

**Wrapper**

**Project Team**

**Foreward**

**Preface**

**Executive Summary**

**Chapter I**

**Chapter II**

**Chapter III**

**Chapter IV**

**Chapter V**

**Chapter VI**

**Table of Contents**

**Annexures**



# **NATIONAL AGRICULTURAL DEVELOPMENT PROGRAMME (NADP)**

## **DISTRICT AGRICULTURE PLAN MADURAI DISTRICT**

**Centre for Agricultural and Rural Development Studies  
(CARDS)**

**Tamil Nadu Agricultural University  
Coimbatore – 641 003**

**2008**

# **NATIONAL AGRICULTURE DEVELOPMENT PROJECT – DISTRICT AGRICULTURE PLAN**

## **PROJECT TEAM**

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

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

**District Level : Dr. M. Shanthasheela  
Coordination Assistant Professor  
Department of Agri. Extension  
and Rural Sociology  
TNAU, Coimbatore-3**

**Dr. P. Paramasivam  
Professor and Head  
Department of Agri. Economics  
AC & RI, Madurai**

**Mr. M. Thiagarajan  
Agricultural Officer  
GOI Scheme, Madurai**

**Mr. P. Ravichandran  
Assistant Engineer (Agri. Engineering)  
Office of the Electrical Engineer (AE)  
Madurai**

**Mr. C. Muthudurai  
Deputy Director of Horticulture  
Madurai**

**Mr. V. Ravichandran  
Assistant Director of Fisheries  
Madurai**





# Tamil Nadu Agricultural University

**Prof. C.RAMASAMY**  
**Vice-Chancellor**

COIMBATORE-641 003  
TAMIL NADU  
INDIA.

## FOREWORD

Date .....

The National Development Council resolved that Agricultural Development strategies must be reoriented to meet the needs of farmers and called upon the Central and State governments to evolve a strategy to rejuvenate agriculture with a commitment to achieve four per cent annual growth in the agricultural sector during the 11<sup>th</sup> 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 11<sup>th</sup> plan.

(C. RAMASAMY)

Coimbatore  
June 30, 2008



## **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)**

## **EXECUTIVE SUMMARY**

### **Location and Area**

Madurai district is one of the oldest districts of Madras Presidency. Later the district was trifurcated into Madurai, Theni and Dindigul districts. Madurai is Tamil Nadu's culturally vast active city. It is the second largest city of Tamil Nadu after Chennai. It has a rich cultural heritage passed on from the great Tamil era more than 2500 years old. Madurai was an important cultural and commercial centre even as early as 550 AD. It is situated on the banks of the river Vaigai and is known as the city of temples and festivals. The city is surrounded by small but prominent hills viz Yanaimalai, Nagamalai and Pasumalai. A teeming city, it is the hub of social activity in the state.

Madurai is located approximately between 9°32'00" and 10°18'00", North Latitude and 77°28'00" and 78° 27'00" East Longitude. The total geographical area of the district is 3741.73 Sq. Km (or) 3,74,173 ha. The total Population (as per 2001 census) of the district is 25,62,279 of which the male constitutes 12,95,124 and female constitutes 12,67,155.

The total number of taluks is seven. They are Madurai-North, Madurai-South, Melur, Vadipatti, Usilampatti, Peraiyur, Thirumangalam. Totally there are 13 blocks, 664 revenue villages, 431 village panchayats, 15 town panchayats, six municipalities and one corporation in Madurai district.

The district is mainly agrarian with an average rain fall of 903.80 mm / annum. Paddy and sugar cane are the main crops in this district. The available soil types are thin red, deep red, laterite, black and red sandy. Fine stone deposits and granite are also available in this district. The geographical area of Madurai District is 3741.73 sq.km. covering about 2.09 per cent of the total geographical area of the State. The cultivable area of this District is 205674 hectares of which 48631 hectares (nearly 23.65 per cent of

area) has irrigation facility from sources like canals, tanks and wells. The major part of the cultivable area (i.e.) 76.35 per cent is rainfed lands. Vaigai, Gundar, Vaipar & Pambar are river basins in this district. Average size of agriculture holding is 0.678 ha.

Under the NADP several interventions in Agriculture, Horticulture, Animal Husbandry, Fisheries, Agricultural Engineering, Agricultural Marketing and Public Works Department are proposed to be implemented at a total cost of Rs. 8010.42 lakhs over a period of four years from 2008 – 09 to 2011 – 12.

### **Budget Details for Activities Proposed in the District Agriculture Plan**

**(Rs. in lakhs)**

<b>Sl. No</b>	<b>Departments</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>Total</b>
1	Agriculture	512.701	550.552	510.735	581.202	2155.200
2	Horticulture	104.450	447.370	442.790	325.710	1320.320
3	Animal Husbandry	781.200	521.290	544.400	253.800	2100.690
4	Fisheries	105.800	539.750	57.000	24.500	727.050
5	Agricultural Engineering	193.030	204.820	220.240	184.160	802.250
6	Agricultural Marketing	99.350	349.72	242.81	213.04	904.91
	<b>Total</b>	<b>1796.53</b>	<b>2613.50</b>	<b>2017.98</b>	<b>1582.41</b>	<b>8010.42</b>



## **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<sup>th</sup> 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**

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

**Major Areas of Focus**

- (a) Integrated development of major food crops like paddy, coarse cereals, minor millets, pulses, oilseeds;
- (b) Agriculture mechanization;
- (c) Activities related to enhancement of soil health;
- (d) Development of rainfed farming systems in and outside watershed areas, as also Integrated development of watershed areas, wastelands, river valleys;
- (e) Integrated Pest Management schemes;
- (f) Strengthening of Market Infrastructure and marketing development;
- (g) Strengthening of Infrastructure to promote Extension Services;
- (h) Activities relating to enhancement of horticultural production and popularization of micro irrigation systems;
- (i) Animal husbandry and fisheries development activities;
- (j) Study tours of farmers;
- (k) Organic and bio-fertilizers;
- (l) Innovative schemes.

**Collection of Data**

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

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

### **Formulation of District Planning Unit**

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

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

### **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 Tamil Nadu 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 09.05.2008 under the chairmanship of District Collector. This meeting was attended by the scientists from TNAU, officials from line departments and the representatives of local bodies, wide coverage was given in the media also.

### **Finalisation**

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



12. Energised Agri. Pump sets	: 54,825 Nos.
13. Soil type	: Red (36.66per cent), Black (20.33 per cent), Brown (13.82 per cent)
14. No. of Taluks	: 7 Madurai-North, Madurai-South, Melur, Vadipatti, Usilampatti, Peraiyur, Thirumangalam
15. No. of Blocks	: 13 Madurai-East, Madurai-West, Thiruparankundram, Melur, Kottampatti, Vadipatti, Alanganallur, Usilampatti, Chellampatti, Sedapatti, T.Kallupatti, Thirumangalam, Kalligudi.
16. No. of Revenue Villages	: 664
17. No. of Village Panchayats	: 431
18. No. of Town Panchayats	: 15
19. No. of Municipalities	: 6
20. No. of Corporations	: 1
21. River Basins	: Vaigai, Gundar, Vaipar & Pambar
22. No. of M.I. Tanks	: 2287
23. No. of Nationalised Banks	: 247
24. No. of Primary Co-op. Banks	: 83

#### **a) Rivers**

The district is traversed by the Vaigai River in a Northwest – Southeast orientation, dividing the city of Madurai into two parts. The river is the lifeline of the district and it has its sources in the Western Ghats at an altitude of 5000 feet above the MSL. Its tributaries are the Suruli, Varushanad and Battlagundu.

Vaigai River is the important River flowing in this District which flows from West to East. River Kundar is the another river flowing in this District from South to West. All the major water supply schemes has been formulated with Vaigai River as source.

The terrain in Madurai District is formed of only hard rock. The ground water level in this District varies according to the formation of rocks. In Usilampatty and Sedapatty union, the ground water level is 15 to 18m below ground level approximately. In other unions, the ground water level is 6 to 9m below ground level. The ground water available in the District is potable almost in all areas except some places in Kallikudi & Kallupatty Union.

#### **b) Agriculture**

The present Madurai district has an area of 3741.73 sq. km with a population of 24.00 Lakhs. The district is mainly agrarian with an average rain fall of 827.1 mm / annum. Paddy and sugar cane cultivation are the main crops in this district. The available soil types are thin red, deep red, laterite, black and red sandy. Fine stone deposits and granite are also available in this district. The geographical area of Madurai District is 3741.73 sq.km. covering about 2.09 per cent of the total geographical area of the State. The cultivable area of this District is 205674 hectares of which 48631 hectares (nearly 23.65 per cent of area) has irrigation facility from sources like canals, tanks and wells. The major part of the cultivable area (i.e.) 76.35 per cent is rainfed lands.

#### **c) Industries**

The District has a very few reputed organizations in the private sector like T.V.Sundaram Iyengar & Sons, Madura Coats, Fenner (I) Ltd., George Oaks Ltd. etc. which are engaged in the production of variety of goods like tyres and tubes, machineries, textile, conveyor belts etc. and also provides employment opportunities.

The District offers ample scope in the field of textiles, readymade garments, bakery units, and floriculture, dairy and cold storage units, Agro and Herbal products, Granite stones, Blue metal jelly, Chamber bricks, Rubber and plastic based industries. There is also a very good scope for starting food processing and agro based industries.

In Madurai District, industrial development is at a slow pace and there are vast disparities between different areas and taluks in terms of industrial growth.

The following are the block-wise data of SSI units & LMI units existing as on 28.02.2002.

**Table 2.1 List of Industries**

<b>Sl. No.</b>	<b>Name of activity</b>	<b>No. of units</b>
1.	Food and food based industries	2426
2.	Cotton textiles	262
3.	Hosiery & readymade	3621
4.	Wood and wood based industries	1318
5.	Paper based & printing industries	1976
6.	Leather & leather based industries	292
7.	Rubber and plastic based industries	891
8.	Chemical & chemical based industries	756
9.	Non-metallic and mineral based industries	510
10.	Basic metal industries	128
11.	Metal based industries	2840
12.	Mfg. of machineries and accessories	398
13.	Electrical & electrical based industries & spares	973
14.	Transport equipments & spares manufacturing	28
15.	Miscellaneous industries	1146
16.	Individual Service based units	224
17.	Individual service business based units	55
18.	Repairing and servicing units	800
	<b>Total</b>	<b>18644</b>

Source: Records of the Office of the Assistant Director, Statistics, Madurai



**d) Transport**

The system of transport plays a pivotal role in overall economic development of any area. Madurai District has well laid out roads and railway lines connecting all major towns within and outside the State and has a separate airport at Madurai.

**Table 2.2. Transport Facilities**

<b>Transport</b>	
1. Type of Roads	<b>Length (in Km)</b>
National Highways	145
State Highways	1114
Corporation and Municipal Roads	364
Town Panchayat /Township Roads/Panch.Union	1349
2. Registered Motor Vehicles	
Commercial	9625
Non Commercial	56238
3. Railway Length (in K.m)	
a. Route Length	
Broad Gauge	62.935
Metre Gauge	81.568
b. Track Length	
Broad Gauge	78.395
Metre Gauge	95.928
Railway Stations	7
4.Sea port	--
5.Air Port	1
6.Name of the Sea port	--
7.Name of the Air port	Madurai

Source: Records of the Office of the Assistant Director, Statistics, Madurai

**e) Communications**

The District possesses a very good communication network.

**Table 2.3. Communication Facilities**

<b>Communication</b>	
Post and Telegraph offices in Nos.	411
Post offices doing postal business alone	29
Post offices doing post and Telegraph business	382
Telephones	
a. No of Telephones in Use	271633
b. No of Public Call Offices	4248
c. No of Telephone Exchanges	150

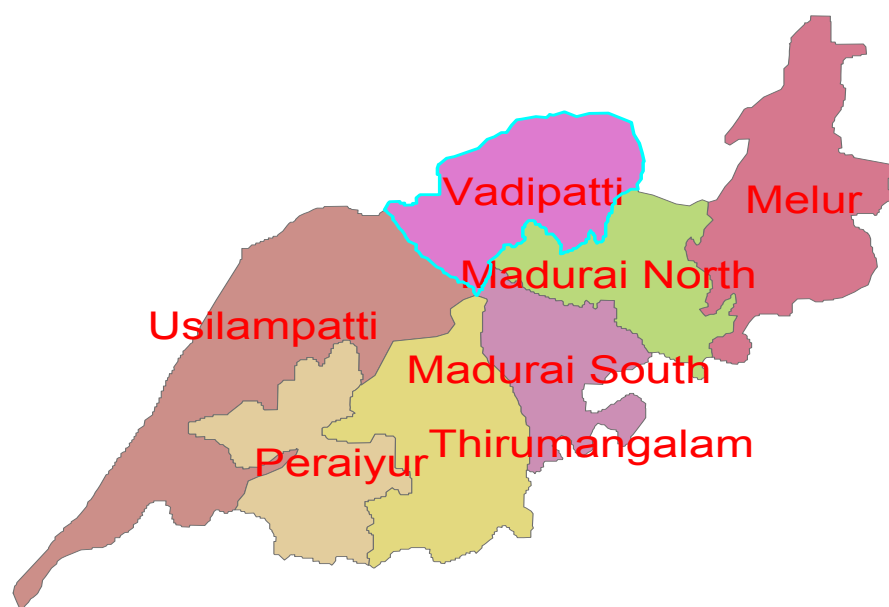
Source: Records of the Office of the Assistant Director, Statistics, Madurai

#### **f) Bank**

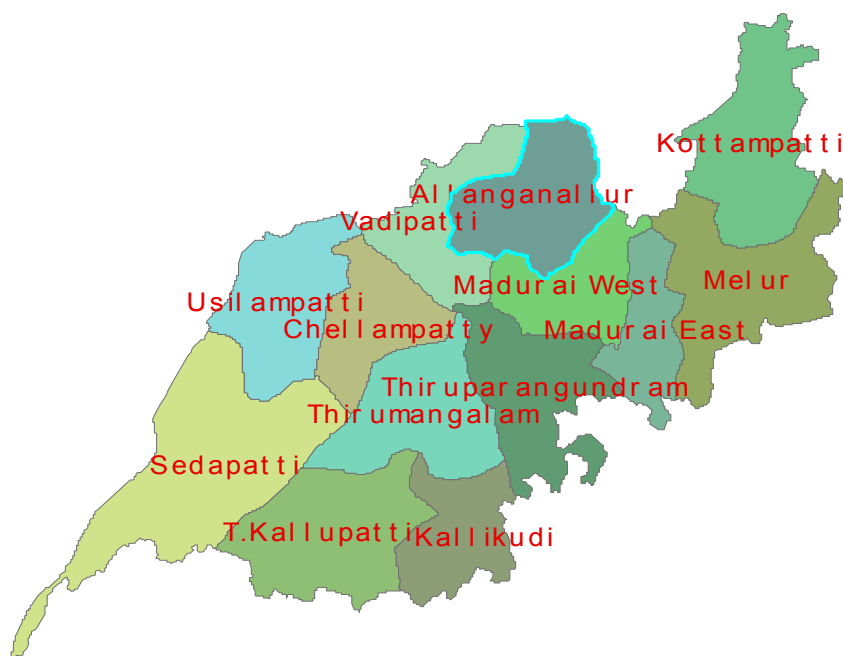
37 banking groups along with their branches are operating in this District. Banks and other financial institutions play a crucial role in promoting rapid industrial growth. They should formulate the lending strategy taking into consideration of the following factors.

- a. Taking lending decisions expeditiously based upon the viability of project reports.
- b. Focusing increased attention on developing backward and most backward areas of the District.

Promoting new entrepreneurship based upon the genuine requirements of the borrowers.



**Fig.1. Map Showing Taluks in Madurai District**



**Fig.2. Map Showing Blocks in Madurai District**

**g) General Statistics**

Agriculture is the mainstay of the people in the district. The predominant crop grown in the district is paddy and other major crops are Sugarcane, Banana, Maize, Groundnut, Pulses, Ragi, Gingelly, Coconut and Cotton.

**h) Animal Husbandry and Fisheries****Table 2.4. Number of Cattles**

Sl.No.	Classification	Exotic & Cross Breed	Indigenous and Native Pure
1.	<b>Cattle:</b>		
	<b>Male</b>		
a.	Under one year	13430	4509
b.	1 year to 2.5 years	9216	4141
c.	over 2.5 years	5737	16097
d.	<b>Total</b>	<b>28383</b>	<b>24747</b>
	<b>Female</b>		
a.	Under one year	26712	6031
b.	1 year to 2.5 years	23361	6135
c.	over 2.5 years	85695	25443
i.	In milk	58549	14013
ii.	Dry	19648	7819
iii.	Not Calved even once	6377	2881
	<b>Total</b>	<b>220342</b>	<b>62322</b>
	<b>Total cattle</b>	<b>248725</b>	<b>87069</b>

Source: Records of the Office of the Assistant Director, Statistics, Madurai

**Table 2.5. Number of Animals**

<b>Sl.No.</b>	<b>Classification</b>	<b>Total</b>
<b>2</b>	<b>Buffaloes:</b>	
	<b>Male</b>	
a.	Under one year	1132
b.	One year to 3 years	705
c.	Over 3 years	438
d.	<b>Total</b>	<b>2275</b>
	<b>Female</b>	
a.	Under one year	1527
b.	1-3 years	1615
c.	Over 3 years	6963
	i) In Milk	4637
	ii) Dry	1741
	iii) Not calved even once	478
	<b>Total</b>	<b>16961</b>
	<b>Total Buffaloes</b>	<b>19236</b>
<b>3</b>	Sheep	216416
<b>4</b>	Goats	238588
<b>5</b>	Horses and Ponies	477
<b>6</b>	Pigs	3260
<b>7</b>	Donkeys	1046
<b>8</b>	Others (Dogs)	58658
	Rabbits	755
	<b>Total Live Stock</b>	<b>538436</b>
<b>9</b>	<b>Total Poultry</b>	<b>685529</b>

Source: Records of the Office of the Assistant Director, Statistics, Madurai

#### **i) Fisheries production**

The main objective of the Fisheries Department is to maximize the fish production and as far as the inland fisheries is concerned the aim of the department is to augment fish production and the productivity in inland water through eco-friendly methods, which will strengthen the rural economy by creating productive employment opportunities. Optimizing utilization of inland water resources, the Fisheries Department aims at maximum participation of the people in the entire process.

**Table 2.6. Inland Fishery Resources in Madurai District**

<b>Sl. No.</b>	<b>Resource Details</b>	<b>Nos.</b>	<b>Total Water Spread (in ha.)</b>
1	Sathiar Reservoir	1	90
2	Revenue Departmental Waters	1237	21965
3	Public Works Department Waters.	86	7466
4	Panchayat / Panchayat Union Tanks.	680	2325
5	Fisheries Department Waters. a) Under Intensive Inland Fish Culture and Marketing Scheme b) Under Fish Farmers Development Agency Scheme	176 29	8074 714
6	Hindu Religious & Charitable Endowment Tanks	-	19
	<b>TOTAL</b>	<b>2249</b>	<b>40653</b>

Source : Annual Report of Fisheries Department, 2006-07, Madurai

**Table 2.7. Fisheries Development and Production 2005-2006**

<b>Sl.No.</b>	<b>Name and address of Fishing Centres</b>	<b>Inland Fish (Tonne)</b>		<b>No. of Fisherman engaged</b>
		<b>Catch</b>	<b>Value (in lakhs)</b>	
1	Sathiar Dam	3.584	0.61	6

Source : Annual Report of Fisheries Department, 2006-07, Madurai

**j) Mineral Resources (tons)**

1. Rough Stone	:	229
2. Granite	:	128
3. Gravel	:	17
4. Sand	:	0
5. Lime Stones	:	6
6. Quartz & Feldspar	:	14
7. Graphite	:	2
<b>Total</b>	:	<b>396</b>

## 2.2 District at a Glance

### 2.2.1 Location and Geographical Units

Madurai District is situated in the South of Tamil Nadu state. It is bounded on the North by the districts of Dindigul, Thiruchirapalli and on the East by Sivagangai and on the West by Theni and South by Virudhunagar. Madurai district is located in between 9 32' 00" and 10 18' 00" N Latitude and 77 28' 00" and 78 27' 00" E Longitude

### 2.2.2. Demographic Details

Total population of the district is 2578201 of which 1303363 are males 1274838 are females. Density of population is 733 persons per sq. km. The literacy rate is 73 per cent of which male constitutes 39 per cent and female 34 per cent. The scheduled castes are 323252 and scheduled tribes are 5972.

**Table 2.8 Demographic Details**

1.	Total Population	2578201
2.	Male	1303363
	Female	1274838
3.	Occupation	
	Total workers	1670332
	Main workers	846978 (Agri & Industries)
4.	Literacy rate's	73per cent
	Male	39per cent
	Female	34per cent
5.	SC Caste Population	323252 Nos.
	ST Caste Population	5972 Nos.

Source: Records of the Office of the Assistant Director, Statistics, Madurai

### 2.2.3. Topography and Agro Climatic Characteristics

Madurai is coming under southern zone in the altitude of 100-600m. with annual PET (Potential Evapo Transpiration) of 1825 mm. Madurai is coming under medium rainfall region with some parts under low rainfall regions.

The average annual rainfall is 903.8 mm. Normally sub-tropical climate prevails over the district without any sharp variation. There are four district seasons viz. South-West monsoon, North-east monsoon, Winter and Summer. Vaigai, a major river in the district is originating in the Western Ghats.

### 2.2.4 Soil Type / Soil Series

The total red soil comprises 1,37,174 Ha, Black soil 7,60,64 Ha, Brown soil 5,17,24 Ha, Alluvial Soil 2,050 Ha in Madurai district. The name of the soil series, area and percentage under the particular soil series is given in Table 2.9.

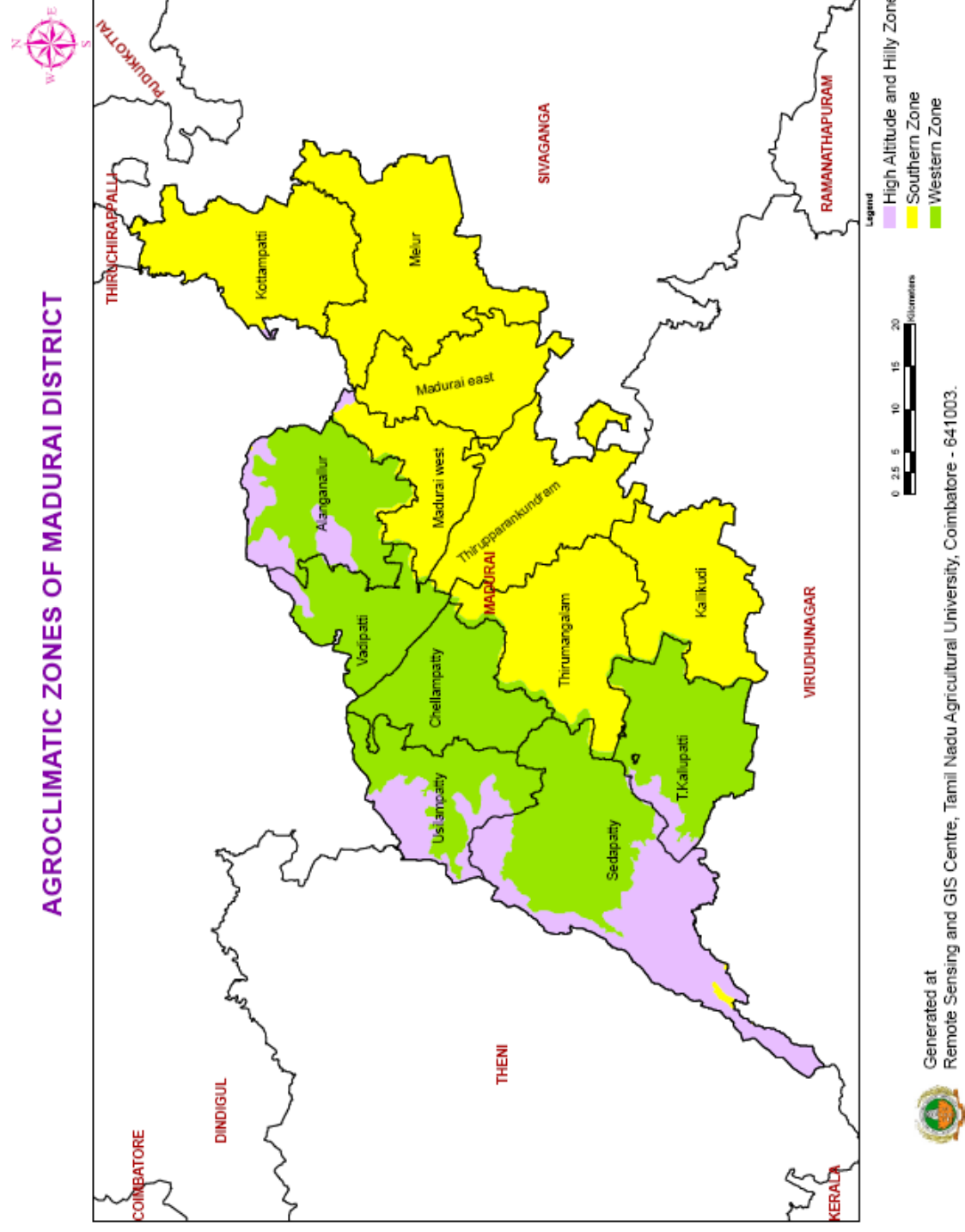
**Table 2.9. The Soil Description of Madurai district**

Soil Description	Area (ha)
Moderately shallow, fine, mixed, Inceptisols	32471.28
Very deep, fine loamy, mixed, Alfisols	25133.93
Deep, fine, mixed, Alfisols	18470.97
Deep, fine, montmorillonitic, Vertisols	18126.80
Deep, coarse loamy, mixed, Inceptisols	17585.79
Deep, fine loamy, mixed, Inceptisols	15600.55
Very deep, fine, montmorillonitic, Inceptisols	13985.59
Very deep, fine, mixed, Alfisols	11054.06
Very deep, fine, mixed, Inceptisols	10314.95
Moderately deep, fine loamy, mixed, Alfisols	9907.54
Moderately shallow, fine loamy, mixed, Alfisols	9803.04
Moderately shallow, fine, mixed, Alfisols	9039.03
Deep, fine, mixed, Inceptisols	8469.04
Deep, fine loamy, mixed, Alfisols	7907.32
Very deep, very fine, montmorillonitic, Vertisols	7261.73
Deep, clayey skeletal, mixed, Alfisols	7124.51
Deep, fine, montmorillonitic, Inceptisols	6811.97



**Table 2.9. contd...**

Shallow, clayey skeletal, mixed, Inceptisols	6658.73
Moderately shallow, fine loamy, mixed, Entisols	6618.65
Moderately deep, fine, mixed, Alfisols	6547.07
Very deep, fine, montmorillonitic, Vertisols	6073.01
Moderately deep, loamy skeletal, mixed, Alfisols	5979.68
Very deep, fine, mixed, Mollisols	5787.61
Shallow, clayey, mixed, Alfisols	5073.62
Moderately shallow, clayey skeletal, mixed, Inceptisols	4806.57
Moderately deep, fine loamy, mixed, Inceptisols	4048.41
Moderately deep, fine, montmorillonitic, Inceptisols	3952.68
Deep, loamy skeletal, mixed, Inceptisols	3821.83
Deep, coarse loamy, mixed, Alfisols	3724.23
Shallow, clayey skeletal, mixed, Alfisols	3266.72
Shallow, loamy, mixed, Inceptisols	3228.55
Shallow, loamy, mixed, Alfisols	3160.10
Shallow, loamy skeletal, mixed, Inceptisols	2927.86
Moderately deep, fine, mixed, Inceptisols	2718.54
Very deep, coarse loamy, mixed, Mollisols	2684.86
Moderately shallow, loamy skeletal, mixed, Inceptisols	2677.17
Deep, coarse loamy, mixed, Ultisols	1881.88
Very deep, clayey skeletal, kaolinitic, Alfisols	1700.27
Very shallow, clayey skeletal, mixed, Entisols	1636.38
Deep, clayey skeletal, mixed, Inceptisols	1599.69
Deep, coarse loamy, mixed, Mollisols	1264.88
Moderately shallow, fine loamy, mixed, Inceptisols	1186.40
Deep, fine loamy, mixed, Entisols	1137.51
Shallow, clayey, mixed, Inceptisols	829.29
Very shallow, loamy, mixed, Entisols	616.70
Moderately shallow, loamy skeletal, mixed, Entisols	525.92
Very deep, coarse loamy, mixed, Inceptisols	408.91
Very deep, fine loamy, mixed, Inceptisols	303.63
Shallow, loamy, mixed, Entisols	243.76
Shallow, clayey, mixed, Ultisols	192.65
Deep, contrasting particle size, mixed, Entisols	73.04
Moderately shallow, clayey skeletal, mixed, Alfisols	50.34
Shallow, clayey, mixed, Entisols	31.10
Moderately deep, fine loamy, mixed, Entisols	22.43
Very deep, fine, kaolinitic, Alfisols	0.002



**NORTH EASTERN ZONE**

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

**NORTH WESTERN ZONE**

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

**WESTERN ZONE**

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

**CAUVERY DELTA ZONE**

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

**SOUTHERN ZONE**

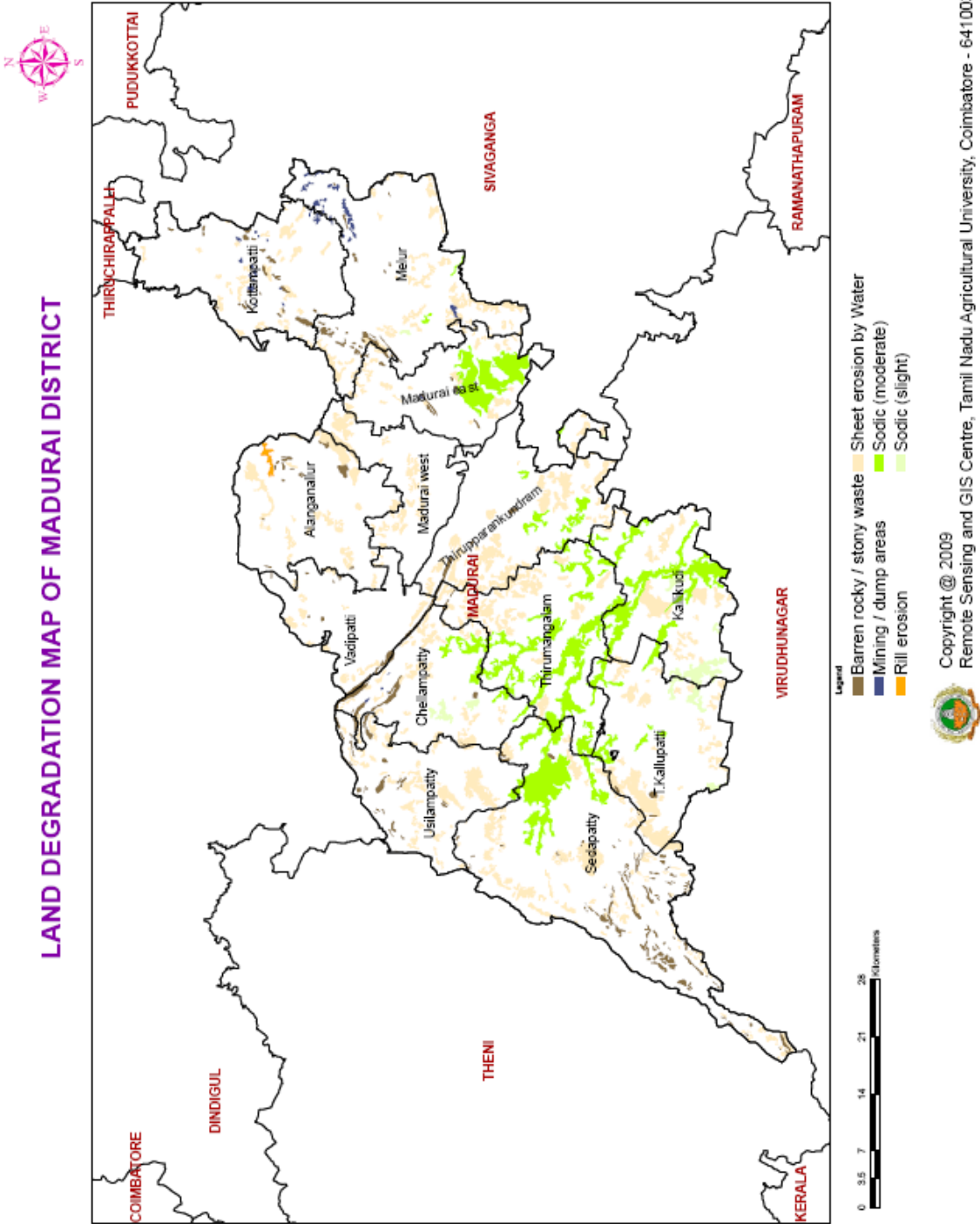
Sivagangai, Ramanathapuram, Virudunagar, Tuticorin and Tirunelveli districts and Natham and Dindigul taluks of Dindigul district, Melur, Tirumangalam, Madurai South and Madurai North taluks of Madurai district and Pudukkottai district excluding Aranthangi taluk.

**HIGH RAINFALL ZONE**

Kanayakumari district.

**HIGH ALTITUDE AND HILLY ZONE**

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



## **EXPLANATION OF DIFFERENT LAND DEGRADATION CATEGORIES**

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

### **Water Erosion**

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

#### **1. Sheet erosion**

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



## 2. Rills

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



### **3. Gullies**

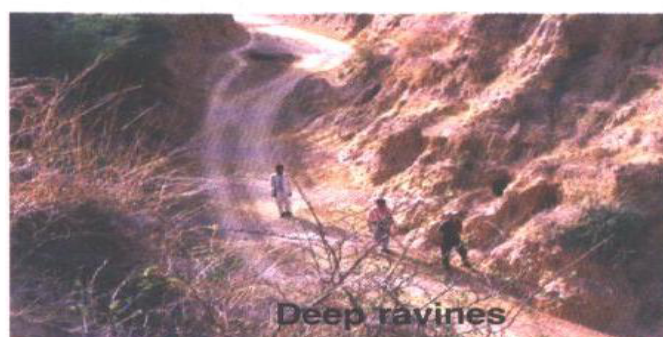
Gullies are formed as a result of localized surface run-off affecting the unconsolidated material resulting in the formation of perceptible channels causing undulating terrain. If rills are neglected and the erosion continues for a long time, it develops in to gullies. They are commonly found in sloping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



### **4. Ravines**

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





### Wind Erosion

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

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



## 5. Sheet Erosion

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



## 6. Stabilized Dunes / Partially stabilized Dunes

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



Stabilized sandune



Partially stabilized sanddune

## **7. Un-stabilized dunes**

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

**Water logging**

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

**8. Surface Ponding**

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

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

## 9. Sub-surface Water logging

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

## 10. Salinization / Alkalization

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



**Salinity**



**Sodic**



## 11. Acidification

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

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



## Glacial

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

## 12. Frost Heaving

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

**13. Snow covered areas**

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

**Degradation due to anthropogenic factors**

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

**14. Industrial effluent affected areas**

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

**15. Mining and dump areas**

These are the areas subjected to removal of different earth material (both surfacial and sub-surfacial) by manual and mechanized operations. Large scale quarrying and mechanizations results in mining and mine dumps. It includes surface rocks and stone quarries, sand and gravel pits, brick kilns, etc. Mine dumps are those areas where waste debris is accumulated after extraction of required minerals. Generally these lands are confined to the surroundings of the mining area.



#### **16. Brick kiln areas**

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



#### **Others**

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

**17. Mass movement/ Mass wastage**

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

**18. Barren rocky / stony areas**

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



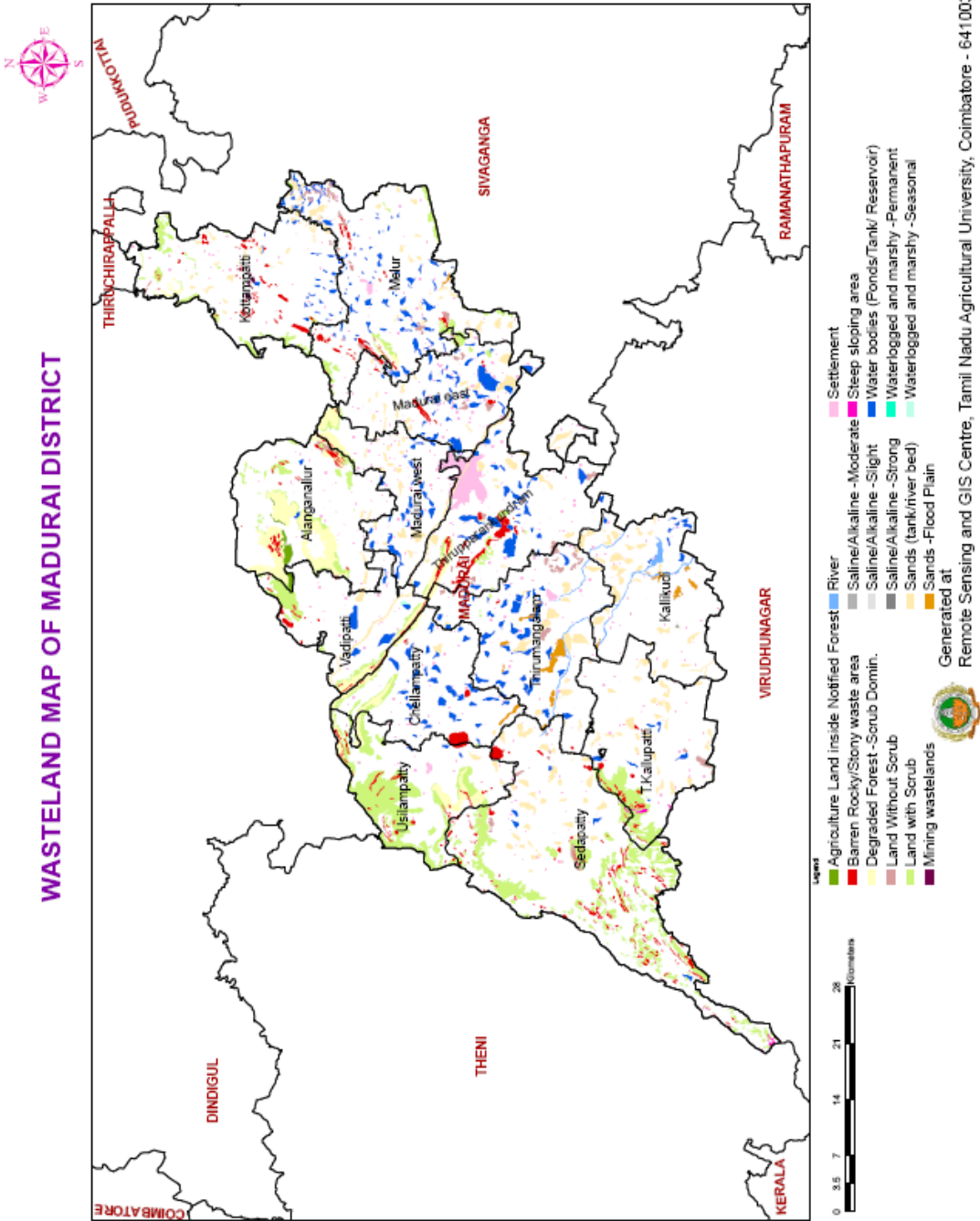


**19. Miscellaneous**

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



**Sea Ingress areas**



## **WASTELAND CLASSIFICATION**

### **Culturable Wastelands**

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

- i. **Agricultural Land inside notified forest:** Lands put under cultivation within the restricted forest areas.
- ii. **Degraded forest – Scrub domination:** Lands as noticed under the Forest Act and those lands with various types of forest cover, in which vegetative cover is less than 20% are classified as degraded forest land. Among the vegetative types scrubs and thorny bushes are dominated species.
- iii. **Degraded land under plantation crops:** This includes degraded lands containing plantations inside and outside of the notified forest area.
- iv. **Degraded pastures / grazing land:** All those grazing land in non-forest areas, whether or not they are permanent pastures or meadows, which have become degraded due to lack of proper soil conservation and drainage measures fall under this category.
- v. **Gullied / ravenous land:** The gullies are formed as a result of localised surface run off affecting the friable unconsolidated material resulting in the formation of perceptible channels resulting in undulating terrain. The gullies are the first stage of excessive land dissection followed by their networking which leads to the development of ravenous land. The word 'ravine' is usually associated not with an isolated gully but a network of gullies formed generally in deep alluvium and entering nearby river flowing much lower than the surrounding table lands. The ravines then are extensive systems of gullies developed along river courses.

- vi. ***Land with or without scrub:*** This is the land which is generally prone to degradation and may or may not have scrub over. Such land occupies topographically high locations in the respective systems. This excludes hilly and mountainous terrain.
- vii. ***Water-logged and marsh:*** Surface water-logged land is that land where the water is near the surface and water stands for most of the year. Marsh is a land which permanently or periodically inundated by water and is characterised by vegetation which includes grasses and reeds.
- viii. ***Salt Affected Lands (Saline / Alkaline):*** The salt affected land is generally characterised as the land that has adverse effects on the growth of most of the plants due to the action or presence of excess soluble salts or excess exchangeable sodium. The saline soils have more of soluble salts with electrical conductivity of more than  $4 \text{ dSm}^{-1}$ . Alkali land has an exchangeable sodium percentage (ESP) of above 15 which is generally considered as the limit between normal and alkali soils. The predominant salts are carbonates and bicarbonates of sodium.
- ix. ***Sands :*** Sandy areas are those areas which have stabilized accumulation of sand, in situ or transported, in tank / river bed, coastal, riverine or inland areas.
- x. ***Mining / industrial Waste lands:*** These are lands where large-scale mining operations bring about the degradation of land and resultant mine dumps.

## Unculturable Wastelands

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

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

### Area Under Different Problem Soil Categories

The problem soil categories and area affected are given below.

1. Saline Soil	-	Nil
2. Calcareous Soil	-	1,06,038 Ha.
3. Mild Alkaline (pH 7.4-7.8)	-	96,550 Ha.
4. Moderately Alkaline (pH 7.9 -8.4)	-	29,221 Ha.

Source : Soil Atlas Madurai District.

### 2.2.5. Land Use pattern and Land Holdings

#### 2.2.5.1. Land Use Pattern

The land use pattern of the district for the last three years is given in Table 2.10. Of the total geographical area only slight variation occurs in net sown area and gross cropped area. The area sown more than once is drastically reduced. Similarly the land under miscellaneous trees also reduced. In Table 2.11 current year Land use pattern of the blocks of Madurai district is given.

**Table 2.10. Land Use Pattern for the last three Years of Madurai District**

S.No	Classification	2004-05	2005-06	2006-07
1	Forest	48473	49605	50452
2	Barren and Uncultivable uses	13200	13200	13201
3	Land put to Non Agrl.uses	69000	69188	69258
4	Cultivable Waste	6000	5690	5695
5	Permanent Pastures and other	232	232	232
6	Land under Misc.tree crops	4100	4296	2029
7	Current fallows	2000	1600	17009
8	Other fallow Land	92686	93100	94400
9	Net Area sown	138560	153082	121897
10	Geographical area	374173	374173	374173
11	Total cropping area	147499	136640	121392
12	Area sown more than once	9020	8939	2032

Source: Records of the Office of the Department of Statistics, Madurai

### 2.2.5.2 Land Holding Patten of the Farmers

Majority of the farmers (81 percent) hold less than 1 ha of land and share only forty per cent of available land area. But 6 per cent of the big farmers hold 32 per cent of the land.

**Table 2.11. The Percentage of the respondents and Land Holdings of Madurai District**

S.No	Particulars	No.	(percent)	Area (ha.)	(percent)
1	Less than 1 ha.	245083	81	85073	41.4
2	Between 1 and 2 ha,	38699	13	53951	26.2
3	Above 2 ha.	19413	6	66610	32.5
	<b>Total</b>	<b>303195</b>	<b>100</b>	<b>205634</b>	<b>100.0</b>

Source: NABARD, Madurai.

### 2.2.6. Irrigation and Ground water

#### 2.2.6.1. Sources of Irrigation

The sources of net irrigated area and gross area irrigated for the last three years in Madurai District are given in Table 2.12 and 2.13.

**Table 2.12. Net Area Irrigated (Last 3 Years) in Madurai District**

(Area in Ha)

Sl. No	Source	2004-05	2005-06	2006-07
1	Canal	28089.00	36986.00	33421.74
2	Tank	14963.00	18306.00	21052.19
3	Tubewell	763.00	634.00	392.52
4	Openwell	33391.00	36319.00	31084.22
5	Others if any	-	-	1127.50
	<b>Total</b>	<b>77206.00</b>	<b>92245.00</b>	<b>87078.17</b>

Source: Records of the Office of the Department of Statistics, Madurai

**Table 2.13. Gross Irrigated Area (Last 3 Years) in Madurai District****(Area in Ha)**

Sl.No	Source	2004-05	2005-06	2006-07
1	Canal	33218.00	40154.00	40720.38
2	Tank	15056.00	19406.00	21480.20
3	Tubewell	763.00	634.00	393.00
4	Openwell	36453.00	39214.00	32481.61
5	Others if any	-	-	1131.00
	<b>Total</b>	<b>85490.00</b>	<b>99408.00</b>	<b>96206.19</b>

Source: Records of the Office of the Department of Statistics, Madurai

**Table 2.14. Groundwater Potential of Blocks**

Over exploited (100per cent)	Critical (85-100per cent)	Semi Critical (60-85per cent)
1. Chellampatty	Alanganallur	1. Kallikudi
2. Sedapatty		2. T. Kallupatty
3. Usilampatty		3. Thirumangalam
		4. Thiruparankundram

Source: Records of the Office of the Department of Statistics, Madurai

## 2.3 Development Vision and strategy

### i) Vision

The concept of Self Help Groups should be strengthened. As the district consists of more small and marginal farmers, congregation of farmers can be made for their benefit.

### ii) Strategy

To promote agriculture and develop farmers, Tamil Nadu Agricultural University and the various line departments should join hands and work. Public, private partnership should be encouraged. Various NGOs should be allowed to participate in the development of Madurai district. Committee should be formed involving Industrialists, farmers, academics, NGOs, representatives from the public, MLA, MP with the leadership of the Collector. This will help to develop the district and realize the vision.

## **CHAPTER - III**

### **SWOT ANALYSIS**

#### **Strengths**

- The district has 2.9 per cent of the total geographical area of Tamil Nadu with sacred legend.
- There are 2 revenue divisions with 13 blocks comprising 670 villages.
- The district has well laid out roads and railway lines connecting all major towns within and outside state.
- Madurai district is classified into 6 sub -zones.
- Normally sub tropical climate prevails over the district without any sharp variation.
- The district possess very good communication network.
- The district basically has scope for agrarian based occupation. The district also offers scope in the field of textiles, ready made garments dyeing floriculture and coir units.
- The district is now in the cyber map.
- Proximity to Kerala State and tourist spots like Kanyakumari and Rameswaram.
- Madurai has so many popular educational institutions including Agricultural College and Research Institute with its fully functional KVK.
- There are nearly 245 bank branches which support the entire district in financial transactions.
- Ample scope for setting up biogas plants on account of existence of sugar mills and large population of cattle.
- Scope for development of Horticulture, Floriculture, Sericulture, Poultry farming, dairy farms, Milk chilling plants etc.
- Scope for development of handicrafts.
- Scope for setting up modern rice mills, oil mills, etc.
- Scope for setting up radiological and pathological laboratories in rural areas.
- Scope for formation of SHGs on account of presence of poor, down trodden and SC/ST population and presence of money lenders.



## **II. Weaknesses**

- Uneven rainfall
- Fragmented and holdings
- Rivers are seasonal
- Low precipitation resulting in poor use of rivers for irrigation purpose.
- Greater dependence on ground water resulting in depletion of groundwater potential.
- Heavy dependence on Agriculture with 135460 Nos. of small and Marginal farmers.
- Vast stretch of wastelands in some pockets.
- Fast urbanization leads to slow down of agricultural activity.
- Rainfed area is more.
- Scarcity of agricultural labours.

## **III. Opportunities**

- Scope for setting up Agro processing industries
- Scope for enlarging the area under flower cultivation and there by export of flowers.
- Now the district is in the cyber map.
- Setting up of International Airport.

## **IV. Threats**

- Conversion of Agricultural land for residential and industrial purpose.
- Animal population is going down day by day which will lead to poor availability of organic manures.
- More of granite industry is a threat to the agrarian community.

### **3.1. Composite Index of Agricultural Development of Madurai 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 100per cent 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 ( $i = 1,2,3 \dots m$ ,  $d = 1,2,3 \dots n$ ). First these values of development indicators for each district is to be standardized. When the observed values are related positively to the development( as in the case of cropping intensity), the standardization is achieved by employing the formula

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

where  $\text{Min } X_{id}$  and  $\text{Max } X_{id}$  are the minimum and maximum of  $(X_{i1}, X_{i2}, \dots, X_{in})$  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

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

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 Madurai district is taken from various government publications like Season and Crops Report and Economic Appraisal of Tamil Nadu for the four years periods 1990-91, 1995-96, 2000-01 and 2005-06. In all, 25 indicators of agricultural development as given in Table 3.1 were used for estimating the composite index of development for the district. The 25 indicators were grouped into six different ‘components’: i) Crop-Area-Variables (10) ii) Irrigation (7) iii) Livestock (3) iv) Fisheries (1) v) Fertilizer (3) and vi) Cultivators and Labourers (2).

The analysis showed that Madurai district which classified as ‘highly developed’ in agricultural development during 90-91 and 2000-01 and became ‘developed’ in agriculture during 1995-96 and during the recent period it was classified as ‘developing’. In terms of overall agricultural development its rank among the 29 districts of Tamil Nadu varied from 3 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 3.2. The table shows that except in cultivators and labourers, in all other components its performance in the period of study is good. For example, in irrigation its ranks is varies from 8<sup>th</sup> to 16<sup>th</sup> rank in all the 4 periods. Similarly in fertilizer variables also it occupied ranks between 1<sup>st</sup> and 7<sup>th</sup> ranks.

**Table 3.1 Selected Indicators of Agricultural Development for Madurai District**

<b>Component</b>	<b>Indicators</b>	<b>No. of Indicators</b>
Crop-Area-Variables	Cropping Intensity	10
	Per cent of Gross Cropped Area to Total geographical area	
	Per cent Share of food grains to Gross Cropped Area	
	Per cent Share of food crops to Gross Cropped Area	
	Per cent Share of non food crops to Gross Cropped Area	
	Per cent Share of cultivable waste to total geographical area	
	Per cent Area under High Yielding Variety-PADDY	
	Per cent Area under High Yielding Variety-CHOLAM	
	Per cent Area under High Yielding Variety-CUMBU	
	Per cent Area under High Yielding Variety-RAGI	
Irrigation	Irrigation Intensity	7
	Per cent of Gross Irrigated Area to Gross Cropped Area	
	Per cent of Net Irrigated Area to net area sown	
	Per cent Area under Canal Irrigation to Gross Irrigated Area	
	Per cent Area under Tank Irrigation to Gross Irrigated Area	
	Per cent Area under Well Irrigation to Gross Irrigated Area	
	Per cent Area under other sources Irrigation to Gross Irrigated Area	
Livestock	Milk production (lakh tons)	2
	Egg production (lakhs)	
Fisheries	Inland + Marine fish production in tons	1
Fertilizer	Consumption of Nitrogen per hectare of Gross Cropped Area (tonnes)	3
	Consumption of Phosphorus per hectare of Gross Cropped Area (tonnes)	
	Consumption of Potassium per hectare of Gross Cropped Area (tonnes)	
Cultivators-Labourers	Per cent of Cultivators to total population	2
	Per cent of Agri.labourers to total workers	
	<b>Total</b>	<b>25</b>

**Table 3.2. Rank of Madurai District in terms of agricultural development among other Districts of Tamil Nadu during 1990-91 to 2005-06**

Component of Composite Index		Crop-Area-Variables	Irrigation	Livestock-	Fisheries	Fertilizer	Cultivators-Labourers	Overall
Period	1990-91	1	8	22	-	-	16	5
	1995-96	9	13	18	14	1	21	7
	2000-01	10	12	6	15	2	21	3
	2005-06	11	16	16	19	7	23	16

## **CHAPTER - IV**

### **DEVELOPMENT OF AGRICULTURAL SECTOR**

#### **Introduction**

Madurai district has two revenue divisions, seven taluks and thirteen blocks. The taluks of Madurai district are Madurai North, Madurai South, Melur, Vadipatti, Tirumangalam, Peraiyur, Usilampatti and the blocks are Madurai East, Madurai West, Tiruparankundram, Melur, Vadipatti, Alanganallur, Tirumangalam, T.Kallupatti, .Kallikudi, Usilampatti, Chellampatti and Sedapatti. There are six agricultural divisions in Madurai district.

The predominant crop grown in the district is paddy and other major crops are Sugarcane, Banana, Maize, Groundnut, Pulses, Ragi, Gingelly, Coconut and Cotton.

#### **Position of Ongoing Schemes in Agriculture Department**

The Centre and State governments funded projects viz., integrated scheme for oilseeds, pulses, maize and intensive cotton development programme are in operation in this district.

#### **Major Interventions of Agriculture Development**

The department of agriculture has proposed the following interventions in the district agriculture programme.

1. Integrated Development of Paddy
  - Soil Health
  - Distribution of Certified seeds
  - Assistance to SRI
  - INM, IPM, FFS to farmers
  - Mechanisation – Power tiller, paddy planter, paddy harvester and tools set.

2. Integrated Development of Pulses
  - Soil Health
  - Distribution of Certified seeds
  - INM, IPM, FFS to farmers
3. Integrated Development of Cotton
  - Soil Health
  - Distribution of Certified seeds
  - INM, IPM, FFS to farmers
  - Mechanisation –tools for chemical spraying
4. Integrated Development of Groundnut
  - Soil Health
  - Distribution of Certified seeds
  - Gypsum application
  - INM, IPM, FFS to farmers
  - Storage Godown
5. Integrated Development of Millets
  - Soil Health
  - Distribution of Certified seeds
  - INM
6. Establishing State Seed Farm, Vinayakapuram
7. Establishing Seed Processing Unit, Sholavandan

#### **4.1. Soil Health**

The total red soil comprises 1,37,174 Ha, Black soil 7,60,64 Ha, Brown soil 5,17,24 Ha, Alluvial Soil 2,050 Ha in Madurai district. The soil types and the area covered is given in Table 4.1 and area under different problem soil categories is given in Table 4.2.

**Table 4.1. The Soil Types and the Area Covered**

Soil Type	Area (ha)
Redsoil	1,37,174 ha
Black soil	7,60,64 ha.
Brown Soil	5,17,24 ha.
Alluvial	2,050 ha.

Source-Soil Atlas Madurai District

**Table 4.2. Area under Different Problem Soil Categories**

Problem Soil Categories	Area (ha)
Saline Soil	Nil
Calcareous Soil	1,06,038 ha
Mild Alkaline (p <sup>H</sup> 7.4-7.8)	96,550 ha
Moderately Alkaline (p <sup>H</sup> 7.9 -8.4)	29,221 ha

Source : Soil Atlas Madurai District.

## 4.2 Water Resources and Management

The major sources of irrigation are canals, open wells tube wells and tanks.

**Table 4.3.Sources of Irrigation**

(Area in ha)

Sl. No	Source	2004-05	2005-06	2006-07
1	Canal	28089.00	36986.00	33421.74
2	Tank	14963.00	18306.00	21052.19
3	Tube well	763.00	634.00	392.52
4	Open well	33391.00	36319.00	31084.22
5	Others if any	-	-	1127.50
	<b>Total</b>	<b>77206.00</b>	<b>92245.00</b>	<b>87078.17</b>



### 4.3 Major Crops and Varieties of the District

**Table 4.4. Major Crops and Varieties in the District (2004-05)**

(Area in ha)

Name of the Crop	Rainfed	Dry	Area Irrigated	Season	Total
Paddy	-	-	60368	Kuruvai Samba Thaladi	60368
Cholam	10424	-	181	Kharif	10605
Combu	4772	-	429	Kharif	5201
Ragi	91	-	31	Kharif	122
Maize	730	-	96	Kharif	826
Varagu	293	-	2	Kharif	295
Samai	38	-	-	Kharif	38
Horse gram	3647	-	1	Kharif	3648
Red Gram	1017	-	8	Kharif	1025
Blackgram	1552	-	11	Kharif and Rabi	1563
Greengram	3888	-	67	„	3955
Gowpea	1596	-	0	„	1596

**Table 4.5. Major Crops and Varieties in the District (2005-06)**

(Area in ha)

Name of the Crop	Rainfed	Dry	Area Irrigated	Season	Total
Paddy	-	-	70996	Kuruvai Samba Thaladi	70996
Cholam	11586	-	498	Kharif	12078
Combu	4693	-	1010	„	5703
Ragi	138	-	49	„	237
Maize	1396	-	75	„	1471
Varagu	230	-	0	„	230
Samai	7	-	0	„	7
Redgram	1117	-	0	„	1117
Blackgram	1855	-	18	Kharif and Rabi	1873
Greengram	3795	-	148	„	3943
Cowpea	1752	-	4	„	1756

#### 4.4 Special Projects / Programmes Ongoing in the District

**Table 4.6 Special Projects / Programmes Ongoing in the District**

S. No.	Scheme	Component	Achievement			
			2006-07	No. of beneficiary	2007-08	No. of beneficiary
1.	ICDP	Seed distribution	12,27,000	11,433	12,00,000	11,180
		Demonstration	3,00,000	150	4,00,000	200
		IPM	3,56,000	630	1,70,000	300
		Training	1,56,000	1,200	1,00,000	200
		Bio-fertilizer	37,530	1,230	-	-
		MN Mixture	8,000	200	-	-
		<b>Total</b>	<b>21,35,530</b>	<b>14,843</b>	<b>18,70,000</b>	<b>11,880</b>
2.	ISOPOM Pulses	Seed Component	3,81,481	1,371	5,17,000	
		CBD	47,997	127	1,88,000	
		Bio-fertilizer	1,24,319	2,538	58,800	
		Sprayer	2,18,698	324	96,000	
		Pipeline	1,40,277	20	1,95,000	
		DAP spray	-	-	70,700	
		Training	30,000	100	75,000	
		Others (Sprinkler and Biocide)	3,82,463	2,325		
		<b>Total</b>	<b>13,25,235</b>	<b>6,805</b>		

#### 4.5. Constraint Analysis

Extent of yield gap : 40 per cent

##### a) Top Three Technologies Mostly Adopted

- i) High yielding variety cultivation
- ii) Application of micronutrients and gypsum
- iii) Integrated pest and nutrient management.

**b) Top Three Technologies Least Adopted**

- i) Soil Testing
- ii) Seed Treatment
- iii) SRI Technique in paddy

**Table 4.7 Agricultural Department – Budget Abstract**

(Rs.in lakhs)

<b>Components</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>Total</b>
Paddy	301.162	316.747	228.280	262.165	1108.354
Pulses	76.45	107.03	102.26	160.38	446.12
Cotton	29.31	42.75	53.89	64.96	190.91
G.nut	45.29	62.43	67.68	63.18	238.57
Millets	11.6	14.6	15.35	18.43	60.65
Fodder	4.5	7.0	9.5	12.0	33.0
State Seed Farm, Vinayagapuram	26.89	--	--	--	26.89
State Processing Unit, Sholavandan	17.50	--	--	--	17.50
<b>Total</b>	<b>512.702</b>	<b>550.557</b>	<b>476.96</b>	<b>581.115</b>	<b>2121.334</b>

## CHAPTER - V

### ALLIED SECTORS

#### 5.1. Horticulture

##### Position of ongoing Schemes in Horticulture Department

In Madurai district, during 2007-08, the horticulture development programmes were implemented through number of schemes viz., National Horticulture Mission, Integrated Horticulture Development Scheme, and Micro Irrigation. In Integrated Horticulture Development Scheme 50 percent subsidy was given to the farmers, by distribution of fruit plants, hybrid vegetable seeds, spices, flowers etc. National Horticulture Mission scheme is being implemented from 2005-06 with the following sub components viz., production of planting material, establishment of new garden, flowers, rejuvenation / replacement of sterile plantation, protected cultivation like green house, promotion of INM/IPM, organic farming and bee keeping.

##### 5.1.1. National Horticulture Mission

**Table 5.1. Progress Report for the Month of March 2008 (2007-08)**

Sl. No.	Components	Unit	Target		Achievement	
			Physical	Financial	Physical	Financial
	2007-08 Programme					
1	Establishment of New Garden					
	Fruits Perennial - Mango - I year	ha	1500	168.750	814.17	91.594
	Fruits Perennial - Aonla - I year	ha	500	56.250	330.49	37.180
	Mango II Year Maintenance	ha	440	19.800	50.80	2.286
	Aonla II Year Maintenance	ha	167	7.515		
	Mango III Year Maintenance	ha	1300	87.750	58.30	3.935
	Aonla III Year Maintenance	ha	0	0.000		
	Fruits Non Perennial - Banana - I year	ha	200	15.000	191.80	14.385
	Banana II Year Maintenance	ha	201	6.030		
	Banana III Year Maintenance	ha	0	0.000		
	(A) Cut Flowers					
	a. Small & Marginal Farmers	ha	0	0.000		
	b. Other farmers	ha	0	0.000		
	(B) Bulbous Flowers					
	a. Small & Marginal Farmers	ha	75	33.750	88.73	39.928
	b. Other farmers	ha	0	0.000		
	(C) Loose Flowers					
	a. Small & Marginal Farmers	ha	150	18.000	113.57	13.628
	b. Other farmers	ha	0	0.000	3.59	0.284
	Sub Total		4533.00	412.845	1651.45	203.220

Table 5.1.Contd...

Sl. No.	Components	Unit	Target		Achievement	
			Physical	Financial	Physical	Financial
	<b>Upto Previous page total</b>		<b>4533</b>	<b>412.845</b>	<b>1651.45</b>	<b>203.220</b>
	<b>Spices</b>					
	Turmeric	ha	0	0.000	0.00	0.000
	Chillies	ha	400	45.000	400.00	45.000
	<b>Aromatic Plants</b>	ha	0	0.000	0.00	0.000
	<b>Medicinal Plants</b>	ha	50	5.625	29.75	3.347
	<b>Plantation crops including coastal horticulture</b>					
	Cashew - I Year	ha	100	5.625	10.00	0.563
	Cocoa	ha	200	11.250	10.00	0.205
	Cashew II Year maintenance	ha	0	0.000	0.00	0.000
	Cashew III Year maintenance	ha	0	0.000	0.00	0.000
2	<b>Rejuvenation/ replacement of senile plantation</b>					
	Mango	ha	800	60.000	457.15	68.573
	Cashew	ha	0	0.000	0.00	0.000
3	<b>Creation of Water Resources</b>					
	Community tanks, ponds, on farm reservoirs with use of plastic lining	No.	10	100.000		
4	<b>Promotion of INM/IPM</b>					
	Promotion of INM/IPM	ha	1000	10.000	301.05	3.011
5	<b>Organic Farming</b>					
	1. Adoption of organic farming	ha	500	50.000	395.96	39.596
	2. Vermi compost units	No.	15	4.500	9.00	2.700
6	<b>Pollination support through beekeeping</b>					
	a. Distribution of colonies with hives	No.	50	0.400	50.00	0.400
	<b>Total</b>		<b>3125</b>	<b>292.400</b>	<b>1662.91</b>	<b>163.395</b>
	<b>Grand Total</b>		<b>7658</b>	<b>705.245</b>	<b>3314.36</b>	<b>366.615</b>

## 5.1.2. Integrated Horticulture Development Scheme

Table 5.2. Integrated Horticulture Development Scheme - Achievement Details as on 31-3-2008

Sl. No.	Name of the Component	General				SC				ST				Total			
		Target		Achievement		Target		Achievement		Target		Achievement		Target		Achievement	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Fruits	35	2.070	60.90.7	2.070	35	1.915	67.640	2	-	-	-	-	70	3.985	128.54	3.985
2	Vegetables	250	2.230	293.40.0	2.230	70	0.278	5.100	0.278	-	-	-	-	320	2.508	298.5 800 Nos.	2.508
3	Flowers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	Spices	50	0.485	58.00.0	0.485	12	0.121	15	0.121	-	-	-	-	62	0.606	73.00	0.606
5	Plantation Crops	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Others	-	0.152	12.77.9	0.152	-	-	-	-	-	-	-	-	-	0.152	12.77.9	0.152
	Total	335	4.937	425.08.6	4.937	117	2.314	87.74	2.314	-	-	-	-	452	7.251	512.81 800 Nos	7.251

### 5.1.3. Micro Irrigation

**Table 5.3. Micro Irrigation 2007-08 - Achievement Details as on 31-3-2008**

Sl.No.	Department	Crop	Area	50 percent Subsidy Amount
1	Horticulture	Horticulture Crops	116.80.0	1349692
2	Sugar Mills	Sugarcane	72.55.0	1984150
3	Agriculture	Coconut	29.96.5	288420
	<b>Total</b>		<b>219.31.5</b>	<b>3622262</b>

### Major Interventions of Horticulture Development

- Net House Structure
- Pandal for vegetable production
- Package for plant protection
- Plastic Crates for Vegetable handling and transport
- Farm waste shredder / vegetable waste Shredder
- Borewell with casing pipe
- Humic acid / Effective E Microbes
- Extraction of net for production of disease free planting material
- Support system for crops
- Mango Harvester
- Sales outlet point in district - Rent and infrastructure
- District level farmers workshop
- Exposure visit for five days
- 10 ha Mega Demonstration Plot
- Package for plant protection

## 5.2 Animal Husbandry

### I. Baseline Information of Livestock/Poultry Sector of the Districts

(Source : Integrated Sample Survey Estimation of Milk, Egg & Meat production for 2006–07, 30<sup>th</sup> report of Directorate of Animal Husbandry & Veterinary Services, Chennai – 6).

#### i) Population (2004)

Cattle	:	226507
Buffalo	:	12380
Sheep	:	216416
Goat	:	238588
Pigs	:	3260
Poultry	:	685529

### II) Production

#### a) Cattle (Total milk production for the year 2006-07 – '000 tonnes)

Indigenous	:	12.592
Exotic & Cross bred	:	143.372
Buffalo	:	13.628
Total milk production	:	169.592

#### b) Egg (in lakh Nos)

Desi eggs	:	153.869
Improved eggs	:	17.996



**c) Meat (in 1000 tonnes)**

From registered slaughtered houses

Beef	:	0.425
Carabeef	:	0.019
Mutton	:	1.377
Chevon	:	0.355
Poultry	:	1.409

From unregistered slaughtered houses

Beef	:	0.069
Mutton	:	0.481
Chevon	:	0.802

**iii) Productivity (for the year 2006-07)**

Cattle (Milk yield (kgs) /day/animal)

Indigenous cows	:	2.974
Exotic & Cross bred	:	6.196
Buffalo	:	4.195

**iv) Growth rate**

Desi egg	:	21.57
Improved egg	:	20.45
Indigenous cow	:	2.58
Cross bred cow	:	- 0.07
Buffalo	:	-1.02

**v) Feed and Fodder availability****Demand and Supply of Fodder (2004) Million Ton Per Year**

<b>Fodder</b>	<b>Demand</b>	<b>Supply</b>	<b>Deficit</b>	<b>Deficit per cent</b>
Green Fodder	2.0008	0.2538	1.747	87.3
Dry Fodder	0.747	0.670	0.077	10.3

**Number of Breedable Bovine Population (2004)**

(Source : Integrated Sample Survey Estimation of Milk, Egg & Meat production for 2006 – 07, 30<sup>th</sup> report of Directorate of Animal Husbandry & Veterinary Services, Chennai-6)

Indigenous cows	:	25,800
Cross bred	:	80,800
Buffalo	:	11,900
Total	:	1,18,500

**Number of AI done (for the year 2007-08)**

Aavin, Madurai	:	72413
DAH, Madurai	:	95462

**SWOC Analysis****Dairy Farming : (Cattle and Buffalo )****Strength**

- Growing demand for milk and daily / weekly income / easy maintenance
- Increased farmers preference towards dairying
- Excellent established dairy co-operative society network.
- Procurement of milk by Govt. / Private entrepreneurs / vendors
- Conducive atmosphere for dairy farming / Loan facilities / hide export potential
- Dung for organic farming.

**Weakness**

- Economic status of the farmer.
- Fodder shortage ( Green fodder – 87.3per cent & dry fodder 10.3per cent).
- Insufficient veterinary institutions ( required – 59, available – 44, deficit – 15 )
- Low milk price offered by milk men and vendors
- Reluctance in technology adoption for increased milk production, augmenting fertility, deworming and required vaccination and reluctance to produce clean milk
- Lack of awareness about feeding of micro-nutrients for dairy cows.
- Non availability of A.I. service in time and also door to door
- Non availability of labour

**Opportunities**

- Huge demand for fluid milk and milk products in the district.
- There is scope for fodder development in the district
- Rural women SHGs can be involved in the animal husbandry sector.

**Challenges**

- Diminishing pasture land , deficit of green fodder is 87.3 per cent
- Increasing cost of dairy feed ingredients
- Shortage of labour due to higher labour cost
- Diseases such as Anthrax, HS, BQ, FMD often demoralize the farmers
- Mastitis and lack of inclination towards clean milk production.

**vi) Small Ruminants Farming: (Sheep and Goat)****Strength**

- Consumers most preference
- High demand
- Fetches higher cost

- Easy flock management
- Very easy market
- Dung for organic farming, hide export
- Low investment cost.

**Weakness**

- Scarcity of fodder
- Insufficient veterinary institutions ( required – 59, available – 44, deficit – 15 )
- Reluctance in technology adoption for health cover ,augmenting fertility, deworming and required vaccination
- Improper / insufficient shelter leads to low productivity, disease problems
- Social banning on goat rearing
- Very poor slaughter hygiene, unauthorised slaughter
- Labour shortage

**Opportunities**

- Huge demand for mutton and chevon in the district.

**Challenges**

- Diminishing pasture land , deficit of green fodder is 87.3 per cent
- Shortage of labour due to higher labour cost
- Diseases such as Anthrax, Blue tongue, PPR, Sheep pox, ET often demoralize the farmers
- Mastitis and lack of inclination towards clean milk production.

**vii) Poultry Farming****Strength**

- Rural women's interest towards back yard poultry
- Growing demand for desi chicken and eggs.

- Low cost of production
- Premium price for desi chicken and desi eggs
- Easy marketing
- Social belief in improved nutritional value in desi chicken and eggs.
- Poultry droppings for vermicompost / organic farming

**Weakness**

- Traditional way of poultry rearing and reluctance to feed with nutrient rich feed, sufficient grains, etc.
- Insufficient veterinary institutions ( required – 59, available – 44, deficit – 15 )
- Reluctance in immunizing the birds due to laziness and possessing few number of birds

**Opportunities**

- Supplementing feed/grains/micronutrients to increase production of birds/eggs
- Establishing custom hatching units in rural women households to energise rural women economy through desi chicken production, rearing and marketing.
- Scope for commercial broiler farming.
- Knowledge and technology empowerment of farmers / rural women (SHGs) on scientific way of poultry rearing for revenue generation.
- Registration / updating farmers database and issuing Cards for incentives, for grains/concentrates/immunization cover and preference for tour, etc.

**Challenges**

- Fluctuation in broiler chicken / farm egg rate
- Unhygienic slaughter of birds
- Lack of bio-security and spread of poultry disease related rumours.

**viii) Others****Strength**

- Interest of some consumers to taste other poultry meat

**Weakness**

- Reluctance to consume other poultry meat /eggs
- Reluctance to rear other poultry species.

**Opportunities**

- Supplementing feed/grains/micronutrients to increase production of birds/eggs
- Registration / updating farmers database and issuing Cards for incentives, for feed/immunization cover and preference for tour, etc.

**Challenges**

- Seasonal marketing
- Unhygienic slaughter

**II. Ongoing Government Development Schemes for Livestock and Poultry (Both State and Central)**

AHD : Assistance from State in Control of Animal Diseases ( 75 per cent central government fund and 25 per cent state government fund ) to control endemic livestock diseases ( FMD & PPR) in intensive way / Farmers training on livestock diseases and their prevention and control.

**III. Interventions Required Areas****a) Feed and Fodder Development for Livestock**

The deficit of green fodder is 87.3 per cent and the dry fodder is 10.3 per cent to meet out the requirement of large and small ruminants to augment their production.

Fodder cultivation may be encouraged to meet the requirements in private/ community lands. To achieve this,

- i) The village fodder nursery will be developed
- ii) The registered and interested farmers will be encouraged to cultivate green fodder in their lands by providing fodder slips, seeds and seedlings at free of cost.
- iii) The chaff cutter will be provided @ one chaff cutter / village to chop and feed the fodder to the livestock to avoid wastage and also to improve digestibility.

**b) Genetic Upgradation of Sheep and Goat**

The goat and sheep farmers are maintaining the local goats/ sheep only under traditional production system. For the genetic upgradation of the local breed the elite bucks and rams will be provided which inturn improve their productivity.

**c) Improvement of Livestock Health**

- i) Feeding of livestock with micronutrients (mineral mixture) to augment fertility and also to improve their health.
- ii) Proper immunization of the livestock and poultry based on the calendar recommended to the locality by Animal Husbandry Department.
- iii) Disease surveillance will be carried out. Based on the disease surveillance epidemiological data will be collected with help of Animal Husbandry Department and analysed to evolve endemic chart for various livestock diseases and comprehensive health cover strategy will be evolved for the livestock to improve the economy of the farmers.

**d) Strengthening of Aavin, Madurai by Providing Automatic Milk Collection Units and Milk Chilling Plants**

Since the milk is a perishable product the farmers sell their milk at lower price to the milk men and vendors. To avoid milk men milk chilling plants and automatic milk collection units may be established to sell the milk for better price to the government societies.

**e) Extension Services**

- i) On campus and off campus trainings programmes, village awareness programmes may be given to the needy farmers for the dissemination of the scientific technologies on various livestock management.
- ii) Specialised training programmes to the officers of line departments may also be given.
- iii) Field visits, MCP, infertility camps, farmers workshop , conference etc., may be conducted for the benefit of farming community.
- iv) Strengthening the infrastructure of existing units:
  - a) Strengthening the veterinary institutions with basic facilities like fencing, borewells, water troughs etc.
  - b) Veterinary University Training and Research Centre, Madurai, Department of Animal Husbandry, Madurai and Madurai district co-operative milk producers Union require strengthening the infrastructure of existing units and expansion of ongoing development schemes pertaining to capacity building of rural farmers, milk chilling, preparation of value added milk products, handling the excess milk during flush season, encouraging rural dairy farmers to produce more milk so as to earn more profit. Facilities for the above programmes are included. Automatic milk units in selected Aavin societies for producing clean milk.

**5.3 Fisheries****I. Baseline Information**

Total area	:	3741.73 km <sup>2</sup>
Population	:	24 Lakhs
Inland Fishermen	:	5986
Rain fall	:	827.1 mm.



Type of water body	No	Total WSA (ha.)
Reservoir (Sathiyar )	1	90.08
Major irrigation tanks	1528	38219
Minor irrigation tanks	390	552
Village tanks & ponds	290	1773
Temple tanks	40	18.55
Farm ponds	50	4.50
Sewage fish farm	1	1.34
Private Fish farm	14	12.94
No. of tanks (FFDA)	41	214.23 ha
No. of tanks (Intensive Inland fish culture)	176	7976.08 ha

Present fish culture production	-	2000 tonnes / Annaum
Present capture fisheries production	-	1000 tonnes / Annaum
Potential fisheries production	-	9,000 tonnes / Annaum
Fish seed demand	-	193 lakhs / Annaum

### Strength

- ❖ Nearly 1528 irrigation tanks of about 38200 ha.
  - ❖ Periyar – Vaigai river system FFDA Popularising fish culture technique
  - ❖ 217 tanks with 8190.31 ha area under the direct control of Fisheries Department and FFDA.
- 
- ❖ Present fish culture production – 2000 tonnes / annum
  - ❖ Present capture fisheries production – 1000 tonnes / annum
  - ❖ Potential fisheries production – 9,000 tonnes / annum
  - ❖ Fish seed demand – 193 lakhs / annum

**Weakness**

- ❖ Madurai District receives water mostly from North-East monsoon rains and through Periyar –Vaigai river system. Hence fish culture is common during October to June every year.
- ❖ Fish seed production / Rearing is not adequate.
- ❖ Post harvest infrastructure is limited to ice plants only. No cold chain is available since the public prefer fresh fishes only.
- ❖ Though 5 year leasing of fishery right is emphasized in respect of irrigation tanks, majority of the tanks are leased out for one year only that too at the fag end of the fish culture period / February – April every year. In such cases, fish culture practice is not possible
- ❖ Major carp breeding season and water availability period in tanks do not coincide
- ❖ Inadequate infrastructure facilities for seed rearing and fish marketing

**Opportunities**

- Stocking good quality seeds could enhance inland fish production and good management practices both in reservoirs and tanks.
- New carp and freshwater prawn farming
- Ornamental fish farming units could be increased to meet out the export market.

**Challenges**

- Inadequate supply of carp seeds.
- Inadequate supply of live food to ornamental fish culturists, traders and hobbyists
- Incidence of diseases in ornamental fish farming.

## **II. On going Government Development Schemes for Fisheries**

### **Schemes Pertaining to Inland Fisheries Development**

- Fishermen Group Accidental Insurance – (Central scheme)
- Fishermen savings – cum Relief scheme
- Anna Marumalarichi Thittam – All Villages
- IAMWARM –
- Fisheries Development Minior programme – popularization of scampi culture
- Interior inland fish culture & marketing schemes.

### III. Intervention Required Areas

- ❖ Infrastructure development to attain self sufficiency in seed production through private & Government.
- ❖ Expansion of fish culture in unutilized water bodies.
- ❖ Infrastructure development to modernize existing marketing facilities in key areas.
- ❖ Provision of support to retail fish marketing.
- ❖ Fish seed production / rearing in private sector should be encouraged.
- ❖ Encouraging fish culture activity - by extending 50 per cent subsidy on inputs.
- ❖ Establishment of Aquaculture Information and Extension Centre for hi-tech technology transfer.
- ❖ Infrastructure development for capacity building.

### 4 Agricultural Engineering

The Agricultural Engineering Department implemented Western Ghats Development Programme, Rain Water Harvesting and Run off Management Under SCS, Agricultural Mechanization Programme and Centrally Sponsored Micro Irrigation Scheme on MIS in the year 2007-08.

#### Major Interventions of Agricultural Engineering Development

- ❖ Introduction of Newly Developed Agricultural Machine & Implements
- ❖ Innovative water harvesting structures
- ❖ Popularization of Agrl. Mechanisation through Conventional Machinery / Equipments
- ❖ Water Harvesting Structures
- ❖ Soil Conservation work
- ❖ Water Management works

## **5.5 Agricultural Marketing**

### **Major Interventions of Agricultural Marketing**

The following interventions are proposed under Agricultural Marketing to ensure returns to the farmers and improve their living condition.

- Establishment/ organization of commodity groups for marketing in the State
- Facilitation of Contract Farming between farmers and bulk buyers in the State
- Dissemination of Market intelligence
- Arrangement of Buyers - Sellers Meet
- Organizing the exposure visits to important markets within the state and outside the state by commodity groups / farmers and extension functionaries.
- Strengthening of market extension centre at each district/ block level for capacity building and dissemination of marketing information.
- Strengthening of selected village shandies
- Capacity building of farmer's skill
- Price surveillance
- Regulated Market and uzharvar Shandies Publicity
- Market Infrastructure

## **5.6. Agricultural Credit**

### **5.6.1. Credit Disbursement**

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

#### **I. Policy Innovations of Government of India:**

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

#### **II. Policy initiatives of Reserve Bank of India:**

1. Guidelines on Priority Sector Lending (PSL) revised enlarging its scope.
2. Limits for loans under DRI scheme raised from Rs.6500 to Rs.15000 and that for housing loan under scheme from Rs.5000 to 20000.

3. CBs/RRBs to introduce on a pilot basis in one district, a simplified cyclical credit product whereby the farmers can use core component of 20 per cent of credit limit throughout the year, provided interest is serviced.
4. Banks are allowed to utilize the services of retired bank / Government employees and ex-servicemen as business correspondents.

### **III. Policy and Development Initiatives of NABARD:**

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

### **IV. Policy Initiatives of Government of Tamil Nadu:**

1. Rs.1150 crores allocated in 2008-09 for compensating co-op. banks for waiver of crop loans.
2. It is proposed to disburse new crop loans to the tune of Rs.1,500 crores during 2008-09.

3. The rate of interest on crop loan reduced from five per cent to four per cent for prompt repayments in 2008-09.
4. Rs.40 crores to provide 50 per cent Insurance Premium for 25 lakhs farmers towards crop insurance.
5. SRI cultivation of paddy to be extended to all districts at an estimated cost of Rs.64 crores.
6. 25 per cent subsidy to farmers for purchasing farm machinery under NADP.
7. Afforestation Programme in 51,500 hectares at a cost of Rs.113 crores. 1,000 check dams and 300 percolation ponds to be constructed throughout the State. Rupees three crores provided for forest roads. Rs.10 crores allocated for planting one crore saplings in private lands.
8. Tamil Nadu Co-operative Milk Producers Federation to provide 10,000 crossbred milch animals to Women Self Help Groups in 200 villages covering 5000 women. This scheme will be implemented at a cost of Rs.22 crores for a period of two years.
9. IAMWARD Project extended to another 16 sub-basins.
10. Construction of 48,500 checkdams and percolation tanks in 232 over exploited blocks for conserving ground water at a cost of Rs.550 crores.
11. State Government to open 4 SEZs in Tirunelveli, Tiruvannamalai, Erode and Vellore Districts.
12. A sum of Rs.504 crores is allocated under “Anaithu Grama Anna Marumalarchi Scheme” for undertaking basic infrastructure related works in 2521 village panchayats.
13. Rs.50 crores provided in 2008-09 for 1625 community developmental works under ‘Namakku Naame Thittam’.

Activity wise credit disbursement and projection under agricultural and allied sectors in Madurai district is furnished in Table 5.5

**Table 5.5 Activity Wise Credit Disbursement and Projection under Agricultural and Allied Sectors in Madurai District**

(Rs in Lakhs)

Sectors	2008-09	2009-10	2010-11	2011-12
Crop loan	72172.34	75780.96	79570.00	83548.51
Term loan		0.00	0.00	0.00
Micro Irrigation	2088.65	2193.08	2302.74	2417.87
Land Development	1199.83	1259.82	1322.81	1388.95
Farm Mechanization	4412.60	4633.23	4864.89	5108.14
Plantation & Horticulture	3010.00	3160.50	3318.53	3484.45
Forestry & Waste land Development	425.80	447.09	469.44	492.92
Dairy Development	4645.90	4878.20	5122.11	5378.21
Poultry	468.64	492.07	516.68	542.51
Sheep/Goat/Piggery	277.17	291.03	305.58	320.86
Fisheries	63.36	66.53	69.85	73.35
Storage Godown & Market yards	240.32	252.34	264.95	278.20
Bio-gas	0.00	0.00	0.00	0.00
Sericulture	0.00	0.00	0.00	0.00
Others	869.17	912.63	958.26	1006.17
Sub total - Term loan	17701.44	18586.51	19515.84	20491.63
Total Agriculture Credit (1+2)	89873.78	94367.47	99085.84	104040.14
Non Farm sector	25997.87	27297.76	28662.65	30095.78
Other Priority Sector	32197.91	33807.81	35498.20	37273.11
Grand Total	148069.56	155473.04	163246.69	171409.03

From the table it could be seen the projected flow of credit disbursement for agriculture and allied sectors during 2009-10, 2010-11 2011-2012 would be Rs. 155473.04, Rs. 163246.69 and Rs. 171409.03 lakhs respectively. The total flow of agriculture credit in terms of crop loan and term loan in 2011-12 would be Rs. 104040.14 lakhs. The flow of credit for non-farm sector and other priority sectors in 2011-12 would be Rs. 30095.78 and Rs. 37273.11 lakhs respectively.



## CHAPTER - VI

### DISTRICT PLAN

#### 6.1 Agriculture

##### Introduction

In paddy, pulses, cotton, groundnut and millets, the production and the productivity are to be increased by adopting the following.

- a) Maintenance of soil health
- b) Use of Bio fertilizers
- c) Integrated Nutrient Management
- d) Integrated Pest Management
- e) DAP Spray for Pulses
- f) Use of new Agricultural Machineries
- g) Exposure visits
- h) Improving Infrastructural Facilities at State Seed farms

The budget abstract followed by project wise details are furnished below.

**Table 6.1 Budget Abstract for Agriculture – 2008 to 2012**

(Rs. in lakhs)

S.No	Particulars	2008-09	2009-10	2010-11	2011-12	Total
1.	Increasing the production and productivity of paddy	301.162	316.747	228.280	262.165	1108.35
2.	Increasing the production of millets	11.60	14.600	15.35	19.100	60.65
3.	Increasing the production of pulses	76.45	107.03	136.05	159.8	479.33
4.	Increasing the production of cotton	29.31	42.75	53.88	64.962	190.902
5.	Increasing the production of groundnut	45.287	62.43	67.675	63.175	238.567
6.	Increasing the production of fodder	4.50	7.00	9.50	12.00	33.00
7.	Improvement of seed processing unit and state seed farm	44.392	-	-	-	44.392
	<b>TOTAL</b>	<b>512.701</b>	<b>550.557</b>	<b>510.735</b>	<b>581.202</b>	<b>2155.20</b>

### **6.1.1. Increasing the Production and Productivity of Paddy**

#### **i) Background**

In Madurai district, Paddy is cultivated in Kuruvai, Samba and Navarai seasons covering total area of 65,000 ha. Out of the total area 14per cent of the area (9000 ha.) is cultivated in Kuruvai, 66per cent of the area (43,000 ha.) is in Samba and the remaining 20per cent area ( 13,000 ha.) is cultivated in Navarai. The major source of irrigation is Periyar and Vaigai rivers along with tubewells, tanks and openwells. The productivity of rice is 3959 kg./ha.

#### **ii) Project Rationale**

##### **Scope for Increasing the Area Under Paddy**

In Madurai district around 40000 ha is now cultivated under canal system. The farmers are well experienced in cultivating paddy. At present direct procurement by Tamil Nadu Civil Supplies Corporation at the rate of Rs. 8.25 per Kg. is profitable to the farmers. The paddy straw is also valuable to the farmers as cattle feed and also has good market value. There is a scope for better water management practices in paddy cultivation in the District. The major cultivating season happens to be in Samba which coincides with the North-East monsoon for the preparation of field as well as nursery rising.

#### **iii) Project Strategies**

- ❖ In paddy, the System of Rice Intensification (SRI) can be popularized to increase the area.
- ❖ Introduction and popularization of High Yielding varieties of Paddy in this district.
- ❖ TANWABE and Farmers Interest Groups can be motivated to produce certified seeds by giving assistance as subsidy.
- ❖ Distribution of new High Yielding varieties of seed mini-kits also helps to increase the area under new varieties.

- ❖ Distribution of Green Manure Seeds also facilitates the farmers to reduce the fertilizer cost.
- ❖ Distributions of micro nutrient mixtures, gypsum will also increase the productivity and production.
- ❖ Farmers Field Schools are not only reducing the Plant Protection cost and also helps the farmers in organic farm production
- ❖ Rat control also reduces the post harvest loss to paddy growing farmers.

#### iv) Project Goal

The proposed components in this project aim to increase the area and productivity under Paddy by 15 percent to 20 per cent.

#### v) Project components

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

- 1) Soil Reclamation with gypsum
- 2) Organic farming - Green manures, Bio-fertilizers
- 3) Seed distribution subsidy for the seeds
- 4) INM - 1. MN Mixture distribution  
2. ZnSo<sub>4</sub> distribution
- 5) Integrated Pest Management
- 6) Machineries
  1. Power Tiller
  2. Transplanter
  3. Marker
  4. Conoweeder
- 7) SRI - System of Rice Intensification
- 8) Others:
  1. Exposure visit outside the country
  2. Exposure visit within the country
  3. Farmers study tour
  4. Farmers Training

5. Taurpaulin
6. LCD Projector
7. Digital Camera
8. Xerox Machine
9. V- Sat connection

#### vi) Project Cost and Financing

The budget requirement for the year 2008 - 09 is Rs.301.162 lakhs and the total budget requirement for three years from 2009 - 2012 is Rs.807.192 lakhs. The detailed component wise budget is given at the end of this chapter.

#### vii) Project Implementation Chart

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

#### viii) Reporting

Monthly report of the progress made will be sent to the Commissioner of Agriculture, Chennai every month and annual consolidated report of the progress will be submitted to the Commissioner of Agriculture, Chennai.

**Table 6.2 Budget Proposal for Increasing Production and Productivity of Paddy**  
(Rs.in lakhs)

S. No	Technologies Identified	Subsidy Pattern	2008-09			2009-10			2010-11			2011-12		
			No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost	No. of units	Cost /Unit	Total cost
	1.A Soil Health													
	Soil reclamation with gypsum	100per cent	500ha	1500	7.5 lakhs	2000ha	1500	30.000	2500 ha	1500	37.500	3000 ha	1500	45.000
B.	<b>Organic farming</b>													
	1.Green manures	50per cent	5000 ha	500	12.500	10000 ha	500	25.000	10000 ha	500	25.000	10000 ha	500	25.000
	<b>2.Bio-fertilisers</b>													
2	<b>Seed</b>													
	Seed distribution	50per cent	14000 ha	800	56.000	14000 ha	800	56.000	14000 ha	800	56.000	14000 ha	800	56.000
3	<b>INM</b>													
	1.MN Mixture distribution	50per cent	500 ha	300	0.750	600 ha	300	0.900	600 ha	300	0.900	600 ha	300	0.900
	2.Zn So4 distribution	50per cent	500 ha	900	2.250	600 ha	900	2.700	600 ha	900	2.700	600 ha	900	2.700
4	<b>IPM</b>													
	FFS	100per cent	10	17000	1.700	20	17000	3.400	25	17000	4.250	30	17000	5.100
5	<b>Machinery</b>													
	I. Power Tiller	50per cent	30	125000	18.750	35	125000	21.875	40	125000	25.000	50	125000	31.250
	II. Transplanter	75per cent	5	125000	4.687	5	125000	4.687	5	125000	4.687	10	125000	9.375
	III. Marker	75per cent	5000	750	28.125	5000	750	28.125	0	750	--	0	750	--
	IV. Cono weeder	75per cent	5000	1300	48.750	5000	1300	48.750	0	1300	--	0	1300	--
	V. Leveller	75per cent	5000	1000	37.500	5000	1000	37.500	0	1000	--	0	1000	--

Table 6.2 contd.....

(Rs.in lakhs)

S. No	Technologies Identified	Subsidy Pattern	2008-09			2009-10			2010-11			2011-12		
			No. of units	Cost/ Unit	Total cost (lakhs)	No. of units	Cost/ Unit	Total cost (lakhs)	No. of units	Cost/ Unit	Total cost (lakhs)	No. of units	Cost /Unit	Total cost (lakhs)
6	Technologies													
	SRI	100percent	1000	3000	30.000	1000	3000	30.000	1000	3000	30.000	1000	3000	30000
7	Others													
	I.Exposure visits - Officers outside the Country		5	150000	7.500	5	150000	7.500	10	150000	15.000	15	150000	22.500
	II.Exposure visits - Officers within the Country		10	50000	5.000	20	50000	10.00	30	50000	15.000	40	50000	20.000
	III. Farmer study tour		20	5000	1.000	40	5000	2.00	50	5000	2.500	60	5000	3.000
	IV. Farmers training		10	10000	1.000	15	10000	1.50	20	10000	3.000	30	10000	4.500
	V.Taupalin	75per cent	100	7000	5.250	100	7000	5.250	100	7000	5.25	100	7000	5.250
	VI. LCD Projector		14	100000	14.000	~	~	~	~	~	~	~	~	~
	VII.Digital camera		14	10000	1.400	~	~	~	~	~	~	~	~	~
	VIII. Xerox machine		14	100000	14.000	~	~	~	~	~	~	~	~	~
	V sat connection		1	250000	2.500	1	150000	1.500	1	150000	1.500	1	150000	1.500
	<b>Total</b>				<b>301.162</b>			<b>316.747</b>			<b>228.280</b>			<b>262.165</b>

### **6.1.2. Increasing the Production of Millets**

#### **i) Background**

In Madurai district, millets like fodder sorghum cultivated approximately in an area of 40000 ha, mostly under rainfed condition. The productivity of millet in this district is around 1700 kg /ha. since the availability of fodder is in short day by day, importance should be given to increase the area, production and productivity under fodder sorghum.

#### **ii) Project Rationale**

##### **Scope for Increasing the Area and Productivity Under Millets**

In Madurai district, there is a good scope for cultivation of millets especially maize and cumbu. Sorghum is also getting momentum in rainfed areas. In blocks like Vadipatti, Alanganallur, Tirumangalam, Sedapatti, Soil is suitable for maize and other millets.

#### **iii) Project Strategies**

- To assess the soil fertility soil analysis is done and maintaining soil health soil health cards will be supplied
- To popularize the new technologies in the farmers field technology demonstrations will be done in the farmers holdings.
- In order to make the soil healthy soil reclamation measures may be done.
- Bio fertilizers and micro nutrient mixtures can be given to the farmers under subsidized cost.
- To increase the Productivity by distribution hybrid and certified seeds in a subsidized rate.
- By adopting Integrated Nutrient Management, the yield maximization may be achieved.

#### **iv) Project Goal**

The proposed components in this project aim to increase the area and productivity under millet by 15 per cent to 20 per cent.

**v) Project Components**

To achieve the above goal the following components are proposed for this district in sorghum cultivation.

- 1) Distribution of Hybrid seeds, High Yielding Variety seeds at 100per cent subsidy
- 2) Laying of Technology Demonstration Plots for Millets under 100per cent subsidy
- 3) Distribution of Micro Nutrient Mixtures Bio fertilizer under 100per cent subsidy
- 4) Issuing of soil health card reclamation and Vermi Composting
- 5) INM practices may be advocated by giving farmers Training.

**vi) Project Cost and Financing**

The budget requirement for the year 2008 - 09 is Rs.11.60 lakhs and the total budget requirement for three years from 2009 - 2012 is Rs.49.05 lakhs. The detailed component wise budget is given at the end of this chapter.

**vii) Project Implementation Chart**

S. No.	Component	Month of Operation
1)	Village Campaigns and training to farmers	August
2)	Distribution of Hybrid seeds, High Yielding Variety seeds at subsidy rate	August, September
3)	Selection of beneficiaries and laying of Demonstration plots	June, July and December, January
4)	Distribution of Micro Nutrient Mixtures and Bio Fertilizers	August

**viii) Reporting**

Monthly report of the progress made will be sent to the Commissioner of Agriculture and annual consolidated report of the progress will be submitted to the Commissioner of Agriculture, Chennai at the end of financial year.



Table 6.3 Budget Estimate for Increasing Production of Millets

(Rs. in lakhs)

S. No	Technologies Identified	Sub-sidy Pattern	2008-09			2009-10			2010-11			2011-12		
			No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost
1.A	Soil Health													
	a. Soil Health card	100per cent	1000	20	0.200	1000	20	0.200	1000	20	0.200	1000	20	0.200
2	Seed													
	A.Hybrid Seed distribution	75per cent	500 ha	1500	5.625	600 ha	1500	6.75	500 ha	1500	5.625	500 ha	1500	5.625
	b.Variety Seed distribution	50per cent	200 ha	150	0.1500	200 ha	150	0.150	200 ha	150	0.150	200 ha	150	0.150
3	Irrigation													
4	INM													
	MN Mixture	100per cent	300 ha	375	1.125	300 ha	375	1.125	300 ha	375	1.125	300 ha	375	1.125
	Bio-fertiliser	100per cent	500 ha	150	0.75	500 ha	150	0.75	500 ha	150	0.75	500 ha	150	0.750
6	Technologies													
	CBD	100per cent	10 Nos	37500	3.750	15 Nos.	37500	5.625	20 Nos	37500	7.500	30 Nos.	37500	11.250
	<b>Total</b>				<b>11.6</b>			<b>14.600</b>			<b>15.35</b>			<b>19.100</b>

### **6.1.3. Increasing the Production of Pulses**

#### **i) Background**

In Madurai district pulses is cultivated in an area of around 24450 ha. during the months of June-July. The soil is highly suitable for cultivation of pulses. The South-West monsoon is irregular in most of the time leading to poor yield and loss to the farmers. The average productivity is 450Kgs/ha.

#### **ii) Project Rationale**

Scope for increasing the productivity under pulses.

Major area under pulses is covered by older varieties. Farmers are well experienced in pulses cultivation under rainfed areas and suitable marketing infrastructure is not available.

#### **iii) Project Strategies**

- To improve the productivity under pulses, new High Yielding Varieties seeds are to be distributed to farmers under subsidized cost.
- Breeder seeds to be purchased and distributed to pulse cultivators for production of certified seeds and the same to be redistributed to pulses farmers for further multiplication under subsidy.
- Inputs like micro nutrient mixtures, bio fertilizers, gypsum to be given to the farmers at subsidized cost.
- Conveyance of water - pipeline
- Post harvest loss is more because the harvest coincides with the North-East monsoon.
- Vermi Composting

**iv) Project Goal**

The proposed components in this project aim to increase the area and productivity under pulses crop.

**v) Project Components**

To achieve the set goals the following components are proposed for this district in rainfed pulses crop cultivation.

- 1) Production and distribution of Certified seeds under subsidy
- 2) Vermi Composting
- 3) Distribution of Bio fertilizer, Gypsum and Micro Nutrient Mixtures under subsidy
- 4) Distribution of Water- Conveyance, Pipelines
- 5) Conducting Block demonstration - INM, IPM Demonstration

**vi) Project Cost and Financing**

The budget requirement for the year 2008 - 09 is Rs.76.45 lakhs and the total budget requirement for three years from 2009 - 2012 is Rs.369.71 lakhs. The detailed component wise budget is given at the end of this chapter.

**vii) Project Implementation Chart**

S. No.	Component	Month of Operation
1)	Village Campaign, farmers Training	May, June
2)	Distribution of High Yielding Varieties C seeds	May, June
3)	Distribution of Micro Nutrient Mixtures, Gypsum, Bio Fertilizer	June, July
4)	Distribution of Tar Pauline	August, September

**viii) Reporting**

Monthly report of the progress made will be sent to the concerned to Commissioner of Agriculture and yearly progress report will be submitted to the concerned Commissioner of Agriculture after the completion of the financial year.

Table 6.4 Budget Proposal for Increasing Production of Pulses

S. No	Technologies Identified	Subsidy Pattern	2008-09			2009-10			2010-11			2011-12			(Rs.in lakhs)
			No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost	No. of units	Cost/ nit	Total cost	No. of units	Cost/ Unit	Total cost	
1.A	Soil Health														
	a. Soil Health card	100per cent	2500	20	0.5	2600	20	0.52	2700	20	0.54	3000	20	0.60	
	b.Soil Reclamation with gypsum	100per cent	1000 ha	1000	10.0	1100	1000	11.0	1200	1000	12.0	1250	1000	12.50	
	c.Vermi compost application	100per cent													
	d.MN Mixture	100per cent	1000 ha	350	3.5	1200	350	4.20	1300	350	4.55	1500	350	5.25	
	e. Rhizobium	100per cent	5000 ha	36	1.80	6000	36	2.16	7000	36	2.52	8000	36	2.88	
2	Seed														
	Seed distribution	100per cent	500 ha	800	4.0	3000	800	24.0	4000	800	32.0	5000	800	40.0	
3	Irrigation														
	Conveyance of water - pipe line	100per cent	100 ha	15000	15.0	100 ha	15000	15.0	200 ha	15000	30.0	200 ha	15000	30.0	
4	INM														
	DAP Spray	100per cent	1700 ha	200	3.4									3.4	
5	IPM														
	FFS	100per cent	20	17000	3.40	20 Nos.	17000	3.40	20 Nos.	17000	3.4	20 Nos.	17000	3.4	

Table 6.4 contd...

S. No	Technologies Identified	Subsidy Pattern	2008-09			2009-10			2010-11			2011-12		
			No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost	No. of units	Cost/ nit	Total cost	No. of units	Cost/ Unit	Total cost
6	Technologies													
	CBD	100per cent	100 ha	25000	25.0	125 ha	25000	31.25	150 ha	25000	37.5	200 ha	25000	50.0
7	Others													
	I.Farmers Training	100per cent	10	15000	1.5	10 Nos.	15000	1.50	10 Nos.	15000	1.5	10 Nos	15000	1.5
	II. Campaign	100per cent	50	2000	1.0	75 Nos.	2000	1.50	100 Nos.	2000	2.0	150 ha	2000	3.0
	III. Vehicle hiring	100per cent	15000 Km	5	0.75	20000 KM	5	1.0	20000 KM	5	1.0	20000 KM	5	1.0
	IV. Lap Top LCD Projector & camera													
		100per cent	2	200000	4.0	2 Nos.	200000	4.0	-	-	-	-	-	
	Total				76.45			107.03			136.05			159.8

#### **6.1.4. Increasing the Production of Cotton**

##### **i) Background**

Cotton is cultivated in this district during summer as well as winter seasons. 75 per cent of the cotton area falls in winter and the rest 25 per cent in summer season. The area under cotton is approximately 3000 ha in the district. Major area under cotton is covered by MCU5, SVPR-2 Bt, Cotton is getting popular now. Normal area under Cotton in Madurai District is 10000 ha.

There is a good scope for increasing the area and productivity of cotton crop. The district has suitable soil and climatic conditions for the cultivation of cotton. The farmers are also well experienced in cotton cultivation. Direct sown cotton is very popular in the tracts of Tirumangalam and Usilampatti Taluks covering six blocks.

##### **ii) Project Strategy**

Area under Bt cotton can be increased by distributing Bt cotton seed packets. The cotton farmers will be given awareness training in pest management through Farmers Field schools by TANWABE/ Farmers interest Groups.

##### **iii) Project Goal**

The proposed components under this project aim to increase the area and productivity in Cotton in the district.

##### **iv) Project Component**

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

1. Distribution of Bt cotton seed packets under subsidized rate.
2. Conducting of training by field school through TANWABE and Farmers Interest Groups.
3. Distribution of MN Mixture under subsidized rate, Bio-fertilizer distribution.

4. Supply of Machineries like Power Sprayer and Hand Operated sprayer.
5. Conduct of Block Level combined Demonstration.
6. Exposure visit and Farmers training.

#### **v) Project Cost and Financing**

The budget requirement for the year 2008-09 is Rs.29.31 lakhs and the total budget requirement for three years from 2009-2012 is Rs.161.60 lakhs. The detailed component wise budget is given at the end of this chapter.

#### **vi) Implementation Chart**

<b>S. No.</b>	<b>Components</b>	<b>Month of Operation</b>
1	Village campaigns, Farmers Training	June , July and December-January
2	Distribution of Bt cotton seeds packets and high yielding variety seeds in subsidized rate	June , July and December-January
3	Distribution of Micro Nutrient Mixtures under subsidy	June , July and December-January

#### **vii) Reporting**

Monthly reports and progress made will be sent to the Commissioner of Chennai and Annual consolidation report and progress made will be sent to the Commissioner of Agriculture after completion of financial year.

**Table 6.5 Budget Proposal for Increasing Production of Cotton****(Rs. in lakhs)**

S.No.	Technologies Identified	Subsidy Pattern	2008-09			2009-10			2010-11			2011-12		
			No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost
	1. A. Soil Health													
	a. Soil Health card	100 per cent	250	20	0.05	300 Nos.	20	0.06	500 Nos	20	0.10	500 Nos	20	0.10
	b.Soil Reclamation with gypsum	100per cent	100 ha	1500	1.5	200 Ha.	1500	3.0	200 ha	1500	3	200 ha	1500	3.0
	c.MN Mixture	100per cent	500 ha	280	1.4	600 ha	280	1.68	700 ha	280	1.96	750 ha	280	2.10
2	Seed													
	A.Seed distribution	50per cent	1500 ha	600	4.5	1600 ha	600	4.80	1700 ha	600	5.1	1750 ha	600	5.25
	B.Hybrid seed distribution	50per cent	500 ha	1200	3.0	600 ha	1200	3.6	650 ha	1200	3.90	700 ha	1200	4.20
3	Irrigation													
	Conveyance of water - pipe line	100per cent	50 ha	15000	7.5	100 ha	15000	15.0	150 ha	15000	22.50	200 ha	15000	30.0
4	INM													
	Bio-fertiliser distribution	100per cent	500 ha	150	0.75	600 ha	150	0.90	700 ha	150	1.05	750 ha	150	1.125
5	IPM													
	FFS	100per cent	10 no	17000	1.7	15 Nos.	17000	2.55	15 Nos	17000	2.55	20 Nos.	17000	3.40



Table 6.5 contd...

(Rs. in lakhs)

S.No.	Technologies Identified	Subsidy Pattern	2008-09			2009-10			2010-11			2011-12		
			No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost
6	Machineries													
	I. Power sprayer	75per cent	30	4500	1.01	30 Nos	4500	1.01	40 Nos	4500	1.35	50 Nos.	4500	1.687
	II.Hand sprayer	75per cent	100	1200	0.90	100 Nos	1200	0.90	125 Nos	1200	1.125	150 Nos.	1200	1.35
7	Technologies													
	CBD	100per cent	30ha	5000	1.50	40 Nos	5000	2.0	50 Nos	5000	2.5	50 Nos.	5000	2.50
8	Others													
	I.Farmers Training	100per cent	20	15000	3.0	30 Nos	15000	4.5	40 Nos	15000	6.0	50 Nos.	15000	7.50
	II. Exposure visit	100per cent	4 no	25000	1.0	5 Nos	25000	1.25	5 Nos	25000	1.25	5 Nos.	25000	1.25
	III. Documentation	100per cent		50000	0.5	~	50000	0.5	~	50000	0.5	~	50000	0.5
	III. Vehicle hiring	100per cent	20000 km	5	1.0	20000 KM	5	1.0	20000 KM	5	1.0	20000 KM	5	1.0
	TOTAL				29.31			42.75			53.885			64.962

### **6.1.5. Increasing the Production of Groundnut**

#### **i) Background**

In Madurai district, groundnut is cultivated as rainfed crop during July and irrigated crop during the month of January and February. The source of irrigation is mainly well. The area under irrigated groundnut is reducing year by year because of non-availability of farm labourers as well as profit. The total area under groundnut in this district is 9000 kg/ha. The present productivity level of irrigated Groundnut is 1800kg/ha. There is scope for increasing the yield in groundnut both in irrigated and rainfed conditions.

#### **ii) Project Rationale**

There is a good scope for increasing the area and productivity of irrigated and rainfed groundnut. Soils of some blocks of Madurai district is highly suitable for the cultivation of irrigated groundnut. The farmers are also well experienced in cultivation and marketing aspects. The climate is also suitable for drying and oil milling.

#### **iii) Project Strategies**

- Introduction of seeds of High Yielding New Varieties by producing and distributing to farmers under subsidy cost
- The inputs like gypsum, micro nutrient mixtures and bio fertilizers can be distributed under subsidy
- Pipes carrying water from source to field under subsidy
- Farmers training
- Farmers Field Schools can be conducted at village level

#### **iv) Project Goal**

The proposed components in this project aim to increase the productivity under groundnut crop by 20per cent both in irrigated and rainfed.

**v) Project Components**

To achieve the set goals the following components are proposed for this district in groundnut irrigated crop.

- 1) Purchase and distribution of Breeder seeds.
- 2) Production and distribution of certified seeds under subsidy
- 3) Distribution of Bio fertilizer, Gypsum and Micro Nutrient Mixtures under subsidy
- 4) Distribution of pipes to carry water from source to field under subsidy
- 5) Conducting farmers training, Farmers Field School
- 6) Village Campaigns, Exposure visits

**vi) Project Cost and Financing**

The budget requirement for the year 2008-09 is Rs.45.287 lakhs and the total budget requirement for three years from 2009-2012 is Rs.193.28 lakhs. The detailed component wise budget is given at the end of this chapter.

**vii) Project Implementation Chart**

S. No.	Component	Month of Operation
1)	Purchase and distribution of Breeder seeds	November, December
2)	Selection of seed farm ryot for quality seed production	November, December
3)	Distribution of C seeds	November, December
4)	Distribution of Gypsum, Micro Nutrient Mixtures Bio fertilizer	December, January
5)	Village Campaigns and farmers training	November, December
6)	Farmers Field School	December to April
7)	Distribution of Tar Paulines	March, April

**viii) Reporting**

Monthly report of the progress made will be sent to the concerned and Annual consolidated report of the progress will be submitted to the concerned after the completion of financial year.

Table 6.6 Budget Proposal for Increasing Production of Groundnut (Irrigated/Rainfed)

(Rs. in lakhs)

S. No.	Technologies Identified	Subsidy Pattern	2008-09			2009-10			2010-11			2011-12		
			No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost
	1. A. Soil Health													
	a. Soil Health card	100per cent	1000	20	0.2	400 Nos.	20	0.08	500 Nos	20	0.1	750 Nos	20	0.15
	b.MN Mixture	100per cent	250 ha	175	0.437	400 ha	175	0.70	500 ha	175	0.875	500 ha	175	0.875
	c. Bio fertiliser	100per cent	1000 ha	150	1.5	1000 ha	150	1.50	1000 ha	150	1.5	1000 ha	150	1.5
2	Seed													
	A.Seed distribution	50per cent	200 ha	5000	5	500 ha	5000	12.5	500 ha	5000	12.5	500 ha	5000	12.5
3	Irrigation													
	Conveyance of water - pipe line	100per cent	50 ha	15000	7.5	100 ha	15000	15.0	100 ha	15000	15.0	100 ha	15000	15
4	INM													
	Gypsum application	100per cent	1000 ha	1000	10	1000 ha	1000	10	1000 ha	1000	10	~	~	~
5	IPM													
	FFS	100per cent	10 No	17000	1.70	15 Nos	17000	2.55	20 Nos	17000	3.4	20 Nos	17000	3.4
6	Technologies													
	CBD	100per cent	30 no	50000	15	30 ha	50000	15.0	40 ha	50000	20	50 ha	50000	25.0

Table 6.6 contd...

(Rs. in lakhs)

S. No.	Technologies Identified	Subsidy Pattern	2008-09			2009-10			2010-11			2011-12		
			No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost	No. of units	Cost/ Unit	Total cost
7	Others													
	I.Farmers Training	100per cent	10	15000	1.50	10 Nos	15000	1.5	10 Nos.	15000	1.5	10 Nos	15000	1.5
	II. Village campaign	100per cent	10 no	2000	0.20	30	2000	0.6	40	2000	0.8	50	2000	1
	III. Docu-mentation	100per cent		50000	0.50	~	50000	0.5	~	50000	0.5	~	50000	0.5
	IV. Vechicle hiring	100per cent	20000 km	5	1.0	25000 KM	5	1.25	30000 KM	5	1.5	35000 KM	5	1.75
	V. Exposure visit	100per cent	3 No	25000	0.75	5 Nos.			~			~		
	<b>Total</b>				<b>45.287</b>			<b>62.43</b>			<b>67.675</b>			<b>63.175</b>

### **6.1.6. Increasing the Production of Fodder**

#### **i) Background**

In Madurai district fodder cultivation is day by day decreasing. Other than fodder millets no other fodder is cultivated in this district. Rainfed fodder cultivation is possible and it is the apt time to concentrate on fodder otherwise, animals may face serious consequence in getting the feed.

#### **ii) Project Rationale**

##### **Scope for Increasing the Area and Productivity Under Fodder**

In Madurai district, there is a good scope for cultivation of fodder. Since, the cultivation of fodder is gradually dwindling, feed units are increasing in their numbers. Hence it is obvious that scope for cultivation of fodder is ample and hence importance may be given to fodder cultivation.

#### **iii) Project Strategies**

- To increase the area and productivity by distributing High Yielding fodder seeds at 100per cent subsidy.
- To popularize the new technologies in the farmers field technology demonstrations including fodder pulses and millets in the farmers holdings.
- Bio fertilizers and Micro Nutrient Mixtures can be given to the farmers under subsidized cost in the Demonstration.

#### **iv) Project Goal**

The proposed components in this project aim to increase the area and also the productivity under fodder crop considerably.

#### **v) Project Components**

To achieve the above goal the following components are proposed for this district in cholam cultivation.

- 1) Distribution of seeds, High Yielding Variety seeds at 100per cent subsidy.
- 2) Laying of Technology Demonstration Plots including fodder Pulses and millets with full subsidy.
- 3) Distribution of Micro Nutrient Mixtures Bio fertilizer in the Demonstration.

#### **vi) Project Cost and Financing**

The budget requirement for the year 2008 - 09 is Rs.4.50 lakhs and the total budget requirement for three years from 2009 - 2012 is Rs.28.50 lakhs. The detailed component wise budget is given at the end of this chapter.

#### **vii) Project Implementation Chart**

<b>S. No.</b>	<b>Component</b>	<b>Month of Operation</b>
1)	Village Campaigns and training to farmers	May, June
2)	Distribution of High Yielding Variety seeds at subsidy rate.	June, July
3)	Selection of beneficiaries and laying of Demonstration plots	June, July and December, January
4)	Distribution of Micro Nutrient Mixtures and Bio Fertilizers	June, July and December, January

#### **viii) Reporting**

Every month report will be submitted to Commissioner of Agriculture, Chennai and the yearly achievement will be submitted after the completion of financial year.

Table 6.7 Budget Proposal for Increasing Production of Fodder

		(Rs. in lakhs)												
S. No	Technologies Identified	Subsidy Pattern	2008-09			2009-10			2010-11			2011-12		
			No. of units	Cost/Unit	Total cost (in Lakhs)	No. of units	Cost/Unit	Total cost (in Lakhs)	No. of units	Cost/Unit	Total cost (in Lakhs)	No. of units	Cost/Unit	Total cost (in Lakhs)
1.	Demonstration	100 per cent	50	5000	2.5	100	5000	5	150	5000	7.5	200	5000	10.000-
2	Seed distribution	100 per cent	1000 ha	200	2.000	1000 ha	200	2.000	1000 ha	200	2.000	1000 ha	200	2.000
	<b>TOTAL</b>				<b>4.50</b>			<b>7.00</b>			<b>9.50</b>			<b>12.00</b>



### **6.1.7. Improvement of Seed Processing Unit and State Seed Farm**

#### **i) Background**

In Madurai district procurement of seeds like paddy, millets, cotton, pulses, sunflower are very essential. Hence seed production is carried out in State Seed Farms. Apart from this, a bio-fuel plantation is also maintained in order to supply the Jatropha Seedlings. Moreover the seeds procured are processed and tagged under certification norms. For this State Seed Farm and Seed Processing unit are very important.

#### **ii) Project Rationale**

The fuel price is increasing day by day and the price of crude oil is increasing every minute, now there is a serious consideration of other source of oil especially Bio-fuel. In this context, our State Seed Farm is producing Jatropha seedlings. So it is the right time to improve and rationalize the facilities available in the Seed Farm.

Farmers depending on the quality seeds; availability of quality seeds without any physical and biological contamination is the million dollar question now-a-days. Hence production, procurement of seeds is not ending with the harvest and continues with processing of seeds to get the quality seeds. Hence it is essential to modernize the Seed Processing Unit.

#### **iii) Project Strategies**

##### **Seed Farm**

- To improve the soil health, land improvement has to be done.
- Bush clearance and related activities will be implemented to support the farm activities.
- Improve the running condition of the machineries and also to modernize the machineries.

**Seed Processing Unit**

Processing is not the least important activity in the process of seed procurement. In this process drying is highly essential and construction of thrashing floor will be taken up.

**iv) Project Goal**

The proposed component in this project aims to increase the facilities available in the Seed Farm and Seed Processing Unit.

**v) Project Components**

To achieve the project goal the following components are proposed:

**Seed Farm**

- 1) Bush clearance will be done to improve the land activities.
- 2) Importance will be given to irrigation aspects namely  
bore wells, electric motor and cementing of irrigation channel.
- 3) Improvement of machineries and purchase of machineries
- 4) Improving the thrashing floor facilities.

**Seed Processing Unit**

- 1) Giant unit will be modernized.
- 2) Thrashing floor improvement will be taken up and construction has been proposed.

**vi) Project Cost and Financing**

The budget requirement for the State Seed Farm is 26.892 lakhs for the year 2008 - 09 whereas for the Seed processing the proposed cost is Rs.17.5 lakhs.

**vii) Project Implementation Chart**

- |                           |   |                    |
|---------------------------|---|--------------------|
| 1. Purchase of Machinery  | - | August - September |
| 2. Improvement activities | - | November - April   |

**viii) Reporting**

Monthly report of the progress made will be submitted to the Commissioner of Agriculture, Chennai and yearly achievement will be submitted to the Commissioner of Agriculture, Chennai after completion of the financial year.

**Table 6.8 Budget Proposal for Improvement of State Seed farm, Vinayakapuram**

**Total Extent = 34.84 ac**

Sl.No.	Details	Re- quire- ment	2008-09	
		No	Cost/ Unit	Total
1	Land Development			
	Bush clearance	0.7 ac	5000	0.035
2	Irrigation			
	I. Borewells	3	170000	5.100
	II. Electric motor	3	50000	1.500
	III. Cementing irrigation channel	1000 m	25	0.250
	IV. Drip irrigation for Jatropha	25 ac	20000	5.000
3	Machineries			
	I. Power tiller	1	125000	1.250
	II. Power sprayer	1	4500	0.0450
	III. Hand sprayer	1	1200	0.0120
	IV. Taurpalins	1	20000	0.200
4	Post Harvest			
	I. Threshing floor	1	700000	7.000
	II. Agrosaw Giant unit	1 no	650000	6.500
	<b>Total</b>			<b>26.892</b>

**Table 6.9 Budget Proposal for Improvement of Seed Processing Unit, Cholavandan**

S. No.	Details	Requirement	2008-09	
		No	Cost/ Unit	Total
1	Post Harvest			
	I. Thrashing floor	1	700000	7,000
	II. Agrosaw Giant unit	1 No	650000	6,500
	III. Mini Unit	1 No	400000	4,000
	<b>Total</b>			<b>17,500</b>

## 6.2. Horticulture

There is a very good scope of development of horticulture in the district. Through Integrated Horticulture Development Programme, the Department of Horticulture is bringing more areas under horticultural crops. Various interventions pertaining to Horticultural Crop Production, Integrated Nutrient Management, Integrated Pest Management, Use of new gadgets, Capacity Building through training and exposure visits, strengthening extension centers at block level are proposed for increasing Horticultural Production. The budget abstract followed by details of individual projects are furnished in the ensuing pages.

**Table. 6.10 Budget Abstract for Horticulture – 2008 To 2012**

**(Rs. in lakhs)**

S.No	Particulars	2008-09	2009-10	2010-11	2011-12	Total
1.	Net house Structure	2.00	2.00	2.00	2.00	8.00
2.	Package for plant protection by supplying plant protection equipments	1.50	1.50	1.50	1.50	6.00
3.	Plastic crates for vegetable handling and transport	1.25	1.25	1.25	1.25	5.00
4.	Project for borewell with casing pipe	7.50	15.00	15.00	7.50	45.00
5.	Support system for crops	22.50	22.50	22.50	22.50	90.00
6.	Banana corm injector	0.15	0.15	0.15	0.15	60.00
7.	Project for mango harvester	0.25	0.25	0.25	0.25	1.00
8.	Sales outlet point	2.60	3.02	3.44	3.86	12.92

**Table. 6.10 Contd...****(Rs. in lakhs)**

<b>S.No</b>	<b>Particulars</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>Total</b>
9.	District level farmers workshop	4.00	4.00	4.00	4.00	16.00
10.	Inter state exposure visit	25.00	25.00	25.00	25.00	100.00
11.	10 hectare mega demonstration plot (eco-friendly good organic horticulture tourism demo plot)	0	25.00	50.00	50.00	125.00
12.	Support for betelvine	12.5	12.5	12.5	12.5	50.00
13.	Humic acid / effective microbes	0.20	0.20	0.20	0.20	0.80
14.	Mango / amla in noon meal scheme <b>(TANHOPE)</b>	1.00	1.00	1.00	1.00	4.00
15.	Enterprising farmers associations (jasmine and horticulture crops)		50.00			50.00
16.	Agriculture clinic at block level ADH office		125.00	125.00	75.00	325.00
17.	Alanganallur block 100 per cent farmers literacy programme through TNAU-ODL	15.00	15.00	15.00	30.00	75.00
18.	Venture capital scheme <b>(TNAU)</b>	5.00	5.00	5.00	5.00	20.00
19.	Pollinator village (honey bee rearing)	4.00	4.00	4.00	4.00	16.00
20.	Rural food processing and knowledge centre		75.00	75.00		150.00
21.	Rural agriculture tourism festival		20.00	20.00	20.00	60.00
22.	Cinematography documentation of horticulture crop husbandry and wealth of the district		10.00	10.00	10.00	30.00
23.	Strengthening of extension – technical knowledge centre at block head quarters		30.00	50.00	50.00	130.00
	<b>Total</b>	<b>104.45</b>	<b>447.37</b>	<b>442.79</b>	<b>325.71</b>	<b>1320.32</b>

**6.2.1 Net – House Structure for Nursery and Vegetable Production**

The detailed budget for four years are furnished in Table 6.11 and 6.12.

**Table 6.11 Budget Abstract – Net house Structure - 2008 to 2012**

S. No	Scheme Component	Unit Cost / Total Cost (Rs.)	Pattern of Subsidy	2008-09		2009-10		2010-11		2011-12		TOTAL	
				P	F	P	F	P	F	P	F	P	F
1.	Net house Structure for nursery and vegetables production	Rs.1.00 lakh / 300 sq.m(one unit)	50per cent	600 sq.m	2.00	600 sq.m	2.00	600 sq.m	2.00	600 sq.m	2.00	2400 Sq.m	8.00

Physical target : Sqm. Financial target : lakhs.  
 Total Project Cost : 8.00 lakhs  
 50per cent Subsidized cost : 4.00 lakhs  
 Farmers Contribution : 4.00 lakhs

**Table 6.12 Year-wise Budget – Net house Structure - 2008 to 2012**

S.No	Year	Target	
		Physical	Total Financial
1.	2008-09	600 sq.m	2.00
2.	2009-10	600 sq.m	2.00
3.	2010-11	600 sq.m	2.00
4.	2011-12	600 sq.m	2.00
	<b>Total</b>	<b>2400sq.m</b>	<b>8.00</b>

Total : Rs.8.00 lakhs  
 Subsidy : Rs.4.00 lakhs will be provided by the NADP  
 Farmers contribution : Rs.4.00 lakhs



**i) Project Goals**

- i) To increase the production and productivity of the Horticultural Crops especially Vegetable Crops by the Supply of seedlings of hybrid varieties produced under the Net house structure.
- ii) To increase the productivity per unit area by making the farmers to grow hybrid varieties of different vegetable crops.
- iii) By providing the technical know how to the farmers regarding the cultivation of hybrid varieties of vegetable crops.

**ii) Background / Problem Focus**

The prevailing climate and soil condition in Madurai district is highly suitable for cultivation of various vegetable crops especially Tomato, Onion, Moringa, Brinjal, Bhendi, etc., The total area under vegetable and spice crops in Madurai district is around 5000 ha. In general only small and marginal farmers are engaged in vegetable cultivation. Most of the farmers cultivate local varieties, which gives very poor yield with less productivity. Hence supply of healthy hybrid seedling of different vegetable and spice crops will be more useful to the farmers to get more yield per unit area. For supply of healthy seedling, two net house structures with 300 sq.m area each are proposed in the district.

**iii) Project Rationale**

The scheme will be implemented in two blocks in every financial year. Assistant Director of Horticulture, Horticulture Officers / Deputy Agriculture Officer and Assistant Agriculture Officer of the particular blocks will select the suitable and appropriate farmers based on the nature of land, available water source in the site. Besides, technical advices will also be provided by the extension functionaries on maintenance of seedlings grown under net house structure.

**iv) Project Strategy**

50 per cent subsidy will be provided for the construction of net house structure with a view to produce quality hybrid seedlings. Two net house structures, each with 300 sq.m are proposed to be constructed in two blocks every year. Totally 8 net house structures will be constructed at the end of 2011-12.

**v) Project Components**

Two net house structures with 50-75per cent shade in 300 sqm in 8 blocks. The total project cost is Rs.8.00 lakhs. Out of the total 8.00 lakhs, 4.00 lakhs will be provided by NADAP as subsidy.

## vi) Project Cost and Financing

Sl. No	Scheme Component	2008-09		2009-10		2010-11		2011-12		TOTAL	
		P	F	P	F	P	F	P	F	P	F
1.	Net house Structure	600	2.00	600	2.00	600	2.00	600	2.00	2400	8.00
	<b>TOTAL</b>	600	2.00	600	2.00	600	2.00	600	2.00	2400	8.00

Physical:Sqm.

Financial : lakhs

Total Project Cost

: Rs.8.00 lakhs

Subsidy

: Rs.4.00 lakhs (provided by NADP)

Farmers Contribution

: Rs.4.00 lakhs.

**vii) Implementation Chart of the Project**

The scheme will be implemented in two blocks in every year for the period of four years from 2008-09 to 2011-12. Assistant Director of Horticulture, Horticulture Officers / Deputy Agriculture Officer and Assistant Agriculture Officer will carefully select the suitable farmers based on the availability of water etc. Technical advice will also be provided by the extension staffs to the farmers.

**viii) Reporting**

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

**6.2.2 Package for Plant Protection**

The detailed budget for four years are furnished in Table 6.13 and 6.14.

**Table 6.13 Budget Abstract – Package for Plant Protection - 2008 to 2012**

(Rs. in lakhs)

Sl. No	Scheme Component	Unit Cost / Total Cost	Pattern of Subsidy	2008-09		2009-10		2010-11		2011-12		TOTAL	
				P	F	P	F	P	F	P	F	P	F
1.	Package for plant protection by supplying	Rs.3000	50 per cent (Rs.1500)	100	3.00	100	3.00	100	3.00	100	3.00	400	12.00
2.	plant protection equipments		50 per cent		1.50		1.50		1.50		1.50		6.00

Physical target :in units

Financial target : lakhs.

Total Project cost

: Rs.12.00 lakhs.

Subsidy cost

: Rs.6.00 lakhs from NADP.

**Table 6.14 Year-wise Budget – – Package for Plant Protection - 2008 to 2012**  
(Rs. in lakhs)

S.No	Year	Target		Subsidy Cost from NADP
		Physical	Total Financial	
1.	2008-09	100	3.00	1.50
2.	2009-10	100	3.00	1.50
3.	2010-11	100	3.00	1.50
4.	2011-12	100	3.00	1.50
	<b>Total</b>	<b>400</b>	<b>12.00</b>	<b>6.00</b>

Scheme component package for plant protection unit cost Rs. 3000/- Pattern of subsidy Rs.1500 as 50per cent. Out of the total project Cost 12.00 lakhs, a sum of 6.00 lakhs will be financed by NADP

**i) Project Goals**

- i) To increase the production and productivity of the Horticultural Crops by timely application of plant protection chemicals like pesticides and fungicides through plant protection equipments.
- ii) To improve the quality of harvested produces by avoiding the infestation by pest and diseases, which inturn increase the selling price of the produce.
- iii) To reduce the cost of cultivation by avoiding the hiring chares for spraying cost by the farmers which inturn increase the profit to the farmers.
- iv) By providing technical advices to the farmers on plant protection measures by extension functionaries.

**ii) Background / Problem Focus**

Major Horticultural Crops grown in Madurai district are mango, banana, guava, tomato, onion, moringa, chillies etc., are being affected by the infestation of pests and diseases seasonally. Hence timely application of plant protection chemicals is very essential for the successful cultivation. Most of the farmers in Madurai district are small and marginal and they are engaging other persons for spraying chemicals on hire basis, which in turn increases the cost of cultivation of the crop. Hence supply of plant protection equipments like Gator Rocker sprayer with hijet Gun with 2 nozzles and knapsack sprayers are very much useful to the farmers, who are growing perennial crops like mango, guava etc., and vegetable crops like tomato, onion respectively.

**iii) Project Rationale**

The scheme component will be implemented by extension functionaries by selecting suitable and appropriate farmers in all the 13 blocks of the district. In each block Assistant Agriculture Officers will implement the scheme. Technical advices will also be provided to the farmers by Extension Functionaries on plant protection measures.

**iv) Project Strategy**

- i) Plant protection equipments will be supplied at the rate of 50 per cent subsidy to the selected farmers in all blocks.
- ii) Technical advices will also be provided to the farmers on plant protection measures.

**v) Project Components**

The project component is “package of plant protection equipment”. Under this scheme component knapsack sprayers and Gator Rocker Sprayers are proposed to be supplied at the rate of 50 per cent subsidy cost.

## vi) Project Cost and Financing

S. No	Scheme Component	Unit Cost / Total Cost	Pattern of Subsidy	2008-09		2009-10		2010-11		2011-12		TOTAL	
				P	F	P	F	P	F	P	F	P	F
1.	Package for plant protection	Rs.3000	50 percent	100	3.00	100	3.00	100	3.00	100	3.00	400	12.00
2.	Subsidy		50 percent		1.50		1.50		1.50		1.50		6.00

Out of the total project Cost 12.00 lakhs, a sum of 6.00 lakhs will be provided by NADP as Subsidy.

Physical : Units                      Financial : lakhs

The remaining 6.00 lakhs will be received from the farmers as contribution amount.



**vii) Implementation Chart of the Project**

The scheme will be implemented in all the 13 blocks for the period of four years. In each block Assistant Directors of Horticulture, Horticulture Officer, Deputy Agriculture Officers and Assistant Agriculture Officers will implement the scheme by selecting the appropriate beneficiaries. Besides, technical advices will also be provided by the extension functionaries.

**viii) Reporting**

The progress of the scheme will be received at every month by Deputy Director of Horticulture along with documentation and reports will be submitted to the Directorate of Horticulture and Plantation Crops before the end of month.

**6.2.3 Plastic Crates for Vegetable Handling and Transport****i) Abstract**

In Madurai district the scheme for supply of plastic crates for vegetable handling during transport will be implemented to the physical tune of 1000 nos. per year with financial outlay of 2.50 lakhs with subsidy portion of 1.25 lakhs. The total scheme period will be four years with a physical target of 4000 nos. which costs 10.00 lakhs with a subsidy portion of 5.00 lakhs.

**ii) Project Goal**

It is well known that around 10-20per cent of the horticultural and vegetables produces are damaged during handling and long distance transport. This project will replace the materials like bamboo baskets and gunny bags to plastic crates.

**iii) Project Strategy**

The use of plastic crates for transport of vegetables reduces the transport damage, which facilitates long distance transport of the same. For the benefit of farmers 50per cent subsidy is proposed to purchase plastic crates.

**iv) Project Rationale**

50per cent subsidy help the poor farmers for the purchase of plastic crates and 50per cent contribution is collected to involve the farmers for effective utilization of supplied plastic crates.

**v) Background / Problem Focus**

In Madurai district around 2500 ha. is covered under vegetable crops. The major vegetable growing blocks are Vadipatti, Alanganallur, Chellampatti, Thirumangalam and Melur.

The market place is Madurai city where three major sandais are available. This plastic crates helps to transport the vegetables without any damage to market places.

**vi) Budget**

S.No.	Year	Physical (Nos.)	Financial (lakhs)	
			Total Cost	Subsidy 50 per cent
1	2008-09	1000	2.50	1.25
2	2009-10	1000	2.50	1.25
3	2010-11	1000	2.50	1.25
4	2011-12	1000	2.50	1.25
	<b>Total</b>	<b>4000</b>	<b>10.000</b>	<b>5.000</b>

**vii) Project Components**

Plastic crates

**viii) Project Cost and Financing**

The total project cost is Rs.10.00 lakhs and government subsidy is Rs.5.00 lakhs.

**ix) Implementation Chart of the Project**

One time purchase during every year and will be distributed at 50 per cent cost to all vegetable and fruit growers are identified by the concerned Assistant Director of Horticulture in the District.

**x) Reporting**

The reporting and documentation of the scheme will be done by the Deputy Director of Horticulture, Madurai. The documents of the progress report will be sent to Commissioner of Horticulture and Plantation Crops, Chennai.

**6.2.4 Project for Borewell with Casing Pipe****i) Abstract**

Madurai District has 13 blocks in which four blocks come under dark zone and the remaining 9 blocks like Madurai East, Madurai West, Vadipatti, Thirumangalam, T. Kallupatti, Kallikudi, Melur, Kottampatti and Thiruparankundram are suitable for implementation of his scheme. The area cultivated under fruit crops is 10232 ha., vegetable crops 2353 ha., plantation crops 467 ha., spices 2827 ha., flowers 1433 ha and medicinal plants 795 ha. in Madurai District. To increase the productivity and production of crops irrigation is the prerequisite. To increase the irrigation potential borewell with casing pipes are very much needed. Hence 60 units are proposed with the outlay of 1.5 lakhs / unit and the total cost of 90.00 lakhs. The subsidy is 50 per cent i.e 45.00 lakhs.

**ii) Project Goals**

1. To increase the irrigation area and also the productivity of the crops/unit area.
2. To increase the socio-economic status of the farmers.

**iii) Background / Problem Focus**

1. Most of the farmers are small and marginal and they are not able to meet out the initial heavy expenditure.
2. Farmers are not aware of ground water sources availability.
3. To get E.B. Connection is a problem to farmers. Without this E.B. Connection the scheme is not successfully implemented.

**iv) Budget**

Totally 60 nos. of borewells with casing pipes will be provided with the total outlay of 90 lakhs (@ 1.5 lakhs/unit) at 50per cent subsidy cost.

**v) Project Rationale**

Rainfed cultivation of horticulture crops are practiced at present. During initial stages they watered the crops by collecting water from ponds, canals in near by areas and followed a pitcher pot irrigation for fruit plant cultivation. They struggled to protect the crops and sometimes they may be fail due to non availability of rain in the season. By providing borewell and casing pipes through this scheme farmer will get benefit to protect their crops.

**vi) Project Strategy**

To improve the economic status of the farmers by providing borewell and casing pipe.

**vii) Project Component**

1. Digging borehole at 6 inch diameter upto 600 feet.
2. Casing pipe 700 feet for inlet and outlet.
3. Providing 5 hp electric motor with accessories.
4. Construction of pump room.
5. Providing drip irrigation.

**viii) Project Cost and Financing / Unit**

Digging borewell 6” for 60 /feet	Rs.
Total 600 feet x 60	36000
Casing pipe Rs. 25/feet total length of 700 x 25	17500
Motor and pump with accessories	40000
Construction of pump room	20000
To get E.B. connection	5000
Providing Drip and accessories	31500
Total	150000
Total cost 60 nos. 60 x 150000	9000000

50 percent of the cost is borne by farmers

**ix) Implementation Chart of the Project**

1. Selection of farmers and financial assistance by Horticulture Department.
2. Digging of borewell and casing pipe by Agricultural Engineering Department.
3. Providing drip irrigation by Horticulture department.

**x) Reporting**

The scheme is implemented by Assistant Director of Horticulture at Block level guidance and supervision will be given by Deputy Director of Horticulture, Madurai and progress of work should be reported to Commissioner of Horticulture and Plantation Crops at fortnight interval through Deputy Director of Horticulture and scheme is reviewed in every monthly meeting held at head quarter.

### **6.2.5 Support System for Crops**

#### **i) Abstract**

In Madurai District, out of the total fruit cultivation area of 10,340 ha. banana accounts for 28 per cent. Major cultivated blocks are Vadipatti, Melur, Madurai East and West, Sedapatti and Thiruparankundram. Yearly 40 per cent area of banana crop affected by wind during Chithrai and Aadi seasons. Most of the banana growing farmers are small and marginal and they are not able to meet out the extra expenditure on support system to protect the crops from wind. Due to this most of the farmers have not adopted propping to banana crop at the stage of flowering to fruit maturity. In this period propping is very essential to save the crop from wind damage. Hence the scheme is proposed to cover an area of 20 ha. / year with an outlay of 1.5 lakh per ha. and the total cost is 30 lakhs / year. It may be continued to another 3 years with an outlay of 80 ha. with the total cost of 1.20 crores.

#### **ii) Project Goal**

1. To avoid the crop damage of upto 40 to 70 per cent during the wind period.
2. To increase the income of farmers.

#### **iii) Background / Problem Focus**

1. Banana cultivation requires more expenditure / unit area and farmers are not able to meet out all the expenses due to their economic status.
2. The income from the banana crop is heavily affected by wind damage.

#### **iv) Project Strategy**

1. Providing financial assistance to the farmer for propping of banana to reduce the losses from crop damage by wind.
2. The yield of the crop is increased indirectly.

**v) Project Rationale**

Most of the farmers are not adopting propping due to heavy investment in banana cultivation. It causes 40 to 70per cent damage by wind during Chithirai and Aadi season in the stage of flowering to fruit bearing. This may be avoided to give assistance to propping system at proper time and it will help the farmers to get 40 to 60per cent additional income indirectly.

**vi) Project Component**

1. Propping pole
2. Labour expenditure
3. Transport cost

**vii) Project Cost and Financing**

1	Cost @ 20/ pole total number 6000/ha.	120000
2	Labourer cost 30 x 200	6000
3	Transport cost	24000
	<b>Total cost</b>	<b>150000/ ha.</b>

Total cost for 80 ha. is Rs. 1.2 crores and subsidy is 75 per cent

]

**viii) Implementation Chart of the Project**

At block level Assistance Director of Horticulture is implementing the scheme through his field extension functionaries, guidance and supervision is given by Deputy Director of Horticulture at district level and it may be reviewed once in a month in monthly meeting.

**ix) Reporting**

The progress of work shall be reported at fortnight interval to Assistance Director of Horticulture and Deputy Director of Horticulture i.e block level and District level and Deputy Director of Horticulture is reported to Commissioner of Horticulture and Plantation crops in every month by monthly report.

**6.2.6 Banana Corm Injector****i) Abstract**

Banana corm injector is a device for the easy application of plant protection materials to the banana corm. The instrument will be supplied at 50 per cent subsidy with technical advice. It is proposed to distribute 400 injectors during four years which cost Rs. 1.20 lakhs at a subsidy rate of Rs. 0.60 lakhs.

**ii) Budget**

Rs. 31250 will be allotted to Madurai District for 100 nos. of banana corm injectors every year.

**iii) Project Goals**

Easy application of fungicides to control pest and diseases of banana crop without any wastage.

**iv) Background / Problem Focus**

The area under banana cultivation is 2800 ha. The wilt disease caused by *fusarium fungi* is the major disease affects the banana production. The disease spreads mainly through the affected corms to other corms. The nematodes also affect the banana yield. Spraying of pesticides and fungicides is very costly. It is not very effective. Repeated spraying is required. Repeated spraying pollutes the atmosphere also. To avoid repeated, spraying of fungicides and pesticides, banana corm injector can be introduced effectively and economically.



**v) Project Rationale**

Introducing banana corm injector at the rate of 50per cent subsidy will motivate the farmers to buy the instrument and adopt the proper plant protection measures. Through the injector, only the required amount of plant protection materials will be applied. The residual effect is minimized. Pollution of soil, water and air is avoided. Farmers get more yields and more income by reducing the cost of cultivation through effective control of pests and diseases.

**vi) Project Strategy**

Banana corm injector is introduced in Madurai district in phased manner. i.e. 100 members per year for four years continuously at 50per cent subsidy cost. The total cost of the unit is Rs.300 and the injector can be distributed at the cost of Rs. 150/ Unit.

**vii) Project Components**

Materials	Total cost Rs.	Subsidy Rs.	Farmers Contribution Rs.
Banana corm injector	300	150	150
Plant protection chemicals	1500	-	1500
Labour	150	-	150

**viii) Project Cost and Financing**

The total project cost is	:	Rs. 1,20,000
The project cost per year is	:	Rs. 30,000
50per cent subsidy	:	Rs. 15,000

NADP project funded by the Government will bear the 50per cent subsidy cost Rs. 15,000.

**ix) Implementation Chart of the Project**

Year	No. of instruments to be distributed	Total cost Rs.	50 percent Subsidy Rs.
2008	100	30000	15000
2009	100	30000	15000
2010	100	30000	15000
2011	100	30000	15000
<b>Total</b>	<b>400</b>	<b>120000</b>	<b>60000</b>

**x) Reporting**

Monthly report should be prepared about the implementation of the project and finally annual report should be prepared about the completion of the project for the year. Follow up action should be taken and report should be prepared about the effective utilization of the implement.

**6.2.7 Project for Mango Harvester****i) Abstract**

Madurai District is one among the major mango growing district in Tamilnadu. It has 6066 ha area under mango cultivation and it occupies 60 per cent area of fruit cultivation. Most of the mango growing farmers are small and marginal and they didn't know about post harvest losses. Mango harvest is one of the major criteria among post harvest management. To minimize the post harvest losses it is proposed to distribute 100 no. of mango harvesters/yr to the total of 400 no with the total cost of Rs. 50000/ year. It may be continued for another three years with a total outlay of 2.00 lakhs. A sum of Rs. 1.00 lakh is required for subsidy under NADP.

**ii) Project Goals**

1. To harvest the fruit at correct maturity stage.
2. To minimize the post harvest losses of mango.
3. To increase the income of farm holdings.

**iii) Background / Problem Focus**

In mango harvest, due the height of trees, while plucking the fruits when they fall to ground the fruit stalks will be broken. If labours are hired for plucking the cost is high. So the mango harvesters are proposed in the scheme.

**iv) Budget**

It is proposed, to give 100 no. of mango harvesters /year and a total of 400/no at the end of 2011-12 with a total outlay Rs. 2.00 lakhs. ( $400 \times 500 = 200000$ )

**v) Project Rationale**

Most of the mango growers in Madurai District are small and marginal farmers. They are harvesting the fruits by local method with locally available labourer and they are not properly trained. So the farmers lose the income for their produce to the tune of 20 to 30 per cent every year. This loss may be avoided by giving mango harvester to mango growers.

**vi) Project Strategy**

1. By giving this tools to mango grower, they are harvest their produce at proper time without expecting much of man power.
2. The losses during harvest is minimized and increase the income of farmers.

**vii) Project Components**

1. Mango Harvester

**viii) Project Cost and Financing**

Unit cost of Rs. 500/no. with an outlay of 100 nos/year at a cost of 50000/- and it may be continued another three years an total outlay of 400 nos./ 4 year at a total cost of 2.00 lakhs. 50 per cent subsidy is premised under NADP.

**ix) Implementation Chart of the Project**

The scheme will be implemented by Assistant Director of Horticulture with his field extension functionaries at block level and given guidance and supervision at district level by Deputy Director of Horticulture and it may be reviewed in the monthly meeting.

**x) Reporting**

The progress of work should be reported once in fortnight interval by block level officer to district level officer and the district officer should report to Commissioner of Horticulture and Plantation Crops. The scheme is reviewed once in a month in the monthly review meeting to be held at District Head quarters.

**6.2.8 Sales Outlet Point****i) Abstract**

Unit Cost	2008-09		2009-10		2010-11		2011-12		Total	
	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
2.60 / unit	1	2.6	1	2.6	1	2.6	1	2.6	4	10.40
Old unit maintenance for rent and EB charges	-	-	1	0.42	2	0.84	3	1.26		2.52
<b>Total</b>	<b>1</b>	<b>2.6</b>	<b>2</b>	<b>3.02</b>	<b>3</b>	<b>3.44</b>	<b>4</b>	<b>3.86</b>	<b>4</b>	<b>12.92</b>

Grand total 12.92 lakhs.

Seed is the basic input for horticultural production. The production of any horticultural crops purely depends on the qualitative and productive seed and pedigree planting materials. In general farmers get the seed or seed material from various sources which may be available in various locations. Farmers are ready to buy high quality materials at expensive cost but may not aware of the quality or its reproducing capacity. Now a days organic farming is getting popular among the farmers because of the quality produce from organic farming and for its higher price value.

There are many organic fertilizer available such as biofertilizers, vermicompost, and bio plant protective agents like Trichoderma Viridi, Pseudomonas.

The planting material or seed and bio-fertilizers if made available in one single point the buyers will be satisfied by saving time, labour and money.

Hence, sales outlet point is one of the immense needs of the farmers.

It must be the best contact point for the buyers and sellers. It helps farm folk not only to get the quality seed material and to share the technical know how.

Budget - Rs. 2.20 lakhs

## ii) Project Goals

1. To get the quality productive seed material, planting material and organic fertilizers, bio plant protective agents, plant protection equipments.
2. To get all the above inputs at one place with reasonable price.
3. To save time, labour and energy.
4. To increase the production by supplying quality inputs to the farmers.
5. To share the technical know how and improved technologies.

## iii) Project Cost and Financing

1	Rent Rs. 3000 x 12 months	36000
2	Net house Rs.25 x 3000 m <sup>2</sup>	75000
3	Avery balance Rs.20000 x 5 unit	100000
4	Wooden racks Rs.5000 x 2	10000
5	Rose cans, sprayers, buckets, hosepipe, polythene shuts	18000
6	Water supply Sintex tank, pipes fittings	5000
7	Sanitary facilities	10000
8	EB Charges Rs. 500 x 12 months	6000
	<b>Total</b>	<b>260000</b>

#### iv) Project Rationale

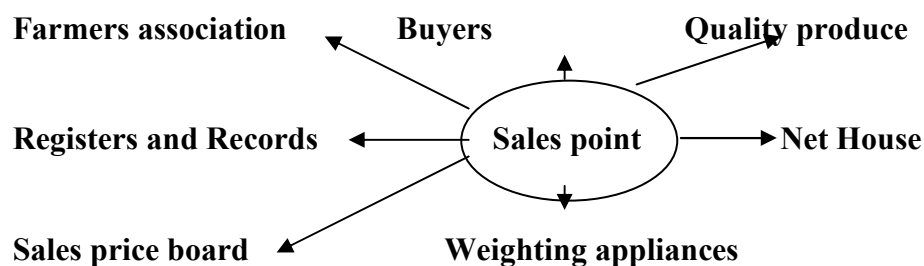
Sellers (farmers) association for enabling the price fixation, keeping records on arrival quantity, daily sale quantity statement and calculating the savings to the farmers by purchasing the inputs in the sales outlet point enables smooth running of the sales point.

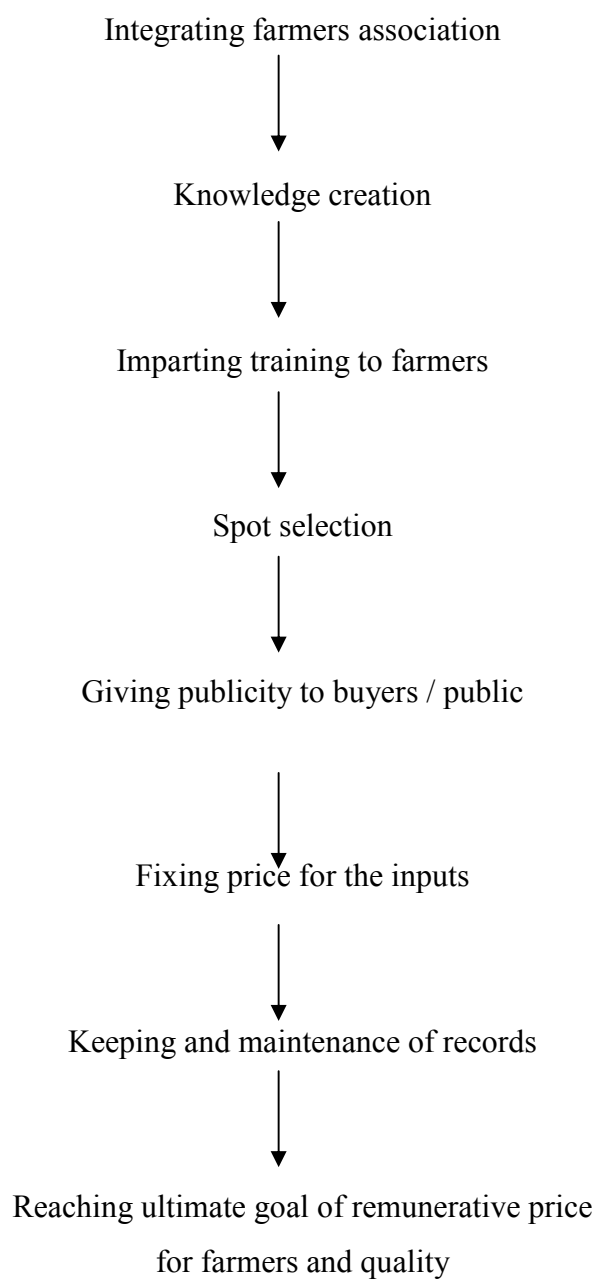
Publicity to the buyers is essential about the sales point, availability of the produce, sale price information board is important for the buyers use.

#### v) Project Strategy

1. **Spot Selection:** Sales point should be convenient, reachable and must have transport amenity.
2. Creation of suitable infrastructure facilities.
3. Creating awareness among the farmers about the sale point and facilitate them to form association which will fetch good price and assured sales.
4. Giving publicity to the buyers about the sales point.
5. Imparting training to the farmers about keeping and maintenance of records and registers.

#### vi) Project Components



**vii) Implementation Chart of the Project**

### **6.2.9 District Level Farmers Workshop**

#### **i) Abstract**

One district level farmers workshop is to be conducted for every year with a view to share and update their knowledge. Approximately 1000 farmers are expected for a workshop with an expenditure of Rs. 4 lakh / workshop. So the total cost required for the project is Rs. 16 lakhs.

#### **ii) Project Goals**

- To share their views
- To get feed back
- To receive success stories
- To identify farmers field problems for further research
- Creating awareness about the new technologies through KVK and SAU
- To give publicity for the spread of the technologies

#### **iii) Background / Problem Focus**

Farmers in Madurai District are unique i.e., their soil, water source, cropping pattern are different. Their field problems are different and the solutions also differ. So, they need a stage to represent their problems and get feed back. The scientists also need a stage to teach new technologies to the farmers and also to listen the farmers problems for further research. There is still a gap from lab to land. So to solve this workshops are an innovative thinking.

#### **iv) Project Rationale**

District level farmers workshops motivate the farmers to adopt the new technologies. When they get the new idea in a group they easily get motivated to adopt the technologies.



**v) Project Strategy**

The district level farmers workshop will be conducted for a day. 1000 farmers will participate. The District Collector will honor the workshop. The scientists from KVK and SAU will attend the workshop and interact with farmers. The line department officials (Agriculture, Agriculture Engineering, forestry) will also be invited.

**vi) Implementation Chart of the Project**

<b>Year</b>	<b>No. of workshop to be conducted</b>	<b>No. of farmers</b>	<b>Amount to be spent (Rs.)</b>
2008	1	1000	400000
2009	1	1000	400000
2010	1	1000	400000
2011	1	1000	400000
	<b>Total</b>	<b>4000</b>	<b>1600000</b>

**vii) Reporting**

The annual report should be sent to CYPC, Chennai after completing the District level workshop.

**viii) Implementation chart of the project**

Farmers are identified from 13 blocks of Madurai District by the concerned Assistant Director of Horticultures. The farmer will be organized by Deputy Director of Horticulture in the Agricultural College, Madurai.

Budget	: Rs. 400 / farmer for 1000 farmers
Stipend	: Rs. 150 x 1000 = Rs. 150000
Lunch	: Rs. 150 x 1000 = Rs. 150000
Refreshment	: Rs. 1000 x 10 = Rs. 10000
Supply of training materials	: Rs. 75 x 1000 = Rs. 75000
Publicity, Mike, Stage, Pandal, photos and contingency	= Rs. 15000
<b>Total</b>	<b>= Rs. 400000</b>

### 6.2.10 Inter State Exposure Visit

#### i) Abstract

It is programmed to conduct inter state exposure visits of the farmers of Madurai District under NADP project @ 500 farmers per year in ten batches, totally 2000 farmers with the budget out lay of Rs. 100.00 lakhs in the span of four years.

#### ii) Project Goal

To conduct inter state exposure visit to 2000 farmers. This inter state tour cum training programme will help the farmers to know the latest technologies invented by the university and ICAR Institutions. During this visit farmers will also be exposed to the other state farmers field, so they can have interaction with farmers and they themselves will see and believe the technologies. By this way this lab to land programme will be facilitated.

#### iii) Background / Problem Focus

The usual method of extension may be failed in adoption of new technologies. This is a new methodology to take them away from home to the places, where it is actually implemented will help them in adopting new technologies to their field.

#### iv) Budget

Sl.No.	Year	Phy. (Nos.)	Fin. (Rs. In lakhs)
1	2008-09	500	25.00
2	2009-10	500	25.00
3	2010-11	500	25.00
4	2011-12	500	25.00
	<b>Total</b>	<b>2000 Nos.</b>	<b>100.00</b>

**v) Project Rationale**

Project cost per farmers : Rs. 5000

1	Travel expenses	Rs. 2000
2	Lodging and Boarding charges Rs.400 per day For 7 days	Rs. 2800
3	Documentation charges including honorarium, books and literature cost	Rs. 200
	<b>Total</b>	<b>Rs. 5000</b>

**vi) Project Strategy**

The visiting time, and place is to be fixed based on the crop, season and specialized institutions available.

(eg) Mango - IIHR, Bangalore.  
Banana - Bangalore, Safel Market

**vii) Project Cost and Financing**

The total project cost of Rs. 100.00 lakhs with 100per cent subsidy to the farmers which will help even poor farmers to participate and benefit.

**viii) Implementation Chart of the Project**

1<sup>st</sup> day - Journey to other state point  
2<sup>nd</sup> day - Training at Karnataka State  
3<sup>rd</sup> day - Training at Karnataka State  
4<sup>th</sup> day - Training at Karnataka State  
5<sup>th</sup> day - Training at Andhra State  
6<sup>th</sup> day - Training at Andhra State  
7<sup>th</sup> day - Return Journey

The exact place of visit and date of visit will be decided on sanction of the project and need based. The tentative programme is given below.

**a) Tentative Programme (One Year)**

1. No. of farmers	:	50 in a group
2. Total no. of group	:	10 groups
3. Total no. of farmers	:	5000 Nos.
4. Cost / Budget	:	Rs. 100.00 lakhs
5. Total No. of days	:	7 days
6. States to be covered	:	Karnataka, Andhrapradesh, and Tamil Nadu

**b) Places to be Visited**

Day	Place		Institutions to be visited
	From	To	
1	Madurai	Krishnagiri	
2	Krishnagiri	Bangalore	RRS, TNAU, Paiyur, Precision farming
3	Bangalore	Local	IIHR, Bangalore
4	Bangalore	Local	SAFEL Market
5	Bangalore	Thiruppathi	Citrus Research Station, APAU, Thirupatchi
6	Thiruppathi	Aandhrapet Trichy	APAU Research Station
7	Trichy	Madurai	NBRS Nation Banana Research Station

**ix) Reporting**

Reporting of the project and proposals will be done by the Deputy Director of Horticulture, Madurai for Madurai District.

**x) Project Components**

The project components includes transport, food, accommodation, training arrangements, literature cost etc.

**6.2.11. 10 Hectare Mega Demonstration Plot****(Eco-Friendly Good Organic Horticulture Tourism Demo Plot)****i) Abstract and Budget**

S. No.	Financial year	Physical Unit	Financial Assistance (100per cent) (lakh Rs.)		Remarks
			NADP	Cluster's contribution	
1	2008-2009	-	0	0	Since it is a innovative programme 100 per cent assistance can be extended to the cluster
2	2009-2010	1	25	0	
3	2010-2011	2	50	0	
4	2011-2012	2	50	0	
	<b>TOTAL</b>	<b>5</b>	<b>125</b>	<b>0</b>	

**ii) Project Goal**

- Conservation and efficient utilization of local natural resources for healthy horticulture farming.
- Scientific Integration of eco-friendly farming activities, utilizing the on-farm available agriculture input, recycling & value addition of farm waste to improve farming efficiency.
- Making the horticulture producers to become on-farm sellers of their garden fresh produce.
- Building confidence among consumers by directly seeing the organic produce production process and encouraging the eco-friendly horticulture tourism at the production centre.

### iii) Background / Problem Focus

- ❖ Agro-based industrial waste (National sugar mill, Alanganallur etc.,) agri – waste material available in plenty.
- ❖ Organic produce marketing can be encouraged because approach to main city is easy
- ❖ Still 20 per cent of the district population either directly or indirectly depends on agri- income.
- ❖ Horticulture activities are predominant in most of the blocks
- ❖ Organic produce activist expects this kind of organic tourism in this holistic city

Madurai is one among the metro-city surrounded by semi-urban and rural areas in which horticulture is the predominant activities fetching remunerative income to the farmers. Brisk Madurai city has the age old tradition of agri-business. Madurai is blessed with all religious God and throughout the year, the religious festivals are being celebrated in a grand manner in this holistic city. Madurai is recognized for Medical tourism too, the healthy diet is recommended for the speedy recovery of patients. Fruits, vegetable, flowers, medicinal and aromatic products are the main ingredient for all the festivals and diet. Horticulture crops production centre is connected with good road facilities and located at a radius of 25 KM from the heart of Madurai city. Apart from 10 lakh residential people, about 2 lakh people are coming daily to this city. Like other tourism, **‘Horticulture Tourism’** will definitely get momentum if sufficient support by both horticulture technicians and Government financial support is extended. Fortunately about 20 per cent of the total population of Madurai district either directly or indirectly depends on agriculture.

Over exploitation and depletion of natural resources for multi various purposes leads to climatic degradation. The level has crossed the critical stage. This is right time to educate the farmers to conserve local natural resource and consumers to take healthy organic fresh diet.

There is a lot of scope for production of the organic horticulture produce without further exploitation of natural resource.

### **Nutshell about Organic farming**

"It is an ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity. It is based on minimal use of off-farm inputs and management practices that restore, maintain and enhance ecological harmony".

Organic farming is gaining wide attention among farmers, entrepreneurs, policy makers and agricultural scientists for varied reasons such as it minimizes the dependence on chemical inputs (fertilizers; pesticides; herbicides and other agro-chemicals) thus safeguards/improves quality of resources, and environment it is labour intensive and provides an opportunity to increase rural employment and achieve long term improvements in the quality of resource base.

The replacement of external inputs by farm-derived resources normally leads to a reduction in variable input costs under organic management.

In the green revolution areas (irrigated lands and well endowed water regions), conversion to organic agriculture usually leads to almost identical yields. In traditional rainfed agriculture (with low external inputs), organic agriculture has shown the potentials to increase yields.

Crop management practices such as crop rotations, green manuring, crops residue recycling, water management, efficient plant types etc., are adopted through a combination of structural and tactical management options to ensure farm produce of sufficient quantity and quality for livestock and human consumption. Normally, a crop rotation involving a leguminous crop is preferred over others. Organic farmer preferably grow locally adopted varieties having some quality traits for the premium markets.

Livestock keeping at farms is an age old practice. Livestock play major role in organic agriculture as the intermediary between the utilization of crop residues or fodder produced at the farm and the return of nutrients as manure.

Animal dung, crop residues, green manure, biofertilizers and bio-solids from agro-industries and food processing wastes are some of the potential sources of nutrients of organic farming. While animal dung has competitive uses as fuel, it is extensively used in the form of farmyard manure. Development of several compost production technologies like vermi composting, microbe mediated phospho composting, N-enriched phospho composting, etc. improves the quality of composts through enrichment with nutrient-bearing minerals and other additives. These manures have the capacity to fulfil nutrient demand of crops adequately and promote the activity of beneficial macro-and micro-flora in the soil.

Storage and application of their resources seldom attract proper attention of the farmers resulting in 40-60 per cent losses in nutrients, especially N. Leaching of  $\text{NO}_3\text{-N}$  polluting the ground and surface water resources is usually observed from cattle dung pits. Organic farmers and farming methods take adequate care in minimizing these losses through adoption of technologies on composting, vermi-composting etc. This not only improves the nutrients availability from organic sources but also prevent potential hazard of ground water pollution. I would suggest to harness the power of micro-organisms in ameliorating such adversaries in soil.

Clean cultivation, improving soil health to resist soil pathogens and promote plant; growth; rotating crops; encouraging natural biological agents for control of diseases, insects and weeds; using physical barriers for protection from insects, birds and animals; modifying habitat to encourage pollinators and natural enemies of pests; and using semi-chemicals such as pheromone attractants and trap pests.



**Problem Focus**

Pesticide residues in the food, global warming, contaminating natural wealth due to urbanisation are the social problems at current stage. Awareness about organically produced fruits, vegetables, flowers, medicinal & aromatic produce among consumers is minimal. Only **“ECO-FRIENDLY GOOD ORGANIC HORTICULTURE TOURISM”** demonstration plot at production centre helps to popularize these organic technologies.

Popularising organic concepts in farming is the only mean to conserve eco-system as well as the sustainable horticulture enterprises. Hence this proposal is proposed.

**iv) Project Rationale**

Most of the horticulture growers in Madurai district mainly depend of the farming for their livelihood. But they are not well off to invest more on their land. The horticulture growers do not have scientific knowledge of horticulture crop cultivation and they have to be supported with agriculture technologies and market information.

Organic farming utilizing the on-farm available agri-input is not only reduce expenditure, but also preserves the originality of horticulture produce. The organic farming concepts has not been standardized and the quality parameters have not been formulated. Hence, the farmers have to be given with technical input and service by the research and extension workers. Since the farming activities are influenced by climate, labour, livestock, most importantly marketing of the produce, The success lies mostly on the total involvement of the beneficiaries group for which one year is required to motive and educate the group.

**v) Project Strategy**

1. Identification of 10 ha. project site. Already developed area with moderation exploitation of natural resource can be taken for this project. Compact area has to identified. The basic amenities like road, electricity, well for irrigation, farm house (permanent / temporary structure), fencing (Live / mechanical) are the needed facilities.
2. Horti entrepreneur – Agri labour cluster should be formed with the beneficiaries consisting of farm women and farm labourers, 33 per cent of the cluster should be reserved for women because most of the farming activities are being done by the women labourers.
3. Motivate the beneficiary clusters by giving the organic farming technologies and cultivation aspects
4. Collecting the basic data, planning and execution etc., should be documented in the computer at the project site itself.
5. Consultancy service from the organic experts can also availed
6. Project plan - Bio-mass yielding perennial / biennial tree or cover crops has to be planted along the periphery of the land or along the farm road or field bunds. Horticulture 10 ha farming programme can be framed according to the nature of resources and capacity of the cluster.
7. The local breed cow one unit comprising of 10 cattle has to be reared to get dung and urine.
8. Organic horticulture and marketing information can be obtained from the proposed computerized information centre. For communication internet connection should be provided to the farm premises itself.
9. Tourism activities should be encouraged by conducting field harvest days preferably every week end and the garden fresh produce should be sold at the farm premises itself.

**vi) Project Component**

1. Meteorological observatory – for monitoring the climatic condition
2. Local bred cow farming (10 cattles)- for sourcing dung , urine and milk
3. Recycling and value addition of farm / cattle wastes
4. Bio-gas plant, Vermicompost, Unit, Biofertilizers, Biopesticides, Mushroom culture, Composting yard.
5. Construction of Horticulture Information cum data bank (Computerised),
6. Packing and grading, retail shopping shed.
7. Moisture conservation and micro climate inducing Lotus pond -10 Nos.
8. Rain water harvesting structures near water source
9. Machineries and equipments and locomotive bodies
10. Seeds and plants and other essentials
11. Hygienic packing materials and labelling
12. Resources quality check mini kits

**vii) Project Cost and Financing**

Sl. No.	Components	Quantity	Value (Lakh Rs.)
1	Meteorological observatory	1 Unit	0.200
2	Local bred cow farming (10 cows)	10 cows	1.000
3	Recycling and value addition of farm / cattle wastes – Structures, Bio-gas plant and cattle shed	1 Unit	3.000
4	Construction of Horticulture Information cum data bank (computerised), packing and grading, retail shopping shed .	1 Unit	3.000
5	Moisture conservation & micro climate inducing Lotus pond & Rain water harvesting structures near water source	10 Nos	1.000

**Project Cost and Financing Contd...**

<b>Sl. No.</b>	<b>Components</b>	<b>Quantity</b>	<b>Value (Lakh Rs.)</b>
6	Machineries and equipments and locomotive bodies		1.300
7	Hybrid vegetable and papaya (red lady) seeds and plants and other essentials for horticulture and bio-mass afforestation		10.000
8	Drip irrigation		5.000
9	Conduct of organic food day at project site & Documentation charges		0.500
	<b>Total</b>		<b>25.000</b>

Totally 5 ten ha mega demo plots with an outlay of 125.00 lakhs.

**6.2.12 Support for Betelvine****i) Abstract**

In Madurai District betelvine crop is cultivated in an area of 153 ha. For the past 5 years the betel vine area is reduced. Because of the cost of cultivation of betelvine crops is higher than the other horticultural crops. Betelvine crop is cultivated by small and marginal farmers who are below poverty level. To give a necessary support for betelvine cultivators this project is proposed.

**ii) Budget**

New planting of betelvine crop costs Rs.5,00,000/ ha. Every year 5.0 ha. area will be increased.

(Rs. In lakhs)

Sl. No.	Scheme	2008-09		2009-2010		2010-11		2011-2012		Total	
		P	F	P	F	P	F	P	F	P	F
1	Betelvine New area Cultivation	5.0	25.0	5.0	25.0	5.0	25.0	5.0	25.0	20.0	100.00
	50 percent subsidy										50.00

To promote betelvine cultivation, new area cultivation of betelvine, the farmer can avail subsidy. Every year 5.0 ha. can be increased with the total cost Rs. 25.0 lakhs.

For 4 years 20 ha can be increased with the total cost Rs.100.0 lakhs, for which 50per cent subsidy of Rs.50.0 lakhs will be provided by NADP.

### iii) Background / Problem Focus

In betelvine crop the wilt disease is a major problem. This affects the growth of the vine and the quality of betel leaves. It causes heavy economic loss to the farmers. Integrated pest and disease management can be effective for control of pest and diseases. Most of the farmers are cultivating in leased lands. To, promote the betelvine cultivation, the new area expansion scheme will be undertaken with 50 per cent subsidy. More attention will be given for the training of plant protection aspects.

### iv) Project Rationale

The betelvine cultivation area is reduced because of the high cost of cultivation. To encourage the farmers 50 per cent subsidy will be given for expanding the area under cultivation.

### v) Project Strategy

The betelvine area will be increased by giving 50per cent subsidy under new area expansion scheme. Technical advice will be given to the farmers to produce quality betel leaves.

**vi) Project Goals**

Through this project the area of betelvine cultivation will be increased. The production and productivity will be increased through the technical advice given to the farmers.

**vii) Project Components**

Cost Rs / per acre

Sl.No.	Cultural Activities	Betelvine (Rs.)
1	Ploughing	10000
2	Farming beds and channels	10000
3	Cost of plants / Seeds / Nursery	20000
4	Planting	3000
5	Basal fertilizers	6000
6	Top dressing fertilizers	20000
7	Farm yard manure	20000
8	Seed / Plant treatment	2000
9	Spraying, dusting	36000
10	Earthing up	20000
11	Irrigation / Drainage	25000
12	Harvest	28000
	Total cost of cultivation Rs.	200000

The cost of cultivation of betelvine crop is 2.0 lakhs / acre.

It is proposed to give the subsidy after cultivation.

**viii) Project Cost and Financing**

The cost of cultivation of betelvine crop for 1 acre is Rs.2.00 lakhs and for 1ha is Rs. 500000. The cost of 50per cent subsidy is Rs.250000/ ha. Every year 5.00ha is expanded under betelvine cultivation with a total outlay of Rs. 100.0 lakhs with 50per cent subsidy.

**ix) Implementation Chart of the Project**

Assistant Director of Horticulture, Horticulture Officer and Assistant Agricultural Officers look at the block level. The beneficiaries will be selected by Assistant Agriculture Officers. Assistant Director of Horticulture will monitor the project and guiding the staffs. The Deputy Director of Horticulture will review and visit the area for inspection.

**x) Reporting**

The Assistant Director of Horticulture will review the block level staffs every week. The Horticulture Officers inspect and report to the Assistant Director of Horticulture. The Deputy Director of Horticulture will review the staffs once in 15 days. The Commissioner of Horticulture will review the Deputy Director of Horticulture once in a month.

**6.2.13 Humic Acid / Effective Microbes****i) Abstract****P: in Units****F: in lakhs**

Sl. No	Scheme Components	Unit cost (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Cost of Humic acid / Effective Microbes	400	50 per cent (Rs.200)	100	0.20	100	0.20	100	0.20	100	0.20	400	0.80

**ii) Budget****Supply of Humic Acid / Effective Microbes****(Unit cost Rs. 400/-) (50per cent assistance Rs. 200/-)**

Sl. No.	Year	Target		Subsidy assistance from NADP	Remarks
		Physical	Finance		
1	2008-2009	100	0.40	0.20	50 percent contribution will be borne by the beneficiary
2	2009-2010	100	0.40	0.20	
3	2010-2011	100	0.40	0.20	
4	2011-2012	100	0.40	0.20	
	<b>Total</b>			<b>0.80</b>	

**iii) Project Goal**

- a) Conditioning the soil, compost and plant wastes.
- b) Treating or controlling various fungal diseases or pests of plants
- c) Remediation of polluted or unbalanced waterways, streams, bays, ponds and lakes

**iv)Background / Problem Focus**

The prime need of agriculture are soil, water, atmosphere, sunlight etc., The area under cultivation is shrinking because of the contamination / pollution / over exploitation / mismanagement. In order to recondition these natural resources, EM plays important role.

EM has found applications in the following areas

- **Agriculture:**
- Conditioning soil, compost and plant wastes. It has been proven that continued use of EM can convert a soil to a truly sustainable type of soil, called a *zymogenic* soil



- for feeding livestock, for waste treatment, for odour control and pest management (e.g., flies); manages odours, improves feed utilization, improves health and vitality
- for treating or controlling various fungal diseases or pests of plants
- **Lawn maintenance:** for treating soil and compost or organic fertilizers, for preventing fusarium and molds
- **Buildings and architecture:** to maintain healthy buildings and building materials (timber, concrete, plaster, etc.) to prevent "sick building syndrome" and extend life of materials
- as a deodorizer for barns, waste treatment areas, homes, etc.
- as an aerosol spray deodorizer for home, agricultural and industrial use
- **Household:** pets, odor control, treating pet wastes on floors, for shower stalls, kitchen sinks, dishpans, garbage pails, toilets, drains, sinks, sink drains, compost buckets, etc.
- **Human use:** ingestion of a wide range of products made from EM, as a healthful probiotic and antioxidant supplement
- waste treatment
- wastewater treatment
- septic waste treatment
- for remediation of polluted or unbalanced waterways, streams, bays, ponds and lakes
- toxic waste remediation
- preparation of waste biomass material for bio-conversion into fuels such as biodiesel and others

#### v) Project Rationale

The awareness about EM among the farmers is very minimal. Instead of cost expensive technologies, it is advisable to convert the degraded soil and water into a potential resource.

The scheme component will be implemented in two blocks of Madurai district. The horticulture field level functionaries of the selected block will select the eligible beneficiaries, form them into group, and guide them to take this technology by periodical monitoring.

#### vi) Project Strategy

- ❖ Identification of the project site and the beneficiaries
- ❖ Make awareness about the EM
- ❖ Treat the EM in the problematic soil and water especially in the agriculture land
- ❖ Get the feed back from the beneficiaries

#### vii) Project Components

EM has found applications in the following areas

#### viii) Project Cost and Financing

P: in Units				F: in lakhs									
Sl. No.	Scheme Components	Unit cost (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Cost of Humic acid / Effective Microbes	400	50 per cent (200)	100	0.20	100	0.20	100	0.20	100	0.20	400	0.80

Total Project cost : Rs. 1.60 lakhs

Assistance from NADP : Rs. 0.80 lakhs

Farmer's contribution : Rs. 0.80 lakhs

#### ix) Implementation Chart of the Project

- Creating awareness about EM among the field level functionaries and the farmers through meeting and practical demonstration
- Supply of EM at 50 per cent cost to the beneficiaries
- Taking the follow up action of the treatment and recording the performance

**x) Reporting**

The scheme progress will be reported to the Commissioner of Horticulture, Chennai at Monthly interval.

**6.2.14 Mango / Amla in Noon Meal Scheme (TANHOPE)****i) Abstract****P: in Units****F: in lakhs**

Sl. No.	Scheme Components	Unit cost / group/district (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Mango/Amla in Noon meal scheme	50000	100per cent (50000)	2	1.00	2	1.00	2	1.00	2	1.00	8	4.00

**ii) Budget****Mango / Amla in Noon meal scheme (TANHOPE)**

Sl.No.	Year	Target		Subsidy assistance from NADP	Remarks
		Physical	Finance		
1	2008-2009	2	1.00	1.00	100 per cent assistance from NADP
2	2009-2010	2	1.00	1.00	
3	2010-2011	2	1.00	1.00	
4	2011-2012	2	1.00	1.00	
	<b>Total</b>			<b>4.00</b>	

**iii) Project Goal**

- Supplementing Mango and Amla fruits in the ongoing Midday meal programme
- To feed the school children with the complete planned food and to increase the performance

#### iv) Background / Problem Focus

The Mid-day Meal Scheme is the popular name for school meal programme in India especially Tamil Nadu. It involves provision of lunch free of cost to school-children on all working days. The key objectives of the programme are: protecting children from classroom hunger, increasing school enrolment and attendance, improved socialization among children belonging to all castes, addressing malnutrition, and social empowerment through provision of employment to women.

One of the pioneers of the scheme is the Madras Presidency that started providing cooked meals to children in corporation schools in the Madras city in 1923. The programme was introduced in a large scale in 1960s under the Chief Ministership of K. Kamaraj. But the first major thrust came in 1982 when the then Chief Minister of Tamil Nadu, Dr. M. G. Ramachandran, decided to universalise the scheme for all children in government schools in primary classes. Later the programme was expanded to cover all children up to class 10. Tamil Nadu's mid-day meal programme is among the best known in the country.

Nutritional value per 100 g of Mango pulp is Energy 70 kcal 270 kJ Carbohydrates 17.00 g - Sugars 14.8 g - Dietary fiber 1.8 g Fat 0.27 g Protein .51 g Vitamin A equiv. 38 µg 4per cent - β-carotene 445 µg 4 per cent Thiamin (Vit. B1) 0.058 mg 4per cent Riboflavin (Vit. B2) 0.057 mg 4per cent Niacin (Vit. B3) 0.584 mg 4per cent Pantothenic acid (B5) 0.160 mg 3per cent Vitamin B6 0.134 mg 10per cent Folate (Vit. B9) 14 µg 4per cent Vitamin C 27.7 mg 46per cent Calcium 10 mg 1per cent Iron 0.13 mg 1per cent Magnesium 9 mg 2per cent Phosphorus 11 mg 2per cent Potassium 156 mg 3per cent Zinc 0.04 mg 0 per cent.

The Mango is a very healthy fruit, which is not detrimental to slimming. For example, 3 ½ ozs. of mango slices contain 66 calories (an average sized fruit, flesh only 130 calories), 0.27g Fat and 2mg sodium and 'No cholesterol'

An average-sized mango can contain up to 40per cent of our daily fibre requirement, which is excellent news for those who may experience daily colonic evacuation problems.

Mangoes are an excellent source of antioxidants: Vitamin A (precursor beta-carotene), Vitamin C, as well as being a good source of Potassium. They also contain some Vitamin E and useful amounts of iron and nicotinic acid! In fact, mango fruit has a mild to moderate enhancing effect on iron absorption.

Ripe or green mangoes contain enzymes that make them useful as a tenderizing agent – good for inclusion in marinades. In India a sour mango powder made from ground up green mangoes called *Amchur* is used both for seasoning and tenderizing.

Mangoes are a ‘comfort food’ that is convenient for those wish to avoid weight-gain.

### **Mango Medicine**

Research concerning plant foods, fruits and vegetables in particular, has proved their potential to help delay the onset of many age-related degenerative diseases due to the high content of antioxidants: vitamins, minerals, carotenes, polyphenols, and other phytonutrients. It is the mango’s high antioxidant values that have been reported to be excellent for the immune system and to help protect against cancer. Mangoes also contain an enzyme with stomach soothing properties similar to papain found in papayas, which act as a digestive aid and are said to be partially responsible for the ‘feel good factor’ experienced during and after eating mangoes.

Benefits of mango beta-carotene ingestion, which is converted in the body to Vitamin A, are many: it may reduce the risk of heart attack, protect against cataracts and promote healthy eyes and skin. It may also help boost the immune response to colds and ‘flu. Vitamin C is best known as a cell protector and immune system booster, countering

the effects of cell damage by free radicals, aiding the body's ligaments, tendons and collagen. It is especially useful to help against the severity of colds and 'flu symptoms and duration. Diets high in potassium-rich food may help to protect against heart disease and stroke, as well as aiding regular heartbeat and heart-rhythm abnormalities. Vitamin E content may prevent blood clots, the formation of fatty plaques and cell proliferation on the walls of arteries, protect against stroke caused by blocked arteries and reduce the risk of some cancers by preventing cancer cell proliferation and causing cancer cells to die.

For example, Lupeol, a triterpene, is the principal constituent of common fruit plants such as olive, mango, fig and medicinal herbs that have been used to treat skin ailments. Lupeol possesses anti-skin-tumour-promoting effects.

Vitamin - A deficiency can cause various Ocular conditions, such as nyctalopia – (night blindness, impaired vision in dim light and in the dark, due to impaired function of certain specialized vision cells), hemeralopia – (inability to see clearly in bright light), xerophthalmia – ('dry eyes' resulting from inadequate function of the lacrimal glands which produce tears), which is a major cause of blindness in children in Africa and Latin America. Infant feeding practices reflect the antecedent risk of xerophthalmia in children 'Mango' helps to reduce the risk of this Vitamin A deficiency condition.

### **Mangoes in Ayurveda**

Mango is extensively used in Ayurvedic cures. Mangoes have the properties of 'heating'. Mangoes are good for excess wind (vata) and mucous (kapha). A ripe mango helps the body to generate blood. If a glass of lukewarm milk is taken after eating a ripe mango then it energizes the entire system, especially the intestines. Mango increases the seven hiatus. It cleanses the body by eliminating toxins. It cures constipation. The emergence of boils on the body after eating mangoes indicates the cleansing action of mangoes. It is a good cure for loss of weight. This fruit checks premature aging.

**Traditional Remedies****Heat Stroke**

Boil raw mangoes in water till cooked. Extract the juice, and mix with sugar, water, salt and a pinch of cumin seeds. Drink this consistently in the hot summer, especially when you suffer a heat stroke or get prickly heat.

**Digestion**

Aamchur or sun-dried raw mango powder is great to aid the digestive system. Eating one or two small tender mangoes in which the seed is still not fully formed, with salt and honey is an effective medicine for summer diarrhea, dysentery, piles, morning sickness, chronic dyspepsia and indigestion.

**Blood Disorders**

Raw mangoes increase the elasticity of the blood vessels, and help the formation of new blood cells. It aids absorption of food iron. It increases resistance against TB, anemia, cholera and dysentery.

**Bilious Disorders**

The acids contained in the green mangoes increase the secretion of bile and act as an intestinal antiseptic. Have it with honey and black pepper daily. This paste is also good for toning the liver.

**Eye Disorders**

Mango Milkshakes are very good for the eyes, due to Vitamin A. Night blindness, dryness of the eyes, itching and burning of the eyes.

**Loss of Weight**

Mango with milk, or preferably, Soya milk gives an ideal mixture of sugar and protein for under-weight people. Consuming this three times a day for a month will lead to better health, weight gain and vigor.

**Diabetes**

The tender leaves of the mango tree are used to prevent and control early symptoms of diabetes. Soak the fresh leaves in water overnight and squeeze them in water before straining it the next morning. Alternatively, these leaves should be dried, powdered and preserved. Take half a teaspoon of this powder twice a day.

**Spleen Enlargement, Dysentery and Diarrhea**

The mango stone should be dried and powdered. (you may do the same with the jamun seeds). Mix this powder with a big tablespoon of curd to cure spleen enlargement, dysentery and diarrhea.

**Throat Disorder**

The mango bark is very effective in the treatment of diphtheria and other throat diseases.

**Gum Inflammation**

Boil two tablespoons of mango flowers and tender buds in two cups of water and use as a mouth-wash regularly to cure the inflammation of the gums.

**Skin Disorders**

The gum of the mango tree and the resinous substance exuded from the stem end of the fruits can be mixed with lime juice and use to heal cutaneous infections and scabies.

So, amazingly, almost every part of the mango tree is used to cure common diseases. So, here, like the coconut tree, we have a mango tree which has immense practical use in our daily lives.

Amla is the second largest source of Vitamin C (600 mg/100 gm) among all the fruits, after Barbados cherry. This is 10 times the amount of Vitamin C present in orange.



Vitamin C plays a major role in the health of the teeth and gums. In addition to this, it increases the resistance against pathogenic attacks. Aonla is also rich in fibers that are important for the smooth flow of ingested food in our alimentary canal. Minerals like iron, calcium, and magnesium, which are crucial for the various metabolic reactions in a human body, are also present in ample quantities in aonla. Aonla is also a rich source of antioxidants, such as egalic acid, the role of which cannot be emphasized much.

Because of the high nutrient content and good medicinal properties both Mango and aonla may be sublimated in the on going Noon Meal Scheme.

**v) Project Rationale**

The school children particularly in the rural area are mal-nourished because they are not able to spend on food. Government is aiming for good education to the children for better future. With the concurrence of district head, respected collector, the schools in which the mid-day meal scheme is in implementation will be selected, they children will be fed with 100 g. of fruits / day as per dietician recommendation and their health and schooling performance will be observed with the help of the teaching and non-teaching staff.

**vi) Project Strategy**

Procurement of Mango & Amla from the producers through TANHOPE and supply to the Mid day meal scheme

**vii) Project Components**

Mango and Amla fruits

**viii) Project Cost and Financing**

Sl. No.	Scheme Components	Unit cost /group/district (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Mango/Amla in Noon meal scheme	50000	100 per cent (50000)	2	1.00	2	1.00	2	1.00	2	1.00	8	4.00

**ix) Implementation Chart of the Project**

- Formation of Mango and amla growers association and make them to tie up with TANHOPE
- Procurement of fruits
- Supply to the Mid day meal scheme

**x) Reporting**

The scheme progress will be reported to the Commissioner of Horticulture, Chennai at Monthly interval.

**6.2.15 Enterprising Farmers Associations (Jasmine and Horticulture Crops)****i) Abstract****P: in Units****F: in lakhs**

Sl No	Scheme Components	Unit cost (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Enterprising farmers associations	25 lakhs	100 percent	-	-	2	50.00	-	-	-	-	2	50.00

**ii) Budget**

Unit cost Rs. 25 lakhs- 100 percent assistance Rs. 25 lakhs

Sl.No.	Year	Target		Subsidy assistance from NADP	Remarks
		Physical	Finance		
1	2008-2009	-	-		100 percent assistance is needed
2	2009-2010	2	50.00	50.00	
3	2010-2011	-	-	-	
4	2011-2012	-	-	-	
	<b>Total</b>	-	-	<b>50.00</b>	

**iii) Project Goal**

- a) Strengthening the horticulture growers association to run in a more professional manner
- b) Linking the village level SHG, Farmer's group and form a block level federation / farmers organization to facilitate easy access to the other promotional activities
- c) Making identity to the growers by tying up other processor's federation and market and make them comfortable in their marketing.

**iv) Background / Problem Focus**

At present , there is no well organized commodity wise farmers group functioning in this district. Some un- registered Self Help Growers, Fruit growers association, village level growers association are functioning with uncertain objectives. District level Flower and fruit growers association though formed, are not functioning properly. Now a days the crop area is slowly increasing and the producers find difficult to sell their produce at a reasonable price. It is the right time to strengthen the association for better existence.

**v) Project Rationale**

The Jasmine growers association (Madurai district) and Guava fruit growers association, Palamedu, Alankanallur block though formed few year back , they are not functioning properly. Those two farmers associations can be strengthened.

**vi) Project Strategy**

- Proper registration of the farmers society / association and maintenance of proper accounts
- Guiding and Monitoring their functioning
- Strengthening of full fledged unit

**vii) Project Components**

- Asset creation at their production place (Palamedu for fruits & Madurai for jasmine flowers)
- Equipping with computerized market information data pool

**viii) Implementation Chart of the Project**

- Proper registration of the farmers society / association and maintenance of proper accounts
- Guiding and Monitoring their functioning
- Strengthening of full fledged unit

**ix) Reporting**

The scheme progress will be reported to the Commissioner of Horticulture, Chennai at Monthly interval.

**6.2.16 Agriculture Clinic at Block Level Assistant Director of Horticulture Office****i) Abstract****P: in Units****F: in lakhs**

Sl. No	Scheme Components	Unit cost (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Agriculture Clinic at Block level ADH Office	25 lakhs	100per cent	-	-	5	125	5	125	3	75	13	325

**ii) Budget**

Unit cost Rs. 25.00lakhs - 100per cent assistance Rs. 25 lakhs

Sl. No.	Year	Target		Subsidy assistance from NADP	Remarks
		Physical	Finance		
1	2008-2009	-	-		100 percent assistance is needed to establish pucca agri Clinic
2	2009-2010	5	125.00	125.00	
3	2010-2011	5	125.00	125.00	
4	2011-2012	3	75.00	75.00	
	<b>Total</b>	<b>13</b>		<b>325.00</b>	

**iii) Project Goal**

- Converting the block level Horticulture office to a perfect farmer's consultancy center
- Documenting the farmers cropping plan and suggesting technical input to the individual farmers by using the special soft ware meant for recording and suggesting the technology and input details
- Giving the spot solution by means of mobile plant clinic
- Act as farmers friendly counseling centre by suggesting suitable measures.

**iv) Background / Problem Focus**

Block level horticulture office is started functioning from 1.1.2008 and the technical persons were placed in the Head Quarters. It is wise to equip them with complete consultancy provider. Each block office has control over nearly 25000 Ha horticulture crop. Now-a-days Horticulture venture is slowly and steadily picking up. Creation of facilities at the Head Quarters benefits farmer friendly technology dissemination.

Particularly women farming entrepreneur who are directly involved in the farming activities have no time to come out from their farm to get advice or training from the technocrats. The proposed mobile plant clinic will facilitate on the spot field advice to maximize the returns of the entrepreneurs.

**v) Project Rationale**

The Field level functionaries already have basic knowledge in Horticulture now are exposed to lot of training and field demonstration. They are in a position to document the field level situations, cropping programmes, and other related data for current and future reference.

**vi) Project Strategy**

- Formation village level horticulture farmers group. This group should consist of interested farmers and it should comprise of minimum 33 per cent women members. They are the key members to collect primary data and suggest cropping plan for the village.
- Providing full fledged mobile consultancy service by means of van / some other conveyance
- Establishment of Computerized lab cum data pool centre at block head Quarters to facilitate recording the exact happenings of the farming activities and suggesting suitable measures
- Updating farmers / labourers skill and knowledge by means of on the spot training / demo / consultancy

- Remote places where horticulture activities are predominant should also be covered at least once in a month
- Periodical scheduling of the proposed visit particularly during season should be fixed according to their farmers convenience
- Coordinating the service of the Agriculture University / NGOs / developing firms / other consumer's form to give healthy transformation of knowledge

#### vii) Project Components

- a) Building for computerized lab cum data pool centre worth of Rs. 10 lakhs
- b) Fully equipped Mobile Van / conveyance / mobile unit fitted with Public address system worth of Rs. 10 lakhs
- c) Computerized lab and data pool equipment worth of Rs. 3 lakhs
- d) Documentation of village horticulture farming activities / House magazine narrating the block horticulture scenario - Rs. 2 lakhs

#### viii) Project Cost and Financing

**P: in Units**

**F: in lakhs**

Sl. No	Scheme Components	Unit cost (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Agriculture Clinic at Block level ADH Office	25 lakhs	100 percent	-	-	5	125	5	125	3	75	13	325

**ix) Implementation Chart of the Project**

- ❖ Formation village level horticulture farmers group. This group should consist of interested farmers and it should comprise of minimum 33 per cent women members. They are the key members to collect primary data and suggest cropping plan for the village.
- ❖ Providing full fledged mobile consultancy service by means of van / some other conveyance
- ❖ Establishment of Computerized lab cum data pool centre at block head Quarters to facilitate recording the exact happenings of the farming activities and suggesting suitable measures
- ❖ Updating farmers / labourers skill and knowledge by means of on the spot training / demo / consultancy
- ❖ Remote places where horticulture activities are predominant should also be covered at least once in a month
- ❖ Periodical scheduling of the proposed visit particularly during season should be fixed according to their farmers convenience
- ❖ Coordinating the service of the Agriculture University / NGOs / developing firms / other consumer's form to give healthy transformation of knowledge
- ❖ Coordinating the service of the Agriculture University / NGOs / developing firms / other consumer's form to give healthy transformation of knowledge

**x) Reporting**

The scheme progress will be reported to the Commissioner of Horticulture, Chennai at Monthly interval.



### 6.2.17 Alanganallur Block 100 per cent Farmers Literacy Programme Through TNAU-ODL

#### i) Abstract

**P: in Units**

**F: in lakhs**

Sl. No.	Scheme Components	Unit cost (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Farmers Literacy Programme through TNAU, ODL programme	1500	100 percent	1000	15	1000	15	1000	15	2000	30	5000	75

#### ii) Budget

**Unit Cost Rs. 1500- 100 percent Assistance Rs.1500/-**

Sl. No.	Year	Target		Subsidy assistance from NADP	Remarks
		Physical	Finance		
1	2008-2009	1000	15.00	15.00	100per cent assistance may be extended
2	2009-2010	1000	15.00	15.00	
3	2010-2011	1000	15.00	15.00	
4	2011-2012	2000	30.00	30.00	
	<b>Total</b>	<b>5000</b>	<b>75.00</b>	<b>75.00</b>	

#### iii) Project Goal

- Making the farmer's interest group into homogenous group and to know their priority of interest and income
- Making them into a student of ODL (TNAU) and educate
- Making the horticulture growers into 100 per cent horticulture literacy.

**iv) Background / Problem Focus**

Most of the horticulture farmers in Madurai district have not familiar in their profession and have lack of knowledge about their venture. Hence, they could not get 100 percent success in their profession. Educating them in the interested line will definitely help to get good remuneration. Distance mode of education will definitely help to improve the knowledge.

- Distance education is capable of disseminating knowledge for learning by a diverse of means and modes.
- Distance education provides opportunities for higher education to a large segment of the population.
- Distance education promotes the educational well being of the community.
- Distance education is affordable by those who can not spend more for education.
- Distance education is able to provide quality education

Tamil Nadu Agricultural University (TNAU) has entered "Distance Education", based on the experiences gained with the expertise of the Commonwealth of Learning (COL), as its fourth frontier area to accelerate agricultural development and ensure food security. TNAU aims at empowering people through knowledge transfer by creating demand driven avenues for a life long learning process in a developing economy. TNAU offers 7 certificate courses, 2 PG Diploma and 2 PG Degree courses through distance learning mode. The courses are designed to transfer know how and do how in agriculture and allied enterprises leading to improvements in adoption of modern technologies and establishment of agro based enterprises in rural areas. The course materials meant for ODL programmes were prepared on Self Instructional Materials (SIM) mode. Scientists of TNAU were given hands on training through Tech Mode workshop at ICRISAT in various softwares available for open and distance learning materials preparation. This paper addresses issues in offering education programmes in distance mode to the farmers, unemployed rural youth, self help groups and middle level extension functionaries, extent

of knowledge transfer and avenues for strengthening this mode. The experiences gained have enabled to prescribe policies for strengthening knowledge transfer through the ODL mode.

The Tamil Nadu Agricultural University (TNAU) established during 1971 has a good track record of offering distance education programmes through print and electronic media since 1974. "Correspondence courses" and "Farm School on All India Radio" were the early attempts in distance education. These programmes enabled various segments of the farming community and middle level extension functionaries to improve their agriculture leading to over all improvement in socio-economic aspects of living. A total of 138 courses on Farm School on All India Radio were organized for the benefit of more than 46,000 farmers. Similarly, certificate courses on 196 topics organized helped more than 12,000 farmers to improve their livelihood. Studies conducted to evaluate these two programmes have clearly indicated that the programmes have made a far reaching impact on the rural audience over the years. The success achieved in non-formal mode of education, rising demand for distance education programmes, and the pressing need to educate the rural masses on scientific agriculture prompted TNAU to expand its non-formal education system.

#### **Certificate Courses Offered In TNAU**

- Bee Keeping
- Waste Recycling and Vermicomposting
- Mushroom Production
- Cotton and Maize Hybrid Seed Production
- Vegetable Seed Production
- Preservation of Fruits and Vegetables
- Repair and Maintenance of Farm Equipments and Machineries
- Wasteland Development
- Medicinal aromatic plants cultivation
- Nursery Techniques and Propagation of Horticultural Plants etc.,

**v) Project Rationale**

As a token of introduction, Alangnallur block will be selected to the 100per cent horticulture literacy programme. The beneficiaries selected under ongoing schemes and interested farmers in and around Palamedu (farmers association and SHG members) those who have passed 6<sup>th</sup> standard (eligible criteria) can able to read and write on their own will be selected as beneficiaries. And they will be enrolled for the 100per cent horticulture literacy programme.

**vi) Project Strategy**

- ✓ The selected beneficiaries under various schemes and the farmers SHG and association members in and around Palamedu , Alanganallur block will be selected by the Horticulture field level functionaries .
- ✓ No age bar. Only the interest in the particular subject and venturing into the particular subject is the limit
- ✓ The selected beneficiaries should comprises of 33 per cent women
- ✓ 6 months and 12 months certificated course will be enrolled
- ✓ 100 per cent pass will be the expected which will be monitored by the horticulture department officials.

**vii) Project Components**

TNAU institution support and resource persons

**viii) Project Cost and Financing****P: in Units****F: in laks**

Sl. No.	Scheme Components	Unit cost (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Farmers Literacy Programme through TNAU,ODL programme	1500	100per cent	1000	15	1000	15	1000	15	2000	30	5000	75

**ix) Implementation Chart of the Project**

- ✓ The selected beneficiaries under various schemes and the farmers SHG and association members in and around Palamedu, Alanganallur block will be selected by the Horticulture field level functionaries.
- ✓ No age limit.
- ✓ The selected beneficiaries should comprises of 33 per cent women
- ✓ They will be enrolled in 6 months and 12 months certificated courses
- ✓ 100 per cent pass will be expected which will be monitored by the horticulture department officials

**x) Reporting**

The scheme progress will be reported to the Commissioner of Horticulture, Chennai at Monthly interval.

**Venture Capital Scheme (TNAU)****i) Abstract****P: in Units****F: in laks**

Sl. No.	Scheme Components	Unit cost (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Venture Capital Scheme (TNAU)	2000	100per cent	250	5.00	250	5.00	250	5.00	250	5.00	1000	20.00

**ii) Budget**

Unit cost Rs. 2000/-100 percent assistance Rs. 2000/-

Sl. No.	Year	Target		Subsidy assistance from NADP	Remarks
		Physical	Finance		
1	2008-2009	250	5.00	5.00	100 percent assistance
2	2009-2010	250	5.00	5.00	
3	2010-2011	250	5.00	5.00	
4	2011-2012	250	5.00	5.00	
	<b>Total</b>	<b>1000</b>	<b>20.00</b>	<b>20.00</b>	

**iii) Project Goal**

- Making the Farmer's Interest group for value addition of their produce and earn more profit out of their own produce
- Involving more Women farmers and horticulture labourers to improve their skill in their respective field
- Bringing the horticulture food processing and allied areas through value addition by way of improving their skill and knowledge
- Improving the personal ability of the farmers and venture into a horticulture business at their village level

**iv) Background / Problem Focus**

It is time to go into depth to expose the farmers ability and make them worthy to do all kinds of horticulture activities in a perfect manner. TNAU is operating Venture Capital Scheme in different field like nursery, fruit and vegetable preservation, precision farming, garland, wreath and bouquet making with different flowers, laying out ornamental garden etc.,

**v) Project Rationale**

The horticulture farmers and people involved in the supportive and allied activities are made into specialist to the particular venture. The beneficiaries will be selected by the Horticulture field level functionaries and through Deputy Director of Horticulture, and they will be deputed to TNAU to get training.

**vi) Project Strategy**

- ✓ Selection of suitable beneficiaries who are ready to venture in the particular field by the field level horticulture functionaries
- ✓ Deputing to gain knowledge in their respective interested field

**vii) Project Components**

- Rs. 1500/- for enrollment
- Rs. 500/- to get practical experience at the TNAU premises

**viii) Project Cost and Financing****P: in Units****F: in laks**

Sl. No.	Scheme Components	Unit cost (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Venture Capital Scheme (TNAU)	2000	100per cent	250	5.00	250	5.00	250	5.00	250	5.00	1000	20.00

**ix) Implementation Chart of the Project**

- Selection of suitable beneficiaries who are ready to venture in the particular field by the field level horticulture functionaries
- Depute to gain knowledge in their respective interested field

**x) Reporting**

The scheme progress will be reported to the Commissioner of Horticulture, Chennai at Monthly interval.

**6.2.18 Pollinator Village (Honey Bee Rearing)****i) Abstract****P: in Units****F: in lakhs**

Sl. No.	Scheme Components	Unit cost (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Pollinator Village (Honey Bee rearing)	1600	50per cent (800)	500	8.00	500	8.00	500	8.00	500	8.00	2000	32.00



**ii) Budget**

Unit cost Rs. 1600/-50per cent assistance Rs. 800/-

Sl. No.	Year	Target		Subsidy assistance from NADP	Remarks
		Physical	Finance		
1	2008-2009	500	8.00	4.00	50 percent contribution will be borne by the beneficiary
2	2009-2010	500	8.00	4.00	
3	2010-2011	500	8.00	4.00	
4	2011-2012	500	8.00	4.00	
	<b>Total</b>	<b>2000</b>	<b>32.00</b>	<b>16.00</b>	

**iii) Background / Problem Focus**

Alanganallur block in Madurai district, coconut grove, moringa, fruits crops, flower crops, vegetable crops are being grown in a considerable extent. The natural forest areas is located at the North of the Alanganallur block in which forest tree species of diversified nature are there which provide sufficient feed for the Honey bee. The people living near forest area have the habit of collecting the honey from rock bee colony.

Providing pollination support to the horticulture crops will definitely increase the yield and quality of the produce. Domestication of honey bee is possible. 10 bee colonies are being recommended for one ha. of horticulture crops.

Beekeeping with *Apis cerana* is a growing industry in the central parts of the Bee Research & Training Institute and the Khadi & Village Industries Commission, located at Poona & Mumbai, respectively. The hills of Mahabaleshwar located in Maharashtra were the pioneering areas for beekeeping training and experiments are taking place.

Beekeeping is a traditional industry in West Bengal and some North Eastern states like Arunachal and Sikkim. In Karnataka & Tamil Nadu - there is a strong tradition of

beekeeping with *Apis cerana*. Areas such as Coorg in Karnataka & Marthandam in Tamil Nadu are famous for their beekeeping culture. In Kerala, especially in the rubber growing areas, beekeeping is a regular activity and large quantity of honey (from extra floral nectar) is being produced.

*Apis dorsata*, a forest honey bee species known as Rock bee are natural habitant of the Sirumalai Hills which guards Alanganallur block in the Northern direction. *Apis dorsata* collectors are mainly tribals or village people. Honey for health and Ayurvedic medicines has been a traditional industry in this region.

*Apis mellifera* the other with *Apis cerona*. Both these sectors have developed strong beekeeping cottage industries and today have power to influence local authorities in areas of pollination policy and honey production.

Unlike many other countries where development in beekeeping has been unipolar, in India, due to the diversity in flora, topography and activities of people, beekeeping and management is diverse. In this country, beekeeping has been adapted to various ecosystems, socioeconomic profiles and habitat preferences. The need for modern science and technology is to understand this age old traditional system and provide useful inputs for relevant modern apiculture.

Apart from Honey and wax, Stings can be useful. Some beekeepers believe that stings are a good treatment for rheumatism and people who are not beekeepers will sometimes pay therapists to provide this treatment.

#### **iv) Project Rationale**

The village around Sathiar river and dam in Alanganallur block will be selected and it will benefit around 5000 Ha. of horticulture crops.

**v) Project Strategy**

- ❖ Site selection (Palamedu, Konapatti, Ramakavundanpatti, Thethur Karadikal , Kondiyampatti, Kalvelipatti )
- ❖ Identification of beneficiaries and giving training through Khadi and village Industries department
- ❖ Giving assistance to procure bee colonies to the beneficiaries
- ❖ Periodical guidance and monitoring of rearing honey bees

**vi) Project Components**

Honey bee hives with colonies

**vii) Project Cost and Financing**

**P: in Units**

**F: in lakhs**

Sl. No.	Scheme Components	Unit cost (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Pollinator Village (Honey Bee rearing)	1600	50per cent (800)	500	8.00	500	8.00	500	8.00	500	8.00	2000	32.00

**viii) Implementation Chart of the Project**

- Site selection (Palamedu, Konapatti, Ramakavundanpatti, Thethur Karadikal , Kondiyampatti, Kalvelipatti )
- Identification of beneficiaries and giving training through Khadi and village Industries department
- Giving assistance to procure bee colonies to the beneficiaries
- Periodical guidance and monitoring of rearing honey bees

**ix) Reporting**

The scheme progress will be reported to the Commissioner of Horticulture, Chennai at Monthly interval.

### 6.6.20 Rural Food Processing and Knowledge Centre (Technical Support by Home Science College, Madurai)

#### i) Abstract

**P: in Units**

**F: in lakhs**

Sl. No	Scheme Components	Unit cost	Pattern of subsidy	2008-09		2009-10		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Rural food Processing and knowledge centre	75 lakhs	100per cent	-	-	1	75	1	75	-	-	2	150

#### ii) Budget

Sl.No.	Year	Target		Subsidy assistance from NADP
		Physical	Finance	
1	2008-2009	-	-	-
2	2009-2010	1	75.00	75.00
3	2010-2011	1	75.00	75.00
4	2011-2012	-	-	-
	<b>Total</b>		<b>150.00</b>	<b>150.00</b>

#### iii) Project Goal

- To facilitate Value addition and preservation of Horticulture and agriculture products by the farmers themselves near their production center.
- To facilitate more income by value addition to the farmers and rural people.
- Empowering the women in rural areas to go for small scale industries

#### **iv) Background / Problem Focus**

Value addition of the produce makes to earn three times more than that of fresh products. In Alanganallur block the fruits like mango, banana, guava, papaya, amla, jack, lime etc., and all kinds of vegetables are being grown. Mushroom, and Honey production are possible area to explore. The Kherkin, cucumber are also produced by the contract farming system.

In Alanganallur block, comparatively more non mobilized rural labour force is available. They have already relished the benefits of cattle rearing and value addition of the produce. Since, it is one of the horticulture belt, more farmers are also interested in value addition of their produce and sell directly to the consumers. Rural Tourism is possible in this block (Sathiar Dam, Kuttaladampatti falls, Malaiyur hills etc.,) SHG are functioning in almost all the village. Hence, there is vast opportunity for the value addition and thereby earn more income out of it.

**Products from Horticulture Crops :-** Jam, Jelly, squash, ready to serve beverage, candy, dehydrated flake, pickles, pulp, vinegar, fruit powder, preservatives, tooty fruity, fruit bars, value added mixed juices, etc.,

**Milk Based Food :-** Flavoured milk,

**Bakery food :-** Cookies, Bread, Bun, Pizza, Puffs, Macrones, Muffins

**Conventional foods :-** Masala power, Vermicilli Macron, Murukku, Idiappam, Kai Murukku et.,

**Honey Products etc.,**

Tamil Nadu Agriculture University, Home Science college, Madurai have already facilitated Self Help groups in alanganallur block. Frequent campaign about food preservation and value addition are being convened by Home Science college, Madurai.

The people at present need an infrastructure to do all kinds of preservation and value addition of their produce. It will be viable project to function at this village either Palamedu or near by place. More over it has connected with the road to the town.

**v) Project Rationale**

Public- Private partnership and the service of financial institutes and TNAU (Home Science college, Madurai) will be utilized. The horticulture and agriculture marketing department field level functionaries will be totally utilized in gathering the rural masses and make them entrepreneurs.

**vi) Project Strategy**

- ❖ Plan, design and consultancy service by Home Science college, Madurai
- ❖ Forming people group combining all the
- ❖ The beneficiaries will pay the processing charges fixed by the maintenance committee
- ❖ For long run of this unit , the service of strengthened farmers association and voluntary organizations can be availed under the direct supervision of Horticulture and Agri Marketing department

**vii) Project Components**

Home science College, Madurai may be proposed to prepare plan and estimate and for periodical monitoring of the project.

**Machineries Required**

**Fruit and Vegetable Preservation**

Boiler, pulper, double jacket kettle, vacuum filling machine, corking machine, capping machine, sealers, processing table, refractometer, stainless steel vessels, cabinet drier, vegetable cutting machine, solar drier, generator, Locomotive manual wheel barrow, etc.,

**Bakery Unit**

Dough mixer, rotary baking oven, broad pan, cake moulds, and other accessories, bread slicer, dough moulders, dough sheeter, cookies mould machine, steel topped table etc.,

**Convenience food**

Extruder, pulveriser, spice grinding unit, form fill packing unit, vacuum packing with nitrogen flush, kaimurukku machine.

**Area required**

Bakery	– 1000 sq. feet
Fruit vegetable unit	– 1500 sq. feet
Convenience foods	– 1200 sq. feet
Work space	- 5000 sq. feet

**Infrastructure facilities**

Building , furniture's, lighting with conventional energy , generator, computer with LCD projector to show the training materials, computer to record data, Mini laboratory, mini library etc.,

**viii) Project Cost and Financing****P: in Units****F: in laks**

Sl. No.	Scheme Components	Unit cost (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Rural food Processing and knowledge centre	25 lakhs	100per cent	-	-	1	75	1	75	-	-	2	150

**ix) Implementation Chart of the Project**

- ❖ Plan, design and consultancy service by Home Science college, Madurai
- ❖ Forming people group combining all the
- ❖ The beneficiaries will pay the processing charges fixed by the maintenance committee
- ❖ For long run of this unit , the service of strengthened farmers association and voluntary organizations can be availed under the direct supervision of Horticulture and Agri Marketing department

**x) Reporting**

The scheme progress will be reported to the Commissioner of Horticulture, Chennai at Monthly interval.

**6.2.19 Rural Agriculture Tourism Festival****i) Abstract**

P: in Units				F: in lakhs									
Sl. No.	Scheme Components	Unit cost (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Rural tourism Agriculture Festival	20 lakhs	100per cent	-	-	1	20	1	20	1	20	3	60



**ii) Budget**

Sl.No.	Year	Target		Subsidy assistance from NADP	Remarks
		Physical	Finance		
1	2008-2009	-	-	-	100per cent assistance
2	2009-2010	1	20.00	20.00	
3	2010-2011	1	20.00	20.00	
4	2011-2012	1	20.00	20.00	
	<b>Total</b>	<b>3</b>	<b>60.00</b>	<b>60.00</b>	

**iii) Project Goal**

- a) To bring back the fame in Agriculture profession by familiarizing the scope and the modern technologies suits to the changing scenario
- e) Exposing the locally grown agriculture products, value added products, organically produced produce at the production site itself by exhibiting in the Rural Tourism expo ( agriculture includes – agriculture, horticulture, dairy, fisheries , poultry, mushroom, apiculture, sericulture, agro forestry, Agriculture Information service, marketing, allied works viz. labour saving tools & equipments, containers, packing grading units etc.,)
- f) Developing the farmer's status to an agriculture entrepreneur by making awareness about the current trend and prospects in the agriculture and the marketing among the agriculturist.
- g) Making competitive spirit among the growers by conducting crop competition and distribution of prize to the winners (both exhibition show and field show )
- h) To make the platform for consumer oriented market linked horticulture / agriculture
- i) Making consumer's awareness about the healthy diet and garden fresh food by direct seeing in the field
- j) Creation of rural infrastructure to facilitate the visitors comfort

**iv) Background / Problem Focus**

- Most of the livelihood of the people especially in rural and semi-urban areas are revolving on agriculture and allied activities for their financial status.
- More number of exhibitions, expos, seminars, workshops, campaigns for all the activities are being conducted in the heart of the city or in the periphery which will be benefited by the urbanites.
- The urbanites particularly the younger generations who are totally engaged in schools and offices as their routine life are experienced stress;
- The place like Sathiar dam & Kuttaladampatti falls in Alanganallur block , Alagarkoil etc., have attraction for the visitors. Lot of agriculture / horticulture activities are taking place throughout the year. These places can be selected for the conduct of rural tourism festival
- The profits of the farmers are consumed by the middle man or by the transportation. Such tourism programme favoures the consumers and the processors to come close to the production center and make their choice. More over the farmers got aware about the consumers taste and produce the produce according to the taste of consumers.

**v) Project Rationale**

- The service of agriculture , horticulture, agriculture engineering, animal husbandry, fisheries, sericulture, forestry, NGOs, Farmers organization, public and private companies, Processors organization, conventional energy department, TNAU, Health, Education department etc., will be involved under the chairmanship district collector.
- Sathiardam in Alanganallur block has well connected by road, which is located 30 KM away from Madurai city can be chosen as the first venue for the conduct of “Rural Tourism Festival”. Palamedu and Alanganallur have already spotted as Tourism centre for the conduct of the world famous Jallikattu.

**vi) Project Strategy**

- Like flower show, fruit show, mango festival etc., conducted at the different venue in Tamil Nadu, this “Rural Tourism Festival” will be conducted at Sathiyar dam
- Formation of “Rural Tourism Festival” committee under the chairmanship of the district Collector. Agriculture / Horticulture District head are the authority to organize this festival involving all the departments and farmers organizations.
- The school annual vacation or the season when the farming activities are in full swing or the season when most of the produce are in bearing may be fixed as date of conduct of festival.
- Farmer’s participation – Consumers forum direct conduct should be the prime objectives of the festival

**vii) Project Components**

- Crop competition of horticulture produce Fruits/Vegetables/Flowers/Other produce(Organically produced, Precision farming produce etc.,)
- Exhibition
- Best department stall
- Best private stall
- Two days festival Conduct of Festival inauguration / Valedictory function

**viii) Project Cost and Financing****P: in Units****F: in lakhs**

Sl. No.	Scheme Components	Unit cost (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Rural tourism Agriculture Festival	20 lakhs	100 percent	-	-	1	20	1	20	1	20	3	60

**ix) Implementation Chart of the Project**

- Like flower show, fruit show, mango festival etc., conducted at the different venue in Tamil Nadu, this “Rural Tourism Festival” will be conducted at Sathiyar dam
- Formation of “Rural Tourism Festival” committee under the chairmanship of the district Collector. Agriculture / Horticulture District head are the authority to organize this festival involving all the departments and farmers organizations.
- The school annual vacation or the season when the farming activities are in full swing or the season when most of the produce are in bearing may be fixed as date of conduct of festival.
- Farmer’s participation – Consumers forum direct conduct should be the prime objectives of the festival

**x) Reporting**

The scheme progress will be reported to the Commissioner of Horticulture, Chennai at Monthly interval.

### 6.2.22 Cinematography Documentation of Horticulture Crop Husbandry and Wealth of the District

#### i) Abstract

P: in Units				F: in lakhs									
Sl. No.	Scheme Components	Unit cost	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Cinematography documentation of Horticulture crop husbandry and wealth of the district	10 lakhs	100per cent	-	-	1	10	1	10	1	10	3	30

#### ii) Budget

Sl.No.	Year	Target	
		Physical	Finance
1	2008-2009	---	---
2	2009-2010	1	10
3	2010-2011	1	10
4	2011-2012	1	10
	<b>Total</b>	<b>3</b>	<b>30</b>

#### iii) Project Goal

- Professional making of visuals based on the cultivation packages of horticulture crops and horticulture wealth of the district
- Documentation of the on going schemes like Waste land development scheme, Precision Farming, National Horticulture Mission scheme, Micro Irrigation scheme, etc., for future reference
- To show the cinematographic documentation through different media like TV, Internet, CD, DVD to know about our agriculture / horticulture profession
- To cover the field level workers experiences at the fields for horticulture

**iv)Background / Problem Focus**

- Day to day change in technologies of horticulture needs different site specific technologies for the sustainable horticulture growth
- “Good Agriculture Practice” in crop productivity without affecting the wealth of natural resources
- Market linked horticulture production is need for the day
- The farmers, SHG, corporate bodies those who are involved horticulture are to be taught the healthy crop husbandry practices. Transparent and disciplined adoption of agriculture technologies leads to quality produce which will attract more consumers and the buyers.
- Graphic and Video visual shows will definitely reach the farmers irrespective of educational and financial status.
- Documentation of success stories helps for future reference

**v) Project Rationale**

- Madurai district horticulture wealth will be documented by utilizing the service of well trained professionals in the documentation field
- Focused horticulture crops will be given top most priority
- The cinematographic production will satisfy the needs of both producers and consumers
- Conservation of natural wealth , Healthy cultural practice, cost effective technologies and time saving technologies, good value of the horticulture produce will be documented
- This video clippings will be displayed / played in all the agriculture related functions, forum, farmers gathering , etc.

**vi) Project Strategy**

- ❖ Finalization of Script and video production strategies in consultation with TNAU experts.
- ❖ Stage by stage cultivation practices will be recorded

- ❖ The chain of events starting from seed to final products to the consumers will be recorded for all the crops
- ❖ For all documentation the welfare of the farmers, workers, consumers will be considered
- ❖ The service of NGOs who are already involved in the documentation can also be availed
- ❖ Saving of crops during the natural calamities are also be recorded
- ❖ Controlled condition crop production like green house cultivation will also be recorded

#### vii) Project Components

- Professionally trained team of persons in the field of cinematography will be involved
- The demonstration and field activities will be recorded
- Technologies recommended by the TNAU, local cost effective practice, will be finalized by the team of experts
- Proper mixing of music, songs, sceneries, etc., if possible special effects can also be mixed
- Duplication of the production to the needy level.

#### viii) Project Cost and Financing

P: in Units				F: in laks									
Sl. No.	Scheme Components	Unit cost (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Cinematography documentation of Horticulture crop husbandry and wealth of the district	10 lakhs	100per cent	-	-	1	10	1	10	1	10	3	30

**ix) Implementation Chart of the Project**

- Finalization of Script and video production strategies in consultation with TNAU experts.
- Stage by stage cultivation practices will be recorded
- The chain of events starting from seed to final products to the consumers will be recorded for all the crops
- For all documentation the welfare of the farmers, workers, consumers will be considered
- The service of NGOs who are already involved in the documentation can also be availed
- Saving of crops during the natural calamities are also be recorded
- Controlled condition crop production like green house cultivation will also be recorded

**x) Reporting**

The scheme progress will be reported to the Commissioner of Horticulture, Chennai at Monthly interval.

**6.2.23 Strengthening of Extension – Technical Knowledge Centre at Block Head Quarters****i) Abstract****P: in Units****F: in laks**

Sl. No.	Scheme Components	Unit cost (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Strengthening of extension – technical knowledge centre at block head quarters	10 lakhs	100 percent	-	-	3	30	5	50	5	50	13	130



**ii) Budget**

Sl.No.	Year	Target		Subsidy assistance from NADP	Remarks
		Physical	Finance		
1	2008-2009	-	-	-	100 percent assistance
2	2009-2010	3	30	30	
3	2010-2011	5	50	50	
4	2011-2012	5	50	50	
	<b>Total</b>	<b>13</b>	<b>130</b>	<b>130</b>	

**iii) Project Goal**

- Converting the block head quarters into a horticulture knowledge sourcing centre
- Establishment of library, collection of visuals of specimen, updating the latest development in the field of horticulture by means of electronic medium
- The centre should be of farmers problem solving office instead of dealing only the clerical office work
- Creating the records in a more professional manner for future reference

**iv) Background / Problem Focus**

At present the situation in the office is not conducive enough to disseminate the technologies. Even the staff of the office is not in a position to solve the problems of farmers. The latest reorganization in the Agriculture department facilitates the staff strength of the horticulture department but they are not well equipped.

Establishment of library in the head quarters, Internet facilities at the block office, displays will be created and it should be in a place for a easy access of the farmers.

**v) Project Rationale**

- Good collection of library books preferably in the vernacular language
- Electronic media with internet access will be installed for reference and interaction purpose
- Audio visual aids , documentation electronic aids will be purchased & utilized for the dissemination of technologies
- All the technical staff should be professionally trained in handling the electronic gadgets

**vi) Project Strategy**

- ✓ Collection of technical books and creating conducive atmosphere for library and reading the block premises
- ✓ Creating good infrastructure for LCD projection of technologies to the farmers
- ✓ Conducting frequent farmers meeting in the premises
- ✓ Providing quality service to the farming community
- ✓ Training all the field level functionaries in handling the electronic equipments

**vii) Project Components**

- Library books with good storage racks
- Laptop with LCD projectors
- Furnitures
- Public address system
- Modernisation of office

**viii) Project Cost and Financing**

Sl. No.	Scheme Components	Unit cost (Rs.)	Pattern of subsidy	2008-09		2009-2010		2010-11		2011-12		Total	
				P	F	P	F	P	F	P	F	P	F
1	Strengthening of extension – technical knowledge centre at block head quarters	10 lakhs	100 per cent	-	-	3	30	5	50	5	50	13	130

**ix) Implementation Chart of the Project**

- ✓ Collection of technical books and creating conducive atmosphere for library
- ✓ Creating good infrastructure for LCD projection of technologies to the farmers
- ✓ Conducting frequent farmers meet in the premises
- ✓ Providing quality service to the farming community
- ✓ Training all the field level functionaries in handling the electronic equipments

**x) Reporting**

The scheme progress will be reported to the Commissioner of Horticulture, Chennai at Monthly interval.

**6.3 Animal Husbandry****1. Feed and Fodder Development: For Dairy, Sheep and Goat Farming****Intensive Fodder Production, Supplementation of By-pass Protein Feed and Micronutrients to Dairy Cows and Goats and Enhancement of Nutrient Utilization”****Abstract**

Intensive fodder production activity will be taken up by the Department of Animal Husbandry, Madurai, through, farmers and Self Help Group women entrepreneurs at a total cost of Rs. 122.2 Lakhs. The Aavin, Madurai will also take up fodder cultivation activity in the proposed Integrated Dairy Farm (IDF) villages and in

the land available at Unions, Chilling Centers, and Milk Producers Co-operative Societies. The total cost of fodder and fodder seeds and slips production through Aavin, Madurai will be Rs. 66.7 Lakhs.

Hand operated chaff cutters will be supplied by the Department of Animal Husbandry, Madurai to the SHG farmers at Rs.10,000/- per unit 1/per block and 13 units for 13 blocks at a total cost of Rs1.3 Lakhs. The Aavin, Madurai will supply 28 numbers of mechanically operated chaff cutters to the 28 IDF Villages @ Rs. 0.70 Lakhs/unit, at one unit per IDF Village, at a total cost of Rs. 19.60 Lakhs and 30 numbers of hand operated chaff cutters @ Rs.0.20 Lakh/unit will be supplied to the elite members at one unit/farmer at a total cost of Rs. 6.00 Lakhs. A cattle feed plant will be established at a total cost of Rs. 465 lakhs.

#### **Budget (in lakhs)**

<b>Sl. No.</b>	<b>Activity</b>	<b>Cost</b>
1.	Augmentation of fodder production (CO-3) through SHG/women entrepreneurs, Rs. 0.235 Lakhs/acre, 10 acres/block/year, 13 blocks, for 4 years, 520 acres totally (DAH)	<b>122.20</b>
2.	Fodder development activities ( for production of fodder seed/slips in dairy or chilling centres & land of DDD (Rs 2.10 lakhs/ unit) (DDD)	<b>22.05</b>
3.	Fodder development activities (500 acres in 100 IDF villages in each for 2 years & 1850 acres in farmers field (DDD)	<b>44.65</b>
4.	Supply of hand operated chaff cutters to SHG farmers @ Rs.0.10 Lakhs/unit, 1 unit/block/year for 13 units for 13 blocks (DAH)	<b>1.30</b>
5.	Provision of mechanically operated chaff cutters, @ Rs. 0.70 Lakhs/unit, for 28 IDF Villages @ one unit/IDFV, 28 units totally (DDD)	<b>19.60</b>
6.	Provision of hand operated chaff cutters to elite farmers @ Rs.0.20 Lakh/unit, one unit/farmer, 30 units totally for 30 farmers (DDD)	<b>6.00</b>
7	Establishment of cattle feed unit@ Rs.465 lakh/unit	<b>465.00</b>
	<b>Total</b>	<b>680.80</b>

**Back Ground/Problem Focus**

Fodder production in Madurai district is not satisfactory and the deficit of green fodder is 87.3 % and dry fodder is 10.3 %. It is essential to feed the crossbred milch animals with nutrient rich perennial fodder and tree fodder biomass to explore the full genetic potential of the livestock. The present background with regard to dairy, sheep and goat farming in this district is mainly grazing wherever possible, feeding with available greens in the market and feeding the milch animals with polish, bran, oil cakes, cotton seed. Sheep and goat are taken for grazing only. No supplemental feed, grains, concentrate is given to them. So to meet out the fodder requirement of large and small ruminants in order to augment the livestock production the action plan is proposed.

**Rationale for this Project**

Green fodder production is about 87.3% shortage in Madurai district. There is an acute shortage of fodder and the farmers find it difficult to maintain high producing dairy cows owing to the huge demand for green and dry fodder. Hence intensive fodder production activity has to be taken up to meet this heavy demand. Green fodder is one of the important and inevitable component in dairy farming and sheep and goat farming. Moreover deficit in green fodder is one of the major causes of infertility and poor productivity. Therefore, enhancement of green fodder production is essential to augment the livestock production. Chopping of fodder will help in the effective utilization of nutrients.

**Project Strategy**

Based on current background of livestock sector, project strategy is proposed involving Department of Animal Husbandry, Madurai District Co-operative Milk Producers Union (the implementing agencies) to achieve the target with technical interventions for the target group namely the rural women, farmers and entrepreneurs. The project strategy is proposed to strengthen the existing infrastructure and expansion of ongoing development scheme of the implementing agencies.

Self Help Groups, interested women entrepreneurs and farmers will be selected from each block by Aavin and Animal husbandry department, Madurai. Fodder slips will be procured from State Agricultural University and members who have water source alone will be selected. They will be supplied with all inputs for fodder production. Training on scientific fodder production will be given to the SHGs.

Fodder production will be taken up by Aavin, Madurai in all the proposed 28 IDF Villages. Further Aavin, Madurai will produce fodder seeds and slips in the 5 acres of land available at the dairy or chilling centres @ Rs.2.1 Lakhs per acre.

Hand operated chaff cutters will be supplied by the Department of Animal Husbandry, Madurai to the SHG farmers at Rs.10,000/- per unit , one unit per block totally 13 units @ 1.3 lakhs. Mechanized chaff cutters @ Rs.0.70 Lakhs per unit will be supplied at one unit per IDfv, 28 units for all the 28 IDfv. This project will be implemented by Aavin, Madurai at a total cost of Rs. 19.6 Lakhs. Hand operated chaff cutters will be supplied to elite farmers @ Rs.0.20 Lakh/unit at one unit/farmer as 100% subsidy, for 30 farmers totally at a cost of Rs.6.00 Lakhs.. This project will be implemented by Aavin, Madurai.

A cattle feed unit will be established by Aavin, Madurai @ Rs. 465.00 lakhs.

### **Project Goals**

1. Augmentation of fodder production to meet the fodder shortage
2. Enhancement of nutrient utilization in fodder by use of hand-operated and mechanized chaff cutters to minimize fodder wastage and to enhance the nutrient utilization.
3. Production of fodder seeds and slips to augment fodder production.
4. Establishment of cattle feed unit.
5. Improved fertility in cows.
6. Improved health status.

**Project Components**

1. Fodder production – 710 acres
2. Fodder seeds and slips production – 10.5 acres
3. Provision of mechanized chaff cutters 28 units at IDfV on community basis
4. Provision of hand operated chaff cutters to elite farmers & SHG women – 43 units
5. Establishment of a cattle feed unit

**(Rs.in Lakhs)**

<b>Sl. No.</b>	<b>Item</b>	<b>Unit cost</b>
1	<b>Civil Works</b> Repair & Maintenance Road repair & Fencing/Compound wall	100.00
2	<b>Plant &amp; Machineries</b>	
A	1. Intake and cleaning section : 10.00	
	2. Grinding Section : 8.00	
	3. Batch (pre-weighing) section : 25.00	
	4. Nixing section : 5.00	
	5. Molasses Section : 15.00	
	6. Pelleting section : 15.00	
	7. Cooling & Screening section : 12.00	
	8. Bagging section : 10.00	
	9. Computerised batching system : 10.00	
	10. Electricals & structure : 75.00	
	11. Erection & Commissioning : 15.00	200.00
B	1. Molasses Tank 400 MT & Accessories : 45.00	
	2. Boiler, Pipelines & Fittings : 15.00	
	3. Dust Collection system : 5.00	
	4. Transformer & DG set etc. : 86.00	101.00
C	Miscellaneous & Contingencies	64.00
	<b>Total</b>	<b>465.00</b>

**Project Cost and Financing****Fodder Production**

**Fodder Production by the Department of Animal Husbandry and the Aavin,  
Madurai - Rs. 0.235 Lakhs/Acre**

**(in Rs.)**

<b>I. Training Cost</b>		
<b>S.No.</b>	<b>Details</b>	<b>Amount</b>
1.	Incentive @ Rs.100/person/day, for 2 days, for 15 members	3,000.00
2.	Refreshment expenses @ Rs.10/day/person, for 2 days, 15 persons	300.00
3.	Study materials including scribbling pad, pen etc.@ Rs.15/person, for 15 members	225.00
	<b>Total Training Cost per SHG</b>	<b>3,525.00</b>
<b>II. Fodder Cultivation of Fodder (Co-3) per Acre</b>		
1 a)	Bush clearance and land reclamation	2,600.00
1.b)	Cost of ploughing	1,600.00
2.	Formation of ridges and furrows/beds and irrigation channels	500.00
3.a)	Cost of fym 10 mt. @ Rs.300/mt.	3,000.00
3.b)	Labour cost for transportation and application, loading and unloading	1,000.00
4.a)	Cost of slips 16,000 numbers @ Rs.0.25 /slip	4,000.00
4.b)	Planting cost	840.00



(in Rs.)		
S.No.	Details	Amount
5.a)	Cost of chemical fertilizers N 150 Kg @ Rs.5.48/kg – 822.00 P 50 Kg @ Rs.10.88/kg – 544.00 K 40 Kg @ Rs.3.85/Kg - 154.00	1,520.00
5. b)	Cost of labour for application	200.00
6.	After cultivation weeding	840.00
7.	Cleaning the channels	500.00
8.	Irrigation charges	800.00
9.	Harvesting charges and transportation	1,600.00
10.	Miscellaneous expenses	800.00
	Total Cost Required Per Acre	20,000.00
	<b>Financial Requirement Per Self Help Group:</b>	
1.	Cost of training per SHG	0.035
2.	Cost of fodder cultivation	0.20
3.	Total Requirement per SHG	0.235
4.	Total requirement for 13 blocks with 13 SHG @ 10 Acres /Block/year for 4 years, 520 acres totally	122.20
5	Total requirement for production of 175 acres of fodder by the Aavin, Madurai.	44.65

**Fodder Seeds and Slips Production through Aavin, Madurai at Unions, CCs, Dairies and MPCs**

**Fodder Development Activities for Production of Fodder Seed / Slips in Dairy or Chilling Centre & Land of DDD Aavin, Madurai**

(Rs. in Lakhs)

Sl.No	Particulars	Amount
<b>I</b>	<b>Capital Investment</b>	
1.	Demarcation of boundary and fencing	0.60
2.	Land development	0.10
3.	Farm sheds for equipments, seeds manure etc.,	0.20
4.	Purchase of agricultural implements	0.10

(Rs. in Lakhs)

Sl.No	Particulars	Amount
5.	Creation of irrigation facilities (wells, pumps, powerline, water tanks, pump room, pipeline etc.,)	0.50
	<b>Sub –Total (I)</b>	<b>1.50</b>
<b>II</b>	<b>Recurring Expenditure</b>	
1.	Wages of supervising staff	0.20
2.	Sedds, fertilizers / manure and insecticides	0.20
3.	Cultivation charges	0.05
4.	Irrigation charges	0.05
5.	Maintenance of store / dead stock	0.05
6.	Miscellaneous	0.05
	<b>Sub-Total (II)</b>	<b>0.60</b>
	<b>Grand Total ( I + II )</b>	<b>2.10</b>

Rs. 2.1 lakhs / acre as above. Totally for 10.5 Acres – Rs. 22.05 Lakhs

(The total yield of Co3 green fodder will be 350 Tonnes per Hectare)

#### Supply of Chaff Cutters

(Rs. in lakhs)

Sl. No.	Particulars	Amount
1.	Provision of mechanically operated chaff cutters, @ Rs. 0.70 Lakhs/unit, for 28 IDF Villages @ one unit/IDFV, 28 units totally	19.60
2.	Provision of hand operated chaff cutters to elite farmers @ Rs.0.20 Lakh/unit, 30 units, one unit/farmer, totally for 30 farmers, 100% subsidy	6.00
3.	Provision of hand operated chaff cutters to SHG farmers @ Rs.0.20 Lakh/unit, 50 % subsidy, one unit/ block/year, 13 blocks, 13 units totally	1.30

#### Establishment of Cattle Feed Plant

Sl. No.	Particulars	Amount
1.	Establishment of cattle feed plant @ Rs. 465lakhs	465.00

**Implementing Chart of the Project**

Activity	2008-2009	2009-2010	2010-2011	2011-2012
Augmentation of fodder production (CO-3) through SHG/women entrepreneurs, Rs. 0.235 Lakhs/acre, 10 acres/block/year, 13 blocks, for 4 years, 520 acres totally (DAH)	130 acres	130 acres	130 acres	130 acres
Fodder development activities (500 acres in 100 IDF villages in each for 2 years & 1850 acres in farmers field (DDD)	140 acres	20 acres	15 acres	15 acres
Fodder development activities ( for production of fodder seed/slips in dairy or chilling centres & land of DDD (Rs 2.10 lakhs/ unit) (DDD)	10.5 acres	-	-	-
Provision of chaff cutter @ 1/block / year for SHG/ elite farmers (DAH)	13 units	-	-	-
Provision of mechanically operated chaff cutters, @ Rs. 0.70 Lakhs/unit, for 28IDF Villages @ one unit/IDFV, 28 units totally (DDD)	28 units	-	-	-
Provision of hand operated chaff cutters to elite farmers @ Rs.0.20 Lakh/unit, one unit/farmer, 30 units totally for 30 farmers (DDD)	8 units	8 units	7 units	7 units
Establishment of cattle feed plant (DDD) @ Rs. 465.00 lakhs / unit	-	1		-

**Reporting****Fodder and Fodder Seeds and Slips Production**

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

### **Provision of Mechanized Chaff Cutters to IDF Villages and Hand Operated Chaff Cutters to SHG and Elite Farmers**

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

### **Establishment of Cattle Feed Plant**

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

## **2. Genetic Upgradation**

### **“Genetic Upgradation of Cattle, Buffaloes, Sheep , Goats and poultry”**

#### **Abstract**

It is estimated that the district has a total number of 1,18,000 breedable bovine population. Tracking the breedable bovines with an ear tag and a passbook at a cost of Rs.20/- per animal is proposed. The total outlay is Rs. 23.6 Lakhs. The project will be implemented by the Department of Animal Husbandry, Madurai.

Programmed breeding will be carried out in 2400 numbers of cattle and buffaloes to increase the conception rate at a total cost of Rs. 16.8 Lakhs @ Rs.700 / animal. The project will be implemented by Aavin, Madurai.

Superior germplasm – Mecheri rams and Tellicherry bucks will be maintained by the Self Help Group Women in the district for cross-breeding of the non-descript poorly performing sheep and goats to augment the mutton and chevon production. Each active SHG will be provided with one Mecheri ram and one Tellicherry buck @ Rs. 4,000/- per ram/buck. A total number of 500 rams and 500 bucks will be supplied at a total cost of Rs. 40.00 Lakhs. The project will be implemented by the Department of Animal Husbandry, Madurai.

Nandhanam III birds will be distributed @ Rs. 500/unit for 2000 selected farmers/ SHG women at the total cost of Rs. 10.00 lakhs to improve the poultry production.

### Budget

Sl. No.	Particulars	Amount (Rs. in Lakhs)
1.	Tracking the breedable bovine population with an ear tag and a passbook @ Rs.20/- animal, for 1,18,000 animals (DAH and DDD)	23.60
2.	Programmed breeding of cattle buffaloes @ Rs.700/animal, for 2400 cows and buffaloes (DDD)	16.80
3.	Supply of 500 Mecheri rams to the self help groups @ Rs.4,000/- per buck/ram	20.00
4.	Supply of 500 Tellicherry bucks to the self help groups @ Rs.4,000/- per buck/ram	20.00
5.	Distribution of TANUVAS Nandanam III birds (DAH)	10.00
	<b>Total</b>	<b>90.40</b>

### Background/ Problem Focus:

#### Tracking the Breedable Bovines in the District

It is estimated that the district has a total number of 1,18,000 breedable bovine population. Tracking the breedable bovines with an ear tag and a passbook will help to follow the animals and will be the first step in the registration of bovines with accurate details about the animal, its health status etc.

#### Programmed Breeding of Cattle and Buffaloes

Programmed breeding will be planned in indigenous cattle and buffaloes to increase conception rate. Buffaloes exhibit silent heat and hence become difficult to inseminate them for conception.

**Genetic Upgradation of Sheep and Goats**

The present stock of sheep and goats available with the farmers in the district are inferior in terms of production and performance. Poor weight gain and low kidding / lambing rate in sheep and goat are main problems encountered. Mecheri is a proven mutton sheep breed and Tellicherry goat breed performs well under field conditions. Cross-breeding of the non-descript sheep and goats with such superior germplasm will augment mutton and chevon production in the district.

**Distribution of TANUVAS Nandanam III Birds**

Nandhanam III birds will be distributed to the selected farmers/ SHG women to improve the poultry production.

**Project Rationale****Tracking the Breedable Bovines in the District**

Tracking the breedable bovines with an ear tag and a passbook will help to follow the animals and will be the first step in the registration of bovines with accurate details about the animal, its health status etc.

**Programmed Breeding of Cattle and Buffaloes**

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

**Genetic Upgradation of Sheep and Goats**

Almost more than 90% of the poor families in Madurai district are small, marginal and landless farmers and are mainly local breeds of sheep and goats for their livelihood. Since the poor farmers are possessing local breeds the weight gain and low kidding/ lambing rate farmers are getting only meager income out of their sheep and goats. So genetic upgradation of local breeds using elite rams and bucks will improve

their germ plasm in turn there will be increase weight gain and kidding rate / lambing rate. Cross-breeding of the non-descript sheep and goats with such superior germplasm will augment mutton and chevon production in the district.

### **Distribution of TANUVAS Nandanam III Birds**

Nandhanam III birds will be distributed to the selected farmers/ SHG women to improve the poultry production.

Each unit consisting of 9 hens and a cock will be provided to the beneficiaries. The cost of one bird is Rs.50/- and thus the total cost per unit is Rs.500/-

### **Project Strategy**

#### **Tracking the Breedable Bovines in the District**

Tracking the breedable bovines with an ear tag and a passbook at a cost of Rs.20/- per animal is proposed. The total outlay is Rs. 23.6 Lakhs.

#### **Programmed Breeding of Cattle and Buffaloes**

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

#### **Genetic upgradation of Sheep and goats**

Mecheri rams and Tellicherry bucks will be maintained by the Self Help Group Women in the district for cross-breeding of the non-descript poorly performing sheep and goat breeds to augment the mutton and chevon production. Each active SHG will be provided with one Mecheri ram and one Tellicherry buck @ Rs. 4,000/- per ram or buck. Totally 500 sheep farmers and 500 goat farmers will be selected for four years period and 1000 elite rams and bucks will be supplied with the total cost of Rs.40.00 lakhs.

### Distribution of TANUVAS Nandanam III birds

Totally 2000 SHG women/ farmers will be identified and Nandhanam III birds will be distributed with the total cost of Rs. 10.00 lakhs.

### Project Goals

- Tracing the breedable bovines in the district.
- Estrus synchronization in selected 6400 cattle and buffaloes
- The existing germplasm may be improved through incorporation of superior germ plasm by supplying elite bucks and rams for cross breeding purpose .
- Avoiding inbreeding
- Improved weight gain of sheep and goats
- Improved kidding /lambing rate.
- Increased mutton and chevon production
- Improvement in poultry production.

### Project Components

1. Animal card distribution to the owners of breedable cattle
2. Sheep and goat farmers / SHG women will be identified by DAH .
3. Distribution of elite bucks.
4. Distribution of elite rams.
5. Distribution of TANUVAS – Nandhanam III birds for 2000 SHG women

### Project Cost and Financing: (Amt. in Rs. Lakhs)

Activity	2008-2009	2009-2010	2010-2011	2011-2012	Total Cost
1. Tracking the breedable bovine population with an ear tag and a passbook @ Rs.20/- animal, for 1,18,000 animals (DAH, DDD)	23.6	-	-	-	23.6
2. Programmed breeding of cattle and buffaloes @ Rs.700/animal, for 2400 animals.(DDD)	4.20	4.20	4.20	4.20	16.80
3. Distribution of Mecheri rams to the self help groups @ Rs.4,000/- per ram (DAH)	5.00	5.00	5.00	5.00	20.00



4. Distribution of Tellicherry bucks to the self help groups @ Rs.4,000/- per buck (DAH)	5.00	5.00	5.00	5.00	20.00
5. Distribution of TANUVAS Nandanam birds (DAH). Each unit consisting of 9 hens and a cock will be provided to the beneficiaries. The cost of one bird is Rs.50/- and thus the total cost per unit is Rs.500/-	2.50	2.50	2.50	2.50	10.00
<b>TOTAL</b>	<b>40.30</b>	<b>16.70</b>	<b>16.70</b>	<b>16.70</b>	<b>90.40</b>

### Implementation Chart of the Project

Activity	2008-2009	2009-2010	2010-2011	2011-2012
Tracking the breedable bovine population with an ear tag and a passbook	1,18,000 cows	-	-	-
Programmed breeding of cattle and buffaloes	600 animals	600 animals	600 animals	600 animals
Supply of Mecheri rams to the self help groups	125 animals	125 animals	125 animals	125 animals
Supply of Tellicherry bucks to the self help groups	125 animals	125 animals	125 animals	125 animals
Distribution of TANUVAS Nandhanam III birds	500 birds	500 birds	500 birds	500 birds

### Reporting

#### Tracking the Breedable Bovines in the District

The project will be implemented by the Department of Animal Husbandry, Madurai and will submit periodical monthly reports to the appropriate authorities

#### Programmed Breeding of Cattle and Buffaloes

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

#### Genetic Upgradation of Sheep and Goats

The Regional Joint Director of Animal Husbandry, Madurai will implement the scheme and periodical monthly reports will be submitted to the appropriate authorities.

### **Distribution of TANUVAS Nandhanam III Birds**

The project will be implemented by the Department of Animal Husbandry, Madurai and will submit periodical monthly reports to the appropriate authorities.

### **3. Improvement of Livestock Health**

#### **Abstract**

To provide comprehensive livestock health cover including immunization against important viral, bacterial diseases and to cover almost all animals including poultry to protect livestock and poultry from diseases and overall improvement in health mobile veterinary clinic will be established in 6 taluks at the total cost of Rs. 35.1 lakhs . 11 mobile input units to cover the health of animals by Aavin will be established at the total cost of Rs. 46.50 lakhs.

To maintain livestock health micronutrients and mineral mixture to be supplied. Mineral mixture will be supplied to the dairy cows through the Department of Animal Husbandry, Madurai to the small farmers at Rs.600/- per cow per year (One kg/animal/month, 12 kg for one year, @ Rs.50/kg) at subsidized rate @ 5000 farmers per year, for 4 years. A total of 20,000 cows will be supplemented with mineral mixture at a total cost of Rs.120.00 Lakhs. The Aavin, Madurai will supply mineral mixture to the milch animals of the society members at subsidized cost (50 % subsidy) @ Rs. 500/- for 18 kg per year/cow, A total number of 7000 animals will be benefited at a total cost of Rs. 35 Lakhs.

The Aavin, Madurai will supply by-pass protein feed to the milch animals of the members of the society (360 kg/animal/year) for 5600 cows @ 50% subsidy of Rs.9/- per kg. The total cost will be Rs. 184.8 Lakhs. Control of parasitic diseases to enhance vaccine response in sheep and goat will be carried out at the cost of Rs. 46.86 lakhs and desi birds will be immunized against Ranikhet disease at the cost of Rs. 10.00 lakhs.

#### **Budget : (Rupees in Lakhs)**

Sl. No.	Particulars	Amount
1	Mobile Vet. Clinics- 1 / taluk (DAH)	35.10
2	Supplementation of min. mix. To prevent infertility and augment production to farmers. @ Rs. 600/cow/ year @ Rs. 50/kg (5000cow/year) (DAH)	120.00
3	Mobile input units (ONE PER 50 DCS) (DDD)	49.50

**Budget : (Rupees in Lakhs)**

Sl. No.	Particulars	Amount
4	Supply of mineral mixture to the milch animals at subsidized cost (50% ) @ 18 KG/ YEAR (DDD)	35.00
5	Supply of by-pass protein feed to the milch animals (360KGS/ YEAR/ANIMAL @ 50% subsidized cost of Rs.9/- per KG.) (DDD)	184.80
6	Control of parasitic diseases to enhance vaccine response (DAH)	46.86
7	Immunization against RD for Desi birds Rs. 500 / unit (DAH)	10.00
	<b>Total</b>	<b>481.26</b>

**Background / Problem Focus**

Even though veterinary dispensaries and sub centres are located in rural and semi urban areas there are still villages which are beyond the reach of veterinary services. Hence mobile veterinary clinic and mobile input units facility will help to provide comprehensive livestock health cover and to protect livestock and poultry from diseases and overall improvement in health. Further almost all the domestic animals are deficient in micro nutrients since most of the animals are allowed only for grazing especially sheep and goat. For better digestibility of feed consumed and also to satisfy the micro nutrient requirements it is proposed to supplement the livestock with mineral mixture. Economical production of milk depends largely upon efficiency of animals, its nutrition and management.

**Project Rationale**

The landless agricultural labourers and small farmers who own the cattle are unable to take their livestock to the nearest veterinary institution as they are pre-occupied in agricultural work. Further, the agricultural labourers have to forego half a day work in bringing their livestock to the veterinary institution /sub centres for treatment or artificial insemination.

In order to avoid such suffering and loss to the farmers and to provide veterinary services and breeding support in time at the doorsteps of the farmers, Mobile Veterinary Clinics are proposed. Dairy cattle requires at least 17 minerals in their diet for optimal milk production, reproductive performance and herd health. Infertility, poor health status due to mineral deficiency is common in the dairy cattle and small ruminants. As milk producing ability increase, more minerals in their ration is needed and hence their adequate level should be ensured in feed to achieve optimum performance and herd health.

To provide optimum health cover of livestock through quick, effective and timely disease diagnosis one Mobile veterinary laboratory facility is proposed. Supplementing livestock with micro nutrients would ensure their optimal health cover. Controlling parasitic diseases will ensure optimum immunity. Supplementation of micronutrients and by-pass protein feed to dairy cows and micronutrients to goats is not a common practice and sensitization of the farmers through supply of mineral mixture for their cows and goats for one year will help them to realize their importance.

Improper and irregular vaccination of poultry leads death of desi birds which causes economic loss to the poor farmers. So immunization against RD for desi birds and turkeys is important to avoid mortality in poultry. Timely diagnosis of livestock diseases is essential to safeguard the livestock from death and to avoid economic loss to the farmers.

**Project Strategy**

Mobile veterinary clinic and mobile input units facility will be established to provide comprehensive livestock health cover and to protect livestock and poultry from diseases and overall improvement in health. Further almost all the domestic animals are deficient in micro nutrients since most of the animals are allowed only for grazing especially sheep and goat.

For better digestibility of feed consumed and also to satisfy the micro nutrient requirements it is proposed to supplement the livestock with mineral mixture. Economical production of milk depends largely upon efficiency of animals, its nutrition and management. laboratory facility will help in disease diagnosis, disease mapping and disease forecasting easily and quickly. Supplementing livestock with micro nutrients would ensure their optimal health cover. Immunization against Newcastle disease is proposed.

**Project Goals**

Farmers in remote villages can get veterinary assistance and breeding support at their villages itself. To provide optimum health cover to livestock and poultry including immunization for Ranikhet disease. It is proposed to supplement the livestock with micro nutrients which will result in optimum performance of livestock and poultry which will ensure improved productivity and production. To increase milk production and also to produce clean, quality milk effectively and economically. Providing mineral mixture daily will enhance milk production, reduce breeding problem and will reduce intercalving period.

**Project Components**

- Mobile Veterinary Clinics

**Non-recurring Expenditure**

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

**Recurring Expenditure**

Diesel 90 Lit x 12 xRs.40 = Rs.0.432 lakh

**Total cost = Rs. 5.832 lakh**

- Mobile input units
- Popularizing Mineral mixture by supplying at subsidized cost
- Supplementation of micronutrients in the feed of dairy cows and goats to enhance production and fertility.
- Supply of by-pass protein to milch animals to enhance production.
- Control of parasitic diseases

**Project Cost and Financing : (Rs. in lakhs)**

Activity	2008-2009	2009-2010	2010-2011	2011-2012	Total Cost
Mobile vet. Clinic 1/ taluk (DAH) Rs.5.85 lakhs/ unit	35.10	-	-	-	<b>35.10</b>
Mineral mix @ Rs. 600/cow/year @ RS. 50/ kg (5000 cow/year) (DAH)	30.00	30.00	30.00	30.00	<b>120.00</b>
Mobile input units (one per 50 DCS) (DDD) @ 4.50 lakhs/ unit. The cost is inclusive of salary for the veterinarian, medicines, veterinary equipment and other expenses.	49.50	-	-	-	<b>49.50</b>
Supply of mineral mixture to the milch animals at subsidized cost ( 50%) @ 18kg/ year (DDD) @ RS. 500/unit	8.75	8.75	8.75	8.75	<b>35.00</b>
Supply of By-pass protein feed to the milch animals (360kgs/year/animal @ 50 % subsidized cost of Rs. 9/-per kg (DDD) @ Rs. 3300/unit	46.20	46.20	46.20	46.20	<b>184.80</b>

Control of parasitic diseases to enhance vaccine response @ Rs.1/- per sheep or goat and Rs.3/- per calf below one year, 4 times /year, Rs. 11.715 Lakhs/year, for 4 years (79301 calves, 216416 sheep and 238588 goats) (DAH)	11.715	11.715	11.715	11.715	<b>46.86</b>
Immunization against RD for Desi birds. Rs. 500 / unit (DAH)	2.50	2.50	2.50	2.50	<b>10.00</b>
<b>Total</b>	<b>183.765</b>	<b>99.165</b>	<b>99.165</b>	<b>99.165</b>	<b>481.26</b>

### Implementation Chart of the Project

<b>Works proposed</b>	<b>2008-09</b>	<b>2009-10</b>	<b>2010-2011</b>	<b>2011-2012</b>
Mobile vet. Clinic (DAH)	6	-	-	-
Supplementation of Min. mix. for cows (DAH)	5000 animals	5000 animals	5000 animals	5000 animals
Mobile input units (DDD)	11	-	-	-
Supply of Min. mixture at subsidized cost (DDD)	1750 animals	1750 animals	1750 animals	1750 animals
Supply of Bypass protein (DDD)	1400 animals	1400 animals	1400 animals	1400 animals
Control of parasitic diseases through treatment to enhance vaccine response (DAH)	√	√	√	√
Immunization of desi birds against RD (DAH)	500 units	500 units	500 units	500 units

### Reporting

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

#### **4. Strengthening of AAVIN, Madurai**

##### **“Improvement of Milk Collection, Processing, Value-addition and Marketing Facilities”**

##### **Abstract**

Twenty-eight milking machines will be provided to the Integrated Dairy Farms at one unit per IDF Village at a total cost of Rs. 28 Lakhs @ Rs. 1.0 Lakh/unit. Fifty portable milking machines will be supplied to the members of the society at a total cost of Rs.9.0 Lakhs @ Rs.0.18 Lakhs/unit. Provision of milking machines will help to improve the collection and quality of milk.

One bulk milk cooler will be established @ Rs. 30.0 lakhs to improve the keeping quality of milk until it is processed. Two unit of walk-in-cooler will be established at a total cost of Rs. 60.0 Lakhs. A total number of 30 dormant societies will be revived with necessary inputs @ Rs.1.0 Lakh per unit at a total cost of Rs. 30 Lakhs.

Four khoa manufacturing units (@ Rs.0.77 Lakhs/unit), two paneer making units (@ Rs.1.02 Lakhs/unit) and two ice-cream making units (@ Rs. 1.12 Lakhs/unit) will be established at a total cost of Rs. 7.26 Lakhs to promote value-addition of milk.

A total of 96 numbers of milk weighing machines will be established at milk producers' co-operative societies for accurate weighment of milk at a total cost of 16.32 Lakhs. A total number of 36 PC-based automatic milk collection stations will be established at IDF villages and milk producers' co-operative societies at a total cost of Rs.63.00 Lakhs @ Rs.1.75 Lakhs/unit. A regional MMPO Laboratory will be established at a total cost of Rs. 56.0 Lakhs. A project on energy management system will be implemented at a total cost of Rs.10.0 Lakhs.

**Budget: (Rupees in Lakhs)**



Sl. No.	Particulars	Amount (Rs. in Lakhs)
1.	Milking machines for ID farms @ Rs.1.0 Lakh per unit, 28 units totally (DDD)	28.00
2.	Supply of portable milking machines to members of the Society @ Rs. 0.18 Lakhs, 50 Units totally (DDD)	9.00
3.	Provision of bulk milk cooler @ Rs.30.0 Lakhs/unit, (DDD)	30.00
4.	Provision of walk-in-coolers @ Rs. 30.0 Lakhs/unit (DDD) : 2 units	60.00
5.	Revival of 30 dormant milk producers' co-operative societies @ Rs.1.0 Lakhs/unit, 30 societies (DDD)	30.00
6.	Establishment of four khoa manufacturing units @ Rs. 0.77 Lakhs/unit (DDD)	3.08
7.	Establishment of two paneer manufacturing units @ Rs. 1.02 Lakhs/unit (DDD)	2.04
8.	Establishment of two ice-cream manufacturing units @ Rs. 1.12 Lakhs/unit (DDD)	2.24
9.	Supply of 96 milk weighing machines to milk producers' co-operative societies @ Rs. 0.17 Lakhs/unit (DDD)	16.32

#### Budget (Rupees in Lakhs)

Sl. No.	Particulars	Amount (Rs. in Lakhs)
10.	Provision of PC-based automatic milk collection stations to IDF villages and milk producers' co-operative societies @ Rs. 1.75 Lakhs/unit, 36 units (DDD)	63.00
11.	Establishment of a MMPO Laboratory @ Rs. 56.00 Lakhs (DDD)	56.00
12.	Energy management system (DDD)	10.00
	<b>Total</b>	<b>309.68</b>

#### Background/ Problem Focus

Presently hand-milking is practiced by the farmers. There is shortage of milkmen and problems of mastitis are common in hand milking. Automatic milking machines saves time, labour and prevents the occurrence of mastitis in cows.

Establishment of a bulk milk coolers and walk-in-coolers will help to maintain the quality of milk until it is processed and marketed. A total number of 30 milk producers' co-operative societies are dormant. This leads to decrease in the quantity of milk procured. They have to be revived with necessary inputs to improve the quantum of milk production in the district.

Facilities for the manufacture of value-added milk products like khoa, paneer and ice-cream have to be strengthened to utilize surplus milk during certain seasons. Also this will meet to the demand for these products by the urban population. Electronic weighing balances are to be provided to small societies to weigh milk.

Further, in societies handling more than 500 litres of milk per day, it is essential to establish PC- based automatic milk collection stations.

A MMPO Laboratory has to be established for the milk and milk products to meet to the standards for the domestic and export demand under the control of registering authority in adherence to the rule 23 of MMPO. Energy management system in the main processing plant will save power and will be economical.

### **Project Rationale**

Milking machines will save labour, time and prevent the occurrence of mastitis in dairy cows. Bulk milk coolers and walk-in-coolers will help to keep the quality of milk until it is processed and marketed. Revival of dormant milk producers' co-operative societies will boost the milk production. Establishment of manufacturing units for khoa, paneer and ice-cream will help in value-addition of milk. Provision of milk weighing machines to societies will help in the accurate weighment of milk. Automatic PC-based milk collection stations will save time, manpower, provide accurate weighment of milk, stores the milk data for several months and provide confidence among the members of the societies. A MMPO Laboratory will be established for the milk and milk products to meet to the standards for the domestic and export demand. Energy management system in the main processing plant will save power and will be economical.

### Project Strategy

Milking machines for ID farms, Portable milking machines for farmers, bulk milk coolers, walk in coolers, revival of dormant MPCs, manufacturing facilities for milk khoa, pannier, icecream, milk weighing machine for milk producers co- op, societies, P.C based automatic milk collection stations to IDF and MMPO laboratory will be developed.

### Project Goals

1. Clean milk production, saving labour and time and prevention of mastitis through installation of milking machines.
2. Improvement of the milk quality until processing and marketing through establishment of bulk milk coolers and walk-in-coolers.
3. Augmentation of milk production through revival of dormant societies.
4. Value-addition of milk by establishing khoa, paneer and ice-cream making units.
5. Accurate weighment of milk in societies through supply of weighing machines.
6. Saving time, labour and accurate weighment of milk through establishment of automatic PC-based milk collection stations.
7. Improvement of quality standards for milk and milk products, prevention of adulteration, analysis of statutory samples and third party samples for quality through establishment of MMPO Laboratory,

### Project Components

- Milking machines
- Bulk milk cooler
- Walk in coolers
- Manufacturing facilities for milk khoa
- Manufacturing facilities for pannier
- Manufacturing facilities for icecream
- Milk weighing machine

- P. C based automatic milk collection stations. MMPO laboratory
- Energy management system.

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

S. No	Project	2008-09	2009-10	2010-11	2011-12	Total Cost
1.	Milking machines for ID farms @ Rs.1.0 Lakh per unit, 28 units totally (DDD)	28.0	-	-	-	28.0
2.	Supply of portable milking machines to members of the Society @ Rs. 0.18 Lakhs, 50 Units totally (DDD)	13	13	12	12	9.0
3.	Provision of bulk milk cooler @ Rs.30.0 Lakhs/unit, (DDD)	30.0	-	-	-	30.0
4.	Provision of a walk-in-cooler @ Rs. 30.0 Lakhs/unit (DDD)	30.0	30.0 0	-	-	60.0
5.	Revival of 25 dormant milk producers' co-operative societies @ Rs.1.0 Lakhs/unit, 25 societies (DDD)	8	8	7	7	30.00
6.	Establishment of four khoa manufacturing units @ Rs. 0.77 Lakhs/unit (DDD)	0.77	0.77	0.77	1.54	3.08
7.	Establishment of two paneer manufacturing units @ Rs. 1.02 Lakhs/unit (DDD)	1.02	-	1.02	-	2.04
8.	Establishment of two ice-cream manufacturing units @ Rs. 1.12 Lakhs/unit (DDD)	1.12	1.12	-	-	2.24
9.	Supply of 96 milk weighing machines to milk producers' co-operative societies @ Rs. 0.17 Lakhs/unit (DDD)	4.08	4.08	4.08	4.08	16.32
10.	Provision of PC-based automatic milk collection stations to IDF villages and milk producers' co-operative societies @ Rs. 1.75 Lakhs/unit, 36 units (DDD)	52.50	3.50	3.50	3.50	63.00

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

S. No	Project	2008-09	2009-10	2010-11	2011-12	Total Cost
11.	Establishment of a MMPO Laboratory @ Rs. 56.00 Lakhs (DDD) The cost includes civil works for Rs. 12.00 Lakhs for 1000 sq.ft. @ Rs. 1,200/sq.ft, laboratory equipment for Rs. 30.00 Lakhs, glassware and chemicals for Rs.5 Lakhs, furniture, computer and accessories for Rs. 1 Lakhs and a jeep for Rs. 6 Lakhs and training for Rs. 2 Lakhs.	56.0	-	-	-	56.0
12.	Energy Management system	10.00	-	-	-	10.00
	<b>Total</b>	<b>167.83</b>	<b>49.81</b>	<b>75.30</b>	<b>16.74</b>	<b>309.68</b>

**Implementation Chart of the Project**

Activity	2008-2009	2009-2010	2010-2011	2011-2012
Milking machines for ID farms	28 units	-	-	-
Supply of portable milking machines to members of the Society	13 units	13 units	12 units	12 units
Provision of bulk milk cooler	1 unit	-	-	-
Provision of a walk-in-coolers	1 unit	1 unit	-	-
Revival of 30 dormant milk producers' co-operative societies	8 societies	8 societies	7 societies	7 societies
Establishment of four khoa manufacturing units	1 unit	1 unit	2	-
Establishment of two paneer manufacturing units	1 unit	-	1	-
Establishment of two ice-cream manufacturing units	1 unit	1 unit	-	-
Supply of 96 milk weighing machines to milk producers' co-operative societies	24 units	24 units	24 units	24 units
Provision of PC-based automatic milk collection stations to IDF villages and milk producers' co-operative societies	30 units	2 units	2 units	2 units
Establishment of a MMPO Laboratory	1	-	-	-
Energy management system	1	-	--	-

**Reporting**

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

## 5. Extension Facilities

### **“Training Programmes on Livestock Farming and Value-addition of Milk and Meat to the Farmers and Women SHGs under Capacity Building for Adoption of Technology, Training for Technical staff and Dairy Farmers”**

#### **Abstract**

Farmers study tour @ Rs. 5000/ per farmer will be carried out at the total cost of Rs. 7.50 lakhs. Skill development for technical staff will be carried out @ Rs. 5000/ per staff at the total cost of Rs. 7.00 lakhs. Orientation training/ workshop for milk producers at society level will be conducted @ Rs. 0.20 lakh/ programme at the total cost of Rs. 3.20 lakhs. For institutional development Rs. 130 lakhs, strengthening of training equipments and strengthening of TANUVAS centre for training and technology dissemination will be carried out at the total cost of Rs. 60 lakhs. To conduct training programmes to empower knowledge of stake holders, to impart skill, to transfer technologies Rs. 12 lakhs will be utilized. MCP, conference will be conducted @ RS. 3000/ programme at the total cost of Rs. 1.44 lakhs. Capacity building training for officers will be conducted at the total cost of Rs. 10 lakhs. One Kiosk at TANUVAS training centre will be established at the total cost of Rs. 5.00 lakhs. Touch screen facilities will be established at the total cost of Rs. 20.00 lakhs @ Rs. 1 lakh/unit. Eight field tours will be conducted for the farmers at the total cost of Rs. 2.00 lakhs. Semi intensive sheep/ goat farming to improve meat production will be established at the total cost of Rs. 218.40 lakhs. To popularize turkey rearing among SHG women turkeys will be given at the total cost of Rs. 15 lakhs and custom hatching units, cage nits and candler at the total cost of Rs. 48.00 lakhs.

#### **Budget**

**(Rs. Lakhs)**

<b>Activity</b>	<b>Total Cost</b>
Farmers study tour @ Rs.5000/- Per farmer (DDD)	7.50
Skill development for technical staff (DDD)	7.00
Orientation training /workshop for milk producers at society level (DDD)	3.20

Institutional development – Strengthening of Vet. Institutions with basic facilities like fencing Bore wells, water troughs, Minor repair works etc. @ RS. 5.0 lakh/ Institution (DAH)	130.00
Strengthening of training equipments for technology dissemination and training to farmers with laptop computer with printer, teaching aids etc. at TANUVAS centre, Madurai (TANUVAS)	10.00
Expanding of TANUVAS centre for Training (Training cum conference hall for farmers), mobile disease investigation and training unit, LCD projector, Microscope etc. (TANUVAS)	50.00
Training programmes on modern livestock farming Capacity building Training for farmers (TANUVAS)	12.00
For conducting MCP,Conference etc. (TANUVAS)	1.44
Capacity building Training for officers (Vets/ NGOs/ Line dept staff (TANUVAS)	10.00
Establishment of Kiosk at VUTRC for videoconference with farmers (TANUVAS)	5.00
Touch screen facilities (TANUVAS)	20.00
Field tour for farmers (TANUVAS)	2.00

### Budget

(Rs. Lakhs)

Activity	Total Cost
Semi intensive sheep/ goat farming to improve meat production by SHGs @ 10 / block (DAH)	218.40
Custom hatching units + cage units+ candler (TANUVAS)	48.00
Turkeys (3 +1 ),Feed and Health cover (SHG) (TANUVAS)	15.00
<b>Total</b>	<b>541.04</b>

### Background/ Problem Focus

Capacity building exercises are offered to rural farmers, women, officers, entrepreneurs, NGOs by many agencies. To empower large sector of the stake holder and to update their knowledge on advanced, user friendly technologies, communication tools and other extension facilities are proposed for training thousands of farmers, rural women and officers.

**Project Rationale**

To ensure quality in milk .To empower stake holders, officers on recent advances in technology and user friendly technologies like touch screen facility for easy access.

**Project Strategy**

As the rural poor follow only traditional methods of livestock rearing and do not have adequate experience in the best practices in animal husbandry activities, exposure to modern and scientific animal rearing is rather limited, the project will adopt the strategy of awareness creation, group mobilisation and motivation and capacity building. Knowledge sharing, capacity building exercise for farmers, women, officers, etc. will be carried out by Tamilnadu veterinary and Animal Sciences University, Department of Animal Husbandry and Aavin. Intensive system of model sheep/goat unit will motivate the farmers to adopt such technologies for sustainable and economically viable farming wherever possible. To popularize turkey rearing among rural women, supply of turkeys with some feed is proposed. This will fetch them a satisfactory profit during festive seasons.

**Project Goals**

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

Intensive system of model sheep/goat unit will motivate the farmers to adopt such technologies for sustainable and economically viable farming wherever possible. Sheep/Goat rearing will become a sustainable alternative livelihood opportunity which can supplement the income generation activities of the rural farmers thereby additional income can be generated on a sustainable basis.

Improvement in nutritional standards of the rural people.



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

### Project Components

- Strengthening of TANUVAS centre through Infrastructure development for training/ extension programmes including Audio visual / communication tools

Sl. No.	Particulars	Amount (Rs. in lakhs)
1.	Training Hall (1000 sq. ft.)	15.00
2.	Audio visual equipments for Training hall	5.00
3.	Conference Hall (1000 sq. ft.)	15.00
4.	Audio visual equipments for Confernece hall	5.00
5.	Mobile Disease Investigation Unit (Microscope, Laminarflow, centrifuge, Hot air oven, autoclave)	4.00
6.	Vehicle	6.00

- Training farmers and officers
- Specialised training to field veterinarians and officers.
- Field tours of farmers, MCP, Infertility camps, farmers workshop, conference, etc.
- Touch screen facilities
- Distribution of turkeys(3+1) & 10 kg feed + health cover

### Project Cost and Financing

(Amount in Rs. Lakhs)

Activity	2008-2009	2009-2010	2010-2011	2011-2012	Total Cost
Farmers study tour @ Rs.5000 per farmer 150 farmers for 4 years (120 farmers for first three years and 30 farmers for fourth year) (DDD)	2.00	2.00	2.00	1.50	7.50
Skill development training for	1.75	1.75	1.75	1.75	7.00

technical staff of DDD @ Rs.5000/- per staff, 140 persons for 4 years 35 staff per year (DDD)					
Orientation training/workshop for milk producers' at society level Rs.20,000 per programme, 4 programmes/year, for 4 years (DDD)	0.80	0.80	0.80	0.80	3.20
Institutional development – Strengthening of Vet. Institutions with basic facilities like fencing Bore wells, water troughs, Minor repair works etc. @ RS. 5.0 lakh/ Institution (DAH)	130	-	-	-	130.00
Strengthening of training equipments for technology dissemination and training to farmers with laptop computer with printer, teaching aids etc. at TANUVAS centre, Madurai (TANUVAS)	10	-	-	-	10.00
Expanding of TANUVAS centre for Training (Training cum conference hall for farmers), mobile disease investigation and training unit, LCD projector, Microscope etc. (TANUVAS)	50.00	-	-	-	50.00

### Project Cost and Financing

(Amount in Rs. Lakhs)

Activity	2008-2009	2009-2010	2010-2011	2011-2012	Total Cost
Training programmes on modern livestock farming for farmers TANUVAS) @ Rs. 300/ farmer for 4000 farmer for 4 years	3.00	3.00	3.00	3.00	12.00
For conducting MCP, Conference etc. (TANUVAS)	0.36	0.36	0.36	0.36	1.44
Capacity building training for officers (Vets/ NGOs/ Line dept staff (TANUVAS) @ Rs. 5,000/ staff for 200 staff for four years	2.50	2.50	2.50	2.50	10.00
Establishment of Kiosk at VUTRC for videoconference with farmers (TANUVAS) @ RS. 5.0 lakh/ unit	5.00	5.00	5.00	5.00	20.00
Touch screen facilities (TANUVAS) @ Rs. 1 lakh/ unit	5.00	5	5	5	20.00

Field tours for the farmers (Rs. 25,000/ tour)	0.50	0.50	0.50	0.50	2.00
Semi intensive sheep/goat farming to improve meat production by SHGs @ 10/block (DAH @ Rs. 0.42 lakh/unit)	54.6	54.6	54.6	54.6	218.40
Custom hatching units + cage units+ candler (Rs. 20000/ unit)	12.00	12.00	12.00	12.00	48.00
Turkeys (3 females + 1 male = 1 unit) feed and health cover (SHG) TANUVAS) @ Rs. 2500 / unit	3.75	3.75	3.75	3.75	15.00
<b>Total</b>	<b>281.26</b>	<b>86.76</b>	<b>86.76</b>	<b>86.26</b>	<b>541.04</b>

### Implementation Chart of the Project

Works proposed	2008-2009	2009-2010	2010-2011	2011-2012
Farmers study tour	40	40	40	30
Skill development for technical staff	35	35	35	35
Orientation training/workshop for milk producers	4	4	4	4
Institutional development	26	-	-	-
Strengthening of training equipments for technology transfer	1	-	-	-
Expansion of TANUVAS centre	I year – tender processing and placing orders	II year – Expansion processes	Put in to use	Put in to use
Training programmes on livestock farming	1000 farmers	1000 farmers	1000 farmers	1000 farmers
Conducting MCP/ Conference etc	12	12	12	12
Training to the officers	50	50	50	50
Establishment of kiosk at VUTRC	tender processing and placing orders	Establishment processes	Put in to use	Put in to use
Touch screen facilities	5	5	5	5
Field tours for the farmers	2	2	2	2
Semi intensive sheep/goat farming	130	130	130	130
Distribution of turkeys (3+1), feed, health cover cost	150	150	150	150
Custom hatching units	60	60	60	60

### Reporting

The Head of the Veterinary University Training and Research Centre, Madurai, Regional Joint Director, Animal Husbandry Department, Madurai and the General Manager, Aavin, Madurai will submit to periodical progress report to the higher authorities.

**Fisheries Sector****V. Project****1) Renovation and up gradation of Govt. Fish farm at Sathiyar.****Abstract**

The existing facilities available for fish seed production are in a dilapidated status and need to be rectified by suitable renovation of the damaged structures.

**Budget** : Rs. 30.30 lakhs

**Background / Problem Focus**

Fish seed production and rearing is being taken up in the government Fish Farm located in Mettur. The total area of the Government fish farm is 15 acres.

Project Rationale : To promote quality fish production  
 Duration : 1 year  
 Area of Implementation : Mettur

**Project Cost and Financing**

Unit cost	30.30 lakhs * Chinese hatchery, creation of nursery space, development of broodstock & seed rearing
No. of units	1.0
Total cost	30.30 lakhs

**Implementation Chart of the Project**

S.No.	Particulars	2008-09			
		I Qtr	II Qtr	III Qtr	IV Qtr
1.	Preparation of plan and estimate and execution	√			
2.	Seed stocks	√			
3.	Tender floating Completion of repair work Stocking fish seeds		√ √		√

**2) 50% subsidy to private fish seed rearing / fish seed production****Abstract**

The fish farmers in Madurai district are progressive and adopt modern technologies in fish seed / fish production. The water resources can be utilised to expand the inland fisheries activities in the district. The potential can also be tapped to cater to the need of other districts. Hence, it is proposed to encourage private participation in fish seed production / fish seed rearing by extending subsidy assistance of 50% of the capital cost with a production capacity of 10 million early fry / one million fingerlings.

**Budget : Rs. 10.00 lakhs**

**Background / Problem Focus**

To encourage private participation in fish seed production. Fish seed rearing by extending subsidy assistance of 50% of the capital cost with a production capacity of 10 million.

**Project Rationale**

To Fish production by producing more quantity of fish seeds.

**Project Strategy**

To improve the fish rearing of Madurai

**Project Goals**

300 lakhs fingerlings within a span of four years

**Project Components**

2 units

**Project Cost and Financing :** Rs. 10.00 lakhs

Unit cost	5.0lakhs * nursery and fish seed production
No. of units	2.0
Total cost	10.0 lakhs

**Implementation chart of the project**

S.No.	Particulars	2008-09			
		I Qtr	II Qtr	III Qtr	IV Qtr
1.	Preparation of plan and estimate and execution	√			
2.	Seed stocks	√			
3.	Tender floating Completion of repair work Stocking fish seeds		√		√

**3) Aquaculture information and Extension centre**

**Abstract**

The aquaculture information and extension centre would provide fisheries technological information and to impart training programmes in different trades of fisheries. This centre will also conduct regular followup studies to know the problems of farmers in the adoption of technologies

**Budget : Rs. 18.00 lakhs**

**Background / Problem Focus**

The major objective of the establishment of this Extension Centre is to impart training programmes in different trades of fisheries. The training programmes enabling the farming and fishing communities to obtain maximum benefits from the farming and fishing technologies made available to them.

### Project Rationale

The proposed Fisheries Extension Centre will extend all types of assistance needed by the participants to establish their own self-employment units.

### Project Strategy

To impart training for conducting follow up studies

### Project Goals

1. To conduct training programmes on fisheries
2. To organise demonstration on fisheries
3. To conduct extension activities

### 7. Project Components

To organise and conduct the following

- a. Training
- b. Demonstration
- c. On the spot guidance
- d. Consultancy
- e. Follow up studies
- f. Exhibition

### 8. Project Cost and Financing

S.No	Items	Budget (Rs. in lakhs)
1.	Computerised unit for data processing with training hall	4.0
2.	Consumables (Stationeries / training materials etc.)	6.0
3.	Contingencies	6.0
4.	Power point projection equipments and public address system	2.0
<b>Total</b>		<b>18.0</b>

**Implementation chart of the project**

S.No.	Particulars	2008-09			
		1Qtr	IIQtr	IIIQtr	IVQtr
1.	Computerised unit for data processing with training hall Consumables (Stationeries / training materials etc.) and Power point projection equipments and public address system	√	√	√	√

**4) Fish Farmer Training****Abstract**

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

**Budget** : Rs. 5.00 lakhs.

**Background / Problem Focus**

To impart knowledge on scientific fish farming in order to enhance fish production.

**Project Rationale**

Imparting training in such 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, Cat fish culture, Economies and Marketing

**Project Cost and Financing**

Unit cost	0.10 lakh * includes training fees, extension materials with field visits
No. of units	500
Total cost	<b>5.0 lakhs</b>

**Implementation of chart of the project**

Sl.No.	Activity	2008-09	2009-10	2010-11	2011-12
1.	Identification of villages	√	√	√	√
2.	Selection of participants	√	√	√	√
3.	Conducting training programmes	√	√	√	√
4.	Evaluation of training programmes	√	√	√	√

**5) Fish Farmers Training (Progressive 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. 4.00 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 such 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, Cat fish culture, Economies and Marketing

**Project Cost and Financing**

Unit cost	0.10 lakh * includes training fees, extension materials with field visits to farms over all over India
No. of units	40
Total cost	<b>4.0 lakhs</b>

**Implementation Chart of the Project**

Sl.No	Particulars	2008-09			
		I Qtr	II Qtr	III Qtr	IV Qtr
1.	Identification of villages	√	√	√	√
2.	Selection of participants	√	√	√	√
6) 3.	Conducting training programmes	√	√	√	√
4.	Evaluation of training programmes	√	√	√	√

**50% subsidy to Ornamental fish culturists****Abstract**

The ornamental fish culture is gaining much importance at present. However the present ornamental fish production is very low compared to neighboring countries. In order to meet out the present demand of ornamental fishes subsidy should be provided ornamental fish farmers to increase the production.

**Budget : Rs. 44.00 lakhs**

**Project Rationale**

Providing 50% subsidy to the ornamental fish culture farmers for increasing the ornamental fish production.

**Project Strategy**

Increasing ornamental fish production in this districts.

**Project Goals**

- To increase the production different varieties of ornamental fish culture.
- To provided subsidy assistance to the farmers of Madurai district.

**Project Components**

- Identification of farmers for providing 50% subsidy.
- Providing training programmes on culture and breeding.

**Project Cost and Financing**

Sl. No.	Particulars	Cost (Rs. in Lakhs)
1.	50% Subsidy to the selected fish farmers (for farm construction)	30.00
2.	Supply of ornamental fish seeds ( with subsidy)	6.00
3.	Conduct of Training programme	8.00
	<b>Total ( for 40 ornamental fish units)</b>	<b>44.00</b>

**Implementation Chart of the Project**

Sl. No.	Particulars	2008-09	2009-10	2010-11	2011-12
1.	Conduct of Training programme	√	√	√	√
2.	Supply of ornamental fish seeds		√	√	√
3.	50% subsidy Selected fish farmers		√	√	√

**7) Fish Market Infrastructure Development at Madurai****Abstract**

Retail market will have 20-25 fish stalls where facilities like ice boxes, crates, electronic balance and dressing table are provided along with electricity, draining and water facilities.

**Budget : Rs. 500.00 lakhs**

### Background / Problem Focus

The retail market at present are poorly maintained. The essential market infrastructure like electricity, water, drainage and civic amenities in most of the retail fish markets are inadequate.

### Project Rationale

This is the last link in the marketing channel. Consumers' satisfaction is guaranteed at this retail outlet.

### Project Strategy

The retail market will be located in 20 district headquarters of Tamilnadu based on the marketing potential

### Project Goals

- ❖ Providing quality fishes at reasonable price.
- ❖ To enhance revenue for the fisher folk engaged in fish marketing.

### Project Components

To essential market infrastructure like electricity, water, drainage and civic amenities in most of the retail fish markets are inadequate

### Project Cost and Financing

S.No.	Particulars	Unit cost ( in Lakhs)
1.	Construction of building (10,000 sq.ft.)	200.00
2.	Cold storage units	100.00
3.	Ice plant	20.00
4.	Refrigerated trucks	50.00
5.	Processing hall equipments like dressing tables, deboning unit, plate freezers etc.	50.00
6.	Quality control lab	80.00
	<b>Total</b>	<b>500.00 lakhs</b>

**Implementation Chart of the Project**

S.No.	Particulars	2008-09	2009-10	2010-11	2011-12
1.	Tenders and construction of a full fledged market mall	√			

**8) Modern Fish Retail outlet****Abstract**

In Madurai district, there are established fish markets run by the municipalities concerned. The improperly stored unsold fish kept overnight result in fish spoilage and loss of quality and revenue. To avoid this, intervention is necessary to establish modern fish retail outlets at Madurai.

**Budget : Rs. 50.00 lakhs**

**Background / Problem Focus**

The modern fish retail outlet will be used to keep the excess stock until selling.

**Project Rationale**

To avoid fish spoilage & loss of quality & revenue.

**Project Strategy**

The facility will be established at Madurai.

**Project Goals**

To avoid loss of revenue this outlet will be established.

**Project Components : Retail outlets**

**Project Cost and Financing**

Unit cost	10 lakhs * cost of building with facilitated fish stalls
No. of units	5.0
Total cost	50 lakhs

**Implementation Chart of the Project**

Sl.No	Particulars	2008-12			
		I Qtr	II Qtr	III Qtr	IV Qtr
1.	Establishment of 2 retail outlet	√	√	√	√
2.	Establishment of 3 retail outlet	√	√	√	√

**9) Moped with Ice Box (50% subsidy)****Abstract**

The mopeds with ice box will be provided to inland fishermen 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 lakh
No. of units	50
Total cost	<b>7.50 lakhs</b>

**Implementation Chart of the Project**

Sl. No.	Particulars	2008-12			
		I Qtr	II Qtr	III Qtr	IV Qtr
1.	Purchase & supply of mopeds with ice box	√	√	√	√

**10) Ornamental fish park****Abstract**

Ninety five per cent of our ornamental fish export is based on wild collection. Majority of the indigenous ornamental fish trade in India is from the North Eastern states and the rest is from Southern states which are the hot spots of fish bio diversity in India. This capture based export is not sustainable and it is a matter of concern for the industry. In order to sustain the growth it is absolutely necessary to shift the focus from capture to culture based development. Moreover most of the fish species grown for their ornamental importance can be bred in India successfully. Organised trade in ornamental fish depends on assured and adequate supply of demand, which is possible only by mass breeding. The proposed Aqua park is aimed at developing Fresh Water Ornamental Fish Production and Export.

**Budget : Rs. 25.00 lakhs**



**Background / Problem Focus**

**In order to create awareness among public about ornamental fishes and as a means of recreation establishment of Ornamental Park is essential.**

**Project Rationale**

Among the various aquaculture practices, ornamental fish culture is gaining momentum at present. There is much scope for self employment opportunities in this trade. Tamilnadu has sufficient potential for the development of ornamental fish culture in terms of land , water and labour resources, If the ornamental fish breeding is taken up by farmers, rural youth, women self help groups considerable quantities of ornamental fishes could be produced. alleviating poverty.

**Project Strategy**

**This facility would definitely attract the public, a nominal entry fee may also be fixed for the visitors.**

**Project Goals**

- i) To set up ornamental fish park for public
- ii) In order to create awareness among public about ornamental fishes and as a means of recreation

**Project Components**

Work Shed, Glass tanks, Aquarium fishes, Heater, Filter, Other aquarium accessories

**Project Cost and Financing : Rs. 25.00 lakhs****(Rs. in Lakhs)**

<b>S.No.</b>	<b>Particulars</b>	<b>Cost</b>
1	Construction of hatchery shed 100 m2 x 1200	6.65
2	Construction of cement tanks	1.00
3	Construction of a glass house unit with sales counter	8.80
4	Air blower	0.20
5	generator	1.00
7	filter	1.00
8	breeders	0.50
9	Bore well, pump, pipe lines	2.00
10	Lab instruments( glass wares and chemical)	1.00
11	Feed, fertilizer, manure	0.50
12	Miscellaneous	2.35
	<b>Total</b>	<b>25.00</b>

**Implementation Chart of the Project**

<b>Sl.No</b>	<b>Particulars</b>	<b>2008-12</b>			
		<b>IQtr</b>	<b>IIQtr</b>	<b>IIIQtr</b>	<b>IVQtr</b>
1.	Construction of fish tanks	√			
2.	Conditioning of breeders		√		
3.	Breeding of fishes			√	
4.	Breeding of fishes continued				√

**11) Soil & Water quality testing laboratory****Abstract**

Establishment of a soil and water quality testing laboratory is highly essential.

**Budget : Rs. 15.25 lakhs**

**Background**

The success of the fish culture activity is mainly depends upon the water quality management aspects. Hence the establishment of water quality testing laboratory is the

need of the hour for increasing fish field. Also, the farmers of the Madurai district will be able to test their farm water and soil samples by using this facility and will be able to produce more fish in their farms through scientific farming.

### **Project Rationale**

The farmers can bring their water sample and get them analysed in the nearby places instead taking them to the far of places for testing

### **Project Strategy**

The establishment of this Water quality Testing Laboratory will help the fish farmers to maintain water quality aspects in fish ponds for better management for better fish production.

### **Project Goals**

- ❖ The enhance the fish production through proper water quality management.
- ❖ To extend better facility and convenience to the farmers to test the water samples from their farm components.
- ❖ To make the fish farmers and entrepreneurs to maintain water quality aspects

### **Project Components**

- 1) Establishment of water quality fishing laboratory
- 2) This involves the setting up of water equality laboratory by procuring various lab equipments.
- 3) Procurement of mobile water quality testing laboratory

### **Project Cost and Financing**

**(in lakhs)**

<b>S.No.</b>	<b>Particulars</b>	<b>Unit cost</b>
1.	pH meter	0.7
2.	TDS	0.9

3.	Spectrophotometer	5.0
4.	Microscope	3.0
5.	Electronic Balance	0.5
6.	Autoclave	0.3
7.	Distillation unit	0.2
8.	Laminar flow chamber	0.6
9 .	Computer with Printer	0.5
10.	Chemicals	1.0
11.	Field kits	2.0
12.	Centrifuge	0.55

### Implementation Chart of the Project

Sl.No	Particulars	2008-12			
		I Qtr	II Qtr	III Qtr	IV Qtr
1.	Establishment of a soil & water quality testing lab		√		

### 12) Development of Marketing Strategy for Fishes

#### Abstract

Fish marketing system includes all those activities involved from the point of production / landing to the point of final consumption. More than 90% of marine fish landings of Tamilnadu is supplied to internal markets. Marine fishermen are known to suffer because of greater uncertainties in fish catch, highly perishable, assembling from too many coastal landing centres, wide seasonal and spatial variation in price, disequilibrium of demand and supply and lack of marketing infrastructure.

**Budget : 3.00 lakhs**

**Background /Problem Focus**

Even though urban consumers are conservative in their fish eating habits, their consumption pattern may be influenced to a larger extent by several factors. The determinants may arise as a result of internal factors, such as varying income, educational standards, social status, size of family and age. The external factors include supply of fish, price and substitute commodities.

**Project Rationale**

The development of fisheries marketing will require an understanding of the spatial distribution of fish consuming population and infrastructure facilities at various levels of marketing systems starting from the fishermen to the final consumers. It is believed that the consumption pattern of fish might reveal some seasonal fluctuations depending on the production pattern.

**Project Strategy**

A total of 1,000 consumer respondents distributed in the selected city would be randomly selected. Consumer segmentation would be made depending on income, age, education, family size and life cycle. Data would be collected using a pretested survey schedule. The factors influencing fish consumption would be estimated using suitable econometric models. Based on the results of the study marketing strategies would be suggested for each city to improve fish marketing of fish based on consumer needs.

**Project Goals**

- ❖ To analyse the fish consumption pattern in the major fish consumption centres.
- ❖ To estimate the demand for the supply of fish in the study area.
- ❖ To conduct test marketing of commercially available fishes among different sections of the consumers.
- ❖ To assess the market infrastructure and development needs.
- ❖ To formulate appropriate marketing strategies for the development of marketing activities.

**Project Components**

1. Conduct of survey among the respondents in the study area.
2. Data entry and processing
3. Analysis of data with statistical tools.
4. Preparation and submission of final report.

**Project Cost and Financing**

Sl. No.	Item	Rs. in lakhs
1.	Field survey @ Rs. 8,000/- month	1.92
2.	Travelling allowance	0.48
3.	Contingencies	0.60
	<b>Total</b>	<b>3.00</b>

The cost of the project is Rs. 3.00 lakhs and 100% funded under NADP.

**Implementation Chart of the Project**

Sl. No.	Activities	I Qtr.	II Qtr.	III Qtr.	IV Qtr.
1.	Conduct of survey	√	-	-	-
2.	Data entry	-	√	-	-
3.	Analysis of data	-	-	√	-
4.	Preparation of final report	-	-	-	√

**Reporting**

The scheme will be reviewed by the Director of Research and Extension (Fisheries), TANUVAS periodically.

### 13) Assessment of Productivity for Enhancing Fish Production in Water Bodies of Madurai

#### Abstract

Vaigai Reservoir is a small reservoir with an average water spread area of 2419 ha (FRL). Generally the fish yield from medium reservoirs is estimated to be around 12.5kg/ha/yr. In order to increase the fish yield from this level to about 100 kg/ha/yr, the proper management of water quality aspects through scientific management of reservoirs is possible and hence this project is proposed to enhance fish production from this Vaigai Reservoir.

**Budget : Rs. 15.00 lakhs**

S.No	Particulars	Amount (Rs.in Lakhs)
I.	<b>Cost of Personnel</b>	
	a. Contractual labor- 2 Nos. @ Rs.15,000/-p.m	3.60
	b. Casual labourer – 2 Nos. @Rs.7,000/-p.m	1.70
II.	<b>Recurring</b>	
	Chemicals, glasswares.etc.	0.50
	a. Seed cost (approx.)	1.00
	b. Plankton net	0.30
	c. Plastic bottles	0.10
	d. Sample analysis for heavy metals	0.50
	e. Coracle hiring charge	0.75
	f. Fish sampling netting materials	0.40
	g. Travel including vehicle hiring to reach reservoir site	0.50
	h. Stationeries, report preparation	0.20
	i. Contingencies	0.30
	j. Fishermen Coolie charges (2 nos.)	0.50
III	<b>Non- recurring</b>	
	a. Field Water Quality Analysis kit – 1no	3.50
	b. Ice box for sample transport-2 nos.	0.40
	c. Deep freezer	0.75
IV.	Institutional Charges @15 % of the recurring budget	---
	<b>Total</b>	<b>15.00</b>

**Background**

Vaigai Reservoir is having the water spread area of 1554 ha. This reservoir supplies the water for irrigation for the agricultural lands of Theni and Madurai district and also for the supply of drinking water to Madurai city. In order to increase the fish yield from this reservoir, a proper management of water quality aspects for better fish production through proper seed stocking density with suitable seed size based on the primary productivity potential of this reservoir can be done.

**Project Rationale**

For enhancing inland fish production, reservoirs, particularly small sized ones can be utilized for the maximization of fish production. The productivity of any aquatic systems is mainly depends upon the primary productivity status of the water bodies. Hence, in order to enhance fish yield, primary productivity assessment as well as assessment of other water quality parameters such as depth, light penetration, dissolved oxygen, total hardness, total alkalinity, total dissolved solids, electrical conductivity, nutrients, chlorophyll-a, and plankton biomass is essential. Based on this we can decide the suitable seed stocking density with suitable fish seed size and thus the fish production can be enhanced.

**Project Strategy**

To increase the fish yield from this level to the maximum of 100 kg/ha/yr through scientific management practices.

**Project Goals**

1. To assess the productivity status of Vaigai reservoir.
2. To study the role and production of plankton and their species composition as a means of suitable food source to the target species.
3. To assess the nutrient status and other relevant water quality parameters of the Vaigai reservoir for proper enhancement of primary productivity.



4. To evolve a suitable stocking density of fish seed for the enhancement of fish yield based on primary productivity potential of the reservoir and also to arrive at the suitable stocking size of the seeds for better survival and fish yield.

### Project Components

1. Primary productivity will be assessed in Vagai reservoir in the different selected locations at least once in a fortnight by following light and dark bottle method for a period of one year.
2. The Water samples will be collected from different locations and analysed for its various physico-chemical parameters such as depth, light penetration, water temperature, dissolved oxygen, pH, total hardness, total alkalinity, total dissolved solids, electrical conductivity, nutrient levels and ammonia by following the standard procedures.
3. The hydrobiological characteristics such as the content of chlorophyll-a, plankton species composition and biomass will be studied by following standard methods.
4. Stocking density of fish seed will be calculated based on productivity.
5. Present status of fish survival and growth will be estimated by adopting suitable methodologies.
6. Fish yield potential will be estimated based on primary productivity data.

### Project Cost and Funding

Rs.15.00 lakhs as recurring budget with 100% funding through NADP.

### Implementation Chart of the Project

Sl. No.	Particulars	I Qtr	II Qtr	III Qtr	IV Qtr
1.	Purchase of equipments	√			
2.	Recruitment of SRFs and Field Assistants	√			

---

3.	Water quality studies	√	√	√	√
4.	Fish stocking		√	√	√
5.	Fish growth assessment		√	√	√

**Reporting**

The progress of the project will be assessed once in six months from the start of the project and the same will be reported to the authorities concerned.

### 6.3. Animal Husbandry

The component wise budget for Animal husbandry is given in Table 6.15. The detailed project proposal are given in annexure

**Table 6.15 Proposed Activities and Budget for Animal Husbandry - 2008-2012**  
(Rs. in lakhs)

Sl. No	Scheme Components	Unit cost	2008-09				2009-2010		2010-2011		2011-2012		Total	
			No. of units	Total cost	No. of units	Total cost	No. of units	Total cost	No. of units	Total cost	No. of units	Total cost	No. of units	Total cost
<b>1</b>	<b>FEED &amp; FODDER DEVELOPMENT (Implementing agency: DAH &amp; DDD)</b>													
	<b>CATTLE, SHEEP AND GOAT</b>													
	Augmentation of fodder production (Co3) through Self Help Groups/ Livestock farmers. 10 acre/ block /year for 4 years total 13 blocks (DAH)	0.235	130	30.55	130	30.55	130	30.55	130	30.55	130	30.55	520	122.2
	Fodder development activities ( for production of fodder seed/slips in dairy or chilling centres & land of DDD (Rs 2.10 lakhs/ unit) (DDD)	2.1	10.5	22.05									10.5	22.05
	Fodder development activities( 500 acres in 100 IDF villages in each for 2 years & 1850 acres in farmers field (DDD)	0.235	140	32.9	20	4.7	15	3.525	15	3.525	190	44.65		
	Provision of chaff cutter @ 1/block / year for SHG/ elite farmers (DAH)	0.1	13	1.3							13	1.3		
	Chaff cutters for IDF villages on community basis (Mechanised) (DDD)	0.7	28	19.6							28	19.6		
	Chaff cutters for elite farmers (small type) @ Rs. 20,000/- as 100per cent grant (DDD)	0.2	8	1.6	8	1.6	7	1.4	7	1.4	30	6		
	Establishment of cattle feed plant (DDD) @ Rs. 465.00 lakhs / unit				1	232.5	1	232.5			1	465		

Table 6.15 contd...

Sl. No	Scheme Components	Unit cost (Rs. In lakh)	2008-09				2009-2010		2010-2011		2011-2012		Total		(Rs. in lakhs)	
			No. of units	Total cost (Rs. In lakh)	No. of units	Total cost (Rs. In lakh)	No. of units	Total cost (Rs. In lakh)	No. of units	Total cost (Rs. In lakh)	No. of units	Total cost (Rs. In lakh)	No. of units	Total cost (Rs. In lakh)		
<b>2</b>	<b>GENETIC UPGRADEATION : (DAH)</b>															
	<b>CATTLE</b>															
	Identification and traceability of breedable bovine population (DAH)	0.000 2	118000	23.6									118000		23.6	
	Programmed breeding indigenous cattle & buffalo to increase conception rate (DDD)	0.007	600	4.2	600	4.2	600	4.2	600	4.2	600	4.2	2400		16.8	
	<b>SHEEP</b>															
	Distribution of Rams(125 X 4) (DAH)	0.04	125	5	125	5	125	5	125	5	125	5	500		20	
	<b>GOAT</b>															
	Distribution of Bucks(125 X 4) (DAH)	0.04	125	5	125	5	125	5	125	5	125	5	500		20	
	<b>POULTRY</b>															
	Distribution of TANUVAS-Nandanam III birds (DAH)	0.005	500	2.5	500	2.5	500	2.5	500	2.5	500	2.5	2000		10	
<b>3</b>	<b>IMPROVEMENT OF LIVESTOCK HEALTH (DAH)</b>															
	<b>CATTLE</b>															
	Mobile Vet. Clinics- 1 / taluk (DAH)	5.85	6	35.1									6		35.1	
	Supplementation of min. mix. to prevent infertility and augment production to farmers @ Rs. 600/cow/ year @ Rs. 50/kg ( 5000cow/year) (DAH)	0.006	5000	30	5000	30	5000	30	5000	30	5000	30	20000		120	



Table 6.15 contd....

Sl. No	Scheme Components	Unit cost (Rs. In lakh)	2008-09				2009-2010		2010-2011		2011-2012		Total	
			No. of units	Total cost (Rs. In lakh)	No. of units	Total cost (Rs. In lakh)	No. of units	Total cost (Rs. In lakh)	No. of units	Total cost (Rs. In lakh)	No. of units	Total cost (Rs. In lakh)	No. of units	Total cost (Rs. In lakh)
	Milking machines for ID Farms (DDD)	1.00	28	28.00									28	28.00
	Portable milking machines for farmers (DDD)	0.18	13	2.34	13	2.34	12	2.16	12	2.16	50	9.00		
	Bulk milk cooler (DDD)	30.00	1	30.00							1	30.00		
	Walk - in coolers (DDD)	30.00	1	30.00	1	30.00					2	60.00		
	Revival of dormant MPCs (DDD)	1.00	8	8.00	8	8.00	7	7.00	7	7.00	30	30.00		
	Manufacturing facilities for milk khoa(DDD)	0.77	1	0.77	1	0.77	2	1.54			4	3.08		
	Manufacturing facilities for panneer (DDD)	1.02	1	1.02			1	1.02			2	2.04		
	Manufacturing facilities for icecream (DDD)	1.12	1	1.12	1	1.12					2	2.24		
	Milk weighing machine for milk producers co-op societies (DDD)	0.17	24	4.08	24	4.08	24	4.08	24	4.08	96	16.32		
	P.C.Based automatic milk collection stations to IDF villages milk producers co operative societies (DDD)	1.75	30	52.50	2	3.50	2	3.50	2	3.50	36	63.00		
	MMPO Laboratory (DDD)						1	56.00			1	56.00		
	Energy management system (DDD)	10.00	1	10.00							1	10.00		

Table 6.15 contd...

Sl. No	Scheme Components	Unit cost (Rs. In lakh)	2008-09		2009-2010		2010-2011		2011-2012		Total	
			No. of units	Total cost (Rs. In lakh)	No. of units	Total cost (Rs. In lakh)	No. of units	Total cost (Rs. In lakh)	No. of units	Total cost (Rs. In lakh)	No. of units	Total cost (Rs. In lakh)
<b>5</b>	<b>EXTENSION FACILITIES</b>											
	Farmers study tour @ Rs.5000/- Per farmer (DDD)	<b>0.05</b>	40	2.00	40	2.00	40	2.00	30	1.50	150	7.50
	Skill development for technical staff (DDD)	<b>0.05</b>	35	1.75	35	1.75	35	1.75	35	1.75	140	7.00
	Orientation training /workshop for milk producers at society level (DDD)	<b>0.20</b>	4	0.80	4	0.80	4	0.80	4	0.80	16	3.20
	Institutional development – Strengthening of Vet. Institutions with basic facilities like fencing Bore wells, water troughs, Minor repair works etc. @ RS. 5.0 lakh/ Institution (DAH)	5	26	130							26	130
	Strengthening of training equipments for technology dissemination and training to farmers with laptop computer with printer, teaching aids etc. at TANUVAS centre, Madurai (TANUVAS)	10	1	10							1	10
	Expanding of TANUVAS centre for Training (Training cum conference hall for farmers), mobile disease investigation and training unit, LCD projector, Microscope etc. (TANUAS)	50	1	50							1	50

Table 6.15 contd...

Sl. No	Scheme Components	Unit cost	(Rs. in lakhs)						Total	
			2008-09		2009-2010		2010-2011		2011-2012	
			No. of units	Total cost	No. of units	Total cost	No. of units	Total cost	No. of units	Total cost
	Training programmes on modern livestock farming Capacity building Training for farmers (TANUVAS)	0.003	1000	3	1000	3	1000	3	4000	12
	For conducting MCP, Conference etc. (TANUVAS)	0.03	12	0.36	12	0.36	12	0.36	48	1.44
	Capacity building Training for officers (Vets/ NGOs/ Line dept staff (TANUVAS)	0.05	50	2.5	50	2.5	50	2.5	200	10
	Establishment of Kiosk at VUTRC for videoconference with farmers (TANUVAS)	5	1	5					1	5
	Touch screen facilities (TANUVAS)	1	5	5	5	5	5	5	20	20
	Field tour for farmers (TANUVAS)	0.25	2	0.5	2	0.5	2	0.5	8	2.00
	<b>SHEEP AND GOAT</b>									
	Semi intensive sheep/ goat farming to improve meat production by SHGs @ 10 / block (DAH)	0.42	130	54.6	130	54.6	130	54.6	520	218.4
	<b>POULTRY</b>									
	Custom hatching units + cage units+ candler (TANUVAS)	0.2	60	12	60	12	60	12	240	48
	Turkeys (3 +1 ),Feed and Health cover (SHG) (TANUVAS)	0.025	150	3.75	150	3.75	150	3.75	600	15
	<b>TOTAL</b>			<b>781.20</b>		<b>521.29</b>		<b>544.40</b>	<b>253.80</b>	<b>2101.680</b>



Table 6.16 Proposed Activities and Budget for Fisheries - 2008-2012

Sl. No.	Components	Implementing Agency	Unit cost	Total units	2008-09		2009-10		2010-11		2011-12		Total cost
					Units	cost	Units	cost	Units	cost	Units	cost	
1	Renovation and up gradation of Govt. Fish farm at Sathiyar	Fisheries Department	30.30	1	1	30.30							30.30
2	50per cent Subsidy to private fish seed rearing / fish seed production	Fisheries Department	10.00	2	1	5.00			1	5.00			10.00
3	Fish farmers Training	Fisheries Department	0.01	500	100	1.00	100	1.00	200	2.00	100	1.00	5.00
4	Fish Farmers Training (Progressive farmers)	Fisheries Department	0.10	40	10	1.00	10	1.00	10	1.00	10	1.00	4.00
5	50per cent Subsidy to Ornamental fish culturists	Fisheries Department	1.10	40	10	11.00	10	11.00	10	11.00	10	11.00	44.00
6	Fish market infrastructure development at Madurai	TNFDC	500.00	1			1	500.00					500.00
7	modern Fish Retail outlet	TNFDC	10.00	5	2	20.00	4	10.00	1	10.00	1	10.00	50.00
8	Moped with ice box(50per cent subsidy)	TAFCOFED	0.15	50	10	1.50	10	1.50	20	3.00	10	1.50	7.50
	<b>Fisheries - Total</b>					<b>69.80</b>		<b>524.50</b>		<b>32.00</b>		<b>24.50</b>	<b>650.80</b>
1	Aquaculture information and Extension centre	TANUVAS	18.00	1	1	18.00							18.00
2	Ornamental fish park	TANUVAS	25.00	1					1	25.00			25.00
3	Soil & Water quality testing laboratory	TANUVAS	15.25	1			1	15.25					15.25
4	Development of Marketing strategy for fishes	TANUVAS	3.00	1	1	3.00							3.00
5	Assessment of productivity for enhancing fish production in reservoir	TANUVAS	15.00	1	1	15.00							15.00
	<b>TANUVAS - Total</b>					<b>36.00</b>		<b>15.25</b>		<b>25.00</b>			<b>76.25</b>
	<b>Grand Total</b>					<b>105.80</b>		<b>539.75</b>		<b>57.00</b>		<b>24.50</b>	<b>727.05</b>

(Rs. in lakhs)

## **6.5. Agricultural Engineering**

### **6.5.1. Abstract**

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

### **6.5.2. Budget**

The Action Plan in respect of physical and financial aspects for four years is prepared. The project cost will be the subsidy portion which shall be financed, to be matched with the farmers' contribution for implementation of the project. The project cost for Stream-I and Stream-II is arrived at 298.81 lakhs and 503.42 lakhs respectively amounting to a total of **802.23 lakhs** for Madurai District. The physical and financial outlays for all work components on year wise and block wise are shown in the tables enclosed in annexures.

### **6.5.3. Back ground/Problem Focus**

#### **Problem Focus**

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

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

#### **6.5.4. Project Rationale**

The National Agriculture Development Project (NADP/RKVY) aims at achieving 4 per cent annual growth in Agriculture Sector during XI Plan period, by ensuring holistic development of Agriculture and allied sectors.

The following tasks are to be carried out under NADP to redress the above problems, for the benefit of farmers:

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

#### **6.5.5. Project Strategy**

Under NADP, the District Agriculture Plan (DAP) is to be formulated for each district which shall not be the usual aggregation of the existing schemes but would aim at moving towards projecting requirements for development of agriculture and allied sectors

of the district. The DAP shall present the vision for Agriculture and allied sectors within overall development perspective of the district. The DAP would present the financial requirement and the sources of financing the agriculture development plans in comprehensive way.

The DAP would comprise two streams of work components as follows:

### **Stream-I**

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

### **Stream-II**

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

### **6.5.6. Project Goals**

The main objectives of NADP are

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

### **6.5.7. Project Components**

Under Stream-I, the following work components are proposed by Agricultural Engineering Department

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

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

#### **(b) Innovative Water Harvesting Structures**

i) The farm ponds are ideal rain water harvesting structures in which run off would be collected and used. Farm ponds control the soil erosion and augment ground water potential. Due to permeable nature of soil, the harvested rain water percolates into sub-soil zone by infiltration. The farm ponds shall be lined with plastic sheets to avoid infiltration and the collected rain water shall be used for irrigation of annual crops. To improve the irrigation efficiency, the mobile sprinkler irrigation kits shall be used to

irrigate the annual crops. The cropping area may considerably be increased and the crop productivity will be enhanced. Plastic lined farm ponds and sprinkler irrigation system would fetch more income to the farmers.

ii) The Percolation ponds were constructed under various schemes in the district across wide gullies / streams to harvest rain water and also to regulate the water courses from severe soil erosion. The ground water table would be replenished by percolation ponds and so the wells located in the zone of influence would be benefited with the increased water table. In due course, the percolation ponds would be silted and the percolation of harvested rain water would not happen effectively. In order to put then into use in long period, the percolation ponds shall be rejuvenated with desilting and provision of recharge shafts. By taking into account the geological factors, the recharge shafts shall be designed and constructed to recharge the ground water aquifers. Two recharge shafts/pits are proposed in each percolation pond, in deepest bed levels, in order to collect rain water and feed them in recharge shafts to recharge the aquifers. By this, the ground water potential in and around the percolation pond would be augmented and irrigation potential from open wells/open wells will be enhanced. The drinking water bore wells located in villages/hamlets shall also be benefited out of such recharge shafts.

### **c) Promoting the Concept of Mechanized Villages**

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

The crop based package of agricultural machinery/implements is arrived for Paddy, Groundnut and Maize which are predominantly raised by farmers. In respect of paddy crop, rotovator for tractor, rotary puddler, drum seeder, SRI marker, paddy transplanter, cono weeder, light weight whole straw combine harvester shall be distributed as package. For groundnut, ridger, raised bed seed drill, rotovator for tractor,

leveler, sub soil coir pith applicator, groundnut digger, stripper and ground nut decorticator shall be distributed as package. For maize crop, chisel plough, ridger, sub soil coir pith applicator, raiser bed seed drill, power weeder, rotovator for tractor, leveller, power operated maize husker/sheller shall be distributed as package.

The above said crop based package of agricultural machinery/implements shall be distributed to the farmers of the adopted village with 75per cent subsidy subject to the condition that all the prescribed machinery/implements for particular crop, should be procured by the farmers of the village without any omission. The crop based packages for paddy and maize are proposed in Madurai District.

The following work components are proposed under Stream-II:

**(d) Popularisation of Agricultural Mechanisation through Conventional Farm Machinery/Implements**

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

**(e) Water Harvesting Structures to Augment the Ground Water Potential**

The water harvesting structures are essential to harvest run off for recharging the ground water and also to use for supplemental irrigation. Presently, the watershed

management programmes like Western Ghats Development programme (WGDP), Rain water harvesting and run off management programme, Integrated Wasteland Development Programme (IWDP) are being implemented in Madurai District. Under these programmes, the soil/moisture conservation works, rain water harvesting structures and plantation works are being carried out. But, the above work components are to be implemented in the particular micro watersheds approved under each programme over the period of time.

There is much hope for implementation of soil conservation works and rain water harvesting structures outside the designated micro watersheds. So, the work components like Farm Ponds-Unlined in private lands, Check dams-minor, medium and major in gullies/streams located in public and private lands, Recharge shafts/pits, sunken ponds in public lands, rejuvenation of wells in private lands (by collection of rain water and fed into wells through filter pits) are proposed and the works would be implemented with subsidy pattern prescribed for on going programmes.

#### **f) Soil/moisture Conservation Works**

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



**g) Water Management works**

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

The details of work components proposed under Stream-I & Stream-II for the period of 4 years- 2008-09, 2009-10, 2010-11 & 2011-12 along with the unit cost, subsidy pattern, physical and financial outlay are furnished in Annexure-I, for inclusion in DAP for Madurai District, to implement NADP.

**6.5.8. Project Cost and Financing:**

The project cost for implementation of NADP in Madurai District, pertaining to Agrl. Engg. Work components, is arrived over the period of four years as follows:

Stream-I : Rs. 298.81 lakhs

Stream-II : Rs. 503.42 lakhs

-----

**Total : Rs. 802.23 lakhs**

-----

The above project cost is the subsidy portion to be matched with the farmers' contribution during implementation of the project. The subsidy pattern is proposed as 50per cent under distribution of newly developed farm machinery/implements, 75per cent for gender friendly implements and mechanised village concept, 90per cent for individual oriented works under rain water harvesting, soil conservation and water management

works and 100per cent for community beneficial works. The year wise physical and financial action plan for all work components is furnished in Annexure-I for release of funds under NADP over the period of 4 years.

#### **6.5.9. Implementation Chart of Project**

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

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

#### **6.5.10. Reporting**

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

**Table 6.17 Proposed Activities and Budget for Agricultural Engineering under Stream - I**  
(Rs.in lakhs)

S. No	Project Component	Unit Cost,	Subsidy per cent	2008-09		2009-10		2010-11		2011-12		Total	
				Nos.	Cost	Nos.	Cost	Nos.	Cost	Nos.	Cost	Nos.	Cost
Stream : I													
I. Introduction of Newly Developed Agri. Machinery / Implements													
1	Mini combined Harvester TNAU model	2.50	50per cent	2	2.50	2	2.50	2	2.50	2	2.50	8	10.00
2	Multi crop Thrasher (High capacity)	2.10	50per cent	0	0	0	0	0	0	0	0	0	0
3	Power weeder with attachment (all models)	1.00	50per cent	4	2.00	6	3.00	6	3.00	8	4.00	24	12.00
4	Power Thrasher	1.00	50per cent	3	1.50	3	1.50	3	1.50	3	1.50	12	6.00
5	Paddy Transplanter	1.40	50per cent	3	2.10	3	2.10	3	2.10	3	2.10	12	8.40
6	Post hole digger	0.85	50per cent	2	0.85	4	1.70	3	1.275	1	0.425	10	4.25
7	Shredder (Heavy)	1.00	50per cent	0	0	0	0	0	0	0	0	0	0
8	Shredder (Medium)	0.40	50per cent	0	0	0	0	0	0	0	0	0	0
9	Maize Husker Sheller	0.90	50per cent	4	1.80	4	1.80	4	1.80	4	1.80	16	7.20
10	Coconut De- husker	0.60	50per cent	5	1.50	5	1.50	5	1.50	5	1.50	20	6.00
11	Groundnut decorticator	0.35	50per cent	2	0.35	2	0.35	2	0.35	2	0.35	8	1.40
12	Chisel plough	0.12	50per cent	2	0.12	1	0.06	2	0.12	1	0.06	6	0.36
13	Power Operated Chaff Cutter	0.30	50per cent	2	0.30	2	0.30	2	0.30	2	0.30	8	1.20
14	Gender friendly equipments-Long wheeled weeder-20 Nos, Coconut climber-120 Nos & Battery Powered sprayer-60 Nos.	0.08	75per cent	50	3.00	50	3.00	50	3.00	50	3.00	200	12.00

Table 6.17 Contd...

(Rs.in lakhs)

S. No	Project Component	Unit Cost,	Subsidy per cent	2008-09		2009-10		2010-11		2011-12		Total	
				Nos.	Cost	Nos.	Cost	Nos.	Cost	Nos.	Cost	Nos.	Cost
II. Innovative Water harvesting structures													
1	Lined farm pond with mobile sprinkler	3.00	90per cent	2	5.40	2	5.40	3	8.10	3	8.10	10	27.00
2	Rejuvenation of percolation ponds with 2 recharge shafts/pits	1.00	100per cent	20	20.00	20	20.00	20	20.00	20	20.00	80	80.00
III. Control of Sea Water Intrusion													
1	Recharge shafts to prevent sea water intrusion in coastal areas	0.50	100per cent	0	0	0	0	0	0	0	0	0	0
IV. Promoting the concept of Mechanised villages													
1	Distribution of crop based package of Agri. Machinery on cluster basis in the adopted villages	varied	75per cent										
	1. Paddy	31.06		1	23.30	1	23.30	1	23.30	1	23.30	4	93.20
	2. Groundnut	3.50		0	0	0	0	0	0	0	0	0	0
	3. Maize	19.91		1	14.90	0	0	1	14.90	0	0	2	29.80
	TOTAL				79.62		66.51		83.74		68.94		298.81

**Table 6.18. Proposed Activities and Budget for Agricultural Engineering under Stream - II**  
(Rs. in lakhs)

Sl. No	Details	Proposed subsidy pattern	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
				No. of units	Total cost	No. of units	Total cost	No. of units	Total cost	No. of units	Total cost	No. of units	Total cost
	<b>Stream 2</b>												
<b>1</b>	<b>Popularisation of Agricultural mechanisation through conventional machinery/equipments</b>												
	a) Power Tiller	25per cent	1.16	7	2.03	7	2.03	7	2.03	7	2.03	28	8.12
	a) Rotavator	25per cent	0.90	5	1.125	5	1.125	5	1.125	5	1.125	20	4.50
<b>2</b>	<b>Water harvesting structures</b>												
a	Farm Ponds unlined	90per cent	0.50	18	8.10	22	9.90	22	9.90	18	8.10	80	36.00
b	Check dam - Minor	100per cent	0.30	20	6.00	20	6.00	20	6.00	20	6.00	80	24.00
c	Check dam -Medium	100per cent	0.75	25	18.75	25	18.75	25	18.75	25	18.75	100	75.00
d	Check dam - Major	100per cent	1.00	15	15.00	15	15.00	15	15.00	15	15.00	60	60.00
e	Recharge shaft/pits	100per cent	0.30	8	2.40	12	3.60	12	3.60	8	2.40	40	12.00
f	Sunken Pond	100per cent	0.50	12	6.00	18	9.00	16	8.00	14	7.00	60	30.00
g	Rejuvenation of wells	90per cent	0.30	15	4.05	25	6.75	22	5.94	18	4.86	80	21.60
<b>3</b>	<b>Soil conservation works</b>												
a	Compartmental bunding	90per cent	0.03	250	6.75	250	6.75	250	6.75	250	6.75	1000	27.00
b	Land shaping	90per cent	0.10	100	9.00	200	18.00	200	18.00	100	9.00	600	54.00
<b>4</b>	<b>Water Management works</b>												
a	PVC pipe laying	90per cent	0.15	200	27.00	200	27.00	200	27.00	200	27.00	800	108.00
b	Ground level reservoir	90per cent	0.80	10	7.20	20	14.40	20	14.40	10	7.20	60	43.20
	<b>Total</b>				<b>113.41</b>		<b>138.31</b>		<b>136.50</b>		<b>115.22</b>		<b>503.44</b>

## **6.6 Agricultural Marketing and Agribusiness**

### **1. Current Status of Agribusiness**

Agriculture, as a primary sector provides livelihood to 56per cent of the population and contributes around 13per cent of the State GDP. In value terms between 65 and 75per cent 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 75per cent of industry output. The Government is taking efforts to achieve targeted growth rate of 4per cent 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 30per cent, 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 of 1per cent to 10per cent, out of the total production, increasing value addition from 7per cent to 30per cent. 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 4per cent which was seen as achievable if growth of 6 to 8per cent could be achieved in horticulture. These growth rates have not eventuated largely because constraints identified in the Plan have not been overcome. These constraints include lack of modern and efficient infrastructure, poor technological support and post harvest management, underdeveloped and exploitative market structures, inadequate research and extension to address specific agricultural problems and linkages with farmers and industry. The strong relationship between agriculture and rural poverty means that current plans, policy and sector performance will be unable to address the needs of rural poor.

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

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

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

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

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



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

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

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

#### **4. Sector Problem Analysis**

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

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

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

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

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

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

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

## 5. Project Rationale

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

1. The rate of agricultural growth over the past decade has been declining in Tamil Nadu. Agribusiness through its linkages to production, industry and services has the potential to transform the agricultural system into a more dynamic sector.
2. As urbanization and incomes grow, there is a growing demand for a wider range of agrifood products, of higher quality and greater convenience, to use in Tamil Nadu. Meeting this demand requires organized retailing and effective agribusiness supply chains.
3. Agribusiness contributes to the production of higher value products and diversification away from staple foods. Through this diversification and the development of the value chain between producers and consumers, the rural economy benefits from innovation and the creation of non-farm employment.
4. Tamil Nadu has a comparative advantage in a number of agricultural commodities. Increasing integration with global markets and the potential to become a stronger player in agricultural trade requires quality assurance and competitive advantage.
5. The State Government has identified agribusiness development as a strategic priority. In Tamil Nadu, agribusiness has a significant role to play in rural and economic development, and agro-enterprises could be a major source of rural non-farm employment and income.
6. The existing government programs to promote agricultural diversification are broad-based programs with multiple objectives. For agribusiness development to happen a more focused approach is needed to complement the initiatives already covered by the different national programs.

## **6. Project Strategy**

The project will promote the Agri-business practices and models required to support agribusiness development in Tamil Nadu, allowing the sector to contribute to economic growth, particularly in rural areas. New Agri-business practices will be introduced relating to: (i) farmers and entrepreneurs engaging service providers to solve specific technology problems (ii) learning to work together in the value chain (iii) making effective use of market intelligence in decision making; and (iv) making investments in supply chain infrastructure and market places.

## **7. Project Approach**

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

## **8. Project Goals**

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

Through the adoption of improved agribusiness practices the project will facilitate the development of a competitive agribusiness sector in Tamil Nadu, promoting

diversification and contributing to the transformation of agriculture into a system producing higher value and contributing to the reduction of poverty in rural areas.

The envisaged project's interventions will provide higher value for consumers, value that will be shared as distributed benefits to value chain stakeholders including farmers, entrepreneurs and workers. This will be achieved through activities that improve business practices related to use of market information, investment in technology transfer and knowledge services, development of value chain linkages and investment in market infrastructure. The distributed benefits will provide incentive for ongoing involvement and further innovation from which the sector can extend its development.

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

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

## 9. Project components

1. Establishment/ organization of commodity groups for marketing in the state with financial assistance from NADP
2. Facilitation of Contract Farming between farmers and bulk buyers in the state with financial assistance from NADP
3. Dissemination of Market intelligence
4. Arrangement of Buyers - Sellers Meet
5. Organizing the exposure visits to important markets within the state and outside the state by commodity groups / farmers and extension functionaries.
6. Strengthening of market extension centre at each district/ block level for capacity building and dissemination of marketing information.

7. Strengthening of selected village shandies with financial assistance from NADP
8. Capacity building of farmer's skill
9. Price surveillance
10. Regulated Market uzharav Shandies Publicity
11. Market Infrastructure

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

#### **i) Project Rationale**

According to Government sources, the inefficient marketing system leads to an avoidable waste of around Rs 50,127 crores. A major part of this can be saved by introducing scale and technology in agricultural marketing. Milk and eggs marketing are two success areas of role of scale and technology in marketing. The extent to which the farmer-producers will benefit (out of saving of avoidable waste) depends on the group-marketing practices adopted by the farmers. In this sense, Farmers' Groups/ Commodity Groups need to be promoted for undertaking marketing activities on behalf of the individual members of the group.

Based on the international experience, in view of expanding retail trade, organizing the farmers and equipping the commodity groups can facilitate the aggregation of produce and also enhance the bargaining power of the farmers. The experience in Malaysia, Thailand and Philippines indicated that the retail chains will depend on some intermediary agency for sourcing the produce. If this role can be taken by the farmers' commodity groups, the commodities can move directly to the market without any intermediary. Further, adoption of technology both in production and post-harvest management which is expected to flow from the organized retailers and other research institutions can be efficient through the farmers' commodity groups. There is no single model for organizing the farmers for the whole country. Depending on the strength of the existing farmers' institutions, various models could be adopted. 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 an amount of Rs.20000/= is provided per group.

In this project it is proposed to organize six commodity groups in Paddy, Greengram, Onion, Banana, Mango, Jasmine commodities for marketing of agricultural commodities in Madurai district over the period of four years. The details are presented in Table 6.20 A.



**vi) Reporting**

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

**6.6.2 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 not have staying power. Such arrangements are being encouraged to help in reducing price risks of farmers and to also expand the markets for farm products. It is to be noted that contract farming of sugarcane is going on for the last more than 50 years in Tamil Nadu. In case of cotton, maize and medicinal plants there are few cases of contract farming. Contract farming in milk, eggs and broiler production is successfully taking place in large scale in Tamil Nadu. The lessons taught in case of sugarcane, cotton and other commodities have to be taken into account during formulation of the project. For this in this NADP programme facilitation contract farming between the traders and producer is proposed.

## **ii) Project Strategy**

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

## **iii) Project Components**

1. Organising meeting with farmers, large scale buying firms, crop insurance companies and banks.
2. Identification of willing / co operating Farmers/ commodity clusters
3. Organising the willing farmers in to groups

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

#### **iv) Project cost and Financing**

Arranging / organising Commodity Groups involve several rounds of meeting with large number of farmers and traders, train them contract specification and monitor them. To organize these an amount of Rs.10,000/- is provided

In this project it is proposed to organize the meeting on various crops regarding contract farming between farmers and bulk buyers in Madurai district for marketing of agricultural commodities in Tamil Nadu over the period of four years. This will require resources of Rs 2.76 lakhs for the period of four years.

#### **v) Reporting**

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

### **6.6. 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 Madurai district over the period of four years. The details are presented in Table 6.20 A.

**v) Reporting**

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

**6.6.4. 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 buyers sellers meet in Madurai district over the period of four years. This will require resources of Rs.4.6 Lakhs for the period of four years.

### **6.6.5 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 4per cent 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 4per cent 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. The details are presented in Table 6.20 A.

**vi) Reporting**

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



#### **6.6.6. Strengthening of Market Extension Centre at Each District/ Block Level for Capacity Building and Dissemination of Marketing Information.**

##### **i) Project Rationale**

Over the last few years mass media has seen a phenomenal growth in the country both in terms of reach and advance in technology. This medium has not been exploited to its full potential for the purpose of agricultural extension specifically market led extension. A concerted and well-coordinated effort now needs to be made to use the electronic media in the Extension strategy by strengthening infrastructure facility. Market led Extension is now becoming more diversified, technology intensive, knowledge oriented and more demand-driven. This requires the extension workers at the cutting edge level to be master of so many trades, which is neither practicable nor possible. Use of IT in extension enables the extension workers to be more effective in meeting the information needs of farmers. The growing Information and communication technology is used widely in the entire developmental sector except in agricultural sector. Use of interactive multimedia and such other tools will help the extension workers to serve the farmers better. Similarly, extension systems have to utilize the existing print and electronic mass media for faster dissemination of information to farmers. The technological advancement in telecommunication and space technology has to be fully tapped for devising appropriate programs for farmers. Hence there is a urgent need to strengthening of market extension centre at each district/ block level with LCD projectors and lap top computer including internet facilities.

##### **ii) Project Strategy**

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

##### **iii) Project Goals**

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

**iv) Project Components**

Strengthening of market extension centre at each district/ block level

**v) Project Cost and Financing**

Over the last few years mass media has seen a phenomenal growth in the country both in terms of reach and advance in technology. This medium has not been exploited to its full potential for the purpose of agricultural extension specifically market led extension. A concerted and well-coordinated effort now needs to be made to use the electronic media in the Extension strategy by strengthening infrastructure facility. In this project it is proposed to strengthening market extension centre in Madurai district over the period of four years. This will require resources of Rs.5.0 Lakhs for the period of four years.

**vi) Reporting**

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

**6.6.7. Strengthening of Selected Village Shandies with Financial Assistance from NADP****i) Project Rationale**

Considering the importance of Rural Primary Markets, there is an urgent need to develop these rural periodic markets in a phased manner with necessary infrastructural amenities to have a strong base of the marketing channel. The task of developing more than 21,000 Rural Periodic Markets is a gigantic one. Therefore, only selected markets will be developed initially and the rest could be developed in phases. The selection of markets is based on economic considerations rather than financial viability in view of their socio-economic importance and equity. Considering the existing constraints in the markets, the modernization should provide for transparent auction system for price discovery of the agricultural produce, bulk weighing arrangement, bulk handling, proper

parking, waste disposal, and storage facility. The details of infrastructure needed for an ideal wholesale market are given below:

1. Grading Facilities
2. Price Display Mechanism
3. Electronic Weighing Machine

**ii) Project Strategy**

Strengthening of selected village shandies through establishing Grading Facilities, Standardization Facilities, Price Display Mechanism and Electronic Weighing Machines

**iii) Project Components**

1. Establishing Grading Facilities
2. Establishing Standardization Facilities
3. Purchasing and Establishing Price Display Mechanism and Electronic Weighing Machines

**iv) Project Cost and Financing**

In this project it is proposed to strengthen Village Shandies in Madurai district over the period of four years. This will require resources of Rs.36.00 Lakhs for the period of four years.

**v) Reporting**

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

### **6.6.8. 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. 11.60Lakhs.

- 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 80000 trainings under Capacity Building of Farmers Skill titles for marketing of agricultural commodities in Madurai district over the period of four years.

## **v) Reporting**

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

### 6.6.9. Strengthening of Selected Market Infrastructure (equipments) through NADP Funding

#### i) Project Rationale

Considering the importance of different Markets, there is an urgent need to develop these markets in a phased manner with necessary infrastructural amenities to have a strong base of the marketing channel. Suitability and adequacy of marketing infrastructure depends on the type and quantity of marketed surpluses of agricultural produce in the State. The estimated marketed surpluses of various commodities are given in the Table 6.19. reflected the need for improvement in the market infrastructure in coming years.

**Table 6.19. Estimates of Marketed Surpluses of Various Commodities**

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

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

**ii) Project Components**

1. Purchasing and Establishing price display board and mobile controlled display board
2. Purchasing and Establishing collection centres
3. Purchasing and Establishing chilli dryers
4. Purchasing and Establishing cool Chambers/cold storage
5. Purchasing and Establishing Price Display Mechanism and Electronic Weighing Machines
6. Purchasing and establishing moisture meter
7. Purchasing and Distribution of Tarpaulins, Plastic crates and storage pins

**iii) Project Cost and Financing**

In this project it is proposed to strengthen market infrastructure in Madurai district over the period of four years. This will require resources of Rs.104.25 Lakhs for the period of four years.

**iv) Reporting**

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

**6.6.10. Establishment of Price Surveillance Mechanism****i) Project 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 Madurai district over the period of four years. This will require resources of Rs.2.76 Lakhs for the period of four years.

**iv) Reporting**

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

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

**i) Project Rationale**

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



**ii) Project Components**

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

**iii) Project cost and Financing**

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

**iv) Reporting**

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

**10. Project Cost**

The total cost for development of agricultural marketing so as to increase the profitability of farmers would be Rs. 904.91 Lakhs for this district for the eleventh plan period.

**11. 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.

## **12. 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.

## **13. 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 6.20 A. Original Project Proposals for Agricultural Marketing and Agri-Business

S. No	Components	2009				2010				2011				2012				Total
		Unit cost	Phy	Fin	Unit cost	Phy	Fin	Unit cost	Phy	Fin	Unit cost	Phy	Fin	Unit cost	Phy	Fin		
1	Commodity group formation																	
	Paddy	20000	6	120000	22000	6	132000	24000	6	144000	26000	6	156000	552000				
	Green gram	20000	2	40000	22000	2	44000	24000	2	48000	26000	2	52000	184000				
	Onion	20000	3	60000	22000	3	66000	24000	3	72000	26000	3	78000	276000				
	Banana	20000	3	60000	22000	3	66000	24000	3	72000	26000	3	78000	276000				
	Mango	20000	2	40000	22000	2	44000	24000	2	48000	26000	2	52000	184000				
	Jasmine	20000	3	60000	22000	3	66000	24000	3	72000	26000	3	78000	276000				
2	Market Intelligence dissemination																	
	Farmers Meet	10000	26	260000	11000	26	286000	12000	26	312000	13000	26	338000	1196000				
	Farmers Discussion	10000	12	120000	11000	12	132000	12000	12	144000	13000	12	156000	552000				
	Printing Leaflets	2	5000	10000	3	5000	15000	4	5000	20000	5	5000	25000	70000				
	Purchase of marketing materials	10000	1	10000	11000	1	11000	12000	1	12000	13000	1	13000	46000				
3	Facilitation of contract farming																	
	Maize	15000	4	60000	16500	4	66000	18000	4	72000	19500	4	78000	276000				
4	Trainings on													0				
	Warehousing and Storage	10000	3	30000	11000	3	33000	12000	3	36000	13000	3	39000	138000				
	Grading	10000	3	30000	11000	3	33000	12000	3	36000	13000	3	39000	138000				
	Market Intelligence	10000	3	30000	11000	3	33000	12000	3	36000	13000	3	39000	138000				
	Post Harvest	10000	3	30000	11000	3	33000	12000	3	36000	13000	3	39000	138000				

Table 6.20A. Contd....

S. No	Components	2009				2010				2011				2012				Total
		Unit cost	Phy	Fin	Unit cost	Phy	Fin	Unit cost	Phy	Unit cost	Phy	Fin	Unit cost	Phy	Fin	Unit cost	Finl	
	Commodity Markets	10000	3	30000	11000	3	33000	12000	3	36000	13000	3	39000	138000				
	Export promotion Jasmine	10000	4	40000	11000	4	44000	12000	4	48000	13000	4	52000	184000				
	Export promotion Mango	10000	4	40000	11000	4	44000	12000	4	48000	13000	4	52000	184000				
	Value addition Trainings	10000	3	30000	11000	2	22000	12000	2	24000	13000	2	26000	102000				
5	Exposure visit to markets													0				
	Banana	75000	1	75000	82500	1	82500	90000	1	90000	97500	1	97500	345000				
	Mango	75000	1	75000	82500	1	82500	90000	1	90000	97500	1	97500	345000				
	Visit to National market	150000	2	300000	165000	2	330000	181500	2	363000	199650	2	399300	1392300				
	Arrangement of buyer seller meetings	20000	5	100000	22000	5	110000	24000	5	120000	26000	5	130000	460000				
6	Streng. Of market extension centre	250000	2	500000	275000		0	300000		0	325000		0	500000				

Table 6.20A. Contd....

(in Rupees)														
S. No	Components	2009			2010			2011			2012			Total
		Unit cost	Phy	Fin	Unit cost	Phy	Fin	Unit cost	Phy	Fin	Unit cost	Phy	Fin	
8	Streng. of village shandies	8000	450	3600000	0	0	0	0	0	0	0	0	0	3600000
9	Market price surveillance	10000	6	60000	11000	6	66000	12000	6	72000	13000	6	78000	276000
10	Publicity - regulated market	500000	1	500000	550000	1	550000	600000	1	600000	650000	1	650000	2300000
11	Market infrastructure activities												0	
	Plastic crates	500	2000	1000000	550	2000	1100000	600	2000	1200000	650	2000	1300000	4600000
	Donnages	2500	1000	2500000	2750	1000	2750000	3000	0	0	3250	0	0	5250000
	Tar	5000	25	125000	5500	25	137500	6000	25	150000	6500	25	162500	575000
	Total	1341002	8581	9935000	1466303	8128	6411500	1601104	7128	4001000	1737555	7128	4343800	24691300

Table 6.20B. Additional Project Proposals for Agricultural Marketing and Agri-Business DDA(AB)

Rs.in lakhs

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
<b>I.</b>	<b>Infrastructure</b>								
1	Construction of rural godowns in the premises of the regulated markets								
	a) Vadipatti	1	36.00	0	0.00	0	0.00	1	36.00
	b) Thirumangalam	0	0.00	1	36.00	0	0.00	1	36.00
	c) Usilampatti	0	0.00	0	0.00	1	36.00	1	36.00
2	Storage godowns for storing produce under lock and key for few days	0	0.00	0	0.00	0	0.00	0	0.00
3	Construction of new drying yards/renovation of dilapidated ones							0	0.00
	a) Vadipatti	1	4.00	0	0.00	0	0.00	1	4.00
	b) Thirumangalam	1	2.00	2	8.00	0	0.00	3	10.00
	c) Usilampatti	0	0.00	0	0.00	1	4.00	1	4.00
4	Construction of new auction halls/modernizing the existing ones							0	0.00
	a) Usilampatti	0	0.00	2	30.00	0	0.00	2	30.00
	b) Thirumangalam	0	0.00	0	0.00	1	18.00	1	18.00
5	Construction of money disbursement halls/counters	0	0.00	0	0.00	0	0.00	0	0.00
6	Construction of office buildings and staff quarters	0	0.00	0	0.00	0	0.00	0	0.00

Table 6.20B. Contd.,

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
7	Installation of processing units/purchase of new instruments in the premises of the regulated markets								
	(i) Mechanical drier	1	2.00	0	0.00	0	0.00	1	2.00
	(ii) Mechanical winnower	0	0.00	0	0.00	0	0.00	0	0.00
	(iii) Groundnut decorticator	0	0.00	0	0.00	0	0.00	0	0.00
	(iv) Sieving machine	0	0.00	0	0.00	0	0.00	0	0.00
	(v) Cotton Ginning Unit / Pressing Unit	0	0.00	0	0.00	0	0.00	0	0.00
	(vi) Coconut Kernel drying and oil processing units	0	0.00	0	0.00	0	0.00	0	0.00
	(vii) Packaging Units	0	0.00	0	0.00	0	0.00	0	0.00
8	Strengthening the State Ghee and Oil Grading Laboratories								
	i) Construction of Lab & Office Building (Madurai South)	1	30.00	0	0.00	0	0.00	1	30.00
	ii) Spectro Photo meter (for Agmark Lab)	1	3.00	1	3.00	0	0.00	2	6.00
9	Strengthening the Commercial Grading Centres with Laboratory facilities (more numbers can also be included)	0	0.00	0	0.00	0	0.00	0	0.00
10	Strengthening the infrastructure facilities in the Uzhavar Shandies								
(a)	Construction of New Building								
	i) Palaangatham	1	3.00	0	0.00	0	0.00	1	3.00

Table 6.20B. Contd.,

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
	ii) Chokkikulam	1	5.00	0	0.00	0	0.00	1	5.00
	iii) Annaiyur	0	0.00	1	5.00	0	0.00	1	5.00
(b)	Toilet Facilities								
	(i) Palaangatham	2	2.00	0	0.00	0	0.00	2	2.00
	(ii) Anaiyur	0	0.00	2	2.00	0	0.00	2	2.00
©	Leveling of Ground Floor and laying the cement concrete flooring around the shandies								
	i) Palaangatham	1	4.00	0	0.00	0	0.00	1	4.00
	ii) Chokkikulam	1	3.00	0	0.00	0	0.00	1	3.00
	iii) Annanagar	0	0.00	1	3.00	0	0.00	1	3.00
	iv) Anaiyur	0	0.00	0	0.00	1	3.00	1	3.00
(d)	Renovation of Existing shop and fixing title in shopping area								
	i) Palaangatham	1	4.00	0	0.00	0	0.00	1	4.00
	ii) Chokkikulam	1	5.00	0	0.00	0	0.00	1	5.00
	iii) Annanagar	0	0.00	1	5.00	0	0.00	1	5.00
	iv) Anaiyur	0	0.00	0	0.00	1	4.00	1	4.00
(e)	Construction of Cycle Stand								
	i) Palaangatham	1	2.00	0	0.00	0	0.00	1	2.00
	iii) Annanagar	0	0.00	2	2.00	0	0.00	2	2.00
	iv) Anaiyur (Cycle Stand - 1-4; Two wheler 1-1)	0	0.00	0	0.00	1	2.00	1	2.00



Table 6.20B. Contd.,

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
(f)	Construction of Security Room								
	i) Palaangatham	1	1.00	0	0.00	0	0.00	1	1.00
	ii) Chokkikulam	1	1.00	0	0.00	0	0.00	1	1.00
	iii) Anaiyur	0	0.00	1	1.00	0	0.00	1	1.00
	iv) Annanagar	0	0.00	0	0.00	1	1.00	1	1.00
(g)	Construction of Canteen								
	i) Annanagar	0	0.00	1	2.00	0	0.00	1	2.00
	ii) Anaiyur	0	0.00	0	0.00	1	2.00	1	2.00
(h)	Construction of Additional shop								
	i) Anaiyur	10	4.00	0	0.00	0	0.00	10	4.00
	ii) Annanagar	0	0.00	30	12.00	0	0.00	30	12.00
11	Construction of cold storage facilities in Uzhavar Shandies and in rural godowns (Anaiyur)	1	6.00	0	0.00	0	0.00	1	6.00
12	Office automation with computer facility for billing etc. in regulated markets								
	i) Computer facility with Cannon Printer with Xerox								
	a) Vadipatti	1	2.00	0	0.00	0	0.00	1	2.00
	ii) Cannon Printer with Xerox								
	a) Thirumangalam	0	0.00	1	1.00	0	0.00	1	1.00
	b) Usilampatti	0	0.00	0	0.00	1	1.00	1	1.00
	c) Madurai (Mattuthavani)	1	1.00	0	0.00	0	0.00	1	1.00

**Table 6.20B. Contd.,**

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
13	Lawying and relawying of village link roads	0	0.00	0	0.00	0	0.00	0	0.00
14	Provision of Oil moisture meters (All Regulated Markets)	6	0.30	0	0.00	0	0.00	6	0.30
	Digital Moisture Meter (Agmark Labs)	1	1.00	1	1.00	0	0.00	2	2.00
15	Provision of Oil testing machines	0	0.00	0	0.00	0	0.00	0	0.00
16	Provision of Electronic weighing machines	1	0.85	0	0.00	0	0.00	1	0.85
17	Others if any (Specify)								
	a) Refrigerator (Agmark Lab)	1	0.15	0	0.00	0	0.00	1	0.15
	b) Digital Refracto Meter (Agmark Lab)	0	0.00	1	0.50	0	0.00	1	0.50
	c) Madurai Mattuthavani Paddy Complex - internal road maintenance	1	15.00	0	0.00	0	0.00	1	15.00
	d) T. Vadipatti New Internal Road Formation	1	4.00	0	0.00	0	0.00	1	4.00
	e) Replacement of existing sodium vapour lamp into C.F.L. Lights for effective power maintenance	80	8.00	0	0.00	0	0.00	80	8.00
<b>II.</b>	<b>Publicity and Propaganda</b>								
a)	Market committee-wise strengthening of the Publicity and Propaganda units								
	i) LCD TV								
	1) Madurai	1	0.80	0	0.00	0	0.00	1	0.80
	2) Vadipatti	0	0.00	1	0.80	0	0.00	1	0.80
	3) Thirumangalam	0	0.00	0	0.00	1	0.80	1	0.80
	4) Usilampatti	0	0.00	0	0.00	1	0.80	1	0.80

Table 6.20B. Contd.,

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
b)	Power Point Project with Screens								
	Madurai (Mattuthavani)	1	1.00	0	0.00	0	0.00	1	1.00
2	Market committee-wise purchase of extension education aids								
	a) Madurai (Mattuthavani)	1	1.00	0	0.00	0	0.00	1	1.00
	b) Thirumangalam	0	0.00	1	1.00	0	0.00	1	1.00
	c) Usilampatti	0	0.00	0	0.00	1	1.00	1	1.00
3	Strengthening the regional Publicity and Propaganda wings of the Marketing Board and establishing more regional units	0	0.00	0	0.00	0	0.00	0	0.00
4	Pre-harvest campaigns on large scale	0	0.00	0	0.00	0	0.00	0	0.00
5	Others if any (Specify) (Agri Business DDA sid)								
	i) Construction of Training Hall with Furnitures, Audio and Video equipments and LCD TV	1	20.00	0	0.00	0	0.00	1	20.00
	ii) Publicity and Propaganda Van	1	15.00	0	0.00	0	0.00	1	15.00
	iii) Digital Camera, Hand Video Camera	1	0.50	0	0.00	0	0.00	1	0.50
	iv) Poster, Leaflets, Booklets	1	2.00	1	3.00	1	4.00	3	9.00
<b>III.</b>	<b>Public relations</b>								
1	Construction of bus-stop shed un front of the regulated markets and in selected villages								
	a) Madurai (Mattuthavani)	2	4.00	0	0.00	0	0.00	2	4.00
	b) Thirumangalam	0	0.00	1	3.00	0	0.00	1	3.00
	c) Usilampatti	0	0.00	0	0.00	1	3.00	1	3.00

Table 6.20B. Contd.,

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
2	Taking up public relations activities in the villages (Exposure visit, Campaigns, Training)	1	2.00	1	3.00	1	4.00	3	9.00
3	Construction of common village threshing floors	10	25.00	20	50.00	20	50.00	50	125.00
4	Construction of village common discussion (Chavadi) hall	0	0.00	0	0.00	0	0.00	0	0.00
5	Distribution of tarpaulins to small and marginal farmers	100	5.00	150	7.50	200	10.00	450	22.50
6	Installation of electric light facilities including solar lights in the community threshing floors	10	5.00	20	10.00	20	10.00	50	25.00
7	Construction of over head tanks, laying of street pipelines and provision of public drinking water taps in a village or two wherein the market arrivals are more	0	0.00	0	0.00	0	0.00	0	0.00
8	Provision of Education loan to the children of a few regular customers	0	0.00	0	0.00	0	0.00	0	0.00
9	Celebrating the regulated market fortnight in each district (just like co-operative weeks/fortnight)	0	3.00	0	3.00	0	3.00	0	9.00
10	Others if any (Specify)								
a)	i) Construction of DDA(AB) office with training Hall	1	40.00	0	0.00	0	0.00	1	40.00
	ii) Vehicle for DDA (AB)	1	8.00	0	0.00	0	0.00	1	8.00
<b>IV.</b>	<b>Facilities to farmers / Stakeholders</b>								
1	Construction of rest/stay rooms for farmers I regulated markets								
	i) Thirumangalam	0	0.00	1	10.00	0	0.00	1	10.00

Table 6.20B. Contd.,

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
	ii) Vadipatti	0	0.00	0	0.00	1	10.00	1	10.00
2	Construction/modernization of the common toiletary facilities in the regulated markets								
	i) Vadipatti	1	2.00	0	0.00	0	0.00	1	2.00
	ii) Usilampatti	1	2.00	0	0.00	0	0.00	1	2.00
	iii) Thirumangalam	0	0.00	0	0.00	1	2.00	1	2.00
3	Provision of parking lot facilities in the needy centers	0	0.00	0	0.00	0	0.00	0	0.00
4	Providing drinking water facilities to animals	0	0.00	0	0.00	0	0.00	0	0.00
5	Provision of transport facilities/routing the vehicle to transport commodities to the regulated markets	0	0.00	0	0.00	0	0.00	0	0.00
6	Creating farm inputs retailing facilities	0	0.00	0	0.00	0	0.00	0	0.00
7	Others if any (Specify)	0	0.00	0	0.00	0	0.00	0	0.00
V.	Any other innovative interventions (specify)	0	0.00	0	0.00	0	0.00	0	0.00
	<b>Grand Total</b>	<b>255</b>	<b>285.60</b>	<b>244</b>	<b>202.80</b>	<b>257</b>	<b>169.60</b>	<b>756</b>	<b>658.00</b>

## Budget Abstract

Budget Abstract						(Rs.in lakhs)	
Sl.No.	Particulars	2008-09	2009-10	2010-11	2011-12	Total	Total
A.	Original Project	99.350	64.115	40.010	43.438	246.913	
B.	Additional Project DDA(AB) and Market Committee	-	285.60	202.80	169.60	658.00	
	<b>Grand Total</b>	<b>99.350</b>	<b>349.72</b>	<b>242.81</b>	<b>213.04</b>	<b>904.91</b>	

## **CONTENTS**

<b>S.No.</b>	<b>Contents</b>	<b>Page No.</b>
1.	EXECUTIVE SUMMARY	i-ii
2.	Chapter I INTRODUCTION	1
3.	Chapter II GENERAL DESCRIPTION OF THE DISTRICT	5
4.	Chapter III SWOT ANALYSIS OF THE DISTRICT	40
5.	Chapter IV DEVELOPMENT OF AGRICULTURAL SECTOR	46
6.	Chapter V ALLIED AGRICULTURAL SECTORS	52
7.	Chapter VI DISTRICT PLAN	56
8.	Annexure - I	i - liv
9.	Annexure -II	

### List of Tables

<b>Table No.</b>	<b>Table particulars</b>	<b>Page Number</b>
2.1	List of Industries	8
2.2	Transport Facilities	9
2.3.	Communication Facilities	10
2.4.	Number of Cattles	12
2.5.	Number of Animals	13
2.6.	Inland Fishery Resources in Madurai District	14
2.7	Fisheries Development and Production 2005-2006	14
2.8	Demographic details	15
2.9.	The soil description of Madurai district	16
2.10.	Land Use Pattern for the last 3 Years of Madurai District	37
2.11	The Percentage of the respondents and Land Holdings of Madurai District	38
2.12.	Net Area Irrigated (Last 3 Years) in Madurai District	38
2.13.	Gross Irrigated Area (Last 3 Years) in Madurai District	39
2.14.	Groundwater Potential of Blocks	39
3.1	Selected Indicators of Agricultural Development for Madurai District	44
3.2.	Rank of Madurai District in terms of agricultural development among other Districts of Tamil Nadu during 1990-91 to 2005-06	45
4.1.	The Soil Types and the Area Covered	48
4.2	Area under Different Problem Soil Categories	48
4.3	Sources of Irrigation	48
4.4	Major Crops and Varieties in the District (2004-05)	49
4.5	Major crops and varieties in the district (2005-06)	49
4.6	Special Projects / Programmes Ongoing in the District	50
4.7	Agricultural Department – Budget Abstract	51
5.1	Progress Report for the Month of March 2008 (2007-08)	52

**List of Tables contd...**

<b>Table No.</b>	<b>Table particulars</b>	<b>Page Number</b>
5.2.	Integrated Horticulture Development Scheme - Achievement Details as on 31-3-2008	54
5.3.	Micro Irrigation 2007-08 - Achievement Details as on 31-3-2008	55
5.5	Activity Wise Credit Disbursement and Projection under Agricultural and Allied Sectors in Madurai District	72
6.1.	Budget Abstract for Agriculture – 2008 to 2012	73
6.2.	Budget Proposal for Increasing Production and Productivity of Paddy	77
6.3.	Budget Estimate for Increasing Production of Millets	81
6.4.	Budget Proposal for Increasing Production of Pulses	84
6.5.	Budget Proposal for Increasing Production of Cotton	88
6.6.	Budget Proposal for Increasing Production of Groundnut (Irrigated/Rainfed)	92
6.7.	Budget Proposal for Increasing Production of Fodder	96
6.8.	Budget Proposal for Improvement of State Seed farm, Vinayakapuram	100
6.9.	Budget Proposal for Improvement of Seed Processing Unit, Cholavandan	101
6.10.	Budget Abstract for Horticulture – 2008 To 2012	102
6.11.	Budget Abstract – Net house Structure - 2008 to 2012	104
6.12.	Year-wise Budget – Net house Structure - 2008 to 2012	104
6.13.	Budget Abstract – Package for Plant Protection – 2008 to 2012	109
6.14.	Year-wise Budget – Package for Plant Protection - 2008 to 2012	110
6.15.	Proposed Activities and Budget for Animal Husbandry - 2008-2012	243
6.16.	Proposed Activities and Budget for Fisheries - 2008-2012	249
6.17.	Proposed Activities and Budget for Agricultural Engineering under Stream - I	259
6.18.	Proposed Activities and Budget for Agricultural Engineering under Stream - II	261
6.19.	Estimates of Marketed Surpluses of Various Commodities	286
6.20A.	Original Project Proposals for Agricultural Marketing and Agri-Business	291
6.20B	Additional Project Proposals for Agricultural Marketing and Agri-Business DDA(AB)	294



### **List of Figures**

<b>Fig.No</b>	<b>Title</b>	<b>Page Number</b>
1	Map showing Taluks in Madurai District	11
2.	Map showing Blocks in Madurai District	11
3.	Agro-climatic Zones of Madurai District	18
4.	Land Degradation of Madurai District	20
5.	Waste Land Map of Madurai District	34

**National Agricultural Development Programme –  
Sensitization Workshop Meeting held on 09.05.2008 at Madurai**



**Comprehensive District Agricultural Plan Presentation by TNAU Scientist**



**Discussion Initiated by TNAU Scientist**



**Suggestions given by the District collector about the NADP Plan Proposals**



**Each Department Proposal Critically Reviewed by the District Collector**





**CDAP Explained to Panchayat Presidents by the Scientists**



**Queries Cleared by the Scientists**