after project completion. Through the project activities, stakeholders will improve their capacity in identifying market opportunities and taking sound business decisions regarding investment, production and marketing. The improved capacity will result in the emergence of profitable enterprises better able to adapt to market conditions

and seize existing opportunities and benefits, the enterprises and the benefits will continue to exist even after the completion of the project. However, the success of the project also depends on the sustainability of some of the institutional mechanisms (for example DEMIC) introduced by the project. In some cases, the institutional support will have to be continued for the benefits to continue to flow after the completion of the project and in the models and practices introduced by the project to be replicated by other stakeholders in the agricultural sector in the state.

Table. 6.26. A. Original Project Proposals for Agricultural Marketing and Agri-Business

Sl. No	Components	2009			2010			2011			2012		
		Unit Cost	Phy	Fin	Unit Cost	Phy	Fin	Unit Cost	Phy	Fin	Unit Cost	Phy	Fin
1	Commodity group formation												
	Paddy	20000	4	80000	22000	4	88000	24000	4	96000	26000	4	104000
	Maize	20000	4	80000	22000	4	88000	24000	4	96000	26000	4	104000
	Chillies	20000	4	80000	22000	4	88000	24000	4	96000	26000	4	104000
	Mango	20000	4	80000	22000	4	88000	24000	4	96000	26000	4	104000
2	Market Intelligence dissemination												
	Touch Screen	10000	11	110000	11000	0	0	12000	0	0	13000		0
	Farmers Traders Meet	10000	10	100000	11000	10	110000	12000	10	120000	13000	10	130000
	Purchase of marketing materials	10000	1	10000	11000	1	11000	12000	1	12000	13000	1	13000
3	Facilitation of contract farming	50000	1	50000	55000	1	55000	60000	1	60000	65000	1	65000
4	Exposure visit to markets												
	Within State	20000	1	20000	22000	2	44000	24000	2	48000	26000	2	52000
	Outside state	75000	1	75000	82500	2	165000	90000	2	180000	97500	2	195000
5	Arrangement of buyer seller meetings	20000	10	200000	22000	10	220000	24000	10	240000	26000	10	260000
6	Streng. Of market extension centre	250000	3	750000	275000	0	0	300000	0	0	325000	0	0
7	Publicity - regulated market	500000	1	500000	550000	1	550000	600000	1	600000	650000	1	650000
8	Trainings on												

Table. 6.26.A.contd...

Sl. No	Components	2009			2010			2011			2012		
		Unit Cost	Phy	Fin	Unit Cost	Phy	Fin	Unit Cost	Phy	Fin	Unit Cost	Phy	Fin
	Warehousing and Storage	10000	4	40000	11000	4	44000	12000	4	48000	13000	4	52000
	Grading	10000	4	40000	11000	4	44000	12000	4	48000	13000	4	52000
	Market Intelligence	10000	4	40000	11000	4	44000	12000	4	48000	13000	4	52000
	Post Harvest	10000	4	40000	11000	4	44000	12000	4	48000	13000	4	52000
	Trainings - Commodity Markets	10000	4	40000	11000	4	44000	12000	4	48000	13000	4	52000
	Export promotion	10000	4	40000	11000	4	44000	12000	4	48000	13000	4	52000
	Minimizing PH losses	10000	1	10000	11000	2	22000	12000	2	24000	13000	2	26000
	Total	**-**	**-**	**250000**	**-**	**-**	**286000**	**-**	**-**	**312000**	**-**	**-**	**338000**
9	Market infrastructure activities	18000	4	72000	19800	4	79200	21600	4	86400	23400	4	93600
	Total			**2457000**	**1235300**	**73**	**1872200**	**1347600**	**73**	**2042400**	**1459900**	**73**	**2212600**

It could be observed from the above table that the total of nine projects proposed for the development of agricultural marketing and agribusiness systems in Virudhunagar district require in total a budget outlay of Rs. 85.842 lakhs

Table. 6.26. B. Additional Project Proposals for Agricultural Marketing and Agri-Business DDA(AB)

Rs.in lakhs

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
I.	**Infrastructure**								
1	Construction of rural godowns in the premises of the regulated markets	2	40.00	2	50.00	1	30.00	5	120.00
2	Storage godowns for storing produce under lock and key for few days	1	10.00	1	10.00	2	20.00	4	40.00
3	Construction of new drying yards/renovation of dilapidated ones	3	9.00	3	9.00	3	9.75	9	27.75
4	Construction of new auction halls/modernizing the existing ones	0	0.00	0	0.00	0	0.00	0	0.00
5	Construction of money disbursement halls/counters	0	0.00	0	0.00	0	0.00	0	0.00
6	Construction of office buildings and staff quarters	0	0.00	0	0.00	0	0.00	0	0.00
7	Installation of processing units/purchase of new instruments in the premises of the regulated markets							0	0.00
	(i) Mechanical drier	0	0.00	0	0.00	0	0.00	0	0.00
	(ii) Mechanical winnower	0	0.00	0	0.00	0	0.00	0	0.00
	(iii) Groundnut decorticator	0	0.00	0	0.00	0	0.00	0	0.00
	(iv) Sieving machine	0	0.00	0	0.00	0	0.00	0	0.00
	(v) Cotton Ginning Unit / Pressing Unit	0	0.00	0	0.00	0	0.00	0	0.00

Table. 6.26.B. Contd.,

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
	(vi) Coconut Kernel drying and oil processing units	0	0.00	0	0.00	0	0.00	0	0.00
	(vii) Packaging Units	0	0.00	0	0.00	0	0.00	0	0.00
8	Strengthening the State Ghee and Oil Grading Laboratories	0	7.73	0	0.61	0	0.00	0	8.34
9	Strengthening the Commercial Grading Centres with Laboratory facilities (more numbers can also be included)	0	0.00	0	0.00	0	0.00	0	0.00
10	Strengthening the infrastructure facilities in the Uzhavar Shandies	0	0.00	0	0.00	0	0.00	0	0.00
11	Construction of cold storage facilities in Uzhavar Shandies and in rural godowns	0	0.00	0	0.00	0	0.00	0	0.00
12	Office automation with computer facility for billing etc. in regulated markets	0	0.00	0	0.00	0	0.00	0	0.00
13	Lawying and relawying of village link roads	0	0.00	0	0.00	0	0.00	0	0.00
14	Provision of Oil moisture meters	0	0.00	0	0.00	0	0.00	0	0.00
15	Provision of Oil testing machines	0	0.00	0	0.00	0	0.00	0	0.00
16	Provision of Electronic weighing machines	0	0.00	0	0.00	0	0.00	0	0.00
17	Others if any (Specify) Storage go								
	a) Storage godown in the villages	2	14.30	1	7.15	0	0.00	3	21.45
	b) Computer with copier cum printer for office	1	1.00	1	1.00	1	1.00	3	3.00

Contd.,

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
II.	**Publicity and Propaganda**								
1	Market committee-wise strengthening of the Publicity and Propaganda units	2	0.20	2	0.25	2	0.30	6	0.75
2	Market committee-wise purchase of extension education aids (Provision of LCD Projector)	1	0.50	0	0.00	0	0.00	1	0.50
3	Strengthening the regional Publicity and Propaganda wings of the Marketing Board and establishing more regional units	0	0.00	0	0.00	0	0.00	0	0.00
4	Pre-harvest campaigns on large scale @ 10000/- campaign	10	1.00	10	1.00	10	1.00	30	3.00
5	Others if any (Specify)	0	0.00	0	0.00	0	0.00	0	0.00
III.	**Public relations**								
1	Construction of bus-stop shed un front of the regulated markets and in selected villages	1	1.00	1	1.00	1	1.00	3	3.00
2	Taking up public relations activities in the villages	0	0.00	0	0.00	0	0.00	0	0.00
3	Construction of common village threshing floors	10	30.00	10	32.50	10	35.00	30	97.50
4	Construction of village common discussion (Chavadi) hall	0	0.00	0	0.00	0	0.00	0	0.00
5	Distribution of tarpaulins to small and marginal farmers	50	2.50	50	2.50	50	2.50	150	7.50
6	Installation of electric light facilities including solar lights in the community threshing floors	6	6.00	6	6.20	6	7.00	18	19.20

Contd.,

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
7	Construction of over head tanks, laying of street pipelines and provision of public drinking water taps in a village or two wherein the market arrivals are more	1	25.00	1	30.00	1	35.00	3	90.00
8	Provision of Education loan to the children of a few regular customers @ 2 lakhs/children for higher education	20	2.00	20	2.00	20	2.00	60	6.00
9	Celebrating the regulated market fortnight in each district (just like co-operative weeks/fortnight)	1	2.00	1	2.00	1	2.00	3	6.00
10	Others if any (Specify)	0	0.00	0	0.00	0	0.00	0	0.00
IV.	**Facilities to farmers / Stakeholders**	0	0.00	0	0.00	0	0.00	0	0.00
1	Construction of rest/stay rooms for farmers I regulated markets	0	0.00	0	0.00	0	0.00	0	0.00
2	Construction/modernization of the common toiletry facilities in the regulated markets	0	0.00	0	0.00	0	0.00	0	0.00
3	Provision of parking lot facilities in the needy centers	0	0.00	0	0.00	0	0.00	0	0.00
4	Providing drinking water facilities to animals	0	0.00	0	0.00	0	0.00	0	0.00
5	Provision of transport facilities/routing the vehicle to transport commodities to the regulated markets	0	0.00	0	0.00	0	0.00	0	0.00

Contd.,

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
6	Creating farm inputs retailing facilities	0	0.00	0	0.00	0	0.00	0	0.00
7	Others if any (Specify) Providing tharpaulins to the already constructed rural godown	20	1.00	20	1.00	20	1.00	60	3.00
	State Agmark Grading Lab - VIRUDHUNAGAR								
8	**Equipments, Apparatus required for grading**								
1	Analytical Balance (Electronics)	1	0.38000	1	0.3800	0	0.000	2	0.760
2	Muffle furnace - erms 700C	1	0.15000	0	0.0000	0	0.000	1	0.150
3	Hot air oven	1	0.07000	0	0.0000	0	0.000	1	0.070
4	Water both with thermos static control	1	0.02500	1	0.0250	0	0.000	2	0.050
5	Bunsem burner with controller	1	0.00100	2	0.0020	2	0.002	5	0.005
6	Hot plate	1	0.01000	1	0.0100	0	0.000	2	0.020
7	Microscope with wooden cover	1	0.08000	0	0.0000	0	0.000	1	0.080
8	Mixer Grinder (Mixy)	1	0.06000	0	0.0000	0	0.000	1	0.060
9	Distilled water unit	1	0.10000	0	0.0000	0	0.000	1	0.100
10	U.V.Lamp	1	0.15000	1	0.1500	0	0.000	2	0.300
11	Lovibond timtometer (Electronic)	1	4.80000	0	0.0000	0	0.000	1	4.800

Contd.,

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
12	Hot water both	1	0.04000	0	0.0000	0	0.000	1	0.040
13	Electric Hot plate fit with thermometer	1	0.02000	0	0.0000	0	0.000	1	0.020
14	Colorimeter	1	0.05000	0	0.0000	0	0.000	1	0.050
15	B.R. Meter - Digital	1	0.50000	0	0.0000	0	0.000	1	0.500
16	Moisture meter - Digital	1	0.85000	0	0.0000	0	0.000	1	0.850
17	Refrigerator	1	0.15000	0	0.0000	0	0.000	1	0.150
18	Air condition unit (A.C)	1	0.22000	0	0.0000	0	0.000	1	0.220
	APPRATUS								
1	Glass trap	4	0.00100	0	0.00000	0	0.00	4	0.0010
2	Burette-50 Ml.	3	0.00090	2	0.00060	0	0.00	5	0.0015
3	Pipette-25 Ml	3	0.00060	2	0.00040	0	0.00	5	0.0010
4	Amber coloured volumetric flask	2	0.00100	0	0.00000	0	0.00	2	0.0010
5	Nessler cylinder-50ml	2	0.00100	0	0.00000	0	0.00	2	0.0010
6	Buchner furnel	1	0.00150	1	0.00150	0	0.00	2	0.0030
7	Graduated measuring cylinder--50ml, 100ml, 250ml, 500ml, 1 ltr.	1	0.00375	1	0.00375	0	0.00	2	0.0075
8	Sieves-500 micron, 800m, 1000m	1	0.03000	1	0.03000	0	0.00	2	0.0600

Contd.,

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
9	Burette stand	2	0.00050	2	0.00050	0	0.00	4	0.0010
10	Dean & Stark	1	0.02500	0	0.00000	0	0.00	1	0.0250
11	Dropping bottle, T.K. pattern and bar colored	2	0.00030	2	0.00030	0	0.00	4	0.0006
12	Glass stepped Test tube (6x3/4)	2	0.00050	1	0.00025	0	0.00	3	0.0008
13	Pear staped flask	1	0.00250	1	0.00250	0	0.00	2	0.0050
14	Separating funnel 50 Ml	2	0.00050	2	0.00005	0	0.0	4	0.0006
	Grand Total	**176**	**160.950**	**150**	**156.814**	**130**	**147.553**	**456**	**465.317**

Budget Abstract

(Rs.in lakhs)

Sl.No.	Particulars	2008-09	2009-10	2010-11	2011-12	Total
A.	Original Project	24.570	18.722	20.424	22.126	85.842
B.	Additional Project DDA(AB)	-	160.950	156.814	147.553	465.317
	Grand Total	**24.570**	**179.672**	**177.238**	**169.679**	**551.159**

6.9. Budget Overall for All Sectors

The sector-wise and year-wise budgetary requirements for the development in Virudhunagar District during eleventh plan period under NADP are depicted in Table 6.29, below.

Table 6.27 Budget Outlays for All Sectors of Development in Virudhunagar District during XIth Plan Period

(Rs. in lakhs)

Sl. No	Department	2008-09	2009-10	2010-11	2011-12	Total
1	Agriculture	407.690	358.690	358.690	358.690	1484.760
2	Horticulture	34.750	78.780	107.430	120.680	341.640
3	Animal husbandry	456.977	84.505	83.385	82.085	706.952
4	Fisheries	38.500	30.75	30.750	26.250	126.250
5	Agricultural Engineering	307.400	334.320	334.320	334.310	1310.350
6	Agricultural Marketing	24.570	179.672	177.238	169.679	551.159
	Total	**1269.887**	**1066.72**	**1091.81**	**1091.69**	**4521.12**

The budget outlays over all sectors for eleventh plan period under NADP works-out to Rs.4521.12 lakhs for Virudhunagar District as could be visualised from the table above.

National Agricultural Development Programme – Sensitization Workshop Meeting held on 16.05..2008 at Virudhunagar District

TNAU Scientist explaining about the District Agriculture Plan

District Collector Addresses the Participants

A View of the Participants

Line Department Officials

Virudhunagar district soil legend

Legend

- DEEP, CLAYEY SKELETL, MIXED, ALFISOLS
- DEEP, CLAYEY SKELETL, MIXED, INCEPTISOL
- DEEP, COARSE LOAMY, MIXED, ALFISOLS
- DEEP, COARSE LOAMY, MIXED, MOLLISOLS
- DEEP, CONTRASTING PARTICLE SIZE, MIXED, ENTISOLS
- DEEP, FINE LOAMY, MIXED, ALFISOLS
- DEEP, FINE LOAMY, MIXED, INCEPTISOL
- DEEP, FINE, MIXED, ALFISOLS
- DEEP, FINE, MIXED, INCEPTISOL
- DEEP, FINE, MONTMORILLONITIC, INCEPTISOL
- DEEP, FINE, MONTMORILLONITIC, VERTISOLS
- MODERATELY DEEP, FINE LOAMY, MIXED, ALFISOLS
- MODERATELY DEEP, FINE LOAMY, MIXED, INCEPTISOL
- MODERATELY DEEP, FINE, MIXED, ALFISOLS
- MODERATELY DEEP, FINE, MIXED, INCEPTISOL
- MODERATELY DEEP, FINE, MONTMORILLONITIC, INCEPTISOL
- MODERATELY DEEP, LOAMY SKELETL, MIXED, ALFISOLS
- MODERATELY DEEP, VERY FINE, MONTMORILLONITIC, VERTISOLS
- MODERATELY SHALLOW, FINE LOAMY, MIXED, ALFISOLS
- MODERATELY SHALLOW, FINE LOAMY, MIXED, ENTISOLS
- MODERATELY SHALLOW, FINE, MIXED, INCEPTISOL
- MODERATELY SHALLOW, LOAMY SKELETL, MIXED, ENTISOLS
- MODERATELY SHALLOW, LOAMY SKELETL, MIXED, INCEPTISOL
- SHALLOW, CLAYEY SKELETL, MIXED, INCEPTISOL
- SHALLOW, CLAYEY, MIXED, ALFISOLS
- SHALLOW, CLAYEY, MIXED, ENTISOLS
- SHALLOW, CLAYEY, MIXED, INCEPTISOL
- SHALLOW, CLAYEY, MIXED, ULTISOLS
- SHALLOW, LOAMY SKELETL, MIXED, INCEPTISOL
- SHALLOW, LOAMY, MIXED, ENTISOLS
- SHALLOW, LOAMY, MIXED, INCEPTISOL
- VERY DEEP, CLAYEY SKELETL, KAOLINITIC, ALFISOLS
- VERY DEEP, COARSE LOAMY, MIXED, INCEPTISOL
- VERY DEEP, COARSE LOAMY, MIXED, MOLLISOLS
- VERY DEEP, CONTRASTING PARTICLE SIZE, MIXED, INCEPTISOL
- VERY DEEP, FINE LOAMY, MIXED, ALFISOLS
- VERY DEEP, FINE LOAMY, MIXED, INCEPTISOL
- VERY DEEP, FINE, KAOLINITIC, ALFISOLS
- VERY DEEP, FINE, MIXED, ALFISOLS
- VERY DEEP, FINE, MIXED, INCEPTISOL
- VERY DEEP, FINE, MIXED, MOLLISOLS
- VERY DEEP, FINE, MONTMORILLONITIC, INCEPTISOL
- VERY DEEP, FINE, MONTMORILLONITIC, VERTISOLS
- VERY DEEP, SANDY, MIXED, ENTISOLS
- Very SHALLOW, LOAMY, MIXED, ENTISOLS
- WATERBODY / SETTLEMENT / MISCELLANEOUS LANDFORM