# NATIONAL AGRICULTURAL DEVELOPMENT PROGRAMME (NADP)

## DISTRICT AGRICULTURE PLAN

## NAGAPATTINAM DISTRICT

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

**2008**

# NATIONAL AGRICULTURAL DEVELOPMENT PROJECT – DISTRICT AGRICULTURE PLAN

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| | | |
|---|---|---|
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# Tamil Nadu Agricultural University

**Prof. C.RAMASAMY**
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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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**Dr. K. Palanisami**
**Director, CARDS**

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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

## About the District

The Nagapattinam district lies on the east coast to the south of Cuddalore district and another part of the Nagapattinam district lies to the south of Karaikkal and Tiruvarur districts. Its northern boundary is about 75 Km southwards from the Head Quarters of the Cuddalore district. Thanjavur district and Tiruvarur district flank it on the west and on the south and east it is bordered by the Bay of Bengal. The general geological formation of the district is plain and coastal. The Cauvery and its offshoots are the principal rivers. The Nagapattinam district receives huge amount of rainfall during the North East monsoon when compared to South West. There are not less than eleven ports on the coast of Nagapattinam district, of which eight are open to foreign trade. The Nagapattinam district comprises 7 Taluks, 11 Blocks and 497 Villages. With respect to the hierarchy of administrative arrangement, there are 3 Municipalities, 10 Town Panchayats and 433 Village Panchayats in the district.

## SWOT Analysis of the District

The district has good fishing potential in view of its rich coastal area. Vedaranyam salt swamp forms another great natural division. It runs along the coast from Point Calimere for about 48 kms and is about 7 to 8 km. wide in which the well known Vedaranyam salt is spontaneously produced. The land affected by soil problems constitutes about 84.48 per cent of the total geographical area. ONGC has explored crude oil and natural gas in Nagapattinam District. Soils affected by Tsunami have low organic matter (organic carbon) content, Zinc deficiency to a greater extent (58.4 per cent) followed by Fe (17 per cent) Cu (16.0 per cent) and Mn (6.0 per cent). Acute drainage problem exists in Nagapattinam, Kilvelur, Tirumarugal, Vedaranyam, Talainayiru and Sirkali blocks. During the North East Monsoon period (Oct to Dec), salinity is a major problem in tail end areas of the district. Ground water contamination is observed in certain locations due to Sea Water Intrusion.

**Major Interventions Proposed by Agriculture and Allied Sectors**

**A. Department of Agriculture**

1. Rice

- Certified seed distribution with High yielding varieties
- System of Rice Intensification (SRI)
- Integrated Pest management (IPM)
- Micro nutrient distribution
- Soil reclamation
- Mini power tiller
- Harvester
- Mini Transplanter
- Drum seeder

2. Pulses

- IPM- Demonstration
- Certified seed production
- Certified seed distribution
- Minor irrigation
- Farmers Training
- Compact Block Demonstration
- Plant Protection Equipment
- 2 % DAP spraying

3. Cotton

- Foundation seed distribution
- Inter cropping
- Farmers field school

4. Oilseeds

- Certified seed Production
- Certified seed distribution
- Bio-fertiliser distribution
- Compact Block Demonstration

5. TANWABE

- Back ended subsidy to the TANWABE Group
- Formation of new FIG
- Office automation of FIG
- Strengthening of TANWABE
- Strengthening of AEC
- Strengthening of ADA office

6. Farm Pond
7. Training
8. Audio Visual Aids/ Handycam
9. Rodent Control
10. Publicity
11. Establishing Seed Testing Laboratory

**B. Department of Horticulture**

- Precision Farming
- Net House Structure
- Pandal for vegetables production
- Package for plant protection
- Plastics crates for vegetables handling and transport
- Farm waste shredder/ Vegetables Waste shredder
- Cashew high density planting
- Humic acid/ Effective E Microbes
- Support System for crops
- Banana Corm harvesters
- Mango harvester
- Sales outlet points in districts (rent and infrastructure)
- District Level farmers Workshop
- Inter State Exposure Visit (5 days)
- Enterprising farmers associations
- Raising fruit crops in delta areas by providing raised beds and drainage channels
- Providing handy Horticultural equipments kit for training and pruning operations
- Support for Vasambu cultivation.

**C. Department of Animal Husbandry, Dairy and TANUVAS**

- Feed and Fodder Development
- Livestock Health Improvement
- Programmed Breeding
- Supply of Feed such as mineral mixture, pass protein feed
- Machineries like Chaff cutters, Milking machines, Milk Coolers, Milk weighing machines
- Farmers study tour
- Training / Workshop for Milk Producers Society
- Establishing rural herbal nursery units

**D. Department of Fisheries and TANUVAS**

- Introducing Mechanised boats / FRP boats
- Sea ranching
- Artificial reefs
- Maintenance of Aquaculture ponds
- Provision for Moped with icebox
- Capacity building by imparting training to the farmers

**E. Department of Agricultural Engineering**

- Introduction of Newly Developed Agrl. Machinery / Implements like
  - Mini combined Harvester TNAU model
  - Multi crop Thrasher (High capacity)
  - Rotary Puddler for tractor
  - Cutter Planter (Sugarcane)
  - Leveller (Pulses)
  - Ratoon Manager
  - Gender friendly equipments (Conoweeder)
- Soil and Water conservation works
- Agricultural Mechanisation Programme – Machinery and Implements

**F. Department of Agricultural Marketing and Agribusiness**

- Commodity group formation
- Market Intelligence dissemination
- Purchase of marketing materials
- Exposure visit to markets
- Export promotion

## BUDGET (ABSTRACT)

**(Rs. in lakhs)**

| S.No | Department | 2008 - 09 | 2009 - 10 | 2010 - 11 | 2011 - 12 | Total |
|---|---|---|---|---|---|---|
| 1. | Agriculture | 398.845 | 309.850 | 353.660 | 386.620 | 1448.975 |
| 2. | Horticulture | 408.680 | 469.010 | 528.850 | 649.405 | 2055.945 |
| 3. | Animal Husbandry | 403.110 | 75.290 | 64.110 | 63.610 | 606.120 |
| 4. | Fisheries | 199.000 | 218.000 | 228.000 | 257.000 | 902.000 |
| 5. | Agricultural Engineering | 249.760 | 249.760 | 249.760 | 249.760 | 999.040 |
| 6. | Agricultural Marketing | 19.600 | 22.410 | 25.240 | 28.710 | 95.960 |
| **Grand Total** | | **1678.995** | **1344.320** | **1449.620** | **1635.105** | **6108.040** |

# 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**

- Integrated development of major food crops like paddy, coarse cereals, minor millets, pulses, oilseeds;
- Agriculture mechanization;
- Activities related to enhancement of soil health;
- Development of rainfed farming systems in and outside watershed areas, as also Integrated development of watershed areas, wastelands, river valleys;
- Integrated Pest Management schemes;
- Strengthening of Market Infrastructure and marketing development;
- Strengthening of Infrastructure to promote Extension Services;
- Activities relating to enhancement of horticultural production and popularization of micro irrigation systems;
- Animal husbandry and fisheries development activities;
- Study tours of farmers;
- Organic and bio-fertilizers;
- 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:

- Deans of other campuses / Heads of Krishi Vigyan Kendra or Research Station in respective district and one scientist from each campus
- Co-ordinating staff from Directorate of Centre for Agricultural and Rural Development Studies to represent each district
- Officials of Line Departments from Agriculture, Horticulture, Agricultural Engineering, Marketing, Animal Husbandry and Fisheries, Seed certification, Public Works Department.

**Sensitization Workshop**

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

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

**Preparation of Draft Action Plan and Presentation in District Collectors Meeting**

Based on the baseline information and proposals, draft action plan was prepared and this was presented in the District Collectors Meeting held on 13.05.2008 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 was incorporated before finalization of the District Agriculture Plan. The Strategic Research Extension Plan and Agriculture Technology Management Agency reports were also reviewed and relevant details have been incorporated in the draft report.

# CHAPTER – II

# GENERAL DESCRIPTION OF THE DISTRICT

## 2.1 Introduction

The Nagapattinam district lies on the east coast to the south of Cuddalore district and another part of the Nagapattinam district lies to the south of Karaikkal and Tiruvarur districts. Its northern boundary is about 75 Km southwards from the Head Quarters of the Cuddalore district. Thanjavur district and Tiruvarur district flank it on the west and on the south and east it is bordered by the Bay of Bengal. The district lies between 10°25' and 11°40' North Longitude and 76°49' and 80°01' East longitude. The general geological formation of the district is plain and coastal. The Cauvery and its offshoots are the principal rivers. Rising in the Coorg Mountains, this river bifurcates about nine miles at west of Trichy into two branches, of which the northern one takes the name of Coleroon and the southern one retains that of the Cauvery.

**District Map**

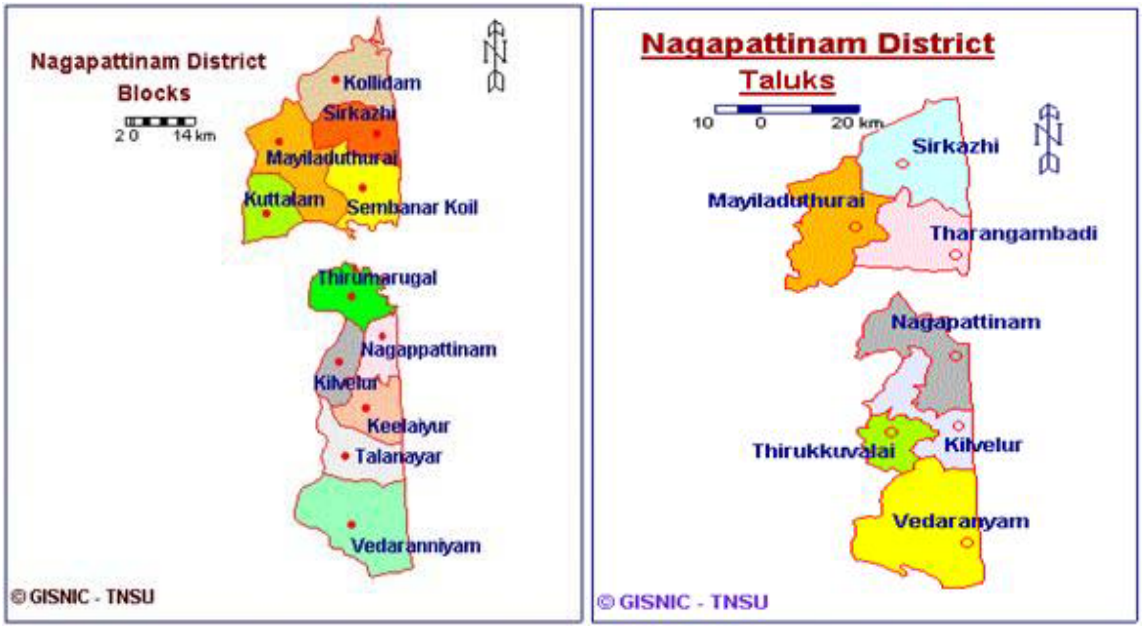


**Table.1 General Statistics of the District**

| | |
|---|---|
| Nagapattinam District formulated on | 18.10.1991 |
| Coastal Line | 187 Km |
| Total Population | 14,88,839 |
| Men | 7,38,287 |
| Women | 7,48,768 |
| Yearly Average Rainfall status | 1188.6 mm |
| Panchayat Unions | 11 |
| Municipalites | 4 |
| Panchayats | 442 |
| Town Panchayats | 9 |
| Revenue Division | 2 |
| Revenue Taluks | 7 |
| Revenue Villages | 523 |
| Habitations | 2508 |
| Assembly Constituency | 6 |
| Total Voters | 9,91,788 |
| Men | 4,89,124 |
| Women | 5,02,664 |
| Total Cultivation Land | 1,83,769 Ha |
| Big Industries | 9 |
| Small Scale Industries | 4125 |
| Cottage Industries | 1559 |
| Handy Craft Industries | 1070 |
| Elementary Schools | 890 |
| Middle Schools | 185 |
| High Schools | 83 |
| Higher Secondary Schools | 79 |
| Primary Health Centres | 51 |
| Sub Primary Health Centre | 258 |
| Arts & Science College | 8 |

Source: Reports of the Office of the District Collectorate, Nagapattinam

The Nagapattinam district receives huge amount of rainfall during the North East monsoon when compared to South West. The details pertaining to normal and actual rainfall received in the district as a whole are given in the Table 2.

**Table.2 Seasonwise Rainfall Data**

| | | |
|---|---|---|
| South West | Normal | 265.2 mm |
| | Actual | 250.6 mm |
| North East | Normal | 908.8 mm |
| | Actual | 969.2 mm |

Source: Reports of the Office of the District Collectorate, Nagapattinam

## 2.2 District at a Glance

### 2.2.1 Location and Geographical Units

The Nagapattinam district lies on the east coast to the south of Cuddalore district and another part of the Nagapattinam district lies to the south of Karaikkal and Tiruvarur districts. Its northern boundary is about 75 Km southwards from the Head Quarters of the Cuddalore district. Thanjavur district and Tiruvarur district flank it on the west and on the south and east it is bordered by the Bay of Bengal. The district lies between 10.25°ℜ and 11.40°ℜ North Longitude and 76°ℜ 49°ℜ and 80.01°ℜ East longitude. The general geological formation of the district is plain and coastal. The Cauvery and its offshoots are the principal rivers. Rising in the Coorg Mountains, this river bifurcates about nine miles at west of Trichy into two branches, of which the northern one takes the name of Coleroon and the southern one retains that of the Cauvery.

All along the course of Cauvery and its distributaries, on both the banks numerous narrow strips of river porombokes lands called Padugais that are cut up by countless patta lands exist. These strips ranging in width from about 3 metres to 100 meters are made up of bits of lands. Eventhough the Padugais and Poromboke lands are very dry they are very fertile. Flood banks of Cauvery and its distributaries are away from the

watercourses in the upper reaches where the river is wide and closer in the lower reaches and the river become narrow gradually. The marine land or coastal land has plain lands except for a few sand dunes. However there is a general tilt from coastal line to inland area. The Vederanyam salt swamp, which is the largest swamp in Tamilnadu, runs along the coast from Point Calimere westwards to Muthupet. Consequently extensive lagoons have been formed in these areas. The terrain is an open plain, sloping towards the east and devoid of any hills. In south and Southwest of Thanjavur the country rises and forms a small plateau known as Vallam table land, broken by small ridges of grits and sandstone. Most of the rivers flow to the east into the Bay of Bengal. The most important feature of the district is the Cauvery River spread over with its numerous branches.

There are no less than eleven ports on the coast Nagapattinam district, of which eight are open to foreign trade. The coastline has a number of harbours of which mention may be made of Nagore, Point Calimere, Nagapattinam. The significant small ports are Kilvellore, Thirumulaivasalam, Nagapattinam, Velankanni, Topputturai, Muthupet and Adiramapatnam. The Nagapattinam district is divided into 6 Taluks namely Nagapattinam, Kilvellore, Vedaranyam, Mayiladuthurai, Sirkali and Thrangampadi. The East side faces the Bay of Bengal. Most part of the district is a flat plain, sloping very gently to the sea on the east.

Vedaranyam salt swamp forms another great natural division. It runs along the coast from Point Calimere for about 48 kms and is about 7 to 8 km. wide. This is the longest swamp of its kind in the state. It is filled by two periodical high tides during the full moon of months, May and June and retains sea water to a depth of two feet over a considerable area enclosed by low earthen banks, which when closed prevent the water from flowing back into the sea after the tide recedes. It is in this manner the well-known Vedaranyam spontaneous salt is produced.

**Administrative Arrangement in the District**

The Nagapattinam district comprises 7 Taluks, 11 Blocks and 497 Villages. With respect to the hierarchy of administrative arrangement, there are 3 Municipalities, 10 Town Panchayats and 433 Village Panchayats in the district.

**Names of Taluks (7)**

Nagapattinam, Kilvelur, Tirukkuvalai, Vedaranyam, Mayiladuturai, Sirkazhi, Tranqubar.

**Names of Blocks (11)**

Nagapattinam, Tirumarugal, Kilvelur, Keezhaiyur, Vedaranyam, Talainayiru, Mayiladuturai, Kuttalam, Sirkazhi, Kollidam, Sembanarkoil.

**Names of Agricultural Divisions (6)**

Nagapattinam, Tirukkuvalai, Vedaranyam, Mayiladuturai, Sirkali, Sembanarkoil.

**2.2.2 Demographic Details**

The population of the Nagapattinam district has grown from 4,25,127 in 1951 to 14,88,839 in 2001. The growth rate indicates that there has been a significant increase during the 1951-61 decade with the average growth rate being 3.48% per annum during this decade. The growth rate has however stabilised over the past four decades at about 1.65 per cent per annum. According to the 2001 census, Mayiladuthurai taluk is the highly populated and Kilvellore taluk is the least populated in the district.

The population details pertaining to sex ratio, density, house holds are depicted in the Table.3.

**Table.3 Population of the District**

| | Total house holds | Total Population | Male | Female |
|---|---|---|---|---|
| Rural | 271827 | 1158557 | 576010 | 582547 |
| Urban | 71786 | 330282 | 163064 | 167218 |
| **Total** | **343613** | **1488839** | **739074** | **749765** |

Source: Reports of the District Statistics Office, Nagapattinam

It could be inferred that the female population in slightly higher than the males and the population density is high in urban areas as usual.

### 2.2.3 Agro Climatic Characteristics

**Temperature**

The average maximum temperature for the district as a whole is about $32.46^0$C and the average minimum temperature is $24.75^0$C.

**Wind**

Dust Storms whirl winds and dusty winds blow from various quarters towards the end of May. The Southwest winds sets in during April and it is the strongest in June and continues till September. Northeast monsoon starts during the month of October and continues till January. Cyclonic storm with varying wind velocity affects once in 3 or 4 years during the month of November-December. Both these storms affect the plantation crop. During Southwest monsoon the air is calm and undisturbed.

**Rainfall**

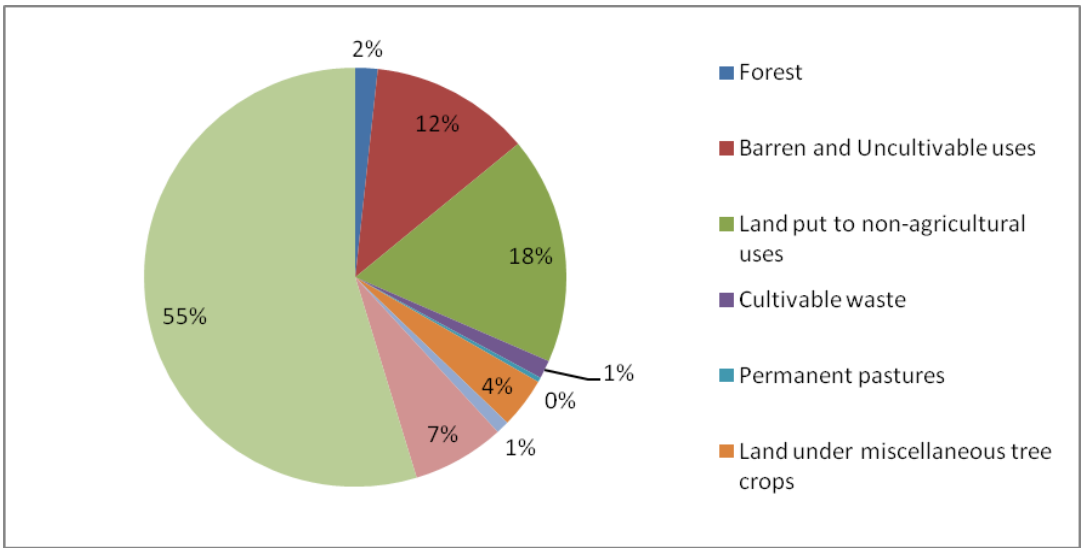
The Northeast monsoon, which starts in October and ends in December, contributes to about 60 per cent of the total annual rainfall. The Southwest monsoon rains from June to September and from March to May accounts equally for the rest of the annual rainfall. The monthly average rainfall in the district was 108.87 mm.

**Cyclone**

Cyclonic storm brings havoc normally once in 3 or 4 years and heavy downpour during Northeast monsoon leads to flooding of the district and damages field crops and wealth of soil.

### 2.2.4 Land Utilisation of Nagapattinam District

The total geographical area of the district is 271583 ha. The net area sown accounts for 54.69 per cent of the total area. Forest cover is very minimum accounting for only about 1.71 per cent of the land. The land not available for cultivation covering Barren and Uncultivable land and land put to non-agricultural uses, accounts for 29.86 per cent. The other uncultivated lands including permanent pastures and miscellaneous tree crops and groves not in the net area sown cover 4.24 per cent. The area coming under fallows including the current fallows constitute about 8.09 per cent. The area sown more than once constitutes 92749 ha.




Source: Season and Crop report, 2005 - 2006

This coastal district abounds in green paddy fields, tall coconut groves, vast gardens of mango and plantain tree and other verdant vegetations. Paddy is the main crop of this district and it is grown three times in a year. The first crop is known as `Kuruvai' (the short-term crop) with duration of three and a half to four months from

June-July to October-November. The second crop called the `Thaladi' has duration of five to six months from October - November to February-March. Third is the 'Samba' (the long-term) crop and has duration of almost six months from August to January. Other cereal crops of the district are cumbu, ragi, maize, korra and varagu. The pulses grown in the district are redgram, greengram and blackgram. Other food crops are condiments and spices, sugar crops, fruits and vegetables. Among the non-food crops, cotton/fibre, edible oils crops (groundnuts, coconut and gingelly) non-edible oils crops (castor, niger seeds, though in very small area) are the important ones.

**Land Holding Pattern of the Farmers**

The land is highly fragmented as the percentage of marginal holdings is higher comprising of 55598 ha. The number of large holding is very meagre (8000 ha) and it reflects the economic status of the farmers and the difficulty of farm mechanization in the district.

**Table.4 Land Holding Pattern**

| S.No. | Segment | Nos. | Area (ha) |
|---|---|---|---|
| 1. | Marginal | 139144 | 55598 |
| 2. | Small | 27759 | 38789 |
| 3. | Semi medium | 11989 | 32653 |
| 4. | Medium | 3598 | 20131 |
| 5. | Large | 439 | 7914 |
| | **Total** | **182929** | **155085** |

Source: Reports of the Office of the Joint Director of Agriculture, Nagapattinam

**2.2.5 Irrigation**

The district is situated in the deltaic region of the famous river Cauvery and criss-crossed by lengthy network of irrigation canals. As seen from the Table .5 below, Canals is the major source of irrigation in Nagapattinam district that covers around 125014 ha (Net area). Even though the number of wells (27718) is high but most of them are used for domestic purposes rather than for irrigation.

**Table.5 Source of Water Supply**

| S.No | Sources | Numbers | Area Irrigated (Ha) | |
|---|---|---|---|---|
| | | | Net | Gross |
| 1. | Canals (548 km) | 9 | 125014 | 152127 |
| 2. | Wells used for irrigation purpose only | 5864 | 30485 | 32334 |
| | Wells used for Domestic Purposes only | 27718 | | |
| 3. | Tube Wells | 13178 | 30015 | 31864 |

Source: Reports of the Office of the Joint Director of Agriculture, Nagapattinam

**Ground Water Potential**

Most of the blocks of the district come under saline water and in some of the blocks such as Kollidam, Sembanarkovil, Kuttalam and Sirkazhi, the ground water has been exploited to a greater extent (100%).

**Table.6 Ground Water Potential**

| Over Exploited (100%) | Critical (85-100%) | Semi Critical (60-85%) | Saline |
|---|---|---|---|
| Kollidam | | Mayiladuturai | Nagapattinam |
| Sembanarkoil | | - | Tirumarugal |
| Kuttalam | Nil | - | Keezhaiyur |
| Sirkali | | - | Kilvelur |
| - | | | Vedaranyam |
| - | | | Talainayiru |

Source: Reports of the Office of the Joint Director of Agriculture, Nagapattinam

# CHAPTER - III
# SWOT ANALYSIS

## Strength

- The district has good fishing potential in view of its rich coastal area. The coastal fish production is more than the inland fish production and the production has seen fluctuations.
- There are no less than eleven ports on the coast Nagapattinam district, of which eight are open to foreign trade.
- Vedaranyam salt swamp forms another great natural division. It runs along the coast from Point Calimere for about 48 kms and is about 7 to 8 km. wide. This is the longest swamp of its kind in the state. It is filled by two periodical high tides during the full moon of months, May and June and retains sea water to a depth of two feet over a considerable area enclosed by low earthen banks, which is closed to prevent the water from flowing back into the sea after the tide recedes. It is in this manner the well-known Vedaranyam spontaneous salt is produced.

## Weakness

- Prawn culture and shrimp farming are done in coastal areas of Nagapattinam. There are about 648 Aquaculture units, which are occupying the areas of about 1484 ha. The estimate on wastewater generation from these units is also not available. There have been no aquaculture activities along the coastal line of the districts as per the report of fisheries department.
- The land affected by soil problems constitutes about 84.48 % of the total geographical area.
- There are 490 industrial units situated in the composite Thanjavur district, of which, 4 sugar units, 1 petroleum refinery, 1 distillery, 1 thermal power plant are coming under highly polluting industry.

- Inundation of water and poor drainage during North east monsoon leads to have major flood damage to the standing crops every year and thereby crop cultivation became uneconomic.
- No facilities for effective marketing of the vegetables, rice, cotton and groundnut, produced by the farmer at a reasonable price in this district.

**Opportunities**

- M/s. ONGC have explored crude oil and natural gas in Nagapattinam District.
- Narimanam village is the place where Petroleum products are available. In respect of other places, especially in riverbed region, petroleum products are available.

**Threats**

- Ground Water contamination is observed in certain locations due to Sea Water Intrusion.
- Discharge of industry effluents in river basin/other water bodies as there are a few highly polluting categories of industries in this district.
- Prawn culture and shrimp farming are done in coastal areas and there are about 1200 such aquaculture farms in Tamil Nadu. The effluents let out of these farms containing bio-degradable wastes are not properly treated in many cases and hence pollute groundwater in adjoining areas, even upto a distance of 6 km affecting agriculture. Added to this, a majority of the prawn farms have been flouting environmental guidelines by discharging untreated effluents into the neighbouring Poromboke lands.
- Scarcity of labour is a common problem encountered in all Blocks.
- Acute drainage problem in Nagapattinam, Kilvelur, Tirumarugal, Vedaranyam, Talainayiru and Sirkali blocks.
- During the North East Monsoon period (Oct to Dec) Salinity is a major problem in tail end areas of the district.

- In this district, irrigation in commanded by Cauvery network. As this district is at the tail end of Cauvery delta it forms the drainage for Thanjavur, Thriuvarur and Trichy districts in the upper reach, experienced even in normal year during North east monsoon. This has led to various problems like Inundation of water during monsoon due to poor drainage and the flood water damages the crops.
- Besides salinity problem, soils affected by Tsunami with low organic matter (organic carbon) content, Zinc deficiency to a greater extent (58.4%) followed by Fe (17%) Cu (16.0%) and Mn (6.0%) .

**Composite Index of Agricultural Development of Nagapattinam 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 this value of development indicators for each district is to be standardized. When the observed values are related positively to the development (as in the case of cropping intensity), the standardization is achieved by employing the formula

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

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

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

Obviously the standardized indices lie between 0 and 1. These 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 Nagapattinam district is taken from various government publications like Season and Crops Report and Economic Appraisal of Tamil Nadu for four year periods 1990-91, 1995-96, 2000-01 and 2005-06. In all, 25 indicators of agricultural development as given in Table 7 were used for estimating the composite index of development for the district. The 25 indicators were grouped into six different 'components' namely (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 Nagapattinam district was classified as 'developed' in agricultural development during 90-91 and 'highly developed' in 1995-96. For the remaining two periods, it was classified as 'developed'. In terms of overall agricultural development its rank among the 29 districts of Tamil Nadu varied from 2 to 16 during the 1990-91 to 2005-06. As far as the individual components of agricultural development are concerned, its ranks in the above periods are summarized in the following Table 8. The

table shows that, in all the components and its performance in the period of study is good. For example, in irrigation its ranks is varies from 6 to 7 in all the four periods. Similarly in fishery variables also it occupied between 2nd and 3rd ranks.

**Table 7. Selected Indicators of Agricultural Development for Nagapattinam District**

| Component | 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 of 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 | |
| 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 | |

**Table 7 Contd…**

| Component | Indicators | No. of Indicators |
|---|---|---|
| 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 8. Rank of Nagapattinam District in Terms of Agricultural Development among other Districts of Tamil Nadu during 1990-91 to 2005-06**

| Component of Composite Index | | Crop-Area-Variables | Irrigation | Livestock | Fisheries | Fertilizer | Cultivators-Labourers | Overall |
|---|---|---|---|---|---|---|---|---|
| Period | 1990-1991 | 7 | 7 | 19 | - | - | 27 | 8 |
| | 1995-1996 | 3 | 6 | 8 | 3 | 13 | 8 | 2 |
| | 2000-2001 | 14 | 6 | 22 | 2 | 21 | 6 | 16 |
| | 2005-2006 | 16 | 6 | 21 | 2 | 18 | 19 | 12 |

# CHAPTER – IV

# DEVELOPMENT OF AGRICULTURE SECTOR

## 4.1 Introduction

Cereals, pulses and oil seeds are the three important crops produced in the district. The production of cereals, pulses and oil seeds fluctuated for the past five years. The areas under production for cereals, pulses and oil seeds, also fluctuated for the past five years. The reason for the fluctuation could be using rotation of crops seasonally. Fruits and Vegetables were also cultivated in the district. Total area of Fruits and Vegetables cultivated in the district is 3143 Ha. The area under plantation crops in the district is about 396 Ha. It is feasible to have vegetable farms for brinjal, tomato, ladies finger, snake guard, bitter guards, beans, cluster beans, etc and nursery like coconut, bamboos, Casuarina, teak plant.

## 4.2 Land Use

The details about the land use pattern are given in the Table.9

**Table.9 Land Use Pattern**

| Sl. No. | Particulars | 2004-05 (ha) | 2005-06 (ha) | 2006-07 (ha) |
|---|---|---|---|---|
| 1. | Forests | 4633 | 4633 | 4633 |
| 2. | Barren and Uncultivable waste | 33419 | 33419 | 33419 |
| 3. | Land put to non-agricultural purposes | 47608 | 47655 | 47655 |
| 4. | Cultivable waste | 3840 | 3837 | 3837 |
| 5. | Permanent pasture and other grazing lands | 964 | 964 | 964 |
| 6. | Miscellaneous tree crops and groves not included under net area sown | 10715 | 10554 | 10554 |
| 7. | Current fallows | 2931 | 2747 | 2542 |
| 8. | Other fallows | 24355 | 19232 | 19232 |

Source: Reports of the Office of the Joint Director of Agriculture, Nagapattinam

### 4.3 Soil Health

#### 4.3.1 Soil Types

Sandy Coastal Alluvium and Black Soil types cover 88.71 per cent and 6.58 per cent respectively in this district. The other Soils in the district comprise 4.71 per cent.

**Nagapattinam Soils and Area in Hectare**

| Soil Description | Area (ha) |
|---|---|
| Very deep, fine, montmorillonitic, Vertisols | 60821.42 |
| Moderately deep, fine, mixed, Alfisols | 36220.14 |
| Deep, fine, mixed, Inceptisols | 33425.24 |
| Deep, fine, mixed, Alfisols | 20700.00 |
| Deep, fine loamy, mixed, Alfisols | 17916.18 |
| Very deep, fine, mixed, Entisols | 10825.78 |
| Deep, fine, montmorillonitic, Vertisols | 8527.05 |
| Very deep, fine loamy, mixed, Alfisols | 6136.95 |
| Very deep, fine loamy, mixed, Inceptisols | 5676.93 |
| Very deep, fine, kaolinitic, Alfisols | 5238.77 |
| Moderately shallow, fine loamy, mixed, Inceptisols | 4517.22 |
| Very deep, coarse loamy, mixed, Inceptisols | 3355.98 |
| Very deep, coarse loamy, mixed, Entisols | 3327.43 |
| Deep, fine loamy, mixed, Inceptisols | 2155.33 |
| Deep, fine loamy, mixed, Ultisols | 2012.75 |
| Deep, coarse loamy, mixed, Entisols | 1751.73 |
| Deep, fine silty, mixed, Inceptisols | 610.26 |
| Deep, contrasting particle size, mixed, Inceptisols | 43.75 |

The soil map of Nagapattinam district along with the types of soil is presented below.

### 4.3.2 Soil Problems

The soil of the district is mostly alluvial but varies greatly in quality. The rich soil is found in the north and the south of the railway line between Mayuram and Thiruthuraippoondi. The worst land in the delta is found in the Tirutturaippoondi and Nagapattinam taluks where the soil is saline and drainage is very defective. The chief sources of irrigation in the district are the rivers, a few rainfed tanks and wells. These tanks and wells occur mostly in the upland regions.

About 7.09% of the land is affected by water logging and marshy land and 56.21% are prone to floods. About 3.49% of the land available for cultivation suffers from salinity/alkalinity and 17.69% of the land is coastal sand. Thus the land affected by soil problems constitutes about 84.48% of the total geographical area excluding forest area and area not available for cultivation.

**Table.10 Area under different Problem Soil Categories**

| S.No | Type | Problem | Area (in ha) |
|---|---|---|---|
| 1. | Inland | Saline soils | 9525 |
| | | Alkaline soils | 1960 |
| | | **Total** | **11485** |
| 2. | Coastal | Saline alkaline | 18133 |

Source: Reports of the Office of the Joint Director of Agriculture, Nagapattinam

## 4.4 Water Resources & Management

### 4.4.1 Rivers, Canals and Waterways

The district is situated in the deltaic region of the famous river Cauvery and criss-crossed by lengthy network of irrigation canals. Kollidam River forms the northern boundary of the district, whereas Arasalar, Tirumalairajanar, Vettar and Vennar rivers drained the other parts of it. All these rivers are tributaries and branches of the river Cauvery.

### 4.4.2 Catchments Area of River Basin

Vettar, Odambogiar, Kaduvaiyar, Pandavaiyar and Vellaiyar are the five minor river basins of the district.

### 4.4.3 Irrigation by Different Sources

Nearly canals serve 80 percent of the total net area irrigated and only the river Cauvery feeds these canals. The Cauvery Delta system is the most ancient of all irrigation schemes in the undivided Thanjavur. This comprises mainly of three important projects. They are the famous Grand Anicut, the Upper Anicut and the Cauvery Vennar Regulator Project.

Tanks and wells are rarely used for irrigation in the district. The gross area irrigated by canals and other sources are 1,13,374 hectares and 21,405 hectares respectively. The gross area irrigated by the tanks and the wells are 40 hectares and 50 hectares respectively. Therefore canal irrigation constituting 84.07 of the total irrigated area remains the predominant source of irrigation. On an average about 58.20 per cent of the total cropped area are irrigated. Mayiladuthurai block achieves about 74 per cent irrigation at the maximum and Vedaranyam achieves 17.85 per cent at the minimum. Some blocks achieve irrigation at about 60 per cent.

### Water Quality

Ground Water contamination is observed in certain locations due to Sea Water Intrusion. In several places along the coast either the ground water is naturally saline or it is artificially made saline by over extraction and consequent intrusion of sea water into the land aquifers. The area mainly affected from sea water intrusion into the land acquires, are Kuttam area in Nagapattinam District. In Kollidam, sampling station falling within the Nagapattinam district, TDS and Chloride content of water is exceeding the standard value, because of more water evaporation and influence of backwater. $P^H$ of water is slightly more than the standard. Disposal of sewage and drainage water into the Cauvery river are the main reasons to affect the biological quality of water.

## 4.5 Major Crops and Varieties in the District

**Table.11 Area under the Crops (Ha)**

| Year | Name of the crop | Area (Rainfed/Dry) | Area (Irrigated/Source) | Season |
|---|---|---|---|---|
| 2004-05 | Paddy | 14000 | 139482 | Kuruvai, Samba, Thaladi |
| 2005-06 | Paddy | 15000 | 143100 | |
| 2006-07 | Paddy | 16000 | 150042 | |
| 2004-05 | Pulses | 65190 | - | Rice fallow |
| 2005-06 | Pulses | 64969 | - | |
| 2006-07 | Pulses | 84753 | - | |
| 2004-05 | Sugarcane | - | 1144 | Three seasons |
| 2005-06 | Sugarcane | | 4358 | |
| 2006-07 | Sugarcane | | 6549 | |
| 2004-05 | Cotton (GM) | - | 201 | Summer |
| 2005-06 | Cotton (GM) | - | 2131 | |
| 2006-07 | Cotton (GM) | - | 1543 | |
| 2004-05 | Oilseeds | 434 | 1120 | Rabi and Kharif |
| 2005-06 | Oilseeds | 237 | 2735 | |
| 2006-07 | Oilseeds | 994 | 3226 | |
| 2004-05 | Oil palm | | 137 | |
| 2005-06 | Oil palm | | 177 | |
| 2006-07 | Oil palm | | 750 | |

Source: Reports of the Office of the Joint Director of Agriculture, Nagapattinam

**Table.12 Production of Crops (Tonnes)**

| Year | Name of the crop | Production (Rainfed/Dry) | Production (Irrigated) | Season |
|---|---|---|---|---|
| 2004-05 | Paddy | 30800 | 368790 | Kuruvai, Samba, Thaladi |
| 2005-06 | Paddy | 68280 | 680011 | |
| 2006-07 | Paddy | 64000 | 639629 | |
| | | | | |
| 2004-05 | Pulses | 12908 | - | Rice fallow (summer) |
| 2005-06 | Pulses | 12799 | - | |
| 2006-07 | Pulses | 57124 | - | |
| | | | | |
| 2004-05 | Sugarcane | - | 10067 | Three seasons |
| 2005-06 | Sugarcane | | 40094 | |
| 2006-07 | Sugarcane | | 60906 | |
| | | | | |
| 2004-05 | Cotton | - | 40 | Summer |
| 2005-06 | Cotton | - | 827 | |
| 2006-07 | Cotton | - | 500 | |
| | | | | |
| 2004-05 | Oilseeds | 434 Tonnes | 1366 | Rabi & Kharif |
| 2005-06 | Oilseeds | 664 | 8533 | |
| 2006-07 | Oilseeds | 2187 | 7904 | |
| | | | | |
| 2004-05 | Oil palm | | 137 | Perinnial |
| 2005-06 | Oil palm | | 177 | |
| 2006-07 | Oil palm | | 750 | |

Source: Reports of the Office of the Joint Director of Agriculture, Nagapattinam

**Table.13 Productivity of Crops**

**Unit: Tonnes/ha**

| Years | Name of the crop | Yield (Rainfed/Dry) | Yield (Irrigated) | Season |
|---|---|---|---|---|
| 2004-05 | Paddy | 2.200 | 2.644 | Kuruvai, Samba, Thaladi |
| 2005-06 | Paddy | 4.552 | 4.752 | |
| 2006-07 | Paddy | 4.000 | 4.263 | |
| 2004-05 | Pulses | 0.198 | | |
| 2005-06 | Pulses | 0.197 | | |
| 2006-07 | Pulses | 0.674 | | |
| 2004-05 | Sugarcane | | 88 tons of cane or 8.8 tons of gur | |
| 2005-06 | Sugarcane | | 92 tons of cane or 9.2 tons of gur | |
| 2006-07 | Sugarcane | | 93 tons of cane or 9.3 tons of gur | |
| 2004-05 | Cotton | | 0.20 tons in terms of lint | |
| 2005-06 | Cotton | | 0.388 tons in terms of lint | |
| 2006-07 | Cotton | | 0.324 tons in terms of lint | |
| 2004-05 | Oilseeds | 1.000 | 1.220 | |
| 2005-06 | Oilseeds | 2.800 | 3.120 | |
| 2006-07 | Oilseeds | 2.200 | 2.450 | |
| 2004-05 | Oil palm | - | - | |
| 2005-06 | Oil palm | - | - | |
| 2006-07 | Oil palm | | | |

Source: Reports of the Office of the Joint Director of Agriculture, Nagapattinam

## 4.6 Input Management

### 4.6.1 Consumption of Fertilisers and Pesticides

57,123 metric tonnes of Chemical Fertilisers were used in 2005 - 06, out of which more than 50% constitute the nitrogenous fertilisers. Phosphoric fertilisers of 13,129 tonnes and Potassium fertilisers of 11,935 tonnes were used in the district. There were intensive uses of Bio-fertilisers in each block of the district, followed by Dust Pesticides 5, 92,534 kgs and 32,854 litres of Liquid- Pesticides. 14,437 metric tonnes of Urea and 2, 97,230 kgs of Bio-fertilisers were used in 2005 - 06.

### 4.6.2 Trend in Consumption of Fertilisers and Pesticides

The usage of all Chemical Fertilisers has increased from 28,989 tonnes to 57,123 tonnes during the past 5 years. In a general manner the consumption pattern indicates that there is a steady increase in the usage of chemical fertilisers except the year 2003 - 04 while the consumption of Bio-fertilisers fluctuates during the years 2001 - 06. Both the Powder and the Liquid forms of Pesticides fluctuate in their consumption over the past 5 years.

The input consumption for the major crops are given in the following tables.

**Table.14 Input Usage of Paddy-Local**

| S.No. | Name of the input | Rainfed/Dry | Irrigated |
|---|---|---|---|
| 1. | Seed (kg) | 100 | 50 |
| 2. | Fertilizer (Kg) | - | |
| | N | 0 | 20 |
| | P | 0 | 30 |
| | K | 0 | 20 |
| 3. | Pesticides (Litres) | 0 | 500 ml/ha |
| 4. | FYM | 5 Tonnes/ha | 5 Tonnes/ha |

Source: Reports of the Office of the Joint Director of Agriculture, Nagapattinam

**Table.15 Input Usage of Paddy HYV**

**High Yielding Varieties (CR 1009, ADT 38, 39, CO 43, BPT, ADT 43, 36)**

| S.No. | Name of the input | Rainfed/Dry | Irrigated |
|---|---|---|---|
| 1 | Seed (kg) | 100 kg/ha | 50kg/ha |
| 2 | Fertilizer (Kg) | | |
| | N | 20 | 125 |
| | P | 30 | 75 |
| | K | 50 | 50 |
| 3 | Pesticides (Litres) | 1 litre/ha | 1 litre/ha |
| 4 | Weedicides (Kg/Lit) | - | 1kg/ha |
| 5. | FYM | 5 Tonnes/ha | 5 Tonnes/ha |

Source: Reports of the Office of the Joint Director of Agriculture, Nagapattinam

**Table.16 Input Usage of Pulses**
**High Yielding varieties (ADT 3, KM 2)**

| S.No. | Name of the input | Rainfed/Dry | Irrigated | Remarks |
|---|---|---|---|---|
| 1 | Seed (kg) | 20kg/ha | NIL | |
| 2 | Fertilizer (Kg) | | | |
| | N | 0 | | 2% DAP Foliar spray twice @ 4kg/ac |
| | P | 0 | | |
| | K | 0 | | |
| 3 | Pesticides (Litres) | 600 ml/ac or 1 dusting | | |

Source: Reports of the Office of the Joint Director of Agriculture, Nagapattinam

**Table.17 Input Usage of Cotton**
**High Yielding varieties (MCU 7, LRA 5166, ADT 1)**

| S.No. | Name of the input | Irrigated | Remarks |
|---|---|---|---|
| 1 | Seed (kg) | 15 kg | |
| 2 | Fertilizer (Kg) | | |
| | N | 80 | |
| | P | 40 | |
| | K | 40 | |
| 3 | Pesticides (Litres) | 2 litres/ha | |
| 4 | Weedicides (Kg/Lit) | - | |
| 5. | FYM | - | |
| 6. | Micro nutrient deficiencies identified if any | noticed | MgSO4 spray is recommended |

Source: Reports of the Office of the Joint Director of Agriculture, Nagapattinam

**Table.18 Input Usage of Sugarcane**

| S.No. | Name of the input | Rainfed/Dry | Irrigated |
|---|---|---|---|
| 1 | Seed (kg) | NIL | 187500 setts/ha single budded |
| 2 | Fertilizer (Kg) | | |
| | N | | 275 |
| | P | | 60 |
| | K | | 112.5 |
| 3 | Pesticides (Litres) | | need based |
| 4 | Weedicides (Kg/Lit) | | 2.5 litres/ha |
| 5. | FYM | | 10 Tonnes |

Source: Reports of the Office of the Joint Director of Agriculture, Nagapattinam

**Table.19 Input Usage of Oilseeds**
**High Yielding Varieties (TMV 3, TMV 7(Ging), JL24, VRI2, 3(G.nut))**

| S.No. | Name of the input | Rainfed/Dry | Irrigated |
|---|---|---|---|
| 1 | Seed (kg) | Gingelly- 5kg/ha | G.nut- 140kg kernel/ha |
| 2 | Fertilizer (Kg) | | |
| | N | | 17 |
| | P | | 34 |
| | K | | 54 |
| 3 | Pesticides (Litres) | 0 | need based |
| 4 | Weedicides (Kg/Lit) | 0 | 0 |
| 5. | FYM | 0 | 0 |
| 6. | Micro nutrient deficiencies identified if any | 0 | 0 |

Source: Reports of the Office of the Joint Director of Agriculture, Nagapattinam

### 4.7 Farm Mechanisation

Farm mechanization will play a vital role in this district in the contest of prevailing labour shortage. Because simultaneous planting and harvesting is inevitable in this district and also timeliness in farm operations has been in question all along. This has become more acute with the sudden scarcity of labour. The prospects of introducing selective mechanization are bright in this district. 19436 filter points are energized so far. 3171 diesel pump sets are also available. 300 Tractors and 2100 Power tillers are owned by the farmers of the district.

### 4.8 On – going programmes in the District

The details pertaining to various ongoing schemes covered under National Food Security Mission (NFSM) in the Department of Agriculture are furnished below. Some of the important schemes such as ICDP for Paddy and Cotton and ISOPOM for Pulses and Oilseeds are depicted in the following tables.

**Table.20 Budget Abstract of the on-going Schemes of Department of Agriculture**

| Sl. No. | SCHEMES | Sanctioned Amount | R.E. | Expenditure upto 31.03.2008 | % of Achmt. w.r.t. RE |
|---|---|---|---|---|---|
| | **STATE SCHEMES** | | | | |
| **A** | I. Part I Schemes | 222.674 | 223.000 | 214.471 | 96.18 |
| | II. Part II Schemes | 3.584 | 3.568 | 3.568 | 100.00 |
| | **TOTAL** | **226.258** | **226.568** | **218.039** | 96.24 |
| **B** | **SCHEMES SHARED BETWEEN CENTRE AND STATE** | | | | |
| **1** | Integrated Scheme for Oilseeds, Pulses, Oilpalm and Maize (ISOPOM) (75:25) | 159.093 | 155.954 | 86.524 | 55.48 |
| **2** | Technology Mission Mode Scheme (75:25) | 1.400 | 1.40 | 0.89539 | 63.96 |
| **3** | Macro Management Mode Schemes (90:10) | 68.640 | 68.840 | 68.640 | 99.71 |
| **4** | Centrally Sponsored Schemes (100%) | 19.925 | 17.625 | 19.925 | 113.05 |
| | **TOTAL** | **249.058** | **243.819** | **175.984** | 72.18 |
| | **Grand Total (A + B)** | **475.316** | **470.387** | **394.023** | **83.77** |

**Table.21 State Schemes – Target and Achievements**

| Sl. No | Head of Account / Scheme | Unit | Physical | | | Financial | | |
|---|---|---|---|---|---|---|---|---|
| | | | Annual Target | Target upto the IV Qr | Achmt. | Sanctioned Amt. | Target upto the IV Qr | Achmt |
| | **STATE SCHEMES** | | | | | | | |
| | **PART I SCHEME** | | | | | | | |
| **1.** | Crop Yield Competition | Nos | | | 2 | | | |
| | State level competition | Nos | | | 1 | | | |
| | District level competition | Nos | 4 | 1 | 1 | 0.4 | 0.15 | 0.0000 |
| **2.** | Procurement and Distribution of Paddy and Millet Seeds | Nos | | | | 168.000 | 158.523 | 158.523 |

**Table 21 Contd,,,**

| Sl. No | Head of Account / Scheme | Unit | Physical | | | Financial | | |
|---|---|---|---|---|---|---|---|---|
| | | | Annual Target | Target upto the IV Qr | Achmt. | Sanctioned Amt. | Target upto the IV Qr | Achmt |
| | Paddy seed Procurement | Tonnes | 1500.00 | 1500.00 | 1369 | | | |
| | Millet seed procurement | Tonnes | | | | | | |
| | Paddy seed distribution | Tonnes | 1500.00 | 1500.00 | 1620.00 | | | |
| | Millet seed distribution | Tonnes | | | | | | |
| **3.** | Tribal area sub plan (Adi Dravida Dept. alloction) | | | | | | | |
| **4.** | Procurement and Distribution of Pulses Seeds | | 0 | | | 32.941 | 33.198 | 33.198 |
| | Procurement | Tonnes | 165.00 | 165 | 84 | 0.00 | 0.00 | 0.00 |
| | Distribution | Tonnes | 165.00 | 165 | 84 | 0 | | |
| **5.** | Procurement and Distribution of Green Manure seeds (Distribution @25% subsidy) | | | | | | | |
| | Production | Tonnes | 20 | 20 | 17.682 | 4.000 | 4.000 | 4.000 |
| | Distribution | Tonnes | 20 | 0 | 12.000 | 0 | 0 | 0.000 |
| **6.** | Blue Green Algae | | | | | 0.664 | 0.664 | 0.664 |
| | Production | Tonnes | 40 | 40 | 40.000 | | | |
| | Distribution | Tonnes | 40 | 40 | 40.000 | | | |

**Table 21 Contd,,,**

| Sl. No | Head of Account / Scheme | Unit | Physical | | | Financial | | |
|---|---|---|---|---|---|---|---|---|
| | | | Annual Target | Target upto the IV Qr | Achmt. | Sanctioned Amt. | Target upto the IV Qr | Achmt |
| **7.** | Bio Conversion of Farm waste using pleurotus | Nos | 116 | 0 | 116 | | | |
| | Distribution of minikits | Nos | 187 | 187 | 116 | | | |
| **8.** | Vermi composting | | | 3 | 3 | 0.1155 | 0.1155 | 0.11550 |
| | Demonstrations cum Trg. | Nos | 10 | 3 | 3 | | | |
| | Farmers Trained | Nos | - | 75 | 75 | | | |
| **9.** | Crop and Plant Protection | | | | | 7.133 | 7.133 | 6.96431 |
| | Area | Ha | | | | | | |
| **10.** | Sugarcane Release of Parasite | | | | | 0.20 | 0.20 | 0.185 |
| | Area covered | Ha | 500 | 500 | 502.40 | | | |
| **11.** | Integrated Cotton Development | | | | | 3.120 | 3.120 | 1.870 |
| | Seed Production | Tonnes | 12.000 | 12.00 | 4.20 | | | |
| | Seed distribution | Tonnes | 9.000 | 9.00 | 4.20 | | | |
| **12.** | Increasing the Production of Oilseeds | | | | | 3.000 | 3.000 | 2.608 |
| | **Seed Procurement** | | | | | | | |
| | Groundnut | Tonnes | 14 | 1 | 9 | | | |
| | Gingelly | Tonnes | 1 | 0 | 0 | | | |

**Table 21 Contd,,,**

| Sl. No | Head of Account / Scheme | Unit | Physical | | | Financial | | |
|---|---|---|---|---|---|---|---|---|
| | | | Annual Target | Target upto the IV Qr | Achmt. | Sanctioned Amt. | Target upto the IV Qr | Achmt |
| | **Seed Distribution** | | | | | | | |
| | Groundnut | Tonnes | 14 | 1 | 9.00 | | | |
| | Gingelly | Tonnes | 1 | 0 | 0 | | | |
| **13.** | Integrated Coconut Development | | | | | 3.100 | 2.400 | 2.775 |
| **i)** | Procurement of Tall nuts | L.Nos. | | | | | | |
| | a)Tall nuts | L.Nos | 55000 | 15850 | 18800 | | | |
| | b) T x D nuts | L.Nos | 10500 | 0 | 0 | | | |
| | c)D x T Nuts | L.Nos | 0 | | | | | |
| **ii)** | Distbn. Of seedlings | L.Nos | 0 | | | | | |
| | a)Tall seedlings | L.Nos | 50000 | 15000 | 37438 | | | |
| | b) T x D Seedlings | L.Nos | 10500 | 0 | 10700 | | | |
| | c)D x T Seedlings | L.Nos | 0 | 0 | | | | |
| **14.** | Production and Distribution of MN mixtures | | | | | | | |
| | Production | Tonnes | - | - | - | - | - | - |
| | Distribution | Tonnes | 75.00 | 75.00 | 74.000 | - | - | - |
| **15.** | Production and Distribution of Biofertilisers | | | | | | | |
| | Production | Lno | | | | | | |
| | Distribution | Lno | 3.84 | 3.939 | 3.8369 | | | |
| | **Total** | | | | | **222.674** | **212.504** | **214.471** |

**Table 21 Contd,,,**

| Sl. No | Head of Account / Scheme | Unit | Physical | | | Financial | | |
|---|---|---|---|---|---|---|---|---|
| | | | Annual Target | Target upto the IV Qr | Achmt. | Sanctioned Amt. | Target upto the IV Qr | Achmt |
| | **PART II SCHEMES** | | | | | | | |
| **1.** | Purchase of Bag closer | Nos | 2 | 2 | 0 | 0.12 | 0.12 | 0.104 |
| **2.** | Additional facilities to SPU for quality seed production - Installation of SPU at SSF, Tirucadaiyur | 1 | 3.5 | 1 | 0 | 3.464 | 0 | 3.464 |
| **3.** | Infrastructure Development to coconut nurseries | - | | | | | | |
| | **Part II Total** | | 2 | 2 | | **3.584** | **0.12** | **3.568** |
| | **Total State Schemes (Part I & II)** | | | | | **226.258** | **212.624** | **218.039** |
| **A.** | **ANNOUNCEMENT** | | | | | | | |
| **1.** | National Insurance Scheme | | | | | | | |
| | No.of farmers enrolled (non-loanee) | L. Nos | 1.00 | 1.00 | 0.556 | - | - | |
| **2.** | Soil Health Card distribution | L. Nos. | 11040 | 10000 | 10100 | | | |

## Table.22 ISOPOM - Oilseed Scheme

| Head of account Scheme | Unit | Financial (Rs. In lakhs) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Annual Target | Achmt. Upto March, 2008 | B.E | San. Amt. | Target upto the IV Qr | Achmt. Upto 31.03.2008 |
| **ISOPOM** | | | | **Physical** | | | |
| **ISOPOM - Oilseeds** | | | | | | | |
| Purchase of Breeder seed | Qtls | 1 | 0 | 4kg | 0.0450 | 0.0005 | 0.0000 |
| F seed production@500/Qtl | Qtls | 20 | 0 | 215 kg | 0.1000 | 0.1000 | 0.0000 |
| C seed production@500/Qtl | Qtls | 100 | 61 | 5045 kg | 0.5000 | 0.5000 | 0.50450 |
| C seed distribution@ 800/Qtl | Qtls | 100 | 59.9 | 5732 kg | 0.8000 | 0.8000 | 0.68790 |
| Pipe for carrying water from sources to field@15000/unit | Nos. | 6 | 6 | | 0.9000 | 0.9000 | 0.90000 |
| Block demn. in Groundnut polythene mulch@ | Nos. | 5 | 5 | 3 | 0.3500 | 0.3500 | 0.40000 |
| Distribution of gypsum@ 500/ha | Ha. | 100 | 60 | | 0.5000 | 0.5000 | 0.45000 |
| Distribution of biofertiliser@50/ha | Ha. | 800 | 660 | | 0.4000 | 0.4000 | 0.43053 |
| Disbn. of bio pesticides@250/ha | Ha. | 20 | 20 | | 0.0500 | 0.0300 | 0.05000 |
| Disbn. of PP equipments@800/unit | Nos. | 30 | 26 | | 0.2400 | 0.1680 | 0.24200 |
| Distribution of weedicide@500/unit | Ha. | 2 | 2 | | 0.0100 | 0.0100 | 0.01000 |
| Farmers Training@15000/batch | Batch | 2 | 2 | | 0.3000 | 0.3000 | 0.30000 |
| Power sprayer@2000/unit | Nos | 4 | 4 | | 0.0800 | 0.0800 | 0.08000 |
| Compact Block Demonstration@4000 | Nos | 10 | 10 | | 0.4000 | 0.4000 | 0.40000 |
| Combined Nutrient Spray (G.nut) | No | 8 | 7 | | 0.0160 | 0.0160 | 0.01400 |
| **TOTAL OILSEEDS** | | | | | **4.6910** | **4.5545** | **4.46893** |

## Table.23 ISOPOM – Pulses Scheme

| Head of account Scheme | Unit | Physical | | | Financial (Rs. In lakhs) | | | |
|---|---|---|---|---|---|---|---|---|
| | | Annual Target | Target upto the IV Qr | Achmt. | B.E | San. Amt. | Target upto the IV Qr | Achmt |
| **ISOPOM** | | | | | **Physical** | | | |
| **PULSES** | | | | | | | | |
| Breeder seed Purchase @500 | Kgs | 1050 | 735 | 260 | 440 kg | 0.525 | 0.368 | 0.133000 |
| Foundation seed prodn subsidy@500/Qtl | Qtls | 132 | 132 | 10063 kg | 40 Qtl | 0.660 | 0.660 | 1.006300 |
| Cetified seed prodn subsidy@500/Qtl | Qtls | 1650 | 0 | 59915 | 69 Tonnes | 8.250 | 0.000 | 5.991550 |
| Certified seed distribution subsidy@800/Qtl | Qtls | 1650 | 0 | 46923 | | 13.200 | 0.000 | 5.630740 |
| Compact Block Demn 2000/Demo | Nos. | 353 | 246 | 333 | | 7.060 | 4.920 | 6.65167 |
| IPM Demonstration@12315/unit | Nos. | 18 | 18 | 18 | | 2.217 | 2.217 | 2.21568 |
| Distribution of Biofertilisers and Bio Agents@ 50 /ha | Ha. | 4412 | 3529.6 | 20000 | | 2.206 | 1.765 | 3.60024 |
| Distribution of Biopesticide@250/ha | Ha. | 176 | 140.8 | 184 | | 0.440 | 0.352 | 0.44246 |
| Distribution of NPV virus@250/ha | L.Ha. | 88 | 70.4 | 133 | | 0.220 | 0.176 | 0.33175 |
| Distribution of PP equipment@800/ha | Nos. | 440 | 352 | 496 | | 3.520 | 2.816 | 3.52898 |
| Pipe for carrying water from sources to field@15000/unit | Nos | 49 | 49 | 66 | | 7.350 | 7.350 | 9.97500 |
| **PULSES** | | | | | | | | |
| Farmers Training @15000/batch | Batch | 13 | 10 | 13 | | 1.950 | 1.500 | 1.95000 |
| Audio visual aid | No | 1 | 1 | 1 | | 2.000 | 2.000 | 2.00000 |
| DAP spraying@100 | Ha. | 2652 | 2021.6 | 2255 | | 2.6520 | 2.0216 | 2.28458 |
| Micro nutrient spray@70/ | Ha. | 6240 | 4992 | 1114 | | 4.368 | 3.494 | 0.27608 |
| POL | | | | | | 0.400 | | 0.41000 |
| **TOTAL PULSES** | | | | | | **57.018** | **29.639** | **46.42803** |

## Table.24 ISOPOM - Oilpalm Scheme

| Head of account Scheme | Unit | Physical | | | Financial (Rs. In lakhs) | | | |
|---|---|---|---|---|---|---|---|---|
| | | Annual Target | Target upto the IV Qr | Achmt. | B.E | San. Amt. | Target upto the IV Qr | Achmt. |
| **ISOPOM - OILPALM** | | | | | Physical | | | |
| Assistance for Planting Materials | | | | | | | | |
| I instalment | Ha. | | | | | | | |
| II Instalment @ 4218 | Ha. | 621 | 300 | 102.5 | 39.500 | 26.641 | 12.870 | 4.38891 |
| Area expansion @ 7000 | Ha. | 621 | 300 | 102.5 | 39.500 | 43.470 | 21.000 | 7.17815 |
| Cultivation Maintenance Subsidy | | | | | | | | |
| II Year @ 2450 | Ha. | 575 | 475 | 503.79 | 500.500 | 14.088 | 11.638 | 12.35644 |
| III Year @ 2800 | Ha. | 225 | 175 | 201.42 | 200.000 | 6.300 | 4.900 | 5.63513 |
| IV Year @ 3250 | Ha. | 100 | 100 | 87.9 | 85.280 | 3.250 | 3.250 | 2.85793 |
| Drip Irrigation | | | | | | | | |
| Other farmers @ 5200 | Nos. | 7 | 4 | 0 | | 0.364 | 0.208 | |
| SF/MF/SC/ST @ 7400 | Nos. | 11 | 5 | 0 | | 0.814 | 0.370 | |
| Training | | | | 0 | | | | |
| Farmers Training @500/farmer | Nos | 300 | 300 | 300 | 200.000 | 1.200 | 1.200 | 1.20000 |
| Officers Training | Nos | 1 | 1 | 0 | | | | |
| **ISOPOM - OILPALM** | | | | 0 | | | | |
| **Innovative component** | | | | | | | | |
| Precision farming | | 30 | 0 | 0 | | | 0 | 0.00000 |
| **New Components** | | | | | | | | |
| Oil Palm Leaf/Chaff cutter@10000 | Nos. | 2 | 0 | 0 | | 0.200 | 0.000 | 0.00000 |
| Publicity and seminar | LS | 1 | | 0 | | 0.050 | 0.000 | 0.05000 |
| Review, Workshop, Study Tour | Ls. | 15 | 0 | 0 | | 0.000 | 0.000 | 0.00000 |
| Organic manure/vermi compost | Ha. | 1 | 0 | 0 | | 0.150 | 0.000 | 0.15000 |
| Covering wire mesh against rodent manes | Ha. | 30 | 0 | 63.45 | | 0.858 | 0.000 | 1.81100 |
| POL | | | | | | 0.000 | 0.000 | 0.00000 |
| **TOTAL OILPALM** | | | | | | **97.384** | **55.436** | **35.62756** |

## Table.25 Technology Mode Mission for Cotton

| Head of account Scheme | Unit | Physical | | | Financial (Rs. In lakhs) | | | |
|---|---|---|---|---|---|---|---|---|
| | | Annual Target | Target upto the IV Qr | Achmt. Upto 31.03.2008 | B.E | San. Amt. | Target upto the IV Qr | Achmt. Upto 31.03.2008 |
| **Technology Mode Mission** | | | | | **Physical** | | | |
| **ICDP - COTTON** | | | | | | | | |
| Supply of Breeder seed | Qtls | 0.006 | 0 | 33.5 | | 0.008 | 0.025 | 0.0250 |
| Certified seed Distribution | Qtls | 35 | 0 | 13.04 | | 0.53 | 0.53 | 0.4760 |
| F seed production | Qtls. | 7 | 0 | 13.04 | | 0.35 | 0.35 | 0.3000 |
| C seed production | Qtls | 25 | 0 | 10.14 | | 0.50 | 0.51 | 0.0940 |
| State Level Training to Extension Officers | No. | 15 | 0 | 0 | | 0 | 0 | 0 |
| **TOTAL ICDP - Cotton** | | | | | | **1.400** | **1.40** | **0.89539** |

## Table.26 TANWABE Scheme

| Head of account Scheme | Unit | Physical | | | Financial (Rs. In lakhs) | | | |
|---|---|---|---|---|---|---|---|---|
| | | Annual Target | Target upto the IV Qr | Achmt. Upto 31.03.2008 | B.E | San. Amt. | Target upto the IV Qr | Achmt. Upto 31.03.2008 |
| **TANWABE** | | | | | **Physical** | | | |
| Promotion of Micro Enterprises | No | 20 | 20 | 20 | | 2.000 | 0.200 | 2.000 |
| **TOTAL** | | | | | | **2.00** | **0.20** | **2.000** |
| **TOTAL** | | | | | | **9.140** | **7.340** | **9.140** |
| **Macro Management Mode Schemes Grand Total** | | | | | | **68.640** | **66.840** | **68.640** |

## Table.27 Cereal Development Scheme

| Head of account Scheme | Unit | Physical | | | Financial (Rs. In lakhs) | | | |
|---|---|---|---|---|---|---|---|---|
| | | Annual Target | Target upto the IV Qr | Achmt. Upto 31.03.2008 | B.E | San. Amt. | Target upto the IV Qr | Achmt. Upto 31.03.2008 |
| **Macro Management Mode Schemes** | | | | | Physical | | | |
| **Cereal Development** | | | | | | | | |
| Distribution of Certified seeds | Tonnes | 1200 | 1200 | 1200.00 | | 24.000 | 24.000 | 24.000 |
| Distbn. Of certified Coarse Cereals seeds | Tonnes | no target | | | | | | |
| Crop Prodn. Demn. In SRI in cluster- 10 ha @ 25000/Demo | Nos. | 100 | 100 | 100 | | 25.000 | 25.00 | 25.00 |
| IPM demonstration on cluster (40ha) @17000/Demo | Nos | 60 | 60 | 60 | | 10.200 | 10.200 | 10.2 |
| POL, Maintenance of vehicles and contringencies | | - | - | - | | 0.300 | 0.30 | 0.3 |
| **New Schemes** | | | | | | | 0.000 | |
| **Total(Cereal Dev. Programme)** | | | | | | **59.500** | **59.500** | **59.500** |
| **Formation of New farmers Interest Group** | | | | | | | | |
| 1.Office Automation | No | 60 | 60 | 60 | | 3.000 | 3.000 | 3.00 |
| 2.Farmers Training | | 60 | 60 | 60 | | 2.400 | 2.400 | 2.400 |
| 3.Issue of ID cards | No | 60 | 60 | 60 | | 0.240 | 0.240 | 0.240 |
| 4.Dist level meeting | No. | 3 | 3 | 3 | | 0.600 | 0.600 | 0.60 |
| 5.Contingency/communication | - | - | - | - | | 0.900 | 0.900 | 0.90 |
| **TOTAL** | | | | | | **7.140** | **7.140** | **7.140** |

## Table.28 Centrally Sponsored Scheme for Coconut

| Head of account Scheme | Unit | Physical | | | Financial (Rs. In lakhs) | | | |
|---|---|---|---|---|---|---|---|---|
| | | Annual Target | Target upto the IV Qr | Achmt. Upto 31.03.2008 | B.E | San. Amt. | Target upto the IV Qr | Achmt. Upto 31.03.2008 |
| **Centrally sponsored scheme 100% assistance** | | | | | Physical | | | |
| Integrated farming in Coconut holding for productivity improvement | | | | | | | | |
| Maintenance of disease affected palms @ 250/tree | Nos. | 700 | 700 | 700 | | 1.750 | 0.000 | 1.750 |
| Demonstration Plots | Ha. | | | | | 0.000 | | |
| New @ 17500/ha | Ha. | 10 | 10 | 10 | | 1.750 | 1.750 | 1.750 |
| Maintenance @17500/ha | Ha. | 25 | 25 | 25 | | 4.375 | 4.375 | 4.375 |
| Organic Manure pits@20000/unit | Units | 1 | 1 | 1 | | 0.200 | 0.200 | 0.200 |
| copra drier distribution | | | | | | 0.000 | | 0.061 |
| **Total** | | | | | | **8.075** | **6.325** | **8.136** |
| Seed Village Programme | | | | | | | | |
| Paddy | Tonnes | 120 | 120 | 129 | | 8.100 | 8.05 | 8.05 |
| Pulses | Tonnes | 3.5 | 3.5 | 3.5 | | 0.700 | 0.70 | 0.700 |
| Training | Nos | 17 | 17 | 17 | | 2.550 | 2.550 | 2.550 |
| **Total** | | | | | | **11.850** | **11.200** | **11.200** |
| **Total Centrally sponsored scheme 100% assistance** | | | | | | **19.925** | **17.525** | **19.336** |

### 4.9 Extent of Yield Gap

**a) Extent of Yield Gap –** Identify the reasons such as technological intervention, credit, resources availability and utilization and management.

**Paddy** – Short duration varieties of paddy are normally having a yield potential of 6-7 Tonnes /ha during Kuruvai season whereas the actual yield will be around 5-6 Tonnes/ha only. Therefore a yield gap of about roughtly 1.00 Tonnes/ha is estimated. The yield gap is due to failure on the part of the farmers to maintain population density, lack of timely application of fertilizers and inadequate adoption of IPM practices. Further availability of credit is also an externality.

**Solution**

Farmers may be advised to maintain required plant density, timely application of fertilizers and adoption of IPM recommendations. Co-op as well as Nationalized Credit Institutions may make credit available to the farmers well in advance. .

**b) Technological Gap**

- Top 3 technologies mostly adopted –Use of Certified seeds, Proper season, Seed Treatment
- Top 3 technologies least adopted - Adoption of SRI, Use of aged seedlings, Use of non-certified seeds.

### 4.10. Recommended Interventions for the District

The following activities are proposed to be implemented to increase the Area, Production, Productivity of Agricultural crops in Nagapattinam District.

**1. Rice**

- Certified seed distribution with High yielding varieties
- System of Rice Intensification (SRI)
- Integrated Pest management (IPM)
- Micro nutrient distribution

- Soil reclamation
- Mini power tiller
- Harvester
- Mini Transplanter
- Drum seeder

**2. Pulses**

- IPM- Demonstration
- Certified seed production
- Certified seed distribution
- Minor irrigation
- Farmers Training
- Compact Block Demonstration
- Plant Protection Equipment
- 2 % DAP spraying

**3. Cotton**

- Foundation seed distribution
- Inter cropping
- Farmers field school

**4. Oilseed**

- Certified seed Production
- Certified seed distribution
- Bio-fertiliser distribution
- Compact Block Demonstration

**5. TANWABE**

- Back ended subsidy to the TANWABE Group
- Formation of new FIG

- Office automation of FIG
- Strengthening of TANWABE
- Strengthening of AEC
- Strengthening of ADA office

6. Farm Pond
7. Training
8. Audio Visual Aids/ Handycam
9. Rodent Control
10. Publicity

**Recommended Interventions for the Seed Testing Laboratory**

- Weighing Balance-Top Loading
- Illuminated purity Work board
- Electronic Weighing balance (0.1 mg)
- Soil type divider
- Digital moisture meter with stabilizer
- Accessories like Germination trays, Petri dishes, Thermometer, Hygrometer, Cabinet Germinator (Double door) along with stabliser, Germination Paper (Roll towel) in Kgs, Filter paper (Nos), Seed Storage Rack
- Infrastructure facilities like Air Conditioner (split type) along with stabilizer,Work Table, Work Chair, Trolley(Movable)
- Computer with accessories, Telephone Connection with Broad band

# CHAPTER – V
# ALLIED AGRICULTURAL SECTORS

## 5.1 Introduction

Various Ongoing Schemes and important interventions of different allied agricultural sectors namely Horticulture, Animal Husbandry, Fisheries Agricultural Engineering, Agricultural marketing, of Nagapattinam district are covered in this chapter.

## 5.2 Horticulture Development

Most of the horticultural crops are grown in this district and the details of area, production and productivity of fruits, vegetables, spices, flowers and plantation crops are given in the table below.

**Table.29 Area, Production and Productivity of Fruits**

| Name of the Crop | 2004 – 2005 | | | 2005 – 2006 | | | 2006 - 2007 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Area (Ha) | Prodn. (Tonnes) | Yield (Ton) | Area (Ha) | Prodn. (Tonnes) | Yield (Ton) | Area (Ha) | Prodn. (Ton) | Yield (Ton) |
| Mango | 1124 | 4406.08 | 3.92 | 1247 | 4888.24 | 3.92 | 1290 | 5056.80 | 3.92 |
| Banana | 537 | 22511.04 | 41.92 | 616 | 25822.72 | 41.92 | 613 | 25697.00 | 41.92 |
| Jack | 12 | 224.4 | 18.70 | 12 | 224.40 | 18.70 | 11 | 205.70 | 18.70 |
| Guava | 15 | 68.10 | 4.54 | 15 | 68.10 | 4.54 | 14 | 63.56 | 4.54 |
| Pomegranate | 1 | 25.0 | 25.00 | 1 | 25.00 | 25.00 | 1 | 25.00 | 25.00 |
| Jamun | 3 | 45.00 | 15.00 | 3 | 45.00 | 15.00 | 3 | 45.00 | 15.00 |
| Lime | 65 | 77.35 | 1.19 | 64 | 76.16 | 1.19 | 58 | 69.02 | 1.19 |
| Amla | 14 | 196.00 | 14.00 | 14 | 196.00 | 14.00 | 12 | 28.00 | 14.00 |
| Sourlime | 13 | 325.00 | 25.00 | 13 | 325.00 | 25.00 | 15 | 375.00 | 25.00 |

Source: Reports of the Office of the Deputy Director, Horticulture

## Table.30 Area, Production and Productivity of Vegetables

| Name of the Crop | 2004 – 2005 | | | 2005 – 2006 | | | 2006 - 2007 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Area (Ha) | Prodn. (Tons) | Yield (Tons) | Area (Ha) | Prodn. (Tons) | Yield (Tons) | Area (Ha) | Prodn. (Tons) | Yield (Tons) |
| Tapioca | 163 | 6267.35 | 38.45 | 214 | 8228.30 | 38.45 | 176 | 6767.20 | 38.45 |
| Onion | 5 | 48.85 | 9.77 | 8 | 78.16 | 9.77 | -- | -- | 9.77 |
| Ribbed Gourd | 5 | 60.00 | 12.00 | 4 | 48.00 | 12.00 | 4 | 48.00 | 12.00 |
| Brinjal | 24 | 199.92 | 8.33 | 20 | 166.60 | 8.33 | 27 | 224.91 | 8.33 |
| Bhendi | 16 | 135.20 | 8.45 | 16 | 135.20 | 8.45 | 18 | 152.10 | 8.45 |
| Pandal Beans | 11 | 143.0 | 13.00 | 10 | 130.00 | 13.00 | 7 | 91.00 | 13.00 |
| Cluster beans | 2 | 20.00 | 10.00 | 2 | 20.00 | 10. | 2 | 20.00 | 10.00 |
| Pumpkin | 1 | 23.00 | 23.00 | 1 | 23.00 | 23.00 | 7 | 161.00 | 23.00 |
| Snake Gourd | 7 | 105.00 | 15.00 | 8 | 120.00 | 15.00 | 6 | 90.00 | 15.00 |
| Bitter Gourd | 1 | 12.00 | 12.00 | 8 | 96.00 | 12.00 | 5 | 60.00 | 12.00 |
| Ash Gourd | 7 | 126.00 | 18.00 | 6 | 108.00 | 18.00 | 4 | 72.00 | 18.00 |
| Cucumber | 2 | 14.00 | 7.00 | 6 | 42.00 | 7.00 | 3 | 21.00 | 7.00 |
| Moringa | 17 | 850.00 | 50.00 | 17 | 850.00 | 50.00 | 16 | 800.00 | 50.00 |
| Radish | 3 | 60.00 | 20.00 | 3 | 60.00 | 20.00 | 3 | 60.00 | 20.00 |
| Greens | 18 | 288 | 16.00 | 20 | 320.00 | 16.00 | 16 | 256.00 | 16.00 |
| Yam | -- | -- | -- | -- | -- | -- | 1 | 30.00 | 30.00 |
| Bottle Gourd | -- | -- | -- | -- | -- | -- | 4 | 60.00 | 15.00 |
| Tomato | -- | -- | -- | -- | -- | -- | 1 | 30.00 | 30.00 |

Source: Reports of the Office of the Deputy Director, Horticulture

## Table.31 Area, Production and Productivity of Spices

| Name of the Crop | 2004 – 2005 | | | 2005 – 2006 | | | 2006 - 2007 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Area (Ha) | Prodn. (Tons) | Yield (Tons) | Area (Ha) | Prodn. (Tons) | Yield (Tons) | Area (Ha) | Prodn. (Tons) | Yield (Tons) |
| Turmeric | 1 | 5.00 | 5.00 | 3 | 15.00 | 5.00 | 6 | 30.00 | 5.00 |
| Tamarind | 254 | 579.12 | 2.28 | 288 | 656.64 | 2.20 | 291 | 663.48 | 2.28 |
| Chillies | 24 | 13.68 | 0.57 | 32 | 18.24 | 0.57 | 18 | 10.26 | 0.57 |
| Curry Leaf | 2 | 400.00 | 200.00 | 3 | 600.00 | 200.00 | 1 | 200.00 | 200.00 |

Source: Reports of the Office of the Deputy Director, Horticulture

## Table.32 Area, Production and Productivity of Plantation Crops

| Name of the Crop | 2004 – 2005 | | | 2005 – 2006 | | | 2006 - 2007 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Area (Ha) | Prodn (Tons) | Yield (Tons) | Area (Ha) | Prodn (Tons) | Yield (Tons) | Area (Ha) | Prodn (Tons) | Yield (Tons) |
| Areca Nut | 2 | 0.800 | 0.40 | 2 | 0.800 | 0.40 | -- | -- | 0.40 |
| Cashew | 584 | 245.28 | 0.42 | 590 | 247.80 | 0.42 | 563 | 236.46 | 0.42 |
| Betel vine | 1 | 22.00 | 22.00 | - | - | 22.00 | - | - | 22.00 |

Source: Reports of the Office of the Deputy Director, Horticulture

## Table.33 Area, Production and Productivity of Flowers

| Name of the Crop | 2004 – 2005 | | | 2005 – 2006 | | | 2006 - 2007 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Area (Ha) | Prodn (Tons) | Yield (Tons) | Area (Ha) | Prodn (Tons) | Yield (Tons) | Area (Ha) | Prodn (Tons) | Yield (Tons) |
| Rose | 25 | 181.25 | 7.25 | - | - | 7.25 | - | - | 7.25 |
| Jasmine | 114 | 883.5 | 7.75 | 195 | 1511.25 | 7.75 | 231 | 1790.25 | 7.75 |
| Sambac Jasmine | 67 | 569.5 | 8.50 | 1 | 8.50 | 8.50 | 1 | 8.50 | 8.50 |
| Auricularum Jasmine | 2 | 18.00 | 9.00 | 2 | 18.00 | 9.00 | -- | -- | 9.00 |
| Crossandra | 9 | 18.00 | 2.00 | 2 | 4.00 | 2.00 | -- | -- | 2.00 |

Source: Reports of the Office of the Deputy Director, Horticulture

### 5.2.1 Ongoing Programmes in the District

Various ongoing schemes pertaining to horticultural development in the district is listed below.

**Table.34 Integrated Horticulture Development Scheme**

**(in . ha.)**

| S.No | Particulars | General | | SC | | Total | |
|---|---|---|---|---|---|---|---|
| | | Target | Achievement | Target | Achievement | Target | Achievement |
| **I** | **Area Expansion - Fruits** | | | | | | |
| 1 | Mango | 20.00 | 20.00 | 5.00 | 5.00 | 25.00 | 25.00 |
| 2 | Banana | 4.00 | 4.00 | 1.00 | 1.00 | 5.00 | 5.00 |
| 3 | Amla | 6.00 | 6.00 | -- | -- | 6.00 | 6.00 |
| | **Total** | **30.00** | **30.00** | **6.00** | **6.00** | **36.00** | **36.00** |
| **II** | **Area Expansion - Vegetables** | | | | | | |
| 1 | Bhendi | 5.00 | 5.00 | 1.00 | 1.00 | 6.00 | 6.00 |
| 2 | Brinjal | 15.00 | 15.75 | 8.00 | 8.00 | 23.00 | 23.75 |
| 3 | Moringa | 10.00 | 10.00 | 4.00 | 4.00 | 14.00 | 14.00 |
| 4 | Greens | 20.00 | 19.60 | -- | -- | 20.00 | 19.60 |
| 5 | Snake Gourd | 1.00 | 1.00 | -- | -- | 1.00 | 1.00 |
| | **Total** | **51.00** | **51.35** | **13.00** | **13.00** | **64.00** | **64.35** |
| III | **Area Expansion - Spices** | | | | | | |
| 1 | Chillies | 26.00 | 26.00 | 2.00 | 4.00 | 28.00 | 30.00 |
| | **Total** | **26.00** | **26.00** | **2.00** | **4.00** | **28.00** | **30.00** |
| IV | **Area Expansion - Others** | | | | | | |
| 1 | Sapota | -- | 1.00 | -- | -- | -- | 1.00 |
| 2 | Mango | -- | 7.20 | -- | -- | -- | 7.20 |
| | **Total** | -- | **8.20** | -- | -- | -- | **8.20** |
| | **Grand Total** | **107.00** | **115.55** | **21.00** | **23.00** | **128.00** | **138.55** |

**Table.35 Micro Irrigation**

| Sl No | Details | Physical (Ha) | | | Financial (Rs.in lakhs) | | | | | Remarks (Work order issued for) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Target | Achieve ment | No of farmers Benefited | Target | Achieve -ment | Funds Received | Funds Transferred to sugar mill | Funds to be Received | |
| | **DRIP IRRIGATION** | | | | | | | | | |
| 1. | Horticultural Crops | 50.00 | 21.58.5 | 7 | 14.40 | 283736 | 14.400 | -- | -- | 34.24 Ha. |
| 2. | Non-Horticultural Crops | 471.00 | 2.50 | 2 | 135.648 | 107881 | 135.648 | -- | -- | 22.299 Ha. |
| 3. | Drip Demonstration | 3 | -- | -- | 0.450 | -- | 0.450 | -- | -- | |
| | **Total** | **521.00 3 Nos.** | **24.085** | **9** | **150.498** | **391617** | **150.498** | **--** | **--** | |
| 1. | Training to groups | -- | -- | -- | 1.250 | -- | 1.250 | -- | -- | |
| 2 | Seminar | -- | -- | -- | 1.000 | -- | 1.000 | -- | -- | |
| 3 | Maintenance | -- | -- | -- | 1.175 | 1.693 | 1.175 | -- | -- | |
| 4 | Research | -- | -- | -- | 3.960 | 2.734 | 3.960 | -- | -- | |
| 5 | Precision Farming | -- | -- | -- | -- | 5.760 | 5.760 | | | Funds transferred to TNAU CBE |
| | | **Total** | **--** | **--** | **--** | **10.187** | **7.385** | **7.385** | **--** | |

**Monitoring – Administration cost**

Telephone - Rs 7407
Computers - Rs 161897
**Total Rs 169304**

**Table.36 Horticultural Schemes Cost**

**(in Rs.)**

| Sl. No | Particulars | General | | Sc | | Total | |
|---|---|---|---|---|---|---|---|
| | | Target | Achievement | Target | Achievement | Target | Achievement |
| | **Expenditure** | | | | | | |
| 1 | Fruits | 180000 | 177874 | 34100 | 34100 | 214100 | 211974 |
| 2 | Vegetables | 45900 | 48026 | 10200 | 10200 | 56100 | 58226 |
| 3 | Spices | 13900 | 13900 | 2300 | 2300 | 16200 | 16200 |
| 4 | Others | 20200 | 20200 | -- | -- | 20200 | 20200 |
| | **Total** | **260000** | **260000** | **46600** | **46600** | **306600** | **306600** |
| | **Receipt** | | | | | | |
| 1 | Fruits | 90000 | 86845 | 17050 | 17300 | 107050 | 104145 |
| 2 | Vegetables | 22950 | 24100 | 5200 | 4700 | 28150 | 28800 |
| 3 | Spices | 6950 | 7000 | 1150 | 1150 | 8100 | 8150 |
| 4 | Others | 10100 | 12500 | -- | -- | 10100 | 12500 |
| | **Total** | **130000** | **130445** | **23400** | **23150** | **153400** | **153595** |

### 5.2.2 Horticultural Interventions Recommended

In Nagapattinam, a coastal District of Tamil Nadu there is scope for bringing new areas under tree fruit crops, flower cultivation and vegetable cultivation in Dry and Garden lands available in an area of 189 Km long coastal areas. Efforts are also being made to bring more Horticultural Fruit tree crops in wet land delta areas by providing drainage channels and raised beds. In low land areas cultivation of Vasambu is being promoted. There is lot of scope for higher production and productivity of Horticultural Crops and thereby increase the income of the farmers.

The following activities are proposed to be implemented to increase the area, production and productivity of Horticultural Crops in Nagapattinam District.

- Precision Farming
- Net House Structure
- Pandal for vegetables production
- Package for plant protection
- Plastics crates for vegetables handling and transport

- Farm waste shredder/ Vegetables Waste shredder
- Cashew high density planting
- Humic acid/ Effective E Microbes
- Support System for crops
- Banana Corm harvesters
- Mango harvester
- Sales outlet points in districts (rent and infrastructure)
- District Level farmers Workshop
- Inter State Exposure Visit (5 days)
- Enterprising farmers associations
- Raising fruit crops in delta areas by providing raised beds and drainage channels
- Providing handy Horticultural equipments kit for training and pruning operations
- Support for Vasambu cultivation.

### 5.3 Agricultural Engineering

Being most backward district, Nagapattinam is very poor in mechanization and also in terms of modernization and adoption of new technologies related to agriculture. There is utmost need to introduce the agricultural machineries and innovative technologies in order to improve the agriculture in terms of production and productivity.

#### 5.3.1 Ongoing Programmes in the district

Various ongoing schemes pertaining to agricultural engineering in the district is listed below.

**Table.37 Run Off Management-Formation of Farm Ponds**

| Sl No. | Name of Sub - Division | Name of Work | Target | | Achievements | |
|---|---|---|---|---|---|---|
| | | | Phy. in nos. | Fin. Rs. in lakhs | Phy. in nos. | Fin. Rs. in lakhs |
| 1 | EE/CADP/MLDY | Formation of Farm Pond | 40 | 16.00 | 40 | 16.00 |
| 2 | AEE/CADP/NGT | | 50 | 20.00 | 50 | 19.98 |
| 3 | AEE/AED/NGT | | 87 | 34.80 | 87 | 34.80 |
| 4 | AEE/AED/MLDI | | 10 | 4.00 | 10 | 3.97 |
| **Total** | | | **187** | **74.8** | **187** | **74.75** |
| 1 | AEE/AED/NGT | Rejuvenation of Wells | 20 | 5.20 | 20 | 5.20 |
| **DIVISION TOTAL** | | | **207** | **80** | **207** | 79.95 |

## Table.38 Centrally Sponsored Scheme for Agricultural Mechanization

| S. No | Machinery | | Small Farmers | | SC Farmer | | Women Farmer | | Other Farmers | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Phy. | Fin. | Phy. | Fin. | Phy. | Fin. | Phy. | Fin. | Phy. | Fin. |
| 1 | Tractors delivering upto 35 HP | AEE/AED / NGT | 2 | 0.6 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0.6 |
| | | AEE/AED / MLDI | 2 | 0.6 | 0 | 0 | 0 | 0 | 3 | 0.9 | 5 | 1.5 |
| | | **Total** | **4** | **1.2** | **0** | **0** | **0** | **0** | **3** | **0.9** | **7** | **2.1** |
| 2 | Power Tillers | AEE/AED / NGT | 31 | 9.20 | 3 | 0.90 | 10 | 2.95 | 5 | 1.49 | 49 | 14.53 |
| | | AEE/AED / MLDI | 36 | 10.49 | 3 | 0.87 | 5 | 1.43 | 9 | 2.63 | 53 | 15.42 |
| | | **Total** | **67** | **19.69** | **6** | **1.77** | **15** | **4.38** | **14** | **4.12** | **102** | **29.95** |
| 3 | Imple ments | AEE/AED / NGT | 3 | 0.6 | 0 | 0 | 1 | 0.2 | 0 | 0 | 4 | 0.8 |
| | | AEE/AED / MLDI | 2 | 0.4 | 0 | 0 | 0 | 0 | 2 | 0.4 | 4 | 0.8 |
| | | **Total** | **5** | **1** | **0** | **0** | **1** | **0.2** | **2** | **0.4** | **8** | **1.6** |
| **Grand Total** | | | **76** | **21.89** | **6** | **1.77** | **16** | **4.58** | **19** | **5.42** | **117** | **33.65** |

## Table.39 Demonstration Programme of Newly Developed Agricultural Machinery

| S. No | Name of Machinery | Name of Sub Division | Unit cost of Demonstration | Annual Target | | Progressive Achievement | |
|---|---|---|---|---|---|---|---|
| | | | | Phy. | Fin. | Phy. | Fin. |
| 1 | Rotavators | AEE/AED/NGT | 0.025 | 2 | 0.05 | 2 | 0.050 |
| | | AEE/AED/MLDI | | 1 | 0.025 | 1 | 0.025 |
| | | **Total** | | **3** | **0.075** | **3** | **0.075** |
| 2 | Rotavators and quick fit Cage Wheel | AEE/AED/NGT | | 3 | 0.075 | 3 | 0.075 |
| | | AEE/AED/MLDI | | 2 | 0.05 | 2 | 0.050 |
| | | **Total** | | **5** | **0.125** | **5** | **0.125** |
| 3 | Self Propelled Paddy Transplanters | AEE/AED/NGT | | 3 | 0.075 | 3 | 0.075 |
| | | AEE/AED/MLDI | | 4 | 0.1 | 4 | 0.092 |
| | | **Total** | | **7** | **0.175** | **7** | **0.167** |
| 4 | Offset Disc Harrow | AEE/AED/NGT | | 5 | 0.125 | 5 | 0.125 |
| | | AEE/AED/MLDI | | 5 | 0.125 | 5 | 0.125 |
| | | **Total** | | **10** | **0.25** | **10** | **0.250** |
| 5 | Post Hole Digger | AEE/AED/NGT | | 2 | 0.05 | 2 | 0.050 |
| | | AEE/AED/MLDI | | 3 | 0.075 | 3 | 0.075 |
| | | **Total** | | **5** | **0.125** | **5** | **0.125** |
| **Grand Total** | | AEE/AED/NGT | | 15 | 0.375 | 15 | 0.375 |
| | | AEE/AED/MLDI | | 15 | 0.375 | 15 | 0.367 |
| | | **Total** | | **30** | **0.75** | **30** | **0.742** |

### 5.3.2 Major Interventions Recommended for Agricultural Engineering are

- Innovative implements
- Gender friendly equipment
- Agricultural mechanisation Programme – Machinery and Implements
- Soil and Water Conservation Works

### 5.4 Major Interventions recommended for Agricultural Marketing

- Commodity group formation
- Market Intelligence dissemination
- Purchase of marketing materials
- Exposure visit to markets
- Conducting trainings on various aspects of marketing
- Export Promotion

### 5.5 Animal Husbandry

Animal husbandry is an allied activity of agriculture in this district as well but it could not keep pace with the developmental work undertaken in the field of modern agricultural techniques. Therefore, the cultivators still depend on cattle imported from other neighbouring districts. The livestock found in this district are generally cattle and buffaloes, sheep, goats, pigs apart from poultry birds, which include fowls and ducks. The district has several artificial Insemination centres, and sub-centres, key village blocks, veterinary hospitals and dispensaries which render valuable services for the development of livestock in the district.

**Table.40 Livestock Population**

| S.No | Classification | Numbers |
|---|---|---|
| 1. | Cattle (White) | 767855 |
| 2. | Buffaloes | 85317 |
| | **Total** | **853172** |
| 3. | Sheep | 33054 |
| 4. | Goats | 429924 |
| 5. | Horses and pony | 864 |
| 6. | Pigs | 3468 |
| 7. | Donkeys | 9 |
| 8. | Domestic Dogs | 8368 |
| 9. | Poultry | 402045 |

Source: Report of the Office of the Deputy Director, Veterinary

## Table.41 Block Wise Veterinary Institutions and Animals Treated

| S.No | Name of the Block | Veterinary institutions | | | | Animals treated | Castration performed |
|---|---|---|---|---|---|---|---|
| | | Hospitals | Dispensaries | Clinician centres | Sub - centres | | |
| 1. | Keelaiyur | 1 | 3 | | 3 | 27437 | 410 |
| 2. | Kilvelur | | 2 | | 7 | 23500 | 385 |
| 3. | Kuthalam | | 5 | 1 | 4 | 51066 | 1227 |
| 4. | Kollidam | | 3 | | | 23045 | 695 |
| 5. | Mayiladudurai | | 2 | 1 | 5 | 42855 | 1124 |
| 6. | Nagapattinam | 1 | 1 | | 4 | 26299 | 243 |
| 7. | Sirkali | 1 | 3 | | 4 | 42483 | 1091 |
| 8. | Sembanarkovil | | 4 | | 5 | 32540 | 936 |
| 9. | Thalanayiru | | 3 | | 1 | 14610 | 356 |
| 10. | Thirumarugal | | 3 | | 5 | 18095 | 354 |
| 11. | Vedaranyam | | 3 | | 4 | 16865 | 411 |
| | **Total** | **3** | **32** | **2** | **42** | **318725** | **7232** |

Source: Reports of the Office of the Deputy Director, Veterinary

## Table.42 Dairy Development

| S.No | Name of the Milk Societies | Quantity of milk produced (Litres) | Value of milk produced (Rs) |
|---|---|---|---|
| 1. | Velipalayam | 144000 | 1296000 |
| 2. | Suramnagalam | 396000 | 3564000 |
| 3. | Kaverypoompattinam | 720000 | 6480000 |
| 4. | Sattanathapuram | 72000 | 648000 |
| 5. | Vilanthidasamuthram | 90000 | 810000 |
| 6. | Sethur | 18000 | 162000 |
| 7. | Kudavasal | 21600 | 194400 |
| 8. | Arpakkam | 9000 | 81000 |
| 9. | Umayalpathi | 10800 | 97200 |
| 10. | Koorainadu | 90000 | 810000 |
| 11. | Semangalam | 10800 | 97200 |
| 12. | Korkai | 9000 | 81000 |
| 13. | Thiruvalaputhur | 10080 | 10720 |
| 14. | Srikandapuram | 7200 | 64800 |
| 15. | Kuthalam | 7200 | 64800 |
| 16. | Vilanagar | 7200 | 64800 |
| 17. | Malaiyur | 10800 | 97200 |
| 18. | Vaithiampettai | 9000 | 81000 |
| 19. | | 28800 | 259200 |
| | **Total** | **1671480** | **14963320** |

Source: Reports of the Office of the Deputy Director, Veterinary

- Flush season : 1059150
- In Lean season : 612330

**Total : 1671480**

### 5.5.1 Interventions for the Department of Animal Husbandry, Dairy and TANUVAS

- Feed and Fodder Development
- Livestock Health Improvement
- Programmed Breeding
- Supply of Feed such as mineral mixture, pass protein feed
- Machineries like Chaff cutters, Milking machines, Milk Coolers, Milk weighing machines
- Farmers study tour
- Training / Workshop for Milk Producers Society
- Establishing rural herbal nursery units

**Fisheries**

The Nagapattinam district has a coastal line of 165 kms. The Inland Fresh Water area spreads for about 1,000 (10 Sq. Km.) hectares. Marine fishing is practised in 60 coastal villages of the district. The fish production fluctuates in both quantity and value.

**Fishery:** Since the district is a coastal region, marine fishing assumes importance. The marine fish catch mainly comprises of leognathics, sharks, flying fish, chank, catfish, prawns, silver bellies, crabs, rays and other miscellaneous varieties.

**Mechanised boats**: Catamarans and country canoes are all used for fishing. A fish-landing jetty has been constructed at Kodikarai, which caters to the needs of marine fishermen and is the only workshop in this coastal area. A comparison indicates that the Coastal Fish Production is higher than the Inland Fish Production.

**Fisheries Production**

1. Area
    a. Total coastal line of the district : 189.9 km
    b. Total inland fresh water spread area : 371 ha
    c. Estuaries and Brackish water area : 2422.43 ha

**Table.43 Fish Production**

| Item | Quantity (Tonnes) | Value (Rs in lakhs) |
|---|---|---|
| Marine fish | 35072 | - |
| Inland fish | 7010 | 2051.5 |

Source: Reports of the Office of the Deputy Director, Fisheries

**Table.44 Inland Fisheries Development**

| Particulars | Inland | Marine |
|---|---|---|
| Freezing plants | - | 5 |
| Ice plants, cold storages | - | 10 |
| Sea food manufacturing units | - | 10 (private sector) |
| Fishing vessels | Mechanized boats | |
| | Catamaran | 3012 |
| | FRP boats | 3215 |
| Active marine fishermen | 27710 | |

Source: Reports of the Office of the Deputy Director, Fisheries

**Export**

**Marine Fish Products**

a. Quantity - 24000 tonnes

b. Value - 720 lakhs

**Interventions for the Department of Fisheries**

- Introducing Mechanised boats / FRP boats
- Sea ranching
- Artificial reefs
- Maintenance of Aquaculture ponds
- Provision for Moped with icebox
- Capacity building by imparting training to the farmers

# CHAPTER - VI

# DISTRICT PLAN – PROJECT PROPOSALS

## 6.1 Agriculture

### 6.1.1 Introduction

The Summit 'Green Revolution- II' is extremely relevant in the present National Context in view of the importance of Agriculture as a major component of Indian Economy and also as the single largest private enterprise. We successfully ushered in Green Revolution following a concerted effort that began during the decade of 1960's. However in the past 40 years many changes have taken place on several fronts such as Food demand, Production Environment, Consumption, trade, Policy, Socio-economy etc that have necessitated a need for a second Green Revolution.

### 6.1.2 Background and Problem Focus and Project Rationale

Nagapattinam is a coastal district bounded on the North by Cuddalore, south by Palk Strait, west by Tiruvarur and Thanjavur districts and on the east by Bay of Bengal. This district is geologically located in the North Latitude between 10" 8 and 11"28 and East Longitude between 76"34' and 79"53'. It is located at the tail end of Cauvery delta system and continues to contribute its share to the total rice production of the state.

It is predominantly an Agrarian district with the net sown area constituting nearly 55 per cent of the total geographical area. Major area of the district is irrigated by well-developed canal irrigation system of Cauvery and cultivation is fully depends on the release of Cauvery water from Mettur reservoir. The average annual rainfall of the district is 1222 mm.

Rice is the major crop grown in the district and it is followed by rice fallow pulses, cotton and Gingelly. Sugarcane and groundnut are the other important crops grown. Rice is cultivated during, Kuruvai, Samba and Thaladi season of the district. About 20% of area is cultivated with kuruvai paddy followed by Thaladi. Summer cultivation is also practiced where borewells are available. Drainage is the most feared problem experienced even in normal years especially during the north east monsoon necessitating rice cultivation in the samba season.

Rice cultivation completely depends upon Cauvery water for irrigation. With the long coastal line of 170 km the district offers very good scope for development of fisheries. The mineral resources in the form of crude oil and natural gas are available in the district.

### 6.1.3 Project Strategies/Goals and Components

**Important Practices to be Adopted for Higher Rice Yields**

1. Sowing in proper season
2. Use of season and locating specific high yielding varieties
3. Seed treatment (wet and dry)
4. Optimal fertilizer application for effective nutrient efficiency
5. Application of Green manure for soil health maintenance
6. Proper water management
7. Puddling at optimal soil moisture condition.
8. Levelling the field properly
9. Application of zinc sulphate @ 25kg/ha
10. Planting young seedlings (2 seedlings/hill)
11. Maintaining optimum plant population
12. Shallow planting
13. Application of bio-fertilizer
14. Application of urea with gypsum and neem cake in the ratio of 5:4:1
15. Split application of " N " fertilizers
16. Nursery management
17. Monitoring pest and disease incidence for timely forecasting
18. Adopting integrated pest management technology
19. Harvesting at right time
20. Proper storage and seed preservation

**Distribution of High Yielding Varieties**

Generally purity has been lost, in the local varieties leading to poor yield and quality necessitating replacement with better varieties to increase productivity.

Replacing local rice varieties by improved high yielding hybrids may improve per unit productivity. Agricultural Department is able to meet only 20% of the seed requirement. The balance is met by local and private producers. High yielding varieties obtained from the private agency may not be good. The Department may take initiatives to produce quality seeds through seed village programme in the selected villages of the district. A separate seed production agency may be established in this regard to monitor entire seed production programme of the district including the seed production programme in the state seed farms.

**System Rice Intensification (SRI)**

Rice is the staple food for 90% of the Asian population. Asia is the largest producer of rice (91 per cent) with an average productivity of 3.9 tonnes/ha. India has the maximum rice area of 44.5 million ha, although China with the second largest area under rice viz. 30.50 million ha is the world's largest producer of rice, with an average productivity of over 6 tonnes per ha.

System Rice Intensification is a best method of rice and it has to be supported by the Government. Refinement of technology through further demonstration may improve the yield phenomenally. 20 to 30 per cent production can be increased by proper implementation of SRI technology.

**Integrated Pest Management**

In order to overcome the increasing problems associated with indiscriminate use of pesticide, integrated control has been proposed. The aim is the use of eco-friendly methods of pest control with minimum use of pesticide.

To create awareness of the pest and diseases complex so as to make timely arrangement for pest management through intensive integrated eco-friendly approach, 110 IPM Schools (10 per block) for 11 blocks has been proposed.

**Forecasting and Surveillance**

Forecasting system is based on the surveillance and monitoring as well as weather predictions, costs and efficiencies of various management tactics, prices of inputs and farm produce etc.

**Micro Nutrient Management**

Since inundation is a chronic problem, being impeded soils, deficiency of micronutrients is often observed, affecting production phenomenally. Management of soils with M.N Mixture supplement may improve the production greatly. Continuous use of chemical fertilizer and imbalance in the nutrient use have not only reduced food grain production but also affected the ecological balance and also the Socio economic condition of the farmers. It is imperative to preserve soils from depletion of nutrients.

At present, micronutrient deficiency is a persistent problem during North East Monsoon due to inundation which is a common phenomenon in the low lands of Nagapattinam. The proposal for distribution of MN Mixture for 2000 ha is suggested to maintain soil health.

In Nagapattinam, Zinc deficiency is prevalent to a greater extent (67.5%) followed by Fe (17%) Cu (6%) and MN (6%) in the different agro climatic zones -Zinc Fertilization could be considered as one of the factors for enhanced productivity of rice.

**Algae Formation**

During kharif and summer season the algae development is more prevalent in the tube well irrigated area which creates problem in the irrigation system and affects production of rice crop markedly.

To overcome this problem, application of Copper Sulphate is suggested.

**Soil Reclamation**

More than 60,000 ha have been affected by salinity and alkalinity. Soil reclamation work has to be necessarily taken up to protect the soil from further deterioration.

**Drum Seeder**

By merely using this simple device Rs.2000/- per acre can be saved by the farmer besides overcoming labour scarcity. This device is highly useful especially for small and marginal farmers.

**Farm Mechanization**

Farm mechanization will play a vital role in this district in the contest of prevailing labour shortage. Because simultaneous planting and harvesting is inevitable in this district and also timeliness of farm operations has been in question all along. This has become more acute with the sudden scarcity of labour. To promote mechanization the following equipments have to be made available to the farmers.

- Power tiller
- Mini harvester
- Mini Transplanter
- Seed driller

**Need for Organic Waste Recycling in Sustaining Soil Health**

For many centuries the key to a permanent and sustainable Agriculture had been the regular and extensive recycling of farm wastes which include

- Animal and poultry manure
- Crop residues
- Agro Industrial waste and
- Processing industry waste

Composting is allowing organic material to decompose under more or less controlled conditions to produce a stabilized product under microbial action that can be used as a fertilizer and or soil amendment. Under recent technology of composting, forced aeration, mechanical shredding and inoculation of microbial consortia enhances decomposition of organic wastes.

**Vermicomposting Technology**

Earthworms have been on the earth for over 120 million years. Their activity is simple but very important. Vermicomposting is the process of degradation of organic waste by earthworms.

Depletion in cattle population has led Indian soils lifeless resulting in the depletion of production potential (soil health).

Composting bio decomposable waste through microbial activity and subsequently vermicomposting using widely adopted earth worm species like Esienia foetida, Eudxillus eugeniae, Perionyx excavatus is a simple technology.

Vermicompost is considered as black gold in the European countries, which can be produced with least care in our sub-tropics, has to be promoted to maintain soil health.

**Pulses**

**Quality Seed Production**

Production and supply of quality pulses seed to the farmers is essential since pulse crop (black gram / green gram) invariably finds a place in the rice, eco-system as a rice fallow catch crop and hence this proposal is made to enhance the productivity of pulses in this district. The certified seeds of high yielding varieties suitable for (Rice fallows) produced in the private sectors should also qualify for distribution so as to encourage private seed producers.

**IPM Technology**

The following measures will be supported for the IPM in pulses.

a) Use of Pheromone traps

b) Mechanical collection of egg masses and larvae. Capturing of adults through light traps and arresting movement of larvae by digging trenches around the field during severe outbreak.

Prodenia incidence is becoming very severe in the rice fallow pulse crop in this district. Only integrated approach could keep this pest under check. Hence awareness on IPM practices is to be created among the farmers.

**Seed Mini kit**

For promoting awareness on the new varieties of pulses to replace the local varieties distribution of mini kits is proposed.

**Foliar Spray**

Foliar spray of DAP (2%) is given to pulses to induce flowering and pod setting to increase the quality as well as yield.

**Seed Treatment**

**Seed Treatment with Microbial Consortium**

Rhizobium seed treatment increases nodulation and increases production in pulses. Treating seeds with Trichoderma viridi and pseudomonas takes care of seed borne diseases as well protect the crop from soil borne diseases.

Irrigation Water is a scarce commodity in the post monsoon season. Micro irrigation system may provide supplemental irrigation during critical stages of the crop to increase unit area production in pulses as well as late planted rice crop which suffers stress at maturity.

**Micro Irrigation**

Drip irrigation and sprinkler irrigation system coupled with water harvesting structures may be encouraged.

**Farmers Training**

Technologies should be updated among the farmers through intensive training and/skill demonstrations in the following areas.

- Selection of high yielding variety
- Seed Treatment with biocides
- Foliar spraying (2% DAP)
- Farmers Field School for effective monitoring and forecasting of pests and diseases
- Integrated pest and disease management (IPM)
- Integrated Nutrient Management (INM)
- Post harvest technology
- Village seed production

**Plant Protection Chemicals and Equipments**

For effective implementation of IPM practices (eco-friendly) in pulses in this district, availability of Plant Protection equipments such as Hand operated sprayers and Power operated sprayers is essential for timely application of pesticides which may be supplied at subsidized rates to the farmers.

**Oil Seed Production Programme (OPP)**

Production and Distribution of quality seeds of high yielding varieties to the farmers is the need of the hour. Replacement of local variety particularly in Gingelly and Groundnut should be given prior importance. More than 90% of the farmers use only indiscriminate varieties, since seed production ratio in groundnut is very low (1:4).

**Farmers Field School (FFS)**

FFS's are proposed to overcome the pest and disease in Groundnut and other oilseed crops by integrated approach.

**Cotton**

Production and supply of quality seeds of high yielding/hybrid cotton to the cotton grower is the need of the hour in this district to increase cotton area and its productivity.

**Inter Cropping**

For effective management of pest and diseases and enhancing unit area production besides generating additional income to the farmers, inter cropping is advocated.

**Integrated Rodent Management**

Considering the seriousness of rodent menace and crop yield losses in this district, for the past two years, timely control and management of rodents through conduct of intensive trainings/demonstrations and campaign among the farmers are essential and hence it is suggested.

**Farm Ponds**

Nagapattinam receives an average rainfall of 850 mm in the North East monsoon (October to December). Most of the area being under impeded low lands, the entire water is drained into the sea. This district also forms the drainage for Tiruvarur, Tanjore and Trichy, thus causing inundation problem even in the normal years of rainfall.

Harvesting rain water through farm ponds may go a long way in improving the livelihood of the farmers and also improving the quality of under ground water in the years to come.

About 10% area under farm ponds may serve as supplemental source for irrigation to command an equal area under flow irrigation (10 to 12 irrigation) or twice the area with micro irrigation system which paves way for more profitable crop other than rice in the post monsoon/summer season. Farm pond also offers scope for composite fish culture with a production potential of 750 Kg to 1000 Kg fish/acre which

may fetch an additional income of Rs.22, 500/- to Rs.30,000/- in a year. Fodder production from one acre can supplement food for 10 animals. The milk production cost can be brought down to 10 to 20%. Hence fodder production may be encouraged.

Hence excavation of farm ponds for water harvesting has to be encouraged at all costs to motivate Integrating Farming System and thereby improving the living standards.

**Agricultural Extension Centre**

There are 44 AECs located in the district catering to the input needs of the farmers under NADP. It is essential to equip the existing AECs with latest Information & Communication Technology (ICT) facilities, so that farmers can make use of these facilities besides getting the required inputs from AECs. Funds are essentially required to provide ICT facilities in the existing AECs, so that farmers can make best use of the above facilities.

**Publicity & Audio Visual Aids**

Purchase of audio visual aids under NADP will go long way in disseminating the technologies among the farmers effectively.

Further funds have to be earmarked for taking up publicity & propaganda work under NADP. The following items will be taken up under publicity components.

1. Digital banner on technologies
2. Wall painting
3. Posters
4. Leaflets, hand bills

**Strengthening of SSF**

In this district two SSF are located. It is proposed to introduce farm mechanization with a view to improve the infrastructure of the SSF, Therefore it is proposed to purchase power tiller, tiller harvester (paddy).

The budget details are furnished in Table 45.

## Table.45 Project Proposal of Department of Agriculture

| S.No | Interventions | Unit cost | 2008 - 09 | | 2009 - 10 | | 2010 - 11 | | 2011 - 12 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Phy (units) | Fin (Lakhs) | Phy (units) | Fin (Lakhs) | Phy (units) | Fin (lakhs) | Phy (units) | Fin (lakhs) | Phy (units) | Fin (lakhs) |
| **A** | **RICE** | | | | | | | | | | | |
| 1. | Seed distribution HYV (MT) | 500 | 700 | 35.0 | 275 | 13.75 | 300 | 15 | 300 | 15 | 1575 | 78.75 |
| 2. | SRI (Ha) | 3000 | 2000 | 6.0 | 2200 | 6.6 | 2500 | 7.5 | 5000 | 15 | 11700 | 35.1 |
| 3. | IPM School (Nos) | 17000 | 160 | 27.2 | 200 | 34 | 220 | 37.4 | 250 | 42.5 | 830 | 141.1 |
| 4. | MN mixture distribution (Ha) | 500 | 500 | 2.5 | 700 | 3.5 | 750 | 3.5 | 800 | 4.0 | 2750 | 13.5 |
| 5. | Soil Reclamation and health care | 750 | 5000 | 37.5 | 750 | 37.5 | 750 | 37.5 | 750 | 37.5 | 7250 | 150 |
| 6. | Mini Power Tiller (Nos) | 50000 | 25 | 12.5 | 30 | 15 | 35 | 18 | 50 | 25 | 140 | 70.5 |
| 7. | Harvester (Nos) | 500000 | 11 | 55.0 | 15 | 75 | 20 | 100 | 20 | 100 | 66 | 330 |
| 8. | Mini Transplanter (Nos) | 50000 | 11 | 5.5 | 15 | 7.5 | 20 | 10 | 20 | 10 | 66 | 33 |
| 9. | Mini Seed Drum (Nos) | 5000 | 11 | 0.55 | 11 | 0.55 | 11 | 0.55 | 11 | 0.55 | 44 | 2.2 |
| **B** | **PULSES** | | | | | | | | | | | |
| 1. | IPM School (Nos) | 13250 | 50 | 6.625 | 70 | 9.275 | 80 | 10.6 | 100 | 13.25 | 300 | 39.75 |
| 2. | C.Seed Production (Qtl) | 1000 | 400 | 4.0 | 450 | 4.5 | 500 | 5 | 550 | 5.5 | 1900 | 19 |
| 3. | C.Seed Distribution (Qtl) | 1200 | 400 | 4.8 | 450 | 5.4 | 500 | 6 | 550 | 6.6 | 1900 | 22.8 |
| 4. | Minor irrigation (Nos) | 15000 | 20 | 3.0 | 30 | 4.5 | 35 | 5.25 | 40 | 6.0 | 125 | 18.75 |
| 5. | CBD (Nos) | 2000 | 300 | 6.0 | 300 | 6.0 | 300 | 6.0 | 300 | 6.0 | 1200 | 24 |
| 6. | PP Equipments (Nos) | 800 | 500 | 4.0 | 550 | 4.4 | 600 | 4.8 | 600 | 4.8 | 2250 | 18 |
| 7. | DAP spray (Ha) | 200 | 13300 | 26.60 | 2200 | 4.4 | 2400 | 4.8 | 2600 | 5.2 | 20500 | 41.00 |

**Table 45 Contd….**

| S.No | Interventions | Unit cost | 2008 - 09 | | 2009 - 10 | | 2010 - 11 | | 2011 - 12 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Phy (units) | Fin (Lakhs) | Phy (units) | Fin (Lakhs) | Phy (units) | Fin (lakhs) | Phy (units) | Fin (lakhs) | Phy (units) | Fin (lakhs) |
| **C** | **COTTON** | | | | | | | | | | | |
| 1. | F.Seed Distribution (Qtl) | 2000 | 20 | 0.4 | 10 | 0.2 | 10 | 0.2 | 10 | 0.2 | 1900 | 1.0 |
| 2. | Intercropping (Ha) | 200 | 100 | 0.2 | 100 | 0.2 | 100 | 0.2 | 100 | 0.2 | 1900 | 0.8 |
| 3. | FFS School (Nos) | 17000 | 10 | 1.7 | 10 | 1.7 | 10 | 1.7 | 10 | 1.7 | 125 | 6.8 |
| **D** | **OILSEED** | | | | | | | | | | | |
| | **OILSEED PRODUCTION** | | | | | | | | | | | |
| 1. | C.Seed Production (Qtl) | 1000 | 84 | 0.84 | 80 | 0.80 | 80 | 0.80 | 100 | 1.0 | 344 | 3.44 |
| 2. | C.Seed Distribution (Qtl) | 1200 | 30 | 0.360 | 40 | 0.48 | 45 | 0.54 | 50 | 0.6 | 165 | 1.98 |
| 3. | Biofertiliser distribution (Ha) | 50 | 400 | 0.20 | 450 | 0.225 | 500 | 0.25 | 500 | 0.25 | 1850 | 0.925 |
| 4. | CBD (Nos) | 4000 | 10 | 0.400 | 15 | 0.6 | 20 | 0.8 | 25 | 1.0 | 70 | 2.8 |
| **E** | **INFRASTRUCTURE REPAIR** | | | | | | | | | | | |
| 1. | Strengthening of ADA office | 200000 | 11 | 22.0 | | | | | | | 11 | 22 |
| 2. | Purchase of digital camera for the documentation of field activities | 15000 | | 1.8 | | | | | | | | 1.8 |
| **F** | **TANWABE** | | | | | | | | | | | |
| 1. | Backend subsidy (Nos) | 10000 | 44 | 4.4 | 60 | 6.0 | 80 | 8.0 | 100 | 10 | 284 | 28.4 |
| 2. | Office automation (FIG) (Nos) | 5000 | 60 | 3.0 | 60 | 3.0 | 60 | 3.0 | 60 | 3.0 | 240 | 12 |
| 3. | Strengthening of TANWABE and FIG | 200000 | 20 | 40.00 | 20 | 40 | 20 | 40 | 20 | 40 | 80 | 160 |

**Table 45 Contd….**

| S.No | Interventions | Unit cost | 2008 - 09 | | 2009 - 10 | | 2010 - 11 | | 2011 - 12 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Phy (units) | Fin (Lakhs) | Phy (units) | Fin (Lakhs) | Phy (units) | Fin (lakhs) | Phy (units) | Fin (lakhs) | Phy (units) | Fin (lakhs) |
| **G** | Farm Pond (Nos) | 50000 | 100 | 5 | 100 | 5 | 100 | 5 | 100 | 5 | 400 | 20 |
| **H** | Training/Transfer of technology | | | | | | | | | | | |
| | Audio visual aids (Nos) | | | 2.00 | | 2.5 | | 3.0 | | 3.5 | | 11 |
| **I** | Rodent control (Nos) | | | 3.5 | | 4.0 | | 5.0 | | 10.0 | | 22.5 |
| **J** | AEC-maintenance (Nos) | | | 55.0 | | | | | | | | 55 |
| **K** | Publicity | | | 2.0 | | | | | | | | 2 |
| | Project Management Team consultant and Technical Assistant | 7000 / tech asst | 1 | 0.07 | 1 | 0.07 | 1 | 0.07 | 1 | 0.07 | 4 | 0.28 |
| | Formation of new FIG | 4000 | 55 | 2.2 | 55 | 2.2 | 55 | 2.2 | 55 | 2.2 | 220 | 8.8 |
| | Organic farm | 100000 | 11 | 11.0 | 11 | 11.0 | 11 | 11.0 | 11 | 11.0 | 44 | 44 |
| **L** | Mini Seed Testing Lab | 600000 | 1 | 6.0 | | | | | | | | 6.0 |
| | **Total** | | | **398.845** | | **309.85** | | **353.66** | | **386.62** | | **1448.975** |

## 6.2. Establishment of Seed Testing Laboratory

### Abstract

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

The main aim of seed testing is to obtain accurate and reproducible results. The seed testing laboratory is an institution in carrying out the seed production and certification program. To meet the increasing demand of farming community, seed growers, seed producers, seed dealers of Tamilnadu and for easy accessibility to the poor farming community for the purpose of enhancing Agricultural production in the district, it is necessary to have a new Seed Testing Laboratory in Nagapattinam district.

### Need

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

### Budget

New Seed Testing Laboratory is proposed to be established during 2008-2009 at Nagapattinam district. It is proposed to purchase the laboratory equipments at a total cost of Rs.6 lakhs (Table 46)

**Project Implementation**

The Department of Seed Certification shall implement the programme. The Laboratory equipments are expected to be purchased during 2008-09.

**Benefits**

The Seed Testing laboratory is an important institution in carrying out the seed production and seed certification program. The accuracy and reproducibility in the analysis results is of paramount importance to the seed producer, processor, certification and seed law enforcement officials. At present the certified seed samples from Seed Certification wing, Official seed samples from Seed Quality Control wing and Service samples from Seed Producers, Seed dealers and farmers are being sent to Thanjavur district for analysis. Establishment of seed testing laboratory at Nagapattinam district will help the farming community, seed dealers and producers in getting the results in time, in getting quality seeds at the sowing period and curtailing the sale of substandard seeds to the farmers well ahead of sowing so that agricultural production of the district is enhanced.

**Introduction**

National Agricultural Development Programme (NADP) aims in bringing about quantifiable changes in production and productivity of various components of Agriculture and allied structure in a holistic manner. The purchase of equipments for New Seed Testing Laboratories is not covered under the general components under NADP and hence the purchase of Equipments for the Nagapattinam Seed Testing Laboratory is proposed under component innovative schemes.

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

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

Seed tests can provide information on pure seed, other crop seed and weed seed (by percentage and number per unit weight of different species), inert matter, normal and abnormal seed, fresh or hard seed, dead seed and moisture content.

The main aim of seed testing is to obtain accurate and reproducible results. The seed testing laboratory is an institution in carrying out the seed production and certification program.

To meet the increasing demand of farming community, seed growers, seed producers, seed dealers of the district and far easy accessibility to the poor farming community for the purpose of enhancing Agricultural production in the district, it is necessary to have a new Seed Testing Laboratory at Nagapattinam district.

**Objectives of Seed Testing**

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

**Role of Seed Testing Laboratories in Seed Quality Control**

On analysis of the past data on productivity and quantity of seeds distributed to farming community it is well understood the SEED is very important among all other factors which influences agricultural production considerably.

While encouraging distribution of Quality seeds, regulation of seeds distributed to farmers is also very much required to safeguard the interests of the farmers and to keep up the agricultural production.

**Seed Quality Control Activities**

Past performance depicts that intensification of regulatory activities have led to reduction in distribution of sub standard seeds in the state. Tamil Nadu stands first among other states and Union territories in implementation of the Seeds Act, 1966, The Seeds Rule 1968 and the Seed Control Order 1983.

To safe guard the interests of farming community and to increase agricultural production in the district a strong seed production program and quality control mechanism plays a vital role.

Seed testing plays a pivotal role in modern agriculture. It is being carried out to analyze the factors like germination, physical purity, moisture, seed health and admixture of other distinguishable varieties. Seed testing is carried out in the notified seed testing laboratories. The seed testing results are very important for the successful implementation of seed certification program and seed law enforcement program, certified seed samples, Official seed samples from quality control wing and the service samples sent by the farmers, seed dealers and seed producers are tested in the laboratories.

**Need for Establishing Seed Testing Laboratory**

At present the certified seed samples from Seed Certification wing, Official seed samples from Seed Quality Control wing and Service samples from Seed Producers, Seed

dealers and farmers are being sent to Thanjavur district for analysis. This process results in the delay of results due to transportation of the seed from the place of sampling to the laboratory. To overcome this problem and render timely supply of quality seeds to the farming community, seed producers and seed dealers it is necessary to establish Seed Testing Laboratory at Nagapattinam district.

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

**Seed Distribution**

A considerable quantum of quality seeds are being distributed through licensed seed selling points. The labeled seeds distribution is dominating. Under these circumstances, ensuring the quality of the seed lots before its usage by the farming community is very much essential. The quality of such seed lots can be ensured only by testing these seed lots in the Seed Testing Laboratories for its seed standards. The seed testing of these seed lots which are not covered under the purview of Seed Certification and that are covered to some extent under seed quality control program can be ensured only by inculcating the practice of sending service samples by seed producers, seed dealers and farmers to seed testing laboratories. In the present scenario, where Seed Testing Laboratory is not available in the district the seed producers, seed dealers and farmers find it very difficult to send the seed samples for analysis. Hence, facilitating the seed producers, seed dealers and farmers by establishing Seed Testing Laboratory in the district will be of much use. Accordingly, a Seed Testing Laboratory is proposed to be established in Nagapattinam district.

In order to meet the increasing demand of quality seeds and to ensure that the farmers, dealers, producers receive the results of Seed Testing Laboratories at correct time without delay it is proposed to establish new Seed Testing Laboratory at Nagapattinam district under National Agricultural Development Programme at a financial outlay of Rs.6.00 lakhs towards provision of laboratory equipments.

**Activities Proposed**

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

**Requirement of Equipments for Establishing Seed Testing Laboratory**

**1. Mixing and Dividing Equipments**

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

**2. Moisture Testing Equipment**

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

**3. Weighing Equipments**

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

**4. Purity Analysis Equipment**

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

**5. Germination Equipment**

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

**6. Storage Equipment**

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

**7. General**

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

**8. Computers with Accessories**

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

**Cost Aspects**

The Seed Testing Laboratory that is to be established should have the following equipments for the purpose of analyzing seed samples for moisture, physical purity, germination and Other Distinguishable Varieties.

**Table.46 Project Proposal for Seed Testing Laboratory**

| S.No. | Name of the Instrument/Equipment | Approx. Qty required for One lab | Approx .cost Per unit (Rs) | Approx. cost for One lab (Rs.) |
|---|---|---|---|---|
| 1 | Weighing Balance-Top Loading | 1 | 5000 | 5000 |
| 2 | Illuminated purity Work board | 1 | 4000 | 4000 |
| 3 | Electronic Weighing balance (0.1 mg) | 1 | 30000 | 30000 |
| 4 | Soil type divider | 1 | 7500 | 7500 |
| 5 | Digital moisture meter with stabiliser | 1 | 17500 | 17500 |
| 6 | Germination trays | 200 | 175 | 35000 |
| 7 | Petri dishes | 50 | 300 | 15000 |
| 8 | Thermometer | 1 | 300 | 300 |
| 9 | Hygrometer | 1 | 1500 | 1500 |
| 10 | Cabinet Germinator (Double door) along with stabliser | 1 | 225000 | 225000 |
| 11 | Air Conditioner (split type) along with stabilizer | 2 | 35000 | 70000 |
| 12 | Work Table | 5 | 4000 | 20000 |
| 13 | Work Chair | 4 | 2500 | 10000 |
| 14 | Trolley(Movable) | 1 | 5000 | 5000 |
| 15 | Computer with accessories | 1 | 60000 | 60000 |
| 16 | Germination Paper (Roll towel) in Kgs | 200 | 165 | 33000 |
| 17 | Filter paper (Nos) | 50 | 35 | 1750 |
| 18 | Seed Storage Rack | 2 | 6000 | 12000 |
| 19 | Telephone Connection with Broad band | 1 | 1250 | 1250 |
| 20 | Miscellaneous items | | | 46200 |
| | **TOTAL** | | | **6,00,000** |

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

**Operation and Maintenance Cost of the Running Laboratory**

The staff pattern as proposed in the restructuring shall be accommodated. The recurring expenditure towards pay and allowances for the staffs proposed as per restructure proposal and the recurring expenditure towards other items shall be borne by the State Government.

**Benefits**

The Seed Testing laboratory is an important institution in carrying out the seed production and seed certification program. The accuracy and reproducibility in the analyzed results is of paramount importance to the seed producer, processor, certification and seed law enforcement officials. Establishment of seed testing laboratory at Nagapattinam district will help the farming community, seed dealers and producers in getting the results in time, in getting quality seeds at the sowing period and curtailing the sale of substandard seeds to the farmers well ahead of sowing so that agricultural production of the district is enhanced.

**Expected Date of Completion**

The equipments for Seed Testing Laboratory are expected to be purchased during 2008-09.

**Monitoring and Evaluation**

Project on implementation of the proposed project shall be evaluated then and there by Department of Seed Certification which is the implementing department.

**6.3 Horticulture**

**Project Activities / Interventions – I**

1. Precision Farming.
2. Net House Structure for Nursery and Vegetable Production.
3. Pandal for Vegetable Production.

**Back Ground / Problem Focus**

Precision Farming with Protected Nursery raising, proper spacing, Fertigation and timely plant protection give higher yield than the Conventional system of crop husbandry. The Success stories from the farmers of Dharmapuri and Krishnagiri in precision farming is an eye opener for the rest of the Districts and to more number of innovative farmers. So also with the production of flowers and hybrid vegetables especially tomato under net house structures are useful for the control of humidity, temperature pest and disease management. The production of vegetables especially Gourds, will be more under Pandal system of vegetable growing.

**Project Rationale**

Considering the high cost of the materials used for Drip, Fertilization, Nets, and Erecting Materials farmers are reluctant to adopt these practices in a large area. By providing incentives by way of subsidy more area can be brought under Horticulture crops, moreover water saving and water utilization is effective by these measures. These measures also enhance the sustainable increased production of Horticultural crops.

**Project Strategy**

The above mentioned interventions involves more financial burden for farmers. By way of 50% Subsidized input distribution more farmers can be brought in to these activities financial institutions will also be involved for these projects.

**Project Goals**

The aim is to bring more area under protected system of cultivation there by increasing the area, production and productivity of horticultural crops particularly in vegetables. Per hectare yield should be increased with minimum water usage, efficient fertigation, and timely protection measures.

**Project Rationale**

1. Installing micro irrigation system with fertigation equipments.
2. Provision of net house.
3. Portray provision.
4. Water-soluble fertilizer suited for fertigation.
5. Erection materials for Pandal system.
6. Hybrid seeds, Bio fungicides, Bio pesticides.

**Project Cost and Financing (Table 47)**

**1. Precision Farming**

| | | |
|---|---|---|
| a. Unit cost for Drip components | | 11200 + 28800 = 40000 |
| b. Input cost | | = 25000 |
| c. Nursery | | = 5000 |
| | | 70000 |
| | Subsidy | 40000 |
| | Farmer Contribution | **30000/Ha** |

**2. Net House Structure for Nursery and Vegetable Production**

| | | |
|---|---|---|
| Unit cost for 300 sq.m | | =1,00 000 |
| 50 % Subsidy | | 50,000 |
| | Farmer Contribution | **50,000** |

**3. Raising Vegetables Under Pandal System**

| | | |
|---|---|---|
| Unit cost / Ha | | =1,00,000 |
| 50 % Subsidy | | = 50,000 |
| | Farmer Contribution | 50,000 |

Where ever possible local PACBs, Nationalized Banks and NGOs will play a major role in implementing these systems. Unit area will be decided by financial position, Seasonal conditions.

**4. Implementation Chart**

1. Precision farming December, January to May months.
2. Net house structure December, January to May months.
3. Pandal for vegetable cultivation December, January to May months.

**5. Reporting**

The project will be implemented by the horticultural department with the full technical guidance of the Tamil Nadu Agricultural University and with the administrative control of Director of Horticulture and by the competent Nodal Agencies.

**Table.47 Project Proposal for the Department of Horticulture**

**(Rs. in Lakhs)**

| S. No | Type of Activities | Unit Cost | 2008 - 09 | | 2009 – 10 | | 2010 – 11 | | 2011 – 12 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Phy | Fin | Phy | Fin | Phy | Fin | Phy | Fin | Phy | Fin |
| 1. | **Precision Farming** | | | | | | | | | | | |
| | a. Drip Components | Rs.11,200 | 90 | 10.08 | 90 | | 90 | 10.08 | 90 | 10.08 | 360 | 40.32 |
| | b. Input Cost | Rs.25,000 | 90 | 22.50 | 90 | 22.50 | 90 | 22.50 | 90 | 22.50 | 360 | 90.00 |
| | c. Nursery | Rs. 5,000 | 90 | 4.50 | 90 | 4.50 | 90 | 4.50 | 90 | 4.50 | 360 | 18.00 |
| | d. Operational Cost | Rs. 5,000 | -- | 4.50 | -- | 4.50 | -- | 4.50 | -- | 4.50 | -- | 18.00 |
| 2. | **Net House structure** | | | | | | | | | | | |
| | a. Nursery & Vegetables Production | Rs.1.00lakh/ 300Sq.m | 50000 Sq.m | | 50000 sq.m | | 50000 Sq.m | | 50000 Sq.m | | | 332.00 |
| 3. | Pandal for Vegetables Production | Rs.1.00lakh/ ha | 5 | 2.5 | 5 | 2.5 | 5 | 2.5 | 5 | 2.5 | 20 | 10.00 |
| | **Total** | | | **127.08** | | **127.08** | | **127.08** | | **127.08** | | **508.32** |

**Project Activities / Interventions – II**

1. Cashewnut high density planting
2. Support for Vasambu Cultivation
3. Support for raising fruit crops in delta areas by providing raised beds and channels
4. Support system for Banana and Gloriosa.

**Back Ground / Problem Focus**

a. Hitherto Cashew was planted with a wider spacing of 7m x 7m. Researches and demonstration have proved that a high density planting of cashew yielded more than the conventional planting spacing.

b. Vasambu is now an emerging as an alternate crop to paddy in delta areas. The duration is 10 months and the crop withstands water logging during rainy seasons. The demand for Vasambu in paint industry, medicine, and pesticide industry is more.

c. Farmers are reluctant to raise fruit tree crops in delta areas due to heavy rain during north east monsoon period. No proper drainage facilities are available. By providing drainage channels and raised beds fruit crops can be brought in more areas.

d. Support system for Banana by providing bamboo, Casuarinas, Eucalyptus stakes (poles) are essential during high-speed wind and hails or storms. By providing suitable support system the banana crop can be saved from high speed wind or hails or storms and cyclone. Gloriosa in a creeper crop. The areas is increasing due to the demand in international market for medicinal purpose. Country methods of support like tree branches dry bushes are used for support of this creeper. Proper support system will increase the yield of Gloriosa crop.

**Project Rationale**

High density planting means more number of seedlings per ha. So the cost of seedlings for the farmers is also an extra burden. By way of subsidized seedling distribution the burden is reduced.

Since Vasambu crop is a newly introduced crop, incentive for cultivation will bring more area.

So also is the case of raising fruit crops in delta areas by providing drainage channels and raised bed is an extra expenditure. So giving incentive by way of subsidy is necessary.

Support system for Banana and Gloriosa also involves higher cost of cultivation to the farmers. This district is highly prone to cyclone. So subsidy to the tune of 75% is necessary for these crops. The economic value of Gloriosa is also high.

**Project Strategy**

Considering the high cost of inputs, support systems and subsidized input distribution will reduce the financial burden of the farmers.

Financial institutions and NGO's will be involved in these projects.

**Project Goals**

High-density cashew planting aims at increased yield and more return to the farmers for a long period. Medicinal, Repellent pesticide effect and usage in paint industry of Vasambu will be fully explored. Alternate crops in delta area will pay good dividend to the farmers.Quality banana production and valuable Gloriosa seed production is aimed at.

**Project Components**

1. Supply of cashew epicotyl crafts.
2. Supply of Vasambu rhizomes.
3. Supply of Bio fertilizers, Bio pesticides and fungicides and organic materials for cultivation.
4. Supply of bamboo or casuarinas or Eucalyptus poles for support system.
5. Supply of steel or Eucalyptus pole and steel wires (mesh) for Gloriosa.

**Project Cost and Financing (Table 48)**

1. Unit cost for cashew epicotyl crafts 30,000 / Ha
2. Unit cost for Vasambu Cultivation (Rhizome and input costs) 30,000 / Ha
3. Tractor and Bulldozer hiring charges 30,000 / Ha
4. Supply of Casuarinas or Eucalyptus pole and steel wires (mesh)

For Banana and Gloriosa

Banana 1,50,000 / Ha

Gloriosa 40, 000 / Ha

For item 1 to 3 a subsidy of 50 % may be allowed and for item 4, 75 per cent subsidy is required. Affluent farmers will directly bear the farmers contribution. Local primary Agricultural Co-operative Banks, Nationalized banks and NGO's will play a major role in financing these projects.

**Implementation Chart**

| S.No | Type of Activities | Time period |
|---|---|---|
| 1. | Planting cashew epicotyls crafts | August, September, October, November |
| 2. | Vasambu planting | April, May, June |
| 3. | Raising fruit crops in delta areas | July, August, September, October |
| 4. | Erection of support system for Banana | November, December, January |
| 5. | Gloriosa | August, September, October, November |

**Table.48 Project Proposal for the Department of Horticulture**

**(Rs. in lakhs)**

| Sl. No | Type of Activities | Unit Cost | 2008 - 09 | | 2009 – 10 | | 2010 – 11 | | 2011 – 12 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Phy | Fin | Phy | Fin | Phy | Fin | Phy | Fin | Phy | Fin |
| 1. | Support System for crops | | | | | | | | | | | |
| | a. Banana | Rs.1.5 lak/ha | 200 | 225 | 250 | 281.25 | 300 | 337.5 | 400 | 450 | 1150 | 1293.75 |
| | b. Gloriosa | Rs.40000 | 40 | 12 | 40 | 12 | 40 | 12 | 40 | 12 | 160 | 48.00 |
| 2. | Raising fruit crops in delta areas by providing raised beds and drainage channels | Rs. 30000 per ha. | 10 | 1.50 | 15 | 2.25 | 20 | 3.00 | 25 | 3.75 | 70 | 10.50 |
| 3. | Support for vasambu cultivation | Rs.30000/ ha. | 20 | 3.00 | 50 | 7.50 | 70 | 9.00 | 100 | 15.0 | 240 | 34.5 |
| 4. | Cashew high density planting | Rs.9000 / ha | 20 | 0.90 | 30 | 1.35 | 40 | 1.80 | 50 | 2.25 | 140 | 6.30 |
| | **Total** | | | **242.40** | | **304.35** | | **363.3** | | **483.0** | | **1393.05** |

**Project Activities / Interventions - III**

1. Package for plant Protection.
2. Supply of Mango harvester.
3. Supply of Banana corm injector.
4. Plastic crates for vegetables handling and transport.
5. Providing Horticultural handy kits like secature, Garden scissors, Garden knife, sickles etc.
6. Supply of Farm waste shredder.
7. Humic acid / E. m distribution.

**Background / Problem Focus**

Handy horticultural implement and tools play a major role in vegetable, Flower and fruit tree cultivation. For effective plant protection measures power sprayers or Rocker sprayers are very much necessary. Using mango harvester prolongs the shelf life period to a certain extent and so also the quality of the fruits.

Banana corm injector is very handy and very much useful in the control of Banana wilt diseases.

Handy Horticultural instrument like secature, Garden Scissors, Garden knife and sickles are useful in training and pruning of Horticultural crops.

Since the organic farming is gaining momentum, supply of humic acid and effective micro organisms will increase the yield, and keeping quality of the fruits and vegetables. By using farm waste shredder the large volumes of farm waste can recycled to soil for the microbial activity and for soil health.

**Project Rationale**

Efficient use of plant protection equipments like power sprayers, Banana corm injector will give protection against the pest and diseases.

Use of mango harvester and use of plastic crates will give more shelf life for fruits and vegetables.

The training and pruning plays a major role in Horticultural crops especially fruit trees and climber vegetables. Use of secature, Garden Scissors, Garden knife and sickles will improve the crop Geometry.

**Project Strategy**

By popularizing the use of these implements, instruments, and equipments the yield and the longevity of the crop can be increased. Crop Geometry maintained. Shelf life period and quality of the products are assured.

**Project Goal**

Production of quality produce is aimed by the use of the above mentioned equipments and instruments and promotion of organic farming and sustainable crop husbandry is ensured.

**Project Components**

Supply of power and Sprayers and Rocking sprayers
Supply of mango harvester
Supply of Banana corm injector
Supply of Plastic crates for vegetables handrail and transport.
Supply of handy Horticultural equipments for training and pruning.
Supply of farm waste shredders.
Supply of Humic acid / Effective micro Organization.

**Project cost and Financing (Table 49)**

| | |
|---|---|
| 1. Supply of power sprayers / Rocking sprayers | 3000 / Ha |
| 2. Supply of Mango harvester | Rs. 500 / No |
| 3. Supply of Banana corm injector | Rs. 400 / No |
| 4. Supply of Plastic crates | Rs. 250 / Crate |
| 5. Supply of Horticultural tools kit like secautur Garden scissors, knife etc. | Rs. 1000 / kit |
| 6. Supply of Humic acid / E.m | Rs. 400 / Liter |
| 7. Supply of farm waste shredder | Rs. 40000/ Unit. |

## Table.49 Project Proposal for the Department of Horticulture

**(Rs. in lakhs)**

| Sl. No | Type of Activities | Unit Cost | 2008 - 09 | | 2009 – 10 | | 2010 – 11 | | 2011 – 12 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Phy | Fin | Phy | Fin | Phy | Fin | Phy | Fin | Phy | Fin |
| 1. | Banana Corm injector | Rs.300/No | 100 | 0.10 | 120 | 0.13 | 130 | 0.195 | 150 | 0.225 | 500 | 0.65 |
| 2. | Mango harvester | Rs.500/No | 150 | 0.375 | 200 | 0.50 | 200 | 0.50 | 200 | 0.50 | 750 | 1.875 |
| 3. | Package for Plant Production | Rs.3000/ha | 100 | 1.5 | 100 | 1.50 | 100 | 1.50 | 100 | 1.50 | 400 | 6.00 |
| 4. | Plastics Crates for Vegetable handling and transport | Rs.250/ crate | 500 | 0.625 | 1000 | 1.25 | 1500 | 1.875 | 2000 | 2.5 | 5000 | 6.25 |
| 5. | Farm waste Shredder / Vegetables Waste Shredder | Rs.40000 / No | 2 | 0.40 | 2 | 0.40 | 2 | 0.40 | 2 | 0.40 | 8 | 1.60 |
| 6. | Providing handy horticultural equipments kit for training and pruning operations | Rs. 1000/ kit | 100 | 0.50 | 100 | 0.50 | 100 | 0.50 | 100 | 0.50 | 400 | 2.00 |
| 7. | Humic acid/Effective Microbes | Rs.400/lt | 100 | 0.20 | 200 | 0.40 | 300 | 0.60 | 400 | 0.80 | 1000 | 2.00 |
| | **Total** | | | **3.70** | | **4.68** | | **5.57** | | **6.425** | | **20.375** |

Serial No 1 to 6 involves less expenditure. So the farmers can themselves directly be benefited. For Serial no 7 financial institutions and NGO's will assist the farmers for financial supports.

**Implementation Chart**

| S.No | Type of Activities | Time period |
|---|---|---|
| 1. | Package for plant Protection | April, May, June |
| 2. | Supply of Mango harvester. | April, May, June |
| 3. | Supply of Banana corm injector. | August - November |
| 4. | Plastic crates for vegetables handling and transport. | April, May, December, January, February |
| 5. | Providing Horticultural handy kits like Secature, Garden scissors, Garden knife, sickles etc | April, May, and June |
| 6. | Supply of Farm waste shredder. | April, May, and June |
| 7. | Humic acid / E. m distribution. | December to June |

**Project Activities / Interventions IV**

1. District level Farmer work shops
2. Interstate exposure Visit
3. Enterprising Farmers Association
4. Sales outlet point in District (Rent and Infrastructure)

**Background / Problem Focus**

To create awareness about hi-tech practices and improve technologies of Horticultural crop production, seasonal workshops are to be conducted at district level. Precision farming, marketing awareness and formation of registered societies will be emphasized during these workshops. Hired sales outlet is to be created to supply the important horticultural inputs. As on date no such sales outlet exists in this District.

**Project Rationale**

Most of the farmers lack knowledge in production techniques like precision farming Drip and sprinkler use, Fertigation methods, and proper plant production measures. Organizing the enlightened and other farmers and imparting latest techniques in horticultural production technologies is to be ensured.

To market the produce they should form registered societies with group of farmers and market their produces in a collective way. These will ensure competitive price for the farmers.

Farmers can be exposed to new areas in other states where horticultural crops are grown efficiently in larger areas and also to the market yards and research stations for first hand information and for technical support.

**Project Strategy**

The Project aims are gaining more knowledge about horticultural crop production techniques, farming of village level farmers interest groups or associations for effective input utilization, effective marketing their produces by the farmers.

**Project Goal**

Organizing district level workshop/ Seminar will promote confidence among the farmers for their unity in handling their own problems and solving them among themselves. Only follow up activities can be met by extension and research wings. District level sales outlet also helps in the distribution of essential inputs to the farmers.

**Project Components**

1. District level Farmer work shops/Seminar
2. Interstate exposure Visit
3. Enterprising Farmers Association
4. Sales outlet point in District

**Project Cost and Financing (Table 50)**

District level Farmer workshops – 4 nos. involving

50 farmers (200 Nos.) in each session - Rs. 0.40 lakhs

Interstate exposure Visit (per farmer) - Rs. 5000

Enterprising Farmers Association (600 farmers / 4 Nos.) - Rs. 100.0 lakhs (for 4 years)

Sales outlet point in District (1 No.) - Rs. 2.60 lakhs

Full grants are necessary for implementing these projects.

**Implementing Chart**

| S.No | Type of Activities | Time period |
|---|---|---|
| 1. | District level Farmer work shops/Seminar | April, May, June |
| 2. | Interstate exposure Visit | April, May, June |
| 3. | Enterprising Farmers Association | April, May, June |
| 4. | Sales outlet point in District | April |

## Table.50 Project Proposal for the Department of Horticulture

| Sl. No | Type of Activities | Unit Cost | 2008 - 09 | | 2009 – 10 | | 2010 – 11 | | 2011 – 12 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Phy | Fin | Phy | Fin | Phy | Fin | Phy | Fin | Phy | Fin |
| 1 | Sales outlet points in districts (rent and infrastructure) | Rs.2.6 lakh /No | 1 | 2.60 | -- | -- | -- | -- | -- | -- | 1 | 2.60 |
| 2 | District Level Farmers Workshop | Rs.400/ No/day | 200 | 0.40 | 200 | 0.40 | 200 | 0.40 | 200 | 0.40 | 800 | 1.60 |
| 3 | Inter State Exposure Visit (5 days) | Rs.5000 / farmer | 150 | 7.50 | 150 | 7.50 | 150 | 7.50 | 150 | 7.50 | 600 | 30.00 |
| 4 | Enterprising farmers associations | Rs.25 lakh each | 1.00 | 25.00 | 1.00 | 25.00 | 1.00 | 25.00 | 1.00 | 25.00 | 4 | 100.00 |
| | **Total** | | | **35.50** | | **32.9** | | **32.9** | | **32.9** | | **134.2** |

## OVERALL ABSTRACT

| Interventions | 2008 - 09 | 2009 - 12 | Total |
|---|---|---|---|
| **I** | **127.08** | **381.24** | **508.32** |
| **II** | **242.40** | **1150.65** | **1393.05** |
| **III** | **3.70** | **16.675** | **20.375** |
| **IV** | **35.50** | **98.70** | **134.2** |
| **Total** | **408.68** | **1647.265** | **2055.945** |

## 6.4 Animal Husbandry

**Table. 51 Budget Details – Animal Husbandry Sector- 2008-2012**

| Sl. No | NAME OF THE PROGRMME | Unit cost Rs. in lakhs | 2008-09 | | 2009-10 | | 2010-11 | | 2011-12 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | units | Cost in lakhs | units | Cost in lakhs | units | Cost in lakhs | units | Cost in lakhs | units | Cost in lakhs |
| **1** | **CATTLE & BUFFALO** | | | | | | | | | | | |
| **I** | **FEED AND FODDER DEVELOPMENT** | | | | | | | | | | | |
| 1 | Popularizing mineral mixture to improve livestock production (DAH) @ 1kg/ month for one year | 0.006 | 1000 | 6.00 | 1000 | 6.00 | 1000 | 6.00 | 1000 | 6.00 | 4000 | 24.000 |
| 2 | Popularizing chaff cutter for SHG (DAH) | 0.1 | 10 | 1.00 | 10 | 1.00 | 10 | 1.00 | 10 | 1.00 | 40 | 4.000 |
| 3 | Establishment of 6 x 6 x 4 feet silo to ensile sugarcane tops (DAH) (75% subsidy) | 0.1125 | 10 | 1.125 | 10 | 1.125 | 10 | 1.125 | 10 | 1.125 | 40 | 4.500 |
| 4 | Fodder production by SHG @ 10 acre/one/ block / year (DAH) 10 blocks | 0.235 | 25 | 5.875 | 25 | 5.875 | 25 | 5.875 | 25 | 5.875 | 100 | 23.500 |
| 5 | Supply of mineral mixture to the milch animals at subsidised cost (50% ) @ 18 kg/ year (DDD) | 0.005 | 1000 | 5.00 | 1000 | 5.00 | 1000 | 5.00 | 1000 | 5.00 | 4000 | 20.000 |
| 6 | Supply of by-pass protein feed to the milch animals (360kgs/ year/animal @ 50% subsidised cost of rs.9/- per kg.) (DDD) | 0.033 | 250 | 8.25 | 250 | 8.25 | 250 | 8.25 | 250 | 8.25 | 1000 | 33.000 |
| 7 | Chaff cutters for IDF villages on community basis (Mechanised) (DDD) | 0.7 | 4 | 2.80 | | | | | | | | 2.800 |
| 8 | Fodder development activities ( 25 acres in 100 IDF villages and in farmers field (DDD) | 0.235 | 20 | 4.70 | 5 | 1.18 | 0 | 0.00 | 0 | 0.00 | 25 | 5.880 |
| **II** | **IMPROVEMENT OF LIVESTOCK HEALTH AND GENETIC UPGRADATION** | | | | | | | | | | | |
| 1 | Identification and traceability of bovines (DAH) | 0.0002 | 40000 | 8.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 40000 | 8.000 |
| 2 | Mobile Veterinary Clinic (DAH) | 5.83 | 5 | 29.15 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 5 | 29.150 |

| Sl. No | NAME OF THE PROGRMME | Unit cost | 2008-09 | | 2009-10 | | 2010-11 | | 2011-12 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | units | Cost in lakhs | units | Cost in lakh | units | Cost in lakhs | units | Cost in lakhs | Units | Cost in lakhs |
| 3 | Disaster Management (DAH) | | | 115.31 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | | 115.310 |
| 4 | Mobile Veterinary lab (DAH) | 12 | 1 | 12.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 1 | 12.000 |
| 5 | Control of parasitic diseases through treatment to enhance vaccine response (DAH) | | | 22.50 | 0 | 22.50 | 0 | 22.50 | 0 | 22.50 | 0 | 90.000 |
| 6 | Programmed breeding indigenous cattle & buffalo to increase conception rate (DDD) | 0.007 | 1600 | 11.20 | 1600 | 11.20 | 1600 | 11.20 | 1600 | 11.20 | 6400 | 44.800 |
| **IV** | **INFRASTRUCTURE DEVELOPMENT** | | | | | | | | | | | |
| 1 | Infrastructure improvement of veterinary institutions (DAH) | 5 | 17 | 85.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 17 | 85.000 |
| 2 | Milking machines for ID farms (DDD) | 1 | 4 | 4.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 4 | 4.000 |
| 3 | Portable milking machines for farmers (DDD) | 0.18 | 4 | 0.72 | 2 | 0.36 | 2 | 0.36 | 2 | 0.36 | 10 | 1.800 |
| 4 | Bulk milk cooler (DDD) | 30 | 1 | 30.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 1 | 30.000 |
| 5 | Walk-in coolers (DDD) | 30 | 1 | 30.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 1 | 30.000 |
| 6 | Milk weighing machine for milk producers Co-Op Societies (DDD) | 0.17 | 4 | 0.680 | | | | | | | 4 | 0.680 |
| 7 | P.C.Based automatic milk collection stations to IDF villages milk producers cooperative societies (DDD) | 1.75 | 4 | 7.00 | | | | | | | 4 | 7.000 |
| 8 | Establishing rural herbal nursery units for SHG women – solar powered units (TANUVAS) | 10 | 1 | 10.00 | 1 | 10.00 | | | | | 2 | 20.000 |
| | **EXTENSION FACILITIES** | | | | | | | | | | | |
| 1 | Farmers study tour @5000/- per Farmer (DDD) | 0.05 | 40 | 2.00 | 40 | 2.00 | 40 | 2.00 | 30 | 1.50 | 150 | 7.500 |
| 2 | Orientation training / workshop for milk producers at society level (DDD) | 0.2 | 4 | 0.80 | 4 | 0.80 | 4 | 0.80 | 4 | 0.80 | 16 | 3.200 |
| | **Total** | | | **403.110** | | **75.29** | | **58.24** | | **63.61** | | **606.120** |

## V. Annexure (Project Summary for each broad area)

### I Feed and Fodder development

**Incentives for Fodder Cultivation and Mechanization - Supply of Mineral mixture- By-pass Protein-Fodder Enrichment**

**Abstract**

- Proving quality seed materials for fodder cultivation/incentives for cultivation
- Supply of good quality drinking water to livestock in severely affected areas.
- Fodder cultivation is to be developed in the region. Low quality fodder/alternate fodder resources should be enriched to meet the protein demand.
- Providing good quality animals through concerted efforts by the agencies
- Supply of chaff cutters/mineral mixtures/enrichment of fodder resources

**Budget**

| Sl. No. | Details | Amount Rs. in lakhs |
|---|---|---|
| 1. | Popularizing mineral mixture to improve livestock production (DAH) @ 1kg/month for one year | 24.00 |
| 2. | Popularizing chaff cutter for SHGs (DAH) | 4.00 |
| 3. | Establishment of 6 x 6 x 4 feet silo to ensile sugarcane tops (DAH) (75% Subsidy) | 4.50 |
| 4. | Fodder production by SHGs @10 acre/B1/yr (DAH) 10 blocks | 23.5 |
| 5. | Supply of mineral mixture to the milch animals at subsidised cost (50%) @ 18 Kg/year (DDD) | 20.00 |
| 6. | Supply of by-pass protein feed to the milch animals (360kgs/ year/animal @ 50% subsidised cost of Rs.9/- per kg) (DDD) | 33.00 |
| 7. | Chaff cutters for IDF villages on community basis (Mechanised) (DDD) | 2.80 |
| 8. | Fodder development activities in IDF villages in each for 2 years & in farmers field (DDD) | 5.88 |
| | **Total** | **117.68** |

**Background / Problem Focus**

Human and livestock population should be managed to reduce the pressure on fragile ecosystem. Popularising the improved agronomic practices to maximize the crop yield per raindrop. Integrated watershed management for efficient management of land

and water resources should be given top priority. Appropriate land use planning discouraging water intensive crops, encouraging sprinkler and drip irrigation systems, and practicing alternate land use such as agro-forestry, agro-horticulture and silvi-pasture would provide long-term drought proofing incorporating livestock wherever possible as only livestock rearing can give regular revenue for livelihood. The green fodder availability is restricted to selected areas and seasons. High population pressure 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.

**Project Rationale**

Dairy cattle rearing is an important subsidiary occupation for the farmers of Tamilnadu. Milk production and profit in dairy farming depends upon feeding and management practices. During the recent years, prices of various feed ingredients like groundnut cake, wheat bran, maize etc., have increased which is a major constraint for profitable milk production. Feeding natural grasses and green fodder will help to reduce the expenditure on concentrate feeding. Green grass is a good source of vitamin A which is present in the form of carotene. One kg of green grass provides 50mg of vitamin A. This vitamin is necessary to maintain the health and reproduce status of the animal. Grasses are also good source of protein. One kg of green fodder gives 15 to 20g protein to the animal. Cowpea, beans, subabul leaves etc. give 30 to 40g of protein. Balanced feeding is essential to fully exploit the genetic potential of livestock. In the State, fodder production is still deemed ancillary to agricultural production. Crop residues mainly sorghum and paddy straws that are poor in nutritive value constitute the major fodder for livestock. The effects of better breeding and management can happen if the animals are properly fed. Better feeding alone can bring about an increase of 30% in milk production.

**Project Strategy**

Livestock when fed with green fodder tend to waste a lot of these precious feed. Further the utilization of the fodder (both green fodder & dry fodder) is enhanced and the feed conversion efficiency increases when the fodder is chopped and fed. Hence it is proposed to provide chaff cutters that will chop the fodder there by reducing wastage. The Shortage of green fodder is estimated to be 80 per cent and dry fodder 50 per cent, even under normal conditions. One Chaff cutter will be provided to one Self Help Group in each block. The SHG to be provided with the chaff cutter will be identified by the District Administration. The Chaff cutter that is provided will be operated manually with provision for mechanizing the same if necessary in future.The main objective of the project is to develop rearing of livestock as a major livelihood opportunity. Farmers' exposure to modern and scientific animal rearing is rather limited. The project will adopt the strategy of rural poor combining traditional methods of livestock rearing and modern inputs.

**Project Goals**

- Awareness creation
- Group mobilisation and motivation
- Capacity building for seeds / mechanisation
- Promotion of cultivation of fodder

**Project Components**

**Mechanization of Fodder Component**

- Chaff cutters for IDF villages on community basis (Mechanised) (DDD)
- Popularizing chaff cutter for SHG (DAH)

**Fodder Development Activities / Technology Transfer**

- Fodder development activities (IDF villages & in farmers field (DDD)
- Fodder development at District Livestock farm Korukkai (DAH)
- Fodder production by SHG @10 acre/B1 (DAH) -11 blocks

**Technology Transfer**

- Establishing of 6 x 6 x 4 feet silo to ensile sugarcane tops (DAH) (75% subsidy)
- Paddy straw block making demonstration unit (TANUVAS)

**Supply of Inputs for Livestock**

- Popularizing mineral mixture to improve livestock production (DAH) @ 1kg/month for one year
- Supply of by-pass protein feed to the milch animals (360kgs/ year/animal @ 50% subsidized cost of Rs.9/- per kg) (DDD)
- Supply of mineral mixture to the milch animals at subsidised cost (50%) @ 18 Kg/year (DDD)

**Project Cost and Financing (Rs. in Lakhs)**

| Project Title | Unit Cost | 2008-2009 | | 2009-2010 | | 2010-2011 | | 2011-2012 | | Grand Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Unit | Cost | Unit | Cost | Unit | Cost | Unit | Cost | Total Units | Total Cost |
| Popularizing mineral mixture to improve livestock production (DAH) @ 1kg/ month for one year | 0.006 | 1000 | 6 | 1000 | 6 | 1000 | 6 | 1000 | 6 | 4000 | 24 |
| Popularizing chaff cutter for SHG (DAH) | 0.1 | 10 | 1 | 10 | 1 | 10 | 1 | 10 | 1 | 40 | 4 |
| Establishment of 6 x 6 x 4 feet silo to ensile sugarcane tops (DAH) (75%) at the total cost of Rs. 15,000 | 0.1125 | 10 | 1.125 | 10 | 1.125 | 10 | 1.125 | 10 | 1.125 | 40 | 4.5 |
| Fodder production by SHG @ 10 acre /one /block /year (DAH) 10 blocks | 0.235 | 25 | 5.875 | 25 | 5.875 | 25 | 5-875 | 25 | 5.875 | 100 | 23.5 |
| Supply of mineral mixture to the milch animals at subsidised cost (50% ) @ 18 kg/ year (DDD) | 0.005 | 1000 | 5.00 | 1000 | 5 | 1000 | 5 | 1000 | 5 | 4000 | 20.00 |
| Supply of by-pass protein feed to the milch animals (360kgs/ year/ animal @ 50% subsidised cost of Rs.9/- per kg.) (DDD) | 0.033 | 250 | 8.25 | 250 | 8.25 | 250 | 8.25 | 250 | 8.25 | 1000 | 33.00 |
| Chaff cutters for IDF villages on community basis (Mechanised) (DDD) | 0.70 | 4 | 2.80 | - | - | - | - | - | - | 4 | 2.80 |
| Fodder development activities ( 25 acres in IDF villages in each & in farmers field (DDD) | 0.235 | 20 | 4.70 | 5.00 | 1.18 | 0 | 0.00 | 0.00 | 0.00 | 25 | 5.88 |
| **Total** | | | | | | | | | | | **117.68** |

## Table. 52 Budget Details - Fisheries Sector – 2008-2012

**(Rs.in lakhs)**

| Sl. No | Components | Imple-menting Agency | Unit cost | Total Units | 2008-09 | | 2009-10 | | 2010-11 | | 2011-12 | | Total cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Units | cost | Units | cost | Units | cost | Units | cost | |
| 1 | a. Introduction of modern fishing fleet to tap the offshore resources - Mechanised Boat | Fisheries Department | 27.50 | 5 | 1 | 27.50 | 1 | 27.50 | 1 | 27.50 | 2 | 55.00 | 137.50 |
| | b. FRP Boats | Fisheries department | 27.50 | 50 | 10 | 20.00 | 20 | 40.00 | 10 | 20.00 | 10 | 20.00 | 100.00 |
| 2 | Sea Ranching | Fisheries Department | 2.60 | 20 | 5 | 13.00 | 5 | 13.00 | 5 | 13.00 | 5 | 13.00 | 52.00 |
| 3 | Artificial Reefs | TAFCOFED | 15.00 | 20 | 5 | 75.00 | 5 | 75.00 | 5 | 75.00 | 5 | 75.00 | 300.00 |
| 4 | To sustain / retain the existing infrastructure facility (ponds under culture) for aquaculture | Fisheries Department | 0.30 | 1000 | 200 | 60.00 | 200 | 60.00 | 300 | 90.00 | 300 | 90.00 | 300.00 |
| 5 | To provide subsidy for the provision of Moped with Ice Box | TAFCOFED | 0.15 | 50 | 10 | 1.50 | 10 | 1.50 | 10 | 1.50 | 20 | 3.00 | 7.50 |
| | **Fisheries - Total** | | | | | **197.00** | | **217.00** | | **227.00** | | **256.00** | **897.00** |
| 6 | Capacity building by imparting training to farmers | TANUVAS | 0.01 | 500 | 200 | 2.00 | 100 | 1.00 | 100 | 1.00 | 100 | 1.00 | 5.00 |
| | **TANUVAS - Total** | | | | | **2.00** | | **1.00** | | **1.00** | | **1.00** | **5.00** |
| | **Grand Total** | | | | | **199.00** | | **218.00** | | **228.00** | | **257.00** | **902.00** |

## V. Project

### 1. Introduction of Modern Fishing Fleet to Tap the Offshore Resources

**Abstract**

There are 1064 mechanized fishing boats and 3647 motorized country crafts are engaged in fishing operation. The main fishing method is trawling by mechanized boats and gill netting by motorized country crafts. There is a very good potential of deep sea resources such as Tuna and cuttle fish in the Pedro bank in Nagapattinam district which is under exploited.

**Budget :** 137.50 lakhs

**Background / Problem Focus**

This crafts don't have any facilities to exploit the deep sea resources such as tuna and cuttle fish and they don't have any communication system. To overcome the lacuna in the exploitation of marine resources 20 mechanized boats and 100 FRP boats can be modernized with proper communication system and facilities to exploit the deep sea resources by providing 50% subsidy over the period of four years.

**Project Strategy**

50 % back ended subsidy to fishermen & entrepreneurs

**Project Goals**

It will help to tap the offshore fishery resources & reduce the fishing pressure in the coastal & near- shore waters

**Project Cost and Financing**

| | |
|---|---|
| Unit cost | 27.50 lakhs * purchase & supply of motorized fishing craft & gear |
| No. of units | 5.0 |
| Total cost | 27.5 x 5= 137.50 lakhs |

| | |
|---|---|
| Unit cost | 27.50 lakhs * purchase & supply of FRP boats |
| No. of units | 50 |
| Total cost | 27.50 x 50= 137.50 lakhs |

**Implement Chart of the project**

| Sl.No. | Particulars | 2008 - 2012 | | | |
|---|---|---|---|---|---|
| | | I Qtr | II Qtr | III Qtr | IV Qtr |
| 1. | Purchase and supply of mechanized boats & fishing gear | √ | √ | √ | √ |

**2. Sea Ranching**

In the present marine landings the quantity of shrimp and high quality fishes are decreasing. To enhance the quantity of shrimps and other quality fishes it is necessary to replenish the marine resources by ranching the quality shrimp and fish seeds into the sea.

**Project Cost and Financing**

| | |
|---|---|
| Unit cost | 2.60 lakhs * seed production & sea ranching |
| No. of units | 20 |
| Total cost | 2.60 x 20= 52 lakhs |

### 3. Artificial Reefs

**Abstract**

Fish aggregating device facilitates concentration of various fish species and invertebrate organisms 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. 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.

**Budget : Rs.300.00 lakhs**

**Background / problem Focus**

In view of depleting fish stock and diversified biodiversity, FAD has to be strengthened. Fish species are at the verge of stock depletion has to be governed through FADs. Tamilnadu with an extended coastal length attracts immediate attention to revive the stock by special means like FADs. FADs with community involvement especially in the coastal region would help implementing the programme in a successful way.

**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. | FAD made up of concrete or FRP materials | 8.00 |
| 2. | Anchorage | 5.00 |
| 3. | Floor mast | 1.00 |
| 4. | Training fisher folk | 1.00 |
| | **Total cost per unit** | **15.00** |
| | **Grand total ( 15.0 x 20)** | **300.00** |

**Project Implementation Chart**

| Sl. No | Particulars | 2008 - 2012 | | | |
|---|---|---|---|---|---|
| | | 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 | | √ | √ | √ |

**4. To Sustain / Retain the Existing Infrastructure Facility (Ponds under Culture) for Aquaculture**

Shrimp and fish farmers of Nagapattinam district find it very difficult to continue farming due to input cost escalation, disease outbreak and price fluctuation in the international market. It is highly essential to sustain the growth and retain the farmers to continue aquaculture. 1800 ha of coastal shrimp farms and another 200 ha of fresh water fish farms in this district require intervention.

**Project Cost and Financing**

| | |
|---|---|
| Unit cost | 0.30 lakhs * renovation of existing shrimp ponds & fish ponds |
| No. of units | 1000 |
| Total cost | **0.30 x 1000= 300.00 lakhs** |

**5. To Provide Subsidy for the Provision of Moped with Ice Box**

**Abstract**

The mopeds with ice box will be provided to inland fishemen for hygienic marketing.

**Budget** **:** Rs. 7.50 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 50 units of mopeds with ice box at 50% subsidy

**Project Cost and Financing**

| | |
|---|---|
| Unit cost | 0.15 lakhs * purchase & supply of mopeds with ice box |
| No. of units | 50 |
| Total cost | **0.15 x 50= 7.5 lakhs** |

**6. Capacity Building by Imparting Training to Farmers**

**Abstract**

To conduct training programmes on freshwater fish culture technologies for the adoption. The training programmes will also include various demonstrations on fish culture activities. Follow up study will be conducted. To improve the socio economic conditions of farmers the training programme is to be conducted

**Budget : Rs. 5.00 lakhs**

**Background / Problem Focus**

The inland fisheries sector of Tamilnadu is endowed with a total water spread area of 3,18,790 ha with as major irrigation and long seasonal tanks (97,690 ha), short seasonal tanks/ponds (1,58,100 ha), estuaries and backwaters (56,000 ha) derelict waters, swamps etc. (7,000 ha). While these resources have a potential to yield 2.46 lakhs tonnes of fish, the present yield is only 1.14 lakhs tonnes. About 60% culturable area has been brought under culture practices.

**Project Rationale**

Imparting training in various fish culture practices would generate employment opportunities and make them self reliant and socially and economically empowered.

**Project Strategy**

To conduct training programme on freshwater fish culture for the farmers so as to improve their socio economic conditions.

**Project Goals**

- To conduct 60 training programmes on freshwater fish culture
- To conduct follow up studies.

**Project Components**

Composite fish culture, Ornamental fish culture, Integrated fish farming, Air breathing fish culture, Economics and Marketing

**Project Cost and Financing**

| S.No. | Particulars | App. Budget |
|---|---|---|
| 1 | Stipend@ Rs. 50/ participant for 25 participants/ 3days | Rs.0.01 lakhs |
| 2 | Extension materials | |
| 3 | Miscellaneous | |
| **Total ( 0.01 x 500)** | | **5.00 lakhs** |

**Implementation Chart of the Project**

| Sl. No. | Particulars | 2008-12 | | | |
|---|---|---|---|---|---|
| | | I Qtr | II Qtr | III Qtr | IV Qtr |
| 1. | Identification of villages | √ | √ | √ | √ |
| 2. | Selection of participants | √ | √ | √ | √ |
| 3. | Conducting training programmes | √ | √ | √ | √ |
| 4. | Evaluation of training programmes | √ | √ | √ | √ |

## 6.6 Agricultural Engineering

### Abstract

Agricultural Mechanization is essential to increase the food production and to maximize productivity by avoiding wastages up to 20-30% with minimum cost. Mini combined harvester is able to carry out cutting, thrashing and cleaning in one operation. This work will help the farming community to minimize wastage of time and overcome the scarcity of Agricultural labourers. Thrasher is used to carry out the thrashing of paddy, which in turn reduces the cost of production.

### Budget

The total cost for the mini combined harvester and thrasher is Rs. 13.00 Lakhs. Government of India under NADP will provide the funds.

### Background

According to the land capability classification in Nagapattinam district, 60% lands are wetland. Harvesting and Thrashing operations are time bound, Delay of few days will result in loss of food grains, Availability of Agricultural labour has been a menace to the farming community. Because of this condition, the use of Innovative machineries like combined harvester and Thrasher is inevitable.

### Project Rationale

In Nagapattinam District the engagement of Agricultural labours in the aftermath Tsunami is a menace to the farming community. The utilization of Agricultural machineries will reduce cost and time involved in the food production and increase productivity upto 20% to 30% by minimizing the post harvest losses.

### Project Strategy

The scheme will be implemented by Agricultural Engineering Department. The project period will be 4 years i.e. 2008-2009 to 2011-2012.

Awareness about the Innovative machineries like mini combined harvester and Thrasher 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 select and innovative machineries will be issued to the farmers in subsidized rates. Training about operations of maintenance of the Innovative machineries will be given during this period.

**Project Goals**

The ultimate aim of this project is to minimize the post harvest losses.

- To reduce the post harvest losses to the tune of 20 to 30% that results in the improvement of economic status of the farming community.
- To overcome the scarcity of the Agricultural labors.
- To minimize the time to carryout the various operations like cutting, thrashing, cleaning and packing.

**Innovative Implements**

**Abstract**

Agricultural mechanization in essential to increase the crop productivity. Hence in this project innovative implements such as

1) Rotary puddler for tractor
2) Leveller (pulses)
3) Cutter planter (sugarcane)
4) Ratoon manager (sugarcane)

have been proposed to carry out various operations for different crops like paddy, pulses and sugarcane.

**Budget**

The total cost involved in Innovative implements is Rs.14.48 Lakhs. Government of India under NADP will provide the funds.

**Background**

According to land capability classification in Nagapattinam district, 60% lands are wetland, which is irrigated by Cauvery River and its branches. The availability of water is seasonal and rational.

Hence the field preparations such as leveling, ploughing operations are time bound. During this period the availability of Agricultural labors are acute. So the need of implements such as Rotary puddler for tractor, leveler for pulses, cutter planter and Ratoon manager is ut most important.

**Project Rationale**

In Nagapattinam District the engagement of Agricultural labour in the aftermath Tsunami is a menace to the farming community. The utilization of Agricultural implements such as (1) Rotary puddler (2) Leveller (3) Cutter Planter (4) Ratoon manager will be very much essential for the field preparation works. It will bring down the labor and time required for field preparation for paddy, pulses and sugarcane.

**Project Strategy**

The scheme will be implemented by Agricultural Engineering Department; the project period will be 4 years i.e. 2008-2009 to 2011 to 2012.

Awareness about the Innovative implements like (1) Rotary puddler (2) Leveller (3) Cutter Planter (4) Ratoon Manager will be created among the farmers through training and Agricultural demonstration during the pre and post implementation period.

As per the Government norms the farmers will be selected and innovative implements will be issued to the farmers in subsidized rats. Training about operations and maintenance of the Innovative Implements will be given during this period.

**Project Goal**

The ultimate aim of this project is to minimize the labor requirement.

- To increase the productivity by leveling the field and pulverizing the soil.
- To overcome the scarcity of the Agricultural labors.
- To minimize the time for the field preparation.

**Gender Friendly Equipment**

**Abstract**

Agricultural mechanization is essential to increase the food productivity. This gender friendly equipment such as cone weeder is very much useful in carrying out the weeding operation. Weeding is very important operation in paddy cultivation. Weeds will reduce the productivity by various means such as absorbing the soil nutrients, water and other inputs. To overcome this compounding problems cone weeder is very much essential.

Cone weeder is used to carry out the weeding operation with ease which in turn reduces the huge labor requirement.

**Budget**

The total cost for the cone weeder is Rs. 0.36 Lakhs. Government of India under NADP will provide the funds.

**Background**

According to the land capability classification in Nagapattinam district, 60% Lands are wetland which comes under the Cauvery command and the crop management practices like application of weedicides demand skilled labors. By using cone weeder the labour requirement is minimized. So the need of equipments such as cone weeder is utmost important.

**Project Rationale**

In Nagapattinam District the engagement of Agricultural labour in the aftermath Tsunami is a menace to the farming community. The utilization of the Agricultural equipments such as cone weeder will be very much essential for crop management practices. It will increase the productivity of the paddy.

**Project Strategy**

Agricultural engineering Department will implement the scheme. The Project period will be 4 years 2008-2009 to 2011-2012.

Awareness about the Gender friendly equipments like cone weeder will be created among the farmers through training and Agricultural demonstration during the pre and post implementation period.

As per the Government norms, the farmers will be selected and cone weeder will be issued to the farmers in subsidized rates. Training about operation and maintenance of the Innovative implements will be given during this period.

**Project Goals**

The ultimate aim of the project is to increase the crop production.

- To increase the productivity of the crop.
- To overcome scarcity of the Agricultural labors.
- To minimize the crop input such as fertilizer, water etc.

**Table.53 Project Proposal for the Department of Agricultural Engineering – I**

| Project Component | Unit Cost (lakhs) | 2008 - 09 | | 2009 -10 | | 2010 - 2011 | | 2011 - 2012 | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Nos. | Cost (lakhs) | Nos. | Cost (lakhs) | Nos. | Cost (lakhs) | Nos. | Cost (lakhs) | Cost (lakhs) |
| **Stream : I** | | | | | | | | | | |
| **Introduction of Newly Developed Agrl. Machinery / Implements** | | | | | | | | | | |
| Mini combined Harvester TNAU model | 2.50 | 1 | 1.25 | 1 | 1.25 | 1 | 1.25 | 1 | 1.25 | 5.00 |
| Multi crop Thrasher (High capacity) | 2.10 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2.00 | 8.00 |
| Rotary Puddler for tractor | 0.60 | 5 | 1.5 | 5 | 1.5 | 5 | 1.5 | 5 | 1.50 | 6.00 |
| Cutter Planter (Sugarcane) | 1.00 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1.00 | 4.00 |
| Leveller (Pulses) | 0.12 | 2 | 0.12 | 2 | 0.12 | 2 | 0.12 | 2 | 0.12 | 0.48 |
| Ratoon Manager | 1.00 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1.00 | 4.00 |
| Gender friendly equipments Conoweeder | 0.012 | 10 | 0.09 | 10 | 0.09 | 10 | 0.09 | 10 | 0.09 | 0.36 |
| **Total** | | | **6.96** | | **6.96** | | **6.96** | | **6.96** | **27.84** |

**Soil and Water Conservation Works**

**Farm Pond and Rejuvenation of Wells**

**Abstract**

Farm pond and water harvesting structures is constructed for following reasons

- Harvesting of rainwater and preventing the water loss by run off.
- Facilitates recharging the ground water potential thereby conservation of water.
- With the result, water table will be stabilized to avoid the depletion / failure of existing supply sources as tube wells, filter points, open wells, etc.
- Stabilization of ground water through these means aid to prevent the possibility of seawater intrusion.
- Supplements the drinking water needs to cattle and human beings.
- Harnessed water in these drought-proofing structures (Farm pond) will be utilized during the critical stage of the crop at the time of acute scarcity.
- Helps in additional income to the beneficiary by fish culture.
- To increase of productivity on land based fish production to boost the needs of the social requirements like food and nutritional security.
- Even through, farms ponds and rejuvenation of wells are constructed in individual holdings; the overall benefit goes to the national concept of water conservation besides fulfilling the social requirements in terms of food and nutritional security.

**Budget**

The total cost involved in construction of farm pond and rejuvenation of wells to farmers is Rs.921.60 lakhs. Government of India under NADP will provide the funds.

**Background**

According to the land capability classification in Nagapattinam district, 60% Lands are wetland which comes under the cauvery command. Hence water harvesting structures like Farm Pond is utmost important.

**Project Strategy**

Agricultural engineering Department will implement the scheme. The Project period will be 4 years 2008-2009 to 2011-2012. As per the Government norms, the farmers will be selected and Farm Ponds will be constructed.

**Project Goals**

The ultimate aim of the project is to increase the crop production.

1) Harvesting of rainwater and preventing the water loss by run off.
2) Facilitates recharging the ground water potential thereby conservation of water.
3) With the result, water table will be stabilized to avoid the depletion / failure of existing supply sources as tube wells, filter points, open wells, etc.
4) Stabilization of ground water through these means aids to prevent the possibility of seawater intrusion.
5) Supplements the drinking water needs to cattle and human beings.

**Table.54 Project Proposal for the Department of Agricultural Engineering - II**

| Project Component | Unit Cost (lakhs) | 2008 - 09 | | 2009 -10 | | 2010 - 2011 | | 2011 - 2012 | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Nos. | Cost (lakhs) | Nos. | Cost (lakhs) | Nos. | Cost (lakhs) | Nos. | Cost (lakhs) | Cost (lakhs) |
| **Stream : I** | | | | | | | | | | |
| **Soil and Water Conservation works** | | | | | | | | | | |
| Farm ponds | | 500 | 225 | 500 | 225 | 500 | 225 | 500 | 225 | 900 |
| Rejuvenation of wells | | 20 | 5.4 | 20 | 5.4 | 20 | 5.4 | 20 | 5.4 | 21.6 |
| **Total** | | | **230.4** | | **230.4** | | **230.4** | | **230.4** | **921.6** |

**Agricultural Mechanization Programme - Machinery**

**Abstract**

Agricultural mechanization is essential to increase the food production and to maximize the productivity. Power tiller with rotavator and cage wheel is used in the field preparation works such as ploughing. It pulverizes the topsoil, and provides suitable condition for raising nursing and paddy transplanting.

Paddy Transplanter is used for Transplantation of paddy crop. Transplantation is a laborious process. Paddy Transplanter plays major role in the paddy cultivation in cauvery command area.

**Budget**

The total cost for the power tiller with rotavator and cage wheel and paddy Transplanter is Rs.16.00 Lakhs. Government of India under NADP will provide the funds.

**Background**

According to the land capability classification in Nagapattinam district, 60% lands are wetland which is irrigated by cauvery and its branch channels. The availability of water in the season is inadequate. Hence the field preparation such as ploughing and Transplantation has to be done in stipulated time. During this period the availability of Agricultural labors are acute. So the need of machineries such as power tiller with rotavatar and cage wheel and Paddy Transplanter is utmost important.

**Project Rationale**

In Nagapattinam District the engagement of Agricultural labour in the aftermath Tsunami is menace to the farming community. The utilization of Agricultural machineries such as power tiller with rotavator and cage wheel and Paddy Transplanter is unavoidable for field preparation operations like ploughing and Transplantation.

**Project Strategy**

The scheme will be implemented by Agricultural Engineering Department. The project period will be 4 years is 2008-2009 to 2011-2012.

Awareness about the Agricultural machineries like power tiller with rotavator and cage wheel and paddy Transplanter will be created among the farmers through training and Agricultural demonstration during pre and post implementation period.

As per the Government norms, the farmers will be selected and machineries will be issued to the farmers in subsidized rates. Training about the operation and maintenance of the Agricultural machineries will be given during this period.

**Project Goals**

The ultimate aim of this project is to improve the productivity by providing conducive soil condition.

- To improve the yield of the paddy.
- To minimize the cost of farming.
- To minimize skilled farm labor requirement.

**Agricultural Mechanization Programme -Implements**

**Abstract**

Agricultural mechanization is essential to increase the food production and to minimize the productivity of various crops.

1) Rotavator – to pulverize the clods and aerate the soil
2) Post hole digger – to plant coconut crops
3) Cultivator - to plough the wetland for field preparation.
4) Offset Disc harrows - to form the rows for the horticultural crops.
5) Cage wheel - to Plough the wetland to make the soil attain optimum tilth.

**Budget**

The total cost for the various implements is Rs. 33.60 Lakhs. Government of India under NADP will provide the funds.

**Background**

According to the land capability classification in Nagapattinam district, 60% lands are wetland, and 10% of cropping area is horticultural crops. Nagapattinam district having a coastal stretch of more then 120 km comprises of 52 revenue villages and the farmers are cultivating horticultural crops such as coconut, mango, cashew and vegetables in these areas.

**Project Rationale**

In Nagapattinam District the engagement of Agricultural labor in the aftermath Tsunami is a menace to the farming community. The utilization of the Agricultural equipments such as Rotavator, Posthole digger, Cultivator, Disc plough, offset disc harrow, cage wheel will be very much essential for crop management practices. It will increase the productivity of the paddy and horticultural crops.

**Project Strategy**

Agricultural engineering Department will implement the scheme. The Project period will be 4 years 2008-2009 to 2011-2012.

Awareness about the implements like Rotavator, Posthole digger, Cultivator, Disc plough, offset disc harrow, cage wheel will be created among the farmers through training and Agricultural demonstration during the pre and post implementation period.

As per the Government norms, the farmers will be selected and Rotavator, Posthole digger, Cultivator, Disc plough, offset disc harrow, cage wheel will be issued to the farmers in subsidized rates. Training about operation and maintenance of the Innovative implements will be given during this period.

**Project Goals**

The ultimate aim of the project is to increase the crop production.

- To increase the productivity of the crop.
- To overcome scarcity of the Agricultural labors.
- To minimize the crop input such as fertilizer, water etc.

**Table.55 Project Proposal for the Department of Agricultural Engineering - III**

| Project Component | Unit Cost (lakhs) | 2008 - 09 | | 2009 -10 | | 2010 - 2011 | | 2011 - 2012 | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Nos. | Cost (lakhs) | Nos. | Cost (lakhs) | Nos. | Cost (lakhs) | Nos. | Cost (lakhs) | Cost (lakhs) |
| **Stream : II** | | | | | | | | | | |
| **Popularisation of Agricultural mechanization through conventional machinery/equipments** | | | | | | | | | | |
| **MACHINERY** | | | | | | | | | | |
| a) Power Tiller with rotovator and cage wheel | 1.40 | 10 | 3.00 | 10 | 3.00 | 10 | 3.00 | 10 | 3.00 | 12.00 |
| b) Paddy Transplanter | 1.40 | 4 | 1.00 | 4 | 1.00 | 4 | 1.00 | 4 | 1.00 | 4.00 |
| **Total** | | | **4.00** | | **4.00** | | **4.00** | | **4.00** | **16.00** |
| **IMPLEMENTS** | | | | | | | | | | |
| a) Rotavator | | 20 | 4.00 | 20 | 4.00 | 20 | 4.00 | 20 | 4.00 | 16.00 |
| b) Post hole digger | | 10 | 1.00 | 10 | 1.00 | 10 | 1.00 | 10 | 1.00 | 4.00 |
| c) Cultivator | | 20 | 0.80 | 20 | 0.80 | 20 | 0.80 | 20 | 0.80 | 3.20 |
| d) Disc plough | | 20 | 1.20 | 20 | 1.20 | 20 | 1.20 | 20 | 1.20 | 4.80 |
| e) Offset disc harrow | | 10 | 1.00 | 10 | 1.00 | 10 | 1.00 | 10 | 1.00 | 4.00 |
| f) Cagewheel | | 20 | 0.40 | 20 | 0.40 | 20 | 0.40 | 20 | 0.40 | 1.60 |
| **Total** | | | **8.40** | | **8.40** | | **8.40** | | **8.40** | **33.60** |
| **Grand Total** | | | **12.40** | | **12.40** | | **12.40** | | **12.40** | **49.60** |

## 5.7 Agricultural Marketing and Agribusiness

### 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:

- 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.

- 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.

- 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.

- 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.

- 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.

- 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**

- Establishment/ organization of commodity groups for marketing in the state with financial assistance from NADP
- Facilitation of Contract Farming between farmers and bulk buyers in the state with financial assistance from NADP
- Dissemination of Market intelligence
- Arrangement of Buyers - Sellers Meet
- Organizing the exposure visits to important markets with in the state and out side the state by commodity groups / farmers and extension functionaries.
- Capacity building of farmer's skill
- Price surveillance
- Regulated Market uzhavar Shandies Publicity
- Market Infrastructure

## 10. Project Components Description

### 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 these amount of Rs.20000/= is provided per group.

In this project it is proposed to organize five commodity groups in commodities like pulses, cotton, oilseeds, paddy and cashew for marketing of agricultural commodities in Nagapattinam district over the period of four years. This will require resources of Rs.27.60 Lakhs for the period of four years. The details are presented in Table 60.

**vi) Reporting**

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.

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**

- Organising meeting with farmers, large scale buying firms, crop insurance companies and banks.
- Identification of willing / co operating Farmers/ commodity clusters
- Organising the willing farmers in to groups
- Arranging the Groups to have contract/agreement with select large scale buyers, banks and crop insurance firms.
- 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.10000/- is provided.

In this project it is proposed to organize the meeting on various crops regarding contract farming between farmers and bulk buyers in Nagapattinam district for marketing of agricultural commodities in Tamil Nadu over the period of four years. This will require resources of Rs 2.3 lakhs for the period of four years. The details are presented in Table 60.

**v) Implementation Chart of the Project**

Implementation chart of the project is given in Table 60.

**vi) Reporting**

1. Quarterly progress reports to be sent to the Deputy Director (Agricultural Marketing and Agri Business) by the concerned Agricultural Marketing (Agricultural Marketing and Agri Business) and Secretaries of Marketing committees.

2. Periodical Inspection undertaken by the Deputy Director (Agricultural Marketing and Agri Business )

**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 Nagapattinam district over the period of four years. This will require resources of Rs.1.9 Lakhs for the period of four years. The details are presented in Table 60.

**v) Implementation Chart of the Project**

Implementation chart of the project is given in Annexure I.

**vi) Reporting**

1. Quarterly progress reports to be sent to the Deputy Director (Agricultural Marketing and Agri Business) by the concerned Agricultural Marketing (Agricultural Marketing and Agri Business) and Secretaries of Marketing committees.
2. Periodical Inspection undertaken by the Deputy Director (Agricultural Marketing and Agri Business )

**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 60 buyers sellers meet in Nagapattinam district over the period of four years. This will require resources of Rs.14.1Lakhs for the period of four years. The details are presented in Table 60.

## 10.5 Organizing the Exposure Visits to Important Markets with in 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.6.59Lakhs for the period of four years. The details are presented in Table 60.

**vi) Reporting**

1. Quarterly progress reports to be sent to the Deputy Director (Agricultural Marketing and Agri Business) by the concerned Agricultural Marketing (Agricultural Marketing and Agri Business) and Secretaries of Marketing committees.

2. Periodical Inspection undertaken by the Deputy Director (Agricultural Marketing and Agri Business )

## 10.6 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 56 trainings under Capacity Building of Farmers Skill titles for marketing of agricultural commodities in Nagapattinam 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 60.

**v) Reporting**

1. Quarterly progress reports to be sent to the Deputy Director (Agricultural Marketing and Agri Business) by the concerned Agricultural Marketing (Agricultural Marketing and Agri Business) and Secretaries of Marketing committees.

2. Periodical Inspection undertaken by the Deputy Director (Agricultural Marketing and Agri Business)

## 10.7 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 Nagapattinam district over the period of four years. This will require resources of Rs.4.6 Lakhs for the period of four years. The Details are presented in Table 60.

### iv) Reporting

(1) Quarterly progress reports to be sent to the Deputy Director (Agricultural Marketing and Agri Business) by the concerned Agricultural Marketing (Agricultural Marketing and Agri Business) and Secretaries of Marketing committees.

(2) Periodical Inspection undertaken by the Deputy Director (Agricultural Marketing and Agri Business )

## 10.8 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.23.0 Lakhs over the period of four years. The Details are presented in Table 60.

### iv) Reporting

1. Quarterly progress reports to be sent to the Deputy Director (Agricultural Marketing and Agri Business) by the concerned Agricultural Marketing (Agricultural Marketing and Agri Business) and Secretaries of Marketing committees.

2. Periodical Inspection undertaken by the Deputy Director (Agricultural Marketing and Agri Business)

**11. Project Cost**

The total cost for development of agricultural marketing so as to increase the profitability of farmers would be Rs.23Lakhs for this district for the next four years.

**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.

## Table.56 Project Proposal for the Department of Agricultural Marketing

| Component | 2009 | | | 2010 | | | 2011 | | | 2012 | | | Total (Lakh Rs.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unit cost | Physical | Financial | Unit cost | Physical | Financial | Unit cost | Physical | Financial | Unit cost | Physical | Financial | |
| **Commodity group formation** | | | | | | | | | | | | | |
| Pulses | 0.2 | 5 | 1.0 | 0.22 | 5 | 1.1 | 0.24 | 5 | 1.2 | 0.26 | 5 | 1.3 | 4.6 |
| Cotton | 0.2 | 5 | 1.0 | 0.22 | 5 | 1.1 | 0.24 | 5 | 1.2 | 0.26 | 5 | 1.3 | 4.6 |
| Paddy | 0.2 | 10 | 2.0 | 0.22 | 10 | 2.2 | 0.24 | 10 | 2.4 | 0.26 | 10 | 2.6 | 9.2 |
| Oilseeds | 0.2 | 5 | 1.0 | 0.22 | 5 | 1.1 | 0.24 | 5 | 1.2 | 0.26 | 5 | 1.3 | 4.6 |
| Cashew | 0.2 | 5 | 1.0 | 0.22 | 5 | 1.1 | 0.24 | 5 | 1.2 | 0.26 | 5 | 1.3 | 4.6 |
| **Market Intelligence dissemination** | | | | | | | | | | | | | |
| Farmers Meet | 0.1 | 5 | 0.5 | 0.11 | 5 | 0.55 | 0.12 | 5 | 0.6 | 0.13 | 5 | 0.65 | 2.3 |
| Farmers Discussion Groups | 0.1 | 5 | 0.5 | 0.11 | 5 | 0.55 | 0.12 | 5 | 0.6 | 0.13 | 5 | 0.65 | 2.3 |
| Printing Leaflets | Rs.2 | 10000 | 0.2 | Rs.3 | 10000 | 0.3 | Rs.4 | 10000 | 0.4 | Rs.5 | 10000 | 0.5 | 1.4 |
| Local TV | 0.1 | 5 | 0.5 | 0.11 | | 0 | 0.12 | | 0 | 0.13 | | 0 | 0.5 |
| **Purchase of marketing materials** | | | | | | | | | | | | | |
| Purchase Mar Materials | 0.1 | 1 | 0.1 | 0.11 | 1 | 0.11 | 0.12 | 1 | 0.12 | 0.13 | 1 | 0.13 | 0.46 |
| Facilitation of contract farming | 0.15 | 3 | 0.45 | 0.165 | 3 | 0.495 | 0.18 | 3 | 0.54 | 0.195 | 3 | 0.585 | 2.07 |

**Table 56 Contd…**

| Component | 2009 | | | 2010 | | | 2011 | | | 2012 | | | Total (Rs. in lakhs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unit cost | Physical | Financial | Unit cost | Physical | Financial | Unit cost | Physical | Financial | Unit cost | Physical | Financial | |
| **Exposure visit to markets** | | | | | | | | | | | | | |
| Within State | 0.2 | 1 | 0.2 | 0.22 | 2 | 0.44 | 0.24 | 5 | 1.2 | 0.26 | 5 | 1.3 | 3.14 |
| Outside state | 0.75 | 1 | 0.75 | 0.825 | 1 | 0.825 | 0.90 | 1 | 0.9 | 0.975 | 1 | 0.975 | 3.45 |
| Arrangement of buyer seller meetings | 0.2 | 10 | 2.0 | 0.22 | 15 | 3.3 | 0.24 | 15 | 3.6 | 0.26 | 20 | 5.2 | 14.1 |
| Market price surveillance | 0.1 | 10 | 1.0 | 0.11 | 10 | 1.1 | 0.12 | 10 | 1.2 | 0.13 | 10 | 1.3 | 4.6 |
| Publicity - regulated market | 5.0 | 1 | 5.0 | 5.5 | 1 | 5.5 | 6.0 | 1 | 6.0 | 6.5 | 1 | 6.5 | 23 |
| **Trainings on** | | | | | | | | | | | | | |
| Warehousing and Storage | 0.1 | 5 | 0.50 | 0.11 | 5 | 0.55 | 0.12 | 5 | 0.60 | 0.13 | 5 | 0.65 | 2.3 |
| Market Intelligence | 0.1 | 5 | 0.50 | 0.11 | 5 | 0.55 | 0.12 | 5 | 0.60 | 0.13 | 5 | 0.65 | 2.3 |
| Post Harvest | 0.1 | 2 | 0.20 | 0.11 | 2 | 0.22 | 0.12 | 2 | 0.24 | 0.13 | 2 | 0.26 | 0.92 |
| Grading | 0.1 | 2 | 0.20 | 0.11 | 2 | 0.22 | 0.12 | 2 | 0.24 | 0.13 | 2 | 0.26 | 0.92 |
| **Export promotion** | | | | | | | | | | | | | |
| Cashew | 0.1 | 5 | 0.5 | 0.11 | 5 | 0.55 | 0.12 | 5 | 0.6 | 0.13 | 5 | 0.65 | **2.3** |
| Minimizing PH losses | 0.1 | 5 | 0.5 | 0.11 | 5 | 0.55 | 0.12 | 5 | 0.6 | 0.13 | 5 | 0.65 | **2.3** |
| **Total** | | | **19.6** | | | **22.41** | | | **25.24** | | | **28.71** | **95.96** |

**Meeting Proceedings**

The District Agricultural Plan was prepared in accordance with the needs of that district pertaining to Agriculture and its allied sectors. The key areas of development in agriculture and its allied sectors were found and it is being proposed in the District Agriculture Plan. In this regard, officials from department of Agriculture, Horticulture, Animal Husbandry, Agricultural Engineering and Agricultural Marketing were involved to bring out the plan.

A meeting was organized at the District Collectorate Office on 13.05.2008 to discuss about the interventions being proposed in the District Agriculture Plan. This meeting was headed by the District Revenue Officer and the participants were from agriculture and other line departments, Union Chairman of different Panchayat union, Progressive farmers, Subject Matter Specialists from Tamil Nadu Agricultural University. All the interventions are discussed in detail and the feedback from the stakeholders was collected. Later the revised proposal was prepared incorporating the changes got from the stakeholders.

**NADP Sensitization Workshop and Discussion on District Agriculture Plan - Nagapattinam District held on 13.05.2008**

**District Revenue Officer presides the meeting**

**District Agriculture Plan – Presentation by TNAU Scientist**

**Discussion by Line Department Officials regarding District Agriculture Plan**

**District Revenue Officer answering to the queries of the Panchayat Union President**

**Participants of the meeting**


**Joint Director of Agriculture summarizing District Agriculture Plan**