NATIONAL AGRICULTURAL DEVELOPMENT PROGRAMME (NADP)

DISTRICT AGRICULTURE PLAN

TIRUNELVELI DISTRICT

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

2008

NATIONAL AGRICULTURE DEVELOPMENT PROJECT – DISTRICT AGRICULTURE PLAN

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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

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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

Tirunelveli district is located in the southern part of Tamil Nadu and surrounded by Virudhunagar District on the North, Western Ghats on the West, Kanyakumari District on the South and Tuticorin District on the East. This District is having three Revenue Divisions comprising of 11 Taluks, 19 Development Blocks, 628 Revenue Villages and 425 Village Panchayats. Tirunelveli district is provided with varied agro climatic conditions ranging from extreme tropical to subtropical. The important food crops are Paddy, Cholam, Ragi, Cumbu and other minor millets. The commercial crops grown are Cotton, Chillies, Sugarcane and Groundnut.

Areas adjacent to Western Ghats like Tenkasi and Shencottai taluks are enjoying subtropical climate which is conducive for cultivation of most of the spices, sub tropical fruits, plantation crops and production of off-season mango. Tirunelveli district is endowed with traditional vegetable growing belts having garden land with red and loamy soils suitable for cultivation of most of the vegetables. Blocks like Alangulam, Keelapavoor, Tenkasi, Kadayanallur, Sankarankoil, Manur and Palayamkottai are the major vegetables growing areas.

The lifeline of the district, river Thamiraparani feeds the district and quenches the thirst of residents of Tuticorin district too. The river fed areas and adjoining plains are provided with assured irrigation facilities where banana cultivation is predominant. Acid lime cultivation is concentrated in Sivagiri and Sankarankoil taluks and mango cultivation is more in Tenkasi, Shencottai and Ambhasamudram taluks. Nearly 90 per cent of the cashew area of the district lies in Melaneelithnallur, Valliyoor and Alangulam blocks.

SWOT Analysis of the District

The important strength of the district is varied agro climatic conditions ranging from extreme tropical to subtropical which is conducive for cultivation of most of the spices, sub tropical fruits, plantation crops and production of off-season mango. The district has major mineral resources like Limestone, Sulphides and Ilmenite. The weaknesses are fragmented land holdings, agricultural labour migration to industries and poor mechanization. Migration of people

towards urban areas hinders the agricultural growth, which is the major threat in this district.. Being the major source of mineral resource in this district, there is a huge scope for establishment of cement industries.

Major Interventions in the Department of Agriculture

- Supply of Quality Certified seeds at nominal cost
- Distribution of Green Manure seeds
- Distribution of Micro Nutrient Mixture
- Demonstration on SRI / Hybrid Rice
- Community Thrashing floor
- Technology Demonstration
- Precision farming by sprinkler for pulses
- Integrated Nutrient Management (INM) and
- Seed Village Scheme

Major Interventions in the Department of Horticulture

- Precision Farming
- Cashew high density planting
- Plastic crates for Vegetable handling and transport
- Banana Bunch cover
- District level Farmers workshop and Inter State Exposure visit
- Farm waste shredder / Vegetable waste shredder and
- Support system for betelvine and senna

Major Interventions in the Department of Agricultural Engineering

- Introduction of newly developed agricultural machinary / Implements
- Water Harvesting Structures
- PVC Pipe laying
- Promoting the concept of mechanised villages
- Soil Conservation Works and
- Popularisation of agricultural mechanisation through conventional Machinary / Equipments

Major Interventions in the Department of Agricultural Marketing

- Commodity group formation
- Market Intelligence dissemination
- Facilitation of contract farming
- Trainings
- Exposure visit to markets
- Arrangement of buyer seller meetings and
- Publicity - regulated market

Major Interventions in the Department of Animal Husbandry, Dairy Development, TANUVAS and Public Works Department (PWD)

- Augmentation of fodder production through SHGs/women entrepreneurs
- Supply of mineral mixure to dairy cows
- Strengthening of livestock unit
- Strengthening of veterinary institutions with basic facilities like fencing, bore-wells, water troughs , repairs etc.,
- Disaster management
- Supply of by-pass protein feed to the milch animals
- Fodder development activities
- Fodder seed production unit
- Strengthening of TANUVAS Centre
- Modernization of tanks in Manimuthar perungal system
- Rehabilitation and modernization of tanks in Thambaraparani basin sub- division
- Rehabilitation and modernization of tanks in Chittar river basin. Part-I

The total budget outlay for the Department of Agriculture, Horticulture, Agricultural Engineering, Agricultural Marketing, Animal Husbandry, and Public Works Department (PWD) is given below.

Budget Outlay for Agriculture and Allied Sectors

(Rs. in lakhs)

Departments	2008-09	2009-10	2010-11	2011-12	Total
Agriculture	583.214	394.984	420.984	432.484	1,831.67
Horticulture	196.05	196.05	196.05	196.05	784.20
Animal Husbandry	1120.20	298.73	236.97	286.59	1942.49
Fisheries	164.50	394.45	186.00	50.50	795.45
Agricultural Engineering	185.83	199.353	207.328	210.488	803.00
Agricultural Marketing	20.85	172.84	143.84	157.92	495.44
Public Works Department (PWD)	598.00	687.00	436.33	319.58	2,040.91
Grand Total	**2868.64**	**2343.41**	**1827.50**	**1653.61**	**8693.16**

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 11^{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 and 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 (DAP)

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;

    a) Animal husbandry and fisheries development activities;

    b) Study tours of farmers;

    c) Organic and bio-fertilizers;

    d) 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.

Formulation of District Planning Unit

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

a) 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 etc. the task are fulfilled.

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 Revenue Officer. 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 were 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 DISCRIPTION OF THE DISTRICT

2.1 Introduction

Tirunelveli District was formed in 1790 by the East India Company. Later it came under the direct control of the British Crown Queen Victoria. The name Tirunelveli has been composed from the three Tamil words i.e. 'Thiru - Nel - Veli' meaning Sacred Paddy Hedge.

2.1.1 Administrative Setup

This District is having three Revenue Divisions comprising of 11 Taluks, 19 Development Blocks, 628 Revenue Villages and 425 Village Panchayats.

2.1.2 Agriculture

Agriculture plays a vital role in the District's economy. In the year 2006-07, the total cropped area was 2, 07,868 hectares, which worked out 12.95 per cent of the total area. The important food crops are paddy, cholam, ragi, cumbu and other minor millets. The commercial crops grown are cotton, chillies, sugarcane and groundnut. Of the total cropped area of 2, 07,868 hectares in the year 2006-07, 32,760 hectares were sown more than once.

2.1.3 Industry

There were 25 medium and major industries such as Cement, Cotton yarn, Calcium carbide, Sugar, Cotton seed oil, Printing papers, Flour mills etc.

Among the other industries in the District Pin, Clip, Matches, Beedi, Vessels making and Engineering industries are important. The important village industries functioning in the district are Handloom, Poultry farming, Brick making and Jaggary production. The handloom products viz., lungi, sarees etc. are marketed in North India. So also the fine Korai mats from Pathamadi have won world fame. Kallidaikurichi Pappads, Karukurichi mud pots and also Tirunelveli "Halva" are specialties which earned many laurels to the District.

2.1.4 Government Cocoon Market, Nannagaram

The unit is playing a vital role in the development of sericulture in this district. The cocoons produced by the sericulturists are being transacted in this market and sold to reelers. The rates are fixed based on the silk content available in the cocoon on the prevailing day to day market rates of Government Anna Silk Exchange, Kancheepuram.

2.1.5 Government Silk Reeling and Twisting, Unit Nannagaram

A reeling and twisting unit is attached with cocoon market. This unit converts the marketed cocoon into raw silk in reeling section and the raw silk is twisted in the twisting section. The twisted ready silk is sold at Silk Federation, Kancheepuram run by the Department.

2.1.6 Technical Service Centres

Four technical service centres are functioning under the control of this office in Tirunelveli district with head quarters at Kadoka (Cheranmahadevi Kadayanallur, Pavoourchatram (Adaikalapattinam) and Sivagiri. The role of the centres is to promote mulberry expansion in Western Ghats and implement development schemes of the Government. Publicity meetings are conducted by the technical service centres to motivate the farmers to take-up sericulture. Farmers are assisted by the Technical Service Centres for the arrangement of mulberry seed cuttings and mulberry saplings for plantation. Transfer of up to date technology to farmers in mulberry cultivation and silkworm rearing is carried out by the technical service centres Silkworm layings (seed) is also distributed by the Technical Service Centre to sericulturists in time.

2.1.7 Tourist Spots

Courtalam is situated at the Western Ghats of Tenkasi Taluk. The famous waterfalls, Oil rocks and tiny droplets are sprinkled in the air. The water falls of Courtalam have medicinal value as they run through forest and herbs before their decent. Pappanasam Agasthiar falls also attracts tourists and pilgrims. There is a Wild life sanctuary at Mundanthurai and Kalakadu. Spotted deers, Elephants and Tigers are in plenty.

2.1.8 Religious Significance

The Nellaiappar temple at Tirunelveli, Sankaranainar temple at Sankarankoil, Kasiviswanathar temple at Tenkasi and Vanamamal Temple at Nanguneri are the land marks of the District signifying the Hindu Culture. Palayamkottai has many Christian missions and Athankaraipallivasal & Pottalpudir Darga have considered being important sacred places for Muslims.

2.1.9 District Map

The district is located in the southern part of Tamil Nadu and surrounded by Virudhunagar District on the north, Western Ghats on the West, Kanyakumari District on the south and Tuticorin District on the East.Thirunelveli District is furnished below.

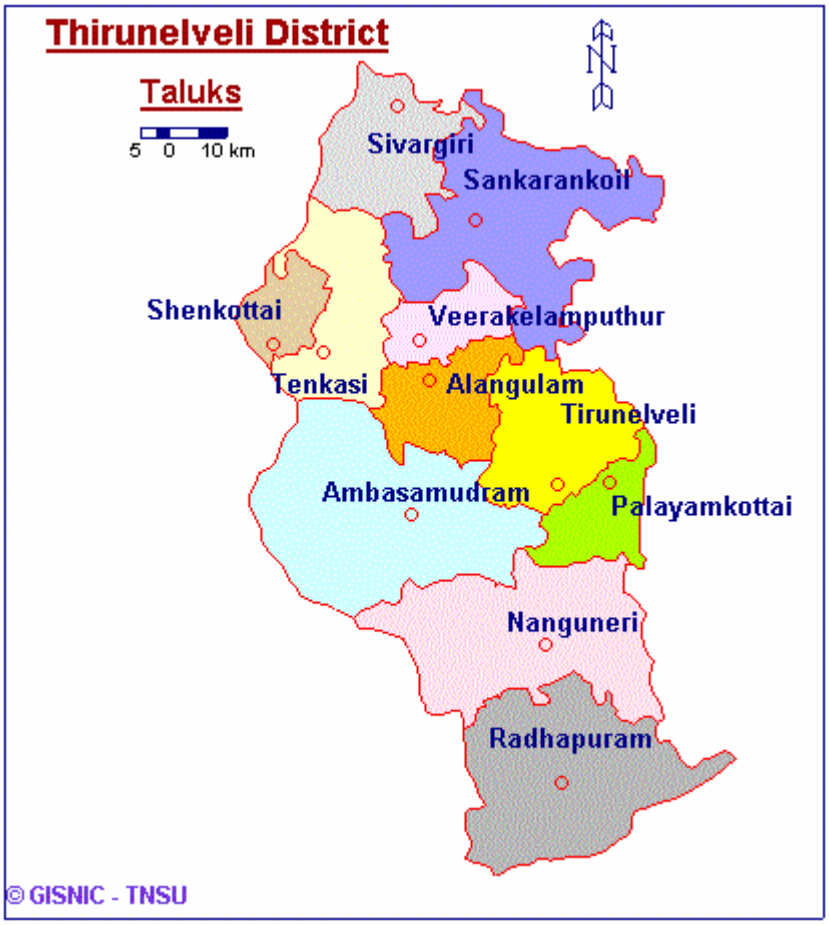


Figure 1. Tirunelveli District Map

2.2 District at a Glance

This District is having three Revenue Divisions comprising of 11 Taluks, 19 Development Blocks, 628 Revenue Villages and 425 Village Panchayats.

2.2.1 Geographical Details

The Tirunelveli District is located in the world map, between 08^{o} 8' and 09^{o} 23' of Northern latitude and 77^{o} 09' and 77^{o} 54' of Eastern longitude. Tirunelveli District is having a geographical area of 6,823 Sq.Kms, in the Southeastern portion of Tamil Nadu which is triangular in shape.

2.2.2 Demographic Details

The population of this District was 28, 01,194 as per 2001 Census. The density of Population per sq.km. was 399. Tirunelveli, Tenkasi and Ambasamudram are the most densely populated taluks in the District.

The Sex ratio was 1,042 females for every 1,000 males for the District. The Literacy rate was 76.09 per cent in the District.

According to 2001 census, out of the total population, males were 13, 72, 083 of which 75.94 per cent of them were literates and females were 14, 29,112 of which, 61.12 per cent of them were literates. Schedule Tribes were found to be very small in numbers which contributed 0.31 per cent of the total population. 4.36 per cent of State population lived in Tirunelveli district. Nearly 52 and 48 per cent of the total population in the district lived in rural and urban area respectively.

2.2.3 Topography

The district is located in the southern part of Tamil Nadu and surrounded by Virudhunagar District on the north, Western Ghats on the West, Kanyakumari District on the South and Tuticorin District on the East. The lifeline of the district river Thamiraparani feed the district and quenches the thirst of residents of Tuticorin district too.

2.2.4 Land Use Pattern - 2003-04 to 2006-07

The land utilisation pattern of Tirunelveli district for four years (2003-04 to 2006-07) is furnished in Table 1.

Table 1. Land Use Pattern - 2003-04 to 2006-07

(Area in Ha.)

Sl.No.	Classification	2003 - 2004	2004-2005	2005 - 2006	2006-2007
1.	Forest	1,20,801	1,20,801	1,20,801	1,20,801
2.	Barren and Uncultivable uses	30,961	30,961	30,961	30,961
3.	Land put to Non-Agricultural uses	1,01,546	1,01,722	1,03,669	1,05,284
4.	Cultivable Waste	64,555	64,345	47,442	41,613
5.	Permanent Pastures and Other Grazing Land	5,267	5,267	5,271	5,353
6.	Land Under Miscellaneous Tree Crops and Groves not included in Net Area Sown	10,822	10,846	10,009	10,049
7.	Current Fallows	36,622	23,574	32,053	30,075
8.	Other Fallow Lands	1,78,545	1,58,373	1,65,481	1,63,064
9.	Net Area Sown	1,33,189	1,66,419	1,66,621	1,75,108
10.	Geographical Area According to Village Papers	6,82,308	6,82,308	6,82,308	6,82,308
11.	Total Cropped Area	1,48,127	1,98,422	1,39,776	2,07,868
12.	Area sown more than once	14,938	32,003	28,644	32,760

Source: Season and crop Report of Tamil Nadu, (Various issues)

It is inferred from the above table that land under non-agricultural use had increased over years and at the same time the land under cultivable waste had decreased. Total cropped area and area sown more than once have also increased over years as compared to the base year 2003-04. In the year 2006-07, the total cropped area was 2, 07,868 hectares, which worked out 12.95 per cent of the total area. Of the total cropped area of 2, 07,868 hectares in the year 2006-07, 32,760 hectares were sown more than once.

2.2.5 Irrigation

The District is blessed with the Western Ghats from which the perennial rivers flow and drain towards the east. The entire surface water of the District is drained into major river basins *viz.,* Thamiraparani, Vaippar, Nambiar and Hanmanathi. Thamiraparani is the major river basin in the District. The other streams which are seasonal in nature are Servallar, Manimuthar, Ramanathi, Pachayar, Chittar and Uppodai rivers which drain into the Thamiraparani basin. The major sources of irrigation are Canal, Tank and Well.

2.2.6 Source of Irrigation

The net and gross area irrigated from different sources like canal, tank and others are given in Table 2.

Table 2. Actual Area Irrigated by different Sources in Tirunelveli District

(Area in hectares)

Year	2004- 2005		2005-06		2006-07	
	Area Irrigated		Area Irrigated		Area Irrigated	
I .Surface Water:	Net	Gros	Net	Gross	Net	Gross
1. Canals						
i) Govt. Canals	17680	29126	17556	30376	17680	29126
ii) Private Canals	-	-	-	-	-	-
2. Tanks						
i) Large	28721	34591	26438	34289	28721	34591
ii) Small	23311	28436	20542	25154	23310	28437
3. Other Sources (Lift & Flow Irrigation)	227	250	-	-	227	250
II. Ground water:						
1. public wells	-	-	-	-	-	-
2. private tube wells	579	614	971	1029	874	931
3. dug wells	--	-	--	-	--	-
4. With pump sets	47880	52707	46347	48928	47586	52389

Source: Records of the Office of the Executive Engineer, Tirunelveli.

It is observed from the table that the ground water irrigation through pump sets and private tube wells had increased from the year 2004-05 to 2006-07.

Ground Water Potential in Different Blocks

Over Exploited (100%)	Semi Critical (70 - 90%)	Safe (less than 70%)
1. Melaneelithanallur 2. Radhapuram 3. Sankarankovil 4. Valliyur	1. Alankulam 2. Kadayanallur 3. Keelapavur 4. Kuruvikulam 5. Vasudevanallur	1. Ambasamudram 2. Cheranmahadevi 3. Kadayam 4. Kalakad 5. Manur 6. Nanguneri 7. Palayamkottai 8. Pappakudi 9. Shenkottai 10. Tenkasi

Source: Records of the Office of the Executive Engineer, Tirunelveli.

2.2.7 Climate and Rainfall

The district has peculiar climate and receives rainfall in all the seasons which accounted for 1156.5mm in 2006-07. The distribution of rainfall in Tirunelveli District over years is presented in the Table 3.

Table 3. Distribution of Rainfall

(in mm)

Seasons	2004-05			2005-06			2006-07		
Month	**Actual**	**Normal**	**%Deviation**	**Actual**	**Normal**	**%Deviation**	**Actual**	**Normal**	**%Deviation**
June	64.3	20.6	213.6	18.0	20.6	-12.6	26.4	20.6	28.2
July	10.0	23.1	-56.7	82.5	23.1	257.1	26.7	23.1	15.6
August	28.8	17.2	67.4	17.8	17.2	3.5	19.1	17.2	11.0
September	105.3	31.7	232.2	29.5	31.7	-6.9	43.4	31.7	36.9
Total(SWM)	**208.7**	**92.6**	**125.4**	**147.8**	**92.6**	**59.6**	**115.6**	**92.6**	**23.9**
October	238.8	138.9	71.9	76.0	138.9	-45.3	373.6	138.9	169.2
November	293.1	193.7	51.3	265.8	193.7	37.2	389.7	193.7	101.2
December	35.4	97.2	-63.6	206.9	97.2	112.9	21.1	97.2	-78.3
Total(NEM)	**567.3**	**429.8**	**32.0**	**548.7**	**429.8**	**27.7**	**784.7**	**429.8**	**82.6**
January	8.2	41.4	-80.2	69.2	41.4	67.1	19.8	41.4	-52.2
February	23.6	31.2	-24.4	3.2	31.2	-89.7	0.4	31.2	-99.7
Total (Winter)	**31.8**	**72.6**	**-56.2**	**72.4**	**72.6**	**-0.3**	**19.9**	**72.6**	**-151.9**
March	68.5	41.7	64.3	120.7	41.7	189.4	7.5	41.7	-82.0
April	204.7	61.6	232.3	28.6	61.6	-53.6	119.7	61.6	94.3
May	22.3	38.6	-42.2	34.9	38.6	-9.6	9.1	38.6	-76.4
Total(Hot summer)	**295.5**	**141.9**	**108.2**	**184.2**	**141.9**	**29.8**	**136.3**	**141.6**	**-64.1**
Annual Total	**1103.3**	**736.9**	**49.7**	**953.1**	**736.9**	**29.3**	**1056.5**	**736.9**	**-109.5**

Source: Indian Meteorological Department. Chennai - 6.

It is evident from the table that the district received the maximum rainfall during North East Monsoon (784.7mm), followed by the summer (136.3mm).

2.2.8 Soil Classification and Soil Legend in Tirunelveli District

The soil map of Tirunelveli district along with the different types of soil and their area is given in Table 4.

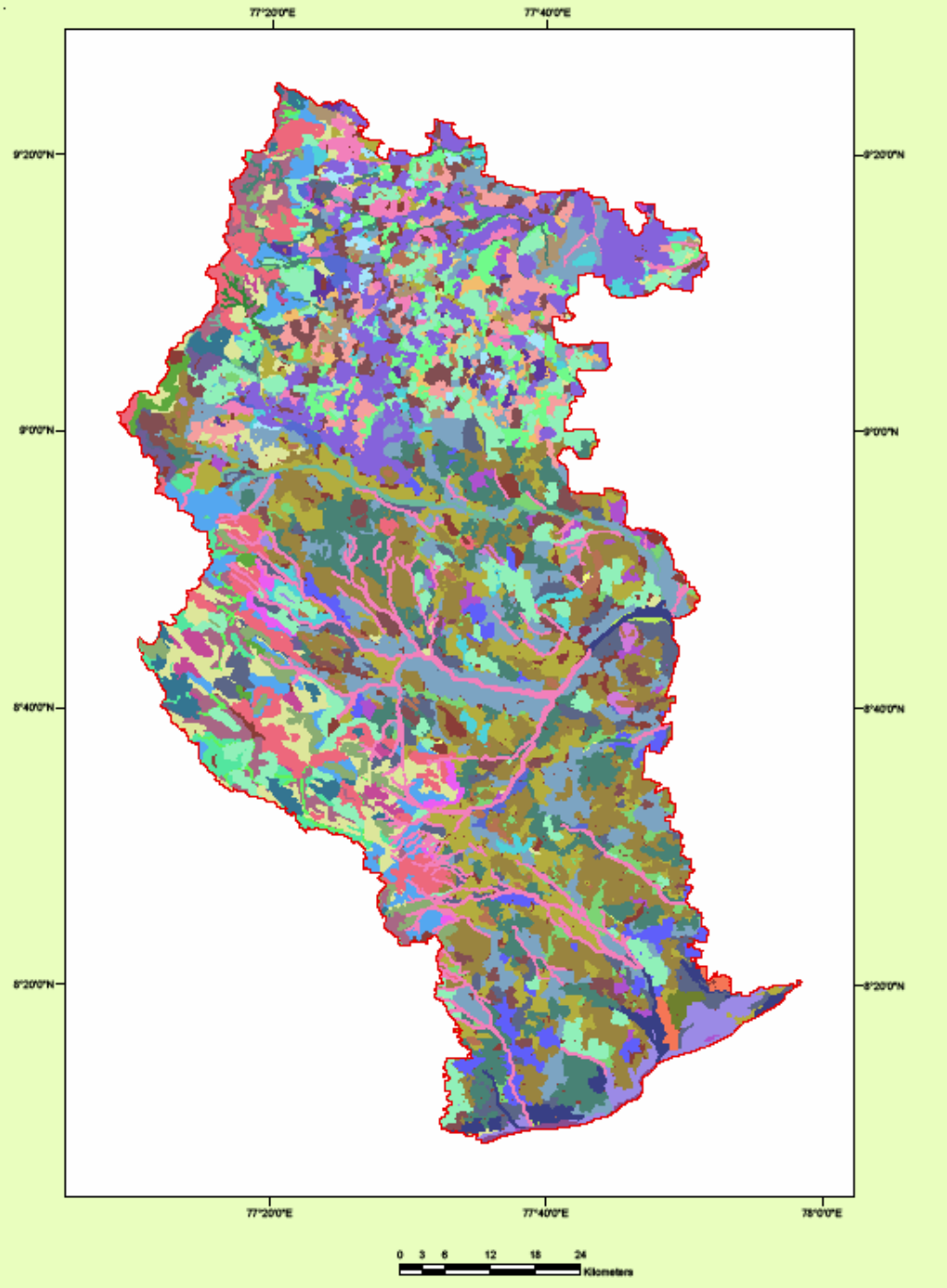
Table 4. Tirunelveli Soils and Area in Hectares

Soil Description	Area (ha)
Deep, fine, montmorillonitic, Vertisols	74807.97
Moderately deep, coarse loamy, mixed, Entisols	64423.18
Deep, fine, mixed, Alfisols	62125.82
Moderately shallow, fine, mixed, Inceptisols	39153.02
Very deep, fine, mixed, Alfisols	33598.17
Deep, fine loamy, mixed, Inceptisols	32409.19
Very deep, fine, montmorillonitic, Vertisols	29439.78
Deep, fine, mixed, Inceptisols	27705.78
Deep, clayey skeletal, mixed, Inceptisols	22421.42
Shallow, loamy, mixed, Inceptisols	20435.31
Very deep, fine, mixed, Inceptisols	18122.51
Moderately deep, fine, mixed, Inceptisols	16940.17
Very deep, fine loamy, mixed, Alfisols	16798.52
Deep, clayey skeletal, mixed, Alfisols	16643.59
Moderately deep, fine, montmorillonitic, Inceptisols	15591.49
Moderately deep, loamy skeletal, mixed, Alfisols	13887.02
Moderately deep, fine, montmorillonitic, Vertisols	10199.25
Deep, coarse loamy, mixed, Alfisols	10110.11
Deep, fine loamy, mixed, Alfisols	8359.08
Moderately deep, fine loamy, mixed, Inceptisols	8316.57
Deep, coarse loamy, mixed, Mollisols	7524.69

Table.4 Contd.….

Soil Description	Area (ha)
Moderately deep, fine, mixed, Alfisols	7266.62
Deep, fine, montmorillonitic, Inceptisols	6468.01
Very deep, coarse loamy, mixed, Mollisols	6346.68
Shallow, loamy skeletal, mixed, Inceptisols	6037.58
Very deep, fine loamy, mixed, Inceptisols	5603.16
Moderately shallow, fine loamy, mixed, Entisols	4763.33
Shallow, clayey skeletal, mixed, Inceptisols	4546.84
Moderately shallow, loamy skeletal, mixed, Entisols	3386.50
Deep, contrasting particle size, mixed, Entisols	3143.50
Shallow, clayey, mixed, Ultisols	2648.92
Very deep, fine, montmorillonitic, Inceptisols	2388.81
Shallow, clayey, mixed, Inceptisols	2302.23
Shallow, loamy, mixed, Entisols	2278.03
Very deep, coarse loamy, mixed, Inceptisols	1945.89
Very shallow, clayey skeletal, mixed, Entisols	1555.78
Very deep, fine, kaolinitic, Alfisols	1257.25
Moderately shallow, loamy skeletal, mixed, Inceptisols	1248.81
Moderately shallow, fine loamy, mixed, Alfisols	1032.00
Very deep, sandy, mixed, Entisols	805.23
Deep, fine loamy, mixed, Entisols	454.82
Very deep, clayey skeletal, kaolinitic, Alfisols	429.21
Very shallow, loamy, mixed, Entisols	256.62
Moderately deep, very fine, montmorillonitic, Vertisols	91.03
Moderately deep, clayey skeletal, mixed, Alfisols	24.08

Figure 2. Tirunelveli District Soil Map

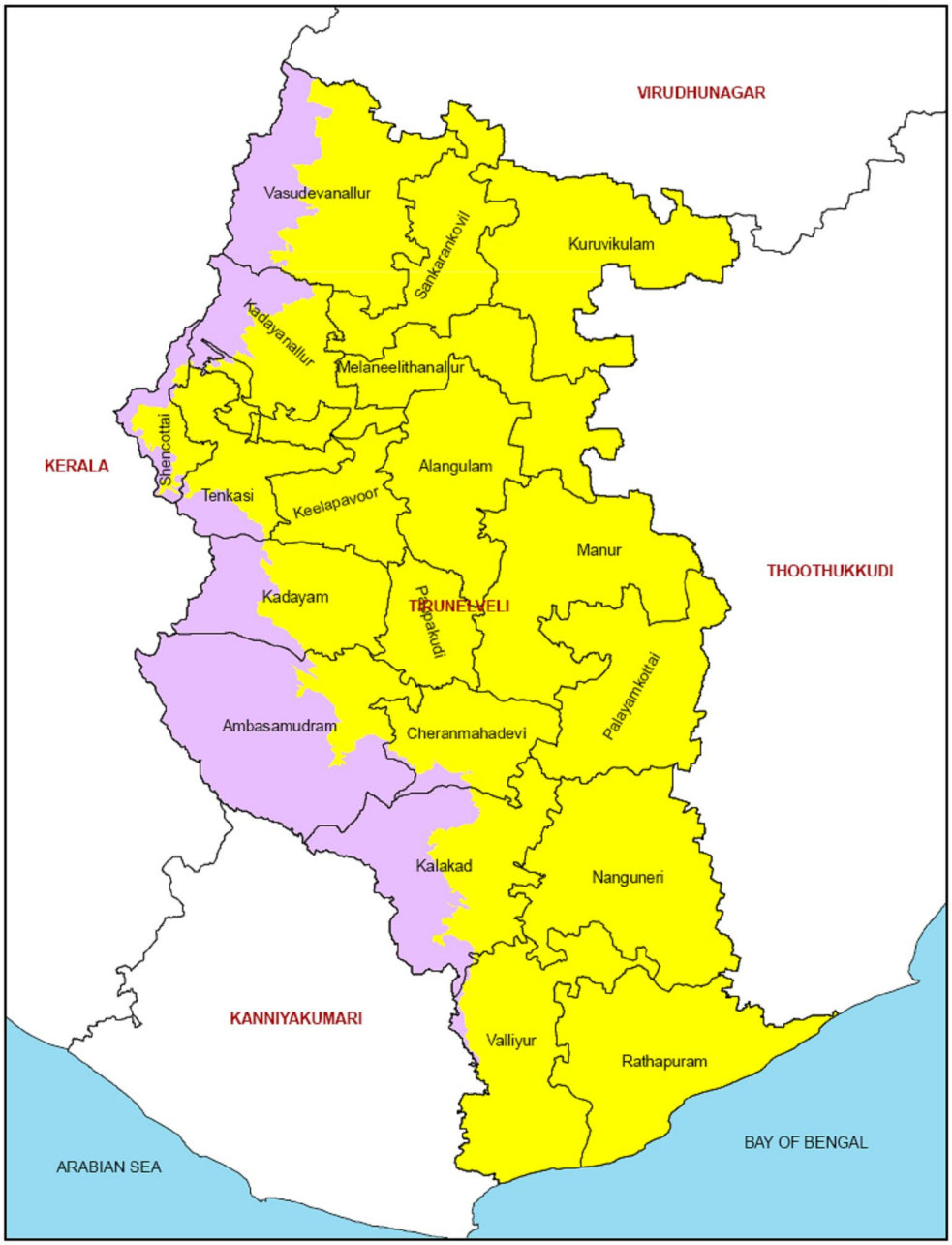


TIRUNELVELI DISTRICT SOIL LEGEND

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, ENTISOLS
- DEEP, FINE LOAMY, MIXED, INCEPTISOL
- DEEP, FINE, MIXED, ALFISOLS
- DEEP, FINE, MIXED, INCEPTISOL
- DEEP, FINE, MONTMORILLONITIC, INCEPTISOL
- DEEP, FINE, MONTMORILLONITIC, VERTISOLS
- MODERATELY DEEP, CLAYEY SKELETL, MIXED, ALFISOLS
- MODERATELY DEEP, COARSE LOAMY, MIXED, ENTISOLS
- MODERATELY DEEP, FINE LOAMY, MIXED, INCEPTISOL
- MODERATELY DEEP, FINE, MIXED, ALFISOLS
- MODERATELY DEEP, FINE, MIXED, INCEPTISOL
- MODERATELY DEEP, FINE, MONTMORILLONITIC, INCEPTISOL
- MODERATELY DEEP, FINE, MONTMORILLONITIC, VERTISOLS
- 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, 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, 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, MONTMORILLONITIC, INCEPTISOL
- VERY DEEP, FINE, MONTMORILLONITIC, VERTISOLS
- VERY DEEP, SANDY, MIXED, ENTISOLS
- Very SHALLOW, CLAYEY SKELETL, MIXED, ENTISOLS
- Very SHALLOW, LOAMY, MIXED, ENTISOLS
- WATERBODY / SETTLEMENT / MISCELLANEOUS LANDFORM

AGROCLIMATIC ZONES OF TIRUNELVELI DISTRICT



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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.

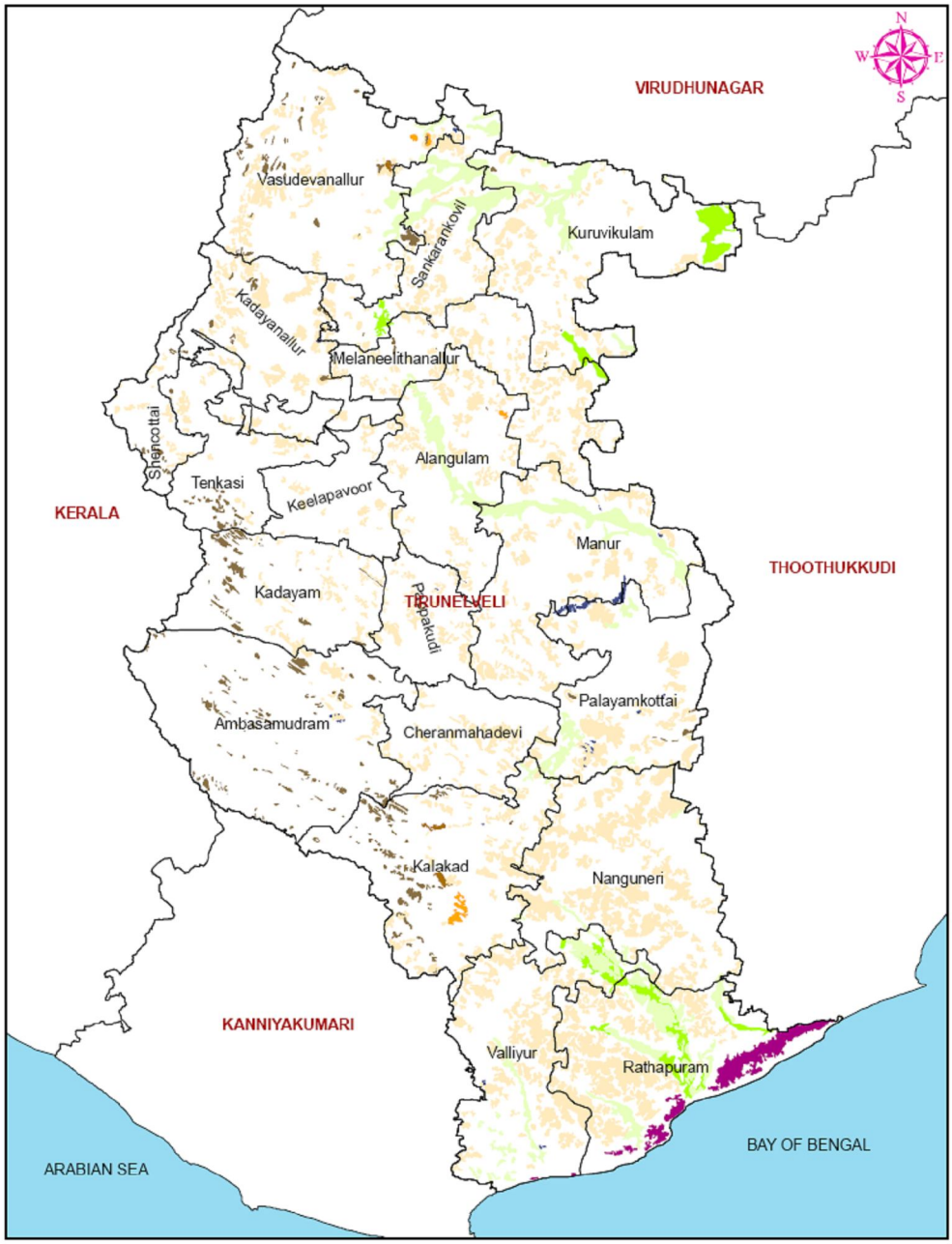
HIGH RAINFALL ZONE

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 TIRUNELVELI DISTRICT



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

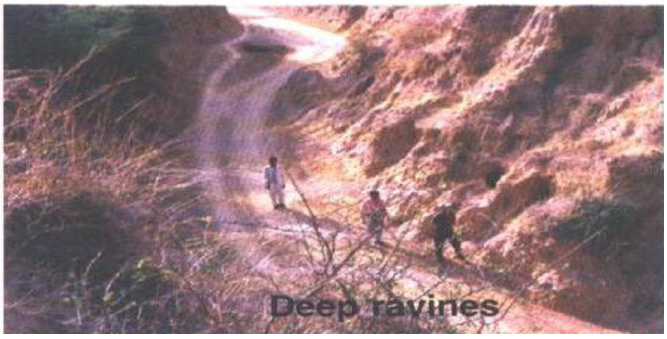
When the surface runoff goes in the form a concentric flow, a tiny water channels are formed in the field. These are small rivulets of such a size that they can be worked over with farm machinery. Rills are generally associated with the cultivated lands and are visible in the ploughed soil after first 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.

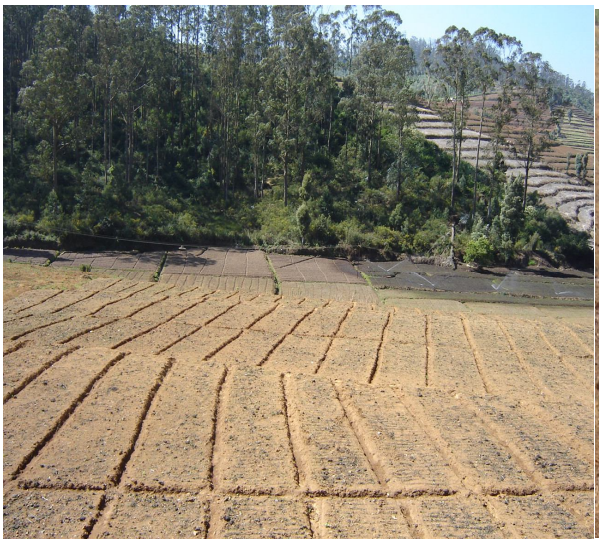
Salinity

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**

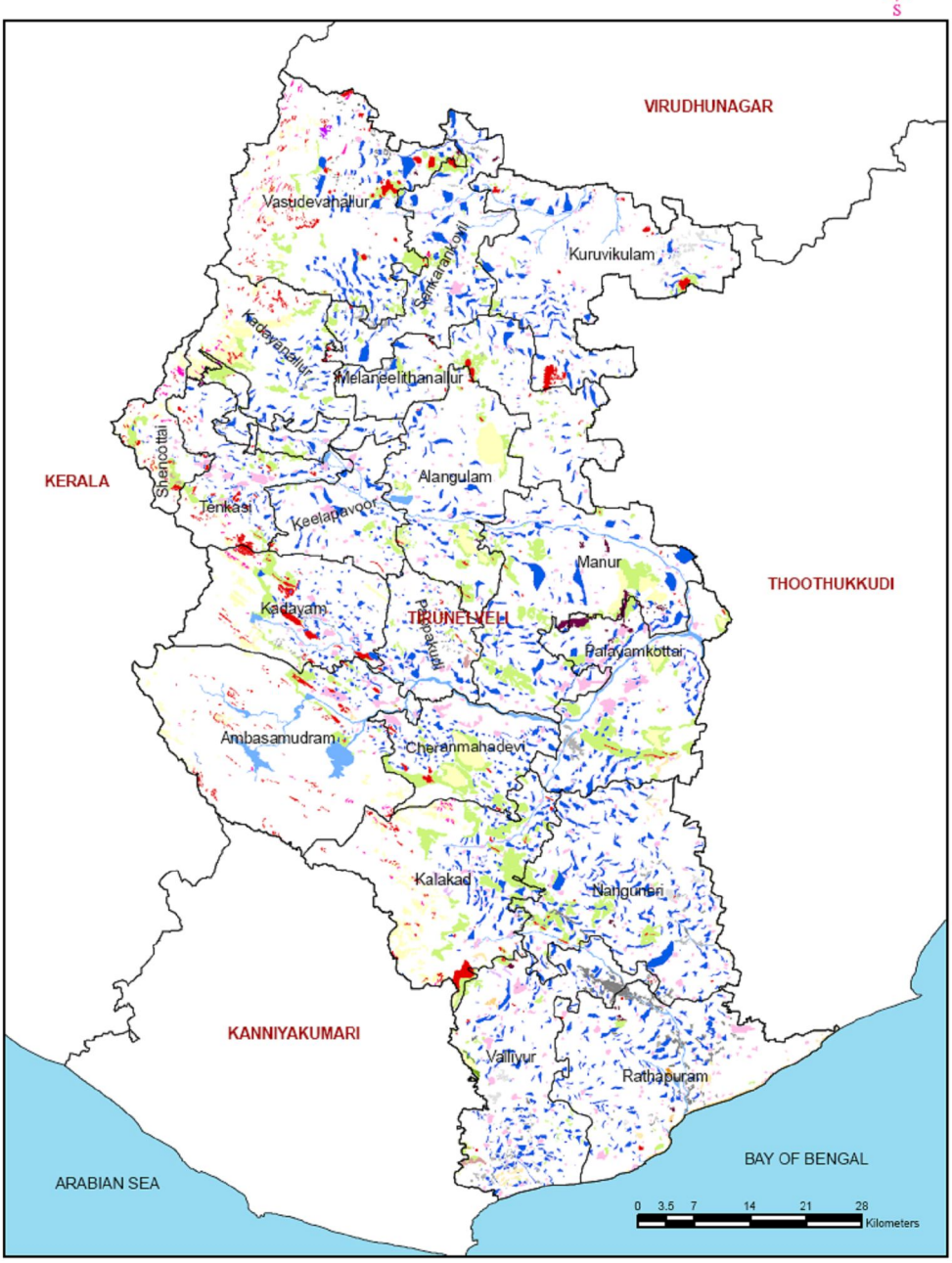
Barren / rocky / stony areas are the rock exposures of varying lithology often barren and devoid of soil and vegetal cover. They occur in hill forests as openings or as isolated exposures on plateau and plains. These can be easily delineated from other type of degraded land because of their severe nature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



Legend

Agriculture Land inside Notified Forest	Land with Scrub	Sands (tank/river bed)
Barren Rocky/Stony waste area	Mining wastelands	Sands -Coastal Sand
Degraded Forest -Scrub Domin.	River	Sands -Flood Plain
Gullied and/or ravinous -Medium	Saline/Alkaline -Moderate	Settlement
Gullied and/or ravinous -Shallow	Saline/Alkaline -Slight	Steep sloping area
Land Without Scrub	Saline/Alkaline -Strong	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).

CHAPTER - III
SWOT ANALYSIS OF DISTRICT

3.1. Introduction

Tirunelveli district is provided with varied agro climatic conditions ranging from extreme tropical to subtropical. Major agricultural crops grown in the district are rice, pulses, maize, millets, oil seeds and cotton. Areas adjacent to Western Ghats like Tenkasi and Shencottai taluks are enjoying subtropical climate which is conducive for cultivation of most of the spices, sub tropical fruits, plantation crops and production of off-season mango. Tirunelveli District is endowed with traditional Vegetable growing belts having garden land with red and loamy soils suitable for cultivation of most of the Vegetables.

3.2. SWOT Analysis of the District

(i) Strengths

- Varied agro climatic conditions ranging from extreme tropical to subtropical
- Conducive climate for cultivation of most of the spices, sub tropical fruits, plantation crops and production of off-season mango.
- Tirunelveli District is endowed with traditional Vegetable growing belts having garden land with red and loamy soils suitable for cultivation of most of the Vegetables
- Tirunelveli district is called as “Twin City” i.e. Tirunelveli and Palayamkottai cities are situated nearby.
- Excellent scope for agribusiness
- Scope for fresh vegetable export has been initialized
- Implementation of precision farming for most of the fruits and vegetable crops.
- The vast forest resources of the district contribute towards the national income
- The district has rich granite resources
- District is having the most famous tourist spot of Courtalam and
- Limestone, Sulphides and Ilmenite - Garnet Sands are the major mineral resources available in the district

(ii) Weakness

- Fragmented land holdings
- Non availability of good quality seeds of staple crops
- Groundnut, a major oilseed crop grown in this district, is mainly cultivated as rainfed crop and drought tolerant varieties are not available
- Agricultural labour migration to industries and
- Poor mechanization

(iii) Threats

- Migration of people towards urban areas hinders the agricultural growth
- Establishment of industrial complexes and multinational companies attracts people from agriculture towards industries
- Farming is unattractive mainly because of increased input cost, poor credit availability, labour problem and non -remunerative returns while disposing the harvested produce

(iv) Opportunities

- Being the major source of mineral resource in this district, there is a huge scope for establishment of cement industries
- By establishing the Special Economic Zones (SEZs), the export of fresh fruits from this district can be enhanced to a large extent
- The rehabilitation and development of tanks will help to increase the area under assured irrigation facility
- Performing the precision farming and contract farming will go a long way to improve the returns considerably to the farmers
- The small, tiny and medium sized industries engaged in this district can be utilised to their full potential to reap the maximum benefits

3.3 Composite Index of Agricultural Development of Tirunelveli 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% 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 are 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 Tirunelveli district is taken from various government publications like Season and Crops Report and Economic Appraisal of Tamil Nadu for the four periods viz., 1990-91, 1995-96, 2000-01 and 2005-06. In all, 25 indicators of agricultural development as given in Table 5 were used for estimating the composite index of development for the district. The 25 indicators were grouped into 6 different 'components': i) Crop-Area-Variables - 10 (ii) Irrigation - 7 (iii) Livestock - 3 iv) Fisheries (1) v) Fertilizer (3) and vi) Cultivators and Labourers (2).

The analysis showed that Tirunelveli district which was classified as 'developing' in agricultural development during 90-91 and became 'developed' in agriculture during 1995-96 and 2000-01 and during the recent period it was classified as 'developing'. In terms of overall agricultural development its rank among the 29 districts of Tamil Nadu varied from 11 to 19 during the 1990-91 to 2005-06. As for as the individual components of agricultural development are concerned, its ranks in the above periods are in following Table 6. The table shows that except in crop area and cultivators and labourers variables, all other components, its performance in the period of study is satisfactory. For example, in irrigation its ranks varied from 4^{th} to 5^{th} rank in all the four periods. Similarly in fishery variables also it occupied between 5^{th} and 12^{th} rank.

Table 5. Selected Indicators of Agricultural Development for Tirunelveli District

Components	Indicators	No. of Indicators
Crop-Area-Variables	Cropping Intensity	10
	% of Gross Cropped Area to Total geographical area	
	% Share of food grains to Gross Cropped Area	
	% Share of food crops to Gross Cropped Area	
	% Share non food crops to Gross Cropped Area	
	% Share of cultivable waste to total geographical area	
	% Area under High Yielding Variety-PADDY	
	% Area under High Yielding Variety-CHOLAM	
	% Area under High Yielding Variety-CUMBU	
	% Area under High Yielding Variety-RAGI	

Table.5 Contd…

Irrigation	Irrigation Intensity	7
	% of Gross Irrigated Area to Gross Cropped Area	
	% of Net Irrigated Area to net area sown	
	% Area under Canal Irrigation to Gross Irrigated Area	
	% Area under Tank Irrigation to Gross Irrigated Area	
	% Area under Well Irrigation to Gross Irrigated Area	
	% 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	% of Cultivators to total population	2
	% of Agri.labourers to total workers	
	Total	25

Table.6 Rank of Tirunelveli District in terms of Agricultural Development among other Districts of Tamil Nadu during 1990-91 to 2005-06

Component of Composit Index	Crop-Area Variables	Irrigation	Livestock	Fisheries	Fertilizer	Cultivators and Labourers	Overall
1990-91	22	4	10	-	-	19	15
1995-96	15	5	17	11	4	20	11
2000-01	20	5	15	5	4	22	11
2005-06	17	5	6	12	28	22	19

CHAPTER - IV
DEVELOPMENT OF AGRICULTURAL SECTOR

4.1. Introduction

Tirunelveli district is predominantly an agricultural district. The district has mainly two cropping seasons, *viz.* Kar, the first crop (June to September) and Pishanam, the second crop (October to February).

Tirunelveli has fertile soils only in scattered regions. Less fertile red soils are found distributed in most of the region. The network of the irrigation system marks full use of the water resources; the natural deficiency has been overcome to a greater extent. The cropping pattern of the district is essentially of the type characterizing dry regions. It normally varies from taluk to taluk. Wet cultivation is essentially paddy cultivation and the major share of the gross cropped area is under one crop. In dry regions, diversified cropping patterns exist and no single crop claims a large share of the gross cropped area. Dry cultivation which characterizes these regions is also basically millet and cash crop cultivation. Even in dry regions wherever water is available, it is the paddy crop that is sown by the farmers. Paddy occupies the largest area of cultivation, followed by cotton. Paddy is cultivated mainly in Tirunelveli, Palayamkottai, Tenkasi, Shencottai, Ambasamudram and Nanguneri taluks.

Other crops grown in the district are cumbu, ragi, pulses, groundnut, gingelly, coconut, chillies and indigo. Portions of Sankarankoil taluk have rich, fertile black soils which are highly suitable for cotton cultivation. Factors such as type of soil, climatic conditions, irrigation facilities, etc., determine the cropping pattern in a region. Most of the rain fed areas is cultivated in both the seasons.

4.2 Mineral Resources

(a) Limestone

It is available at several places in the district. The major part comes from the crystalline limestone deposit occurring near Ramayanpatti, Talaiyuthu and Padmaneri. A

total reserve of 4.06 million tonnes limestone up to a depth of 15.2 meters in Ramayanpatti band and 5.08 million tonnes up to a depth of 15.25 meters in Talaiyuthu band has been estimated. The limestone available here contains Calcium Oxide (Ca O) from 34.97 to 55.49 percent, Magnesium Oxide (Mg O) from 0.31 to 7.24 per cent.

Six bands of good quality limestone occur near Pandapuli and 4, 34,000 tonnes of limestone suitable for the manufacture of cement and chemical industries have been estimated.

(b) Sulphides

Light traces of sulphides occur in and around Pattankadu and Munradaippu. This mineral is of no economic importance.

(c) Ilmenite - Garnet Sands

Occurrence of red garnet sands in the beds of the river Nambiar and Uvari has been recorded. The proportion of garnet is 75 per cent in the rich deposits and 45 per cent in the surface sands. Local concentration of limenite sands are noticed near Vijayapatti and Kuttankuli.

4.3. Soil Health

Soil type of the district varies from red soil to sandy loam. Red and red loamy soil occurs in Alangulam, Sankarankoil, parts of Kadayanallur, V.K.Pudur, Pappakudi, Cheranmahadevi, Valliyoor and Nangunery blocks and it suits well for the cultivation of all horticultural crops. Black loamy soil exists in parts of Kuruvikulam, Melaneelithanalloor, Keelapavoor and Radhapuram blocks where in chillies and flower cultivation is predominant. In Thamiraparani river fed area like Ambasamudram, Kalakkadu, parts of Valliyoor and Sivagiri blocks, the soil type is alluvial and sandy loam providing scope for banana cultivation. The details of soil classification are furnished in Table 7.

Table 7. Soil Classification - 2006-07

Sl.No.	Type of Soil	Places in District
1.	Red Loam	Tenkasi,Shencottah,sivagiri,Rathapuram, Alangulam,V.K.puthur
2.	Lateritic Soil	Nil
3.	Black Soil	Sankarankoil,Melaneelithnallur,Kuruvikulam, Palayamkottai,Manur
4.	Sandy Coastal Alluviam	Nil
5.	Red Sandy Soil	Nil

Source: Directorate of Economics and Statistics, Chennai.

Most of the blocks in Tirunelveli district are having red loamy and black soils. The blocks of Tenkasi, Shencottah, Sivagiri, Rathapuram, Alangulam, and V.K.puthur are rich in loamy soils and blocks of Sankarankoil, Melaneelithnallur, Kuruvikulam, Palayamkottai, and Manur are with black soils.

4.4. Major Crops and Varieties in the District

The major crops and varieties cultivated in Tirunelveli District are presented in Table 8.

Table 8. Major Crops and Varieties in the District

S.No.	Major Crops	Varieties
1.	Paddy (Kar)	ASD 16 , ADT 36, ASD 18, IR 50, ADT 43, ADT 45 and Ponni
2.	Paddy (samba)	ASD 16,18 ; ADT 36,39; IR 20; IR 50; ADT 43 ADT 45 Ponni and Bpt 5402
3.	Cotton (irrigated)	MCU 5, SVPR 2, RCH 2, Polt Card, LRA 5166 and Suvin
4.	Cotton (un irrigated)	SVPR 2 and Polt Card
5.	Groundnut (un irrigated)	TMV 7
6.	Sunflower	Modern
7.	Gingelly	TMV 1, 3
8.	Green gram	CO 4, and KM 2
9.	Black gram	TMV 1, 7, and CO 5
10.	Cholam	CSH 5, 14 K.Tall VSH 53 and K 4

Source: Records of the Office of the Joint Director of Agriculture Tirunelveli -2

The other horticultural crops grown are fruits, vegetables, flowers, plantation crops, spices and medicinal plants.

4.5 Area &Production of Major Agricultural Crops Grown in Tirunelveli District

The area and production major crops like of paddy, Cholam, maize, sugarcane, cotton, groundnut and chillies of Tirunelveli district are given in Table 9.

Table 9. Area & Production of Major Agricultural Crops

Crops	Area (Ha)			Production (Tonnes)		
	2003-04	2004-05	2005-06	2003-04	2004-05	2005-06
Paddy	52474	86832	86397	197848	358920	309065
Maize	6204	6886	7939	5165	6130	10527
Cholam	2382	2730	2638	3850	5251	8557
Pulses	22000	32084	31792	8388	15237	12662
Sugarcane	2707	2771	3581	275244	305017	353386
Chillies	1938	1457	1702	2118	2014	1885
Banana	5924	5820	7139	197539	279400	255705
Cotton	4301	6625	4938	7050	14854	10777
Groundnut	2596	3945	4562	4599	8869	9559

Source: Season and crop Report of Tamil Nadu, (Various issues)

It is inferred from the table that the area and production of paddy, cholam, cotton and groundnut had increased from the year 2004-05 to 2005-06 but at the same time production of chillies had come down.

4.6. Fertilizer Receipts / Consumption

The details of fertilizer receipt and consumption of Tirunelveli district are furnished in Table 10.

Table 10 Fertilizer Receipts / Consumption

(in million tonnes)

Name	Receipt			Consumption		
	2007-08	**2006-07**	**2005-06**	**2007-08**	**2006-07**	**2005-06**
N	26014	25988	4860	25085	24758	24187
P	11331	12436	2231	11123	12033	9555
K	16377	13506	3505	15519	12768	12678

Source: Records of the Office of the Joint Director of Agriculture, Tirunelveli -2

It is inferred from the above table that the receipt and consumption of nitrogenous fertilizers are more followed by potash and phosphoric fertilizers, in that order.

4.7 Pesticides Sale Point

The details of different sources of pesticide sale points of Tirunelveli district are furnished in Table 11.

Table 11. Pesticides Sale Point

(in numbers)

S.No.	Sectors	2007 -08
1.	Privates	444
2.	Co-Operatives	67
3.	Governments	46
Total		**557**

Source: Directorate of Economics and Statistics, Chennai.

From the above table, it is inferred that private institutions play a major role in the sale of pesticides followed by co-operatives.

4.8 Agricultural Implements and Machinery

The agricultural implements like ploughs, water pumps (oil and electric) tractors, sugarcane crushers and oil ghanis are listed in Table 12.

Table 12. Agricultural Implements and Machinery

(in numbers)

S.No.	Items	2005	2006
1.	Ploughs		
	a) Wooden	19883	43319
	b) Iron	4961	4348
	c) Total	24844	47487
2.	Water Pumps for Irrigation Purpose		
	a) Worked by Oil Engine	14906	15320
	b) Worked by Electric Power	54204	54304
	c) Total	69110	6994
3.	Tractors		
	a) Government	-	12
	b) Private	1327	793
	c) Total	1327	805
4.	Sugarcane Crushers		
	a) Worked by Power	-	4
	b) Worked by Bullocks	83	21
	c) Total	83	25
5.	Oil Ghanis		
	a) 5 Kg. & above	-	111
	b) Less than 5 Kg.	-	-
	c) Total	-	111

Source: Records of the Office of the Executive Engineer, Tirunelveli

It is inferred from the table that the use of wooden plough and oil engine has increased over the years. So the line departments' officials have to take serious steps to introduce agricultural machineries like tractors, weeders, paddy transplanter etc.

4.9 On-going agricultural programmes and the major interventions in the district

Various on-going programmes in the district viz., ICDP cereals, Seed village scheme, Western Ghats Development programme, Green manure seed distribution scheme, and ISOPOM pulses are presented in the Table 13 through Table 15.

Table 13. On-going Agricultural Schemes for Rice and Pulses

(Rs.in Lakhs)

S.No.	Agricultural Schemes	Components	Unit	No.of Units	Total Cost
Rice					
1	ICDP cereals, Seed village scheme	Supply of Quality Certified seeds at nominal cost to enhance the SRR @ Rs.5/- per kg. (Public and Private seeds)	Tonnes	700.000	14.000
2	Western Ghats Development Programme, Green manure seed distribution scheme	Distribution of Green Manure seeds at 75% subsidy of Rs.20/kg.	Tonnes	8.735	2.000
3	ICDP cereals	Farmers Field School @17000/ No.	No	20.000	3.400
4	ICDP Cereals	Publicity & Training @ Rs.50000/- per district	Nos	40.000	2.000
5	ICDP Cereals	Promotion of SRI Distribution of Marker, Conoweeder and other items @ Rs.3000 / Ha.	Ha	40.000	0.800
6	ICDP cereals	Publicity / POL & Hireing of Vehicle @ Rs.50000/- per district	Nos		0.300
Total					**22.500**
7	ISOPOM pulses	Seed production Subsidy @ Rs.10/Kg	Tonnes	74.500	7.450
8	ISOPOM pulses	Seed Distribution Subsidy @ Rs.12/Kg through Dept./Private/TANWABE and FIG	Tonnes	74.500	8.940
9	ISOPOM pulses	Pipes carrying water from source to field @50% subsidy limited to Rs15000/- max of 800mts.	Nos.	25.000	3.750
10	ISOPOM pulses	Distribution of Bio ertilizer @50% subsidy Rs.3/No.	L.No	0.347	1.041
11	ISOPOM pulses	Foliar Nutrient application subsidy @50% cost limited to Rs.200/Ha	Ha.	2660.000	1.862
	ISOPOM pulses	Farmers Training 50farmers for 2 days / Rs.15000/ Training	No.	8.000	1.200
Total					**24.243**

Source: Records of the Office of the Joint Director of Agriculture, Tirunelveli

Table 14. On-going Agricultural Schemes for Oilseeds

(Rs.in lakhs)

S.No	Agricultural Schemes	Components	Unit	No.of Units	Total Cost
1.	ISOPOM Oilseeds	Purchase and distribution of Breeder seeds @ Rs.50/Kg.	Tonnes	0.5	0.225
2.	ISOPOM Oilseeds	Seed Production subsidy @ Rs.10/Kg.	Tonnes	40	4.000
3.	ISOPOM Oilseeds	Seed Distribution subsidy @ 50% limited to Rs.12/Kg.	Tonnes	40	4.800
4.	ISOPOM Oilseeds	Pipes carrying water from source to field @ Rs.15000/- per Ha. Or 50% subsidy limitted to Rs.15000/	Nos.	10	1.500
5.	ISOPOM Oilseeds	Bio-fertiliser distribution @ Rs.3/Nos.	L.Nos.	0.25	0.750
6.	ISOPOM Oilseeds	Distribution of Gypsum subsidy @ 50% cost + TC limited to Rs.750/Ha.	Ha.	200	1.000
7.	ISOPOM Oilseeds	MN Mixture distribution @ 50% cost limited to Rs.500/Ha.	Ha.	20	0.040
8.	ISOPOM Oilseeds	Farmers field school @ Rs.22680/No.	Nos.	2	0.454
9.	ISOPOM Oilseeds	Farmers Training @ Rs.20000/Training 2 days for 50 farmers	Nos.	6	0.900
Total					**13.669**
Groundnut Rainfed					
10.	ISOPOM Oilseeds	Seed Distribution subsidy @ 50% limited to Rs.12/Kg.	Tonnes	18	2.160
11.	ISOPOM Oilseeds	Distribution of Gypsum subsidy @ 50% cost + TC limited to Rs.750/Ha.	Ha.	173.3	0.750
Total					**2.910**
GINGELLY					
12.	ISOPOM Oilseeds	Seed Production subsidy @ Rs.10/Kg.	Tonnes	1	0.100
13.	ISOPOM Oilseeds	Seed Distribution subsidy @ 50% limited to Rs.12/Kg.	Tonnes	1	0.120
Total					**0.220**

Source: Records of the Office of the Joint Director of Agriculture, Tirunelveli

Table 15. On-going Agricultural Schemes for Cotton

(Rs.in lakhs)

Cotton- Irrigated					
S. No	**Scheme**	**Component**	**Unit**	**No.of Units**	**Total Cost**
1.	ICDP	FFS to TANWABE/ FIG Rs.17000/ FFS	No.	40	6.800
2.	ICDP	Distribution of MN Mixture @ 50% subsidy limited to Rs.500/ha	Ha.	200	0.15
Cotton- Rainfed					
3.	ICDP - Cotton	Seed distribution subsidy @ Rs.20/Kg	Qtl.	107	1.2
Total Cotton					**8.150**
Extension Activities					
4.	Innovative schemes - FIG	Formation of FIG @ Rs.12500/ group for trainig and office automation, ID card, District level meetings etc	L.Rs.	50	6.250
5.	ISOPOM - Maize	Exposure visit Inter state @ 50 farmers/Tour, 5 days @ Rs.300/day/farmer (Rs.0.75 lakhs each)	Nos.	1	1.125
Total					**7.375**

Source: Records of the Office of the Joint Director of Agriculture, Tirunelveli

4.10 Major Interventions in the Department of Agriculture

- Supply of quality certified seeds at nominal cost
- Distribution of green manure seeds nutrient mixture
- Demonstration on SRI / hybrid rice
- Community thrashing floor
- Technology demonstration
- Precision farming by sprinkler for pulses
- Integrated Nutrient Management (INM) and seed village scheme

CHAPTER – V
ALLIED AGRICULTURAL SECTORS

This chapter covered the allied agricultural sectors like horticulture, agricultural engineering, agricultural marketing, sericulture, animal husbandry, dairy, poultry and fisheries.

5.1 Horticulture Development

Tirunelveli district is provided with varied agro climatic conditions ranging from extreme tropical to subtropical. Areas adjacent to Western Ghats like Tenkasi and Shencottai taluks are enjoying subtropical climate which is conducive for cultivation of most of the spices, sub tropical fruits, plantation crops and production of off-season mango. Tirunelveli district is endowed with traditional vegetable growing belts having garden land with red and loamy soils suitable for cultivation of most of the vegetables. Blocks like Alangulam, Keelapavoor, Tenkasi, Kadayanallur, Sankarankoil, Manur and Palayamkottai are the major vegetables growing areas.

Thamiraparani river fed areas and adjoining plains are provided with assured irrigation facilities where banana cultivation is predominant. Acid lime cultivation is concentrated in Sivagiri and Sankarankoil taluks and mango cultivation is more in Tenkasi, Shencottai and Ambhasamudram taluks. 90 per cent of the cashew area of the district lies in Melaneelithnallur, Valliyoor and Alangulam Blocks.

Further several horticultural development schemes are being implemented every year to increase the area and production of horticulture crops.

5.1.1 Area, Production & Productivity of Major Horticultural Crops Grown in Tirunelveli District

The area, production and productivity of fruits, vegetables, flowers, plantation crops, spices and medicinal plants of Tirunelveli district are given in Table 16.

Table 16. Area Production & Productivity of Horticultural Crops

Crop	2004-2005			2005-2006			2006-2007		
	Area (Ha)	**Production (Ton nes)**	**Productivity (Ton nes)**	**Area (Ha)**	**Production (Ton nes)**	**Productivity (Ton nes)**	**Area (Ha)**	**Production (Ton nes)**	**Productivity (Ton nes)**
Fruits	13337	241399	18.10	13434	249872	18.60	17055	318928	18.70
Vegetables	2571	32266	12.55	2554	32435	12.70	3640	46592	12.80
Flowers	1640	13792	8.41	1606	13651	8.50	1611	13693	8.50
Plantation Crops	5000	10100	2.02	6240	12792	2.05	6818	13772	2.02
Spices	2746	4997	1.52	3244	6163	1.90	3677	7170	1.95
Medicinal Plants	246	246	1.00	106	106	1.00	192	192	1.00
Total	**25540**	**302800**	**43.60**	**27184**	**315019**	**44.75**	**32993**	**400347**	**44.97**

Source: Records of the Office of the Deputy Director of Horticulture, Tirunelveli

It is inferred from the table that the productivity of all the horticultural crops has increased from the year 2004-05 to 2006-07. As per 2006 – 2007 statistics, the area under fruit crops were more (17,055 ha in 2006-07) followed by plantation crops (6,818 ha) and spices (3,677 ha). In that order production of fruits is also more in Tirunelveli district i.e. 3, 18,928 tonnes in the year 2006-07.

5.1. 2 Ongoing Schemes for the Department of Horticulture

Area covered and the total financial outlay for the different on-going schemes like National Horticulture Mission (NHM), Integrated Horticulture Development Scheme and Western Ghats Development Programme of Horticulture Department are given in Table 17.

Table 17. On-going Schemes of Horticultural Department

(Rs. in lakhs)

Year	Name of the Scheme	Area coverage	Financial Outlay
2005-06	National Horticulture Mission	600 Ha	84.86
	Integrated Horticulture Development Scheme	600 Ha	11.87
	Western Ghats Development Programme (i) Farmers training	100 persons	2.5
2006-07	National Horticulture Mission	1550 Ha	208.18
	Integrated Horticulture Development Scheme	400 Ha	4.18
2007-08	National Horticulture Mission	2603 Ha	623.6
	Integrated Horticulture Development Scheme	175 Ha	3.08

Source: Records of the Office of the Deputy Director of Horticulture, Tirunelveli.

5.1.3 Major Interventions in the Department of Horticulture

- Precision Farming
- Cashew high density planting
- Plastic crates for Vegetable handling and transport
- Banana Bunch cover
- District level Farmers workshop and Inter State Exposure visit
- Farm waste shredder / Vegetale waste shredder and Support system for betelvine and senna

5.2 Sericulture Development

Area under mulberry, cocoon production and value of cocoon produced in Tirunelveli district are presented in what follows.

5.2.1 Area under Mulberry in Tirunelveli District

The details of area under mulberry in Tirunelveli district are given in Table 18.

Table 18. Area under Mulberry

(Area in hectare)

S.No.	Name of the block	Area under Mulberry		
		2004-05	2005-06	2006-07
1.	Tenkasi	16.75	19.25	19.25
2.	Kadayanallur	18.55	16.85	19.00
3.	Sankarankoil.	3.50	3.50	5.25
4.	Vasudevanallur	19.95	31.00	41.00
5.	Kuruvikulam	3.25	1.50	9.75
6.	Alangulam	6.00	19.50	13.50
7.	Kadayam	21.50	35.00	46.50
8.	Ambasamudram	1.00	8.00	10.00
9.	Nanguneri	0	15.75	19.25
10.	Palayamkottai	1.75	6.50	7.50
11.	Pappakudi	4.50	11.50	22.50
12.	Keelapavoor	13.90	45.00	44.50
13.	Kalakadu	4.50	7.00	5.00
14.	Cheranmahadevi	7.50	2.25	5.25
15.	Melaneelithanallur	13.55	21.75	26.75
16.	Shenkottai	37.45	55.65	54.50
17.	Radhapuram	3.75	0.	0
18.	Manur	1.00	0.	0
19.	Valliyoor	0	6.25	8.50
Total		**178.4**	**306.25**	**358.00**

Source: Records of Office of the Assistant Director of Sericulture, Tenkasi

It is inferred from the table that Shencottai, Kadayam, Keelapavoor and Vasudevanallur were the major mulberry producing blocks in Tirunelveli. Nearly 13 per cent of the district's mulberry area was in Shencottai block.

5.2.2 Production of Cocoon in Tirunelveli District

The details of production of Cocoon in Tirunelveli district are given in Table 19.

Table 19. Production of Cocoon

(in tonnes)

S.No.	Name of the block	Production of Cocoon		
		2004-05	2005-06	2006-07
1.	Tenkasi	3,502.00	4,835.8	5,031.00
2.	Kadayanallur	4,336.50	6,613.0	7,244.40
3.	Sankarankoil.	314.00	961.4	790.40
4.	Vasudevanallur	3,884.70	8,829.7	12,525.10
5.	Kuruvikulam	316.50	491.5	3,540.700
6.	Alangulam	491.30	3,905.6.	4,493.90
7.	Kadayam	3,613.60	8,260.0	15,156.70
8.	Ambasamudram	101.10	1,110.1	2,284.20
9.	Nanguneri	0	6,302.3	9,647.00
10.	Palayamkottai	319.40	1,500.5	1,781.80
11.	Pappakudi	898.20	3,184.4	6,954.90
12.	Keelapavoor	6,243.50	12,986.3	19,983.60
13.	Kalakadu	1,064.90	2,329.8	3,115.70
14.	Cheranmahadevi	832.90	806.1	1,261.90
15.	Melaneelithanallur	3,378.90	5,868.7	8,125.230
16.	Shenkottai	10,067.40	12,600.1	13,984.50
17.	Radhapuram	687.30	0	0
18.	Manur	238.70	0	0
19.	Valliyoor	0	1,561.8	2064.30
Total		**40,290.9**	**82,147.1**	**1,17,985.30**

Source: Records of Office of the Assistant Director of Sericulture, Tenkasi

It is inferred from the table that cocoon production was more in the blocks like Keelapavoor, Kadayam, Shencottai, Vasudevanallur and Nanguneri in Tirunelveli. Nearly 17 per cent of the district's cocoon production was from Keelapavoor block. Areas like Nanguneri and Pappakudi were also producing more of cocoons in the year 2006-07.

5.2.3 Value of Cocoon (Rs. in lakhs) in different Blocks of Tirunelveli district

The details of value of Cocoon in different blocks of Tirunelveli district are given in Table 20.

Table 20. Value of Cocoon

(Rs. in lakhs)

S.No.	Name of the block	Value of Cocoon		
		2004-05	2005-06	2006-07
1.	Tenkasi	3.45	5.32	4.90
2.	Kadayanallur	3.90	6.82	6.80
3.	Sankarankoil.	0.30	0.92	0.78
4.	Vasudevanallur	3.47	9.35	13.15
5.	Kuruvikulam	0.29	0.51	3.70
6.	Alangulam	0.50	4.32	4.65
7.	Kadayam	3.40	8.58	15.40
8.	Ambasamudram	0.10	1.00	2.19
9.	Nanguneri	0	7.06	9.50
10.	Palayamkottai	0.31	1.65	1.76
11.	Pappakudi	0.84	3.51	6.65
12.	Keelapavoor	2.71	14.69	19.39
13.	Kalakadu	1.06	2.73	3.83
14.	Cheranmahadevi	0.78	0.82	1.25
15.	Melaneelithanallur	3.49	6.65	8.29
16.	Shenkottai	9.10	13.92	13.73
17.	Radhapuram	0.62	0	0
18.	Manur	0.23	0	0
19.	Valliyoor	0	1.59	1.90
Total		**34.55**	**89.44**	**117.87**

Source: Records of Office of the Assistant Director of Sericulture, Tenkasi

It is inferred from the table that the value of cocoon in Tirunelveli district in the year 2006-07 was 117.87 lakhs. Nearly 17 per cent of the total value was from Keelapavoor block.

5.3 Development of Animal Husbandry

A brief description of development of animal husbandry department in Tirunelveli district is furnished below.

5.3.1 Animal Population in Tirunelveli District

The details of different animal population are given in Table 21.

Table 21. Animal Population in Tirunelveli district

(in numbers)

S.No	Categories	Population
1.	White cattle	4,18,694
2.	Buffaloes	78,777
3.	Sheep	4,87,273
4.	Goats	3,90,570
5.	Poultry	12,18,583

Source: Livestock Census- 2004

It could be seen that among animals population, white cattle and sheep assumed more importance as compared to buffaloes and goats.

5.3.2 Different Ranges of Animal Products (2006-2007)

Different ranges of animal products are given in Table 22.

Table 22. Different Range of Animal Products - 2006-2007

S.No	Categories	Quantity
1.	Cow milk (000 Tonnes)	215.78
2.	Buffalo Milk (000 Tonnes)	36.03
3.	Improved egg (Lakh numbers)	33.39
4.	Desi egg (Lakh numbers)	155.02
5.	Poultry meat (Tonnes)	813.67
6.	Mutton (Tonnes)	544.53
7.	Chevon (Tonnes)	356.89

Source: Records of the Office of the Deputy Director of Animal Husbandry, Tirunelveli

It could be seen that the production of cow milk was more as compared to buffalo milk. Similarly the production of desi eggs was substantially higher as compared to the production of improved egg.

5.3.3 Salient Features of Development of Animal Husbandry Units

- Increase in total white cattle population (4.42%)
- Decrease in Total Buffalo population (4.78 %)
- Increase in sheep population (7.42 %)
- Increase in goat population (9.56)
- Increase in the poultry population (10.59%)
- 5.59 % increase in the cross-bred cows
- 18.51% increase in the cow milk production
- 9.65% decrease in the buffallo milk production
- 9.93 % increase in the total milk production and
- 17.66 % increase in the total meat production

5.3.4 Major Interventions in the Department of Animal Husbandry, Dairy Development, TANUVAS and Public Works Department (PWD)

- Augmentation of fodder production through SHGs/women entrepreneurs
- Supply of mineral mixure to dairy cows
- Strengthening of livestock unit
- Strengthening of veterinary institutions with basic facilities like fencing, bore-wells, water troughs , repairs etc.,
- Disaster management
- Supply of by-pass protein feed to the milch animals
- Fodder development activities
- Fodder seed production unit
- Strengthening of TANUVAS Centre
- Modernization of tanks in Manimuthar perungal system
- Rehabilitation and modernization of tanks in Thambaraparani basin sub- division
- Rehabilitation and modernization of tanks in Chittar river basin. Part-I

5.3.5 Strengths of Dairy Sector

- Land availability and irrigation facilities for fodder cultivation
- Increasing trend in the cross-bred dairy population
- Huge domestic demand for fluid milk and milk products
- Suitable climatic conditions and
- Marketing facilities in the neighboring state

5.3.6 Small Ruminants

- Increasing trend in the sheep and goat population
- Huge demand for mutton and chevon
- Integrated poultry (broiler) farming system - Rapid growth into a successful industry
- Increasing demand for chicken and eggs
- Increasing trend in backyard poultry rearing and
- Huge demand for milk, pork and egg in the neighboring state, Kerala

5.3.7 Gaps Identified

- Fodder shortage : Green fodder 88.6%
- Animal health care facilities : Door step insemination
- Lack of awareness about feeding of micro-nutrients in the feed of cattle
- Higher nutritional demand in cross-bred cows
- Infertility and mastitis problems in cross bred cows and
- Farmers are not aware of the latest scientific technologies in livestock production and management

5.3.8 Fisheries Development

The particulars related to fisheries department are furnished as detailed below:

- The main objective of fisheries department is to promote the Inland Fisheries activities and impart the technical know how knowledge to the fish culturists.

- 53 Farm Ponds have been created / excavated in the Hanuman Nadhi Sub basin area under World Bank MDPPP Scheme to promote aquaculture activities

5.3.9 Fisheries Development and Production

The particulars on fisheries development and production in Tirunelveli district are given in Table 23.

Table 23. Fisheries Development and Production

Year	Inland Fish Catch (Tonnes)	Marine Fish Catch (Tonnes)	Number of Fisherman engaged	
			Inland	Marine
2004-05	581	5490	2240	2650
2005-06	1874	7014	2249	3270
2006-07	1290	9861	2275	-

Source: Records of the Office of the Assistant Director of Fisheries, Tirunelveli and Radhapuram

It is observed from the table that both inland fish catch and marine fish catch had increased in 2006-07 as compared to 2004-05.

5.3.10 Dairy Development

The particulars related to dairy department such as number of milk societies, quantity of milk produced and value of produced milk are furnished in Table 24.

Table 24. Dairy Development at a Glance

Year	No. of Milk Societies	Quantity of milk Produced (In Million litres)	Value of milk produced (In Rs.)
2004-05	358	18.00	1789.79
2005-06	285	25.28	2275.47
2006-07	251	24.03	2162.43

Source: Records of the Office of the Deputy Registrar (Dairy), Tirunelveli

It is evident from the table that number of milk societies had been reduced drastically from the year 2004-05 (358) to 2006-07 (251). This is due to lack of interest in dairy and also migration of people from rural to urban.

5.3.11 Poultry Development

The details pertaining to poultry department are furnished in Table 25.

Table 25. Poultry Development of Tirunelveli District

(in numbers)

Sl.No.	Name of the Block	2004-05		2005-06		2006-07	
		Broiler	**Layer**	**Broiler**	**Layer**	**Broiler**	**Layer**
1	Manur	12,000	-	12,000	-	15,000	-
2	Palayamkottai	3,000	-	3,000	-	5,000	-
3	Sankarankoil	13,000	-	13,000	-	18,000	-
4	Melaneelithnallur	15,000	-	15,000	-	35,000	-
5	Kuruvikulam	2,000	-	2,000	-	2,000	-
6	Tenkasi	-	-	-	-	-	-
7	Kadayanallur	56,000	-	56,000	20,000	46	-
8	Alangulam	-	-	-	-	-	-
9	Keelapavoor	-	-	-	3,000	-	-
10	Shencottai	35,000	-	35,000	-	-	-
11	Vasudevanallur	-	-	-	-	-	-
12	Ambasamuthram	-	-	-	-	-	-
13	Cheranmahadevi	-	-	-	-	-	-
14	Pappakudi	-	-	-	-	-	-
15	Kadayam	1,26,000	-	5,000	-	8,000	-
16	Nanguneri	-	-	50,000	-	72,000	-
17	Kalakad	-	-	-	-	-	-
18	Valliyoor	1,08,000	5,000	46,000	-	1,16,000	-
19	Radhapuram	4,17,000	-	60,000	-	-	-
	Total	**7,87,000**	**5,000**	**2,97,000**	**23,000**	**2,97,046**	**-**

Source: Records of the Office of the Deputy Director of Animal Husbandry, Tirunelveli.

From the table it is evident that the quantity of broilers in the district was more as compared to layers. However, the same had reduced drastically in 2005-06 and 2006-07.

5.4 Agricultural Engineering

Different on-going programmes of Agricultural Engineering Department in Tirunelveli district are presented below.

5.4.1 Ongoing Schemes for the Department of Agricultural Engineering

Area covered and the total financial outlay for the different on-going schemes like Western Ghat Development Programme, Farmers' Training Programme, Minor Irrigation Scheme, Land Development Scheme and Soil conservation scheme of Agricultural Engineering Department are given in Table 26 through Table 37.

Table 26. Ongoing schemes on Western Ghat Development Programme-I

(Rs. in lakhs)

S. No	Components	Physical unit	Physical (in numbers)		Financial	
			Target	Achievement	Target	Achievement
1.	Laying of Cement Road 3m. Width	Nos.	5	5	4.500	4.500
2.	Construction of Retaining Wall	Nos.	4	4	3.600	3.600
3.	Compound Wall of School	Nos.	2	2	1.800	1.800
4.	Compound Wall & Plumbing Work for OHT	Nos.	1	1	0.900	0.900
5.	New Bore well with Hand Pump & 2 Water Tanks for domestic & Cattle use	Nos.	2	2	1.800	1.800
6.	New Bore well with Hand Pump & Solar Light	Nos.	1	1	0.900	0.900
7.	Library Furniture & Books	Nos.	1	1	0.900	0.900
8.	Drying Yard	Nos.	1	1	0.900	0.900
9.	Solar Light & Lamp Posts 3 Nos.	Nos.	1	1	0.900	0.900
10.	Thrashing Floor	Nos.	1	1	0.900	0.900
11.	Compound Wall for Play Ground	Nos.	1	1	0.900	0.900
	Total	Nos.	**20**	**20**	**18.000**	**18.000**

Source: Records of the Office of the Executive Engineer, Tirunelveli.

Table 27. Farmers' Training Programme

(Rs. in lakhs)

S.No.	Division / Training Programme	Annual Target		Achievement	
		Physical (in nos.)	Financial	Physical (in nos.)	Financial
1	Selection, Operation, Safety & Maintenance of Improved Agrl. Machineries	1	0.250	1	0.250
2	Selection, Operation, Seed, Plant Impd. Harv.& Thresh. Equipments	1	0.250	1	0.250
3	Selection, Operation, Maintenance of Plant. Protection Equipments	1	0.250	1	0.250
	Total	**3**	**0.750**	**3**	**0.750**

Source: Records of the Office of the Executive Engineer, Tirunelveli.

Table 28. Demonstration of Agrl. Machineries & Implements

(Rs. in lakhs)

S.No.	Implements	Annual Target		Achievement	
		Physical (in nos.)	Financial	Physical (in nos.)	Financial
1	Rotavator	3	0.075	3	0.075
2	Zero till-Seed Drill	4	0.100	5	0.125
3	Reversible Plough	2	0.050	2	0.050
4	Rot.with Cage Wheel	5	0.125	5	0.125
5	Self Prop.Transplr.	4	0.100	3	0.075
6	Sub Soiler	2	0.050	2	0.050
	Total	**20**	**0.500**	**20**	**0.500**

Source: Records of the Office of the Executive Engineer, Tirunelveli.

Table 29. Western Ghat Development Programme-II

(Rs.in lakhs)

Soil conservation works	Unit cost (Rs)	Physical unit	Annual Target		Achievement	
			Physical	Financial	Physical	Financial
Land Shaping	7500	ha.	23	1.725	23	1.715
SC/ST			7	0.525	8	0.525
Contour bunding supported with Veg. hedges In-situ RWT	2500	ha.	511	12.775	531	12.788
SC/ST			30	0.750	35	0.800
Contour Rubble Bund	10000	ha.	28	2.800	28	2.788
Masonry Checkdam in L.R./Maj.CD	100000	Nos.	11	11.000	11	10.940
Masonry Checkdam in M.R./Min.CD	50000	Nos.	8	4.000	8	3.978
SC/ST			2	1.000	2	0.985
Gabion Structures (D.L.T.Works in L.R.)	25000	Nos.	17	4.250	18	4.220
SC/ST			3	0.750	3	0.750
Retaining Wall	33000	Nos.	18	5.940	18	5.940
Village Pond	200000	Nos.	5	10.000	5	9.830
Farm Ponds	40000	Nos.	13	5.200	13	5.140
SC/ST			2	0.800	2	0.800
Water Harvesting Structures	66000	Nos.	9	5.940	9	5.900
SC/ST			1	0.660	1	0.660
D.L.T. Works in U.R.	3000	Nos.	51	1.530	52	1.546
SC/ST			3	0.090	3	0.090
D.L.T. Works in M.R	10000	Nos.	29	2.900	36	3.240
SC/ST			2	0.200	2	0.200
TOTAL S .C WORKS		**ha.**	**599**	**72.835**	**625**	**72.835**
		Nos.	**174**		**183**	
Watershed level Administrative Cost	**7500**		**23**	**9.680**	**23**	**9.680**

Source: Records of the Office of the Executive Engineer, Tirunelveli.

Table 30. Minor Irrigation Scheme

(Rs. in lakhs)

Sub division/division/region	Units	Annual Target	Achievement
Percolation drills			
Tirunelveli	Wells	5	5
	Days	200	74
Tirunelveli Div.	**Wells**	**5**	**5**
	Days	**200**	**74**
Tenkasi	Blasts	150	150
	Wells	10	12
	Blasts	150	150
	Wells	10	13
Total Tenkasi	Blasts	300	300
	Wells	20	25
Cheranmahadevi	Blasts	150	125
	Wells	10	11
Tirunelveli	Blasts	150	125
	Wells	10	6
	Blasts	150	151
	Wells	10	10
Total Tirunelveli	Blasts	300	276
	Wells	20	16
Tirunelveli Div.	**Blasts**	**750**	**701**
	Wells	**50**	**52**
Tirunelveli	Wells	5	5
	Days	200	74

Source: Records of the Office of the Executive Engineer, Tirunelveli.

Table 31. Land Development Scheme -I

Sub division/division/region	Annual Target	Achievement
A)Lang leveling (Hrs)		1378
Tenkasi	1100	903
Cheranmahadevi	1100	1250
Tirunelveli	1100	**3531**
Tirunelveli Div.	**3300**	
B) MECH. CULTIVATION (Hrs)		676
Tenkasi	600	524
	600	1200
Total Tenkasi	1200	525
Cheranmahadevi	600	771
Tirunelveli	600	1011
	1000	1782
Total Tirunelveli	1600	**3507**
Tirunelveli Div.	**3400**	
C) COMBINED HARVESTOR (Hrs)		
Tirunelveli	900	22
Region Total	**900**	**22**

Source: Records of the Office of the Executive Engineer, Tirunelveli.

Table 32. Land Development Scheme -II

Sub division/division/region	Annual Target	Achievement
New Tractors		
Tenkasi	100	0
Cheranmahadevi	100	0
Tirunelveli Div.	**200**	**0**
NEW COMBINED HARVESTOR (Hrs)		
Tenkasi	90	34
Cheranmahadevi	90	26
Tirunelveli Div.	**180**	**60**

Source: Records of the Office of the Executive Engineer, Tirunelveli.

Table 33. Replacement of old Pumpsets-I

(Rs. in lakhs)

Scheme	Annual Target		Funds Released		Applications Received		Applications Eligible		Work orders issued		Pumpsets supplied	
	No.	Amount	Nos.	Amount	Nos.	Nos.	Nos.	Nos.	Amount	No.	Amount	Nos.
Below5HP	457	11.425	547	13.675	604	604	547	547	13.675	457	11.425	547
5&Above 5HP	570	28.500	488	22.563	492	492	488	488	22.563	570	28.500	488
Elec.Instaln.	1027	15.435	1035	15.525	1096	1096	1035	1035	15.525	1027	15.435	1035
Total	**1027**	**55.360**	**1035**	**51.763**	**1096**	**1096**	**1035**	**1035**	**51.763**	**1027**	**55.360**	**1035**

Source: Records of the Office of the Executive Engineer, Tirunelveli.

Table 34. Replacement of old Pumpsets-II

(Rs. in lakhs)

Scheme	Annual Target		Funds Released		Applications Received		Applications Eligible		Work orders issued		Pumpsets supplied	
	No.	Amount	Nos.	Amount	Nos.	Nos.	Nos.	Nos.	Amount	No.	Amount	Nos.
Below5HP	45	1.575	54	1.890	63	63	60	60	2.100	45	1.575	54
5&Above 5HP	50	3.000	45	2.675	41	41	41	41	2.450	50	3.000	45
Elec.Instaln.	95	0.475	99	1.485	104	104	101	101	1.500	95	0.475	99
Total	**95**	**5.050**	**99**	**6.050**	**104**	**104**	**101**	**101**	**6.050**	**95**	**5.050**	**99**

Source: Records of the Office of the Executive Engineer, Tirunelveli.

Table 35. Replacement of old Pumpsets-III

(Rs. in lakhs)

Scheme	Annual Target		Funds Released		Applications Received		Applications Eligible		Work orders issued		Pumpsets supplied	
	No.	**Amount**	**Nos.**	**Amount**	**Nos.**	**Nos.**	**Nos.**	**Nos.**	**Amount**	**No.**	**Amount**	**Nos.**
Below5HP	502	13.000	601	15.565	667	667	607	607	15.775	502	13.000	601
5&Above 5HP	620	31.500	533	25.238	533	533	529	529	25.013	620	31.500	533
Elec.Instaln.	1122	15.910	1134	17.010	1200	1200	1136	1136	17.025	1122	15.910	1134
Total	**1122**	**60.410**	**1134**	**57.813**	**1200**	**1200**	**1136**	**1136**	**57.813**	**1122**	**60.410**	**1134**

Source: Records of the Office of the Executive Engineer, Tirunelveli.

SOIL CONSERVATION SCHEME

Table 36. Soil Conservation Scheme - Rain Water Harvesting & Run-off Management

(Rs. in lakhs)

Sl. No.	Description of work	Unit	Annual Target		Achievement	
			Physical	Financial	Physical	Financial
1	Minor Checkdam	Nos.	25	6.250	**27**	**6.250**
2	Medium Checkdam	Nos.	30	15.000	**30**	**15.000**
3	Major Checkdam	Nos.	9	9.000	**9**	**9.000**
4	Percolation Pond	Nos.	2	6.000	**2**	**6.000**
5	Rejuvenation of Wells	Nos.	50	13.000	**51**	**13.000**
6	Farm Pond/Sunken Pond	Nos.	15	6.000	**15**	**6.000**
7	Ooranies / Village Pond	Nos.	10	15.000	**10**	**15.000**
	Total		**141**	**70.250**	**144**	**70.250**

Source: Records of the Office of the Executive Engineer, Tirunelveli.

Table 37. Agricultural Mechanization

(Rs. in lakhs)

Details of machineries	Annual Target		Achievement	
	Physical	Financial	Physical	Financial
Tractors	3	0.900	0.900	4
Power Tillers	45	13.500	18.100	72
Rotavator	3	0.600	1.795	9
Paddy Transplanter				
Others	6	0.600	0.600	
Cultivator				
Cage wheel& GFE.	5	0.100	0.100	15
Total	**62**	**15.700**	**21.495**	**100**

Source: Records of the Office of the Executive Engineer, Tirunelveli.

5.4.2 Major Interventions in the Department of Agricultural Engineering

- Introduction of newly developed agricultural machinary / Implements
- Water Harvesting Structures
- PVC Pipe laying
- Promoting the concept of mechanised villages
- Soil Conservation Works and
- Popularisation of agricultural mechanisation through conventional Machinary / Equipments

5.5 Major Interventions in the Department of Agricultural Marketing

- Commodity group formation
- Market Intelligence dissemination
- Facilitation of contract farming
- Trainings
- Exposure visit to markets
- Arrangement of buyer seller meetings and
- Publicity - regulated market

5.6. Agricultural Credit

5.6.1. 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 Tirunelveli district is furnished in Table 38.

Table. 38. Activity Wise Credit Disbursement and Projections under Agricultural and Allied Sectors in Tirunelveli District

(Rs in Lakhs)

Sectors	2008-09	2009-10	2010-11	2011-12
Crop loan	83134.84	87291.58	91656.16	96238.97
Term loan		0.00	0.00	0.00
Micro Irrigation	1234.56	1296.29	1361.10	1429.16
Land Development	1748.04	1835.44	1927.21	2023.57
Farm Mechanization	5702.91	5988.06	6287.46	6601.83
Plantation & Horticulture	1517.89	1593.78	1673.47	1757.15
Forestry & Waste land Development	135.18	141.94	149.04	156.49
Dairy Development	4645.96	4878.26	5122.17	5378.28
Poultry	832.86	874.50	918.23	964.14
Sheep/Goat/Piggery	228.50	239.93	251.92	264.52
Fisheries	611.75	642.34	674.45	708.18
Storage Godown & Market yards	256.24	269.05	282.50	296.63
Bio-gas	0.00	0.00	0.00	0.00
Sericulture	71.65	75.23	78.99	82.94
Others	4437.03	4658.88	4891.83	5136.42
Sub total - Term loan	21422.57	22493.70	23618.37	24799.31
Total Agriculture Credit (1+2)	104557.41	109785.28	115274.53	121038.28
Non Farm sector	11029.52	11581.00	12160.05	12768.05
Other Priority Sector	33414.52	35085.25	36839.51	38681.48
Grand Total	**149001.45**	**156451.53**	**164274.09**	**172487.81**

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. 156451.53 Rs. 164274.09 and Rs. 172487.81 lakhs respectively. The total flow of agriculture credit in terms of crop loan and term loan in 2011-12 would be Rs. 121038.28 lakhs. The flow of credit for non farm sector and other priorty sectors in 2011-12 would be Rs. 12768.05 and Rs. 38681.48 lakhs respectively.

CHAPTER - VI
DISTRICT PLAN

6.1 Action Plan for the Department of Agriculture

The Action plan with interventions for various crops like paddy, pulses, maize and millets, oilseeds, cotton and also upgradation of traditional printing press, strengthening State Seed Farm, repairing the Agricultural Extension Centres of the Dept. of Agriculture is given in the Table 39 through Table 46.

1. Paddy

Tirunelveli, the penultimate southern most district of Tamil Nadu, is described as a microcosm of the State, owing to its mosaic and diverse geographical and physical features such as lofty mountains and low plains, dry teri structures, rivers and cascades, seacoast and thick inland forest, sandy soils and fertile alluvium, a variety of flora, fauna and protected wild life.

The district was formed in 1790 by the East India Company, later came under the direct control of the British Queen. The name Tirunelveli derived from the three Tamil words Thiru – Nel – Veli meaning sacred paddy hedge. The district with an area of 6,823 Sq Km is bound by the State of Kerala, the districts of Virudhunagar, Thoothukudi, Kanyakumari and the Gulf of Mannar. The district receives an annual normal rainfall of 814.8 mm. the maximum precipitation is contributed by North East Monsoon (60%) followed by the South West monsoon (20 per cent). There are 11 taluks, 19 blocks, 628 revenue villages, 425 village panchayats, 38 town panchayats, five municipalities, and one municipal corporation in the district.

The lifeline of the district is the legendary river Thamiraparani which flows across the district. The district is predominantly agrarian; agriculture is the backbone of the economy. Net sown area is 1, 75,108 hectares with about 66.3 per cent having irrigation facilities.

Quality seed is essential and foremost requirement for a bumper yield. Quality seeds are to be produced in a large quantity and are to be distributed to the farming community at a subsidized rate to increase the productivity of the district as a whole. Further the use of green manures and bio fertilizers need to be promoted among the farmers. The practice of cultivating hybrid seeds need to be encouraged among the farmers by distribution of quality hybrid seeds at a subsidized rate.

The economical upliftment of the poor rural farmers and the economical growth of four per cent in agriculture can be attained by rejuvenating the agricultural operations. With a view to attain the above said goals, the Government of India has taken keen initiative to give subsidy to the poor farmers to buy the newly developed agricultural machineries/implements.

In Tirunelveli district, the scheme for increasing the productivity of paddy and to increase the soil organic matter content and integrated nutrient and pest management in subsidized rates will be implemented by Department of Agriculture during the project period from 2008-2009 to 2011-2012 by distributing the subsidy to the tune of Rs 904.9 Lakhs.

(i) Budget

The budget required for the implementation of the scheme is Rs.904.9 Lakhs for a period of four years. The funds will be provided to the state Government by the Government of India from the financial year 2008-2009 onwards.

(ii) Background

Tirunelveli District is an Agriculture oriented district. Agriculture plays a vital role in the districts' economy. Out of the total geographical area of 6,82,308 hectares, the cultivable area is 2,07,868 hectares and rice is cultivated in 82,000 hectares. About 20000 hectares of paddy are being cultivated in the Kar season and 62,000 hectares of paddy are cultivated during Pishanam season.

The paddy certified seed production during 2007-08 was 800 tonnes and nearly 700 tonnes of paddy seeds were distributed to the farming community during 2007-08. The seed replacement rate is 16 per cent. Moreover, as the cost of labour is high, the cost of production has also increased.

(iii) Project Rationale

Out of the total geographical area of Tirunelveli district, 12.95 per cent is cultivable area. The shrinkage of cultivable area is moving in the upward direction due to urbanization and industrialization forces. In the case of paddy, the existing average productivity is 3.645 tonnes per ha, whereas the potential average productivity is seven tonnes per ha. The existing yield gap could be effectively reduced by means of popularization of short duration high yielding varieties. To cover an area of 82,000 hectares, nearly 4,100 tonnes of quality seeds are required. But only 700 tonnes of quality certified seeds are distributed by the Department of Agriculture. The availability of quality certified seeds need to be increased and the seeds thus produced must be distributed to the farming community in right time at a subsidized rate. To meet the food requirement for the ever growing population this is the right time to introduce innovative agricultural machineries to increase the productivity and thereby increasing the agricultural production which ultimately leads to boost the national economy. Further the high yielding paddy hybrids can be popularized among the farmers by distributing hybrid seeds to farmers at a subsidized cost.

(iv) Project Strategy

The scheme will be implemented by the Department of Agriculture. The Project period will be 4 years i.e. 2008-2009 to 2011-12.

One time grant to take up certified seed production and distribution will be given to the TANWABE/FIG groups. The seed production techniques will be imparted to the groups by means of training. Seed production incentives will also be given to encourage the seed producers. The quality seeds thus produced might be distributed to the farmers at a subsidized rate.

High yielding hybrid seeds might be distributed among the farmers at a subsidized rate to encourage the farmers to take up the cultivation of hybrid rice. Green manure seeds can be distributed to the farmers at 50% subsidy to encourage farmers to increase the soil organic matter content thereby protecting the soil health. Soil health cards could be distributed to all the farmers so that the farmers could be made aware of the nutrient status of their individual fields.

Systems Rice Intensification could be promoted among the farmers by distribution of markers, cono weeders and other items at a subsidized rate. The use of micro nutrient mixtures and bio fertilizers could be popularized among the farmers by distributing them at a subsidized cost.

As per the Government norms, the farmers will be chosen and the machineries / implements will be supplied at subsidized rates. Training about the operations and maintenance of the machines will be given during this period.

Community thrashing floors could be built to facilitate the farmers to take up harvesting and thrashing in an economic manner.

(v) Project Goals

- Economic upliftment of the farming community.
- To attain minimum of 4% of economic growth in agriculture by improving the economic status of the rural farming community.
- To reduce the use of inorganic fertilizers and pesticides and to promote organic farming.
- Economic upliftment of the farming community leads to improve the social status of the poor farmers.
- To make available quality certified seeds of high yielding varieties
- To popularize the habit of cultivating hybrid paddy.
- To improve the soil organic matter content and to conserve the soil health status.

- To promote integrated nutrient management and integrated pest management.
- To promote SRI among the farmers.
- To improve the standard of living of the farmers.
- To revitalize all agricultural operations by introducing the innovative machineries and implements to increase the agricultural productivity and production.
- To develop agricultural based industries and to develop additional employment opportunities to the rural farming community so as to improve their earning capacity and
- The time saved by the agricultural mechanisation can be utilized for allied agricultural activities which would lead to generate additional income to the farmers.

(vi) Project Components

The details are furnished in Table 39.

(vii) Project Cost and Financing

The cost of project is Rs. 982.40Lakhs. The project is to be funded by the Government of India under NADP.

(viii) Implementation of the Project

The Project will be implemented during 2008-2009 to 2011-2012. Year wise implementation of the program is furnished in Table 39. The project will be implemented by the Department of Agriculture

(ix) Reporting

Periodical interim reports regarding the target achieved, no. of farmers benefited and area covered will be submitted which would enable to take up mid term corrections as and when required. The completion report will be sent after the completion of the project period.

1. Paddy

Table 39. Project Proposal for Paddy

(Rs. in lakhs)

S. No	Component	Unit	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
1	One time grant to TANWABE / FIG to take certified seed production and distribution @ Rs.50000/- per group for 23 disricts (30 tonnes / Annum)	Nos.	5	2.500	0	0	0	0	0	0	5	2.500
2	Incentive for seed production to Self Help Groups @ Rs.3 / kg. - TABWAVE Groups	Tonnes	150	4.500	150	4.500	150	4.500	150	4.500	600	18.000
3	Seed distribution subsidy for the seeds produced by Self Help Groups @ Rs.5 / kg.	Tonnes	150	7.500	150	7.500	150	7.500	150	7.500	600	30.000
4	Supply of Quality Certified seeds at nominal cost to enhance the SRR @ Rs.5/- per kg. (Public and Private seeds)	Tonnes	650	32.500	670	33.5	690	34.5	700	35	2710	135.500

Table 39 Contd…. **(Rs. in lakhs)**

S. No	Component	Unit	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
5	Seed Minikit of new HYV @ Rs.100/- minikit	Nos.	200	0.200	200	0.200	200	0.200	200	0.200	800	0.800
6	Hybrid Rice seed distribution subsidy - 75% cost or Rs.100/- whichever is less	Qtl.	10	1.000	20	2.000	30	3.000	30	3.000	90	9.000
7	Distribution of Green Manure seeds at 75% subsidy of Rs.20/kg.	Tonnes	100	20.000	100	20.000	125	25.000	125	25.000	450	90.000
8	Distribution of Soil Health Card @ Rs.100/- per card (Soil + Water testing)	Nos.	4500	4.500	4500	4.500	4500	4.500	4500	4.500	18000	18.000
9	Assistance to start vermicompost production unit @ Rs.10000 per unit (Self Help Group women farmers)	Nos.	20	2.000	20	2.000	20	2.000	20	2.000	80	8.000
10	Distribution of Micro Nutrient Mixture @ Rs.500 / Ha.or 50% subsidy	L.Ha.	0.01	5.000	0.02	10.000	0.04	20.000	0.05	25.000	0.12	60.000

Table 39 Contd…. **(Rs. in lakhs)**

S. No	Component	Unit	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
11	Gypsum 500 kg/ ha @ Rs.500/Ha. or 50% subsidy	L.Ha.	0	0.000	0	0.000	0	0.000	0	0.000	0.000	0.000
12	Farmers Field School @17000/ No.	No	20	3.400	20	3.400	20	3.400	20	3.400	80	13.600
13	Massive Rat control campaign in village @ Rs.5000/village	Nos	100	5.000	100	5.000	100	5.000	100	5.000	400	20.000
14	Publicity & Training @ Rs.50000/- per district	Nos	1	0.500	1	0.500	1	0.500	1	0.500	4	2.000
15	Promotion of SRI Distribution of Marker, Conoweeder and other items @ Rs.3000 / Ha.	Ha	500	15.000	500	15.000	500	15.000	500	15.000	2000	60.000
16	Transplanter to TANWABE / FIG / farmers @ Rs.75000 each or 50% subsidy	Nos	5	3.750	5	3.750	5	3.750	5	3.750	20	15.000
17	Power Tiller @ Rs.65000/- each or 50% subsidy	Nos	25	16.250	25	16.250	25	16.250	25	16.250	100	65.000
18	Power Thrasher @ Rs.50000/- per No.or 50% subsidy	Nos	2	1.000	2	1.000	2	1.000	2	1.000	8	4.000

Table 39 Contd…. **(Rs. in lakhs)**

S. No	Component	Unit	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
19	Demonstration on SRI / Hybrid Rice Rs.3000/demo (to be organised in cluster of 10 Ha.)	Nos	200	6.000	300	9.000	400	12.000	400	12.000	1300	39.000
20	Tarpaulin @ Rs.5000/- Nos. or 50% subsidy	Nos	850	42.50	850	42.50	850	42.50	850	42.50	3400	170.000
21	Biofertiliser @ 50% subsidy @ Rs.3 per No.	L.Nos	1.5	4.500	1.5	4.500	1.5	4.500	1.5	4.500	6	18.000
22	Publicity / POL & Hiring of Vehicle @ Rs.50000/- per district	Nos	1	0.500	1	0.500	1	0.500	1	0.500	4	2.000
23	Community Thrashing floor @ Rs.2 lakhs/- per No. (20'x20')	Nos	20	40.000	20	40.000	20	40.000	20	40.000	80	160.000
24	Zinc Sulphate Distribution @75% ; Subsidy Rs.3000/ tonnes	Tonnes	200	6	300	9	400	12	500	15	1400	42
	Total Rice			**224.1**		**234.6**		**257.6**		**266.1**		**982.400**

2. Maize and Other Millets

In Tirunelveli district, the scheme for increasing the productivity of maize and other millets and to increase the soil organic matter content and integrated nutrient and pest management in subsidized rates will be implemented by Department of Agriculture during the project period from 2008-2009 to 2011-2012 to distribute the subsidy to the tune of Rs 69.75 Lakhs.

(i) Budget

The budget required for the implementation of the scheme is Rs.69.75 Lakhs for a period of four years. The funds will be provided to the state Government by the Government of India from the financial year 2008-2009 onwards for a period of four years.

(ii) Background

Tirunelveli District is an agriculture oriented district. Agriculture plays a vital role in the districts' economy. Out of the total geographical area of 6,82,308 hectares, the cultivable area is 1,98,422 hectares. Maize is cultivated to an extent of 8,000 hectares out of which nearly 7,000 hectares are cultivated as rainfed crop. Cholam is cultivated in an area of 2,000 hectares, cumbu is being cultivated in an area of 600 hectares and ragi in an area of 400 hectares. Nearly 5 tonnes of high yielding varieties of maize seeds and 15 tonnes of high yielding cumbu varieties are being distributed by the Department of Agriculture.

(iii) Project Rationale

Out of the total geographical area of Tirunelveli district, 12.95 per cent is cultivable area. The shrinkage of cultivable area is moving in the upward direction due to urbanization and industrialization and it forces to meet the requirement from the low fertile land. In the case of millets, the existing average productivity is 4.5 tonnes per ha, whereas the potential average productivity is seven tonnes per ha. The existing yield gap could be effectively reduced by means of popularization of short duration high yielding

varieties. The availability of quality certified seeds need to be increased and the seeds thus produced must be distributed to the farming community in right time at a subsidized rate. To meet the food requirement for the ever growing population, this is the right time to introduce innovative agricultural machineries for increasing the productivity and thereby increasing the agricultural production which ultimately leads to boost the national economy. Further, the high yielding millet hybrids can be popularized among the farmers by distributing hybrid seeds to farmers at a subsidized cost.

(iv) Project Strategy

The scheme will be implemented by the Department of Agriculture. The Project period will be four years i.e. 2008-2009 to 2011-12.

Quality seeds are the foremost and important requirement for a bumper production. Distribution of the quality certified seeds of high yielding varieties to the farming community help in increasing the productivity. Latest Technologies and recent advancements in the cultivation of millets could be demonstrated at the farmers' fields for higher rate of adoption. Biofertilizers could be distributed among the farmers at a subsidized rate to promote the usage of bio fertilizers.

Hybrid maize seeds are mostly preferred by farmers for cultivation. Quality hybrid maize seeds might be distributed to the farmers at a subsidized rate thereby promoting the usage of hybrid seeds and also increasing the productivity. As millets are mostly cultivated as rainfed crop and the availability of timely labour is always being a problem, weedicide could be distributed to farmers at a subsidized rate.

Community thrashing floors could be built to facilitate the farmers to take up harvesting and thrashing in an economic manner.

(v) Project Goals

- Economic upliftment of the farming community.
- To attain minimum of 4% of economic growth in agriculture by improving the economic status of the rural farming community.
- To reduce the use of inorganic fertilizers and pesticides and to promote organic farming.
- Economic upliftment of the farming community leads to improvement of the social status of the poor farmers.
- To make available quality certified seeds of high yielding varieties
- To popularize the habit of cultivating hybrid maize.
- To improve the soil organic matter content and to conserve the soil health status.
- To promote integrated nutrient management and integrated pest management.
- To improve the standard of living of the farmers.
- To revitalize all agricultural operations by introducing the innovative machineries and implements to increase the agricultural productivity and production and
- The time saved by the agricultural mechanisation can be utilized for allied agricultural activities which would lead to generate additional income to the farmers.

(vi) Project Components

The details are furnished in Table 40.

(vii) Project Cost and Financing

The cost of project is Rs. 69.75 Lakhs. The project is to be funded by the Government of India under NADP.

(viii) Implementation Chart of the Project

The Project will be implemented from 2008-2009 to 2011-2012. Year wise implementation of the program is enclosed in Table 40. The project will be implemented by the Department of Agriculture.

(ix) Reporting

Periodical interim reports regarding the target achieved, no. of farmers benefited and area covered will be submitted which would enable to take up mid term corrections as and when required. The completion report will be sent after the completion of the project period.

2. Maize and Other Millets

Table 40. Project Proposal for Maize and Other Millets

(Rs. in lakhs)

S.No	Component	Unit	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
I	**MILLETS**											
1	HYV Seed distribution @50% Subsidy limited to Rs.8/Kg	Tonnes	5	0.400	5	0.400	5	0.400	5	0.400	20	1.600
2	Technology Demonstration including minor millets Subsidy @ Rs.2000/Ha	Ha.	10	0.200	10	0.200	10	0.200	10	0.200	40	0.800
3	Distribution of Bio fertilizer @ 50% subsidy limited to Rs.3/pocket	L.No	0.3	0.900	0.3	0.900	0.3	0.900	0.3	0.900	1.2	3.600
4	Distribution of Tarpaulin @ 50% subsidy limited to Rs.5000/No	No.	50	2.500	50	2.500	50	2.500	50	2.500	200	10.000
	Total			**4**		**4**		**4**		**4**		**16**
II	**MAIZE (Irrigated)**											
1	Hybrid seed distribution @50% subsidy limited to Rs.75/Kg	Tonnes	7	5.25	7	5.25	7	5.25	7	5.25	28.00	21.00
2	**MAIZE (Rainfed)**	Tonnes										
a)	Farmers preferred Hybrid seed distribution @50% subsidy limited to Rs.75/Kg	Tonnes	7	5.25	10	7.50	10	7.50	10	7.50	37	27.75
b)	Farmers' preferred Maize weedicide @50% subsidy limited to Rs.250/lit/kg	lit or kg	500	1.25	500	1.25	500	1.25	500	1.25	2000	5
	Total			**11.75**		**14**		**14**		**14**		**53.75**
	Grand Total			**15.75**		**18**		**18**		**18**		**69.75**

3. Pulses

Quality seed is essential and foremost requirement for a bumper yield. Quality seeds are to be produced in a large quantity and are to be distributed to the farming community at a subsidized rate to increase the productivity of the district as a whole.

In Tirunelveli district, the scheme for increasing the productivity of pulses will be implemented by Department of Agriculture during the project period of 2008-2009 to 2011-2012 by distributing the subsidy to the tune of Rs 292.643 Lakhs to increase the soil organic matter content and to promote integrated nutrient and pest management.

(i) Budget

The budget required for the implementation of the scheme is Rs.292.643 Lakhs for a period of four years. The funds will be provided to the state Government by the Government of India from the financial year 2008-2009 onwards for a period of four years.

(ii) Background

Tirunelveli District is an Agriculture oriented district. Agriculture plays a vital role in the districts' economy. Out of the total geographical area of 6,82,308 hectares, the cultivable area is 1,98,422 hectares. Pulses are cultivated to an extent of 32,000 hectares out of which nearly 30,500 hectares are cultivated as rainfed crop. Nearly 75 tonnes of high yielding varieties of pulses seeds are procured, are distributed among the farmers at a subsidized rate by the Department of Agriculture.

(iii) Project Rationale

Out of the total geographical area of Tirunelveli district, 12.95 per cent is cultivable area. The shrinkage of cultivable area is moving in the upward direction due to urbanization and industrialization and it forces to meet the requirement from the low fertile land. In the case of millets, the existing average productivity is 750 Kgs per ha, whereas the potential average productivity is two tonnes per ha. The existing yield gap could be effectively reduced by means of popularization of short duration high yielding varieties. The availability of quality certified seeds need to be increased and the seeds

thus produced must be distributed to the farming community in right time at a subsidized rate. To meet the food requirement for the ever growing population, this is the right time to introduce innovative agricultural machineries to increase the productivity thereby increasing the agricultural production which would ultimately lead to boost the national economy.

(iv) Project Strategy

The scheme will be implemented by the Department of Agriculture. The Project period will be four years i.e. 2008-2009 to 2011-12.

Quality seeds are the foremost and important requirement for a bumper production. Distribution of the quality certified seeds of high yielding varieties to the farming community help in increasing the productivity. To motivate the farmers to take up quality seed production, incentives might be given for seed production also. Latest technologies and recent advancements in the cultivation of pulses could be demonstrated to the farmers for higher rate of adoption. Biofertilizers could be distributed among the farmers at a subsidized rate to promote the usage of bio fertilizers.

As majority of pulses is being cultivated as rainfed crop, pipes carrying water from source of irrigation to field might be distributed to the farmers at a subsidized rate for reducing the percolation, seepage and evapo transpiration losses.

Precision farming using sprinklers could be promoted among the farmers in the rain- fed areas by distribution of sprinkler units at a subsidized rate.

As pulses are mostly cultivated as rainfed crop and the availability of timely labour is always being a problem, weedicide could be distributed to farmers at a subsidized rate. The practice of integrated nutrient management and integrated pest management might be promoted among the farmers by subsidizing the inputs.

Recent advancements in the cultivation of pulses could be taken to farmers by imparting training to the farmers.

(v) Project Goals

- Economic upliftment of the farming community.
- To attain minimum of 4% of economic growth in agriculture by improving the economic status of the rural farming community.
- To reduce the use of inorganic fertilizers and pesticides and to promote organic farming.
- Economic upliftment of the farming community leads to improve the social status of the poor farmers.
- To make available quality certified seeds of high yielding varieties
- To popularize the habit of cultivating hybrid maize.
- To improve the soil organic matter content and to conserve the soil health status.
- To promote integrated nutrient management and integrated pest management.
- To improve the standard of living of the farmers.
- To revitalize all agricultural operations by introducing the innovative machineries and implements to increase the agricultural productivity and production and
- The time saved by the agricultural mechanisation can be utilized for allied agricultural activities which may lead to generate additional income to the farmers.

(vi) Project Components

The details are furnished are furnished in Table 41.

(vii) Project Cost and Financing

The cost of project is Rs. 268.40 lakhs. The project is to be funded by the Government of India under NADP.

(viii) Implementation Chart of the Project

The Project will be implemented from 2008-2009 to 2011-2012. Year wise implementation of the program is enclosed in Table 41. The project will be implemented by the Department of Agriculture.

(ix) Reporting

Periodical interim reports regarding the target achieved, no. of farmers benefited, and area covered will be submitted which would enable to take up mid term corrections as and when required. The completion report will be sent after the completion of the project period.

3. Pulses

Table 41. Project Proposal for Pulses

(Rs. in lakhs)

S.No	Component	Unit	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
1	Seed production Subsidy @ Rs.10/Kg	Tonnes	60	6.000	70	7.000	70	7.000	70	7.000	270	27.00
2	Seed Distribution Subsidy @ Rs.12/Kg through Dept./Private/TANWABE and FIG	Tonnes	60	7.200	70	8.400	70	8.400	70	8.400	270	32.40
3	Pipes carrying water from source to field @50% subsidy limited to Rs15000/- max of 800mts.	Nos.	40	6.000	60	9.000	80	12.000	100	15.000	280	42.00
4	Precision farming by sprinkler @ 90%subsidy limited to Rs15000/ha	Ha.	10	1.500	10	1.500	10	1.500	10	1.500	40	6.000
5	Distribution of Bio fertlizer @50% subsidy Rs.3/No.	L.No	0.75	2.250	0.75	2.250	0.75	2.250	0.75	2.250	3	9.000
6	Foliar Nutrient application subsidy @50% cost limited to Rs.200/Ha	Ha.	4000	8.000							4000	8.000
7	Farmers Training 50farmers for 2 days / Rs.15000/ Training	No.	15	2.250	15	2.250	15	2.250	15	2.250	68	9.000
8	Integrated Nutrient Management (INM) @ Rs.1250/Ha.	L.Ha.	0.02	25.00	0.02	25.00	0.02	25.00	0.02	25.00	0.08	100.000
9	Integrated Pest Management (INM) @ Rs.750/Ha.	L.Ha.	0.01	7.50	0.01	7.50	0.01	7.50	0.01	7.50	0.04	30.000
10	Farmers' preferred Weedicide distribution @50% subsidy; Rs.250/Lit or Kg.	Lit or Kg	500	1.25	500	1.25	500	1.25	500	1.25	2000	5.000
Total				**66.95**		**64.15**		**67.15**		**70.15**		**268.400**

4. Oilseeds

Quality seed is essential and foremost requirement for a bumper yield. Quality seeds are to be produced in a large quantity and are to be distributed to the farming community at a subsidized rate to increase the productivity of the district as a whole.

In Tirunelveli district, the scheme will be implemented by Department of Agriculture during the project period of 2008-2009 to 2011-2012 by distributing the subsidy to the tune of Rs 343.836 Lakhs for increasing the productivity of oilseeds and to increase the soil organic matter content and to promote integrated nutrient and pest management.

(i) Budget

The budget required for the implementation of the scheme is Rs.343.836 Lakhs for a period of five years. The funds will be provided to the state Government by the Government of India from the financial year 2008-2009 onwards for a period of four years.

(ii) Background

Tirunelveli District is an Agriculture oriented district. Agriculture plays a vital role in the districts' economy. Out of the total geographical area of 6,82,308 hectares, the cultivable area is 1,98,422 hectares. Oilseeds are being cultivated to an extent of 10,000 hectares, out of which nearly 6,100 hectares are cultivated as rainfed crop. Groundnut is the principal oil seed crop cultivated in Tirunelveli district at an area of 5,000 hectare. Gingelly is being cultivated in an area of 3,000 hectares, purely as rainfed crop. The area under sunflower is increasing continuously and within last year, sunflower is cultivated at an area for 1,900 hectares. Nearly 62 tonnes of high yielding varieties of oilseeds are procured and 60 tonnes of high yielding oilseeds are distributed among the farmers at a subsidized rate by the Department of Agriculture.

(iii) Project Rationale

Out of the total geographical area of Tirunelveli district, 12.95 per cent is cultivable area. The shrinkage of cultivable area is moving in the upward direction due to urbanization and industrialization and it forces to meet the requirement from the low fertile land. The existing yield gap in oilseeds could be effectively reduced by means of popularization of short duration high yielding varieties. The availability of quality certified seeds need to be increased and the seeds thus produced must be distributed to the farming community in right time at a subsidized rate. To meet the food requirement for the ever growing population, this is the right time to introduce innovative agricultural machineries to increase the productivity and thereby increasing the agricultural production which ultimately would lead to boost the national economy.

(iv) Project Strategy

The scheme will be implemented by the Department of Agriculture. The Project period will be 4 years i.e. from 2008-2009 to 2011-12.

Quality seeds are the foremost and important requirement for a bumper production. Distribution of the quality certified seeds of high yielding varieties to the farming community at a subsidized price would help in increasing the productivity. To motivate the farmers to take up quality seed production, incentives might be given for seed production also. Latest technologies and recent advancements in the cultivation of oilseeds could be demonstrated to the farmers for higher rate of adoption. Biofertilizers could be distributed among the farmers at a subsidized rate to promote the usage of bio fertilizers.

As majority of oilseeds are being cultivated as rainfed crop, pipes carrying water from source of irrigation to field might be distributed to the farmers at a subsidized rate there by reducing the percolation, seepage and evapo transpiration losses.

Application of gypsum is one of the most important cultivation practices that are to be followed to get the optimal yield. To encourage the farmers to take up gypsum application, gypsum might be distributed to the farmers at a subsidized rate. Further micro nutrient deficiencies in the oilseeds could be rectified by timely application of crop specific micro nutrient mixtures which are to be distributed at subsidized price.

To educate the farmers regarding the integrated pest management and integrated nutrient management, farmers' field school could be organized and the farmers have to be trained at field level in the identification of important pest, diseases and natural enemies and the farmers could be educated regarding the Economic Threshold Level (ETL).

Rural godowns and marketing centers could be constructed to facilitate the farmers to stock and distribute seeds and other inputs.

The farmers are cultivating hybrid sunflowers predominantly. Hybrid sunflower seeds might be distributed to the farmers at a subsidized rate so that the productivity of sunflower can be increased and at the same time the farmers could be prevented from using the bogus sunflower seeds.

Precision farming using sprinklers could be promoted among the farmers in the rain fed areas by distribution of sprinkler units at a subsidized rate.

As oilseeds are mostly cultivated as rainfed crop and the availability of timely labour is always being a problem, weedicide could be distributed to the farmers at a subsidized rate. The practice of integrated nutrient management and integrated pest management might be promoted among the farmers by subsidizing the inputs.

Recent advancements in the cultivation of oilseeds could be taken to farmers by imparting training to the farmers.

(v) Project Goals

- Economic upliftment of the farming community.
- To attain minimum of 4 per cent of economic growth in agriculture by improving the economic status of the rural farming community.
- To reduce the use of inorganic fertilizers and pesticides and to promote organic farming.
- Economic upliftment of the farming community leads to improve the social status of the poor farmers.
- To make available quality certified seeds of high yielding varieties
- To popularize the habit of cultivating hybrid groundnut and sunflower.
- To improve the soil organic matter content and to conserve the soil health status.
- To promote integrated nutrient management and integrated pest management.
- To improve the standard of living of the farmers.
- To revitalize all agricultural operations by introducing the innovative machineries and implements to increase the agricultural productivity and production and
- The time saved by the agricultural mechanisation can be utilized for allied agricultural activities which would lead to generate additional income to the farmers.

(vi) Project Components

The details are furnished in Table 42.

(vii) Project Cost and Financing

The cost of project is Rs. 343.836 lakhs. The project is to be funded by the Government of India under NADP.

(viii) Implementation of the Project

The Project will be implemented from 2008-2009 to 2011-2012. Year wise implementation of the program is enclosed in Table 42. The project will be implemented by the Department of Agriculture

(ix) Reporting

Periodical interim reports regarding the target achieved, no. of farmers benefited and area covered will be submitted to take up mid term corrections as and when required. The completion report will be sent after the completion of the project period.

4. Oilseeds

Table 42. Project Proposal for Oilseeds

(Rs. in lakhs)

S.No	Component	Unit	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
a)	**GROUNDNUT -Irrigated**											
1	Purchase and distribution of Breeder seeds @ Rs.50/Kg.	Tonnes.	0.75	0.375	0.75	0.375	0.75	0.375	0.75	0.375	3	1.50
2	Seed Production subsidy @ Rs.10/Kg.	Tonnes	110	11.000	110	11.000	110	11.000	110	11.000	440	44.00
3	Seed Distribution subsidy @ 50% limited to Rs.12/Kg.	Tonnes	50	6.000	50	6.000	50	6.000	50	6.000	200	24.00
4	Pipes carrying water from source to field @ Rs.15000/- per Ha. Or 50% subsidy limitted to Rs.15000/	Nos.	100	15.000	100	15.000	100	15.000	100	15.000	400	60.00
5	Bio-fertiliser distribution @ Rs.3/Nos.	L. Nos.	0.5	1.500	0.5	1.500	0.5	1.500	0.5	1.500	2	6.00
6	Distribution of Gypsum subsidy @ 50% cost + TC limited to Rs.750/Ha.	Ha.	750	5.625	750	5.625	750	5.625	750	5.625	3000	22.50

Table 42 Contd… **(Rs. in lakhs)**

S.No	Component	Unit	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
7	MN Mixture distribution @ 50% cost limited to Rs.500/Ha.	Ha.	150	0.750	150	0.750	150	0.750	150	0.750	600	3.00
8	Farmers field school @ Rs.22680/No.	Nos.	5	1.134	5	1.134	5	1.134	5	1.134	20	4.536
9	Taurpaulins Subsidy @Rs.5000/No. or 50%	Nos.	50	2.500	50	2.500	50	2.500	50	2.500	200	10.00
10	Farmers Training @ Rs.20000/Training 2 days for 50 farmers	Nos.	15	3.000	15	3.000	15	3.000	15	3.000	60	12.00
11	Publicity /POL/Hiring of Vehicle @ Rs.100000/year/ District	Lum psum	0	1.00	0	1.00	0	1.000	0	1.000	0	4.000
13	Construction of Rural godowns and Marketing Centre to stock and distribute seeds and other inputs for TANWABE/FIG @ Rs.10 Lakhs/each	Nos.	10	100.000	0	0	0	0	0	0	10	100.000

Table 42 Contd… **(Rs. in lakhs)**

S.No	Component	Unit	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
14	Seed Village Scheme- Seed distribution @ 50% cost limited to Rs.20/Kg.	Tonnes	16	3.200	16	3.200	16	3.200	16	3.200	64	12.800
	Total Groundnut (Irrigated)			**151.084**		**51.084**		**51.084**		**51.084**		**304.336**
b)	**Groundnut (Rainfed)**											
1	Seed Distribution subsidy @ 50% limited to Rs.12/Kg.	Tonnes	14	1.680	14	1.680	14	1.680	14	1.680	56	6.720
2	Distribution of Gypsum subsidy @ 50% cost + TC limited to Rs.750/Ha.	Ha.	70	0.525	70	0.525	70	0.525	70	0.525	280	2.100
3	MN Mixture distribution @ 50% cost limited to Rs.500/Ha.	Ha.	70	0.350	70	0.350	70	0.350	70	0.350	280	1.400
	Total Groundnut (Rainfed)			**2.555**		**2.555**		**2.555**		**2.555**		**10.220**

Table 42 Contd… **(Rs. in lakhs)**

S.No	Component	Unit	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
2)	**GINGELLY**											
1	Seed Production subsidy @ Rs.10/Kg.	Tonnes	2	0.200	2	0.200	2	0.200	2	0.200	8	0.800
2	Seed Distribution subsidy @ 50% limited to Rs.12/Kg.	Tonnes	2	0.240	2	0.240	2	0.240	2	0.240	8	0.96
3	MN SO4 distribution @ 50% cost limited to Rs.100/Ha.	Ha.	300	0.300	300	0.300	300	0.300	300	0.300	1200	1.200
	Total Gingelly			**0.74**		**0.74**		**0.74**		**0.74**		**2.960**
3)	**SUNFLOWER**											
1	Hybrid seed distribution @ 50% subsidy limited to Rs.150/Kg.	Tonnes	4	6.000	4	6.000	4	6.000	4	6.000	16	24.000
2	Crop production technology demonstration @ 50% subsidy limited to Rs.5000/ha.	Nos.	10	0.500	10	0.500	10	0.500	10	0.500	40	2.000
3	Hybrid Seed Minikit @ free of cost 1 Kg kit (Rs.400/Kit)	Nos.	20	0.08	20	0.08	20	0.08	20	0.080	80	0.320
	Total			**6.58**		**6.58**		**6.58**		**6.58**		**26.32**
	Total Oilseeds			**160.959**		**60.959**		**60.959**		**60.959**		**343.836**

5. Cotton

Quality seed is essential and foremost requirement for a bumper yield. Quality seeds are to be produced in a large quantity and are to be distributed to the farming community at a subsidized rate to increase the productivity of the district as a whole.

In Tirunelveli district, the scheme for increasing the productivity of cotton and to increase the soil organic matter content and to promote integrated nutrient and pest management in subsidized rates will be implemented by Department of Agriculture during the project period of 2008-2009 to 2011-2012 by distributing the subsidy to the tune of Rs 69.10Lakhs.

(i) Budget

The budget required for the implementation of the scheme is Rs.69.10 Lakhs for a period of four years. The funds will be provided to the state Government by the Government of India from the financial year 2008-2009 onwards for a period of four years.

(ii) Background

Tirunelveli District is an Agriculture oriented district. Agriculture plays a vital role in the districts' economy. Out of the total geographical area of 6,82,308 hectares, the cultivable area is 1,98,422 hectares. Cotton is being cultivated in an extent of 7,000 hectares, out of which nearly 2,000 hectares are cultivated as rainfed crop. Nearly 19 tonnes of high yielding varieties of cotton seeds are procured and 12 tonnes of quality seeds of high yielding cotton varieties are distributed among the farmers at a subsidized rate by the Department of Agriculture.

(iii) Project Rationale

Out of the total geographical area of Tirunelveli district, 12.95 per cent is cultivable area. The shrinkage of cultivable area is moving in the upward direction due to urbanization and industrialization and it forces to meet the requirement from the low

fertile land. The existing yield gap in cotton could be effectively reduced by means of popularization of high yielding varieties and popularizing Bt hybrids. The availability of quality certified seeds need to be increased and the seeds thus produced must be distributed to the farming community in right time at a subsidized rate.

(iv) Project Strategy

The scheme will be implemented by the Department of Agriculture. The Project period will be four years i.e. 2008-2009 to 2011-12.

Quality seeds are the foremost and important requirement for a bumper production. Distribution of the quality certified seeds of high yielding varieties to the farming community at a subsidized price help in increasing the productivity. To motivate the farmers to take up quality seed production, incentives might be given for seed production also. Latest technologies and recent advancements in the cultivation of cotton could be demonstrated to the farmers for higher rate of adoption. Biofertilizers could be distributed among the farmers at a subsidized rate to promote the usage of bio fertilizers.

Further micro nutrient deficiencies in the cotton could be rectified by timely application of micro nutrient mixtures which are to be distributed at subsidized price.

To educate the farmers regarding the integrated pest management and integrated nutrient management, farmers field school could be organized and the farmers are trained at field level in the identification of important pest, diseases and natural enemies and the farmers could be educated regarding the Economic Threshold Level (ETL).

Precision farming using sprinklers and drips could be promoted among the farmers in the rain fed areas by distribution of sprinkler units at a subsidized rate in compact blocks by means of cluster approach.

(v) Project Goals

- Economic upliftment of the farming community.
- To attain minimum of 4 per cent of economic growth in agriculture by improving the economic status of the rural farming community.
- To reduce the use of inorganic fertilizers and pesticides and to promote organic farming.
- Economic upliftment of the farming community leads to improve the social status of the poor farmers.
- To make available quality certified seeds of high yielding varieties
- To improve the soil organic matter content and to conserve the soil health status.
- To promote integrated nutrient management and integrated pest management.
- To improve the standard of living of the farmers.
- To revitalize all agricultural operations by introducing the innovative machineries and implements to increase the agricultural productivity and production and
- The time saved by the agricultural mechanisation can be utilized for allied agricultural activities which would lead to generate additional income to the farmers.

(vi) Project Components

The details are furnished in Table 43.

(vii) Project Cost and Financing

The cost of project is Rs. 69.10 lakhs. The project is to be funded by the Government of India under NADP.

(viii) Implementation of the Project

The Project will be implemented from 2008-2009 to 2011-2012. Year wise implementation of the program is furnished in Table 43. The project will be implemented by the Department of Agriculture.

(ix) Reporting

Periodical interim reports regarding the target achieved, no. of farmers benefited and area covered will be submitted which would enable to take up mid term corrections as and when required. The completion report will be sent after the completion of the project period.

5. Cotton

Table 43. Project Proposal for Cotton

(Rs. in lakhs)

S.No	Component	Unit	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
a)	**COTTON-Irrigated**											
1	Precision farming compact block demonstration 10 Ha cluster 90% subsidy limited to Rs.6.0lakh/cluster	Nos.	2	12.000	2	12.000	2	12.000	2	12.000	8	48.000
2	Seed distribution subsidy for Bt. Cotton @ 50% limited to Rs.375/pocket of 450 gram	L.No	0.005	1.875	0.005	1.875	0.005	1.875	0.005	1.875	0.02	7.500
3	FFS to TANWABE/ FIG Rs.17000/ FFS	No.	10	1.700	10	1.700	10	1.700	10	1.700	40	6.800
4	Distribution of MN Mixture @ 50% subsidy limited to Rs.500/ha	Ha.	100	0.500	100	0.500	100	0.500	100	0.500	400	2.000
b)	**Cotton (Rainfed)**											
	Seed distribution subsidy @ Rs.20/Kg	Qtl.	60	1.200	60	1.200	60	1.200	60	1.200	240	4.800
Total Cotton				**17.275**		**17.275**		**17.275**		**17.275**		**69.100**

6.Upgradation of the traditional printing press at the Office of the Joint Director of Agriculture, Tirunelveli into an offset press.

A printing press is functioning at the Office of the Joint Director of Agriculture, Tirunelveli, for printing of leaflets, pamphlets, folders and booklets connected with the latest technologies that are to be popularized among the Farming Community. The publicity materials printed at this press are useful in disseminating the latest technological breakthroughs, control measures that are to be followed in case of pest and disease outbreaks, sale price of fertilizers and other inputs to the farmers.

The existing printing press was installed during 1984 and the main machinery, being the Indo Europa Treadle Machine is one of the oldest model among treadle machines. The treadle machine undergoes frequent breakdowns and involves a considerable finance to repair. The fonts that are to be used with the machine were very few. The fonts when worn out could not be replaced because of their unavailability in the market. Further hand composing big project works with the available limited number of fonts is not possible. Further composing of book works is not possible with the existing machinery.

(i) Project Strategy

A latest offset machine could be installed in the press. The existing treadle machine and fonts could be auctioned by following the Government procedures. The machines relating to binding could be retained for further use.

At present the printing press performs the publicity work of Office of the Joint Director of Agriculture, Tirunelveli alone. The Assistant Directors of Agriculture are performing their publicity work and printing the technical materials for farmers training and village campaigns with the aid of private printers

On installing an offset machine, it is possible to cater the publicity and printing needs of the entire Tirunelveli District. The adjoining Virudhunagar and Thoothukudi Districts does not have their printing press and they depend entirely on private presses for their publicity and printing needs. The offset press, on installation, is also capable of serving the printing needs of Thoothukudi and Virudhunagar Districts. The project components and costs are furnished in Table 44.

Table 44. Project Proposal for Up-gradation of Traditional Printing Press

(Rs. in lakhs)

Sl.No.	Components	Cost
1)	P.IV. Computer	0.40
2)	Original Tamil DTP fonts	0.08
3)	Laser printer (A3 size)	0.40
4)	Scanner	0.10
5)	Double polymer offset	5.50
6)	Heating machine and stabilizer	0.15
7)	Installation charges	0.10
	Total	**6.73**

By installation of an offset press, the existing machineries at the press and the staff available could be utilized to the maximum possible extent. Further, the quality and quantum of publicity materials printed using this offset press will be the best.

7. Strengthening of State Seed Farm, Karaiyiruppu and Seed Processing Units in Ambasamudram and Tenkasi

The State Seed Farm, Karaiyiruppu is functioning for the past 48 years. Breeder seeds received from various Research Stations of Tamil Nadu Agricultural University are multiplied here for producing good quality foundation Seeds. The foundation seeds are supplied to the seed farm growers, through Agricultural Extension Centres in Tirunelveli

District and other needy districts who in turn supply the certified seeds to the Department. The Certified Seeds thus procured by the Department of Agriculture is used for distribution among the paddy growers of Tirunelveli district through 50 Agricultural Extension Centres located in 19 blocks.

The seeds procured from paddy seed farm growers by the Department of Agriculture are processed in the seed processing units at Karaiyiruppu, Ambasamudram and Tenkasi.

Name of the State Seed farm	:	State seed farm, Karaiyiruppu.
District	:	Tirunelveli
Normal paddy area of the district	:	85,000 hectare
17 % Normal paddy area of the district	:	14,450 hectare
C. Seed requirement	:	725 tonnes
F Seed requirement	:	14.5 tonnes
F Seed area to be raised	:	14.5 Ac.

(i) Problem Focus

1. Out of the total extent of 83.56 acres, only 35 acres in the State Seed Farm are put into cultivation. The remaining 45 acres of cultivable waste lands were covered by Prosophis and other bushy plants.

2. This farm is located amidst human dwellings in between two villages namely Karaiyiruppu and Kurichikulam. It faces severe problem of cattle as well as human trespassing as there is no permanent fencing structures around the farm. The live and thorn fences formed by incurring considerable expenditure need to be renewed every year, resulting in increased expenditure.

3. Out of the five existing open wells, four of them could not be used. Two of the wells require deepening. The existing two numbers of seed godowns were not sufficient to store the seeds that are received for processing.

4. At present the machineries are hired out from the private bodies and often they are not made available at the time when they are exactly needed.

5. The seed processing units available at Karaiyiruppu is of very old model and require replacement to cope up with the increase in volume of seeds that are being processed at this unit.

(ii) Project Strategy

1. Forty five acres of cultivable waste lands that were covered by Prosophis and other bushy plants could be effectively cultivated if the bushes were cleared. By bringing more area under cultivation, the quality seed requirements of the farming community could be effectively met with, apart from increasing the revenue of the State Seed Farm.

2. As this farm is located amidst human dwellings in between two villages namely Karaiyiruppu and Kurichikulam, the severe problem of Cattle grazing as well as human trespassing could be effectively prevented by provision of barbed wire fencing.

3. Two of the existing five open wells could be deepened. In addition, four numbers of new bore wells with submersible motors could be erected to meet out the expanding irrigation requirement of the farm. The increasing demand for storage space for processed seeds could be met by constructing an additional godown (3000 Sq Ft).

4. One number of power tiller, one paddy transplanter and one number of power thrasher could be purchased to meet out the farm requirements.\

5. The existing drainage channel could be cleared so as to drain the water logging during monsoon seasons.

6. The existing old model seed processing unit could be replaced with a new Agrosaw Delxe SPU and Agro saw precleaner.

7. The Seed processing units at Ambasamudram and Tenkasi could be further strengthened by performing repairing of existing roofs, godown floor, thrashing floor and re electrification.

The details of project components are furnished in Table 45.

Table 45. Project Proposal for Strengthening State Seed Farm

(Rs. in lakhs)

S.No.	Component	Cost
1.	Bush clearing in 45 Acres cultivable waste	4.50
2	Barbed wire fencing 6000 Mt length	9.00
3	Deepening of two open wells	3.00
4	Bore wells 4 Numbers with submersible motors	8.00
5	Construction of additional seed Godown (3000 SqFt)	15.00
6	Power tiller	1.50
7	Power thrasher	1.00
8	Paddy transplanter	1.30
9	Drainage channel cleaning (1200 Mt length)	1.50
10	Agrosaw Deluxe Seed processing unit	4.50
11	Agrosaw pre cleaner machine	1.25
	Total	50.55
Seed processing unit - Ambasamudram		
1	Roofing the existing Asbestos roof, repairing the flooring, electrification and thrashing floor (stone slab)	8.00
Seed processing unit - Tenkasi		
1	Repairing the cracks on the roof, flooring electrification and thrashing floor (stone slab)	6.00
Total Project Proposal Cost		**64.55**

8. Proposal: Repairing the Agricultural Extension Centres

At present there are 50 numbers of Agricultural Extension Centres spread over in 19 blocks caters the needs of the farming community of this district. Consequent upon the restructuring of the Department of Agriculture, the services of Department of Agriculture and the line departments such as Department of Horticulture, Agricultural Engineering, Sericulture and Agricultural Marketing are to be made available to farmers under the single roof. The Agricultural Extension Centres which were previously used by the Agricultural Department alone is now being shared by line Departments also.

At present the Agricultural Extension Centres require minor repair works such as flooring, electrical wiring, sealing roof holes etc. As the farming community as a whole approaches the Agricultural Extension Centres for a comprehensive technical know how, AECs with all the essential facilities will be of more benefit for the Officials and the farming community.

The job of repairing the Agricultural Extension Centres could be entrusted with the Department of Agricultural Engineering and the details of the project components are furnished in Table 46.

Table 46. Project Proposal for Repairing the Agricultural Extension Centres

(Rs. in lakhs)

S. No.	Name of the Main A.E.C	Particulars of repair work	Amount required	Toilet facility	Total amount required
1	Palayamkottai	Cementing the roof, and repair works	0.15	0.75	0.90
2	Vallioor	Roof cementing, flooring, borewell and electric motor	2.75	0.75	3.50
3	Radhapuram	Roof cementing, Fan, borewell and electric motor	2.75	0.75	3.50
4	Cheranmaha devi	Roof cementing, flooring, partitioning, borewell and electric motor	2.00	0.75	2.75
5	Mukkudal	Roof cementing, flooring, partitioning, borewell and electric motor	2.00	0.75	2.75
6	Kadayam	Partitioning, Shelf fascility	1.00	0.75	1.75
7	Kadayanallur	Partitioning, Shelf fascility, Wall repair	1.50	0.75	2.25
8	Pavoor chatiram	Partitioning, Shelf fascility, Wall repair, roof repair	1.50	0.75	2.25
9	Alankulam	Roof cementing, flooring, partitioning, doors and windows replacement	2.50	0.75	3.25
10	Sengottai	Roof cementing, flooring, partitioning, rewiring	1.00	0.75	1.75
11	Vasudeva nallur	Roof cementing, flooring, electrical wiring, doors repair	1.50	0.75	2.25
Total			**18.65**	**8.25**	**26.90**

6.2 Action Plan for the Department of Horticulture

The Action plan with interventions for various crops like vegetables, banana, mango, betel vine, senna etc. of the Dept. of Horticulture is given in Table 47 through Table 54.

6.2.1 Productivity Increase of Horticultural Crops

Scheme for Productivity increase of Horticultural Crops

(i) Budget

The details are enclosed in Table 47.

(ii) Background / Problem Focus

At present lack of support in adoption of complete package of practices leads to loss or reduction in productivity.

(iii) Project Rationale

The horticultural farmers will be strengthened in terms of technical know-how with specific judicial use of inputs, so as to boost the productivity to the maximum level.

(iv) Project Strategy

The farmers will be provided with necessary inputs like plant protection chemicals, and support systems at field level like pandals, propping material etc., at subsidized cost.

(v) Project Goals

Increasing the productivity level to 20 per cent higher.

(vi) Project Components

Details are furnished in Table 47.

(vii) Project Cost and Financing

Details are furnished in Table 47.

(viii) Reporting

Implementing agency will be Horticulture Department and evaluation will also be done at annual basis.

1. Productivity Increase of Horticultural Crops

Table 47. Project Proposal for Productivity Increase of Horticultural Crops

(Rs.in lakhs)

S.No	Component	Unit	2008-09		2009-10		2010-11		2011-12		Total	
			Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
1	Precision Farming (Ha)	Rs.11200	100	5.600	100	5.600	100	5.600	100	5.600	400	22.400
	a.Drip component	Rs.25000	100	12.500	100	12.500	100	12.500	100	12.500	400	50.000
	b.Input cost	Rs.5000	100	2.500	100	2.500	100	2.500	100	2.500	400	10.000
	c.Nursery		5	2.500	5	2.500	5	2.500	5	2.500	20	10.000
	d.Operational cost		0	8.200	0	8.200	0	8.200	0	8.200	0	32.800
Total				**31.300**		**31.300**		**31.300**		**31.300**		**125.200**
2	Package for plant protection (Ha)	Rs.3000/Ha	500	7.500	500	7.500	500	7.500	500	7.500	2000	30.000
3	Cashew high density planting (Ha)	Rs.9000/Ha	25	1.125	25	1.125	25	1.125	25	1.125	100	4.500
4	Banana Corm injector (Nos)	Rs.300/No	500	0.750	500	0.750	500	0.750	500	0.750	2000	3.000
Total				**40.675**		**40.675**		**40.675**		**40.675**		**162.700**

6.2.2 Strengthening Post Harvest Handling

Strengthening post harvest Handling.

(i) Budget

Details are furnished in Table 48.

(ii) Background / Problem Focus

Present scenario of handling of horticultural produces, starting from harvest to consumers is in very crude stage and this lead to 15-20% loss of produce and value.

(iii) Project Rationale

Introduction of post harvest technology at field level and changing the farmers towards wastage free marketing.

(iv) Project Strategy

With a view to minimize the post harvest losses, this scheme will provide necessary inputs like plastic crates for harvest and transport and other equipments at subsidized cost.

(v) Project Goals

This scheme will aim at reducing post harvest losses there by adding good margin for the horticultural produces.

(vi) Project Components

Details are furnished in Table 48.

(vii) Project Cost and Financing

Details are furnished in Table 48.

(viii) Implementation Chart of the Project

This scheme will be implemented through the XI th Five Year Plan period.

(ix) Reporting

Department of Horticulture.

2. Strengthening Post Harvest Handling

Table 48. Project Proposal for Strengthening Post Harvest Handling

(Rs. in lakhs)

S.No	Component	Unit	2008-09		2009-10		2010-11		2011-12		Total	
			Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
1	Plastics crates for Vegetable handling and transport (Nos)	Rs.250/Crate	10000	12.500	10000	12.500	10000	12.500	10000	12.500	40000	50.000
2	Banana Bunch cover (Ha)	Rs.10/piece	100	12.500	100	12.500	100	12.500	100	12.500	400	50.000
3	Mango Harvester (Nos)	Rs.500/No	250	0.625	250	0.625	250	0.625	250	0.625	1000	2.500
Total				**25.625**		**25.625**		**25.625**		**25.625**		**102.500**

6.2.3 Improving the Human Resource Development

Improving the Human Resource Development in the horticultural sector.

(i) Budget

Details are furnished in Table 49.

(ii) Background / Problem Focus

The present status of the Horticultural farmers are very low in terms of technical know how. This resulted in very less usage of technical know at field level even though it is available at lab level. Increasing the technical knowledge of the farmers then and there at the field level will result in the increase in production. The farmers have to be equipped in the line of changing global scenario.

(iii) Project Rationale

Increasing the technical strength of the farmers, so as to meet the rising challenges in crop production.

(iv) Project Strategy

Imparting training to farmers at field level as well as through group visits to other state institutions.

(v) Project Goals

Providing the technical know in advanced cultivation practices to the farmers.

(vi) Project Components

Details are furnished in Table 49.

(vii) Project Cost and Financing

Details are furnished in Table 49.

(viii) Implementation Chart of the Project

Project will be implemented during XI th Five Year Plan.

(ix) Reporting

Department of Horticulture.

3. Improving the Human Resource Development

Table 49. Project Proposal for Improving the Human Resource Development

(Rs. in lakhs)

S.No	Component	Unit	2008-09		2009-10		2010-11		2011-12		Total	
			Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
1	District level Farmers workshop (Farmers)	RS.400/farmer/day	500	2.000	500	2.000	500	2.000	500	2.000	2000	8.000
2	Inter State Exposure visit (5 days) (Farmers)	Rs.5000/farmer	100	5.000	100	5.000	100	5.000	100	5.000	400	20.000
Total				**7.000**		**7.000**		**7.000**		**7.000**		**28.000**

6.2.4 Strengthening of Organic Farming

Introduction and strengthening of Organic Farming in horticultural production.

(i) Budget

Details are furnished in Table 50.

(ii) Background / Problem Focus

Present indiscriminate use of chemical fertilizers and Plant protection chemicals resulted in total damage to soil and environment as a whole. Both producers and consumers are affected. It is time to introduce organic farming at field level.

(iii) Project Rationale

The scheme aims at bringing more area of horticulture crops under Organic fold. The introduction of Organic usage will result in reutilization of soil health besides minimizing the environmental pollution.

(iv) Project Strategy

The scheme will be implemented with full assistance both for Organic inputs and materials related to organic cultivation. The organic cultivation will be given main thrust based on the cluster approach.

(v) Project Goals

Production of residue free horticultural produces besides improving soil health as a whole.

(vi) Project Components

Details are furnished in Table 50.

(vii) Project Cost and Financing

Details are furnished in Table 50.

(viii) Implementation Chart of the Project

This component will be implemented with 100% assistance.

(ix) Reporting

Department of Horticulture.

4. Strengthening of Organic Farming

Table 50. Project Proposal for Strengthening of Organic Farming

(Rs. in lakhs)

S.No	Component	Unit	2008-09		2009-10		2010-11		2011-12		Total	
			Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
1	Farm waste shredder / Vegetale waste shredder (Nos)	Rs.4000/No	100	2.000	100	2.000	100	2.000	100	2.000	400	8.000
2	Humic acid / Effective E Microbes (Lts)	Rs.400/litre	1000	2.000	1000	2.000	1000	2.000	1000	2.000	4000	8.000
Total				**4.000**		**4.000**		**4.000**		**4.000**		**16.000**

6.2.5 Area Expansion Programme

Area Expansion Programme

(i) Budget

Details are furnished in Table 51.

(ii) Background / Problem Focus

At present area under horticultural crops are considerably low and the same has to be increased. This will also help to cater the local requirement of vegetables and fruits.

(iii) Project Rationale

Increasing the area and production of horticultural crops in Tirunelveli District.

(iv) Project Strategy

To fulfill the aim of the project, precision farming methodology will be adopted for which the components like Drip with fertigation and inputs will be adopted.

(v) Project Goals

This project will be implemented in 100 Ha / Year and would lead to production of increase of vegetables to the tune of 10000 M.T every year.

(vi) Project Components

Drip Irrigation.
Input Provisions.
Nursery
Shade house cultivation etc.

(vii) Project Cost and Financing

Details are furnished in Table 51.

(viii) Implementation Chart of the Project

This project will be implemented starting from 2008-09.

(ix) Reporting

Department of Horticulture.

5. Area Expansion Programme

Table 51. Project Proposal for Area Expansion Programme

(Rs. in lakhs)

S.No	Component	Unit	2008-09		2009-10		2010-11		2011-12		Total	
			Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
1	Support for betelvine (Has)	Rs.40000 for 20 cents	20	10.000	20	10.000	20	10.000	20	10.000	80	40.000
2	Support senna cultivation (Ha)	Rs.15000/Ha	100	7.500	100	7.500	100	7.500	100	7.500	400	30.000
Total				**17.500**		**17.500**		**17.500**		**17.500**		**70.000**

6. Other Support Systems

Table 52. Project Proposal for Other Support Systems

(Rs. in lakhs)

S.No	Component	Unit	2008-09		2009-10		2010-11		2011-12		Total	
			Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
1	Pandal for vegetable production (Ha)	Rs.1.00 lakh/Ha	10	5.000	10	5.000	10	5.000	10	5.000	40	20.000
2	Support system for crops											
	a.Banana (Ha)	Rs.1.5 lakhs/Ha	50	56.250	50	56.250	50	56.250	50	56.250	200	225.000
Total				**61.250**		**61.250**		**61.250**		**61.250**		**245.000**

7. Other Schemes

Table 53. Project Proposal for Other Schemes

(Rs. in lakhs)

Sl.No	Activities	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
1	Borewell with casing pipe (Nos)	Rs.1.5 Lakh	20	15.000	20	15.000	20	15.000	20	15.000	80	60.000
2	10 Hectare mega demo plot for the districts (No)	Rs.25.00 lakhs each	1	25.000	1	25.000	1	25.000	1	25.000	4	100.000
Total				**40.000**		**40.000**		**40.000**		**40.000**		**160.000**

6.3 Action Plan for the Department of Agricultural Engineering

The Action plan with interventions for various schemes like introduction of newly developed agricultural machinery / implements, rain water harvesting structures, PVC pipe laying works, promoting the concept of mechanised village and soil conservation works of the Dept. of Agricultural Engineering is given in Table 54 through Table 59.

Stream I

6.3.1 Introduction of Newly Developed Agricultural Machinery / Implements

Due to inadequate availability of agricultural labourers in required numbers during the peak season, the timely agricultural operations could not be carried out. Hence productivity is reduced. In order to increase the productivity to meet the needs of ever growing population, introduction of newly developed agricultural machineries / implements is inevitable.

The economical upliftment of the poor rural farmers and the economical growth of 4% in agriculture can be attained by rejuvenating the agricultural operations. With a view to attain the above said goals, the Government of India has taken keen initiative to give subsidy to the poor farmers to buy the newly developed agricultural machineries/ implements.

In Tirunelveli district, the scheme of distribution of agricultural machineries/implements in subsidized rates will be implemented by Agricultural Engineering Department during the project period from 2008-2009 to 2011-2012 to cover 105 beneficiaries and to give Rs. 39.00 Lakhs as subsidy.

(i) Budget- Details

The budget required for the implementation of the scheme is Rs.39.00 Lakhs. The funds will be provided to the state Government by the Government of India from the financial year 2008-2009 onwards and the details are furnished in Table 54.

(ii) Background

Tirunelveli District is an agriculture oriented district. Agriculture plays a vital role in the districts' economy. Out of the total geographical area of 6,82,308 hectares, the total cropped area is 2,07,868 hectares. The total agricultural labourers available in this district were 2,77,669.

Due to inadequate availability of agricultural labourers in required numbers during the peak season, the timely agricultural operations could not be carried out. Hence the productivity is reduced. Moreover, the cost of labour is high and consequently cost of production is also increased. Some of the field works are drudgery in nature which in turn decreases the efficiency of the farm labourers. These are the factors which lead to call for the introduction of mechanization.

a. In the case of paddy cultivation, the traditional way of ploughing and puddling works are in decreasing trend, since the cattle population is reducing day by day. The farmers are not interested in maintaining the cattle which is uneconomical in their point of view.
b. Transplanting is a labour intensive work. Since this work is to be completed within the season, the labour shortage forces to forgo the traditional way of planting.
c. Weeding requires lot of man power which is not only quantitatively available but also not readily available to meet out the timely requirement.
d. Another area of concern which needs mechanization is plant protection, since some of the plant protection measures are harmful.
e. Harvesting is to be completed in time. If not completed within the stipulated time, the shedding of grains will be high and the grain losses will be more. Hence harvesting has to be completed before the grain moisture level goes below 20-25%. Due to the scarcity of labour, we have to go in for Agricultural Mechanization.
f. Thrashing also warrants mechanization.

Due to poor agricultural labour work, the labourers' migration happens every year which leads to labour shortage. Moreover, the available labourers are not having that much of efficiency and knowledge required for agricultural operations. In order to bridge the gap between the required energy and the available labour energy, the agricultural mechanization is the need of the hour.

(iii) Project Rationale

Out of the total geographical area of Tirunelveli district, 29.08 per cent is cultivable area. The shrinkage of cultivable area is moving in the upward direction due to urbanization and industrialization and it forces to meet the requirement from the low fertile land. In the case of paddy, the existing average productivity is 3.645 tonnes per ha, whereas the potential average productivity is seven tonnes per hectare. The potential lands are becoming waste due to lack of awareness in implementing the latest techniques in agriculture from land preparation to harvest, storage and usage. The agricultural labour force available is 21.67 per cent only. To meet the food requirement for the ever growing population this is the right time to introduce innovative agricultural machineries to increase the productivity thereby increasing the agricultural production which would ultimately leads to boost the national economy.

(iv) Project Strategy

The scheme will be implemented by Agricultural Engineering Department. The Project period will be 4 years i.e. 2008-2009 to 2011-12.

Awareness about the need for agricultural mechanization will be created among the farmers through training and agricultural demonstrations during the pre and post implementation period.

As per the Government norms, the farmers will be chosen and the machineries / implements will be supplied at subsidized rates. Training about the operations and maintenance of the machines will be given during this period.

(v) Project Goals

- Economic upliftment of the farming community.
- Economic upliftment of the farming community leads to improve the social status of the poor farmers.
- To improve the standard of living of the farmers.
- To revitalize all agricultural operations by introducing the innovative machinery and implements to increase the agricultural productivity and production.

- To develop agricultural based industries and additional employment opportunities to the rural farming community so as to improve their earning capacity.
- The time saved by the agricultural mechanization can be utilized for allied agricultural activities which in turn would lead to generate additional income to the farmers.
- To attain minimum of 4% of economic growth in agriculture by improving the economic status of the rural farming community.
- Agriculture that accounted for more than 30% of the total GDP at the beginning of the economic reforms (initiated since 1991) failed to maintain its pre reform growth. On the contrary, it witnessed a sharp deceleration in growth after the mid 1990's. This happened despite the fact that agricultural productivity was quite low as it were and the potential for the growth of agriculture was high.
- The GDP of Agriculture increased annually at more than 3% during 1980's. Since the ninth five year Plan (1996 to 2001-02) India has been targeting a growth rate of more than 4% in Agriculture, but the actual achievement has been below the expected target. Hence the Government of India has taken the keen interest and initiative to achieve the growth rate of more than 4% in Agriculture.

(vi) Project Components

The Project components are Mini combined Harvester (TNAU Model), Power weeder with attachment (all models), Paddy Transplanter, Shredder (Medium), Coconut De-Husker, Coconut decorticator and Gender friendly equipment.

(vii) Project Cost and Financing

The cost of project is Rs. 39.00 Lakhs. The project is to be funded by the Government of India under NADP.

(viii) Implementation Chart of the Project

The Project will be implemented from 2008-2009 to 2011-2012. Year wise newly developed agricultural machinery/implements will be distributed among the farmers at subsidized rates as indicated in Table 54. The project will be implemented by the Agricultural Engineering Department.

(ix) Reporting

Periodical interim reports about the target achieved, no. of farmers benefited and area covered will be submitted. The completion report will be sent after the completion of the project period.

Stream I

1. Introduction of newly developed Agricultural Machinary / Implements

Table 54. Project Proposal for Introduction of newly developed Agricultural Machinary / Implements

(Rs. in lakhs)

Sl.No	Details	Unit Cost	Proposed Subsidy Pattern	2008-09		2009-10		2010-11		2011-12		Total	
				No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
a	Combined Harvester TNAU Model	2.50	50%	2	2.50	2	2.50	1	1.25	1	1.25	6	7.50
b	Power Weeders with attachments (All models)	1.00	50%	2	1.00	3	1.50	4	2.000	6	3.00	15	7.50
c	Paddy Transplanters	1.40	50%	3	2.10	5	3.50	7	4.900	5	3.50	20	14.00
d	Shredder (Medium)	0.40	50%	2	0.40	2	0.40	3	0.600	3	0.60	10	2.00
e	Coconut de-husker	0.60	50%	4	1.20	4	1.20	4	1.200	4	1.20	16	4.80
f	Groundnut decordicator	0.35	50%	2	0.35	2	0.35	2	0.350	2	0.35	8	1.40
g	Gender friendly equipments	0.08	75%	5	0.30	10	0.60	10	0.600	5	0.30	30	1.80
Sub Total					**7.85**		**10.05**		**10.90**		**10.20**		**39.00**

Stream II

6.3.2 Rain Water Harvesting Structures

To improve the ground water potential in Tirunelveli district, the water harvesting structures have been proposed. The works will be executed by the Agricultural Engineering Department from 2008-09 to 2011-2012.The total cost of proposal comes to Rs.438.29 Lakhs.

By executing the rain water harvesting structures, the entire district will be benefited.

(i) Budget-Details

The total cost for executing the rain water harvesting structures is Rs.438.29 Lakhs. Necessary funds will be provided by the Government of India from the year 2008-09 onwards under NADP. The details are furnished in Table 55.

(ii) Background

Water is the main source for the development for all human beings, livestocks and industries. From the history of the global system we learn that, in ancient days, perennial rivers became the major source of water. The people who were far away from the river sources practiced the utilization of ground water and stored rain water for their sustenance. In India, ground water utilization has been practiced for many centuries in the form of wells owned by private individuals or farmers or communities for both domestic and irrigation purposes. Well irrigation has been in practice for several centuries to meet shortage of tank / canal water. Cultivators made conjunctive use of ground water through wells. But there was no specific planning behind this because each source was developed without due consideration of the other.

In Tamil Nadu, the ancient people stored rain water in public places separately one for drinking purpose and another for bathing and other domestic purposes and called them as Ooranies. They also formed Percolation tanks or Ponds, for the purpose of

recharging irrigation or domestic wells. They periodically clean the water ways so as to get clean water throughout the year. These are instances in the history that people constructed crude rubble bunds across river courses either for diversion of water or for augmenting the ground water.

Tirunelveli district is in the southern part Tamil Nadu. The District is surrounded by the Western Ghats in the West, Thoothukudi District in the East, Virudhunagar District in North and Kanyakumari District in the South. Also the south eastern part is covered by the Bay of Bengal.

The district receives an annual average rainfall of 846mm. The maximum precipitation is contributed by the North East monsoon followed by summer rains.

The rainfall received is drastically varies from Radhapuram (Very Low) to Shencottai (High).

To keep pace with the population growth, urbanization and the green revolution, big dams were seen as the ultimate solution to the water woes of the district faced by periodical drought, flood or both. Agriculture came to depend solely on canal water from reservoirs struck or death knell for the traditional Water Harvesting Systems.

Due to the poor maintenance of existing structures

- Tanks were silted up, their embankments breached and their beds were used for cultivation
- Wells fell into disuse and collected rubble and garbage.
- Deforestation led to floods and soil erosion.

Block wise ground water potential is as below

I) Melaneelithnallur, Radhapuram, Sankarankoil & Valliyoor are in over exploited zone (more than 100%)

II) Alangulam, Kadayanallur, Keelapavoor, Kuruvikulam & Vasudevanallur are semi critical zones (70 to 90%)

III) Ambasamudram, Cheranmahadevi, Kalakad, Kadayam, Manur, Nanguneri, Palayamkottai, Pappakudi, Tenkasi & Shencottai are in safe zones (less than 70%)

Due to indiscriminate use by the increasing population and construction of building in the lands intended for recharging, the surface water is wasted as runoff and drained into the sea. But the ground water table depletes in an alarming rate. This results in reduction in well yield, drying up of shallow wells, deterioration of water quality, sea water intrusion into the coastal aquifer (Radhapuram Block), increased energy required to lift water from greater depth and consequently high cost have become uneconomical for the poor farmers to carry out agriculture.

In order to reduce the ill effects of over exploitation of ground water and excess runoff and to improve the ground water table, the rain water harvesting and runoff management is essential for this district.

(iii) Project Rationale

Augmentation of ground water resources becomes necessary, when, in a given area or basin the annual development of ground water exceeds the annual replenishment. When the natural recharge is slow and not upto the expected / required level, we have to go in for artificial recharge of ground water.

In Tirunelveli district, under ground water potential out of 19 Blocks, four Blocks are in over exploited zones and five Blocks are in semi critical zones. In the other blocks, apart from the river bed area, other area is under the threat of depletion of ground water.

The rainfall due to North East monsoon and summer showers can be harvested to a great extent without draining water to the Bay of Bengal.

There is no possibility of bigger projects in the district. Hence the catchment of water in micro catchments basis is the need at this time. Out of the total geographical area of 6, 82,308 ha in the district 35 per cent of the lands are under cultivable waste, current fallow and other fallows. This area can be brought under cultivation by improving the ground water table in 87,669 wells and 372 tube wells.

(iv) Project Strategy

The scheme will be implemented by Agricultural Engineering Department. The Project period will be four years i.e. 2008-2009 to 2011-12.

Awareness about the need for rain water harvesting will be created among the farmers through training during the pre and post implementation period besides wide publicity.

According to the topographical features, the rain water harvesting sites will be selected and accordingly executed. Training about maintenance of the assets created will be given during this period.

(v) Project Goal

The ultimate aim of this project is to increase the ground water table by harvesting the excess runoff. The Project also aims to

- Increase the standing time of rain water where it falls, thereby allowing it to percolate into the soil.
- Minimize velocity, thereby reducing the erosion caused by runoff.
- Divert runoff for water harvesting purposes.
- Improve soil moisture by standing water and recharging the aquifers and
- Ultimately uplifting the standard of living of farmers.

(vi) Project Components

The various types of Rain Water harvesting structures proposed in this project are

- Farm Pond.
- Percolation Pond.
- Check Dam (Minor/Medium/ Major).
- New Village Tank and
- Collection Well.

(vii) Project Cost and Financing

The total cost of the project is Rs. 438.29 Lakhs for the period of four years from 2008-2009 to 2011-2012. The necessary funds will be provided by the Government of India under NADP.

(viii) Implementation Chart of the Project

The Project will be implemented from 2008-2009 to 2011-2012. Details of year wise construction of Rain Water Harvesting structures in the selected area are furnished in Table 55. The works will be executed by the Agricultural Engineering Department.

(ix) Reporting

Periodical interim reports about the target achieved, no. of farmers benefited and area covered will be submitted. The completion report will be sent after the completion of the Project period.

Stream -II

2. Water Harvesting Structures

Table 55. Project Proposal for Water Harvesting Structures

(Rs. in lakhs)

Sl.No	Details	Unit Cost	Proposed Subsidy Pattern	2008-09		2009-10		2010-11		2011-12		Total	
				No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
a	Farm pond - Unlined	0.50	90%	34	15.30	38	17.1	42	18.90	42	18.90	156	70.20
b	Check Dam - Minor	0.30	100%	62	18.60	65	19.5	64	19.20	62	18.60	253	75.90
c	Check Dam - Medium	0.75	100%	34	25.50	35	26.25	37	27.75	35	26.25	141	105.75
d	Check Dam - Major	1.00	100%	18	18.00	20	20	22	22.00	22	22.00	82	82.00
e	Percolation Pond	3.25	100%	6	19.50	7	22.75	7	22.75	8	26.00	28	91.00
f	New Village Tank	1.50	100%	2	3.00	2	3	2	3.00	2	3.00	8	12.00
g	Collection Well	0.40	90%	0	0.00	1	0.36	1	0.36	2	0.72	4	1.44
Sub Total					**99.90**		**108.96**		**113.96**		**115.47**		**438.29**

Stream II

6.3.3 PVC Pipe Laying Works

The pipe laying works are proposed with a view to bring the cultivable higher elevated lands which are left fallow because of bottlenecks in conventional irrigation methods. The pressurized flow system brings these lands from fallow to cultivable, thereby increasing the area of cultivation. This pipe laying works thus helps the farming community to get additional yield thereby improving the socio economic status of the farming community. This works will be executed by the Agricultural Engineering Department within the project period from 2008-2009 to 2011-2012. The total area benefited will be 345 hectares at the cost of Rs. 46.575 Lakhs.

(i) Budget – Details enclosed

The total cost involved in PVC pipe laying works is Rs. 46.575 Lakhs. The funds will be provided by Government of India under NADP.

(ii) Background

According to land capability classification in Tirunelveli district, 20 per cent lands are wet land, 10 per cent lands are poramboke lands, 10 per cent lands are other lands and remaining 60 per cent lands are dry lands.

In this dry land, cultivations are done by depending on rainfall only. 20 per cent dry lands are cultivated by supplemental sources like wells & borewells. The distance between wells / borewells are more than 500m to 1 Km. Nowadays, groundwater table is slowly going down due to inadequate rainfall and recharge. Most of the wells are having less water. Most of the wells are dug in the low lying areas of individual holdings. Because of these conditions, the fields situated away from the wells are not able to be irrigated by the conventional method. So the cultivable area at higher elevations is left as fallow.

(iii) Project Rationale

In the proposed project area, most of the wells are located at low lying areas of the individual holdings. The farmers in these areas express their grievances on the inability to take sufficient water to the higher field. Irrigating higher elevated fields through plastic hoses results in 60 per cent of water wastage by leakage, sudden bursting of plastic hoses etc. So if we provide under ground pipe laying works to bring the higher elevated fields under cultivation, we can reduce conveyance losses, seepage losses and percolation losses. Thus we can also able to bring additional area under cultivation.

Latest studies in Indore village of Nasik district of Maharastra state showed that by irrigating through pipe line and using micro irrigation system, we can able to irrigate double the area with the available water and the yield and quality are high and also the income generated is increased by four times (Rs.25,000 to Rs.93,000).

(iv) Project Strategy

The scheme will be implemented by Agricultural Engineering Department. The Project period will be four years i.e. 2008-2009 to 2011-12.

Awareness about the need for pipe laying besides latest techniques of micro irrigation system will be created among the farmers through training and agricultural demonstrations during the pre and post implementation period.

As per the Government norms, the farmers will be selected and the pipe laying works will be installed in subsidized rates. Training about operations and maintenance of the pressurized flow system will be given during this period.

(v) Project Goals

The ultimate aim of this project is to minimize the conveyance losses and to irrigate the elevated areas. This also aims,

- To increases the additional area for irrigation.
- Judicial use of available water.
- Reduce the time of irrigation due to pressurized flow.
- Enable the farmers to irrigate field which is far off from the source by networking of wells.
- Introduce the modern water application technologies like Drip and Sprinkler Irrigation.
- Improve the socio economic status of the farming community and
- Reduce the cost of cultivation.

(vi) Project Components

The Project includes the execution of laying of PVC pipe for better water management and judicial use of available water.

(vii) Project Cost and Financing

The total cost of the project is Rs.46.575 Lakhs for the period of four years from 2008-2009 to 2011-2012. The necessary funds will be provided by the Government of India under NADP.

(ix) Implementation Chart of the Project

The Project will be implemented from 2008-2009 to 2011-2012. Details of year wise laying of PVC pipes in the selected area are presented in Table 56. The works will be executed by the Agricultural Engineering Department.

10. Reporting

Periodical interim reports about the target achieved, no. of farmers benefited and area covered will be submitted. The completion report will be sent after the completion of the Project period.

Stream -II

3. PVC Pipe Laying

Table 56. Project Proposal for PVC Pipe Laying

(Rs. in lakhs)

Sl.No	Details	Unit Cost	Proposed Subsidy Pattern	2008-09		2009-10		2010-11		2011-12		Total	
				No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
a.	PVC Pipe laying	0.15	90%	80	10.8	90	12.15	90	12.15	85	11.475	345	46.575
Sub Total					**10.8**		**12.15**		**12.15**		**11.475**		**46.575**

Stream II

6.3.4 Promoting the Concept of Mechanised Villages

Due to inadequate availability of agricultural labourers in required numbers during the peak season, the timely agricultural operations could not be carried out. Hence productivity is reduced. In order to increase the crop productivity to meet the needs of ever growing population, introduction of agricultural machineries/implements is inevitable.

The socio economic upliftment of the farmers and the economical growth of four per cent in agriculture can be attained by rejuvenating the agricultural operations. With a view to attain the above said goals, the Government of India has taken keen interest and initiative to give subsidy to the farmers of selected village to buy the full package of agricultural machineries/implements. The mechanized village will act as a model for other villages in mechanizing the farming operations.

In Tirunelveli district, scheme of distribution of crop based package of agricultural machineries/implements on cluster basis in the adopted villages at subsidized rates will be implemented by Agricultural Engineering Department during the project period from 2008-2009 to 2011-2012 to cover beneficiaries and to give Rs. 95.03 Lakhs as subsidy.

(i) Budget – Details

The total cost Rs. 95.03 Lakhs will be provided by the Government of India under NADP.

(ii) Background

Tirunelveli district is an agriculture oriented district. Agriculture plays a vital role in the districts' economy. Out of the total geographical area of 6,82,308 Ha, the cultivable area is 2,07,868 hectares, and the net area sown is 1,75,108 hectares.

Agricultural Mechanization is to be promoted to carry out the timely agricultural operations to increase productivity. By distributing the package of Agricultural Machinery on cluster basis for paddy cultivation from the land preparation to thrashing to active Farmers Association, a great awareness can be created among the other farmers, which will in turn make the process of propagating the agricultural mechanization, an easy job.

By selecting villages from the following commands, *viz.*, Tamirabarani River Basin, Gadana-Ramanathy River Basin, Nambiar River Basin, Pachayar River Basin and Manimuthar River Basin, package of agricultural machinery/implements on cluster basis needed for paddy cultivation will be supplied at subsidized rate.

(iii) Project Rationale

During the project period from 2008-2009 to 2011-12, each year one village having active farmers' participation in Farmers Association and having willingness to adopt modern techniques in farming operation will be selected and the package of paddy cultivation machineries/implements will be supplied at subsidized rates. The village selected will act as a model for other villages to adopt modern techniques in farming operations by purchasing the agricultural machineries/implements on cluster basis.

(iv) Project Strategy

The scheme will be implemented by Agricultural Engineering Department. The Project period will be four years i.e. 2008-2009 to 2011-12.

Awareness about the need for agricultural mechanization will be created among the farmers through training and agricultural demonstrations during the pre and post implementation period.

As per the Government norms, the farmers will be selected and the machineries / implements will be supplied at subsidized rates. Training about operations and maintenance of the machines will be given during this period.

(v) Project Goal

In India, nearly eight per cent of the farmers alone are utilizing agricultural machineries for farming operations. This has to be increased to bridge the gap between availability of labour energy and the required energy by motivating the farmers.

The aim of promoting the concept of mechanized villages is to propagate the advantages of adopting the modern techniques in agricultural operations.

The mechanized village will act as a model for other villages in mechanizing the farming operations. By agricultural mechanization, the productivity and the production will be increased. The socio economic status of the farming community will also be improved which in turn would increase economic growth in agriculture more than 4 per cent.

(vi) Project Components

The project includes distribution of crop based package of Agricultural Machinery on cluster basis that is needed for paddy cultivation from the land preparation to thrashing to active Farmers Association thereby, a great awareness can be created among the other farmers, which would in turn make the process of propagating the Agricultural mechanization, an easy job.

(vii) Project Cost and Financing

The total cost of the project is Rs. 95.04 Lakhs for the period of four years from 2008-2009 to 2011-2012. The funds will be provided by the Government of India under NADP.

(viii) Implementation Chart of the Project

The Project will be implemented from 2008-2009 to 2011-2012. Details of year wise distribution of crop based package of agricultural machinery on cluster basis in the selected area are furnished in Table 57. The works will be executed by the Agricultural Engineering Department.

(ix) Reporting

Periodical interim reports about the target achieved, no. of farmers benefited and area covered will be submitted. The completion report will be sent after the completion of the Project Period.

Stream -II

4. Promoting the Concept of Mechanised Villages

Table 57. Project Proposal for Promoting the Concept of Mechanised Villages

(Rs. in lakhs)

Sl.No	Details	Unit Cost	Proposed Subsidy Pattern	2008-09		2009-10		2010-11		2011-12		Total	
				No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
a.	Distribution of Crop based package of Agrl. Machinary on cluster basis in the adopted villages-Paddy	31.68	75%	1	23.76	1	23.76	1	23.76	1	23.76	4	95.04
Sub Total					**23.76**		**23.76**		**23.76**		**23.76**		**95.04**

Stream II

6.3.5 Soil Conservation Works

Compartmental bunding has been proposed to conserve soil and to retain soil moisture in the dry lands in order to increase the crop productivity and production. The works are proposed in lands having slope of 1 to 10 per cent.

The total cost of the project amounts to Rs.134.46 Lakhs. The area benefited will be 4,980 ha. The individual small farmers will be benefited in this project.

(i) Budget – Details

The total cost of Rs.134.46 Lakhs will be funded by Government of India under NADP. The works will be implemented by Agricultural Engineering Department.

(ii) Background

There is no life without soil and no soil without life.

According to Hilgard, a great Agricultural scientist, " Soil is the more or less loose and friable materials in which by means of their roots, plants may or do find foot hold and nourishment as well as other conditions of growth".

The soil is formed from the original rocks of the earth crust. The rocks are disintegrated and decomposed by physical and chemical weathering. These disintegrated rocks are modified, transported and deposited as unconsolidated debris.

Soil synthesis and evolution, take place from the surface downwards by physical, chemical and biological agencies in the form of micro organisms, plants, animals and decaying organic matter leading to the formation of " Horizons" finally resulting in the "Soil Profile" through geological ages.

Tirunelveli district receives an annual average rainfall of 846mm. The maximum precipitation is contributed by the North East monsoon followed by summer rains.

The rainfall received is drastically varies from Radhapuram (Very Low) to Shencottai (High) taluk.

To keep pace with the population growth, urbanization and the green revolution, the ultimate aim is to conserve soil and water resources to increase productivity and production from the available lands of individual farmer by executing compartmental bunding.

(iii) Project Rationale

The total geographical of Tirunelveli district is about 6,82,308 ha. Out of this area 4,09,384 ha of land are dry lands. The dry lands are being cultivated by expecting the rainfall only. Year by year the rainfall is inadequate, unseasonal and unexpected which lead the dry land cultivators to become poor day by day. Hence keeping in mind the ground situations and seasonal conditions in order to conserve soil and moisture, compartmental bunding has been proposed to the individual farmer.

The bunds intercept the run-off water allowing spreading as far back as needed and providing an opportunity for the run-off water to percolate down the soil profile, thus increasing the soil moisture status. The water which enters the soil penetrates slowly downwards and side ways saturating the soil profile and becomes available for supply back to the crops grown.

The results of work done in Tamil Nadu have shown that the benefit of bunding by way of increasing crop yield has been very much consistent and additional crop production varied from 29 to 37 per cent. It is also seen that when bunding combined with conservation farming practices, the yield of crop is further increased by about 56 to 66 per cent.

(iv) Project Strategy

The scheme will be implemented by Agricultural Engineering Department. The Project period will be four years i.e. 2008-2009 to 2011-12. Awareness about the need for compartmental bunding will be created among the farmers through training during the

pre and post implementation period. According to the slope condition (1-10%) of the field, sites will be selected and accordingly compartmental bunding will be executed. Training about the maintenance of the assets created will be given during this period.

(v) Project Goal

The ultimate aim of this project is to conserve precious resources namely soil and water. The Project also aims to

- Increase the standing time of rain water where it falls, thereby allowing it to percolate in the soil.
- Prevent soil erosion.
- Conserve and retain soil moisture.
- Prevent washing away of manures applied to the field.
- Increase the yield and
- Increase the socio-economic status of the rural farming community.

(vi) Project Components

The Project includes Compartmental Bunding works.

(vii) Project Cost and Financing

The total cost of the project is Rs.134.46 Lakhs for the period of four years from 2008-2009 to 2011-2012. The funds will be provided by Government of India under NADP.

(viii) Implementation Chart of the Project

The project will be implemented from 2008-2009 to 2011-2012 by Agricultural Engineering Department. The details of year wise formation/execution of compartmental bunding in the selected area are furnished in Table 58. The works will be executed by the Agricultural Engineering Department.

(ix) Reporting

Periodical interim reports about the target achieved, no. of farmers benefited and area covered will be submitted. The completion report will be sent after the completion of the Project period.

Stream -II

5. Soil Conservation Works

Table 58. Project Proposal for Soil Conservation Works

(Rs. in lakhs)

Sl.No	Details	Unit Cost	Proposed Subsidy Pattern	2008-09		2009-10		2010-11		2011-12		Total	
				No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
a.	Compartmental Bunding	0.03	90%	1210	32.67	1220	32.94	1250	33.75	1300	35.1	4980	134.46
Sub Total					**32.67**		**32.94**		**33.75**		**35.1**		**134.46**

Stream II

6.3.6 Popularisation of Agricultural Mechanization Through Conventional Machinery / Implements

Due to inadequate availability of agricultural labourers in required numbers during the peak season, the timely agricultural operations could not be carried out. In order to increase the productivity and production, popularization of agricultural mechanization is inevitable.

The economical upliftment of the poor farmers and to increase the economical growth of four per cent in agriculture can be attained by rejuvenating the agricultural operations. With a view to attain the above said goal, Government of India has taken keen initiative and interest to give subsidy to the poor farmers to buy agricultural machineries/equipments.

In Tirunelveli district, the scheme of ***Popularisation of agricultural machineries/equipments*** at subsidized rates will be implemented by Agricultural Engineering Department during the project period from 2008-2009 to 2011-2012 to cover 228 beneficiaries and to give Rs. 49.633 Lakhs as subsidy.

(i) Budget – Details

The budget required for the implementation of the scheme is Rs.49.633 Lakhs. The funds will be provided to the state Government by the Government of India from the financial year 2008-2009 onwards under NADP.

(ii) Background

In India, nearly eight per cent of the farmers alone are utilizing agricultural machineries for farming operations. Agricultural mechanization scheme is being implemented in Tirunelveli district from 2005-2006 onwards. But still the percentage of usage of agricultural machineries / equipments for farming operation has to be increased.

In order to boost the usage of agricultural machineries / equipments for farming operations, proposal has been submitted for popularization of agricultural mechanization through conventional machineries / equipments.

(iii) Project Rationale

The scope for implementing the programme of popularization of agricultural mechanization through conventional machineries / equipments is high in Tirunelveli district. The farmers in this district already been motivated about the need for the agricultural mechanization. The popularization of agricultural mechanization is slowly gaining momentum in this district. The need for engaging the harvester during the peak season of the labour shortage was felt very much by the farmers. They are realizing the importance of agricultural mechanization in all farming operations. Hence the popularization of agricultural mechanization through conventional machineries / equipments will have great impact in this project area to rejuvenate the farming activities.

(iv) Project Strategy

The scheme will be implemented by Agricultural Engineering Department. The Project period will be four years i.e. 2008-2009 to 2011-12.

Awareness about the need for agricultural mechanization will be created among the farmers through training and agricultural demonstrations during the pre and post implementation period.

As per the Government norms, the farmers will be chosen and the machineries / implements will be supplied in subsidized rates. Training about the operations and maintenance of the machines will be given during this period.

(v) Project Goals

Popularization of agricultural mechanization through conventional machineries / equipments aims at the following points

- To revitalize all agricultural operations.
- The time saved by the agricultural mechanization can be utilized for allied agricultural activities which would lead to generate additional income to the farming community.
- To attain minimum of four per cent of economic growth in agriculture by improving the economic status of the rural farming community.
- The economic improvement leads to improved the social status of poor farmers in the villages and
- To improve the standard of living of the farmers.

(vi) Project Components

The distribution of conventional machineries / equipments such as Power Tiller, Rotavator, Cultivator and Disc plough are available for the farmers at subsidized rates.

(vii) Project Cost and Financing

The cost of project is Rs.49.633 Lakhs. The project is to be funded by the Government of India under NADP.

(viii) Implementation Chart of the Project

The project will be implemented from 2008-2009 to 2011-2012. Under this project, agricultural machineries / implements will be distributed among the farmers at subsidized rates and the details are furnished in Table 59. The project will be implemented by the Agricultural Engineering Department.

(ix) Reporting

Periodical interim reports about the target achieved, no. of farmers benefited and area covered will be submitted. The completion report will be sent after the completion of the project period.

Stream -II

6. Popularisation of Agrl.Mechanisation through conventional Machinary / Equipments

Table 59. Project Proposal for Popularisation of Agrl.Mechanisation through conventional Machinary / Equipments

(Rs. in lakhs)

Sl.No	Details	Unit Cost	Proposed Subsidy Pattern	2008-09		2009-10		2010-11		2011-12		Total	
				No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
a	Power Tiller	1.16	25%	34	9.86	35	10.15	37	10.73	42	12.18	148	42.92
b	Rotovator	0.90	25%	1	0.225	2	0.45	3	0.675	4	0.90	10	2.25
c	Cultivator	0.16	25%	6	0.24	7	0.28	11	0.44	11	0.44	35	1.40
d	Disc plough	0.35	25%	6	0.525	7	0.613	11	0.963	11	0.963	35	3.063
	Total				**10.850**		**11.493**		**12.808**		**14.483**		**49.633**

6.4 Strengthening of Agricultural Marketing and Agribusiness Development in Tamil Nadu through NADP Funding

1. Current Status of Agribusiness

Agriculture, as a primary sector provides livelihood to 56% of the population and contributes around 13% of the State GDP. In value terms between 65 and 75% of agricultural produce is transacted in markets, usually through long marketing chains, regulated markets and an emerging commercialized retail system in urban centers. Unorganized small players (handling less than 0.5 t/day) process more than 75% of industry output. The Government is taking efforts to achieve targeted growth rate of 4% in Agriculture during XI Plan period. Though fertile soil, good quality water and long period of sunlight which are the basic requirements for Agriculture available in abundance in Tamil Nadu, still the productivity has not been enhanced to its potential level.

The Government is taking efforts to attain sustainable agricultural development by bringing agriculture as a commercial venture by switching over from the present method of cultivation through adoption of new scientific method of cultivation to increase the productivity to manifold, value addition, processing and utilization of marketing opportunities. To improve the marketing opportunities for agricultural produce, the Uzhavar Santhai, post harvest management, cold storage facilities for perishables, food processing, establishment of export zones, terminal markets have been taken up. To reduce the loss of the food products which are upto 30%, necessary provisions are made in the Agricultural Industrial Policy to ensure remunerative price to the produce, encourage food processing sector and export to earn foreign exchange by increasing the food processing from the present level of1% to 10%, out of the total production, increasing value addition from 7% to 30%. Under this policy, all assistance which is provided to other industries will be extended to agro based industries, agricultural machineries and industries manufacturing micro irrigation equipments.

One Deputy Director of Agriculture (Agri Business) for each district, one Agricultural Officer for every two blocks, one Assistant Agricultural Officer for one block have been posted as per restructuring to regulate Agri Business and encourage entrepreneurs. In 103 Uzhavar Shandies, 51 Agricultural Officers and 52 Deputy Agricultural Officers are posted. After restructuring 239 original posts have been enhanced to 906 posts in Agricultural Marketing and Agri Business Department.

2. Agribusiness and the National Development Goals

The Planning Commission's Mid-Term Appraisal (MTA) of the Tenth Plan notes that achieving higher growth rates depends on reversing the decline in growth of the agricultural sector and requires a move away from 'business as usual'. Under the eleventh Plan, areas identified for special attention in the agriculture sector included among others: (i) diversification to high value crops and activities; (ii) increasing cropping intensity; (iii) strengthening of marketing, processing and value addition infrastructure; (iv) revamping and modernizing the extension systems and encouraging the private sector to provide extension services; and (v) bridging the gap between research and farmers' yields.

For the agriculture sector, the eleventh Plan projected an annual growth rate of 4% which was seen as achievable if growth of 6 to 8% could be achieved in horticulture. These growth rates have not eventuated largely because constraints identified in the Plan have not been overcome. These constraints include lack of modern and efficient infrastructure, poor technological support and post harvest management, underdeveloped and exploitative market structures, inadequate research and extension to address specific agricultural problems and linkages with farmers and industry. The strong relationship between agriculture and rural poverty means that current plans, policy and sector performance will be unable to address the needs of rural poor.

The two most important programs related to agribusiness development are the Technology Mission for Integrated Development of Horticulture (TM) and the National

Horticultural Mission (NHM). The focus of the TM is production of horticultural products in Hill states, whereas post harvest management and processing have only a nominal presence. The NHM has a broader coverage of states and addresses issues of market infrastructure development and processing. However, the key issue of coordination within value chains is not addressed. There needs to be a better understanding of why despite generous subsidies in the past, progress has been slow with private investment in market infrastructure and development of the processing industry. At present 21 Market committees are functioning in Tamil Nadu at district Level There are 277 Regulated Markets, 15 Check Posts, 108 Rural Godowns and 108 grading centres functioning under the Market Committees

3. Major Constraints and Challenges in Agricultural Marketing and Agribusiness Development in the State

Current agricultural marketing and agribusiness system in the state is the outcome of several years of Government intervention. The system has undergone several changes during the last 50 years owing to the increased marketed surplus; increase in urbanization and income levels and consequent changes in the pattern of demand for marketing services; increase in linkages with distant and overseas markets; and changes in the form and degree of government intervention. An important characteristic of agricultural produce markets in Tamil Nadu has been that private trade has continued to dominate the market. With the large quantities required to be handled by the private trade, the size and structure of markets over time have considerably expanded. There are a large number of wholesalers and retailers handle the trade in food grains. Apart from traders, processors also play an important role as they also enter in the market as bulk buyers and sellers.

Agricultural development continues to remain the most important objective of State planning and policy. The experience of agricultural development in the state has shown that the existing systems of delivery of agricultural inputs and marketing of agricultural output have not been efficient in reaching the benefits of technology to all the sections of farmers. The timely, quality and cost effective delivery of adequate inputs still

remains a dream despite the marketing attempts of the corporate sector and the developmental programmes of the state. Also, the farmers are not able to sell their surplus produce remuneratively. There are plenty of distress sales among farmers both in agriculturally developed as well as backward regions in the State. There are temporal and spatial variations in the markets and the producers' share in consumers' rupee has not been satisfactory, except for a few commodities. In fact, in some commodities like tomato in some regions in State, producers end up making net losses at the same time when traders make substantial profits from the same crop. However, it needs to be recognized that producers' relative share in the final price of a product certainly goes down with the increase in the number of value-adding stages, and therefore, cannot be used as an indicator of a market's efficiency or inefficiency. Nevertheless, the other aspects of the market performance like absolute share of the producer in terms of remunerability, fluctuations in prices across seasons, large spatial price differences and lack of proper market outlets itself, are the issues which have become increasingly crucial in the present context. There are structural weaknesses of agricultural markets like unorganized suppliers as against organized buyers, weak holding capacity of the producers and the perishable nature of the produce in the absence of any storage infrastructure. In the presence of these characteristics of the market, the rural producers cannot simply be left to fend for themselves so far as marketing of their produce is concerned. And if the marketing system does not assure good returns to producers, not much can be achieved in the field of product quality and delivery which are critical for processing and manufacturing sectors. In the environment of liberalization and globalization, the role of the state in agricultural marketing and input supply is being reduced, and an increasing space is being provided to the private sector to bring about better marketing efficiency in input and output markets. On the other hand, processors and/or marketers face problems in obtaining timely, cost effective, and adequate supply of quality raw materials.

Small farms produce more than 35 percent of State total grain, and over half of total fruits and vegetables despite being resource constrained. The marginal holdings

have higher cropping intensity compared with that of the small, medium and large farmers, mainly owing to higher irrigated area as percentage of net sown area. The small and marginal farmers are certainly going to stay for long time in State though they are going to face a number of challenges. Therefore, what happens to small and marginal farmers has implications for the entire State and people's livelihoods. But, they can adequately respond to these challenges only if there is efficient marketing system for handling their small surpluses. Otherwise, they will only be losers in the process of globalization and liberalization. The viability of the small holdings is an important issue and promoting agricultural diversification towards high value crops through an efficient marketing system is argued to be one of the means through which this can be achieved. Hence there is an urgent need for specific intervention in agricultural marketing in Tamil Nadu.

4. Sector Problem Analysis

The core problem for agribusiness development in Tamil Nadu is the general failure in coordinating the decisions of private stakeholders (e.g. farmers, traders and agro-processors in the case of the agrifood system) and service providers from the public, private and nongovernmental organizations (NGO) sectors.

Farmers fail to link among themselves through effective producer organizations able to undertake joint decisions in production and marketing. Farmers have weak linkages with enterprises and often fail to link effectively to markets because of limited access to relevant market intelligence and inadequate market infrastructure. Farmers are also poorly linked to research and extension providers able to address their specific technology and knowledge needs that would enable them to innovate into high value production systems.

Entrepreneurs have weak linkages with farmers through contracts and vertical integration arrangements and are distant from consumers because of the absence of organized retail chains. Linkages with service providers are characterized by a lack of

confidence particularly in the case of research and extension organizations. The absence of proper certification, quality assurance systems and inadequate infrastructure continues to limit the integration of production with international markets.

Service Providers Most agencies fail to link with each other, particularly during implementation of national programs. Links between states and central agencies are often limited. Service providers from the public sector are often unable to provide effective services due to lack of funding, bureaucratic hurdles and the lack of a culture that is client and business oriented. Most NGOs are not used to working in the field of enterprise development and their presence in the agribusiness sector is marginal. Service providers from the private sectors are emerging but are mainly oriented to the needs of corporate clients rather than small and medium enterprises or producer groups that dominate total production.

Past interventions to improve technology, infrastructure and access to credit and markets had modest impact on growth of the sector. The policy assumption that more funds and subsidies will lead to the desired results has proven to be incorrect. Steps for ensuring coordination within each value chain have not been recognized. In spite of subsidies, progress has been slow with few effective value chains emerging and few stakeholders investing in market infrastructure such as the cooperative sector in Bangalore. The capacity of individuals, groups and service providers to understand and practice value chain principles and management remains low.

For growth to accelerate substantially a new way of thinking about agribusiness development in Tamil Nadu and promoting agribusiness is needed. This new way, and the related business practices that go with it, implies overcoming significant coordination failures. This requires appropriate institutional mechanisms that currently do not exist within current policy setting.

5. Project Rationale

The rationale for the proposed Augmentation of Agricultural Marketing and Agribusiness development in Tamil Nadu through NADP funding is based on the following:

1. The rate of agricultural growth over the past decade has been declining in Tamil Nadu. Agribusiness through its linkages to production, industry and services has the potential to transform the agricultural system into a more dynamic sector.

2. As urbanization and incomes grow, there is a growing demand for a wider range of agrifood products, of higher quality and greater convenience, to use in Tamil Nadu. Meeting this demand requires organized retailing and effective agribusiness supply chains.

3. Agribusiness contributes to the production of higher value products and diversification away from staple foods. Through this diversification and the development of the value chain between producers and consumers, the rural economy benefits from innovation and the creation of non-farm employment.

4. Tamil Nadu has a comparative advantage in a number of agricultural commodities. Increasing integration with global markets and the potential to become a stronger player in agricultural trade requires quality assurance and competitive advantage.

5. The State Government has identified agribusiness development as a strategic priority. In Tamil Nadu, agribusiness has a significant role to play in rural and economic development, and agro-enterprises could be a major source of rural non-farm employment and income.

6. The existing government programs to promote agricultural diversification are broad-based programs with multiple objectives. For agribusiness development to happen a more focused approach is needed to complement the initiatives already covered by the different national programs.

6. Project Strategy

The project will promote the Agri-business practices and models required to support agribusiness development in Tamil Nadu, allowing the sector to contribute to economic growth, particularly in rural areas. New Agri-business practices will be introduced relating to: (i) farmers and entrepreneurs engaging service providers to solve

specific technology problems (ii) learning to work together in the value chain (iii) making effective use of market intelligence in decision making; and (iv) making investments in supply chain infrastructure and market places.

7. Project Approach

The project aims at improving business practices needed for agribusiness development in Tamil Nadu. Profit motivations are critical to the improvement of business practices. Rather than starting from a production point of view, stakeholders are encouraged to start from understanding market requirements and opportunities. The project will help stakeholders to access the relevant technologies and knowledge services needed for realizing the identified profit opportunities. Those profit opportunities are realized by working together with other stakeholders in the value chain, and by improving linkages through investments and existing in physical infrastructure.

8. Project Goals

The expected impact of the project will be an increasingly competitive agribusiness sector, informed by the adoption of improved business practices in the Agriculture sector, leading to diversification, higher value added, and higher incomes for farmers, farm workers and entrepreneurs and reduced rural poverty. The expected outcome of the project will be increased benefits (incomes) for farmers, farm workers and entrepreneurs in the selected value chains.

Through the adoption of improved agribusiness practices the project will facilitate the development of a competitive agribusiness sector in Tamil Nadu, promoting diversification and contributing to the transformation of agriculture into a system producing higher value and contributing to the reduction of poverty in rural areas.

The envisaged project's interventions will provide higher value for consumers, value that will be shared as distributed benefits to value chain stakeholders including farmers, entrepreneurs and workers. This will be achieved through activities that improve

business practices related to use of market information, investment in technology transfer and knowledge services, development of value chain linkages and investment in market infrastructure. The distributed benefits will provide incentive for ongoing involvement and further innovation from which the sector can extend its development.

The project impact is to develop an increasingly competitive agribusiness sector in Tamil Nadu attained through the adoption of improved business practices in the horticultural sector leading to higher value added and higher income of farmers, farm workers and entrepreneurs, particularly women amongst them.

The project outcome is increased benefits to farmers, entrepreneurs and workers who are involved in selected value chains in Tamil Nadu.

9. Project Components

1. Establishment/ organization of commodity groups for marketing in the state with financial assistance from NADP
2. Facilitation of Contract Farming between farmers and bulk buyers in the state with financial assistance from NADP
3. Dissemination of Market intelligence
4. Arrangement of Buyers - Sellers Meet
5. Organizing the exposure visits to important markets with in the state and out side the state by commodity groups / farmers and extension functionaries.
6. Strengthening of market extension centre at each district/ block level for capacity building and dissemination of marketing information.
7. Strengthening of selected village shandies with financial assistance from NADP
8. Capacity building of farmer’s skill
9. Price surveillance
10. Regulated Market uzhavar Shandies Publicity
11. Market Infrastructure

10. Project Components Description

10.1 Establishment/ Organization of Commodity Groups for Marketing in the State with Financial Assistance from NADP

(i) Project Rationale

According to Government sources, the inefficient marketing system leads to an avoidable waste of around Rs. 50,127 crore. 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. The model of farmers' marketing commodity groups cannot be the same throughout the country. 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 the period of four years.

(ii) Project Strategy

Formation of commodity groups for group marketing in the state with financial assistance from NADP

(iii) Project Goals

Organizing Group Marketing of major agricultural commodities for realizing higher prices through establishing commodity groups.

(iv) Project Components

1. Organising meetings with large number of farmers
2. Identification of willing / co operating Farmers
3. Organising the willing farmers in to groups
4. Periodical meeting with groups and coordinating the activities

(v) 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 an amount of Rs.20000/- is provided per group.

In this project it is proposed to organize 16 commodity groups in chillies, paddy, maize and sunflower commodities for marketing of agricultural commodities in Tirunelveli district over the period of four years. This will require resources of Rs 14.72 Lakhs for the period of four years. The details are presented in Table 61 A.

(vi) 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 to be undertaken by the Deputy Director (Agricultural Marketing and Agri Business)

10.2 Facilitation of Contract Farming between Farmers and Bulk Buyers in the State with Financial Assistance from NADP

(i) Project Rationale

Apart from linking the farmer to consumer through farmers' organizations, another initiative for reducing transaction cost is establishment of direct channel between farmer-processor/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, make smaller demands on scarce capital resources, and impose 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 farm incomes and employment. CF 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 reason for the emergence of CF 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 CF.

Marketing tie-ups between farmers and processors or bulk purchasers have special significance for small farmers, who have small marketed surplus and do no have staying power. Such arrangements are being encouraged to help in reducing price risks of farmers and to also expand the markets for farm products. It is to be noted that contract farming of sugarcane is going on for the last 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 in large scale in Tamil Nadu. The lessons taught in 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 contract farming between the traders and producer is proposed.

(ii) Project Strategy

Facilitation contract farming between the traders and producer by organising buyers and sellers meet in the block levels.

(iii) 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 in to groups
4. Arranging the Groups to have contract/agreement with select large scale buyers, banks and crop insurance firms.
5. Periodical watching of contracts and conflict management.

(iv) Project Cost and Financing

Arranging / organising Commodity Groups involve several rounds of meeting with large number of farmers and traders, train them contract specification and monitor them. To organize these an amount of Rs.15,000/= is provided.

In this project it is proposed to organize the meeting on various crops regarding contract farming between farmers and bulk buyers in Tirunelveli district for marketing of agricultural commodities in Tamil Nadu over the period of four years. This will require resources of Rs 0.69 lakhs for the period of four years. The Details are presented in Table 61 A.

(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)

10. 3. Dissemination of Market Intelligence

(i) 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 many times 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 for 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 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 in this project is included 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.

(ii) 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.

(iii) Project Components

1. Procurement of market intelligence reports and
2. Dissemination of Market intelligence to all the Stake holders through different mass media.

(iv) Project Cost and Financing

In this project it is proposed to disseminate Market intelligence of agricultural commodities to all the Stake holders through different mass media in Tirunelveli district over the period of four years. This will require resources of Rs.1.96 lakhs for the period of four years. The details are presented in Table. 61 A.

(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)

10.4. Arrangement of Buyers - Sellers Meet

(i) 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 depressed and often to specific buyers who have provided credit.

There is limited market for all good 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 faced vary among the farmers, regions, and markets.

Several alternatives are available within each market for the farmers. 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 increasing pressure on all segments of the agriculture 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 platform linking agribusiness community namely farmers, traders, commission agents, agricultural processed food organizations, millers, machinery manufacturers in an egalitarian exchange of ideas and materials.

It is 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 aspect of success i.e. technology and human resources. Besides display of agricultural commodities through exhibitions, the meet aspect covers all the latest market related interventions and provides need based solutions to farmers through direct contact with experts.

(ii) Project Cost and Financing

In this project it is proposed to arrange for 12 buyers sellers meet in Tirunelveli district over the period of four years. This will require resources of Rs.2.76 Lakhs for the period of four years. The details are presented in Table 61 A.

10.5 Organizing the Exposure Visits to Important Markets within the State and Outside the State by Commodity Groups / Farmers and Extension Functionaries

(i) 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 will have to rely more on known and proven technology. Agriculture 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 of 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 the period of four years.

(ii) Project Strategy

Organizing the exposure visits to important markets with in the state and out side the state by commodity groups / farmers and extension functionaries.

(iii) 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 the period of four years from NADP funding.

(iv) Project Components

1. Organizing the exposure visit to important markets with in the state by commodity groups / farmers
2. Organizing the exposure visit to important markets out side the state by commodity groups / farmers
3. Organizing the exposure visit to important markets with in the state and out side the state by extension functionaries

(v) Project Cost and Financing

Visit of important markets, where new opportunity for marketing of the commodity and consumer preference i.e., exposure visits SAFAL market Bangalore is an important thing to enlighten the farmers for marketing their produce as well as consumer 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. This will require resources of Rs.11.33 Lakhs for the period of four years. The details are presented in Table 61 A.

(vi) 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).

10.6. Strengthening of Market Extension Centre at each District/ Block Level for Capacity Building and Dissemination of Marketing Information

(i) 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 a urgent need to strengthening of market extension centre at each district/ block level with LCD projectors and lap top computer including internet facilities.

(ii) Project Strategy

Strengthening of market extension centre at each district/ block level for capacity building and dissemination of marketing information.

(iii) Project Goals

Strengthening of market extension centre at each district/ block level for capacity building and dissemination of marketing information in Tamil Nadu over the period of four years from NADP funding.

(iv) Project Components

Strengthening of market extension centre at each district/ block level.

(v) Project Cost and Financing

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. In this project it is proposed to strengthening market extension centre in Tirunelveli district over the period of four years. This will require resources of Rs.2.50 Lakhs for the period of four years. The Details are presented in Table 61 A.

(vi) 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).

10.7. Capacity Building of Farmers' Skill

(i) 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.

(ii) 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.

(iii) Project Components

Organising 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.

(iv) Project Cost and Financing

In this project it is proposed to organize about 40 trainings under Capacity Building of Farmers Skill titles for marketing of agricultural commodities in Tirunelveli district over the period of four years. This will require resources of Rs. 6.44 Lakhs for the period of four years. The Details are presented in Table 61 A.

(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).

10.8. Strengthening of selected Market Infrastructure (Equipments) through NADP Funding

(i) 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 Table 60 reflected the need for improvement in the market infrastructure in coming years.

Table 60. Estimates of Marketed Surpluses of Various Commodities

Commodity	Marketed Surplus Ratio (%)
Rice	51.9
Wheat	53.8
Jowar	39.7
Bajra	45.4
Maize	46.2
Other Coarse Cereals	57.1
Pulses	53.9
Food grains	
Oilseeds	79.6
Sugarcane	92.9
Fruits and Vegetables**	88.2
Cotton	100.0
Fish	100.0
Milk	60.0
Mutton and Goat Meat	100.0
Beef and Buffalo Meat	100.0
Meat(Total)	100.0
Eggs	88.2

****** Source of Marketed Surplus (MS) Output Ratio for Fruits and Vegetables is Achyra, S (2003). Agril. Marketing in India, (as a Part of Millennium Study of Indian Farmers), P134 (Original Source- Agril Statistics at a Glance 2001. Agril. Statistics Division, Directorate of Economics and Statistics, Ministry of Agriculture, New Delhi).

(ii) Project Components

1. Purchasing and Establishing price display board and mobile controlled display board
2. Purchasing and Establishing collection centres
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
7. Purchasing and Distribution of Tarpaulins, Plastic crates and storage pins

(iii) Project Cost and Financing

In this project it is proposed to strengthen market infrastructure in Tirunelveli district over the period of four years. This will require resources of Rs.5.45 Lakhs for the period of four years. The Details are presented in Table 61 A.

(iv) 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)

10.9. Establishment of Price surveillance mechanism through NADP Funding

(i) Rationale

Collection of real time data in the open markets for major agricultural commodities and further analysis is essential for forecasting of prices well in advance of the sowing season so that farmers can take their sowing decisions on a scientific basis. This will enhance the income of the farmers which is one of the objectives of the project.

(ii) Project Components

This involves collection of data on prices of different commodities in the unregulated markets in the notified area. This entails collection of time series and current/real time data which will be sent to Domestic and Export Market Intelligence Cell of Tamil Nadu Agricultural University, for processing and further analysis to forecast prices of major agricultural commodities.

(iii) Project Cost and Financing

In this project it is proposed to collect data at a minimum interval of one month from major assembly markets on a continuous basis in Tirunelveli district over the period of four years. This will require resources of Rs.5.52 Lakhs for the period of four years. The Details are presented in Table. 61 A.

(iv) 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)

10.10. Strengthening of Regulated Market and *Uzhavar Shandies* Publicity through NADP Funding

(i) Rationale

Arrivals to market yards of regulated markets is only about 15 % of the marketed surplus in Tamil Nadu. Similarly sale through *Uzhavar Shandies* is also limited in case of fruits and vegetables. Hence it is necessary to have publicity programme on the benefits of sale through regulated markets and *Uzhavar* Shandies so that the net price realized by the farmers could be increased. To achieve this publicity and propaganda programmes will be undertaken in this district for the next four years

(ii) Project Components

Hoardings, publicity through F.M. radio, posters, folders, wall paintings and village cultural programmes will form the components.

(iii) Project Cost and Financing

In this project it is proposed to have the publicity programmes with the above components in this district with a financial outlay of Rs.23.00 Lakhs over the period of four years. The Details are presented in Table 61 A.

(iv) 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)

11. Project Cost

The total cost for development of agricultural marketing so as to increase the profitability of farmers would be Rs. 495.44 Lakhs for this district for the eleventh plan period.

12. Implementation

Department of Agricultural Marketing and Agribusiness, Government of Tamil Nadu will be the implementing agency for proposed project. The Deputy Director of Agricultural Marketing along with the team of Officials and the Secretary of District Market Committees and team of Officials of Market Committee and Regulated Markets will be implementing the project jointly.

13. 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.

14. 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 result in the models and practices introduced by the project to be replicated by other stakeholders in the agricultural sector in the state.

Action Plan for the Department of Agricultural Marketing

The Action plan with interventions for various schemes like Commodity group formation, Market Intelligence dissemination, Facilitation of contract farming, Exposure visit to markets, Arrangement of buyer seller meetings, strengthening of market extension centre, strengthening of village shandies, Market price surveillance and Market infrastructure activities of the Dept. of Agricultural Marketing is given in Table 60.

Table 61 A. Original Project Proposals for Agricultural Marketing and Agri-Business

(Rs. in lakhs)

S.No.	Component	2009			2010			2011			2012			Total (In Rs.)
		Unit cost	Physical	Financial	Unit cost	Physical	Financial	Unit cost	Physical	Financial	Unit cost	Physical	Financial	
1	Commodity group formation													
	Chillies	0.20	4	0.80	0.22	4	0.88	0.24	4	0.96	0.26	4	1.04	3.68
	Paddy	0.20	4	0.80	0.22	4	0.88	0.24	4	0.96	0.26	4	1.04	3.68
	Maize	0.20	4	0.80	0.22	4	0.88	0.24	4	0.96	0.26	4	1.04	3.68
	Sunflower	0.20	4	0.80	0.22	4	0.88	0.24	4	0.96	0.26	4	1.04	3.68
2	Market Intelligence dissemination													
	MI Dis Touch Screen	0.10	11	1.10	0.11	0	0	0.12	0	0	0.13	0	0	1.10
	Display board	0.10	4	0.40	0.11	0	0	0.12	0	0	0.13	0	0	0.40
	Purchase of marketing materials	0.10	1	0.10	0.11	1	0.11	0.12	1	0.12	0.13	1	0.13	0.46
3	Facilitation of contract farming	0.15	1	0.15	0.165	1	0.165	0.18	1	0.18	0.195	1	0.195	0.69

Table. 61 A Contd… **(Rs. in lakhs)**

S.No.	Component	2009			2010			2011			2012			Total (In Rs.)
		Unit cost	Physical	Financial	Unit cost	Physical	Financial	Unit cost	Physical	Financial	Unit cost	Physical	Financial	
4	Trainings on													
	Warehousing and Storage	0.10	2	0.20	0.11	2	0.22	0.12	2	0.24	0.13	2	0.26	0.92
	Market Intelligence	0.10	2	0.20	0.11	2	0.22	0.12	2	0.24	0.13	2	0.26	0.92
	Post Harvest	0.10	2	0.20	0.11	2	0.22	0.12	2	0.24	0.13	2	0.26	0.92
	Grading	0.10	2	0.20	0.11	2	0.22	0.12	2	0.24	0.13	2	0.26	0.92
	Commodity Markets	0.10	2	0.20	0.11	2	0.22	0.12	2	0.24	0.13	2	0.26	0.92
	Farmers meetings	0.10	4	0.40	0.11	4	0.44	0.12	4	0.48	0.13	4	0.52	1.84
5	Exposure visit to markets													
	Within State	0.20	1	0.20	0.22	1	0.22	0.24	1	0.24	0.26	1	0.26	0.92
	Outside state	0.75	1	0.75	0.825	1	0.825	0.90	1	0.90	0.975	1	0.975	3.45
	Visit to National Markets	1.50	1	1.50	1.65	1	1.65	1.815	1	1.815	1.9665	1	1.9665	6.9315

Table. 61 A Contd… **(Rs. in lakhs)**

S. No.	Component	2009			2010			2011			2012			Total (In Rs.)
		Unit cost	Physical	Financial	Unit cost	Physical	Financial	Unit cost	Physical	Financial	Unit cost	Physical	Financial	
6	Arrangement of buyer seller meetings	0.20	3	0.60	0.22	3	0.66	0.24	3	0.72	0.26	3	0.78	2.76
7	Streng. Of market extension centre	2.50	1	2.50	2.75	0	0	3.00	0	0	3.25	0	0	2.50
8	Market price surveillance	0.10	12	1.20	0.11	12	1.32	0.12	12	1.44	0.13	12	1.56	5.52
9	Publicity - regulated market	5.00	1	5.00	5.50	1	5.50	6.00	1	6.00	6.50	1	6.50	23.00
10	Market infrastructure activities			0			0		0	0			0	0
	Mini PH Loss Plastic Crates	0.005	150	0.75	0.0055	150	0.825	0.006	150	0.90	0.0065	150	0.975	3.45
	Value addition Chilly Drier	2.00	1	2.00	0.11		0	0.12		0	0.13		0	2.00
Total		**14.105**	**203**	**20.85**	**13.4255**	**201**	**16.335**	**14.661**	**216**	**17.835**	**15.913**	**201**	**19.3215**	**74.3715**

Table.61 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	50.00	2	55.00	2	60.00	6	165.00
2	Storage godowns for storing produce under lock and key for few days	0	0.00	0	0.00	0	0.00	0	0.00
3	Construction of new drying yards/renovation of dilapidated ones	4	12.00	4	12.00	4	12.00	12	36.00
4	Construction of new auction halls/modernizing the existing ones	2	20.00	1	11.00	2	22.00	5	53.00
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	0	0.00	0	0.00	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
	(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

Table.61 B. Contd., **Rs.in lakhs**

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
8	Strengthening the State Ghee and Oil Grading Laboratories	0	0.00	0	0.00	0	0.00	0	0.00
	i) New Lab construction	0	0.00	1	10.00	0	0.00	1	10.00
	ii) Strengthening of existing lab	1	5.00	0	0.00	0	0.00	1	5.00
	iii) Computer and Telephone with Broad band connecion	1	0.50	1	0.50	0	0.00	2	1.00
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	2	20.00	0	0.00	0	0.00	2	20.00
12	Computer with Laser Printer and Dot Matric Printers	2	1.40	2	1.40	1	0.70	5	3.50
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	1	0.20	1	0.20	0	0.00	2	0.40
15	Provision of Oil testing machines	1	0.00	1	0.00	0	0.00	2	0.00
16	Provision of Electronic weighing machines	100	5.00	100	5.00	60	3.00	260	13.00
17	Others if any (Specify)								
	i) Mobile phone	10	0.50	0	0.00	0	0.00	10	0.50
	ii) Electronic Weighing machine (Amark lab)	1	0.50	0	0.00	0	0.00	1	0.50
	iii) Water bath	1	0.50	0	0.00	0	0.00	1	0.50

Table.61 B. Contd., **Rs.in lakhs**

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
II.	**Publicity and Propaganda**							0	0.00
1	Market committee-wise strengthening of the Publicity and Propaganda units	0	5.00	0	5.00	0	5.00	0	15.00
2	Market committee-wise purchase of extension education aids	0	2.00	0	2.00	0	2.00	0	6.00
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	12	1.20	12	1.20	12	1.20	36	3.60
5	Others if any (Specify) Prining Materials	0	0.20	0	0.20	0	0.20	0	0.60
III.	**Public relations**								
1	Construction of bus-stop shed un front of the regulated markets and in selected villages	0	0.00	0	0.00	0	0.00	0	0.00
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	5	15.00	5	15.00	5	15.00	15	45.00
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	0	0.00	0	0.00	0	0.00	0	0.00
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	0	0.00	0	0.00	0	0.00	0	0.00

Table.61 B. Contd., **Rs.in lakhs**

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
8	Provision of Education loan to the children of a few regular customers	0	0.00	0	0.00	0	0.00	0	0.00
9	Celebrating the regulated market fortnight in each district (just like co-operative weeks/fortnight)	0	3.00	0	3.00	0	3.00	0	9.00
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
1	Construction of rest/stay rooms for farmers I regulated markets	1	10.00	0	0.00	1	10.00	2	20.00
2	Construction/modernization of the common toiletry facilities in the regulated markets	2	2.00	2	2.00	2	2.00	6	6.00
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
6	Creating farm inputs retailing facilities	0	0.00	0	0.00	0	0.00	0	0.00
7	Others if any (Specify)	0	0.00	0	0.00	0	0.00	0	0.00
V.	**Any other innovative interventions (specify)**	0	0.00	0	0.00	0	0.00	0	0.00
	Grand Total	**198**	**156.50**	**182**	**126.00**	**139**	**138.60**	**519**	**421.10**

Budget Abstract

(Rs.in lakhs)

Sl.No.	Particulars	2008-09	2009-10	2010-11	2011-12	Total
A.	Original Project	20.85	16.34	17.84	19.32	74.34
B.	Additional Project DDA(AB)	-	156.50	126.00	138.60	421.10
	Grand Total	**20.85**	**172.84**	**143.84**	**157.92**	**495.44**

6.5 Animal Husbandry Sector

I. Intervention required Areas

a) Fodder cultivation
b) Door step insemination to facilitate timely insemination
c) Vaccination coverage
d) Subsidy for purchase of livestock, and poultry
e) Training on modern method of scientific farming
f) Infrastructure development in veterinary institutions
g) Promoting value added products
h) Disaster management
i) Identification system for breedable animals

Project Proposals

1. Feed & Fodder Development

Abstract (Summary of the Project)

Intensive fodder production activity will be taken up by the Department of Animal Husbandry, Dairy Development Department and TANUVAS centre in Tirunelveli district. Subsidy will be given for cultivation of 10 acre of green fodder in each block per year to SHG women in all the 19 blocks by Department of Animal Husbandry for 4 years to encourage fodder cultivation. Subsidy will be given for cultivation of fodder in 500 acres of land in 4 years in IDF villages and farmers field by Dairy Development Department . The SHG beneficiaries will be given 2 days training on fodder cultivation.

It is proposed to utilize the area available in the District Livestock farm (DLF) at Abishegapatti for fodder cultivation. 247 acre irrigated land is proposed for fodder cultivation and 200 acre is proposed for the development of pasture and grazing land.

The Dairy Development Department will develop fodder cultivation activities in 5 acres of land available in dairy or chilling centres and other available land of the department for production of fodder seed / slips in the first year.

Fodder seed production unit will be established at TANUVAS unit, Tirunelveli. Fodder will be cultivated in 5 acres per year for 4 years (totally 20 acres) for production of fodder seeds / slips.

Mineral mixture will be supplied to dairy cows @ 1kg per cow per month for one year for 5000 cows per year by Department of Animal Husbandry for 4 years. Supply of mineral mixture to the milch animals at subsidized cost (50%) @ 18 KG/ year for 875 milch animals per year by Dairy Development Department for 4 years.

Supply of By-Pass protein feed to milch animals @ 360 kg per animal per year @ 50% subsidized cost for 750 animals per year by Dairy Development Department for 4 years.

Concentrate feed will be purchased for kanni goat adults and kids in the Kanni goat breeding farm at VUTRC, Tirunelveli for 4 years.

Supply of hand operated small type Chaff cutter to 25 elite farmers per year by the Dairy Development Department for 4 years. This department will also supply 15 mechanized chaff cutters for IDF villages on community basis during the second year of the project.

Budget : Rs.672.21 lakhs

Background / Problem Focus

The green fodder production to feed the productive animals is in short supply. The district is 88.6% deficit in green fodder. The green fodder availability is restricted to selected areas and seasons. Huge human habitation spill over on grazing lands has led to depletion and over exploitation of available grazing lands. In addition, rapid urbanisation has led to shrinking of grazing lands. Moreover, with the increasing pressure on land for growing food grains, oil seeds and pulses and diversified use of agriculture residues, the gap between the demand and supply of fodder is increasing. As adequate feed and fodder is a main factor for developing the performance of animal production and as a considerable gap exists between requirement and availability of fodder

Many farmers do not supplement minerals in the feed of dairy cattle due to lack of awareness. By-pass protein feeding is a newer technology in dairy nutrition. It enhances milk production and nutrient utilization with an overall improvement in production and productivity in dairy cows Further the cost of concentrate feed is very high. Animals are maintained in poor plane of nutrition. The plane of nutrition and vis-à-vis milk production of these animals could be improved by green fodder and mineral supplementation.

Project Rationale

Though several strains of new fodder varieties are released from time to time, the adoption rate among farmers is very poor which is reflected on the huge green fodder deficiency in the district. The possible reasons could be the small land holding, high land cost, hesitation on the part of farmers to cultivate fodder in preference to cash crops.

Hence there is a need to take a holistic approach to nullify the hurdles listed above by motivating and encouraging the land holding farmers for intensive cultivation of green fodder by giving subsidy. Farmers will be motivated to produce fodder in their land and supply fodder to other members also. It is necessary to utilize the area available in the government farms, Dairy centres for fodder cultivation. The fodder thus cultivated

will be provided to the farmers at nominal prices. These farms will also function as a source of fodder inputs like fodder seeds, fodder slips besides providing inputs on the package of practices in fodder cultivation.

Supplementation of by-pass protein feed to dairy cows is not a common practice and sensitization of the farmers through supply of mineral mixture for their cows will help them to realize their importance. Chopping of fodder will help in the effective utilization of nutrients.

Project Strategy

1. Subsidy for cultivation of 10 acre of green fodder in each block per year for 4 years to SHG women by Department of Animal Husbandry to encourage fodder cultivation.

2. Subsidy for cultivation of fodder in IDF villages and farmers field to 125 farmers per year for 1st and 3rd year , 150 farmers in 2nd year and 100 farmers for the fourth year (totally 500 farmers i.e. 500 acres in 4 years) by Department of Dairy Development.

3. It is proposed to utilize the area available in the District Livestock farm (DLF) at Abishegapatti for fodder cultivation. Fodder will be cultivated in 247 acre irrigated land and 200 acre will be utilized for the development of pasture and grazing land. (Detailed project already submitted)

4. The Dairy Development Department will develop fodder cultivation activities in 5 acres of land available in dairy or chilling centres and other available land of the department for production of fodder seed / slips in the first year

Sl. No.	Particulars	Amount (Rs. in Lakhs)
I	**Capital Investment**	
1.	Demarcation of boundary and fencing	0.60
2.	Land development	0.10
3.	Farm sheds for equipments seeds, manure etc.	0.20
4.	Purchase of Agricultural implements	0.10
5.	Creation of irrigation facilities (wells, pumps, powerline, water tanks, pump room, pipeline etc.)	0.50
	Sub Total (I)	**1.50**
II	**Recurring expenditure**	
1.	Wages of supervising staff	0.20
2.	Seeds, fertilizers / manure and insecticides	0.20
3.	Cultivation charges	0.05
4.	Irrigation charges	0.05
5.	Maintenance of store / dead stock	0.05
6.	Miscellaneous	0.05
	Sub Total (II)	**0.60**
	Grand Total (I + II)	**2.10**

5. Fodder seed production unit will be established at TANUVAS unit, Tirunelveli. Fodder will be cultivated in 5 acres per year for 4 years (totally 20 acres) for production of fodder seeds / slips.

6. Subsidy for small type Chaff cutter to 25 elite farmers per year for 4 years by Department of Dairy Development.

7. Supply of 15 mechanized chaff cutters for IDF villages on community basis during the second year of the project by Department of Dairy Development.

8. Supply of mineral mixture to dairy cows @ 1kg per cow per month for one year for 5000 cows per year for 4 years by Department of Animal Husbandry.

9. Supply of mineral mixture to the milch animals at subsidized cost (50%) @ 18 KG/ year for 875 milch animals per year for 4 years by Department of Dairy Development.

10. Supply of By-Pass protein feed to 750 milch animals per year for 4 years @ 360 kg per animal per year @ 50% subsidized cost by Department of Dairy Development.

11. Concentrate feed will be purchased for kanni goat adults and kids in the Kanni goat breeding farm at VUTRC, Tirunelveli for 4 years.

Project Goals

1. Augmentation of fodder production to meet the fodder shortage.
2. Establishment of fodder seed/slip production units.
3. Supplementation of mineral mixture to dairy cows to enhance production and fertility.
4. Enhancement of nutrient utilization in fodder by use of hand-operated and mechanized chaff cutters to enhance the nutrient utilization.
5. Supply of by-pass protein to milch animals to enhance production.

Project Components

- Subsidy for cultivation of 10 acre of green fodder in each block per year for 4 years to SHG women by Department of Animal Husbandry to encourage fodder cultivation. *(10 acre x 19 blocks = 190 acres/yr x 4 yrs = 760 acres)*

- Subsidy for cultivation of fodder in IDF villages and farmers field to 125 farmers per year for 1st and 3rd year , 150 farmers in 2nd year and 100 farmers for the fourth year (totally 500 farmers i.e. 500 acres in 4 years) by Department of Dairy Development.

- Fodder will be cultivated in 247 acre irrigated land and 200 acre will be utilized for the development of pasture and grazing land in the District Livestock farm (DLF) at Abishegapatti for fodder cultivation. (Detailed project already submitted)

- The Dairy Development Department will develop fodder cultivation activities in 5 acres of land available in dairy or chilling centres and other available land of the department for production of fodder seed / slips in the first year.

- Fodder seed production unit will be established at TANUVAS unit, Tirunelveli. Fodder will be cultivated in 5 acres per year for 4 years (totally 20 acres) for production of fodder seeds / slips.

- Subsidy for small type Chaff cutter to 20 elite farmers per year by Department of Dairy Development *(1 chaff cutter x 25 farmers= 25 cutters / yr x 4yrs =100 chaff cutters)*

- Supply of 15 mechanized chaff cutters for IDF villages on community basis during the second year of the project by Department of Dairy Development.

- Supply of mineral mixture to dairy cows @ 1kg per cow per month for one year for 5000 cows per year by Department of Animal Husbandry. *(1kg/cow/month for 1 year=12kg. 5000 cows/yr x 4yrs = 20000 cows x12kgs = 240000 kgs*)

- Supply of mineral mixture to the milch animals at subsidized cost (50%) @ 18 KG/ year for 875 milch animals per year by Department of Dairy Development. *(18kg/yr/animal x 875 animals/yr=15750 kgs/yr. x 4 yrs = 18kg x3500 animals= 63000 kgs)*

- Supply of By-Pass protein feed to 750 milch animals per year for 4 years @ 360 kg per animal per year @ 50% subsidized cost by Department of Dairy Development. *(360kg/animal/yr x 750 animals/yr = 2.70,000kg/yr. x 4yrs =10,80,000 kgs).* ie *360 kg x 3000 animals =10,80,000 kgs)*

- Concentrate feed for adult kanni goats in (90+10) kanni goat breeding farm at VUTRC, Tirunelveli for 4 years

- Concentrate feed for kanni goat kids in kanni goat breeding farm at VUTRC, Tirunelveli for 4 years.

Project Cost and Financing

(Rs. in lakhs)

S.No.	Scheme component	Unit Cost	No of Units / year	2008-09	2009-10	2010-11	2011-12	Total units	Total cost
1	**Subsidy to SHG for fodder cultivation.10 acre/block/yr**								
	1. Subsidy for fodder cultivation work	0.20	190	38.00	38.00	38.00	38.00	760	152.00
	2. Training cost:								
	a. Incentive @ Rs.100/person/day for 2 days for 15 members.	0.03							
	b. Refreshment @ Rs.10/day/person for 15 members.	0.003							
	c. study material – scribbling pad,pen @ Rs.15/person for 15 members	0.00225							
	Total Training cost/SHG	0.035	190	6.65	6.65	6.65	6.65	760	26.60
	Total	**0.235**	**190**	**44.65**	**44.65**	**44.65**	**44.65**	**760**	**178.60**

(Rs. in lakhs)

S.No	Scheme component	Unit Cost	No of Units / year	2008-09	2009-10	2010-11	2011-12	Total units	Total cost
2	**Subsidy for fodder cultivation in IDF villages & farmers field:**								
	1. Subsidy for fodder cultivation work	0.20	125	25.00	30.00	25.00	20.00	500	100.00
	2. Training cost:								
	a. Incentive @ Rs.100/person/day for 2 days for 15 members.	0.03							
	b. Refreshment @ Rs.10/day/person for 15 members.	0.003							
	c. Study material – scribbling pad,pen @ Rs.15/person for 15 members	0.00225							
	Total Training cost/SHG	0.035	125	4.375	5.25	4.375	3.50	500	17.50
	Total	**0.235**	**20**	**4.70**	**4.70**	**4.70**	**4.70**	**500**	**117.50**

(Rs. in lakhs)

S.No	Scheme component	Unit Cost	No of Units / year	2008-09	2009-10	2010-11	2011-12	Total units	Total cost
3	**Fodder cultivation in DLF Abishegapatti** 1. Erection of bore well (1 borewell and one motor and 4 additional 5hp motors) 2. Preparation of fodder land, land clearance cost of seeds, sowing cost @ Rs.13600/acre for 247 acres. 3. Land development and cost of seeds for pasture and grazing lands 4. Cost of maintenance of fodder plots @ Rs.6400/acre **TOTAL**			10.00 35.59 10.00 15.80 **71.39**					**71.39**
4	Fodder development activities in dairy and Chilling centres (5 acres in the first year)	2.10	5	10.50	-	-	-	5	10.50
5	Fodder seed production unit at VUTRC (5 acres per year for 4 years (totally 20 acres))	5.00	1	5.00	5.00	5.00	5.00	4	20.00

(Rs. in lakhs)

S.No	Scheme component	Unit Cost	No of Units / year	2008-09	2009-10	2010-11	2011-12	Total units	Total cost
6	Subsidy for small type Chaff cutter to Elite Farmers *(1 chaff cutter x 25 farmers= 25 cutters / yr x 4yrs =100 chaff cutters)*	0.20	25	5.00	5.00	5.00	5.00	100	20.00
7	Supply of Chaff cutters for IDF villages on community basis (15 cutters in 2nd year only)	0.70		-	10.50	-	-	15	10.50
8	Supply of mineral mixture to dairy cows @ 1kg per cow per month for one year. 12 kg/cow/yr	0.006	5000	30.00	30.00	30.00	30.00	20000	120.00
9	Supply of mineral mixture to the milch animals at subsidized cost (50%) @ 18 KG/ year	0.005	875	4.38	4.38	4.38	4.38	3500	17.52
10	Supply of By-Pass protein feed to milch animals @ 360 kg per animal per year @ 50% subsidized cost	0.033	750	24.75	24.75	24.75	24.75	3000	99.00

(Rs. in lakhs)

S.No	Scheme component	Unit Cost	No of Units / year	2008-09	2009-10	2010-11	2011-12	Total units	Total cost
11	Concentrate feed for adult kanni goats in (90+10) kanni goat breeding farm at VUTRC, Tirunelveli.	1.5	1	1.50	1.50	1.50	1.50	4	6.00
12	Concentrate feed for Kanni goat kids in kanni goat breeding farm at VUTRC, Tirunelveli.	0.30	1	0.30	0.30	0.30	0.30	4	1.20

Implementation Chart of the Project

S.No	Action Plan	2008-09	2009-10	2010-11	2011-12
1	Subsidy to SHG women for fodder cultivation. 10acre/ block/yr. 19 blocks/ yr. & conducting training on fodder cultivation.	●	●	●	●
2	Subsidy for cultivation of fodder in IDF villages and farmers field. 500 farmers in 4 years. & conducting training on fodder cultivation.	● (125)	● (150)	● (125)	● (100)
3	Fodder cultivation in DLF Abishegapatti	●			
4	Fodder development activities in dairy and Chilling centres (5 acres in the first year)	●			
5	Fodder seed production unit at VUTRC	●	●	●	●
6	Subsidy for small type Chaff cutter to Elite Farmers.25 farmer/yr	●	●	●	●
7	Supply of Chaff cutters for IDF villages on community basis (15 cutters in 2nd yearonly)		●		
8	Supply of mineral mixture to dairy cows @ 1kg per cow per month for one year 5000 cows/yr for 4 yrs	●	●	●	●
9	Supply of mineral mixture to the milch animals at subsidized cost (50%) @ 18 KG/animal/ year. 875 animals/yr.	●	●	●	●

S.No	Action Plan	2008-09	2009-10	2010-11	2011-12
10	Supply of By-Pass protein feed to milch animals @ 360 kg per animal per year @ 50% subsidized cost.750 animals/yr.	●	●	●	●
11	Concentrate feed for adult kanni goats in (90+10) kanni goat breeding farm at VUTRC, Tirunelveli.	●	●	●	●
12	Concentrate feed for Kanni goat kids in kanni goat breeding farm at VUTRC, Tirunelveli.	●	●	●	●

Reporting

Monthly progress report will be submitted to the concerned higher authorities.

2. Genetic Upgradation

Abstract

To preserve, conserve and propagate superior germplasm of livestock such as Cattle, Sheep, Goats, Pigs and Poultry the livestock unit at DLF, Abishegapatti will be strengthened.

It is proposed that 2,20,800 breedable female bovines are to be identified by ear tag with plastic (polyurethane) tags with laser printed unique numbers. Also, to provide a detail pass book with animals and owner details for the animals brought to the AI centers for AI and AI done by AI workers to enable unique identification and collection of data. The project will be jointly implemented by the Department of Animal Husbandry, and dairy Development Department of Tirunelveli district.

To improve conception rate, programmed breeding will be undertaken by Dairy Development Department. Estrus synchronization will be carried out in 500 numbers of indigenous cattle and 500buffaloes (Totally 1000) per year to increase the conception rate.

To improve meat production in the district, during the project period of four years, every year 1 SHG women will be selected from each block by the Department of Animal husbandry and each will be given subsidy for intensive system of Goat (20+1) rearing and one farmer will be selected from each block by the Department of Animal husbandry and each will be given subsidy for sheep (20+1) rearing.

To promote backyard poultry rearing to improve meat and egg production and socio economic status of rural women in the district, during the project period of four years, every year 100 SHG women will be selected from each block by the Department of Animal Husbandry in all the 19 blocks and each will be given Nandhanam B2 chicken (9+1) backyard unit.

Kanni goat breeding farm (90+10) will be established at VUTRC (TANUVAS unit) Tirunelveli. To accommodate the goats, sheds will be constructed feeders and waterers will be provided. Open well will be dug, electric installation will be done. Farm machineries and implements will be purchased. Farm approach road will be laid.

Budget : Rs.385.74 lakhs

Background / Problem Focus

The climatic and environmental conditions of Kanyakumari district are suitable for rearing high yielding crossbred milch cattle, goat and poultry. There is always heavy demand for milk, meat and egg consumption in the district. Poultry are the main source of nutrition and family income in rural areas of the state. The backyard poultry still accounts for 10-20 % of the total poultry production. Sheep and Goat rearing are important means of livelihood in the rural areas. While supporting agricultural activities, it provides supplementary employment and income to rural communities. The DLF Abishegapatti needs to be strengthened . In the present scenario there is no system of identifying animals exist. Programmed breeding is required to increase conception rate in indigenous cattle and buffalo. This district is the native tract for kanni goat.

Project Rationale

Livestock farms are maintained for selective scientific breeding of specific species of livestock. They serve as demonstration farms and training centre for needy farmers. Moreover, it acts as a source for quality livestock to the farmers. To preserve, conserve and propagate superior germplasm of livestock such as Cattle, Sheep, Goats, Pigs and Poultry the livestock unit at DLF, Abishegapatti is to be strengthened.

To promote livestock sector and to tap the potential for rural employment generation, the Government (state and Government of India) is implementing various schemes. Along with ensuring more effective disease control measures and improving the genetic quality of animals, a mechanism of assured protection to the livestock owners needs to be provided against eventual losses of such animals for which identification of livestock is a must

The Identification of Bovine is Essential

- For collection of accurate data of animals
- For tracking of sales, transfers and death of animals
- For monitoring and maintenance of general health and reproductive health of animals
- For assessing the utility and success of programmes implemented
- To design new programmes for economic animal husbandry practices
- To monitor AI, verify pregnancy and calf birth of the bovine population
- For helping the genuine farmers during natural calamities and disasters
- For the purpose of insuring the animals
- For identifying beneficiaries for the different schemes of the Government and other organizations
- To identify repeat breeding animals for further treatment.

The software that is being developed for the monitoring of breeding activities has the breed able females identify as the critical input and the software cannot be made operational without unique identification of the animals. Hence, the identification of animal is very essential.

Estrus synchronization (programmed breeding) of indigenous cattle and buffalo will improve conception rate.

There is always good marketing price and marketing potential available for mutton and chevon in the district. Goat and sheep rearing activity can, therefore, provide the much needed diversification to the rural economy; create sustainable employment and income opportunities, particularly women. It is now well documented that livestock activities can improve family nutrition, be an important and growing source of alternative income and form an important means of accumulating savings under the direct control of women.

It is a well known fact that a fairly significant proportion of the landless and marginal farmers earn their living from poultry and other small ruminants. Backyard poultry requiring hardly any infrastructure set-up is a potent tool for upliftment of the rural poor. Besides income generation, rural backyard poultry provides nutrition supplementation in the form of valuable animal protein and empowers women. There is always heavy demand for poultry meat and egg in this district. Marketing price is also good. Motivating the rural self help group women to rear back yard poultry will improve their socio economic status.

This district is the native tract for kanni goat. By establishing a Kanni goat breeding unit at VUTRC, Tirunelveli, young kids can be supplied to farmers.

Project Strategy

1. Strengthening of livestock unit at DLF, Abishegapatti. (Detailed proposal submitted already).

2. The identification system will record

    a. All breeding related details of the individual Animal

    b. The disease status / health status.

    c. Vaccination status

    d. Deworming details

    e. Details of previous illnesses

    f. The status of insurance (if insured) and the scheme in which the animal is covered will be mentioned

    g. Name and address of owner/ owners

    h. Physical identification markings of the animal (including tag nos.)

    i. Any other relevant detail

To enable the unique identification of breedable female bovine, it is proposed to ear tag the animals with plastic (polyurethane) tags with laser printed unique numbers and provide a detailed pass book with animals and owner details to all the animals brought to the AI centers for AI and AI done by AI workers. This work will be undertaken by the Department of Animal husbandry and Dairy development department and will be completed in the first year of the project period.

3. **Programmed breeding will be undertaken by Dairy Development Department. Estrus synchronization will be carried out in 500 numbers of indigenous cattle and 500 buffaloes (Totally 1000 animals) per year for 4 years to increase the conception rate.**

4. During the project period of four years, every year 1 SHG woman will be selected from each block by the Department of Animal husbandry in all the 19 blocks and each will be given subsidy for intensive system of Goat (20+1) rearing to improve meat production in the district.

5. During the project period of four years, every year 1 farmer will be selected from each block by the Department of Animal husbandry in all the 19 blocks and each will be given subsidy for sheep (20+1) rearing to improve meat production in the district.

6. During the project period of four years, 100 SHG women will be selected from each block per year by the Department of Animal husbandry in all the 19 blocks and Nandhanam B2 chicken (9+1) backyard unit will be supplied to each beneficiary .

7. Establishment of kanni goat breeding farm (90+10) at VUTRC,Tirunelveli. To accommodate the goats, sheds will be constructed, feeders and waterers will be provided. Open well will be dug, electric installation will be done. Farm machineries and implements will be purchased. Farm approach road will be laid.

Project Goals

1. To enhance milk, meat and egg production to meet the heavy demand in the district and to improve the economic status of livestock farmers, and rural women in the district.

2. To provide animal health officials with the capability to identify all animals and premises that have had a direct contact with a disease of concern.

3. Identify beneficiaries for implementing various schemes.

4. Selection of elite animals from the field for field based "Progeny testing scheme".

5. Selection of animals for breeding strategy. Thus, the Animal identification system will track animal movements from birth to death and for the purpose of disease tracking and other purposes.

Animal Identification and providing animal passbook to all the breedable females coming under AI coverage is the aim of the project. The success of any programme is dependant on the collection of data and the quality of data collected. Any data collected should be unique and mutually exclusive for maximum utility. One of the major deficiencies in collecting data on bovine breeding is lack of unique identification of animals.

6. To increase conception rate in indigenous cattle and buffaloes.

7. To preserve, conserve and propagate superior germplasms of livestock.

Project Components

- Strengthening of livestock unit at DLF, Abishegapatti. (Detailed proposal submitted already.

- It is proposed that female bovines brought to the AI center, or female bovines that are inseminated at the farmers doorstep shall be tagged with a tag having unique computer generated number which shall be a multipurpose identification device and the animal owner shall be issued a pass book after filling the details of the animals and this shall be used for all follow up and other related activities.

- The identification of the animal is the key for monitoring of bovine breeding activities It is proposed that 2,20,800 breedable female bovines are to be identified by ear tag with plastic (polyurethane) tags with laser printed unique numbers. Also, to provide a detail pass book with animals and owner details for

the animals brought to the AI centers for AI and AI done by AI workers to enable unique identification and collection of data. The programme is to be implemented through the Department of Animal Husbandry and Dairy Development Department.

- During the project period of four years, every year 1 SHG woman will be selected from each block by the Department of Animal husbandry and each will be given subsidy for intensive system of Goat (20+1) rearing to improve meat production in the district. *(1 SHG Woman × 19 blocks = 19 SHG women / year x 4 years = 76 SHG women in 4 years. Each beneficiary will be given 20+1 goat unit).*

- During the project period of four years, every year 1 farmer will be selected from each block by the Department of Animal husbandry and each will be given subsidy for sheep (20+1) rearing to improve meat production in the district. *(1 farmer × 19 blocks = 19 farmers / year x 4 years = 76 farmers in 4 years. Each beneficiary will be given 20+1 sheep unit).*

- Selection of 100 beneficiaries (self help group women) from each block in the district by the Department of Animal husbandry. Each beneficiary will be given 9 +1 Nandhanam B2 chicken backyard unit. *(100 SHG Women × 19 blocks = 1900 SHG women / year . Totally 7600 SHG women in 4 years = 7600 units).*

- Establishment of kanni goat breeding farm (90+10) at VUTRC,Tirunelveli. To accommodate the goats, sheds will be constructed, feeders and waterers will be provided. 3 Open well will be dug, electric installation will be done. Farm machineries and implements will be purchased. Farm approach road will be laid.

Project Cost and Financing

(in lakhs)

S. No	Scheme / component	Unit Cost	No of Units / year	2008-09	2009-10	2010-11	2011-12	Total units	Total cost
1	**Strengthening of livestock unit at DLF, Abishegapatti** 1. Purchase of 50 Sahiwal and 100 CBJ 2. Purchase of 50 sows and 10 boars 3. Purchase of 200 ewes and 10 rams 4. Construction of new sheds 12000 sq.ft for piggery @ Rs.250/sq.ft and 2000 sq.ft. @ Rs.200/sq.ft for poultry 5. Black topping existing Roads for 12 km@ Rs.2.00 lakh /km 6. Solar Fencing for 6 km @ Rs.1.00 lakh/km for irrigated lands 7. Barbed wire fencing for 18.64 km @ Rs.2.5 lakh per running km 8. Electrical fittings 9. Feed, medicine and animal maintenance **Total**			19.50 6.20 4.35 34.00 24.00 6.00 46.00 1.70 35.99 **177.74**					**177.74**
2	Identification & traceability of breedable bovines	0.0002	220800	44.16	-	-	-	220800	44.16

(in lakhs)

S. No	Scheme / component	Unit Cost	No of Units / year	2008-09	2009-10	2010-11	2011-12	Total units	Total cost
3	Programmed breeding of indigenous cattle & buffalo to increase conception rate	0.007	1000	7.00	7.00	7.00	7.00	4000	28.00
4	Subsidy to SHG women for intensive system of Goat (20+1) rearing. 1 unit / block/yr. 76 units in 4yrs.Rs.2000/goat. Rs.42000/unit.	0.42	19	7.98	7.98	7.98	7.98	76	31.92
5	Subsidy to SHG women for sheep (20+1) rearing. 1 unit /Block / yr. 76 units in 4yrs.Rs.2000/sheep. Rs.42000/unit.	0.42	19	7.98	7.98	7.98	7.98	76	31.92
6	Supply of Nandanam B2 chicken (9+1) backyard units to SHG women, @ Rs. 500/unit, 100 units/ block/year, 7600 units for 4 years	0.005	1900	9.50	9.50	9.50	9.50	7600	38.00
7	Establishment of Kanni goat (90+10) breeding farm at VUTRC	5.00	1	5.00	-	-	-	1	5.00
8	Construction of shed for goat at VUTRC	5.00	1	5.00	5.00	-	-	2	10.00
9	Feeders & waterers for goat farm at VUTRC	0.50	1	0.50	0.50	-	-	2	1.00
10	Open well & electrical installation at VUTRC	1.00	3	3.00	-	-	-	3	3.00
11	Goat Farm machineries & implements	7.00	1	7.00	-	-	-	1	7.00
12	Laying of farm approach roads at VUTRC	2.00	1	2.00	2.00	2.00	2.00	4	8.00

Implementing Chart of the Project

S.No	Action Plan	2008-09	2009-10	2010-11	2011-12
1	Strengthening of livestock unit at DLF, Abishegapatti.	●			
2	Identification & traceability of breedable bovines	●			
3	Programmed breeding of indigenous cattle & buffalo to increase conception rate	●	●	●	●
4	Subsidy to SHG women for intensive system of Goat (20+1) rearing	●	●	●	●
5	Subsidy to farmers for sheep (20+1) rearing	●	●	●	●
6	Supply of Nandanam B2 chicken (9+1)backyard units to SHG women, @ Rs.500/unit, 100 units/ block/year, 3600 units for 4 years	●	●	●	●
7	Establishment of Kanni goat (90+10) breeding farm at VUTRC	●			
8	Construction of shed for goat at VUTRC	●	●		
9	Feeders & waterers for goat farm at VUTRC	●	●		
10	3 Open well & electrical installation at VUTRC	●			
11	Goat Farm machineries & implements	●			
12	Laying of farm approach roads at VUTRC	●	●	●	●

Reporting

Monthly progress report will be submitted to the concerned higher authorities.

3. Improvement of Livestock Health

Abstract

The following schemes are proposed to improve livestock and poultry health in Tirunelveli district. The Department of Animal husbandry will establish Mobile Veterinary clinics in 10 taluks in Tirunelveli district to facilitate door step insemination, vaccination, deworming and treatment , Strengthen infrastructure facilities in 53 veterinary institutions in Tirunelveli district with basic facilities like fencing, bore wells, water trough, repairs etc, establish disaster management system for livestock. The department will provide health cover to livestock by controlling parasitic diseases through treatment to enhance vaccine response. It will provide health care to Desi chicken by giving Vaccination and deworming of 2 lakh Desi birds per year for 4 years.

Five mobile input route will be established by the Dairy Development Department to provide additional health cover and timely insemination services to the members of the Societies.

Budget : **Rs. 549.03 lakhs**

Background / Problem Focus

Infertility, mastitis and contagious diseases are the major problems among cattle in the district. This might be due to delayed or untimely insemination and inadequate treatment. Animals in some remote places do not get timely attention. Most of the veterinary institutions in the district require infrastructure facilities like fencing, bore wells, repair works etc. As and when the state experienced various calamities viz., flood, drought, tsunami, etc, the government, through the State Department of Animal Husbandry and Veterinary Services undertook relief measures by providing fodder, compensation for livestock lost and disease control measures by vaccinating the

susceptible livestock. Adequate attention is not given to eradicate parasitic diseases which inhibit vaccine response. Poultry mortality among desi birds is mainly due to Ranikhet disease. Worm infestation causes drop in egg production.

Project Rationale

Contagious diseases, infertility and mastitis are the major problems among crossbred cattle in the district. Untimely or delayed insemination is one of the reasons for infertility. Because of peoples involvement in other activities, adequate and timely veterinary aid is not given to the animals. Infertility and mastitis are major causes for reduction in milk production.

Even though veterinary dispensaries and sub centres are located in rural and semi urban areas there are still villages which are beyond the reach of veterinary services. Moreover, in some areas, the geographical terrain makes it difficult for the farmers to reach the nearest institution. The landless agricultural laborers and small farmers who own the cattle are unable to take their livestock to the nearest veterinary institution as they are pre-occupied in agricultural work. Further, the agricultural laborers have to forego half a day work in bringing their livestock to the veterinary institution /sub centres for treatment or artificial insemination.

In order to avoid such suffering and loss to the farmers and to provide veterinary services and breeding support in time at the doorsteps of the farmers, Mobile Veterinary Clinics are proposed in 10 taluks of the district.

Most of the veterinary institutions in the district require infrastructure facilities like fencing, bore wells, water trough, repair works etc.

Apart from death of livestock and the injuries they sustain, any disaster leads to problems in terms of extrication of animals that are caught in calamities, transporting the livestock to safer places, disposal of dead bodies of animals, hospitalization and care of survived animals etc.

The other indirect effects due to animal suffering from disaster include

1. Owners management inability
2. Scarcity of feed
3. Spread of disease due to change in environment
4. Stress / shock

This project of Disaster management scheme is proposed to strengthen the Animal husbandry department to act immediately and provide the necessary requirements in case of emergency due to natural calamities.

Various parasitic diseases in animals reduce vaccine response .It is necessary to control parasitic diseases through effective treatment to enhance vaccine response. In effective maintenance of cold chain for vaccine storage is also one of the reasons for vaccination failure.

As the poultry mortality occurs mainly due to Ranikhet disease, regular vaccination of desi poultry is required. Deworming of desi poultry is required to improve egg yield.

Project Strategy

Mobile Veterinary Unit

1. Mobile Veterinary clinic will be established in 10 taluks in the district, each will be under the control of Veterinary Assistant surgeon.

2. The mobile veterinary unit will cover even the remote villages in the taluk regularly and facilitate door step insemination, vaccination, deworming and treatment.

3. Each unit will consist of one Veterinary Assistant Surgeon, and 1 driver. The staff for the Mobile Veterinary Clinic will be sourced from the available staff in the department.

4. One Veterinary Assistant Surgeon will be in charge of the vehicle. The vehicle will cover the remote and inaccessible villages on a scheduled programme of operation and render Veterinary Services.

5. The unit will be provided with one vehicle at a cost of Rs.4.75 lakh.

6. Medicines will be sourced from the Veterinary institutions available in the block itself and thus no additional funds are required to each unit to carryout treatment, deworming, vaccination etc.

7. Necessary equipments like mouth gags, scalpels scissors, suture needles, forceps, AI guns, etc apart from LN2 containers sheath will be provided to each unit.

8. Diesel worth Rs.43,200/- will be provided per year (90 litres/unit/year) to each unit for running the vehicle.

9. The unit will prepare a scheduled tour programme on 6 days a week basis mentioning the villages that are being covered on each day about which the farmers will be intimated well in advance.

10. The units will go around the area of operation as per the programme and carryout the activities providing breeding support and veterinary health care.

Strengthening of Infrastructure Facilities in Veterinary Institutions

1. Construction of fence
2. Digging of bore wells
3. Construction of water trough
4. Maintenance and other repair works etc.

Disaster Management

Based on the past experience, a strategy for effective preparedness towards management of livestock during disaster, need to be implemented.

1. Training

The Veterinarians have to be exposed to the mechanisms of various natural calamities and prepared to meet the contingencies due to the effects of calamities. On the basis of the disaster experienced one has to improve or modify the preparedness. The objectives should be to train the personnel in-charge with contingencies that arise in the wake of calamities. Hence all the Veterinarians in the district need to be trained.

It is proposed to train all the 56 Veterinary Assistant Surgeons who will be the field work force at times of emergencies on various aspects of disaster mitigation at reputed training institutes. The training will include preparedness for calamities, arranging of logistics, Relief and rescue operations etc as a part of training module. A provision of Rs. 3000/- per veterinarian is provided which will include cost of training, study materials etc. The cost for training of Veterinarians works out to Rs.1.68 lakh.

2. Networking and Communication Facilities

Reliable communication is fundamental to identify immediate source of help and where help will be needed most. Telephone and Internet connectivity are the minimum requirement for effective communication during calamities. Hence the office of the Assistant Director (A.H.) in the district must be well connected for seeking and providing information. Emphasis should be on wireless connectivity. The local government authorities may be requested to train and equip at least one youth per block in HAM radio operation.

All the Assistant Directors have been provided with mobile phones. All the 56 Veterinary Dispensaries will be provided with mobile phones for quick communication.

The cost for providing one mobile phone instrument works out to Rs. 2000/- and the cost of connectivity works out to Rs.225/- per connection. This work will be undertaken during the first year itself.

4. Provision of Feed and Fodder

During calamities, there is every chance that livestock are deprived of feed and fodder. In order to tackle the shortage of feed and fodder, it is necessary to arrange availability of feed and fodder. The provision of feed will be of use during severe flood and drought. It is already proposed to establish fodder banks in the Government farms and hence funds are not required under this component.

5. Protection of Livestock against Diseases

The most serious problem arising in the wake of floods and cyclones is the outbreak of diseases among animals. It is important to prevent spread of diseases especially that of FMD, HS and BQ. Hence vaccination should be taken up to protect the animals against these diseases. One of the natural calamities is an epidemic. To overcome this there should be enough stock of vaccines and facilities for rapid communication, mobilization of vaccines and personnel. One of the means for making available and mobilization of vaccine is by having a communication network and delegation of powers to use office vehicles to transport vaccine at short notice. Hence it is proposed to keep a stock of 20% of the vaccine requirement in the districts . In the state, FMD vaccine and PPR vaccine are purchased from outside sources. . The cost of FMD vaccine is roughly Rs.8.00 per dose. FMD vaccine is purchased only for the cross bred population of 2,91,383 animals. The population that is to be protected is 20% of the total population (ie) 58,277 and the cost of purchase of vaccine works out to Rs. 4.663 lakh per year. The population of Goats that are prone for PPR disease is 3,90,570 and the population to be covered by PPR vaccine is 78,114 and the cost of vaccine is Rs.0.782 lakh per year@ Re.1 per dose.

6. Providing Animal Shelters for Livestock

In times of floods the affected people are moved to safe places a part of relief measures whereas their livestock are left to the mercy of elements. This results in losses to the farmers as their livelihood is dependent on the livestock. There is loss of production, sometimes deaths of livestock since they are orphaned. Hence it is proposed to construct and provide animal shelters in such districts that are frequently affected by floods. The plan for construction of shelters will also include provision for water storage.

It is proposed to provide shelter for Livestock @ Rs.300 per sq.ft for 500 animals per district, since the district experience floods in times of heavy monsoon and flooding. The shelters will be constructed in selected Veterinary Institutions in the districts so that land required for construction will be available and monitoring the animals is easy. Further, the animals will be under constant supervision. The floor space requirement for one animal will be 70 sq. ft. per animal. It is proposed to construct cattle sheds to accommodate about 100 animals in each institution. Five such shelters will be constructed in each district. The type design will be provided by the Animal Husbandry department and the works will be executed by the PWD.

Cost of construction of shelter to accommodate 100 animals in one Veterinary institution @ Rs.300/- per sq.ft works out to Rs.21.00 lakh.

The cost for construction of 5 shelters to accommodate 500 animals in one district works out to Rs.105.00 lakh.

Plan for Logistic

The local Veterinarian shall be made member of the disaster management setup by the local government and may be provided with the information as to the logistic arrangements that are in place for evacuation of animals, to transport potable water, feed and fodder in emergency situation. Preventive evacuation of the livestock should be included in any plan for the block. The veterinarian shall keep the farmers informed with regard to exigency plans for the transport of animals during calamities.

Control of Parasitic Diseases

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 total cost of the project will be Rs.16.28 Lakhs per year. The total cost will be Rs. 65.11 lakhs for 4 years. The project will be implemented by the Department of Animal Husbandry.

Mobile Input Unit

Establishing 5 mobile input units, each unit to cover 50 DCS by the Department of Dairy Development.

Health Care for Desi Poultry

To provide health care to desi poultry, vaccination and deworming will be done to 2 lakh birds per year for 4 years.

Project Goals

1. To facilitate door step insemination, vaccination, deworming and treatment even in remote places to improve animal health and production in the district.
2. To provide infrastructure facilities in Veterinary institutions.
3. To provide health care for livestock and poultry.
4. Caring of animals during natural calamities and effective disaster management.

Project Components

- Mobile Veterinary clinic will be established in 10 taluks in Tirunelveli district by the Department of Animal husbandry to facilitate door step insemination, vaccination, deworming and treatment.

- Strengthening of infrastructure facilities in 53 veterinary institutions in Tirunelveli district with basic facilities like fencing, bore wells, water trough, repairs etc.
- Disaster management system for livestock.
- Control of parasitic diseases through treatment to enhance vaccine response.
- Establishment of 5 mobile input unit by the Dairy Development Department.
- Health coverage for Desi poultry.

Project Cost and Financing

(Rs. in Lakhs)

S. No	Scheme / Component	Unit Cost	No of Units /year	2008-09	2009-10	2010-11	2011-12	Total units	Total cost
1	**Mobile Veterinary unit in 10 taluks.**								
	Equipment	0.30	10	3.00	-	-	-	10	3.00
	LN2 container (big)	0.30	10	3.00	-	-	-	10	3.00
	LN2 container (small)	0.05	10	0.50	-	-	-	10	0.50
	Bolero Jeep	4.75	10	47.50	-	-	-	10	47.50
	Diesel	0.432	10	4.320	-	-	-	10	4.32
	Total	**5.832**	**10**	**58.32**	**-**	**-**	**-**	**10**	**58.32**
2	Strengthening of infrastructure facilities in veterinary institutions	5.0	53	265.0	-	-	-	53	**265.0**
3	**Disaster management**								
	1. Training for VAS								
	2. Mobile phone at veterinary institutions	0.03	56	1.68				56	1.68
	3. Mobile phone connectivity charges	0.02	56	1.12				56	1.12
	4. Cost of vaccine	0.009	56	0.504				56	0.504
	5. Animal shelter	21.80		21.80					21.80
	Total	21.00	5	105.0 **130.10**				5	105.00 **130.10**
4	Control of parasitic diseases through treatment to enhance vaccine response. 4 times /yr. for 4 years (121135 calves, 487873 sheep and 390570 goats)	Rs 1/- per sheep & goat Rs 3/- for calf		16.28	16.28	16.28	16.28		**65.11**

(Rs. in Lakhs)

S. No	Scheme / Component	Unit Cost	No of Units /year	2008-09	2009-10	2010-11	2011-12	Total units	Total cost
5	**Establishment of 5 mobile input unit**		5						
	1. Salary for Veterinarian, one attendant & taxi hire charges	3.60		18.00	-	-	-	5	18.00
	2. Vet. equipment	0.66		3.33					3.33
	3. Registers, monitoring, administrative charges	0.24		1.20					1.20
	Total	**4.50**		**22.50**					**22.50**
6	Health care for desi birds. (vaccination and deworming), 2 lakh birds,/yr. Rs.1/year/bird, for 4 years	0.00001	2 lakh	2.0	2.0	2.0	2.0	8 lakh	**8.00**

Implementation Chart of the Project

S.No	Action Plan	2008-09	2009-10	2010-11	2011-12
1	Establishment of Mobile Veterinary Unit in 10 taluks	●			
2	Strengthening of infrastructure facilities in veterinary institutions	●			
3	Disaster management	●			
4	Control of parasitic diseases through treatment to enhance vaccine response	●	●	●	●
5	Establishment of 5 mobile input unit	●			
6	Health care for desi birds (vaccination and deworming)	●	●	●	●

Reporting

Monthly progress report will be submitted to the concerned higher authorities.

4. Processing Facilities

Abstract

To improve processing facilities, the Dairy Development Department will Supply portable Milking machines to 25 dairy farmers per year for 4 years to favour clean milk production and reduce labour cost. It will also supply 15 advanced automatic milking machines to ID farms during the second year of the project. The Dairy Development Department will establish one Bulk milk cooler, one Walk-in cooler, 4 manufacturing units for milk khoa , 2 manufacturing units for Panneer and 1 manufacturing unit for ice cream . 10 dormant MPCS will be revived during the 4 years. One MMPO quality control laboratory will be established by Dairy Development Department during the fourth year of the project. Milk weighing machines will be supplied to 40 Milk producers co operative societies during the period of 4 years. Twenty one P.C based automatic milk collection stations will be established in the district in 4 years. Energy management system in milk union will be established in the first year for solar power generation.

Budget : **Rs. 218.79 lakhs**

Background/Problem Focus

At present, in the majority of the dairy farms milking is done manually, which results in higher labour cost. Bulk milk cooler and walk-in cooler facilities to maintain the quality of milk are not available at present. Manufacturing facilities for milk khoa, panneer and ice cream are not sufficient .Some of the MPCS need to be revived. There is need for quality control laboratory to improve quality of milk and milk products. Milk weighing machines to measure the quantity of milk are not available in majority of Milk producers co operative societies. Labour problem in milk collection centres. High electricity tariff in processing units.

Project Rationale

In the majority of the dairy farms milking is done manually, which results in high labour cost. Supply of milking machines to dairy farmers and ID farms will favour clean milk production and reduce labour cost. To preserve the keeping quality of milk, bulk milk cooler and walk in coolers are required .Manufacturing facilities for milk khoa, panneer and ice cream are required to promote value added milk products. Some of the dormant MPCS need to be revived to improve milk procurement.

As milk is being produced / handled in rural areas and transported to towns and cities for supply, there is ample opportunity for bacterial contamination, addition of neutralizers, preservatives and adulterants. At present many private dairies are also processing and supplying milk to urban consumers. The quality of their supplies may vary greatly, because of careless operation, willful adulteration by unscrupulous operators. The processing operation may also lack careful supervision and proper checks at their level carried out under improper sanitary / hygienic conditions. Hence MMPO quality control laboratory is required.

To measure daily milk procurement, advanced milk weighing machines are required in Milk producers co- operative societies. P.C.based automatic milk collection stations will reduce labour problem. To solve electricity problem and reduce electricity bill, solar energy management system is required.

Project Strategy

- Distribution of portable milking machine to 25 dairy farmers per year for 4 years.
- Supply of 15 advanced automatic milking machines to ID farms during the second year.
- Establishment of one Bulk milk cooler.
- Establishment of one Walk –in cooler

- Establishment of 1 manufacturing unit of milk khoa per year in the first 2 years. (Totally 2 units).
- Establishment of 1 manufacturing unit of Panneer per year for the first 2 years (Totally 2 units).
- Establishment of 1 manufacturing unit of Ice cream during the 2nd year.
- Revival of 4 dormant MPCS during the first year and 2 MPCS per year for the remaining 3 years (Totally 10 MPCS).
- Establishment of one MMPO quality control laboratory during 4th year of the project. The MMPO quality control laboratory will analyze and take up the analytical checks to ensure safe, good quality milk and milk products conforming to the prescribed standards. The man power may be met out from Dairy Development Department or drafting from other Departments with proper training.
- Supply of Milk weighing machines to 10 MPCS per year for 4 years (Totally 40 machines).
- Establishment of 2 P.C based automatic milk collection stations per year for the first year, 3rd year, fourth year and 15 stations during the 2nd year of the project. (Totally 21 stations).
- Establishment of Energy management system in milk union for solar power during the first year of the project.

Project Goals

- To reduce labour cost for profitable dairy farming.
- To facilitate clean milk production.
- To increase milk production.
- To preserve keeping quality of milk.

- To improve the quality of milk and milk products
- To promote value added milk products.
- To solve electricity problem and reduce electricity bill.

Project Components

- Supply of portable Milking machines to 20 dairy farmers per year by Dairy Development Department to favour clean milk production and reduce labour cost.
- Supply of 15 advanced automatic milking machines to ID farms during the second year.
- Establishment of one Bulk milk cooler by Dairy Development Department.
- Establishment of one Walk – in cooler in Dairy Development Department
- Establishment of 4 manufacturing units for milk khoa by Dairy Development Department.
- Establishment of 2 manufacturing units for Panneer by Dairy Development Department .
- Establishment of one manufacturing for ice cream by Dairy Development Department.
- Revival of 4 dormant MPCS during the first year and 2 MPCS per year for the remaining 3 years (Totally 10 MPCS).
- Establishment of one MMPO quality control laboratory during 4^{th} year of the project.
- Supply of 40 Milk weighing machines to Milk producers co operative societies in 4 years.
- Establishment of 21 P.C based automatic milk collection stations by Dairy Development Department.
- Establishment of Energy management system in milk union for solar power.

Project Cost and Financing

(in lakhs)

S. No	Scheme / Component	Unit Cost	No of Units / year	2008-09	2009-10	2010-11	2011-12	Total units	Total cost
1	Supply of portable milking machines to farmers	0.18	25	4.50	4.50	4.50	4.50	100	18.00
2	Supply of automatic milking machines to ID farmers (15 nos. during 2nd year)	1.00	-	15.00	-	-	-	15	15.00
3	Establishment of Bulk milk cooler	30.0	1	30.0	-	-	-	1	30.00
4	Establishment of Walk-in cooler	30.0	1	30.0	-	-	-	1	30.00
5	Establishment of manufacturing facilities for milk khoa	0.77	1	0.77	0.77	0.77	0.77	4	3.08
6	Establishment of manufacturing facilities for Panneer	1.02	1	1.02	1.02	-	-	2	2.04
7	Establishment of manufacturing facilities for ice cream	1.12	1	1.12	-	-	-	1	1.12
8	Revival of dormant MPCS	1.00		4.00	2.00	2.00	2.00	10	10.00

(in lakhs)

S. No	Scheme / Component	Unit Cost	No of Units / year	2008-09	2009-10	2010-11	2011-12	Total units	Total cost
9	Establishment of MMPO laboratory The cost includes civil works for Rs. 12.00 Lakhs for 1000 sq.ft. @ Rs. 1,200/sq.ft, laboratory equipment for Rs. 30.00 Lakhs, glassware and chemicals for Rs.5 Lakhs, furniture, computer and accessories for Rs. 1 Lakh and a jeep for Rs. 6 Lakhs and training for Rs. 2 Lakhs.	56.00		-	-	-	56.00	1	56.00
10	Supply of Milk weighing machines to MPCS	0.17	10	1.70	1.70	1.70	1.70	40	6.80
11	Establishment of P.C based automatic milk collection stations. 2/yr in 1st, 3rd & 4th yrs.15 in 2nd year.	1.75		3.50	26.25	3.50	3.50	21	36.75
12	Establishment of Energy management system in milk union for solar power.	10.0		10.00	-	-	-	1	10.00

Implementing Chart of the Project

S.No.	Action Plan	2008-09	2009-10	2010-11	2011-12
1	Supply of portable milking machines to farmers	●	●	●	●
2	Supply of automatic milking machines to ID farmers (15 nos. during 2nd year)		●		
3	Establishment of Bulk milk cooler	●			
4	Establishment of walk in cooler	●			
5	Establishment of manufacturing facilities for milk khoa	●	●	●	●
6	Establishment of manufacturing facilities for Panneer	●	●		
7	Establishment of manufacturing facilities for ice cream	●			
8	Revival of dormant MPCS	● (4)	● (2)	● (2)	● (2)
9	Establishment of MMPO laboratory				●
10	Supply of Milk weighing machines to10 MPCS per year . 40 in 4 yrs	●	●	●	●
11	Establishment of P.C based automatic milk collection stations. 2/yr in 1st,3rd & 4th yrs.15 in 2nd year.	● (2)	● (15)	● (2)	● (2)
12	Establishment of Energy management system in milk union for solar power.		●		

Reporting

Monthly progress report will be submitted to the concerned higher authorities.

5. Extension Facilities (Training)

Abstract

Strengthening of TANUVAS centre (the Veterinary University Training and Research centre, Tirunelveli at Ramayanpatti) with facilities for transfer of technology through training programmes.

The Veterinary University Training and Research Centre, Tirunelveli will conduct training programmes on modern technologies in milch cattle rearing 25 farmers per block per year in all the 19 blocks in Tirunelveli district and all the 12 blocks in Thoothukudi district per year for 4 years. Scientific goat rearing training will be conducted by this centre to 25 SHG women per block per year in all the blocks in Tirunelveli (19) and Thoothukudi (12) districts per year for 4 years and backyard poultry rearing training will be conducted for 100 SHG women per block per year for all the 31 blocks per year for 4 years.

The Dairy Development Department will give Skill development training for 15 technical staff of its department per year for 4 years and conduct 4 Orientation training / workshop per year for milk producers at society level for 4 years. Dairy Development Department will undertake farmers study tour during every year of the project.

Budget : Rs.116.74 lakhs

Background / Problem Focus

Tirunelveli district has a suitable climatic condition for rearing livestock and poultry. Farmers are lacking scientific knowledge on modern technologies in profitable milch animal rearing, intensive system of goat rearing and poultry rearing.

Project Rationale

In order to educate the farmers on modern scientific way of rearing livestock and poultry, this project is proposed to impart training programmes to farmers and SHG women. The technical staff of Dairy Development Department require skill development training to do their duties effectively. Orientation training/ workshop for milk producers at society level is required to update their knowledge and share their their views. Farmers study tour is proposed to provide opportunities to farmers to visit various dairy industries.

Project Strategy

- Strengthening of TANUVAS centre (the Veterinary University Training and Research Centre, Tirunelveli) with facilities for transfer of technology through training programmes.

- Off campus training programmes on milch animal rearing will be conducted for farmers at block level (19 blocks in Tirunelveli district and 12 blocks in Thoothukudi district) by TANUVAS centre Tirunelveli. 25 farmers per batch. One training in each block per year for 31 blocks. 31 trainings per year. Totally 124 trainings in 4 years.

- Off campus training programmes will be conducted at block level (19 blocks in Tirunelveli district and 12 blocks in Thoothukudi district) by TANUVAS centre Tirunelveli to SHG women on scientific goat rearing. 25 women per batch. One training in each block per year for 31 blocks. 31 trainings per year. Totally 124 trainings in 4 years.

- Off campus training programmes will be conducted at block level (19 blocks in Tirunelveli district and 12 blocks in Thoothukudi district) by TANUVAS centre Tirunelveli to SHG women beneficiaries on modern method of backyard poultry rearing. 100 beneficiaries per block per year. 50 women per training batch. Two trainings in each block per year for 31 blocks. 62 trainings per year. Totally 248 trainings in 4 years.

- Skill development training for technical staff of Department of Dairy Development. Training for 15 staff in a year. Totally 60 staff in 4 years.

- 4 Orientation training / workshop per year for milk producers at society level by Dairy Development Department . Totally 16 programmes in 4 years.

- Farmers study tour to different model dairy farms and institutions by Dairy Development Department. 40 farmers per year for the first 3 years and 30 farmers for the fourth year. Totally 150 farmers in 4 years.

Project Goals

- Capacity building in the areas of livestock farming, goat rearing and backyard poultry rearing.

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

Project Components

a) Strengthening of TANUVAS centre (Veterinary University Training and Research centre, Tirunelveli) with facilities such as Van, LCD projector with Laptop computer, P.A system, Digital camera, Generator, Charts and displays for transfer of technology through training programmes.

b) Conducting off campus training programmes by TANUVAS centre on Milch cattle rearing at block level for the beneficiaries in each block in Tirunelveli and Thoothukudi districts. *(25 beneficiaries in each block / year; 25 × 31 blocks = 775 beneficiaries / year. 775 × 4 years = 3100 beneficiaries in 4 years*.)

c) Conducting off campus training programmes to SHG women by TANUVAS centre on scientific goat rearing at block level in Tirunelveli and Thoothukudi districts. (*25 beneficiaries in each block / year; 25 × 31 blocks = 775 beneficiaries / year. 775 × 4 years =3100 beneficiaries in 4 years*.)

d) Conducting off campus training programmes by TANUVAS centre on modern method of backyard poultry rearing at block level to SHG women beneficiaries in Tirunelveli and Thoothukudi districts.(2 trainings/block/yr x 31 blocks = 62 trainings/yr. x 4yrs =248 trainings. 50 women per each training. 50 women x 248 training =12400 beneficiaries in 4 years).

e) Skill development training for technical staff of Department of Dairy Development. *15 technical staff per year x 4 yrs = 44 staff.*

f) Orientation training / workshop for milk producers at society level by Department of Dairy Development *(4 programmes per year x 4 yrs = 16 programmes).*

g) Farmers study tour to different model dairy farms and institutions (DDD). *(40 farmers per year for the first 3 years and 30 farmers for the fourth year. Totally 150 farmers in 4 years).*

Project Cost and Financing

(in lakhs)

S. No	Scheme Component	Unit cost	No of Units /year	2008-09	2009-10	2010-11	2011-12	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**
2	Training programmes on modern technologies in Milch cattle rearing, 2 days, 25 farmers per batch, Rs.500/head (40% institutional charges), 31 batches/yr (TANUVAS)	0.125	31	3.88	3.88	3.88	3.88	124	15.52
3	Training programmes on scientific goat rearing, 2 days, 25 SHg women per batch, Rs.500/head (40% institutional charges), 31 batches/yr (TANUVAS)	0.125	31	3.88	3.88	3.88	3.88	124	15.52

(in lakhs)

S. No	Scheme Component	Unit cost	No of Units /year	2008-09	2009-10	2010-11	2011-12	Total units	Total cost
4	Training programmes on backyard poultry rearing to women SHGs, 2 days, 50 members/ batch, Rs. 500/head, (40% institutional charges), 62 batches/yr. 248 batches in 4 yrs (TANUVAS)	0.250	62	15.50	15.50	15.50	15.50	248	62.00
5	Skill development training for technical staff of DDD @ Rs.5000/- per staff, 60 persons for 4 years 15 staff per year	0.05	15	0.75	0.75	0.75	0.75	60	3.00
6	Orientation training / workshop for milk producers at society level Rs.20,000 per programme, 4 programmes/year, for 4 years	0.20	4	0.80	0.80	0.80	0.80	16	3.20
7	Farmers study tour (DDD) 40 farmers/yr for the first 3 yrs and 30 farmers in the 4th year. Totally 150 farmers.	0.05	1	2.00	2.00	2.00	1.50	150	7.50

Implementation Chart of the Project

S.No	Action Plan	2008-09	2009-10	2010-11	2011-12
1	Strengthening of TANUVAS centre with facilities for transfer of technology - Training	●			
2	Training programmes on modern technologies in Milch cattle rearing 2 days, 25 SHg women per batch, 31 batches/yr. by TANUVAS	●	●	●	●
3	Training programmes on scientific goat rearing, 2 days, 25 SHg omen per batch, 31 batches/yr .(TANUVAS)	●	●	●	●
4	Training programmes on backyard poultry rearing to women SHGs, 2 days, 50 members/ batch, 18 batches/yr. 72 batches in 4 yrs(TANUVAS)	●	●	●	●
5	Skill development training for technical staff of DDD	●	●	●	●
6	Orientation training / workshop for milk producers at society level (DDD)	●	●	●	●
7	Farmers study tour (DDD)	●	●	●	●

Reporting

Monthly progress report will be submitted to the concerned higher authorities.

Table 62. Project Proposal for Animal Husbandry Sector

(Rs.in lakh)

Sl. No.	Name of the Programme	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
1	**CATTLE & BUFFALO**											
I	**FEED AND FODDER DEVELOPMENT**											
1	Augmentation of fodder production through SHGs/women entrepreneurs, Rs. 0.235 Lakh/acre, 10 acres / Block /year for 4 years, 190 acres /year, 760 acres / 4 years (D.A.H)	0.235	190	44.65	190	44.65	190	44.65	190	44.65	760	178.60
2	Fodder development activities (in IDF villages & farmers field (DDD)	0.235	125	29.38	150	35.25	125	29.38	100	23.50	500	117.50
3	Fodder cultivation in DLF Abishekapatti (DAH)			71.39								71.39
4	Fodder development activities (for production of fodder seed/ slips in dairy or chilling centres & land of DDD) acres (DDD)	2.10	5	10.50							5	10.50

Table 62. Contd… **(Rs. in lakh)**

Sl. No.	Name of the Programme	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
5	Fodder seed production unit at VUTRC, Tirunelveli. 5 acres/year. 20 acres in 4 yrs) (TANUVAS)	5	1	5.00	1	5.00	1	5.00	1	5.00	4	20.00
6	Chaff cutters for elite farmers (small type) @Rs.20,000 as 100% Grant (DDD)	0.20	25	5.00	25	5.00	25	5.00	25	5.00	100	20.00
7	Chaff cutters for IDF villages on community basis (mechanised) (DDD)	0.70		0.00	15	10.50	0	0.00	0	0.00	15	10.50
8	Supply of mineral mixture to dairy cows @ Rs.600/cow/year, 1 kg / cow / month @ Rs.50/kg,12 kg/year, 5000 cows/year, 20,000 cows/4years (DAH)	0.006	5000	30.00	5000	30.00	5000	30.00	5000	30.00	20000	120.00
9	Supply of mineral mixture to the milch animals at subsidised cost (50%) @ 18 Kg/ year (DDD)	0.005	875	4.375	875	4.375	875	4.375	875	4.375	3500	17.50

Table 62. Contd… **(Rs. in lakh)**

Sl. No.	Name of the Programme	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
10	Supply of By-pass protein feed to the milch animals (360Kgs/ year/animal @ 50% subsidised cost of Rs.9/- per kg.) (DDD)	0.033	750	24.75	750	24.75	750	24.75	750	24.75	3000	99.00
II	**GENETIC UPGRADATION**											
1	Strengthening of livestock unit at DLF, Abishekapatti (DAH)			177.74								177.74
2	Identification and traceability of breedable bovines @ Rs.20/animal, for 220,800 animals (DAH)	0.0002	220800	44.16							220800	44.16
3	Programmed breeding indigenous cattle & buffalo to increase conception rate (DDD)	0.007	1000	7.00	1000	7.00	1000	7.00	1000	7.00	4000	28.00
III	**IMPROVEMENT OF LIVESTOCK HEALTH**											
1	Establishment of mobile veterinary clinics in each taluk @ Rs.5.832 Lakhs/unit, for 10 units (DAH)	5.832	10	58.32	0	0.00	0	0.00	0	0.00	10	58.32

Table 62. Contd… **(Rs. in lakh)**

Sl. No.	Name of the Programme	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
2	Institutional Development-Strengthening of veterinary institutions with basic facilities like fencing, bore-wells, water troughs, repairs etc. @ Rs.5.0 Lakh /Institution, for 53 unit (DAH)	5	53	265.00	0	0.00	0	0.00	0	0.00	53	265.00
3	Disaster management (5 shelters to accommodate 100 animals each, Training & mobile phones for 56 VAS & Vaccines. (DAH)			130.10								130.10
4	Control of parasitic diseases through treatment to enhance vaccine response (DAH)			16.28		16.28		16.28		16.28		65.12
5	Mobile input units (one per 50 DCS) (DDD)	4.50	5	22.50	0	0.00	0	0.00	0	0.00	5	22.50
IV	**PROCESSING FACILITIES**											
1	Milking machines for ID Farms (DDD)	1.00		0.00	15	15.00					15	15.00
2	Portable Milking machines for farmers (DDD)	0.18	25	4.50	25	4.50	25	4.50	25	4.50	100	18.00

Table 62. Contd… **(Rs. in lakh)**

Sl. No.	Name of the Programme	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
3	Bulk milk cooler (DDD)	30.00	1	30.00	0	0.00	0	0.00	0	0.00	1	30.00
4	Walk-in Coolers (DDD)	30.00	1	30.00	0	0.00	0	0.00	0	0.00	1	30.00
5	Manufacturing facilities for milk khoa(DDD)	0.77	1	0.77	1	0.77	1	0.77	1	0.77	4	3.08
6	Manufacturing facilities for Panneer (DDD)	1.02	1	1.02	1	1.02	0	0.00	0	0.00	2	2.04
7	Manufacturing facilities for Ice cream(DDD)	1.12		0.00	1	1.12	0	0.00	0	0.00	1	1.12
8	Revival of dormant MPCS (DDD)	1.00	4	4.00	2	2.00	2	2.00	2	2.00	10	10.00
9	MMPO laboratory (DDD)	56.00		0.00					1	56.00	1	56.00
10	Milk weighing machine for milk producers co-op. societies (DDD)	0.17	10	1.70	10	1.70	10	1.70	10	1.70	40	6.80
11	P.C.based automatic milk collection stations to IDF villages milk producers cooperative societies (DDD)	1.75	2	3.50	15	26.25	2	3.50	2	3.50	21	36.75
12	Energy management system (DDD)	10.00	1	10.00							1	10.00

Table 62. Contd… **(Rs. in lakh)**

Sl. No.	Name of the Programme	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
V	**EXTENSION FACILITIES**											
1	Strengthening of TANUVAS Centre, Nagercoil at Parakkai with facilities for Transfer of Technology – Training @ Rs10.00 Lakhs (TANUVAS)	10.00	1	10.00	0	0.00	0	0.00	0	0.00	1	10.00
2	Training programmes on modern technologies in Milch cattle rearing, 2 days, 25 farmers per batch, Rs.500/head, 124 batches (TANUVAS)	0.125	31	3.88	31	3.88	31	3.88	31	3.88	124	15.52
3	Skill development for Technical staff (DDD)	0.05	15	0.75	15	0.75	15	0.75	15	0.75	60	3.00
4	Orientation training / workshop for milk producers at society level (DDD)	0.20	4	0.80	4	0.8	4	0.8	4	0.8	16	3.20
5	Farmers study tour @ Rs.5000/- per farmer (DDD)	0.05	40	2.00	40	2.00	40	2.00	30	1.5	150	7.50

Table 62. Contd… **(Rs. in lakh)**

Sl. No.	Name of the Programme	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
2	**SHEEP & GOAT**											
I	**FEED AND FODDER DEVELOPMENT**											
1	Concentrate feed for adult kanni goat (TANUVAS)	1.5	1	1.50	1	1.50	1	1.50	1	1.50	4	6.00
2	Concentrate feed for kanni goat kid (TANUVAS)	0.3	1	0.30	1	0.30	1	0.30	1	0.30	4	1.20
II	**GENETIC UPGRADATION**											
1	Subsidy to SHG women for intensive system of Goat (20+1) rearing. 1 unit / block/yr. 76 units in 4 yrs.Rs.2000/goat. Rs.42000/unit. (DAH)	0.42	19	7.98	19	7.98	19	7.98	19	7.98	76	31.92
2	Subsidy to farmers for Sheep (20+1) rearing. 1 unit / block/yr. 76 units in 4 yrs.Rs.2000/goat. Rs.42000/unit. (DAH)	0.42	19	7.98	19	7.98	19	7.98	19	7.98	76	31.92
3	Establishment of kanni goat breeding farm (90+10) at VUTRC,Tirunelveli (TANUVAS)	5	1	5.00							1	5.00
4	Construction of shed (TANUVAS)	5	1	5.00	1	5.00					2	10.00

Table 62. Contd… **(Rs. in lakh)**

Sl. No.	Name of the Programme	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
5	Feeders & waterers for the goat farm (TANUVAS)	0.5	1	0.50	1	0.50					2	1.00
6	Open well & electric installation (TANUVAS)	1	3	3.00							3	3.00
7	Farm machineries & implements (TANUVAS)	7	1	7.00							1	7.00
8	Laying of farm approach roads (TANUVAS)	2	1	2.00	1	2.00	1	2.00	1	2.00	4	8.00
III	**EXTENSION FACILITIES**											
1	Training programmes on scientific goat rearing to women SHGs, 2 days, 25 members/ batch, Rs. 500/head, 124 batches (TANUVAS)	0.125	31	3.875	31	3.875	31	3.875	31	3.875	124	15.50
3	**POULTRY**											
I	**GENETIC UPGRADATION**											
1	Supply of Nandanam B2 chicken (9+1)backyard units to SHG women, @ Rs. 500/unit, 100 units/block/year, 7600 units for 4 years (DAH)	0.005	1900	9.50	1900	9.50	1900	9.50	1900	9.50	7600	38.00

Table 62. Contd… **(Rs. in lakh)**

Sl. No.	Name of the Programme	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
II	**IMPROVEMENT OF HEALTH**											
1	Health care for desi birds (vaccination and deworming), 2 lakh birds/yr, Rs.1/year/bird, for 4 years (DAH)	0.00001	200000	2.00	200000	2.00	200000	2.00	200000	2.00	800000	8.00
III	**EXTENSION FACILITIES**											
1	Training programmes on backyard poultry rearing to women SHGs, 2 days, 50 members/ batch, Rs. 500/head, 248 batches In 4 years (TANUVAS)	0.25	62	15.50	62	15.50	62	15.50	62	15.50	248	62.00
	Total			**1120.19**		**298.74**		**236.98**		**286.6**		**1942.46**

6.5.1 Fisheries Sector

Intervention required Areas

- Infrastructure development to attain self sufficiency in fish seed production through private & Government.
- Expansion of fish culture in hitherto unutilized water bodies
- Infrastructure development to modernize existing marketing facilities in key areas
- Provision of support to retail fish marketing
- Deployment of artificial reefs to conserve fishery resources
- Improving the fishing efficiency & introducing the fast growing fishes from upland waters to terrain inland water bodies thereby increasing the inland fish production.

Project Proposals

1. Complete Renovation of Department Fish Seed Farm with Infrastructure Facility at Manimuthar

Project Cost and Financing

a. Renovation cost including repairing the structure, plastering, pipeline, valves Rs.3000/-.

b. Total area to be renovated – 12,515 sqmt**.**

Abstract

The old farm in Manimuthar is having 6 breeder pond, 4 rearing pond (damaged condition) and 46 nursery pond. The entire farm is out dated without proper maintenance. To have proper electrification, conversion of earthen pond to R.R masonry we can modernise the fish farm for rearing fish seed production and rearing purpose. So it may be treated as renovation of fish farm and the rearing space is increased to 12,515 sqmt. and the fingerlings production can be increased .

Budget : Rs. 375.45 lakhs

Unit cost	0.03/m2 (excavation, bund preparation, stone pitching and plastering)
Total units proposed	12515.00
Total cost	375.45 lakhs

Implementation Chart of the Project

Sl. No.	Activities	I Qtrs	II Qtrs	III Qtrs	IV Qtrs
1.	Tender floating and execution of work	√	√	√	√

Reporting

The project will be implemented by Department of Fisheries.

2. Creation of Additional Rearing Space in National Fish Seed Farm, Manimuthar

Abstract

To increase fingerlings production it is proposed to create additional nursery space in the existing National fish seed Farm, Manimutharu. It is proposed to construct 32 nurseries of size 12x6x1.3 mt, and four rearing .pond of size 45mx15x1.5 size.

Budget : Rs. 192.00 lakhs

Project Cost and Financing

Unit cost	0.03/m2 (excavation, bund preparation, stone pitching and plastering)
Total units proposed	6400 m2
Total cost	192.00 lakhs

Implementation Chart of the Project

Sl. No.	Activities	I Qtrs	II Qtrs	III Qtrs	IV Qtrs
1.	Tender floating and execution of work	√	√	√	√

Reporting

The project will be implemented by Department of Fisheries.

3. Development of Landing Centre at Manimuthar

Abstract

To supply good quality fishes in good condition without any delay after cater, in hygienic condition. The fishes are to be sold to public for consumption this particular landing centre is essential at Manimuthar. Equipping the landing centre with storage facilities like cold store will help in storing the fishes when caught in plenty .Fishes caught from the landings are to be placed in hygienic floor by providing tiles and fishes are transported by Plastic crates.

Budget : Rs. 5.00 lakhs

Project Rationale

To increase the sale of freshwater fishes caught from seasonal and irrigational tank in order to increase the sale of fishes.

Project Strategy

To increase the sale of fresh water fishes through the landing centre and encourage the fish farmers to utilize this landing centre for getting higher income for fishes.

Project Goals

To create fish landing centre in Tirunelveli district for increasing the sale of freshwater fishes.

Project Components

Fish landing with all facilities (Auction hall, cold storage facilities, etc.

Project Cost and Financing

a. Repairing and renovation of existing landing site	-	Rs.2,00,000
b. Providing refrigeration/deep freezer facilities for storage	-	Rs.2,00,000
c. Roofing the landing control	-	Rs.1,00,000
Total	**-**	**Rs.5,00,000**

Implementation Chart of the Project

Sl.No.	Activities	2008-09
1.	Tender floating and execution of work	√

Reporting

The project will be implemented by State Fisheries Department and the progress will be reported periodically.

4. Supply of Fishing Implements (Craft with OBM) 100% Grant

Abstract

In Tirunelveli district, there are 8 reservoirs which are utilized for fish culture. These reservoir require close monitoring and patrolling for conserving the fishery resources. But the department does not have suitable crafts .If it is provided the fishery resources can be conserved and increase the fish production

Budget : Rs. 5.00 lakhs

Background / Problem Focus

Poor fishing facilities result in poor yield per unit effort. This is a bad experience for the fishermen engaged reservoir fishing. Keeping this is in view it is felt that the fishing should be encouraged with suitable fishing implements.

Project Rationale

To enhance fish production through capture fisheries by providing suitable fishing implements such as craft and motors.

Project Strategy

To provide 2 nos. of crafts with OBM to the inland fishermen.

Project Goals

To intervene fishing in natural water bodies.

Project Components

Supply of FRP crafts with OBM

Project Cost and Financing

a.	Cost of FRP craft (12 feet)	-	Rs.1,50,000
b.	Cost of Zamcha art board engine 12 HP	-	Rs.1,00,000
	Total		**Rs.2,50,000**

Total cost 2.5 lakhs x 2 units : 5 lakhs

Implementation Chart of the Project

Sl. No.	Activities	I Qtrs	II Qtrs	III Qtrs	IV Qtrs
1.	Supply of fishing craft with OBM	√	√	√	√

Reporting

The progress of the project will be evaluated by State Fisheries Department periodically.

5. Sea Ranching to Improve the Stock in the Sea

Abstract

In Tirunelveli district along the coastal belt of Gulf of Mannaar sea to replenish the wild stock it is essential to introduce the hatchery reared juveniles of the various shrimps and fishes into the open sea through the process of sea ranching. Thoothukudi region has already implemented such sea ranching programmes successfully. The rearing of 1 million seeds could be carried out at a time in nursery for 45 days or until the species reaches juvenile stage and then released into the open sea (1 unit = 1 million, costing Rs.7.00 lakhs including seed cost, rearing cost, feed cost, labour cost etc).

Budget : Rs. 56.00 lakhs

Project Cost and Financing

Unit cost (cost of seeds and rearing)	Rs.7.00 lakhs
No. of units	8 million
Total cost	Rs.56.00 lakhs
Duration	4 years
Area of Implementation	Tirunelveli coastal villages
Implementing Agency	Department of Fisheries
Mode of Implementation	Employing cages in Punnakayal model prawn farm for rearing the seed and released into the open sea using hired fishing crafts
Bench mark	2 million seeds to be ranched every year
Plan of Action	Introduced the seed into nurseries, proper feeding and water management to followed, harvesting after 45 days and ranching into the sea
Expected output	Replenishment of wild stock in the Gulf of Mannar

Implementation Chart of the Project

Sl.No.	Activities	I Qtrs	II Qtrs	III Qtrs	IV Qtrs
1.	Seed production and ranching	√	√	√	√

Reporting

The work will be implemented by State fisheries Department.

6. Deployment of Artificial Reefs

Abstract

The introduction of artificial reefs in Thoothukudi district in the yester years have fetched good results especially better accumulation of algae, bacteria and micro organisms over the reefs which form good natural food for the fishes. It helps as feeding grounds and breeding grounds for the fishes. It helps to extend the food chain in the sea there by forming a complex food web inside helping to sustain various species of fishes. This results in good multiplication and congregation of fishes around the artificial reef areas. On the same lines it is proposed to deploy 7 units of artificial reefs in Radhapuram taluk of Tirunelveli district.

Budget : 90 lakhs

Background / Problem Focus

Fish aggregating device facilitates concentration of various fish species and invertebrate organisms to harbour in a particular locality like coral reef base, heaped boulders, sea grass bed, and will serve as a feeding and spawning ground. In the event of removal of such bases from the natural ecosystem, the fish species scatter themselves for want of protection and threat from predatory fishes and aquatic animals. Dredging of sea bottom constantly would drive away the fish population from one territory to another territory. Blasting of the sea and dynamite fishing has caused enormous threat to the fish aggregating locality in the past and they have to be rehabilitated by artificial means to

sustain the fishery and conserving from destruction. Fish aggregation devices would help fish to find their feeding and breeding grounds for prolifying themselves easily. So FADs are novel ways to make the distant fish species to be attracted towards an artificial device. This would also help the fisher folk to involve themselves collectively to rejuvenate the coastal fauna and flora to meet out their fishing needs and livelihood.

Project Rationale

- To enrich the inshore waters with diversified fish species
- To help the fishermen for good catch of fish
- To provide a protected ground for various fauna and flora
- To retain the semi natural ecosystem

Project Strategy

To implement the programme of community FADs in all the coastal districts to support marine fishery and stock retention.

Project Goals

- To identify suitable ground along the coast to install FADs like concrete structures, boulders, and other fibre reinforced structures without polluting the coastal ecosystem.

- To give awareness to the fishermen and coastal fisher folk about the value of FADs to implement the programme with fishermen participation for community development.

Project Components

Installation of FADs of various shapes and with different components like stone pitchments, barrels, tyres, hollow material and dead corals

Project Cost and Financing

Sl.No.	Components	Rs. in lakhs
1.	An FAD of 10 metre diameter and 5 mt.height made up of concrete or FRP materials	5.00
2.	Anchorage	5.00
3.	Floor mast	1.50
4.	Training fisher folk	1.00
5.	Management cost (coolie wages, fuel, miscellaneous cost)	1.50
	Total	**15.00**
	Total cost 6 unit x 15 lakhs	**90 lakhs**

Project Implementation Chart

Sl.No.	Particulars	I Qtr	II Qtr	III Qtr	IV Qtr
1.	Identification of suitable coastal site for installation	√			
2.	Design and fabrication of FADs		√		
3.	Installation			√	
4.	Training			√	√
5.	Sampling and fish catch		√	√	√

Reporting

The efficiency of FADs kept installed in the coast will be periodically monitored and aggregation of fish species will be observed and reported to the authorities through fisher folk with community involvement.

7. Modern Fish Retail Outlet

Abstract

In Tirunelveli district, there are established fish markets at Palayamcottai and Tenkasi. 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 retail outlet.

Budget : 20 lakhs

Background / Problem Focus

The modern fish retail outlet will be used to keep the excess stock until selling.

Project Rationale

To avoid fish spoilage & loss of quality & revenue.

Project Strategy

The facility will be established at Salem district.

Project Goals

To avoid loss of revenue this outlet will be established.

Project Components

Total Units	-	2
I year 2008-2009	-	one retail market
III year 2010-2011	-	one retail market

Project Cost and Financing

S.No	Details	Cost (in lakh)
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**

2 units x 10,00,000 : 20 lakhs

Implementation Chart of the Project

S.No	Particulars	2008-12			
		I Qtr	II Qtr	III Qtr	IV Qtr
1.	Purchase and supply of insulated ice boxes	√	√	√	√

Reporting

The project will be implemented by State Fisheries Department.

8. Provision of Moped with Ice Box for Retail Fish Marketing (50% subsidy)

Abstract

Tirunelveli district is mostly agrarian comprising rural areas with poor roads and logistic facilities. The fish caught in the coast, rivers, weirs and rural ponds reach the market and to the consumers in poor quality. To add value and quality to the landings, it is necessary to provide them with mopeds with ice boxes.

Budget : Rs. 4.50 lakhs

Background / Problem Focus

For transporting and progressing fish hygienically.

Project Rationale

Fishermen and vendors will be provided with ice box and mopeds could help make available of the fish produce in time with quality retention.

Project Strategy

Making available mopeds and ice box at affordable price to meet the fishermen needs.

Project Goals

To promote and sale of fish of high quality with hygiene

Project Components

Supply of 30 units of mopeds with ice box at 50% subsidy

Project Cost and Financing

1. Cost of moped	Rs.12,500
2. Cost of ice box	Rs. 2,500
Total cost	**Rs.15,000**

Rs. 0.15 lakh for 30 units

Implementation Chart of the Project

Sl.No.	Particulars	I Qtr	II Qtr	III Qtr	IV Qtr
1.	Supply of moped with ice box	√	√	√	√

Reporting

Progress of the project will be reported periodically.

9. Provision of Insulated Van

Abstract

Tirunelveli district is mostly agrarian comprising rural areas with poor roads and logistic facilities. The fish caught in the coast, rivers, weirs and rural ponds reach the market and to the consumers in poor quality. To add value and quality to the landings, it is necessary to provide them with Insulated Fish Transporting vehicle.

Budget: Rs. 7.50 lakhs

Background / Problem Focus

Fishes are landed through out the year in Chennai and towards north direction of Chennai. These has to be pooled to cater the requirement of people in the interior place**.**

Project Rationale

It is necessary to supply a good quality fish without any quality deterioration.

Project Strategy

Purchase of insulated vehicle will help in transporting fish from coastal region to Interior places.

Project Goals

To provide good quality fish to consumers.

Project Cost and Financing

Cost of van with insulated containers – Rs.7,50,000/-.

Implementation Chart of the Project

S. No.	Particulars	I Qtr	II Qtr	III Qtr	IV Qtr
1.	Purchase of van	√			
2.	Insulated box		√		
3.	Trials			√	
4.	Regular transportation of fishes			√	√

Reporting

The units will be established and maintained by Dept. of Fisheries & TNFDC.

10. Desiliting and Deepening of Kadana Tank

Abstract

In order to meet out the demand of freshwater fishes of this district, its proposed to renovated the existing damaged nurseries at Kadana tank.

Budget : Rs. 25.00 lakhs

Background / Problem Focus

At present there are two Government fish seed production centres in this district. One at Vagai Dam and another at Kadana tank which able to produce only 17.50 lakhs fingerlings per year. Therefore it is proposed to desilt Kadana tank in order to increase water holding capacity and fish production.

Project Rationale

Desilting of Kadana tank to increase the water holding capacity and improve fish production

Project Strategy

To increase the fish production through desilting of Kadana tank.

Project Goals

Desilting of Kadana tank in order to increase the water holding capacity so that year around fish production can be done.

Project Components

Desilting of Kadana tank.

Project Cost and Financing

Unit cost	Rs. 5 lakh /ha (excavation and deepening)
Total units proposed	5 ha
Total cost Rs. 5 lakhs x 5 units	25 lakhs

Implementation Chart of the Project

Sl.No.	Particulars	I Qtr	II Qtr	III Qtr	IV Qtr
1.	Desilting and deepening	√	√	√	√

Reporting

Progress of work will be evaluated by State Fisheries Department.

11. Assessment of Productivity for enhancing Fish Production in Manimuthar Reservoir

Abstract

Manimuthar Reservoir is a small reservoir with a water spread area of 940 ha (FRL). Generally the fish yield from small reservoirs is estimated around 50 kg/ha/yr. In order to increase the fish yield from this level to about 100 kg/ha/yr, the proper management of water quality aspects through scientific management of reservoirs is possible and hence this project is proposed to enhance fish production from this Manimuthar Reservoir.

Budget : Rs. 15.00 lakh

S.No	Particulars	Amount (Rs.)
I.	**Cost of Personnel**	
	a. SRF- 2 Nos. @ Rs.15,000/-p.m	3,60,000
	b. Field Assistant – 2 Nos. @Rs.7,000/-p.m	1,70,000
II.	**Recurring**	
	Chemicals, glass Wares. etc.	50,000
	a. Seed cost (approx.)	1,00,000
	b. Plankton net	30,000
	c. Plastic bottles	10,000
	d. Sample analysis for heavy metals	50,000
	e. Coracle hiring charge	75,000
	f. Fish sampling netting materials	40,000
	g. Travel including vehicle hiring to reach reservoir site	50,000
	h. Stationeries, report preparation	20,000
	i. Contingencies	30,000
	j. Fishermen Coolie charges (2 nos.)	50,000
III.	**Non- recurring**	
	a. Field Water Quality Analysis kit – 1no	3,50,000
	b. Ice box for sample transport-2 nos.	40,000
	c. Deep freezer	75,000
III.	Institutional Charges @15 % of the recurring budget	---
	Total	**15,00,000**

Background

Manimuthar reservoir is having a water spread area of 940 ha.. In order to increase the fish yield from this reservoir, a proper management of water quality aspects for better fish production through proper seed stocking density with suitable seed size based on the primary productivity potential of this reservoir is enunciated.

Project Rationale

For enhancing inland fish production, reservoirs, particularly small sized ones can be utilized for the maximization of fish production. The productivity of any aquatic systems - mainly depends upon the primary productivity status of the water bodies. Hence, in order to enhance fish yield, primary productivity assessment as well as assessment of other water quality parameters such as depth, light penetration, dissolved oxygen, total hardness, total alkalinity, total dissolved solids, electrical conductivity, nutrients, chlorophyll-a , and plankton biomass are essential .

Strategy

To increase the fish yield from this level to the maximum of 100 kg/ha/yr through scientific management practices.

Project Goals

- To assess the present productivity status of Manimuthar reservoir.
- To study the role and production of plankton and their species composition as a means of suitable food source to the target species.
- To assess the nutrient status and other relevant water quality parameters of the Manimuthar reservoir for proper enhancement of primary productivity
- To evolve a suitable stocking density of fish seed for the enhancement of fish yield based on primary productivity potential of the reservoir and also to arrive at the suitable stocking size of the seeds for better survival and fish yield.

Project Components

- Primary productivity will be assessed in Manimuthar reservoir in the different selected locations at least once in a fortnight by following light and dark bottle method for a period of one year.

- The Water samples will be collected from different locations and analysed for its various physico-chemical parameters such as depth, light penetration, water temperature, dissolved oxygen, pH, total hardness, total alkalinity, total dissolved solids, electrical conductivity, nutrient levels and ammonia by following the standard procedures.
- The hydrobiological characteristics such as the content of chlorophyll-a, plankton species composition and biomass will be studied by following standard methods.
- Stocking density of fish seed will be calculated based on productivity.
- Present status of fish survival and growth will be estimated by adopting suitable methodologies.
- Fish yield potential will be estimated based on primary productivity data.

Project Cost and Funding

Implementing Agency – TANUVAS. (FC&RI, Thoothukkudi).

Implementation Chart of the Project

Sl.No.	Particulars	I Qtr	II Qtr	III Qtr	IV Qtr
1.	Purchase of equipments	√			
2.	Recruitment of SRFs and Field Assistants	√			
3.	Water quality studies	√	√	√	√
4.	Fish stocking		√	√	√
5.	Fish growth assessment		√	√	√

Reporting

The progress of the project will be assessed once in six months from the start of the project and the same will be reported to the authorities concerned.

Table 63. Project Proposal for Fisheries Sector

(Rs.in lakh)

Sl. No.	Components	Implementing Agency	Total units	Unit cost	2008-09		2009-10		2010-11		2011-12		Total cost
					Units	Cost	Units	Cost	Units	Cost	Units	Cost	
1	Complete renovation of old department fish seed farm with infrastructure facility at Manimuthar	Fisheries Department	12515	0.03/M2			12515	375.45					375.45
2	Creation of additional rearing space in National fish seed farm, Manimuthar	Fisheries Department	6400 M2	0.03/m2	2300 M2	69.00			4100	123.00			192.00
3	Development of Landing Centre at Manimuthar	Fisheries Department	1	5.00	1	5.00							5.00
4	Supply of fishing implements (craft with OBM) 100% Grant	Fisheries Department	2	2.50	1	2.50			1	2.50			5.00
5	Sea ranching	Fisheries Department	8	7.00	2	14.00	2	14.00	2	14.00	2	14.00	56.00
6	Deployment of artificial reefs	TAFCOFED	6	15.00	2	30.00			2	30.00	2	30.00	90.00

Table. 63 Contd….. **(Rs.in lakh)**

Sl. No.	Components	Implementing Agency	Total units	Unit cost	2008-09		2009-10		2010-11		2011-12		Total cost
					Units	Cost	Units	Cost	Units	Cost	Units	Cost	
7	Modern Fish Retail outlet	TNFDC	2	10.00	1	10.00			1	10.00			20.00
8	Provision of Moped with Ice Box for retail fish marketing (50% subsidy)	TAFCOFED	30	0.15	10	1.50			10	1.50	10	1.50	4.50
9	Provision of insulated van	TNFDC	1	7.50	1	7.50							7.50
10	Desilting of Kadana tank	Fisheries Department	5	5 / ha	2 ha	10.00	1	5.00	1	5.00	1	5.00	25.00
	Fisheries Total					**149.50**		**394.45**		**186.00**		**50.50**	**780.45**
11	Assessment of productivity for enhancing fish production in Manimuthar reservoir	TANUVAS	1	15.00	1	15.00							15.00
	TANUVAS Total					**15.00**							**15.00**
	Grand Total					**164.50**		**394.45**		**186.00**		**50.50**	**795.45**

6.6 Action Plan for Public Works Department (PWD)

The Action plan with interventions for various schemes like modernization of tanks in Manimuthar perungal system, rehabilitation and modernization of tanks in Thambaraparani basin sub- division, rehabilitation and modernization of tanks in Chittar river basin. Part-I etc. of Public Works Department (PWD) is given in Table 64 through Table 65.

6.6.1 Chittar Basin Division, Tenkasi Project Proposal for Increasing the Irrigation Potential

For rehabilitation and modernization of tanks and channels, 33 works were proposed under National Agricultural Development Programme at a cost of Rs.1163.83 Lakhs by the PWD, WRO, Chittar Basin Division, Tenkasi, within the project period of 2008-2009 to 2011-2012. By doing this work, the efficiency of the tanks and supply channel will be increased which would in turn enhance the food production and the socio economic status of the farming community. This work will be executed by the PWD, WRO, Chittar Basin Division, Tenkasi.

(i) Budget

The details are given in Table 65.

The total cost involved for rehabilitation and modernization of PWD tanks and supply channels is Rs.1163.83 Lakhs. The funds will be provided by Government of India under NADP.

(ii) Background

Tirunelveli district is an agriculture oriented district. Agriculture plays a vital role in the district economy. Out of total geographical area of 6,82,308 hectares, the cultivable area is 2,07,868 hectares and net area sown is 1,75,108 hectares. The rehabilitation and modernization works would increase the farmers' income and also the socio economic status.

(iii) Project Rationale

Most of the farmers in Tirunelveli district depend on agriculture. The farmers, during the grievance day meeting conducted by the District Collector on every Monday, frequently represented to rehabilitate the existing irrigation sources like tanks, ayacuts, channels etc.

(iv) Project Strategy

The scheme will be implemented by Public Works Department, Chittar Basin Division, Tenkasi. The Project period will be for four years (i.e.) 2008-09 to 2011-2012. The fact of the scheme will be published to the farmers through newspapers, wall posters and Tom Tom. The scheme will be executed through tender system as per rules in force.

(v) Project Goals

To implement the above scheme, the water scarcity for irrigation and cattle will be considerably reduced. Modern technologies will be implemented on the cropping patterns. The farmers' economic status will be improved. The cost of cultivation will be reduced and the area under irrigation will be increased. The productivity and agriculture production will also be improved.

(vi) Project Components

The project includes, strengthening the tank bund, reconstruction of sluices, weirs and lining of canals and desilting of tanks and canals.

(vii) Project Cost and Financing

The cost of the Project is Rs. 1163.83 Lakhs for the period of four years from 2008-2009 to 2011- 2012. The funds will be provided by the Government of India under NADP scheme.

(viii) Implementation Chart of the Project

The project will be implemented during 2008-2009 to 2011-2012. The details of year wise distribution of activities are presented in Table 65. The work will be executed by PWD, WRO, Chittar basin division, Tenkasi.

(ix) Reporting

Periodical reports about the project achievement, number of farmers benefited, area covered etc. will be submitted.

Table 64. Project Proposal for Chittar Basin Division, Tenkasi (PWD)

S. No.	Work Componenets	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
1	Rehabilitation and Modernisation of Parakiramapandiyan tank in Gangaikondan village of Tirunelveli District.	75.00	1	75.00	-	-	-	-	-	-	1	75.00
2	Rehabilitation and Modernisation of Soorankudi tank in Soorankudi village of Nanguneri Taluk in Tirunelveli District.	20.50	1	20.50	-	-	-	-	-	-	1	20.50
3	Rehabilitation and Modernisation of tanks under Ramanadhi Pappankal system	86.00	1	86.00	-	-	-	-	-	-	1	86.00
4	Rehabilitation and Modernisation of tanks in Arasapathu channel of Ambasamudram Taluk	30.00	1	30.00	-	-	-	-	-	-	1	30.00
5	Rehabilitation and Modernisation of Adachani big tanks in Adachani village of Ambasamudram Taluk	37.00	1	37.00	-	-	-	-	-	-	1	37.00
6	Modernisation of Veerasigamani tank	50.00	1	50.00	-	-	-	-	-	-	1	50.00
7	Modernisation of Thonukal tank	25.00	1	25.00	-	-	-	-	-	-	1	25.00
8	Rehabilitation and Modernisation of Shenbagaramaperikulam in Poganallur village in Tenkasi Taluk	36.00	1	36.00	-	-	-	-	-	-	1	36.00
9	Rehabilitation and Modernisation of Krishnapuram periyakulam in Krishnapuram village in Tenkasi Taluk	16.50	1	16.50	-	-	-	-	-	-	1	16.50
Total			**9**	**376.00**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**376.00**

Table.64 Contd…

S. No.	Work Componenets	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
1	Rehabilitation and Modernisation of Nanguneri Big tank in Tirunelveli District.	174.00	-	-	1	174.00	-	-	-	-	1	174.00
2	Rehabilitation and Modernisation of Vellalankulam tank in Vellalankulam village of Tirunelveli District.	22.00	-	-	1	22.00	-	-	-	-	1	22.00
3	Rehabilitation and Modernisation of Thenkal system in Ambasamudram Taluk	65.00	-	-	1	65.00	-	-	-	-	1	65.00
4	Rehabilitation and Modernisation of tanks under Alawarkuruchi Thenkal in Ambasamudram Taluk	24.00	-	-	1	24.00	-	-	-	-	1	24.00
5	Rehabilitation and Modernisation of Arasapathu Extension canal in Ambasamudram Taluk	50.00	-	-	1	50.00	-	-	-	-	1	50.00
6	Rehabilitation and Modernisation of Nedunkulam tank in Ayyanthiruvaleeswaram village of Ambasamudram Taluk	13.30	-	-	1	13.30	-	-	-	-	1	13.30
7	Rehabilitation and Modernisation of Elandaikulam tank in Pramadesam village of Ambasamudram Taluk	10.30	-	-	1	10.30	-	-	-	-	1	10.30
8	Rehabilitation and Modernisation of Karkulam tank in Ayyanthiruvaleeswaram village of Ambasamudram Taluk	9.00	-	-	1	9.00	-	-	-	-	1	9.00
9	Rehabilitation and Modernisation of Pillaikulam tank in Pramdesam village of Ambasamudram Taluk	9.00	-	-	1	9.00	-	-	-	-	1	9.00

Table.64 Contd…

S. No.	Work Componenets	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
10	Modernisation of Urmelazhiyan tank	45.00	-	-	1	45.00	-	-	-	-	1	45.00
11	Modernisation of Echanda tank	16.00	-	-	1	16.00	-	-	-	-	1	16.00
12	Rehabilitation and Modernisation of Punnainathankulam in Vairavankulam village in Tenkasi Taluk	20.00	-	-	1	20.00	-	-	-	-	1	20.00
13	Rehabilitation and Modernisation of Therkukurunthidiyar and Vadakkukurunthidiyar tank in Dharmapuram madam village in Ambasamudram Taluk	12.00	-	-	1	12.00	-	-	-	-	1	12.00
Total			**-**	**-**	**13**	**469.60**	**-**	**-**	**-**	**-**	**13**	**469.60**
1.	Rehabilitation and Modernisation of Puliyankulam tank in Kadamboduvazhu village of Nanguneri Taluk in Tirunelveli District.		-	-	-	-	1	12.75			1	12.75
2.	Rehabilitation and Modernisation of Valliyoor Big tank in Vadakkuvalliyoor village of Radhapuram taluk of Tirunelveli District.		-	-	-	-	1	132.68			1	132.68
3.	Rehabilitation and Modernisation of Vandankulam tank in Prammadesam village of Ambasamudram Taluk		-	-	-	-	1	7.50			1	7.50
4.	Rehabilitation and Modernisation of Shenbagaramaperi tank in Keela Ambur village of Ambasamudram Taluk		-	-	-	-	1	4.50			1	4.50

Table.64 Contd…

S. No.	Work Componenets	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
5.	Rehabilitation and Modernisation of Pacherikulam tank in Keela Ambur village of Ambasamudram Taluk		-	-	-	-	1	3.70			1	3.70
6.	Rehabilitation and Modernisation of Poonjadikulam tank in Mannarkoil village of Ambasamudram Taluk		-	-	-	-	1	3.40			1	3.40
7.	Modernisation of Mahendrawadi tank		-	-	-	-	1	12.50			1	12.50
8.	Modernisation of Kulasekaramangalam tank		-	-	-	-	1	46.00			1	46.00
9.	Rehabilitation and Modernisation of Sambankulam in Dharmapuram madam village in Ambasamudram Taluk		-	-	-	-	1	11.50			1	11.50
Total							**9**	**234.53**			**9**	**234.53**
1.	Rehabilitation and Modernisation of Kadamboduvazhu tank in Kadamboduvazhu village of Tirunelveli District.								1	27.50	1	27.50
2.	Rehabilitation and Modernisation of Thalapathysamuthiram tank in Thalapathysamuthiram village of Tirunelveli District.								1	56.20	1	56.20
Total									**2**		**2**	**83.7**
Grand Total												**1163.83**

6.6.2 Project Proposal for Tank Modernisation in Tamiraparani Basin, Tirunelveli

1. **Project Proposal:** It is proposed to modernize and rehabilitate the tank, there by increasing the food production and social status of the farmers.

2. **Standards and Specification Adopted:** It is proposed to provide a bund top width of 3m front, 1 ½m and rear slope of 2:1. It is proposed to improve the weir by improving the apron and strengthening the abutment and return walls.

3. **Catchment Treatment:** The catchment treatment will be done by improvement to supply channel by regarding the channel.

4. **Strengthening Bund / Head Works:** The tank bund is proposed to be strengthened by providing top width of 3m and required front and rear slopes.

5. **Repairs / Replacement of Sluices:** It is proposed to provide S.G. shutter arrangements so as to minimize the flow of water and for easy operation.

6. **Repairs / Replacement of Surplus Arrangements:** The surplus weir is strengthened by improving the apron and by strengthening the return and abutment and providing repairs to sluices.

7. **Restoration of Capacity / Desilting:** The original capacity of the tank will be restored by desilting the tank.

8. **Protective revetment/arrangement etc.,:** At vulnerable portion of the tank bund, it is proposed to construct retaining walls.

9. **Components of Irrigation Management:** Tank bund, surplus weir, sluices, shuttering arrangements, supply channels and surplus course.

10. **Participatory Irrigation Management:** Water Uses Association has been formed already and is functioning properly and annual maintenance work is executed periodically by providing annual maintenance grant to them.

11. **Works involved in Modernization of Structural Component:** Weir strengthening, reconstruction of sluices, bund strengthening and shuttering arrangements, regarding supply channel and surplus course.

12. **Irrigation Mangement Component:** PWD, WUA and Revenue.

13. **Hydrological Feasibility:** Free catchments and intercepted catchments

14. **Financial Aspects:** The project is to be aided by National Agriculture Development Programme.

15. **Project Benefits**

- ❖ The existing gap can be bridged.
- ❖ The food production will be increased.
- ❖ The Social Status of the Farmers will be improved.
- ❖ Unemployment problem will be reduced.
- ❖ Rate of illiteracy can be reduced.

16. **Economic Analysis:** The yield per hectare will be enhanced.

17. **Environment:** The Ground water table will be raised.

18. **Budget:** The details are in Table 65.

Table 65. Project Proposal for Thamiraparani Basin Division, Tirunelveli (PWD)

S.No.	Work Componenets	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
1	Rehabiliatation and Modernisation of Nainarkulam tank Tank in Keelasevel Village of Ambasamudram Taluk	6.50	1	6.50	-	-	-	-	-	-	1	6.50
2	Rehabiliation and Modernisation of Kurippankulam Tank in Melasevel Village of Ambasamudram Taluk	7.00	1	7.00	-	-	-	-	-	-	1	7.00
3	Rehabilation and Modernisation of Omanallur Keelkulam Tank in Omanallur Village of Ambasamudram Taluk	7.00	1	7.00	-	-	-	-	-	-	1	7.00
4	Rehabiliatation and Modernisation of Nambinerikulam Tank in Gobalasamudram Village of Ambasamudram Taluk .	20.00	1	20.00	-	-	-	-	-	-	1	20.00
5	Rehabiliatation and Modernisation of Keelatatchankulam Tank in Keelasevel Village of Ambasamudram Taluk	10.00	1	10.00	-	-	-	-	-	-	1	10.00

Table.65 Contd…

S.No.	Work Componenets	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
6	Rehabiliatation and Modernisation of Prancherikulam Tank in Pirancheri Village of Ambasamudram Taluk	20.00	1	20.00	-	-	-	-	-	-	1	20.00
7	Rehabiliatation and Modernisation of Omanalur Melakulam Tank in Omanallur Village of Ambasamudram Taluk.	15.00	1	15.00	-	-	-	-	-	-	1	15.00
8	Rehabiliataion and Modernisation of MelaTahatchankulam Tank in Melasevel Village of Ambasamudram Taluk.	15.00	1	15.00	-	-	-	-	-	-	1	15.00
9	Rehabilitation and Modernisation of Pudgramam Tank in Suthamalli Village of Tirunelveli Taluk	30.00	1	30.00	-	-	-	-	-	-	1	30.00
10	Rehabilitation and Modernisation of Narasingnallur	10.00	1	10.00	-	-	-	-	-	-	1	10.00
11	Rehabilitation and Modernisation of Oppankulam Tank in Tiruvenkatanathapuram Village of Tirunelveli Taluk	9.00	1	9.00	-	-	-	-	-	-	1	9.00

Table.65 Contd…

S.No.	Work Componenets	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
12	Rehabilitation and Modernisation of Mankulam Tank in Tiruvenkanathapuram Village Tirunelveli Taluk	7.00	1	7.00	-	-	-	-	-	-	1	7.00
13	Rehabilitation and Modernisation of Nathankulam Tank in Tivenkatanthapuram Village of Tirunelveli Taluk	4.00	1	4.00	-	-	-	-	-	-	1	4.00
14	Rehabilitation and Modernisation of Otisnkulsm Tank in Kunnnathoor Village ofTirunelveliTaluk	7.50	1	7.50	-	-	-	-	-	-	1	7.50
15	Rehabilitation snf Moderbnisation of Pettai Peria kulam Tank in Pettai Village of Tirunelveli Taluk	20.00	1	20.00	-	-	-	-	-	-	1	20.00
16	Rehabilitation and Modernisation of Thmaraikulam Ttank in Pettai Village of Tirunelvli Taluk	10.00	1	10.00	-	-	-	-	-	-	1	10.00
17	Modernisation of Kurippankulam Tank under Manimuthar Perungal Chennai system	6.50	1	6.50	-	-	-	-	-	-	1	6.50

Table.65 Contd…

S.No.	Work Componenets	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
18	Modernisation of Singampatti Therkukulam Tanjkunder Manimuthar Perungal Channel system	8.00	1	8.00	-	-	-	-	-	-	1	8.00
19	Modernisation of Uppukaraikulam Tank under Maninuthar Perungal Channel system	9.50	1	9.50	-	-	-	-	-	-	1	9.50
	Total		**19**	**222.00**	-	-	-	-	-	-	**19**	**222.00**
1	Rehabiliatationa and Modernisation of Vagaikulam Tank in Gopalasamudram Village of Ambasamudram Taluk.	10.00	-	-	1	10.00	-	-	-	-	1	10.00
2	Rehabiliation and Modernisation of Padmaneriperiakulam Tank in Padmaner Village Nanguneri Taluk	25.00	-	-	1	25.00	-	-	-	-	1	25.00
3	Rehabiliation and Modernisation of Patchalankulam Tank in Idayankulam Village of Nanguneri Taluk,	10.00	-	-	1	10.00	-	-	-	-	1	10.00
4	Rehabilation and Modernisation of Pothaisuthikulam Tank in Kallikulam (V) of Nanguneri Tk.	8.00	-	-	1	8.00	-	-	-	-	1	8.00

Table.65 Contd…

S.No.	Work Componenets	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
5	Rehabilation and Modernisation of Devanalur Periyakulam Tank in Devanallur Village of Naguneri TK	25.00	-	-	1	25.00	-	-	-	-	1	25.00
6	Rehabilation and Modernisation of Erukkalmputtukulam in Idyankulazm villlage Nanguneri Taluk	7.90	-	-	1	7.90	-	-	-	-	1	7.90
7	Rehabiltation and Modernisation of Melakulam Therukulam Tank Kallikulam villaaaaaage of Nanguneri Taluk	14.00	-	-	1	14.00	-	-	-	-	1	14.00
8	Rehabilitation and Modernisation of Meenavankulam Tank in Meenavankulam villaghe of Nanguneri Talu.	8.00	-	-	1	8.00	-	-	-	-	1	8.00
9	Rehabilitation and Modernisation of Krishnaperikulam Tank in Kandiaperi Village of Tirunelveli Taluk	6.50	-	-	1	6.50	-	-	-	-	1	6.50

Table.65 Contd…

S.No.	Work Componenets	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
10	Rehabilitation and Modernisation of Kandiaperikulam Tank Kandiaperi Village of Tirunelveli Taluk	36.00	-	-	1	36.00	-	-	-	-	1	36.00
11	Rehabilitation and Modernisation of Chettikulam Tank in Chatrampudukulam Village of Tirunelveli Taluk	5.00	-	-	1	5.00	-	-	-	-	1	5.00
12	Rehabilitation and Modernisation of Karaiiruppukulam Tank in Kariiruppu Village of Tirunelveli Taluk	7.50	-	-	1	7.50	-	-	-	-	1	7.50
13	Rehabilitation and Modernisation of Pottaikulam Tank in Puthaneri Village of Palayamkottai Taluk	6.00	-	-	1	6.00	-	-	-	-	1	6.00
14	Rehabiliation and Modernisation of Keelanatham Pudukulam in Melapattam village of Palayamkottai Taluk	12.50	-	-	1	12.50	-	-	-	-	1	12.50

Table.65 Contd…

S.No.	Work Componenets	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
15	Rehabiliation and Modernisation of Pacherikulam Tank in Melapattam village of Palayamkottai Taluk	11.00	-	-	1	11.00	-	-	-	-	1	11.00
16	Rehabiliation and Modernisation of Puthaneri Tank in Puthaneri village of Palayamkottai Taluk	11.50	-	-	1	11.50	-	-	-	-	1	11.50
17	Modernisation of Aladikulam Tank under Manimuthar Perungal Channel system	11.00	-	-	1	11.00	-	-	-	-	1	11.00
18	Modernisation of Ayyappanerikulam Tank under Manimuthar Perungal Channel	11.00.	-	-	1	11.00.	-	-	-	-	1	11.00.
19	Modernisation of Kandikulam Tank under Manimuthar perungal channel sysem	2.50	-	-	1	2.50	-	-	-	-	1	2.50
	Total		-	-	19	**217.40**	-	-	-	-	19	**217.40**
1	Rehabiliation and Modernisation of Nawalkulam Tank in Eakambrapuram Village of Ambasamudram in Taluk	2.90	-	-	-	-	1	2.90	-	-	1	2.90

Table.65 Contd…

S.No.	Work Componenets	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
2	Rehabilitation and Modernisation of Rengalyankulam Tank in Melaambai Village of Ambasamudram Taluk.	2.10	-	-	-	-	1	2.10	-	-	1	2.10
3	Rehabilitation and Modernisation of Pallankulam in Melaambai Village of Ambasamudram Taluk	2.40	-	-	-	-	1	2.40	-	-	1	2.40
4	Rehabilitation and Modernisation of Kumarathiruthukulam Tank in MelaAmbai Village of Ambasamudram Taluk	1.30	-	-	-	-	1	1.30	-	-	1	1.30
5	Rehabiliation and Modernisation of Thirinankulam Tank in Ekambarapuram Village of Ambasamudram Taluk	9.30	-	-	-	-	1	9.30	-	-	1	9.30
6	Rehabilitation and Modernisation of Usilankundukulam tank in Ekambarapuram Village of Ambasamudram Taluk	3.80	-	-	-	-	1	3.80	-	-	1	3.80

Table.65 Contd…

S.No.	Work Componenets	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
7	Rehabilitation and Modernisation of Pettaikulam Tank Ekambarapuram Village of Ambasamudram Taluk	3.60	-	-	-	-	1	3.60	-	-	1	3.60
8	Rehabilitation and Modernisation of KeelaEdaiyunkulam Tank in MelaAmbai Village of Ambasamudram Taluk	2.40	-	-	-	-	1	2.40	-	-	1	2.40
9	Rehabiliation and Modernisation of Keelpattam Keel Kulam in Keelpattam village of Palayamkottai in Taluk	10.00	-	-	-	-	1	10.00	-	-	1	10.00
10	Rehabiliation and Modernisation of Vagaikulam Tank in Naduvakurchi village of Palaymkottai Taluk	11.00	-	-	-	-	1	11.00	-	-	1	11.00
11	Rehabiliation and Modernisation of Ponpthukulam in Naduvakurchi village of Palayamkottai Taluk	5.00	-	-	-	-	1	5.00	-	-	1	5.00
12	Rehabiliation and Modernisation of Virsankulam Tank in Nadvakurchi village of Palayamkottai Taluk	7.00	-	-	-	-	1	7.00	-	-	1	7.00

Table.65 Contd…

S.No.	Work Componenets	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
13	Rehabiliation and Modernisation of Ranneri Tank in Chettikulam village of Palayamkottai Taluk	8.75	-	-	-	-	1	8.75	-	-	1	8.75
14	Rehabiliation and Modernsiation of Palyamkottai Tank in Thruvai village of Palaymkottai Taluk.	15.00	-	-	-	-	1	15.00	-	-	1	15.00
15	Rehabiliation and Modernisation of Nainarkulam Tank in Tirunelveli village of Tirunelveli Taluk.	45.00	-	-	-	-	1	45.00	-	-	1	45.00
16	Rehabiliation and Modernisation of Vannan Pacheri Tank in Narrannammal Puram village of Tirunelveli Taluk	50.25	-	-	-	-	1	50.25	-	-	1	50.25
17	Modernisation of Nachiyarkulam Tank under Manimuthar perungal channel system	9.00	-	-	-	-	1	9.00	-	-	1	9.00
18	Modernisation of Moolachikulam Tank under Manimuthar Perungal Channel system	13.00	-	-	-	-	1	13.00	-	-	1	13.00
	Total		-	-	-	-	18	**201.80**	-	-	18	**201.80**

Table.65 Contd…

S.No.	Work Componenets	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
1	Rehabilitation and Modernisation of MelaEdaiyankulam Tank in MelaAmbai Village of Ambasamudram Taluk	1.95							1	1.95	1	1.95
2	Rehabilitation and Modernisation of Idaimalai Tank in Kodaranukulam Village of Ambasamudram Taluk	5.20							1	5.20	1	5.20
3	Rehabilitation and Modernisation of Vagaikulam Tank in Vagaikulam Village of Ambasamudram Taluk	22.30							1	22.30	1	22.30
4	Rehabiliation and Modernisation of Sumathangrikulam in Mannarkoil village of Ambasamudram Taluk	5.90	-	-	-	-	-	-	1	5.90	1	5.90
5	Rehabilitation and Modernisation of Seerparthankulam Tank in Mannarfkoil Village Ambasamudram Taluk	4.00	-	-	-	-	-	-	1	4.00	1	4.00
6	Rehabiliaaation and Modernisation of Pudukulam Tank in Mannarkoibil village of Ambasamudram Taluk	1.50	-	-	-	-	-	-	1	1.50	1	1.50

Table.65 Contd…

S.No.	Work Componenets	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
7	Rehabiliation and Modernisatrion of Gnanapattarkulam Tank in Mannorkoil Village of Ambasamudram Taluk	0.78	-	-	-	-	-	-	1	0.78	1	0.78
8	Rehabiliation and Modernsiation of Palamadi Tank in Palamadi village of Tirunelveli Taluk	30.00	-	-	-	-	-	-	1	30.00	1	30.00
9	Rehabiliation and Modernisation of Kuppackurchi Tank in Kuppakurchi village of Tirunelveli Taluk	40.00	-	-	-	-	-	-	1	40.00	1	40.00
10	Rehabiliation and Modernisation of Arumuganeri Tank in Arumuganari village of Tirunelveli Taluk	15.25	-	-	-	-	-	-	1	15.25	1	15.25
11	Rehabiliation and Modernisation of Udayaneri Tank in Udayaneri vilage of Tirunelveli Taluk	13.00	-	-	-	-	-	-	1	13.00	1	13.00
12	Rehabiliation and Modernisation of Kolkurchi Tank in Palmadai village of Tirunelvel Taluk	27.00	-	-	-	-	-	-	1	27.00	1	27.00

Table.65 Contd…

S.No.	Work Componenets	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost	No.of Units	Total Cost
13	Rehabiliation and Modernisation of Kttampuli Tank in Palamadi village of Taluk	9.75	-	-	-	-	-	-	1	9.75	1	9.75
14	Rehabiliation and Modernisation of Aruganlkulam Tank in Aruganliam village of Tirunelveli Taluk	18.00	-	-	-	-	-	-	1	18.00	1	18.00
15	Rehabiliation and Modernisation of Samdhimangalam Tank in Manimootheswarm village of Tirunelveli Taluk	13.75	-	-	-	-	-	-	1	13.75	1	13.75
16	Rehabiliation and Modernisation of Musunadaikulam in Aruganlkulam vilage of Tirunelveli Taluk	18.50	-	-	-	-	-	-	1	18.50	1	18.50
17	Modernisation of Amachiyarkulam Tank under Manimuthar perungal Channel system	3.00	-	-	-	-	-	-	1	3.00	1	3.00
18	Modernisation of Thayarmadamkulam Tank under Manimuthar Perungal Channel system	6.00	-	-	-	-	-	-	1	6.00	1	6.00
	Total		-	-	-	-	-	-	18	235.88	18	235.88
Grand Total												**877.08**

Sensitization of Agricultural Development Plan to the District Collector

The meeting on National Agricultural Development Programme (NADP) for Tirunelveli District was conducted on 16.05.08 to sensitize the District Collector about District Agriculture Plan (DAP). Nearly 75 members participated in that meeting. The meeting was preceded by the District Revenue Officer (DRO). The interventions and the budget for the same were discussed with various line department officials and also from Union Chairman and Panchayat President from different blocks of Tirunelveli district. The participants were from different line departments like Agriculture, Horticulture, Agricultural Engineering, Agricultural Marketing, Public Works Department (PWD), Union Chairman and Panchayat President from different blocks of Tirunelveli district.

NADP Sensitization Workshop and Discussion on District Agriculture Plan - Tirunelveli District held on 16.05.2008

District Revenue Officer presides over the function

Dean, AC & RI, Killikulam explains the interventions

Discussion with the Village Presidents

Participants of the meeting

Participants of the meeting

Vote of thanks by Joint Director of Agriculture