NATIONAL AGRICULTURAL DEVELOPMENT PROGRAMME (NADP)

DISTRICT AGRICULTURE PLAN

PUDUKKOTTAI DISTRICT

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

2008

NATIONAL AGRICULTURE DEVELOPMENT PROJECT – DISTRICT AGRICULTURE PLAN

PROJECT TEAM

Overall Coordination	**:**	**Dr. K. Palanisami, Director, CARDS and Nodal Officer (NADP)**
		Dr. R. Venkatram, Professor and Principal Coordinator (NADP)
District Level Coordination	**:**	**Dr.M.Manoharan Professor and Head KVK, Tindivanam**
		Dr.N.Ramamoorthi Professor and Head National Pulses Research Centre Vamban
		Dr.K.Vairavan Professor (Agronomy) National Pulses Research Centre Vamban

Tamil Nadu Agricultural University

Prof. C.RAMASAMY
Vice-Chancellor

COIMBATORE-641 003
TAMIL NADU
INDIA.

FOREWORD

Date .....

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

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

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

(C. RAM AS AMY)

Coimbatore
June 30, 2008

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

Dr. K. Palanisami
Director, CARDS

Tamil Nadu Agricultural University
Coimbatore-3

PREFACE

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

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

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

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

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

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

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

Date: 30.06.2008

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

EXECUTIVE SUMMARY

The history of Pudukkottai is an epitome of the history of South India .In and around Pudukkottai, there are many vertigos of the oldest habitations of man and some of the lithic records known in the south. The Pandyas, Cholas, Pallavas, Haysalas, Vijayanagar and Madurai Nayaks ruled over this part of the country and fosterd its communal oragnisation, trade and Industris and established it with temples and monuments of outstanding merit. On January 14,1974, the present Pudukkotati district was formed from parts of Tiruchirapalli and Thanjavur districts. The district consists mainly of undulating plain, with poor fertility and in many parts barren. People are engaged in the mining of granite and laterite. Another source of income is handloom industry.

The Cauvery, Palar and Vellar drains into bay of bengal from this district.The vellar river has tributaries like Chinnar and Palar and it originates in manaparai hills and drains in pudukkottai district.Vayalogam is the major soil series amounting to nearly 37.04 per cent of total area.

(i) Strength of the District

- Good Historical Background
- Land and agriculture is comparitively high
- Significant area are irrigated by Cauvery Mettur project
- Soil and climate are more suitable for Horticultural Crops
- There is a scope to increase prodcution of Cashew by adopting modern agricultural technology

(ii) Weakness

- Diversified agriculture is not practised in major parts of the district.
- Traditionally selected crops are grown leading to mono-crop trend.
- There is labour out migration during peak agricultural season.

- There are no perennial water flowing rivers
- Domestic and Export marketing knowledge is poor among the farmers
- Adequate institutional credit and insurance facilities are not available.

(iii) Opportunities

- Introduction of Crop oriented small scale industries.
- There is a scope for promoting drip irrigation.
- Sericulture could be effectively promoted.
- Cashew based small scale industries could be promoted.
- There is vast scope to have value addition industry for groundnut, cashew, coconut, vegetables and fruits.

(iv) Threat

- Lack of Irrigation water is the major problem.
- Most of the crop cultivation is based on rainwater.
- Due to high soil erosion and depletion of the nutrient in the top soil the productivity of the soil is considerably low.
- Adequate marketing infrastructure facilities are not available

Major Interventions Identified

(a) Agriculture

- Formation of agriclinics
- Streghthening of STAMIN
- FFS on soil health care
- Streghthening of Government farms
- Exposure visit to farmers and officials
- Precision farming one acre each in 100 villages
- Provision for establishment of small scale industries for value added products

(b) Horticulture

- Net House structure for nursery & Vegetables Production
- Pandhal for vegetable Production
- Package for plant protection
- Plastics Crates for Vegetable handling and transport
- Farms waste shredder / vegetable waste shredder
- Cashew high density planting
- Borewell with casing pipe
- Banan Bunch cover
- Humic acid / effective Emicrobes
- Support sysytem for crops –Banana
- Banana corn Injector
- Mango Harvestor
- Sales outlet points in district(rent and Infra structure)
- District level farmers workshop
- Interstate Exposure Visit
- Mango / amla in noon meal scheme
- Ten hectare demonstration plot
- Enterprising farmers associations

(c) Animal Husbandry Sector

- Feed and Fodder Development
- Genetic upgradation
- Improvement of livestock health
- Establishment of processing facilites
- Extension facilities

(d) Fisheries Sector

- Inland fish Production
- Capacity Building- Training to farmers
- Provision of Moped with Ice box
- Deployment of artificial fish habiatats
- Seed farming
- Streghthening of ornamental fish unit at regional research centres

(e) Agricultural Marketing

- Commodity group formation
- Market intelligence dissemination
- Facilitation of contarct farming
- Exposure viists to market
- Arrangements of buyer seller meeting
- Streghthening of market extension centre
- Streghthening of village shandies
- Market price surveillance
- Publicity- regulated market
- Training on capacity building
- Market Infrastructure activities

(f) Agricultural Engineering

- Introduction of innovative agricultural Machineries Implements and Gender friendly Equipments
- Irriagtion facilities through borewells for horticulture development
- Soil and water conservation works
- Improvement to conveyence effeciency
- Infrastructure facility
- Agriculture Mechanization programme

Budget Requirement

(Amount in lakhs)

S.No	Department	2008-09	2009-10	2010-11	2009-12	Total
1	Agriculture	95.300	79.300	89.400	79.100	343.100
2	Innovative Schemes	112.250	104.750	205.250	104.750	527.000
3	Horticulture	322.319	313.245	346.198	326.193	1307.955
4	Animal Husbandry	924.070	148.750	117.640	117.140	1307.600
5	Fisheries	144.350	134.850	140.350	80.350	499.900
6	Agricultural Engineering	564.490	808.110	694.270	690.700	2757.570
7	Agricultural Marketing	57.300	276.94	295.84	222.80	852.88
Total		**2220.08**	**1865.95**	**1888.95**	**1621.03**	**7596.01**

CHAPTER - I

INTRODUCTION

Concerned by the slow growth in the Agriculture and allied sectors, the National Development Council (NDC), resolved that a special Additional Central Assistance Scheme, named National Agriculture Development Programme (NADP/RKVY) be launched. The NDC also felt that Agriculture Development strategies must be reoriented to meet the needs of farmers and called upon the Central and State governments to evolve a strategy to rejuvenate agriculture with a commitment to achieve four per cent annual growth in the agricultural sector during the 11^{th} plan. To implement this, formulation of action plans by means of developing District Agriculture Plans (DAP) is recommended. It is of the view that such plans would also reflect the felt needs of the farmers and stakeholders. Such District Agriculture Plans aim at moving towards projecting the requirements for development of Agriculture and allied sectors of the district including animal husbandry and fishery, minor irrigation projects, rural development works, agricultural marketing schemes and schemes for water harvesting and conservation, etc. keeping in view the natural resources and technological possibilities in each district.. These plans thus, present the vision for Agriculture and allied sectors within the overall development perspective of the district apart from the financial requirement and the sources of financing the agriculture development plans in a comprehensive way.

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

Methodology Adopted for Preparation of District Agriculture Plan

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

Major Areas of Focus

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

b. Agriculture mechanization;

c. Activities related to enhancement of soil health;

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

e. Integrated Pest Management schemes;

f. Strengthening of Market Infrastructure and marketing development;

g. Strengthening of Infrastructure to promote Extension Services;

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

i. Animal husbandry and fisheries development activities;

j. Study tours of farmers;

k. Organic and bio-fertilizers;

l. Innovative schemes.

Collection of Data

The preparation of district level plan involved basically collection of base line and bench mark details. So a template is developed to collect these particulars from the different districts (29 districts) of Tamil Nadu. In order to dovetail the ongoing schemes, with the action plans, the current ongoing agriculture programs were listed with their physical and financial performance and finally converged as the plan under National Agriculture Development Programme.

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 17.5.08 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.

Finalization

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

CHAPTER - II

GENERAL DESCRIPTION OF THE DISTRICT

2.1. Introduction

The District map is given (Fig.1) in order to understand the geographical location of the district.

Fig.1 Pudukkottai District Map

2.2 Historical Brief

Pudukkottai was formerly one of the princely States of India. It was under different dynasties during the first half of the 15th century and under Mughals till the 17th century. Thereafter Pudukkottai came under the suzerainty of the Thondaiman Kings who had reigned the State till it was merged with the Government of India after independence. The Thondaiman Kings were noted for able and clean administration. During their rule, they have augmented creation of irrigation sources for agriculture, evolved a sound revenue administration, education systems, etc., The palatial administrative buildings for public offices constructed during their period are still remaining as monuments and serving the same purpose till date. The noted British administrator Alexander Loftus Tottenhem was the administrative executive under the Thondaiman rulers. He evolved the famous "Tottenham System" of file maintenance and other office procedures, which are still being followed by government departments with a little change then and there.

2.3 Historical Architectural Monuments

There is one famous Shiva Temple at AVUDAIYARKOIL. It is internationally famous for its beautiful stone sculptures. Viralimalai in Madurai - Trichy highway is a pilgrim centre where a beautiful temple is situated over the hilltop for Lord Murugan. Sithannavasal is a tourist attraction in this district, where one can see the rock beds and cave temples erected during the Samana period.

2.4 Taluk Details

There are nine taluks in the district. The details are given in Table 2.1.

Table 2.1 Taluks of Pudukkottai District

Pudukkottai	Arantangi	Thirumayam
Gandarvakottai	Avudaiyarkoil	Illupur
Alangudi	Manamelkudi	Kulathur

2.5 Block Details

Puduklottai district has 13 blocks. The details are given in Table 2.2.

Table 2.2.Department of Blocks of Pudukkottai District

Pudukkottai	Avudayarkoil	Annavasal
Gandarvakkottai	Manamelkudi	Viralimalai
Thiruvarankulam	Thirumayam	Kunnandarkoil
Karambakudi	Arimalam	
Arathangi	Poonnamaravathi	

2.6 Agricultural Division Details

There are 13 agricultural divisions. Each taluk is considered as one agricultural division and the details are furnished in Table 2.3.

Table 2.3 Agricultural Divisions of Pudukkottai District

Pudukkottai	Avudayarkoil	Annavasal
Gandarvakkottai	Manamelkudi	Viralimalai
Thiruvarankulam	Thirumayam	Kunnandarkoil
Karambakudi	Arimalam	
Arathangi	Poonnamaravathi	

2.7 . Location and Geographical Units

Pudukkottai District was formed in January 1974 carved out from the then Trichy and Thanjavur districts. It is having an area of 4,663 Sq. Kms with a total coastal line of 42 Kms. The district lies between 78^{c} 26’ 50" and 79^{o} 16’ 00” of the east west longitude

and between $9^{c}50'45"$ and $10^{0}44'00"$ of the north latitude. District is bound by Trichy district in the north, Sivagangai district in the south, Thanjavur district and Bay of Bengal in the east and Trichy district in the west.

2.8. Demographic Profile

The demographic details are given in Table 2.4.

Table 2.4. Population Details of Pudukkottai District

Particulars	(in Percent)
Total population (Numbers)	1459601
Rural population	82.99
Urban population	17.01
Male population	49.62
Female population	50.38
SC male population	49.37
SC female population	50.63
ST male population	34.67
ST female population	65.33

(Source: Census of India 2001from http://www.tn.gov.in)

From the table, it could be seen that rural population of the district was very high (82.99 per cent), where as the urban population was only 17.01 per cent. There was no much difference in the male and female ratio as far as total population and SC population are concerned. Among the ST population, females were more in the district (65.53 per cent), while male constituted only 34.67 per cent. Comparatively Pudukottai district had more of rural population (82.99 per cent).

The religion wise population was also studied and details are presented in Table 2.5.

Table 2.5. Details of Population by Religion (year 2005-06)

S.No.	Religion	Persons in District (in numbers)	Persons in Tamil Nadu (in numbers)	Percentage (Per cent)	
				In the District	In Tamil Nadu
1	Hindu	1294101	54985079	88.66	88.10
2	Muslim	97723	3470647	6.70	5.56
3	Christian	66432	3785060	4.55	6.06
4	Sikh	42	9545	0.002	0.01
5	Buddhist	19	5393	0.001	0.008
6	Jain	30	83359	0.002	0.13
7	Other Religions	139	7252	0.009	0.01
8	Religions not stated	1115	59344	0.070	0.09
	Total population	1459601	62405679		

(Source: Census of India 2001from http://www.tn.gov.in)

The table indicates that the district of Pudukottai had a large population of the Hindu religion (88.66 per cent), followed by Muslim (6.70 per cent) and Christian (4.55 per cent) in that order The above table further revealed that the district had very meagre population belonging to the religions of Sikh, Buddhist and Jain etc. The population of Pudukottai district with respect to age was also analyzed. The details are given in Table 2.6.

Table. 2.6. Details of Population by Age Groups - 2005-06

S.No.	Age Groups	Persons (in'00')	Percentage
1	0-14	4146	28.41
2	15-29	4209	28.84
3	30-44	2959	20.27
4	45-59	2022	13.85
5	60 and above	1223	8.38
6	Age not stated	37	0.25
	Total	**14596**	**100**

(Source: Census of India 2001from http://www.tn.gov.in)

The table revealed that young population having age upto 44 constituted very high percentage (77.52 per cent). Middle age group population having an age of 45 to 59 years constituted 13.85 per cent of total population. Old age population having an age of 60 and above are less in the district (8.38 per cent). It could be stated that the district had more young population.

The decennial growth of population from 1971 to 2001 was studied. The data are presented in Table 2.7.

Table 2.7 Decennial Growth of Population Pudukkottai District

Period (Subject to the period of availability)	Population (number)			Percentage variation since previous Census		
	Rural	Urban	Total	Rural	Urban	Total
1971	832372	114979	947351			
1981	1003145	153668	1156813	20	33	22
1991	1136645	190503	1327148	13	23	14
2001	1211217	248384	1459601	6.56	30.38	9.98

(Source: Census of India 2001from http://www.tn.gov.in)

The table revealed that urban settlement and rural settlement were in the increasing trend starting from 1971 to 2001. The increase in urban settlement was very high (30.38 per cent) as compared to rural settlement (6.56 per cent). Thus it could be concluded that the district had high rate of increased settlement in urban areas.

2.9. Topography and Agro Climatic Characteristics

The district's topography and agro climatic characters were studied in order to understand the district with reference to its natural resources. The data with reference to soil types are presented in Table 2.8.

Table 2.8. Various soil types of Pudukkottai District

(Area in sq km)

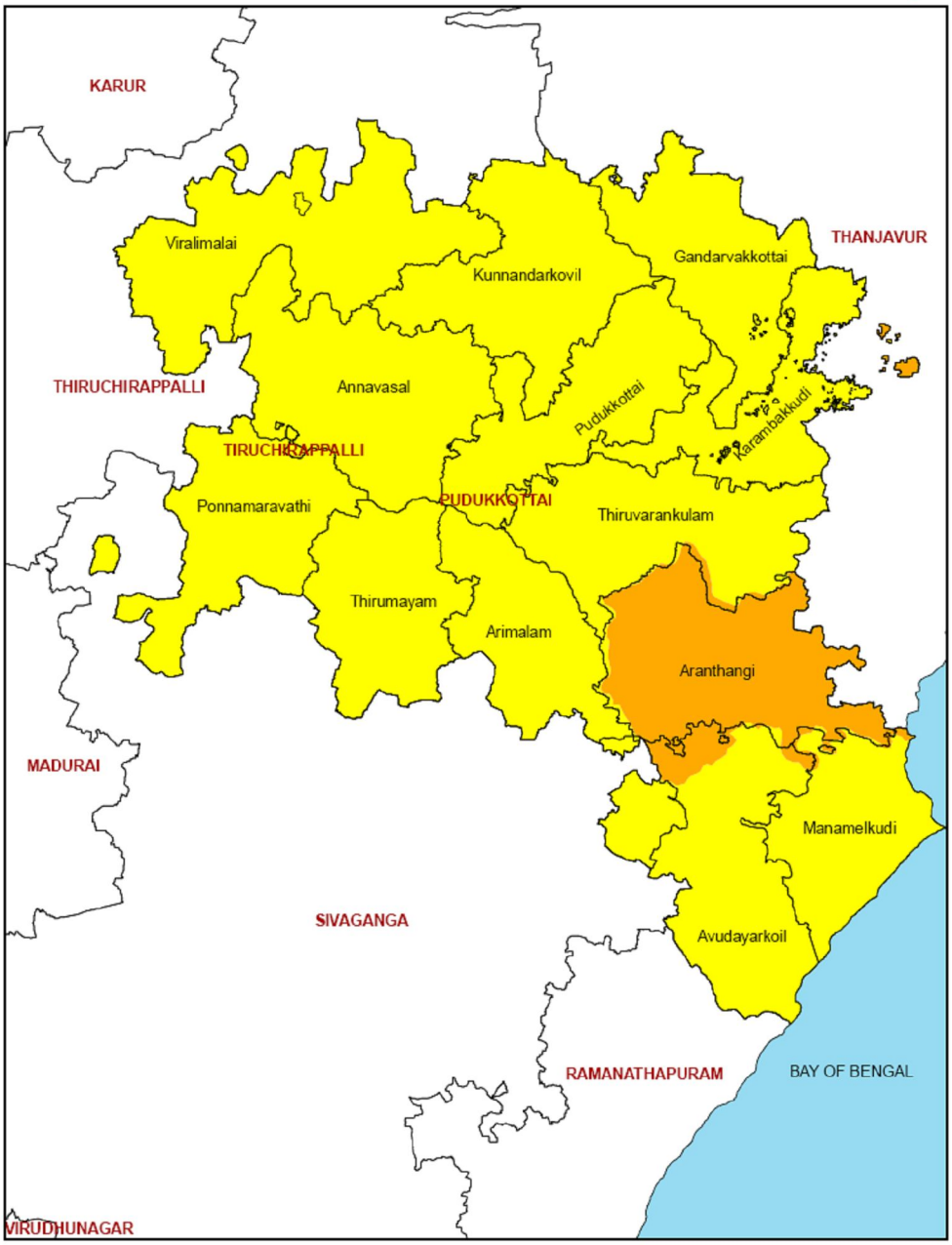
S.No.	Soil type	Area	Per cent
1	Red sterile soil	2687	57.62
2	River alluvial	1536	32.94
3	Saline coastal alluvial	440	9.44
	Total	**4663**	**100.00**

(Source : Records of the Office of the JDA, Pudukottai)

The major soil type of Pudukottai district is red sterile soil. It is found in 57.62 per cent of the total geographical area of the district. River alluvial type soil is found in 32.94 per cent in the district. Along the coastal line, the saline coastal alluvial type of soil is found. It constituted 9.44 per cent area of the total geographical area of the distinct.

Thus, it could be conducted that the Pudukottai district has major area (57.62 per cent) under red sterile soil, followed by river alluvial (32.94 per cent). Along the coastal line saline coastal alluvial soil type is existing.

AGROCLIMATIC ZONES OF PUDUKOTTAI DISTRICT



Generated at
Remote Sensing and GIS Centre, Tamil Nadu Agricultural University, Coimbatore - 641003.

NORTH EASTERN ZONE

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

NORTH WESTERN ZONE

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

WESTERN ZONE

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

CAUVERY DELTA ZONE

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

SOUTHERN ZONE

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

HIGH RAINFALL ZONE

Kanayakumari district.

HIGH ALTITUDE AND HILLY ZONE

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

2.10 Rainfall Distribution

The month wise and season wise rainfall distribution for the past five years from 2003 to 2007 are presented in Table 2.9.

Table 2.9. Season wise Rainfall Distribution

(in mm)

Month	2003	2004	2005	2006	2007
January	0.0	0.0	1.0	5.3	1.28
February	0.0	0.0	23.0	0.0	1.96
Winter	0.0	0.0	24.0	5.3	**3.24**
March	4.6	0.9	6.9	6.9	0.0
April	26.8	1.6	76.6	39.2	19.7
May	54.7	253.7	61.5	32.3	21.2
Summer	86.1	256.2	145.0	113.5	**40.9**
June	15.2	30.2	14.8	74.1	46.6
July	50.7	75.9	66.6	10.5	50.6
August	203.0	21.2	85.3	74.8	197.6
September	54.6	233.5	112.9	66.0	33.2
S.W.Monsoon	323.5	360.8	279.6	225.4	**3 28**
October	173.0	296.6	197.2	213.4	
November	173.2	165.6	453.9	239.8	
December	8.7	44.4	161.1	24.2	
N.E.Monsoon	354.9	506.6	812.2	477.4	**0.0**
Grand Total	**764.5**	**1123.6**	**1260.8**	**821.6**	**352. 44**

(Source: Records of Joint Director of Agriculture, Pudukkottai)

The table revealed that the district received medium level of rain. The rainfall variation was high, ranging from 325.44 mm per annum in 2007 to 1260.8 mm per annum in 2005. The major share of rainfall was received during north – east monsoon, followed by summer rain and south west monsoon. The rains received during winter season was negligible.

The seasonal analysis of rainfall received during 2007 was analyzed. The relevant data are presented in Table 2.10.

Table 2.10. Seasonal Analysis of Rainfall Pattern - 2007

Season	Normal	Actual	Normal (per cent)	Category	Weight age
Winter	50.6	3.24	6.4	Very poor	- 93.6
Summer	119.2	40.9	34.3	Very poor	-65.7
South West Monsoon	346.4	298.0	86.0	Very poor	-14.0
North East Monsoon	403.2	0.0	0.0	in progress	-
Total	**919.4**	**342.14**	**126.7**		**-62.8**

(Source : Records of Joint Director of Agriculture, Pudukkottai)

The year 2007 recorded very poor rainfall during all seasons as compared to the normal rainfall of the district. The temperature prevailed in the district was also analysed. The data are presented in Table 2.11.

Table 2.11. Temperature at Kudimiyanmalai Station

(In centigrade)

Months	Mean Maximum		Mean Minimum		Humidity (in per cent)	
	Normal	Actual	Normal	Actual	8.30hrs	17.30hrs
June	36.6	38.2	25.8	25.9	76	39
July	35.3	37.3	25.3	24.5	--	44
August	35.1	37.7	24.5	25.1	76	40
September	34.4	36.5	24.2	24.4	81	44
October	32.9	34.7	23.4	23.3	82	53
November	30.2	29.8	22.2	20.4	85	73
December	29.1	30.4	20.6	20.1	81	67
January	30.2	32.3	20.2	18.8	77	61
February	32.7	33.2	20.9	20.0	78	52
March	35.6	37.7	22.6	23.1	74	37
April	39.8	39.3	25.6	24.6	76	36
May	39.5	39.2	26.3	24.8	71	36

(Source: STAMIN, Kudumian malai).

As it could be seen from the table 2.12, mean maximum temperature of the district varied from 29.1^{O}C in December to 39.8^{0}C in April. The mean minimum temperature varied from 20.2^{0}C in January to 25.8 ^{0}C in June. The district had humidity variation from 36 per cent in April – May to 85 per cent in November.

2.11. Land Holding Pattern and Land Holdings

In order to understand the category of farmers with respect to size of land holdings pertinent data were analysed. The data are presented in Table 2.12.

Table 2.12. Land Holding Details of Pudukkottai District

S.No.	Classifications of holdings	No of farmers	Area in Ha	Per cent
1	Marginal	298864	101207	80.87
2	Small	45322	62973	12.26
3	Small medium	18024	50265	4.88
4	Medium	6319	36152	1.71
5	Large	1050	19010	0.28
	Total	369579	289507	100.00

(Source: Records of the Office of the Joint Director of Agriculture, Pudukottai)

The table above clearly indicates that marginal farmers were very high (80.87 per cent), followed by small farmers (12.26 per cent). The small medium, medium, and large size farm holdings were relatively less in the district. The above data indicates that majority of the farmers in the district were marginal farmers.

2.12. Irrigation and Ground Water

The net area irrigated and gross area irrigated are given below.

Net area irrigated in the district : 98303 hacteres

Gross irrigated area : 190494 hactares

The categories of wells and area under canal irrigation are given in Table 2.13 and 2.14 respectively.

Table 2.13. Categories of wells in Pudukkottai Districts

(in numbers)

Sl.No.	Detail	Government	Private	Total
1	Tube wells	60	4787	4847
2	Bore wells	0	0	0
3	Dug cum bore wells	0	2649	2649
4	Filter point tube wells	0	0	0
5	Artisan wells	0	0	0
6	Open wells	203	203	28210
	Total number of wells	263	35443	35706

(Source: Records of the Office of the Joint Director of Agriculture, Pudukottai)

As seen from Table 2.13, tube wells are more in the district (4847 nos), followed by dug cum bore wells (2649 nos). Open wells are also found (406 nos).

The details of area irrigated by canals are given in Table 2.13.

Table 2.14. Details of Canal irrigation

Sl. No	Source	Availability	Area Irrigated (Ha)	
			Gross	Net
1	Canals Length 77.4 KM	27	100074	9677
2	Tanks Major = 675 Minor = 4587	5262	72775	71944
3	Wells	35706	17645	16682
	Total	40995	190494	98303

(Source: Records of the Office of the Joint Director of Agriculture, Pudukottai)

The district has three major sources of irrigation *viz.*, cannals, tank and wells. Among three sources, major area of the district gets irrigation water from tanks, followed by wells. The crop wise area irrigation was also studied. The data are presented in Table 2.15.

Table 2.15. Cropwise Area Irrigated in Pudukkottai District-2006

S.No.	Crop	Area (in ha.)	Per cent
1	Paddy	67,260	75.38
2	Cholam	5	0.005
3	Cumbu	9	0.010
4	Ragi	61	0.068
5	Maize	892	1.00
6	Black gram	332	0.382
7	Cowpea	3	0.003
8	Chillies	37	0.0041
9	Sugarcane	9459	10.60
10	Fruits & Vegetables	4634	5.19
11	Groundnut	3759	4.27
12	Coconut	2206	2.48
13	Cotton	52	0.06
14	Gingelly	108	0.134
15	Flowers	237	0.265
16	Teak	6	0.006
17	Casurrina	83	0.091
18	Other crops	78	0.088
	Total	**89221**	**100.00**

(Source: Records of the Office of the Joint Director of Agriculture, Pudukottai)

Paddy was the major crop of the district (75.38 per cent). Sugarcane (10.80 per cent), fruits and vegetables (5.19 per cent), groundnut (4.27 per cent) and coconut (2.49 per cent) were the other major crops grown under irrigated conditions.

Details of Cauvery Mettur Project (C.M.P)

Cauvery – Metter project is the major source of irrigation in the district. The details of the project with respect to number of cannals, system tanks, net area irrigated and gross area irrigated are given below.

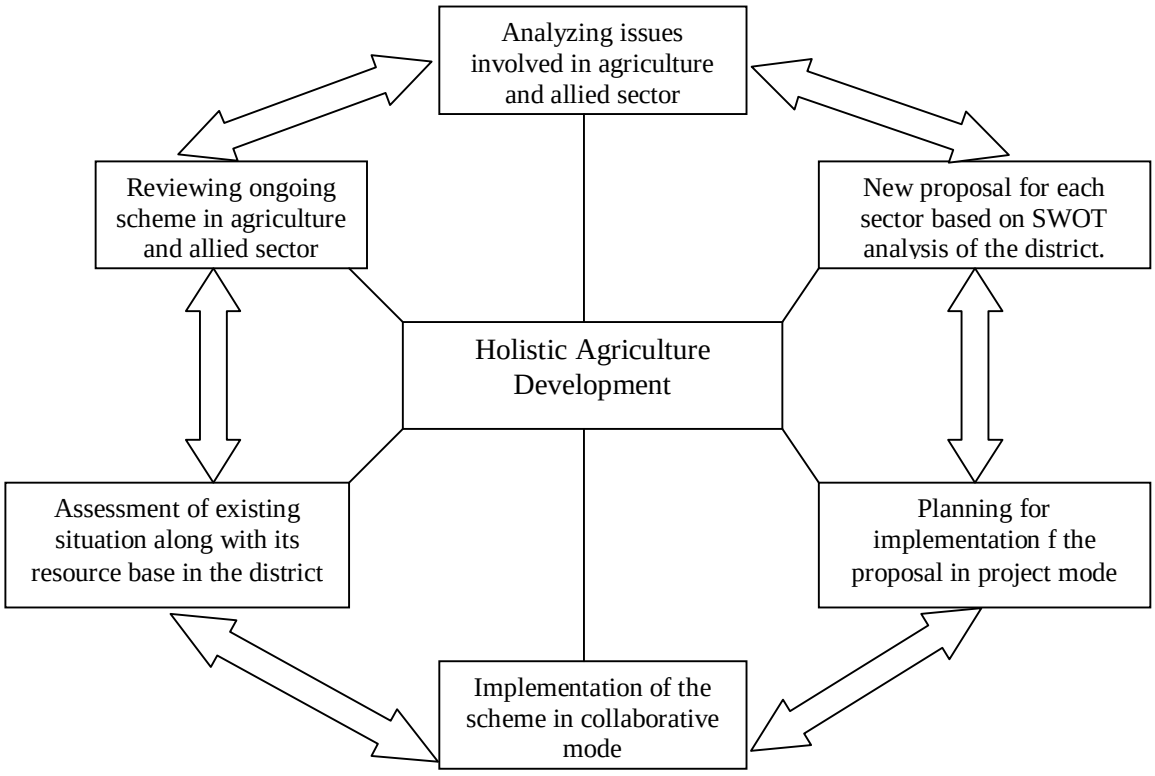
Major offtake channels	=	16 Nos.
CNM System tanks	=	168 Nos.
Net area irrigated	=	11600 Ha.
Gross area irrigated	=	15600 ha.

2.13. Development Vision and Strategy

(i) Vision

Holistic development of agriculture along with its allied sectors such as animal husbandry, fisheries and dairy development.

(ii) Strategy



CHAPTER - III

SWOT ANALYSIS OF THE DISTRICT

3.1 Strength, Weakness, Opportunities and Threat

Pudukottai district has its own unique features. As per the census 2001, total population of the District was 14, 59,601 out of which 7, 24,300 were males and 7, 35,301 were females. It is having unique human resource as well as natural resources. As far as natural resources are concerned, rocks, granite, stone and limestone occurs in plenty in this district. White clay and other building stones are also available in plenty. In order to analytically understand the district; SWOT analysis was conducted. The Professor and Head, NPRC, Vamban and other TNAU scientists conducted the SWOT analysis first with discussion groups that contain 65 farmers. The details of the analysis are given below.

Strength	**Weakness**
* Good historical background * Towns are constructed with good plan. * Natural resources available in plenty. (White clay and other building stones are available in plenty) * Land under agriculture is comparatively high. * The TNAU research station, National Pulses Research Station and State agricultural farm are taking up agricultural research to solve specific farm problems of the district. * Significant areas are irrigated by Cauvery Mettur Project.	* Industrially backward area. * Total number of small scale industries are very few (Nos. 634) * Diversified agriculture is not practiced in major parts of the district. * Traditionally selected crops are grown, leading to monocrop trend. * Due to mono crop, the productivity of the crops are declining significantly. * There is labour out migration during peak agricultural season. Due to labour scarcity in the district, slowly areas under paddy crop are diverted to casuarina.

* Soil and climate are more suitable to horticulture tree crops like mango, sapota, cashew, etc. * Rural population is more as, compared to urban.Agriculture is their main occupation. * NGO network in rural is good. * Farmers have adequate knowledge on recommended production technologies * Adequate number of farmer groups like Farmers Discussion Groups are available. * Farming is the traditional occupation to the majority of the rural population. * There is scope to increase production in cashew by adopting modern production technologies.	* There are no perennial water flowing rivers. * Conventional irrigation practices and cultivation practices are followed. * In the available catchment areas, plenty of gullies exists and accelerating the soil erosion thereby affecting the soil productivity. * Domestic and export marketing knowledge is poor with farmers. * Knowledge on export oriented production technologies are not known to majority of farmers. * Transport facilities to move the farm produces are not adequate. * Adequate institutional credit and insurance facilities are not available * Knowledge about precision farming techniques is very poor among majority of the farmers. * Market led extension is not found to assist farmers in marketing their farm produces. * Market intelligence knowledge is poor with farmers. * Poor ICT facilities. * Gender free farm implements are required so that farm women can also operate the implements and tools.

Opportunities	Threats
* Introduction of crop oriented small scale industries have good scope. * Foreign Institutional Investments could be explored since the district has traditional and historical significance. * With available natural resources, appropriate industries could be promoted. * The agricultural research centre can be effectively used by taking up long term research projects considering the available resources. * Diversified agriculture has lot of scope in the district. * There is scope to promote drip irrigation in drought prone area. * Sericulture could be effectively promoted. * Scope to have export market for cashew * Cashew based small scale industries could be promoted. * There is wide scope to have value addition industries for groundnut, cashew, coconut, vegetables and fruits. * There is wide scope to promote seed production among progressive farmers for major field crops of the district.	* The district in general is a Drought Prone Area. * Since perennial rivers are not available in the district, lack of irrigation water,, is the major problem of the district * Most of the crop cultivation is based on rain water. * Due to high soil erosion and depletion of the nutrients in top soil, the productivity of the soil is reduced significantly. * Good cashew export network available at Kerala State. Since farmers of the district approach Kerala market, difficulty exists in the district to operate to open local markets. * Adequate market infrastructures are not available. * , Since the farmers are not aware of international scenario of agriculture, globalization is a threat to farmers

* Commodity group formation has wide scope. * Scope for agri-clinic promotion * Scope for market interventions for major crops. * Scope for agro-forestry promotion * Scope for introduction of medicinal plants	

The above SWOT analysis was carried out with the 65 Farmers Discussion Groups of the district during April 2008. This has helped to understand the interventions required for the development of agriculture in the district. The specific interventions or the specific projects required for the development of agriculture in the district as well as the area of interventions required in the form of schemes for strengthening agriculture could be understood through the SWOT analysis.

3.2 Major Interventions Identified

i. There is wide scope for increasing the area under fruit and vegetable crops.

ii. Cashew production can be increased by following high density planting and other improved techniques.

iii. Available NGO and farmer groups can be effectively used for modernizing the farming and increasing market promotion.

iv. Rural employment (both agriculture and non-agriculture), may be increased in order to restrict out migration.

v. For major crops of the area, commodity groups are required. Such groups may be formed and its member may be given training on market related issues.

vi. Government intervention is required to provide adequate road to farms.

vii. There is a need to increase the institutional credit and crop insurance facilities.

viii. Few farmers of the district have visited the 'Precision Farming' being operated in Dharmapuri district of the state. Farmers of the Pudukottai district require government assistance to introduce this profitable technique in Pudukkottai district also, in order to increase the production. Particularly, farmers want to produce vegetables by following precision farming techniques to meet the market demand specifications

ix. There is a need on market intelligence information.

x. Adequate ICT facilities are required.

xi. Small scale farm produce based industries are required.

xii. The available research centre, may work on developing appropriate methods required for the diversification of agriculture in the district.

xiii. Interference is required to promote the micro-irrigation system among farmers through subsidy schemes.

xiv. Export oriented activities were required for the crops like cashew, banana, groundnut etc. Export orientation training to farmers may be organized. Required infrastructural facilities needed may be created. Farmers expect full external assistance for promotion of export for selected crops.

xv. Value additions industries are required and people also need training in this regard.

xvi. Farmers need quality seed materials. Required infrastructural facilities are needed. Farmers may also need encouragement to produce adequate quantity of certified seeds.

xvii. Commodity groups for major cultivable crops may be formed under the guidance of farm scientists, development functionaries and NGOs available in the district.

xviii. Farm graduates may be encouraged to have agri-clinics in the district so that farmers can have reliable consultation to solve their field problems.

xix. Medicinal plants suitable to the area may be introduced.

xx. Available schemes for prevention of soil erosion, check dam construction, farm pond construction, etc., may be strengthened.

xxi. Implements that can be operated by farm women may be introduced.

In general, farmers need assistance to meet the **globalization challenges** and do the farming as business.

3.3. Composite Index of Agricultural Development of Pudukkottai District

Agricultural Development of a district is a comprehensive multidimensional process involving large number of related indicators. Hence, it can be well represented by composite indices which are used as yardsticks not only to gauge the development of each district but also to compare its performance in relation to other districts. These indices help to classify the sub-regions based on a set of large multivariate data. The information contained in the large set is transformed into a small set of indices which would provide a convenient method for classification. There are many methods of classification based on multivariate data. Among them, one method which is statistically sound is that developed by Iyengar and Sudarshan (1982). This method is simple and easy to apply and it helps to classify the districts into various stages of development, *viz.,* 'highly developed', 'developed', 'developing', 'backward' and 'very backward'. In this method for each district a 'composite index' is constructed. The index lies between 0 and 1 with 1 representing 100 per 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 … m, d = 1,2,3…n). First these values of development indicators for each district is to be standardized. When the observed values are related positively to the development (as in the case of cropping intensity), the standardization is achieved by employing the formula

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

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

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

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

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

The analysis showed that Pudukottai district which was classified as 'developed' in agricultural development during 90-91 and 2000-01 and it was classified as 'developing' during 1995-96 and it was classified as 'highly developed' in 2005-06. In terms of overall agricultural development its rank among the 29 districts of Tamil Nadu varied from 2 to 15 during the 1990-91 to 2005-06. As for as the individual components of agricultural development are concerned, its rank in the above periods are summarized in Table 3.2. The table shows that, all the components and its performance in the period of study is good. For example, in fishery variables the district occupied ranks between 2nd and 4th in all the four periods.

Table 3.1. Selected Indicators of Agricultural Development for Pudukottai District

Component	Indicators	No. of Indicators
Crop-Area-Variables	Cropping Intensity	10
	Per cent of Gross Cropped Area to Total geographical area	
	Per cent Share of foodgrains to Gross Cropped Area	
	Per cent Share of foodcrops to Gross Cropped Area	
	Per cent Share 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	
	Total	25

Table 3.2. Rank of Pudukottai 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	9	18	16	-	-	11	13
	1995-96	17	19	12	2	18	11	15
	2000-01	11	18	16	4	8	7	12
	2005-06	12	13	23	3	3	4	2

Source: NADP cell, Directorate of CARDS, TNAU, Coimbatore

CHAPTER - IV
DEVELOPMENT OF AGRICULTURAL SECTOR

4.1. Introduction

Agriculture in the district is an important primary activity. Most of the cultivation takes place in monsoon season. The position of the district also has unique feature. It is having an area of 4663.29 Sq. Kms with a total coastal line of 42 Kms. The district lies between 78^{c} 26’50" and 79^{o}16’00” of the east west longitude and between 9^{c}50’45” and 10^{0}44'00” of the north latitude.

4.2. Soil Health

In general soil condition in the district is not fertile enough as compared to other districts in the State. The district in general is a drought prone area. Part of the area is hard rock and part of area is sedimentary area and a small part of area is coastal alluvial and river alluvial soil.

In the upland rainfed areas, soil and moisture conservation measures and practices have to be followed to reduce soil erosion, moisture depletion, loss of fertilizer and micro nutrients in the soil.

Further in the five river catchments areas, plenty of gullies exist and they were found accelerating the soil erosion thereby affecting the soil productivity. Without gully control measures rain water run off erodes the existing gullies which in turn gets wider and carries away the productive soil by means of field land slide and erosion. Area under different types of soils along with soil map of Pudukkottai district are furnished below.

4.3. Water Resources and Management

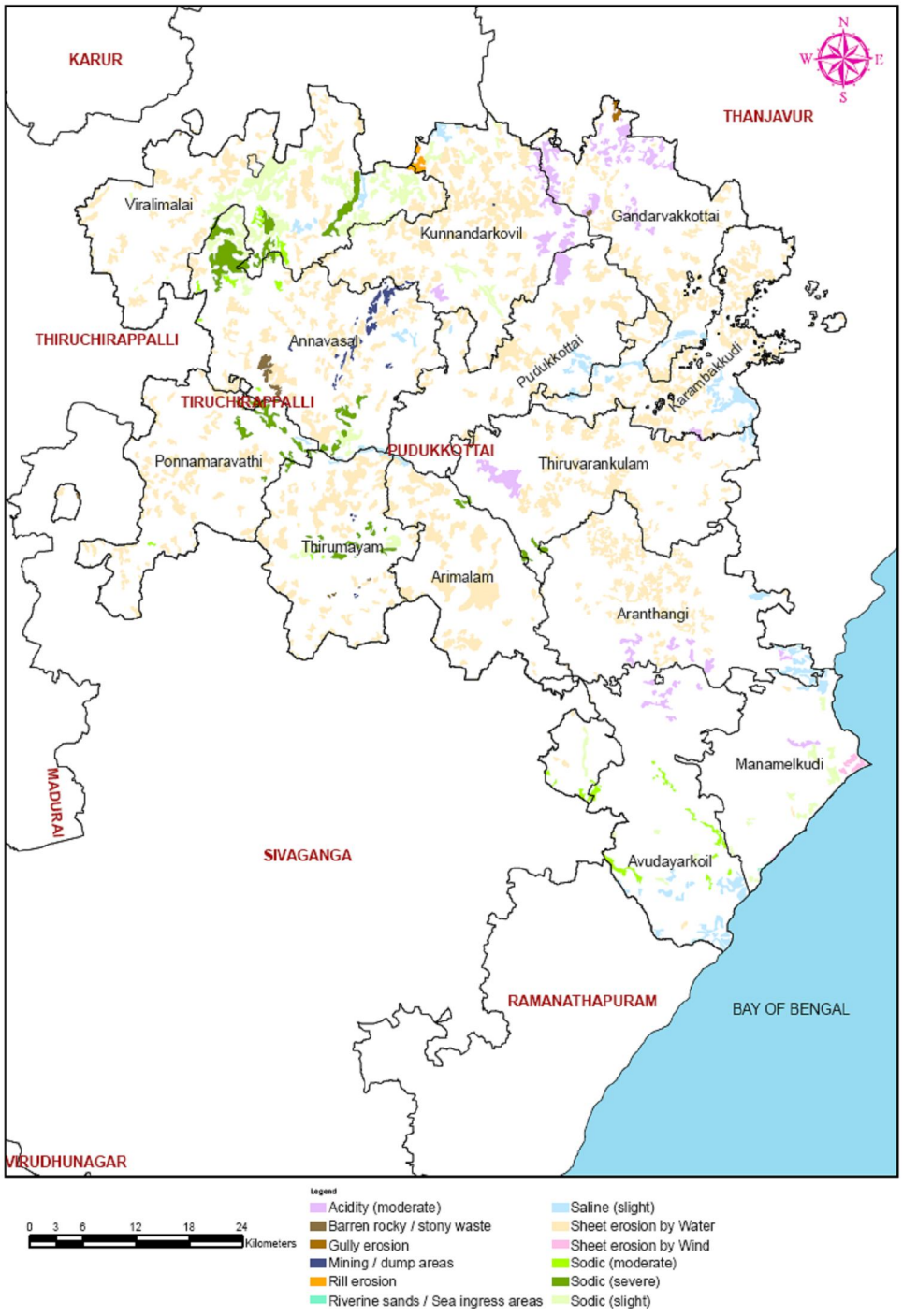
In Pudukottai district, agriculture mainly depends on its local rivers. More than ten rivers are flowing in the district. Among all the local rivers, Vellar runs a distance of 140 km. The details of the rivers with its distance are furnished in Table 4.1.

Pudukkottai Soils and Area in Hectare

Soil Description	Area (ha)
Deep, fine, mixed, Alfisols	53014.97
Deep, fine, mixed, Inceptisols	37218.68
Very deep, fine, montmorillonitic, Inceptisols	32384.38
Deep, fine loamy, mixed, Inceptisols	29696.34
Very deep, fine loamy, mixed, Alfisols	25608.12
Moderately shallow, fine loamy, mixed, Alfisols	21370.56
Very deep, fine, mixed, Inceptisols	17413.38
Moderately shallow, fine, mixed, Inceptisols	16897.75
Deep, fine, montmorillonitic, Vertisols	15935.09
Deep, fine loamy, mixed, Alfisols	15755.46
Moderately deep, fine loamy, mixed, Alfisols	15425.45
Moderately deep, fine, mixed, Alfisols	13354.79
Deep, fine, mixed, Ultisols	11271.87
Moderately deep, fine, mixed, Inceptisols	9250.77
Moderately deep, loamy skeletal, mixed, Alfisols	8550.17
Moderately deep, fine loamy, mixed, Inceptisols	6801.32
Very deep, fine loamy, mixed, Inceptisols	6327.26
Deep, coarse loamy, mixed, Inceptisols	5624.35
Deep, coarse loamy, mixed, Alfisols	5223.74
Deep, fine loamy, mixed, Ultisols	5144.56
Very deep, fine, montmorillonitic, Vertisols	3602.53
Very deep, fine loamy, mixed, Ultisols	3219.22
Very deep, clayey skeletal, kaolinitic, Alfisols	2988.05
Deep, contrasting particle size, mixed, Inceptisols	2902.56
Very deep, coarse loamy, mixed, Entisols	2469.71
Shallow, clayey skeletal, mixed, Alfisols	2422.63

Soil Description	Area (ha)
Deep, loamy skeletal, mixed, Inceptisols	2379.51
Deep, fine silty, mixed, Inceptisols	2369.14
Deep, fine loamy, mixed, Entisols	2275.58
Very deep, coarse loamy, mixed, Inceptisols	2182.14
Very deep, sandy, mixed, Entisols	1838.59
Moderately shallow, fine loamy, mixed, Inceptisols	1687.93
Very deep, sandy, mixed, Alfisols	1636.38
Shallow, loamy, mixed, Entisols	1313.51
Moderately shallow, fine loamy, mixed, Entisols	1180.18
Shallow, loamy skeletal, mixed, Alfisols	1053.45
Shallow, clayey skeletal, mixed, Inceptisols	943.05
Very deep, coarse loamy, mixed, Alfisols	873.71
Very deep, fine, mixed, Entisols	871.36
Very deep, fine loamy, mixed, Entisols	732.14
Shallow, clayey, mixed, Entisols	717.45
Moderately deep, coarse loamy, mixed, Inceptisols	534.35
Moderately shallow, fine, mixed, Alfisols	459.84
Moderately deep, very fine, montmorillonitic, Vertisols	439.47
Deep, sandy, mixed, Entisols	268.31
Very deep, very fine, montmorillonitic, Inceptisols	248.25
Very shallow, loamy, mixed, Entisols	213.16
Moderately deep, fine loamy, mixed, Entisols	152.45
Deep, clayey skeletal, mixed, Alfisols	82.11
Shallow, clayey, mixed, Alfisols	37.74
Very deep, very fine, montmorillonitic, Vertisols	21.06

LAND DEGRADATION MAP OF PUDUKOTTAI DISTRICT



EXPLANATION OF DIFFERENT LAND DEGRADATION CATEGORIES

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

Water Erosion

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

1. **Sheet erosion**

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

2. Rills

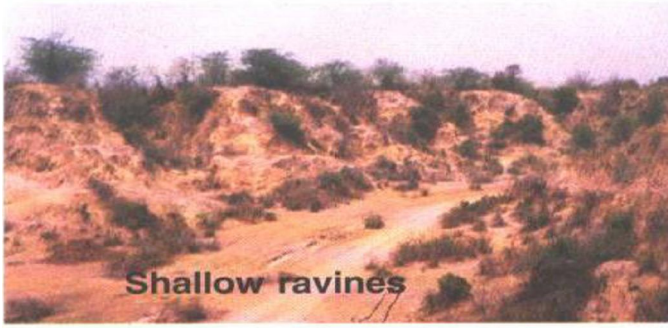
When the surface runoff goes in the form a concentric flow, a tiny water channels are formed in the field. These are small rivulets of such a size that they can be worked over with farm machinery. Rills are generally associated with the cultivated lands and are visible in the ploughed soil after first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

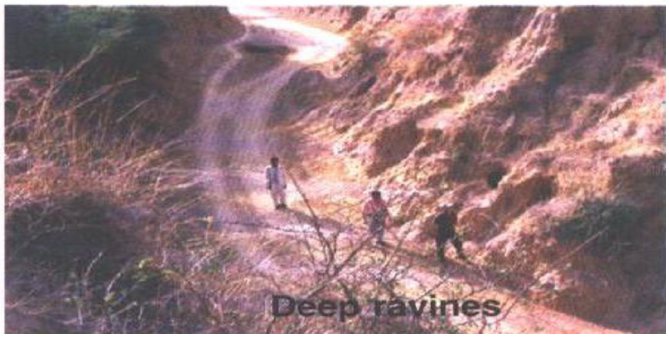
3. Gullies

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

4. Ravines

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





Wind Erosion

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

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

5. Sheet Erosion

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

6. Stabilized Dunes / Partially stabilized Dunes

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

Stabilized sandune

Partially stabilized sanddune

7. Un-stabilized dunes

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

Water logging

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

8. Surface Ponding

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

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

9. Sub-surface Water logging

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

10. Salinization / Alkalization

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

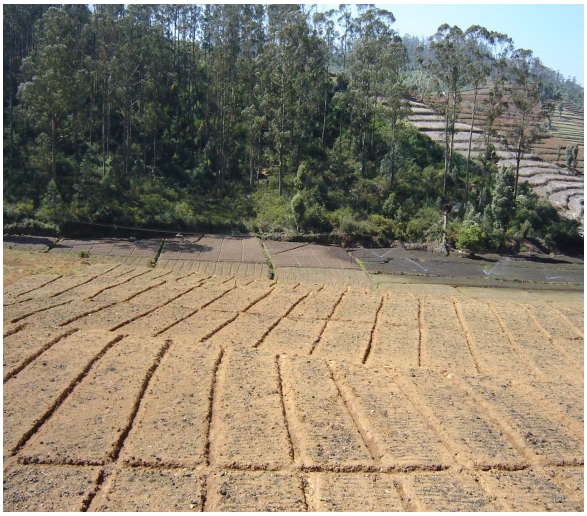
Salinity

Sodic

11. Acidification

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

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



Glacial

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

12. Frost Heaving

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

13. Snow covered areas

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

Degradation due to anthropogenic factors

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

14. Industrial effluent affected areas

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

15. Mining and dump areas

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

16. Brick kiln areas

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

Others

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

17. Mass movement/ Mass wastage

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

18. Barren rocky / stony areas

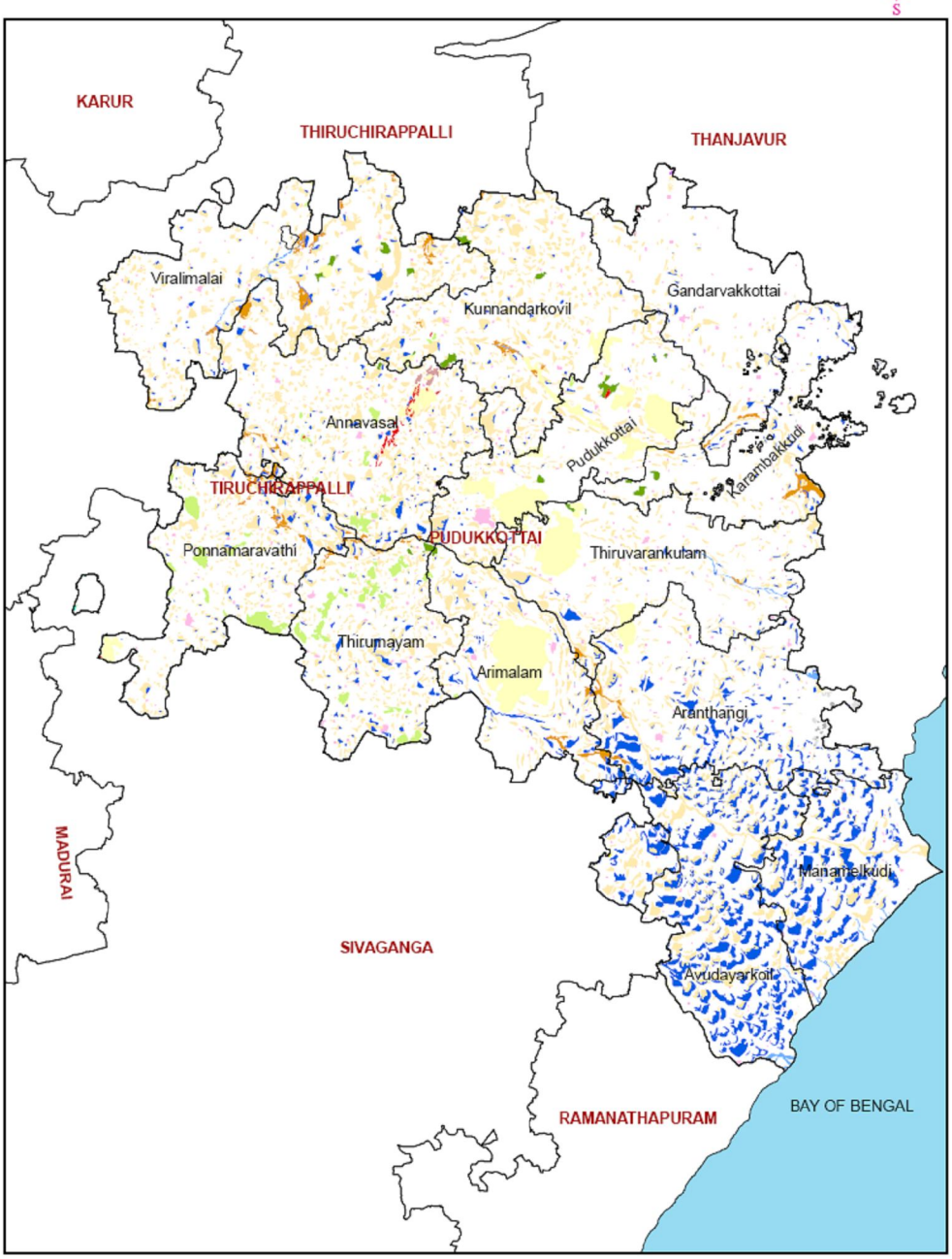
Barren / rocky / stony areas are the rock exposures of varying lithology often barren and devoid of soil and vegetal cover. They occur in hill forests as openings or as isolated exposures on plateau and plains. These can be easily delineated from other type of degraded land because of their severe nature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

19. Miscellaneous

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

Sea Ingress areas

WASTELAND MAP OF PUDUKOTTAI DISTRICT



Generated at
Remote Sensing and GIS Centre, Tamil Nadu Agricultural University, Coimbatore - 641003.

WASTELAND CLASSIFICATION

Culturable Wastelands

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

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

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

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

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

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

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

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

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

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

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

Unculturable Wastelands

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

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

Table 4.1. Details of Rainfed Rivers and Major Rivers

S.No.	Name of the River	Distance (in km)
1	Vellar	140
2	Koriyur	20
3	Pambar	74
4	Agniyar	48
5	Nerunjikudi river	18
6	Kundur	16
7	Villuniyar	59
8	Narasinga Cauvery	45
9	Manimuthar	22
10	Maruthankudiyar	20
11	Vallipatti varai	39
12	Ambliyur	50
13	Moraiyur	6.5
14	Vadavalam vari	4.5
15	Ayyakattusolaivari	18
16	Nariyur	27
17	Kulathurnayakkanpatti Kattuvari	6
18	Koluvanar	37

(Source:http;//www.tn.gov.in)

All the above rainfed rivers are useful for filling up 422 rainfed tanks in the district through anaicuts during the monsoon period.

4.4. Major Agriculture Crops of the District

In the district, major agriculture crop grown is paddy. In the total area under production, paddy occupied more than 50 per cent of the area. Among pulses, red gram is grown predominantly. Other than food grains, Sugarcane is grown in significant area. The major crops with its area is given in Table 4.2.

Table 4.2. Major Crops Cultivated in Pudukkottai District
(Area in ha)

Crops	Area (ha)	Per cent to the total area sown
Food grains		
Paddy	95986	70.67
cholam	777	0.57
Cumbu	39	0.03
Ragi	181	0.13
Maize	953	0.70
Varagu	83	0.06
Samai	2	-
Pulses		
Green gram	79	0.05
Black gram	600	0.44
Red gram	1528	1.13
Horse gram	66	0.05
Others	444	0.33
Oil seeds		
Grount nut	24934	18.36
Gingili	649	0.48
Chilies	37	0.03
Sugarcane	9459	6.97
Total	**135817**	**100**

(Source "G" return from http://www.tn.gov.in)

Paddy was the major cultivable crop of the district. It was grown in 70.67 per cent of the cultivable area. Groundnut (18.36 per cent) and sugarcane (6.97 per cent) were the next major cultivable crops of the district.

The details of cropping pattern of wet land, garden land and dry land are furnished in Table 4.3.

Table 4.3. Cropping Pattern of Pudukkottai District

Season	Name of the Crop
I. Wet Land	
a) Cauvery – Mettur Project	
June to September, October	Kuruvai Paddy
October, November to February	Thaladi paddy
August – January	Samba Paddy
If required alternate crop.	Gingelly (or) groundnut (or) Pulses
January - March	Groundnut (or) Ragi
b) Non Cauvery – Mettur Project	
Single crop wetlands	
September - January	Paddy
II. Garden Land	
July – September	Groundnut
October – January	Paddy
February – May	Ragi (or) Maize
July – November	Groundnut (or)Maize
October – February	Chillies
March – June	Maize
July - November	Paddy
November – February	Groundnut
April - July	Ragi (or) Maize
July- October	Ragi
October - February	Paddy
February – June	Cotton
January, February – October, November	Sugarcane
III. Dry Land	
June - October	Groundnut (Inter crop – Pulses)
November – February	Gingelly (or) Blackgram
August - November	Ragi (or) Horsegram (or) varagu

(Source http://www.tn.gov.in)

The production and productivity details for various major cultivable crops are given in Table 4.4 and Table 4.5 below.

Table 4.4. Production Level of Various Crops

Sl. No	Name of the Crop	Production in ' 000 tonnes	
		2005 – 06	2006 -07
1	Rice	262.834	297.898
2	Cholam	0.348	1.108
3	Cumbu	0.060	-
4	Ragi	1.816	1.017
5	Maize	13.396	22.034
6	Red gram	3.395	0.099
7	Green gram	0.354	0.298
8	Black gram	4.243	8.332
9	Groundnut(Un irri)	41.387	49.421
10	Sugarcane	839.528	1009.723
11	Cotton Lint	0.386	0.354

(Source http://www.tn.gov.in)

Table 4.5. Productivity Level of Various Crops

Sl. No	Crop	Area Coverage (Ha.)			Productivity Kg/Ha.		
		1975-76	2005-06	2006-07	1975-76	2005-06	2006-07
1	Rice	100583	102750	94872	1600	2558	3140
2	Cholam	4635	464	1421	805	750	780
3	Cumbu	1411	25	0	642	2400	2550
4	Ragi	5042	704	381	696	2580	2670
5	Maize	4413	4541	7108	1064	2950	3100
6	Redgram	2015	3299	94	519	1029	1050
7	Green gram	592	571	438	209	620	680
8	Black gram	1156	7072	12818	225	600	650

(Source http://www.tn.gov.in)

As regards the productivity is concerned, the comparison made for the year 1975-76 and 2005-06 revealed that paddy, cumbu, ragi, maize, redgram, had shown tremendous productivity increase. This increase might have been due to the adoption of

improved technologies including varieties. Rice, maize, blackgram, groundnut, and sugarcane recorded increased production. This may be due to adoption of improved practices and increase in area under these crops. Cumbu, redgram and green gram production level was found to be decreasing due to reduction in area under cultivation.

4.6. Input Management

In Pudukottai district, most of the area is occupied with paddy crop and most of the inputs are used for paddy crop. Since paddy was the main crop, the consumption of nitrogenous fertilizer was more in the district. The consumption of the fertilizers and pesticide are given in Table 4.6.

Table 4.6. Input Use Pattern

Fertilizers (in '000' Tonnes)				Pesticides		Urea ('000' Ton)
Nitrogenous	Phosphate (P2 05)	Potassium (K2 0)	Total (NPK)	Dust (MT.,)	Liquid (Lit.)	
18.649	8.640	10.957	38.246	29.257	12993	27.112

(Source http://www.tn.gov.in)

4.7 Farm Mechanization and Farm Equipments

The stake holders are mostly very poor in their economic status. Majority of the holdings are with marginal farmers (93 per cent) and small farmers (5 per cent). The agricultural operations and practices are still carried out in the conventional methods. even though there were several state and central assistance schemes were functioning in the district.

The Pudukkottai farmers are aware of modern agricultural techniques to some extent due to launching of new schemes. However, farmers are not affordable to invest in the new agricultural machineries to increase their income.

The rain water run-off through gullies should be checked (or) controlled and stored by way of percolation ponds, irrigation tanks, irrigation check dams, ooranies, farm ponds, collection pits, contour bunds, compartment bunds, contour trenches,

staggered trench or any other useful means which would directly (or) indirectly help the farmers to save their lands from run-off erosion and leaching away of the fertilizers applied and soil fertility built.

In total, the interest and hard work of the farmers should be protected and supported by Government functionaries in doing sustained agricultural operations. This NADP will be really a redressal for the farming community to some extent. The details of common implements of the district are given in Table 4.6.

Table 4.7. Distribution of Agricultural Implements and Machineries - 2004

Implements	Numbers
Ploughs	
a) Wooden	62262
b) Iron	33584
Total	**95846**
Water Pumps for Irrigation Purpose	
a) Worked by Oil Engine	4471
b) Worked by Electric Power	14768
Total	**19239**
Tractors	
a) Government	1851
b) Private	
Total	**1851**
Sugarcane Crushers	
a) Worked by Power	3
b) Worked by Bullocks	1530
Total	**1533**

Source (17th Quinquennial Livestock Census from http://www.tn.gov.in)

The table 4.7 revealed that wooden plough and iron plough were the most popular in the district. To operate the water lifting, electric power is widely used. Tractor is also widely used. Sugarcane crushes are widely used.

4.7. Special Projects/ Programmes Ongoing in the District

The details of ongoing-Special Projects / Programmes are furnished in Table 4.8 through 4.21.

I. Programme for Agricultural Crop Improvement

Table 4.8. ISOPOM- Pulses Development Schemes-2006-07

Name of the Scheme/ Component	Unit	Physical						Financial (L.Rs)					
		75 per cent General		25 per cent SCP		Total		75 per cent General		25 per cent SCP		Total	
		Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
Purchase of Breeder Seed	Qtls	2.175	22.98	0.725	9.31	2.9	32.29	0.10875	1.14891	0.03625	0.46557	0.14500	1.61448
Production of Foundation Seeds	Qtls	26.775	125.34	8.925	10.16	35.7	135.5	0.13388	0.62671	0.04463	0.05079	0.17850	0.67750
Production of Certified Seeds	Qtls	267.750	245.92	89.250	96.83	357	342.75	1.33875	1.22965	0.44625	0.48415	1.78500	1.71380
Distribution of Certified Seeds	Qtls	267.750	238.91	89.250	78.86	357	317.77	2.14200	1.86460	0.71400	0.61537	2.85600	2.47997
Seed Component Total		0.000	0	0.000	0		0	3.72338	4.86987	1.24113	1.61588	4.96450	6.48575
Compact Block Demonstration	Nos	17	16.5	5	5.5	22	22	0.34000	0.33000	0.10000	0.11000	0.44000	0.44000
IPM Block Demonstration	Nos	1	1	0.000	0	1	1	0.09236	0.09236	0.03079	0.03077	0.12315	0.12313
Distribution of Gypsum	Ha	165.000	698.18	55.000	232.72	220	930.9	0.82500	0.82561	0.27500	0.27519	1.10000	1.10080
Distribution of Biofertilizers	Ha	1677.000	2578	559.000	858	2236	3436	0.83850	0.83825	0.27950	0.27974	1.11800	1.11799
Distribution of Bio Pesticides	Ha	33.000	75	11.000	25	44	100	0.08250	0.08194	0.02750	0.02731	0.11000	0.10925
Pipelines Carrying Water	Nos	6.000	15	2.000	4	8	19	0.90000	0.94998	0.30000	0.25346	1.20000	1.20344

Table 4.8 Contd…..

Name of the Scheme/ Component	Unit	Physical						Financial (L.Rs)					
		75 per cent General		25 per cent SCP		Total		75 per cent General		25 per cent SCP		Total	
		Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement	Target	Achievement
Farmers Training	Nos.	1.000	2	1.000	0	2	2	0.22500	0.22500	0.07500	0.07500	0.30000	0.30000
Village Campaign	Nos.	8.000	8	3.000	3	11	11	0.08250	0.08250	0.02750	0.02750	0.11000	0.11000
Farmers interest Group	Nos.	1	1	0.000	0	1	1	0.09375	0.09375	0.03125	0.03125	0.12500	0.12500
Distribution of NPV	Ha.	59.400	76	19.800	30	79.2	106	0.14850	0.14204	0.00493	0.05607	0.19800	0.19811
Distribution of PP Chemicals	Ha.	56.100	257	18.700	85.4	74.8	342.4	0.28050	0.28077	0.09350	0.09329	0.37400	0.37406
Distribution of Weedicides	Ha.	16.500	17	5.500	5.25	22	22.25	0.08250	0.08407	0.02750	0.02596	0.11000	0.11003
Distribution of PP Equipments	Nos.	62.250	74	20.750	24	83	98	0.49800	0.49950	0.16600	0.16200	0.66400	0.66150
Distribution of Sprinklers Sets	Nos.	6.000	12	2.000	5	8	17	0.90000	0.83184	0.30000	0.34604	1.20000	1.17788
Contingencies	Nos.	0.000	0	0.000	0	0	0	0.18750	0.11250	0.06250	0.03750	0.25000	0.15000
Non seed Component Total								5.56661	5.47011	1.85554	1.83108	7.42215	7.30119
Grand Total								**9.28999**	**10.33998**	**3.09666**	**3.44696**	**12.38665**	**13.78694**

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

Table 4.9. ISOPOM - Pulses Development Schemes-2007-08

Name of the Scheme/	Unit	Physical			Financial(L.Rs)			No of Beneficiaries			
		Annual Target	Target (VI q)	Achievement (Up to the month)	Annual Target	Target (VI q)	Achievement (Up to the month)	General	SC	Total	Women
Subsidies											
Purchase of Breeder Seed	Qtls.	2.3	2.3	2.3	11500	11500	11500	0	0	0	0
Production of Foundation Seeds	Qtls.	28.96	28.96	28.96	14500	14500	14480	0	0	0	0
Production of Certified Seeds	Qtls.	412	412	302.477	206000	206000	186227	51	18	69	7
Distribution of Certified Seeds	Qtls.	412	412	171.437	329600	329600	178224	566	189	755	75
Seed Component Total					561600	561600	390431	617	207	824	82
Compact Block Demonstration	Nos.	80	80	80	160000	160000	160000	60	20	80	8
IPM Block Demonstration	Nos.	4	4	4	49300	49300	0	0	0	0	0
Distribution of Biofertilizers	Ha.	1500	1500	900	75000	75000	45000	675	225	900	90
Distribution of Bio Pesticides	Ha.	40	40	40	10000	10000	0	0	0	0	0
Distribution of NPV	Ha.	20	20	20	5000	5000	0	0	0	0	0
Distribution of PP Equipments	Nos.	100	100	112	80000	80000	79744	0	0	0	0
Pipelines Carrying Water	Nos.	11	11	0	165000	165000	0	0	0	0	0
DAP Spraying	Ha.	601	601	0	60100	60100	0	0	0	0	0
Micronutrient Spraying	Ha.	1410	1410	0	98700	98700	0	0	0	0	0
Non Seed Component Total		0	0	0	703100	703100	284744	735	245	980	98
Subsidies Total		0	0	0	1264700	1264700	675175	1352	452	1804	180
Training											
Farmers Training	Nos.	4	4	2	60000	60000	30000	76	24	100	10
Officers Training	Nos.	0	0	0	0	0	0	0	0	0	0
Training Total	Nos.	0	0	0	60000	60000	30000	76	24	100	10
Audio Visual Aids		1	1	0	200000	200000	0	0	0	0	0
POL					15000	15000	15000	0	0	0	0
Grand Total					**1539700**	**1539700**	**720175**	**1428**	**476**	**1904**	**190**

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

Table 4.10. ISOPOM- Maize Development Schemes

Name of the Scheme/ Component	Unit	Annual Target 2006-07	Target upto IV Qr	Achievement upto the month	Annual Target	Target upto IV Qr	Achievement upto the month	Beneficiaries		
								Gen.	SC	Women
Production of C Seed through Department	Qtls.	0	0	0	0	0	0	0	0	0
Distribution of C Seed	Qtls.	5	5	6.05	4000	4000	3944	23	8	2
Minikit distribution	Nos.	605	605	605	0	0	0	454	151	61
Block Demonstration by Department	Nos.	8	8	8	32000	32000	32000	6	2	3
Block Demonstration by TNAU	Nos.	0	0	0	0	0	0	0	0	0
IPM by Department	Nos.	1	1	1	22680	22680	22680	23	7	3
IPM by TNAU	Nos.	0	0	0	0	0	0	0	0	0
POL	Rs.	0	0	0	33000	33000	32365	0	0	0
Officers Training on Maize	Nos.	0	0	0	0	0	0	0	0	0
Publicity	Rs.	0	0	0	2500	2500	2526	0	0	0
Contract farming Training to farmers	Nos.	50	50	50	15000	15000	15000	35	15	5
Exposure visit	Nos.	0	0	0	0	0	0	0	0	0
Village Campaign	Nos.	75	75	75	37500	37500	37500	2850	900	375
Distribution of Pipelines	Nos.	4	4	8	50000	50000	50665	6	2	0
Farmers Training	Nos.	1	1	1	15000	15000	15000	35	15	6
Total					**211680**	**211680**	**211680**	**3432**	**1100**	**455**

Table 4.11. ISOPOM- Maize Development Schemes (February 2008)

Name of the Scheme / Component	Unit	Annual Target 2007-08	Target upto IV Qr.	Achievement upto the month	Annual Target	Target upto IV Qr.	Achievement upto the month	Beneficiaries		
								Gen.	SC	Women
Subsidies										
Production of Breeder Seeds of Maize	Qtls	0	0	0	0	0	0	0	0	0
Production of C Seeds of Maize throuth Dept.	Qtls	3	3	3	1500	1500	1500	0	0	0
Distribution of Certified Seeds	Qtls	10	10	10	8000	8000	8000	49	17	5
Distribution of Minikit	Nos	75	75	80	0	0	0	60	20	8
Block Demonstration by Department	Nos	10	10	10	40000	40000	40000	12	6	2
IPM by Department	Nos	1	1	1	22680	22680	5320	25	5	3
Pipe Line carrying water from source to field	Nos	8	8	0	95000	95000	0	0	0	0
Subsidies Total					**167180**	**167180**	**54820**	**146**	**48**	**18**
Training										
Officers Training on Maize	Nos	15	15	0	16000	16000	0	0	0	0
Farmers Training (No.of farmers)	Nos	100	100	100	30000	30000	30000	75	25	10
Contract Farming - Exposure Visit (No.of farmers)	Nos	15	15	0	0	0	0	0	0	0
Provision of Audio Visual Aids for Crop Campaign	Nos	1	1	0	200000	200000	0	0	0	0
Publicity	Rs.				2500	2500	2500	0	0	0
Seminar on Maize	Nos	1	1	0	15000	15000	0	0	0	0
Training Total					**263500**	**263500**	**32500**	**75**	**25**	**10**
POL	Rs.				31500	31500	20000	0	0	0
Total					**462180**	**462180**	**107320**	**221**	**73**	**28**

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

Table 4.12. Implementation of Commodity Group Network - 2007-08

Name of the component	Unit	Physical			Financial in Rs.		
		Target	Target upto IV Qr.	Achievement	Target	Target upto IV Qr.	Achievement
Formation of new FIG @ Rs.5000/Group	Nos	50	50	50	250000	250000	200000
Training to FIG @ Rs.4000/Group	Nos.	50	50	30	200000	200000	100000
Issue of ID Cards @ Rs 400/ Group	Nos.	50	50	50	20000	20000	20000
District level Meeting @Rs 20000/ Meeting	Nos.	3	3	0	60000	60000	20000
Contingency, Documentation, and Communication @ Rs.1500/Group					75000	75000	0
		Total			**605000**	**605000**	**340000**

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

Table 4.13. Formation of Farmers Interest Group 2005 – 2006

Name of the component	Unit	Physical			Financial in Rs.		
		Target	Target upto IV Qr	Achievement	Target	Target upto IV Qr	Achievement
No of Groups formed during 05-06	Nos.	15		15			
Training and Acquisition of skills by the Farmers @ Rs 3000/ Group	Nos.	15	15	10	45000	45000	45000
Issue of ID Cards @ Rs 225/ Group	Nos.	15	15	15	3375	3375	3300
District level Meeting @Rs 15000/ Meeting	Nos.	1	1	0	15000	15000	15000
Contingency , Documentation, and communication	Nos.	15	15	0	7500	7500	7500
POL		0	0	0	5000	5000	5000
			Total		**75875**	**75875**	**75800**

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

Table 4.14. Formation of Farmers Interest Group Formed during 2006 – 2007

Sl. No	Name of the component	Unit	Physical			Financial in Rs.		
			Target	Target upto III Qr.	Achievement	Target	Target upto IV Qr.	Achievement
1	Setting of Library and Office Automation	Nos.	25	25	18	125000	125000	125000
	Total		**25**	**25**	**0**	**125000**	**125000**	**125000**
	No of Groups formed	25						
	Crop	Groundnut (Rainfed)						
	Blocks	Pudukkottai		15	Nos.			
		Annavasal		3				
		Viralimalai		3				
		Kunnandarkoil		4				
			Total	**25**				

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

Table 4.15. Details of Coconut Development Programme - February – 2008

S.No.	Particulars	Unit	Physical			Financial (Rs.)	
			Target	Achievement during the month	Achievement up to the month	Achievement during the month	Achievement up to the month
1	No.of applications forwarded	Nos.	--	--	3	--	--
2	Area for which applications forwarded						
	a. Old	Ha.	16	--	16	--	--
	b. New	Ha.	--	--	--	--	--
3	No.of applications sanctioned						
	a. Old	Nos.		--	16	0	79267
	b. New	Nos.		--	--	--	--
4	Area for which sanctioned	Ha.		--	21.4	--	--
5	Extend of Assistance Provided	Rs.		--	--	0	79267
6	No.of beneficiaries			--	--	--	--
a	General			16	--	--	--
b	SC/ST			--	--	--	--
	Total			**16**	**--**	**--**	**--**

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

Table 4.16. Details of Coconut Development Programme (March – 2008)

S. No	Particulars	Unit	Physical			Financial (Rs.)	
			Target	Achievement during the month	Achievement up to the month	Achievement during the month	Achievement up to the month
1	No.of applications forwarded	Nos.	--	--	3	--	--
2	Area for which applications forwarded						
	a. Old	Ha.	16	--	16	--	--
	b. New	Ha.	--	--	--	--	--
3	No.of applications sanctioned						
	a. Old	Nos.		--		0	79267
	b. New	Nos.		--	--	--	--
4	Area for which sanctioned	Ha.		--		--	--
5	Extend of Assistance Provided	Rs.		--	--	0	79267
6	No.of beneficiaries			--	--	--	--
a	General			16	--	--	--
b	SC/ST			--	--	--	--
	Total			**16**	**--**	**--**	**82086**

DETAILS OF INTENSIVE COTTON DEVELOPMENT PROGRAMME -2007-2008

Table 4.17. Component wise Physical Target and Achievement under different Categories - February 2008

Name of the component	Physical Target					Physical Target				No of Beneficiaries				Remarks
	Unit	Total	SC/ST	Women	General	Total	SC/ST	Women	General	Total	SC/ST	Women	General	
Supply of Breeder seeds	Kgs.	12	0	0	12	0	0	0	12	0	0	0	0	Will be achieved in IV Quarter
Foundation Seed Production	Qtls	7	1.75	2.1	3.15	0	0	0	0	38	8	0	30	
C Seed Production	Qtls	25	6.25	7.5	11.25	7.5	1.5	0	6	0	0	0	0	
C Seed Distribution	Qtls	25	6.25	7.5	11.25	0	0	0	0	0	0	0	0	

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

Table 4.18. Financial Allocation and Expenditure in Intensive Cotton Development Programme

(Rs in lakhs)

Name of the component	Financial Allocation				Expenditure			
	Total	SC/ST	Women	General	Total	SC/ST	Women	General
Supply of Breeder seeds	0.015	0	0	0.015	0	0	0	0.015
Foundation Seed Production	0.350	0.0875	0.105	0.1575	0	0	0	0
C Seed Production	0.375	0.0938	0.1125	0.1688	0	0	0	0
C Seed Distribution	0.500	0.125	0.15	0.225	0	0	0	0
Total Financial	**1.24**	**0.3063**	**0.3675**	**0.5663**	**0**	**0**	**0**	**0.015**

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

Table 4.19. Physical and Financial Target of TANWABE Programme - 2005-06

Name of the Block	No.of groups for ADA	EDP Training at Rs.3000/ Group (Rs)	Mobility at Rs.	At 37.50/ Group Contact Rs.	ID Card at Rs.90/ Rs.	No. of Farm Women to be trained at 15/ group
Pudukkotai	54	162000	700	2025	4860	810
Gandarvakkottai	45	135000	700	1687.5	4050	675
Tiruvarankulam	48	144000	700	1800	4320	720
Karambakudi	48	144000	700	1800	4320	720
Aranthangi	89	267000	700	3337.5	8010	1335
Avudayarkoil	42	126000	700	1575	3780	630
Manamelkudi	24	72000	700	900	2160	360
Tirumayam	57	171000	700	2137.5	5130	855
Arimalam	48	144000	700	1800	4320	720
Ponnamaravathi	48	144000	700	1800	4320	720
Annavasal	48	144000	700	1800	4320	720
Viralimalai	39	117000	700	1462.5	3510	585
Kunnandarkoil	60	180000	700	2250	5400	900
Total	**650**	**1950000**	**9100**	**24375**	**58500**	**9750**

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

Table 4.20. Details of TANWABE Programme - 2006 – 2007

S.No	Details	Total		SC Farmers	
1	One day EDP refresher Training	25800	3870	70630	780
2	Setting up of small units of identified EDP Skill	903000	3870	165166	761
3	Production of Bio Agents through women SHG	500000	15	133300	4
4	Agrl.Mechanization distribution of power tiller	240000	8	0	0

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

Table 4.21. Production of Bio Agents through Self Help Group

Items	Details
Group	Melur TANWABE group, Thirumayam Agrl. Division, Pudukkottai district
Total members	15
Production activity	Trichoderma viridi, Pseudomonas flouresence
Machineries purchased	Autoclave – 1, Laminar Air flow – 1, Incubator – 1, Microscope – 1, Ph meter – 1, TALC powder - 500 Kg, Chemical box – 4, Glass ware box – 4
Production details	Trichoderma viridi – 250 kg, Pseudomonas flouresence – 250 kg

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

4.8 Constraint Analysis

4.8.1 Technological Gap

i) Top 3 Technology Mostly Adopted

- Integerated Nutrient Management (INM)
- Integerated Pest Management (IPM)
- Water Management

ii) Top 3 Technology Least Adopted

- Seed Treatment
- Application of fertilizers as per soil test
- Plant Population

4.9 Recommended Interventions

- Formation of Agriclinics
- Strenghthening of STAMIN
- Farm field scheme on soil health care
- Strenghthening of gevernment farms
- Exposure visit to farmers and officials

CHAPTER - V

ALLIED AGRICULTURAL SECTORS

Introduction

Agriculture is the predominant economic activity in the district. Other than agriculture, allied agricultural sector like animal husbandry, horticulture, fisheries, sericulture, agriculture engineering, etc are also playing a significant role. There are no perennial water flowing rivers in this district. There are no major industries in the district. Dairy, goat and sheep rearing are the major allied activities pursued in the villages. In the coastal area of the district, fishery is an alternative activity.

5.1 Horticulture Development

In Pudukkottai district, horticulture crops cover an area of 22,501.58 hectares, with 19,860 beneficiaries, out of which fruits occupied 6,075.83 hectares with the beneficiaries of 6718, vegetables 1355.03 hectares with beneficiaries of 4,206 and other crops 1,667.95 hectares with beneficiaries of 3,641. In the district, vast scope is available to increase the production of fruits, vegetables, plantation crops, medicinal and aromatic plants.

5.1.1. Interventions Recommended

- Net house structure
- Pandal for vegetable production
- Package for plant protection
- Plastic crates for vegetable handling and transport
- Farm waste shredder / vegetable waste shredder
- Cashew high density planting
- Borewell with casting pipe
- Banana bunch cover
- Humic acid / Effectiev microbes
- Support system for banana

- Banana corn injector
- Mango Harvestor
- Sales outlet points in district headquarters
- District level farmers' workshop
- Inter state exposure visits
- Ten hectare mega demo plot
- Enterprising farmers associations

5.2. Sericulture Development

Next to agriculture, sericulture is an important activity. The details of sericulture industry in the district are given in Table 5.1 and 5.2.

Table 5.1. Details of Sericulture Industry in Pudukkottai District 2004-2005

Name of the block	Area under Mulberry (ha)	Production of Cocoons (tonnes)	Value in Rupees
Thiruvarankulam	111.75	13500	1350000
Arimalam	3.00	320	32000
Karambakudi	8.50	1000	100000
Aranthangi	12.75	1400	140000
Gandarvakottai	2.00	120	12000
Pudukkottai	3.5	300	30000
Viralimalai	12.00	1012	101200
Ponnamaravathy	3.25	310	31000
Annavasal	3.25	310	31000
Kunnandarkoil	5.00	560	56000
Total	**165.00**	**18832**	**1883200**

It could be seen that the area under mulberry was found to be the highest in Thiruvarankulam and the same was found to be the lowest in Arimalam block during 2004-05.

Table 5.2. Details of Sericulture Industry in Pudukkottai District - 2006-2007

Sl.No	Name of the Block	Area under Mulberry(ha)	Production of Cocoons (tonns)	Value in Rs.
1.	Thiruvarangulam	227.550	66750	6675000
2.	Arimalam	5.00	1500	150000
3.	Karambakudi	16.00	4000	400000
4.	Aranthangi	12.00	2800	280000
5.	Gandarvakottai	2.00	-	-
6.	Pudukkottai	8.50	1700	170000
7.	Viralimalai	21.00	2167.6	216760
8.	Annavasal	3.50	-	-
9.	Kunnandarkovil	3.00	-	-
10.	Thirumayam	5.50	1400.0	140000
	Total	**304.055**	**80317.00**	**8031760**

It could seen from the table that the area under mulberry during 2006-04 was found to be high in Thiruvarangulam.

5.3 Animal Husbandry

Pudukkottai district was formed on 14.01.1974. The total area of the district is 4663.2 Sq k.m. The district is bounds on the North and North West by Trichirapalli District, West and South west by Sivagangai District, on the East and North East by Thanjavur District and on the South East by Bay of Bengal.

The district lies between 78.26’ and 79.16’ of the East West longitude and between 9.50’ and 10.44’ of the Northern latitude. Average rain fall of the district is 920 mm. The total human population of the district as per 2001 census is 14,59,601 of which males and females are almost equally divided. The respective figures are 7,24,300 and 7,35,301. Pudukkottai district has 9 taluks, 2 revenue divisions, 2 municipalities, 8 town panchayats, 13 blocks, 498 village panchayats and 763 revenue villages. Maximum and minimum temperature for the district is 38^{o}C and 30^{o}C respectively. The permanent pasture land available in Pudukkottai district is 5126 ha.

I. Baseline Information of Livestock/Poultry Sector of the District

Population / Production / Productivity - 2004

- **Livestock & Poultry Population**

Cattle	:	333326
Buffalo	:	31958
Sheep	:	151078
Goat	:	177816
Poultry	:	476110

- **Breeds Maintained**

Cattle	:	JX, JSX, HFX, ND
Buffalo	:	Murrah, ND, Murrah X
Sheep	:	Ramnad white X
Goat	:	ND, Kanni, Kodi, Jamunapari & Tellicherry

- **Production - 2004 -05 to 2006 – 07**

Cow milk	:	100020 tonnes
Buffalo milk	:	24090 tonnes
Mutton	:	76004 tonnes
Chevon	:	322008 tonnes
Poultry meat	:	78000 tonnes
Desi egg	:	141.93 lakhs
Improved egg	:	103.87 lakhs

- **Productivity (per animal / bird) -1998-2007**

Indigenous cow	:	0.86
Cross bred cow	:	0.31
Buffalo	:	6.21
Desi egg	:	21.04
Improved egg	:	17.84

Annual Compound Growth Rate in Percent - 1997 to 2004

Species	Change in Trend
Cattle	-3.51
Buffalo	-14.16
Sheep	-7.78
Goat	0.23
Poultry	-10.91
Draught animals (Cattle &Buffalo)	-9.463
Female Exotic /Cross bred Cattle	8.275
Female Indigenous/ Native pure cattle	-4.96
She buffalo	-16.387

Feed and Fodder Availability

Demand and Supply of fodder (2004) million ton per year.

	Demand	Supply	Deficit	Deficit Per cent
Green fodder	2.6388	0.2462	2.3926	90.7
Dry fodder	1.160	1.075	0.085	7.3

Number of Breedable Bovine Population -2004

		Cattle	Buffalo	Total
ND/Indigenous	-	1, 16,897	17,194	1, 34,091
Cross bred/Exotic	-	34,533		34,533
Total	**-**	**1, 51,430**	**17,194**	**1, 68,624**

Number of AI done (AI coverage) -2007)

Year	Target	A.I. Done	Achievement (Per cent)
2005-06	1,01,000	76,793	76.0
2006-07	86,200	82,968	96.3
2007-08 (upto Feb 08)	88,000	79,188	90.0

SWOC Analysis

Dairy Farming

Strength

- Growing demand for milk and daily / weekly income / easy maintenance
- Procurement of milk by Govt. / Private entrepreneurs / vendors
- Conducive atmosphere for dairy farming / Loan facilities / hide export potential
- Dung for organic farming, others products for panchakavya

Weakness

- Reluctance to grow fodder as it is uneconomical
- Insufficient veterinary institutions (required – 97, available – 53, deficit – 44)
- 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
- Non availability of A.I. service in time and also door to door

Opportunities

- More loan facilities with a condition to grow fodder (at least 10 cents/cow)
- Supplementing micronutrients to augment fertility
- Establishing village fodder nurseries to cater the need of fodder seeds, saplings, root slips etc. to the farmers to grow fodder
- Chaff cutter to improve nutrient utilization and minimize wastage
- Knowledge and technology empowerment of farmers / rural women (SHGs) on scientific dairy farming to increase milk production, to augment fertility, to produce clean milk and preparation/marketing of value added milk products wherever possible
- Sensitizing Veterinarians and farmers on Ethno Veterinary Medicine and Practice as primary health care of livestock to save time, energy and money and it is ecofriendly
- Registration / updating farmers database and issuing Cards for incentives for growing fodder, tree fodder, micro nutrients, preference for farmers tour, etc.

Challenges

- Diminishing pasture land , deficit of green fodder is 89.9 Per cent
- Diminishing indigenous germplasm
- 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 will to produce clean milk

SWOC Analysis

Small Ruminants (Sheep and Goat Farming)

Strength

- Consumers most preference, growing demand, higher cost (selling by body weight)
- Easy flock management and very easy market
- Dung for organic farming, hide export

Weakness

- Reluctance to grow fodder as it is uneconomical
- Insufficient veterinary institutions (required – 97, available – 53, deficit – 44)
- Reluctance in technology adoption for health cover ,augmenting fertility, deworming and required vaccination
- Improper / insufficient shelter leads to low productivity, disease problems
- Very poor slaughter hygiene, unauthorised slaughter
- Local ban on goat rearing, ban on foraging in forest
- Labour shortage , malpractices in trade

Opportunities

- More loan facilities with a condition to grow fodder (at least 10 cents/5 sheep/goat)
- Cultivation of fodder, tree fodder, agro forestry in private/community lands/wastelands with livestock integration to boost income and improve soil fertility

- Supplementing micronutrients / grains/concentrates to augment fertility, production
- Fodder nursery to cater the need of fodder seeds, saplings, root slips etc. to the farmers to grow fodder and tree fodder
- Chaff cutter to improve nutrient utilization and minimize wastage
- Knowledge and technology empowerment of farmers / rural women (SHG) on scientific dairy farming to increase milk production, to augment fertility, to produce clean milk and preparation and marketing of value added milk products wherever possible
- Sensitizing Veterinarians and farmers on Ethno Veterinary Medicine and Practice as primary health care of livestock to save time, energy and money and it is eco friendly
- Registration / updating farmers database and issuing Cards for incentives for growing fodder, tree fodder, micro nutrients, preference for farmers tour, etc.
- Distribution of elite rams / bucks to registered flock owners/rural women SHG

Challenges

- Diminishing pasture land , deficit of green fodder is 89.9 Per cent, tree fodder
- Diminishing indigenous germplasm / unhygienic slaughter / poor shelter
- Shortage of labour due to higher labour cost
- Diseases such as Anthrax, HS,BT, sheep pox and ET, PPR demoralize the farmers

SWOC Analysis

Poultry Farming

Strength

- Growing demand for desi chicken, eggs, other poultry, products
- Premium price for desi chicken and desi eggs/Encouraging loan facilities
- TANUVAS rural women friendly technologies on low cost/high return desi chicken production, rearing and marketing
- Poultry droppings for bio gas / vermin-compost / organic farming

Weakness

- Reluctance to feed with nutrient rich feed, sufficient grains, etc.
- Insufficient veterinary institutions (required – 97, available – 53, deficit – 44) to cover immunization to prevent Ranikhet disease
- Reluctance in immunizing the birds due to laziness and a 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
- Knowledge and technology empowerment of farmers / rural women (SHGs) on TANUVAS rural rural women technologies on poultry production/revenue generation
- Registration / updating farmers database and issuing Cards for incentives for grains/concentrates/immunization cover and preference for tour, etc.

Challenges

- Diminishing indigenous germplasm /Heavy fluctuation in broiler chicken / farm egg rate
- Unhygienic slaughter of birds
- Lack of bio-security and spread of rumours

SWOC Analysis

Others (Rabbits, Pigs, Japanese Quails, Turkeys, Geese, Pigeons, Love Birds, etc.)

Strength

- TANUVAS rural women friendly technologies on poultry development throw low cost/high return poultry production, rearing and marketing
- Interest of some consumers to taste other poultry meat

Weakness

- Reluctance to consume other bird meat /eggs
- Reluctance in immunizing the birds due to laziness and a few number of birds

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/spread of rumours

II. Ongoing Government development Schemes for Livestock & Poultry (Both state and Central)

1. IAM WARM – Training, MCP and Night meeting
2. Support to State Extension Programme for Extension Reforms implemented by Agri Department through District ATMA.(A.H. one part)
3. Assistance to State for Control of animal Disease(ASCAD)

Vaccination Particulars

Vaccination done	2005-06	2006-07	2007-08 up to Jan
FMD	19046	207643	272035
PPR	139646	246651	88959
BQV	145329	254067	150095
HSV	29582	32302	3529
ASV	29603	22418	14821
ETV	19769	16087	10148
Sheep pox	4155	6600	763
BTV	1563	500	500
RDVK	495676	569921	310371

4. SGSY through DRDA (Training & dairy loans).
5. Mahalir thittam
6. PMRY(For setting up of Livestock farms) through DIC and Lead Bank

III. Intervention Required Areas

Dairy

Perennial fodder production and tree fodder biomass production in District Livestock Farm and in farmers land –fodder bank at TANUVAS RRC - supply of chaff cutter to improve nutrient utilization and to prevent wastage - programmed breeding of indigenous cattle/buffalo to increase conception rate-buffalo calf development programme-mobile input units to augment fertility, milk production/productivity-mobile veterinary clinics, veterinary laboratories, control of parasitic diseases-immunization for Anthrax, HS, BQ, FMD –model sheep/goat units in intensive system to motivate farmers-identification and traceability of bovines for database on breedable population-livestock health cover through supply of mineral mixture/by-pass protein-augmenting clean milk production through milking machines-milk processing facilities through bulk milk coolers, walk-in coolers-milk khoa preparation facilities-revival of dormant MPCS -milk chilling facilities –supply of micro nutrients – farmers study tour-orientation training/workshop fro milk producing (Aavin) farmers-capacity building of farmers / officers on newer technologies to augment fertility, productivity, production – ICT tool for technology dissemination – R&D facilities for Emu bird- establishment of feed mil to supply quality feed to farmers.

Sheep and Goat

Perennial fodder production - tree fodder biomass production – distribution of bucks/rams to augment fertility/ production and productivity- immunization for Anthrax, ET, HS, PPR, BTV, sheep pox – supply of micro nutrients – capacity building of farmers / officers on newer technologies

Poultry

Capacity building exercises for farmers on desi chicken to improve egg / bird production and productivity- immunization against NCD door to door – distribution of turkeys and Japanese quails for revenue generation

Knowledge Empowerment on Ethno Veterinary Medicine & Practice (EVP)

Veterinarians and farmers may be educated / sensitizied on Ethno veterinary medicine and practice for primary health care of livestock and poultry

Strengthening the Infrastructure of Existing Units and Expansion of Ongoing Development Schemes

Veterinary University Training and Research Centre, Tiruchirapalli; Department of Animal Husbandry, Tiruchirapalli and Tiruchirapalli district co-operative milk producers union (TDCMPU) require strengthening of the infrastructure of existing units and expansion of ongoing development schemes pertaining to capacity building of rural farmers, study tours, workshop/conference for farmers to empower them on newer technologies for sustainable and commercially viable livestock farming, milk chilling, preparation of value added milk products, handling the excess milk during flush season, encouraging rural dairy farmers to produce more milk, clean milk, quality 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. Revival of dormant Aavin societies will facilitate more milk handling and thereby more milk production. Providing touch screen facilities will offer quick and easy access for technologies for improved farming systems and sustainable additional revenue generation part from strengthening the critical marketing of farm produce for satisfactory returns.

5.3.1 Fisheries Sector

I. Baseline Information

- Inland water spread area - 12974ha
- Total Inland fishermen population - 3249
- No. of Tanks - 5978 (12974 ha)
- Average fish production - 6200 tonnes / year
- Inland fishermen co-operative societies – 7 Nos. (819 members)
- Departmental fish farm at Thattamanaipatti - nursery area of 1000 m^2 & seed production - 3.00 lakh

- ❖ Fingerlings production - 18.00 lakh by Department & Private
- ❖ No. of private fish farmers - 2
- ❖ Fishing Fleet

Traditional	- 823
Motorized	- 513
Mechanized	- 424

- ❖ No. of landing centres - 32
- ❖ Fish landing platforms – 2 Nos.
- ❖ Ice plants - 7 Nos. (Capacity 5.0 tonnes)
- ❖ marine fishermen cooperative societies - 26 (13,462 members); Fisherwomen - 8 (1,532 members.)
- ❖ Marine fish production - 65,542 tonnes
- ❖ Number of shrimp farms - 78 (170.98 ha.)

II. On going Government Development Schemes

Schemes Pertaining to Marine Fisheries Development

1. Supply of Out Board Motors / In Board Engines and Nets
2. National Fishermen and fisherwomen savings – cum relief scheme
3. Group Accident Insurance scheme
4. Free housing scheme
5. Reimbursement of Central excise duty on high speed diesel oil
6. Construction of Fish landing centres
7. Guide lights in marine fishing villages
8. Cyclone shelters
9. Community halls and tube wells disbursement of Tsunami Relief to damaged crafts
10. Assistance to states for developing export infrastructure & allied activities (ASIDE) – schemes.

Schemes Pertaining to Inland Fisheries Development

1. Fishermen Group Accident Insurance – (Central scheme)
2. Fishermen savings – cum Relief scheme
3. Construction of new ponds and tanks in beneficiaries own land with proper screened inlet, outlet and shallow tube well
4. Reclamation / Renovation of ponds / tanks
5. Training of fish farmers
6. Provision of soil and water testing kits to each FFDA
7. Setting up of integrated units, including hatcheries for ornamental fishes
8. Anna Marumalarichi Thittam – All Villages
9. IAMWARM
10. Fisheries Development Minior programme – popularization of scampi culture

III. Intervention Required Areas

- Private participation for inland fish seed production by subsidy
- Increase rearing space of Govt. Fish Seed Production Centre
- Improving fishing efficiency though efficient gears
- Deployment of artificial fish habitats to improve fishery resources.
- Development of sea farming – seaweed culture.
- Providing equipments for proper fishing by Global positioning system
- Farmers training to increase technical knowledge
- Renovation of farms by subsidy assistance

Strength

- Inland Water spread Area is 12974ha, Total Inland fishermen population is 3249, No. of Tanks 5978 with water Spread Area is 12974 ha. and the present average fish production is 6200 tonnes/year
- There is a Departmental fish farm located at Thattamanaipatti having nurseries areas of 1000 m2 and the seed production is 3.00 lakhs
- No. of inland fishermen Cooperative societies are 7 with 819 members.

- No. of fishing crafts operating in this District is traditional- 823, motorised -513, mechanized-424.
- No. of landing centres are 32.
- No. of ice plants in the coastal area are 7 with the capacity of 5.0 tonnes.
- The most demanded fish varieties in this district are seer fish, hemirampus, pomfrets, mackerel, rays, prawns and crabs.
- The no. of shrimp farms are 78 with an area of 170.98 ha. The average shrimp production through aquaculture is 250 tonnes.

Weakness

- No self sufficiency in fish seed production.
- Seed requirement of this District is nearly 65.0 lakhs per year
- Non availability of stock size quality fish seeds throughout the year
- Insufficient training packages on fish culture, breeding and seed rearing, feed formulation fish diseases diagnosis, etc.
- Under utilization of short seasonal tanks
- Absence of Dead storage level in the reservoirs affects the natural fish stock.
- The IMBL starts 23 nautical miles from the shore and this is a major hindrance for mechanized fishing.
- Lack of berthing and landing facilities in major fishing villages.
- At present the inshore areas ie. up to 50 mts. depth are estimated to be over exploited.
- Due to the cost escalation of inputs disease threat, shrimp rate in the international market fluctuation farmers away from the farming activities

5.4. Agricultural Marketing

Regulated markets are functioning in ten places. Twenty four commodities are marketed through the regulated markets. The list of regulated markets in Pudukkottai district is furnished in Table 5.3.

Table 5.3. Details of Regulated Markets

S.No.	Place of Regulated Markets
1	Alangudi
2	Arantangi
3	Pudukkottai
4	Gandarvakottai
5	Avudaiyarkoil
6	Keeranur
7	Keeramangalam
8	Ponnamaravathy
9	Illuppur
10	Karambakudi

The list of notified commodisties along with the quantum of marketable surplus marketted through regulated markets is furnished in Table 5.4.

Table 5.4. Arrival of Commodities along with Marketable Surplus

S.No.	Notified commodities	Marketable surplus (Per cent)
1	Paddy	60
2	GroundNut	65
3	Gingelly	70
4	Cotton	100
5	Cashewnut	95
6	Coconut	60
7	Chillies	90
8	Redgram	70
9	Blackgram	70
10	Greengram	70
11	Cholam	70

Table 5.4 Contd….

S.No.	Notified commodities	Marketable Surplus (Per cent)
12	Maize	70
13	Cumbu	70
14	Varagu	70
15	Ragi	70
16	Horsegram	80
17	Turmeric	90
18	Topiaco	80
19	Corriander	90
20	Tamarind	80
21	Neemseeds	Negligible
22	S.Jaggery	Negligible
23	Palm Jaggery	Negligible
24	Onion	Negligible

Source: Records of Joint Director of Agriculture, Pudukkottai

5.4.1 Reasons for Low arrivals

- The farmers are getting crop loans from the traders before the time of cultivation it self. Hence they are bound to sell their produces to the concerned traders only.

- The farmers are selling their produce as soon as the same was harvested at the farm gate itself to settle their loan.

- Prevailing high rates of handling charges and transportation charges involved made them to sell their produce at the farm/home it self.

- Taxes levied on the traders are deducted in the price offered by the traders.

5.4.2 Infrastructure Available for Farmers

Even though there are lot of constraints for farmers, various infrastructure facilities are available to the farmers. Following are the infrastructural facilities are available in the regulated markers for the farmers use (in Table 5.5).

Table 5.5. Infrastructural Facilities Availability and their Use

S.No.	Details	Availability	Utilization
1	Yard	2	40 Per cent
2	Storage Godowns	2 (2000 tonnes capacity)	40 Per cent
3	Pledge loan distributed	4.00 Lakhs	75 Per cent
4	Machineries	……	……

Source: Records of Joint Director of Agriculture, Pudukkottai

5.4.3 Strategies Suggested for Increasing arrivals to Regulated Markets

- Rural Godowns may be constructedin selected areas and farmers may be encouraged to store their produce in these godowns.

- Before issue of loans by banks, the bank officials can advice the farmers to sell their produce at the Regulated Markets. If possible, this requirement may be posed as a precondition to set farm loans.

- Handling charges and the transportation charges may be borne by the Market Committees to move the produce from farmlands to Godown and from Godowns to Regulated Markets.

- Subsidy in tax for the produces purchased in the Regulated Markets, may be thought off.

5.4.4 Details of Registered Traders

The number of traders registerde in the regulated market are given in Table 5.6.

Table 5.6. Number of Traders Registered

S.No.	Traders	Numbers
1	Wholesalers	370
2	Pettty Traders	1358
4	Other traders	230

Petty traders were more in the district regulated market, as compared tp whple salers.

- In general the participation of traders are found to be less and not satisfactory and
- tax problem to the traders was reported as the major reason for poor participation of traders therefore subsidy in tax may be given to the traders

5.4.5 Other Facilities

Available facilities in the regulated market were assessed and given below.

Sl.No.	Details	Availability	Usage
1	Electronic display board	……	….
2	Notice boards	2	….
3	Internet connectivity	…..	….
	(a) Agmarknet	1	1
	(b) DEMIC Website	……	…..

Tamil Nadu Agricultural University provides lot of market information through DEMIC website. This information may be made available to the farmers and traders.

5.5. Agricultural Credit

5.5.1. Credit Disbursement

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

I. Policy Innovations of Government of India:

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

II. Policy initiatives of Reserve Bank of India:

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

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

III. Policy and Development Initiatives of NABARD:

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

IV. Policy Initiatives of Government of Tamil Nadu:

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

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

Activity wise credit disbursement and projection under agricultural and allied sectors in Pudukottai district is furnished in Table 5.7.

Table 5.7. Activity Wise Credit Disbursement and Projections under Agricultural and Allied Sectors in Pudukottai District

(Rs. lakh)

Sectors	2008-09	2009-10	2010-11	2011-12
Crop loan	53709.24	56394.70	59214.44	62175.16
Term loan		0.00	0.00	0.00
Micro Irrigation	2640.86	2772.90	2911.55	3057.13
Land Development	162.82	170.96	179.51	188.48
Farm Mechanization	2352.50	2470.13	2593.63	2723.31
Plantation & Horticulture	366.49	384.81	404.06	424.26
Forestry & Waste land Development	46.71	49.05	51.50	54.07
Dairy Development	1496.14	1570.95	1649.49	1731.97
Poultry	27.46	28.83	30.27	31.79
Sheep/Goat/Piggery	1114.30	1170.02	1228.52	1289.94
Fisheries	84.35	88.57	93.00	97.65
Storage Godown & Market yards	24.59	25.82	27.11	28.47
Bio-gas	0.00	0.00	0.00	0.00
Sericulture	0.00	0.00	0.00	0.00
Others	1806.57	1896.90	1991.74	2091.33
Sub total - Term loan	10122.79	10628.93	11160.38	11718.40
Total Agriculture Credit (1+2)	63832.03	67023.63	70374.81	73893.56
Non Farm sector	4350.48	4568.00	4796.40	5036.22
Other Priority Sector	9309.58	9775.06	10263.81	10777.00
Grand Total	**77492.09**	**81366.69**	**85435.03**	**89706.78**

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. 81366.69 Rs. 85435.03 and Rs. 89706.78 lakhs respectively. The total flow of agriculture credit in terms of crop loan and term loan in 2011-12 would be Rs. 73893.56 lakhs. The flow of credit for non-farm sector and other priorty sectors in 2011-12 would be Rs. 5036.22 and Rs. 10777.00 lakhs respectively.

CHAPTER - VI
DISTRICT PLAN

6.1 Agriculture

6.1.1 Formation of Agriclinics

(i) Project Background

Among non-farm activity, formation of agri clinic is an important intervention required for promotion of scientific agriculture.

(ii) Project Rationale

Agriclinic not only helps the promotion of scientific agriculture, but also paves way for increased employment opportunity for agricultural graduates in the district.

(iii) Project Focus

Through the agricultural graduates, quality diagnosis and appropriate inputs to farmers will be provided. Disseminating agricultural information will be done in an effective manner.

(v) Project Objective

To develop scientific agriculture among farming community.

(vi) Project Costs

A sum of Rs.60.00 lakhs will be required over a period of four years and the details are furnished in Table 6.1.

Table 6.1 Project Cost for Formation of Agriclinics

(Amount in Rs.)

2008-09		2009-10		2010-2011		2011-2012		Total	
Units	**Cost**	**Units**	**Cost**	**Units**	**Cost**	**Units**	**Cost**	**Units**	**Cost**
1	1500000	1	1500000	1	1500000	1	1500000	4	6000000

6.1.2 Project Costs for Strengthening STAMIN

Strengthening of STAMIN

(i) Project Background

State Agricultural Extension Management Institute (STAMIN), Kudumiamalai is imparting training to officials of agricultural department. Training programmes are being conducted periodically to officials up to the level of Assistant Directors of Agriculture.

(ii) Project Rationale

Most of the training need improved communication cadges.

(iii) Project Focus

Mobile Audio Visual / Exhibition Units may be provided to disseminate the new technologies to farmers at villages.

(iv) Project Objective

To improve the training programmes which are conducted by STAMIN by way of strengthing STAMIN.

(v) Project Cost

The Costs involved are furnished in Table 6.2.

Table 6.2 Project Costs for Strengthening STAMIN

(Amount in Rs.)

2008-09		2009-10		2010-2011		2011-2012		Total	
Units	**Cost**	**Units**	**Cost**	**Units**	**Cost**	**Units**	**Cost**	**Units**	**Cost**
15	3000000	-	-	-	-	-	-	15	3000000

6.1.3 FFS on Soil Health Care

(i) Project Background

In Pudukkottai district, the predominant soil type is red sterile soil. Proper soil care and management practices are required to increase yield and sustain farm income.

(ii) Project Rationale

Proper soil health care will improve the farm production there by increasing farm income too.

(iii) Project Focus

Practices such as soil test based fertilizer application, organic manure application, appropriate time of application, proper method of application, micro nutrient application etc. will be given focus.

(iv) Project Objective

To improve the soil health of the district soil.

(v) Project Costs

A sum of Rs 20.80 lakhs will be required as furnished in Table 6.3.

Table 6.3 Project Costs for Establishing FFS

(Amount in Rs.)

2008-09		2009-10		2010-2011		2011-2012		Total	
Units	**Cost**	**Units**	**Cost**	**Units**	**Cost**	**Units**	**Cost**	**Units**	**Cost**
13	520000	13	520000	13	520000	13	520000	52	2080000

6.1.4 Strengthening Government Farms

(i) Project Background

In Pudukottai district, three government farms viz Anna farm at Kudimianmalai, Pulse Seed Multiplication Farm at Vamban and State Oil Seed Farm at Vellalavoduthhi are functioning.

(ii) Project Rationale

The quality seed produced in these farms are being distributed to the various government farms as well as to the farmers for further multiplication. These farms need further strengthening by providing various amenities.

(iii) Project Focus

Production of valuable breeder seeds and foundation seeds are being taken up in various crops such as paddy, pulses, oilseeds etc.

(iv) Project Objective

To provide quality seeds to farmers.

(v) Project Costs

In all Rs40.00 lakhs will be required for strengthening government farms.

Table 6.4 Project Costs for Bore Well Construction

(Amount in Rs.)

Govt. farms	2008-09		2009-10		2010-2011		2011-2012		Total	
	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
Vamban	1	500000	1	500000	1	500000	1	500000	4	2000000
Vellalaviduthi	1	500000	1	500000	1	500000	1	500000	4	2000000
Total	**2**	**1000000**	**2**	**1000000**	**2**	**1000000**	**2**	**1000000**	**8**	**4000000**

Table 6.5. Project Costs Inter grid System at Government Farms

(Amount in Rs.)

Government Farms	2008-09		2009-10		2010-2011		2011-2012		Total	
	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
Vamban	1	400000	-	-	-	-	-	-	1	400000
Vellalaviduthi	1	400000	-	-	1	400000	-	-	2	800000
Anna farm	-	-	1	400000			1	400000	2	800000
Total	**2**	**800000**	**1**	**400000**	**1**	**400000**	**1**	**400000**	**5**	**2000000**

Table 6.6. Project Costs Project Costs for Pipe Line System at Government Farms

(Amount in Rs.)

Government Farms	2008-09		2009-10		2010-2011		2011-2012		Total	
	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
Vamban	2	60000	0	-	2	60000	0	-	4	120000
Vellalaviduthi	1	40000	2	60000	2	60000	1	30000	6	190000
Anna farm	1	30000	1	30000	1	30000	1	40000	5	130000
Total	**4**	**130000**	**3**	**90000**	**5**	**150000**	**2**	**70000**	**15**	**440000**

Table 6.7 Project Costs for Establishing Giant Seed Processing Unit Giant

(Amount in Rs.)

Government Farms	2008-09		2009-10		2010-2011		2011-2012		Total	
	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
Vamban	-	-	1	3000000	-	-	-	-	1	3000000
Vellalaviduthi	-	-	-	-	1	3000000	-	-	1	3000000
Anna farm	-	-	-	-	-	-	1	3000000	1	3000000
Total	**-**	**-**	**1**	**3000000**	**1**	**3000000**	**1**	**3000000**	**3**	**9000000**

Table 6.8 Project Costs for Purchasing Tractor with Trailers for Government Farms

(Amount in Rs.)

Government Farms	2008-09		2009-10		2010-2011		2011-2012		Total	
	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
Vamban	-	-	-	-	-	-	1	700000	1	700000
Vellalaviduthi	-	-	1	700000		-	-	-	1	700000
Anna farm	-	-	-	-	1	700000	-	-	1	700000
Total	**-**	**-**	**1**	**700000**	**1**	**700000**	**1**	**700000**	**3**	**2100000**

Table 6.9 Project Costs for Purchasing Tractor with Trippers for Government Farms

(Amount in Rs.)

Government Farms	2008-09		2009-10		2010-2011		2011-2012		Total	
	Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
Vamban					1	50000			1	50000
Vellalaviduthi			1	50000					1	50000
Anna farm							1	50000	1	50000
Total			**1**	**50000**	**1**	**50000**	**1**	**50000**	**3**	**150000**

6.1.5 Exposure Visit to Farmers and Officials

(i) Project Background

In the changing scenario, farmers and officials require exposure to the changes occurring in different places, both with in the country and abroad.

(ii) Project Rationale

The exposure visit will be more useful for updating the knowledge on export marketing as well as value addition of different agricultural commodities and to assess the foreign market.

(iii) Project Focus

Farmers can be exposed to new frontiers in agriculture, especially in value addition of their produce in groundnut, maize, paddy and market linked contract farming.

(iv) Project Objective

To improve the knowledge level by exposing the farmers in to different area.

(v) Project Cost

In all a sum of Rs 25.00 lakhs will be required and the details are furnished in Table 6.10, 6.11 and 6.12 respectively.

Table 6.10 Project Costs for Abroad Training for Officers on Export Marketing

(Amount in Rs.)

2008-09		2009-10		2010-2011		2011-2012		Total	
Units	**Cost**	**Units**	**Cost**	**Units**	**Cost**	**Units**	**Cost**	**Units**	**Cost**
2	1000000	-	-	2	1000000	-	-	4	2000000

Table 6.11 Project Costs for Inter State Training for Officers on Export Marketing

(Amount in Rs.)

2008-09		2009-10		2010-2011		2011-2012		Total	
Units	**Cost**	**Units**	**Cost**	**Units**	**Cost**	**Units**	**Cost**	**Units**	**Cost**
-	-	5	50000	-	-	5	50000	10	100000

Table 6.12 Project Costs for Inter State Training for Farmers on Export Marketing

(Amount in Rs.)

2008-09		2009-10		2010-2011		2011-2012		Total	
Units	**Cost**	**Units**	**Cost**	**Units**	**Cost**	**Units**	**Cost**	**Units**	**Cost**
20	100000	20	100000	20	100000	20	100000	80	400000

Table 6.13 Abstract of Budget Requirement for Agriculture Interventions

(Amount in Rs.)

Sl. No.	**Particulars**	**2008-09**	**2009-10**	**2010-11**	**2011-12**	**Total**
1	Agri clinics	1500000	1500000	1500000	1500000	6000000
2	Strengthening STAMIN	3000000	0	0	0	3000000
3	FFS on Soil health care	520000	520000	520,000	520000	2080000
4	Strengthening Govt. seed farms	2450000	5760000	5820000	5740000	19770000
5	Educational Tours	1100000	150000	1100000	150000	2500000
6	DAP 2 Per cent spray for 1800 hectares @ Rs 200 /ha	360000	0	0	0	360000
Total Rs. in lakhs		89.3	79.30	89.40	79.10	337.10

6.1.6. Innovative Scheme in Agriculture

Few innovative schemes to promote the agriculture sector in the district are proposed with some of the interventions. The schemes proposed with the budget requirement are given Table 6.13.

Table 6.14. Innovative Schemes for Agriculture Development

Particulars	2009	2010	2011	2012	Total Units	Total cost (Rs)
	Units	Units	Units	Units		
Automatic Weather Station	4	3	3	3	13	2600000
Precision farming 1 acre each in 100 villages	25	25	25	25	100	4000000
Provision of computer with internet to each farmer convenors	16	16	17	16	65	3250000
Conversion of sub channels into fabricated cement channels (10000 m2 in each block)	2500	2500	2500	2500	10000	1300000
Pulses and Maize seed production and Distribution through seed village (10 ha in each block)	35	35	35	35	140	1400000
Production of Agro forestry seedlings and distribution through community nursery provided with community borewell in each block	4	3	3	3	13	1300000
Provision for construction of small scale industries for value added products like coconut powder, cocount milk, Moringa powder, Banana Cashew fruit, Amla and Other horticultural crops.	5	5	5	5	20	20000000
100 Per cent subsidy to start organic farming products like, Panchakavya, Pseudomonas, Azospirillum, etc., organic certification	5	5	5	5	20	2000000

Table 6.14 Contd…

Particulars	2009	2010	2011	2012	Total Units	Total cost (Rs)
	Units	Units	Units	Units		
Construction of drying yard (one in each block)	4	3	3	3	13	2600000
Bio gas production units (10 nos in each block 100 Per cent subsidy)	40	30	30	30	130	3250000
Provision of internet facilities to each regulated market and forecasting the buying and selling prize to farmers	2	2	2	2	8	1000000
Construction of one cold storage unit for flower, fruits and Vegetables			1		1	10000000
Total	**112.25**	**104.75**	**205.25**	**104.75**		**527,00,000**

6.1.7 Innovative Scheme for Seed Production

6.1.7.1 Establishment of Seed Testing Laboratory at Pudukottai

(i) Need

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

(ii) Project Implementation

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

(iii) Benefits

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

(iv) Objectives of Seed Testing

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

(v) Role of Seed Testing Laboratories in Seed Quality Control

On analysis of the past data on productivity and quantity of seeds distributed to farming community it is well understood the seed is very important among all other factors which influences agricultural production considerably.While encouraging distribution of Quality seeds, regulation of seeds distributed to farmers is also very much required to safe guard the interests of the farmers and to keep up the agricultural production.

(vi) Seed Quality Control Activities

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

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

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

(vii) Seed Distribution

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

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

(viii) Activities Proposed

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

1. Mixing and Dividing Equipments

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

2. Moisture Testing Equipment

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

3. Weighing Equipments

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

4. Purity Analysis Equipment

Purity analysis equipments are used to analyze the physical purity of submitted seed sample which is pre requisite for conducting germination test. The Illuminated purity work board is to be purchased for physical purity analysis 4.

5. Germination Equipment

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

6. Storage Equipment

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

7. General

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

8. Computers with Accessories

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

Cost Aspects

The budget involved for establishing seed testing laboratory is furnished in Table 6.15.

Table 6.15. Budget involved in Establishing Seed Testing Lab

S.No.	Name of the instrument/eqipement	Appox.Qty required for one lab	Appox.cost per unit rupees	Appox cost for one lab (Rs.)
1	Weighing balance top loading	1	5000	5000
2	Illumination purity work board	1	4000	4000
3	Electronic weighing balance	1	30000	30000
4	Soil type divider	1	7500	7500
5	Digital moisture meter with stabilizer	1	17500	17500
6	Germination trays	200	175	35000
7	Petri dishes	50	300	15000
8	Thermometer	1	300	300
9	Hygrometer	1	1500	1500
10	Cabinet germinator	1	225000	225000
11	Air conditioner along with stabilizer	2	35000	70000
12	Work table	5	4000	20000
13	Work chair	4	2500	10000
14	Trolley	1	5000	5000
15	Computer with accessories	1	60000	60000
16	Germination paper in kgs	200	165	33000
17	Filter paper (nos)	50	35	1750
18	Seed storage rack	2	6000	12000
19	Telephone connection with board band	1	1250	1250
20	Miscellaneous items			46200
	Total			**600000**

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

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

(ix) Expected Date of Completion

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

(x) Monitoring and Evaluation

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

6.2 Horticulture

6.2. 1 National Horticulture Development Programme

In Pudukkottai District horticulture crops cover total area of 22,501.58 hectares with 19,860 beneficiaries, out of which fruits crops occupied 6,075.83 hectares with the beneficiaries of 6718, vegetables in 1355.03 hectares with the beneficiaries of 4,206. Other horticulture crops are grown in 1,667.95 hectares with the beneficiaries of 3641. The proposed project for high-tech Horticulture will enhance the yield and ultimately uplift the present status of the farmers in Pudukkottai district.

(i) Budget

The overall Budget of Rs.1307.955 lakhs are required to meet the proposed interventions.

(ii) Background / Problem Focus

There is a vast scope for increasing the production of fruits, Vegetables, Plantation crops, medicinal and aromatic plants. Farmers need to produce quality fruits

and vegetables to cater the needs of the present market demand. It requires creating awareness among the horticulture growers. High tech horticulture technologies needs to be adopted by farmers in order to raise the income of farmers.

(iii) Project Rationale

The major crops of Pudukkottai district *viz.*, Mango, Banana, Cashew and Vegetables were considered for implementation of the programme proposed.

(iv) Project Strategy

Implementation of the high-tech Horticulture in the farmers holdings for increasing the production is proposed from 2008-09 to 2011– 2012 at block level Need based implementation will be taken up.

(v) Project Goals

- Increasing the production through farmers adoption of high-tech Horticulture technology
- Creating the marketing facilities by community development
- Improving the quality of the produce to meet the requirements for export and internal marketing

The project costs for the intervention recommended are furnished from table 6.16 through Table 6.33.

Table 6.16. Project costs for Net House Structure - Nursery & Vegetable Production

(Rs in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total Costs
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	1	0.500	1	0.500	1	0.500	1	0.500	2.000
Annavasal	-	-	-	-	-	-	-	-	
Gandarvakottai	1	0.500	1	0.500	1	0.500	1	0.500	2.000
Karambakudi	1	0.500	1	0.500	1	0.500	1	0.500	2.000
Kunnandarkoil	-	-	-	-	-	-	-	-	
Aranthangi	1	0.500	1	0.500	1	0.500	1	0.500	2.000
Arimalam	2	1.000	2	1.000	2	1.000	2	1.000	4.000
Thiruvarankulam	1	0.500	2	1.000	3	1.500	4	2.000	5.000
Ponnamaravathi	1	0.500	1	0.500	1	0.500	1	0.500	2.000
Viralimalai	-	-	-	-	-	-	-	-	
Manamelkudi	-	-	-	-	-	-	-	-	
Thirumayam	-	-	-	-	-	-	-	-	
Total	**8**	**4.000**	**9**	**4.500**	**10**	**5.000**	**11**	**5.500**	**19.00**

Table 6.17 Project Costs – Pandal for Vegetable Production

(Rs. in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total cost
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	-	-	-	-	-	-	-	-	
Annavasal	-	-	-	-	-	-	-	-	
Gandarvakottai	2	1.000	2	1.000	2	1.000	2	1.000	4.000
Karambakudi	1	0.500	1	0.500	1	0.500	1	0.500	2.000
Kunnandarkoil	-	-	-	-	-	-	-	-	
Aranthangi	3	1.500	5	2.500	5	2.500	5	2.500	9.000
Arimalam	-	-	-	-	-	-	-	-	
Thiruvarankulam	1	0.500	2	1.000	3	1.500	4	2.000	5.000
Ponnamaravathi	2	1.000	3	1.500	4	2.000	5	2.500	7.000
Viralimalai	-	-	-	-	-	-	-	-	
Manamelkudi	-	-	-	-	-	-	-	-	
Thirumayam	-	-	-	-	-	-	-	-	
Total	**9**	**4.500**	**13**	**6.500**	**15**	**7.500**	**17**	**8.500**	**27.000**

Table 6.18. Project Costs for Package for Plant Protection

(Rs in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total Costs
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	10	0.150	10	0.150	10	0.150	10	0.150	0.600
Annavasal	10	0.150	10	0.150	10	0.150	10	0.150	0.600
Gandarvakottai	5	0.075	5	0.075	5	0.075	10	0.075	0.300
Karambakudi	10	0.150	10	0.150	10	0.150	10	0.150	0.600
Kunnandarkoil	-	-	-	-	-	-	-	-	
Aranthangi	10	0.150	15	0.225	15	0.225	15	0.225	0.825
Arimalam	5	0.075	5	0.075	5	0.075	5	0.075	0.300
Thiruvarankulam	100	1.500	2	3.000	300	4.500	400	6.000	15.000
Ponnamaravathi	10	0.150	10	0.150	10	0.150	10	0.150	0.600
Viralimalai	10	0.150	10	0.150	15	0.225	15	0.225	0.750
Manamelkudi	5	0.075	5	0.075	5	0.075	5	0.750	0.975
Thirumayam	-	-	-	-	-	-	-	-	
Total	**175**	**2.63**	**82**	**4.20**	**385**	**5.78**	**490**	**7.95**	**20.550**

Table 6.19. Project Costs for Plastics Crates for Vegetable Handling and Transport

(Rs. in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total Costs
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	10	0.150	10	0.150	10	0.150	10	0.150	0.600
Annavasal	100	0.125	100	0.125	100	0.125	100	0.125	0.500
Gandarvakottai	10	0.125	10	0.125	10	0.125	10	0.125	0.500
Karambakudi	100	0.125	100	0.125	100	0.125	100	0.125	0.500
Kunnandarkoil	200	0.250	250	0.3125	300	0.250	300	0.250	1.0625
Aranthangi	100	0.125	150	0.1875	150	0.1875	150	0.1875	0.6875
Arimalam	100	0.125	100	0.125	100	0.125	100	0.125	0.500
Thiruvarankulam	-	-	-	-	-	-	-	-	
Ponnamaravathi	100	0.125	100	0.125	100	0.125	100	0.125	0.500
Viralimalai	100	0.125	100	0.125	100	0.125	100	0.125	0.500
Manamelkudi	-	-	-	-	-	-	-	-	
Thirumayam	100	0.125	100	0.125	100	0.125	100	0.125	0.500
Total	**920**	**1.400**	**1020**	**1.525**	**1070**	**1.463**	**1070**	**1.463**	**5.851**

Table 6.20. Project Costs Farm Waste Shredder / Vegetable Waste Shredder

(Rs. in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total Costs
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	-	-	-	-	-	-	-	-	0.364
Annavasal	2	0.400	2	0.400	2	0.400	2	0.400	1.600
Gandarvakottai	1	0.200	1	0.200	1	0.200	1	0.200	0.800
Karambakudi	-	-	-	-	-	-	-	-	
Kunnandarkoil	-	-	-	-	-	-	-	-	
Aranthangi	-	-	-	-	-	-	-	-	
Arimalam	-	-	-	-	-	-	-	-	
Thiruvarankulam	5	1.000	10	2.000	10	2.000	10	2.000	7.000
Ponnamaravathi	-	-	-	-	-	-	-	-	
Viralimalai	1	0.200	1	0.200	2	0.400	2	0.400	1.200
Manamelkudi	-	-	-	-	-	-	-	-	
Thirumayam	-	-	-	-	-	-	-	-	
Total	**9**	**1.800**	**14**	**2.800**	**15**	**3.000**	**15**	**3.000**	**10.610**

Table 6.21. Project Costs for Cashew High Density Planting

(Rs. in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total Costs
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	2	0.090	2	0.090	2	0.090	2	0.090	0.360
Annavasal	-	-	-	-	-	-	-	-	-
Gandarvakottai	-	-	-	-	-	-	-	-	-
Karambakudi	-	-	-	-	-	-	-	-	-
Kunnandarkoil	-	-	-	-	-	-	-	-	-
Aranthangi	-	-	-	-	-	-	-	-	-
Arimalam	-	-	-	-	-	-	-	-	-
Thiruvarankulam	200	9.000	400	18.000	500	22.500	600	23.000	72.500
Ponnamaravathi	-	-	-	-	-	-	-	-	-
Viralimalai	-	-	-	-	-	-	-	-	-
Manamelkudi	-	-	-	-	-	-	-	-	-
Thirumayam	-	-	-	-	-	-	-	-	-
Total	**202**	**9.090**	**402**	**18.090**	**502**	**22.590**	**602**	**23.090**	**72.860**

Table 6.22. Project Costs for Borewell with Casing Pipe

(Rs. in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total Costs
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	10	7.500	10	7.500	0.500	7.500	10	7.500	30.000
Annavasal	5	7.500	5	7.500	5	7.500	5	7.500	30.000
Gandarvakottai	5	7.500	5	7.500	5	7.500	5	7.500	30.000
Karambakudi	5	7.500	5	7.500	5	7.500	5	7.500	30.000
Kunnandarkoil	-	-	-	-	-	-	-	-	
Aranthangi	1	0.750	2	1.500	2	1.500	2	1.500	5.250
Arimalam	1	0.750	1	0.750	1	0.750	1	0.750	3.000
Thiruvarankulam	2	1.500	2	1.500	2	1.500	2	1.500	6.000
Ponnamaravathi	1	0.750	1	0.750	1	0.750	1	0.750	3.000
Viralimalai	-	-	-	-	-	-	-	-	
Manamelkudi	-	-	1	0.750	1	0.750	1	0.750	2.250
Thirumayam	-	-	1	0.750	1	0.750	1	0.750	2.250
Total	**30**	**33.750**	**33**	**36.000**	**33**	**36.000**	**33**	**36.000**	**141.750**

Table 6.23 Project Costs for Banana Bunch Cover

(Rs. in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total Costs
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	-	-	-	-	-	-	-	-	
Annavasal	-	-	-	-	-	-	-	-	
Gandarvakottai	-	-	-	-	-	-	-	-	
Karambakudi	10000	1.000	10000	1.000	10000	1.000	10000	1.000	4.000
Kunnandarkoil	-	-	-	-	-	-	-	-	1.000
Aranthangi	2500	0.250	2500	0.250	2500	0.250	2500	0.250	
Arimalam	-	-	-	-	-	-	-	-	
Thiruvarankulam	-	-	-	-	-	-	-	-	
Ponnamaravathi	-	-	-	-	-	-	-	-	
Viralimalai	-	-	-	-	-	-	-	-	
Manamelkudi	-	-	-	-	-	-	-	-	
Thirumayam	-	-	-	-	-	-	-	-	
Total	**12500**	**1.250**	**12500**	**1.250**	**12500**	**1.250**	**12500**	**1.250**	**5.000**

Table 6.24. Project Costs Humic Acid / Effective E Microbes

(Rs. in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total Costs
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	2	0.004	5	0.010	5	0.010	5	0.010	0.034
Annavasal	10	0.020	10	0.040	10	0.040	10	0.040	0.140
Gandarvakottai	-	-	-	-	-	-	-	-	
Karambakudi	20	0.040	20	0.040	20	0.040	20	0.040	0.160
Kunnandarkoil	-	-	-	-	-	-	-	-	
Aranthangi	10	0.020	10	0.020	10	0.020	10	0.020	0.080
Arimalam	-	-	-	-	-	-	-	-	
Thiruvarankulam	3000	12.000	3000	12.000	3000	12.000	3000	12.000	48.000
Ponnamaravathi	-	-	-	-	-	-	-	-	
Viralimalai	5	0.010	5	0.010	5	0.010	5	0.010	0.040
Manamelkudi	-	-	-	-	-	-	-	-	
Thirumayam	10	0.02	15	0.030	20	0.060	20	0.060	0.170
Total	**3057**	**12.114**	**3065**	**12.150**	**3070**	**12.180**	**3070**	**12.180**	**48.624**

Table 6.25. Project Costs for Support System for Banana

(Rs. in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total Costs
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	50	56.250	50	56.250	50	56.250	50	56.250	225.00
Annavasal	-	-	-	-	-	-	-	-	
Gandarvakottai	10	11.250	10	11.250	10	11.250	10	11.250	45.000
Karambakudi	20	22.500	20	22.500	20	22.500	20	22.500	90.000
Kunnandarkoil	-	-	-	-	-	-	-	-	
Aranthangi	10	11.250	10	11.250	10	11.250	10	11.250	45.000
Arimalam	5	5.625	5	5.625	5	5.625	5	5.625	22.500
Thiruvarankulam	100	112.500	100	112.500	100	112.500	100	112.500	450.00
Ponnamaravathi	-	-	-	-	-	-	-	-	
Viralimalai	-	-	-	-	-	-	-	-	
Manamelkudi	-	-	-	-	-	-	-	-	
Thirumayam	-	-	-	-	-	-	-	-	
Total	**195**	**219.375**	**195**	**219.375**	**195**	**219.375**	**195**	**219.375**	**877.500**

Table 6.26. Project Costs for Banana Corm Injector

(Rs. in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total Costs
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	-	-	-	-	-	-	-	-	
Annavasal	-	-	-	-	-	-	-	-	
Gandarvakottai	-	-	-	-	-	-	-	-	
Karambakudi	5	0.015	5	0.015	5	0.015	5	0.015	0.060
Kunnandarkoil	-	-	-	-	-	-	-	-	
Aranthangi	-	-	-	-	-	-	-	-	
Arimalam	-	-	-	-	-	-	-	-	
Thiruvarankulam	100	0.150	100	0.150	100	0.150	100	0.150	0.600
Ponnamaravathi	-	-	-	-	-	-	-	-	
Viralimalai	-	-	-	-	-	-	-	-	
Manamelkudi	-	-	-	-	-	-	-	-	
Thirumayam	-	-	-	-	-	-	-	-	
Total	**105**	**0.165**	**105**	**0.165**	**105**	**0.165**	**105**	**0.165**	**0.660**

Table 6.27. Project Costs for Mango Harvester

(Rs. in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total Costs
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	5	0.025	5	0.025	5	0.025	5	0.025	0.100
Annavasal	-	-	-	-	-	-	-	-	
Gandarvakottai	10	0.050	10	0.050	10	0.050	10	0.050	0.200
Karambakudi	5	0.025	5	0.025	5	0.025	5	0.025	0.100
Kunnandarkoil	-	-	-	-	-	-	-	-	
Aranthangi	5	0.025	10	0.050	10	0.050	10	0.050	0.175
Arimalam	5	0.025	5	0.025	5	0.025	5	0.025	0.100
Thiruvarankulam	100	0.500	100	0.500	100	0.500	100	0.500	2.000
Ponnamaravathi	-	-	-	-	-	-	-	-	
Viralimalai	4	0.020	4	0.020	4	0.020	4	0.020	0.080
Manamelkudi	-	-	-	-	-	-	-	-	
Thirumayam	5	0.025	5	0.025	5	0.025	10	0.050	0.125
Total	**139**	**0.695**	**144**	**0.720**	**144**	**0.720**	**149**	**0.745**	**2.880**

Table 6.28. Project Costs for Sales Outlet Points in District Head quarters (Rent and Infrastructure)

(Rs. in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total Costs
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	-	-	-	-	-	-	-	-	
Annavasal	-	-	-	-	-	-	-	-	
Gandarvakottai	-	-	-	-	-	-	-	-	
Karambakudi	-	-	-	-	-	-	-	-	
Kunnandarkoil	-	-	-	-	-	-	-	-	
Aranthangi	-	-	-	-	-	-	-	-	
Arimalam	-	-	-	-	-	-	-	-	
Thiruvarankulam	1	2.500	-	-	-	-	-	-	2.500
Ponnamaravathi	-	-	-	-	-	-	-	-	
Viralimalai	-	-	-	-	-	-	-	-	
Manamelkudi	-	-	-	-	-	-	-	-	
Thirumayam	-	-	-	-	-	-	-	-	
Total	**1**	**2.500**	**0**	**0.000**	**0**	**0.000**	**0**	**0.000**	**2.500**

Table 6.29. Project Costs for District Level Farmers Workshop

(Rs. in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total Costs
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	1	0.800	1	0.800	1	0.800	1	0.800	3.200
Annavasal	-	-	-	-	-	-	-	-	
Gandarvakottai	-	-	-	-	-	-	-	-	
Karambakudi	-	-	-	-	-	-	-	-	
Kunnandarkoil	-	-	-	-	-	-	-	-	
Aranthangi	-	-	-	-	-	-	-	-	
Arimalam	-	-	-	-	-	-	-	-	
Thiruvarankulam	1	0.800	1	0.800	1	0.800	1	0.800	2.2000
Ponnamaravathi	-	-	-	-	-	-	-	-	
Viralimalai	-	-	-	-	-	-	-	-	
Manamelkudi	-	-	-	-	-	-	-	-	
Thirumayam	-	-	-	-	-	-	-	-	
Total	**2**	**1.600**	**2**	**1.600**	**2**	**1.600**	**2**	**1.600**	**6.400**

Table 6.30. Table for Inter State Exposure Visit (5 days)

(Rs. in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total Costs
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	1	2.500	1	2.500	1	2.500	1	2.500	10.000
Annavasal	1	2.500	1	2.500	1	2.500	1	2.500	10.000
Gandarvakottai	-	-	-	-	-	-	-	-	
Karambakudi	-	-	-	-	-	-	-	-	
Kunnandarkoil	-	-	-	-	-	-	-	-	
Aranthangi	-	-	-	-	-	-	-	-	
Arimalam	-	-	-	-	-	-	-	-	
Thiruvarankulam	-	-	-	-	-	-	-	-	
Ponnamaravathi	-	-	-	-	-	-	-	-	
Viralimalai	-	-	-	-	-	-	-	-	
Manamelkudi	-	-	-	-	-	-	-	-	
Thirumayam	-	-	-	-	-	-	-	-	
Total	**2**	**5.000**	**2**	**5.000**	**2**	**5.000**	**2**	**5.000**	**20.000**

Table 6.31. Project Costs Mango / Amla in Noon Meal Scheme (TANHOPE)

(Rs. in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total Costs
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	-	-	-	-	-	-	-	-	
Annavasal	-	-	-	-	-	-	-	-	
Gandarvakottai	-	-	-	-	-	-	-	-	
Karambakudi	-	-	-	-	-	-	-	-	
Kunnandarkoil	-	-	-	-	-	-	-	-	
Aranthangi	-	-	-	-	-	-	-	-	
Arimalam	-	-	-	-	-	-	-	-	
Thiruvarankulam	1	0.500	1	0.500	1	0.500	1	0.500	2.000
Ponnamaravathi	-	-	-	-	-	-	-	-	
Viralimalai	-	-	-	-	-	-	-	-	
Manamelkudi	-	-	-	-	-	-	-	-	
Thirumayam	-	-	-	-	-	-	-	-	
Total	**1**	**0.500**	**1**	**0.500**	**1**	**0.500**	**1**	**0.500**	**2.000**

Table 6.32. Project Costs Ten Hectare Mega Demo Plot for the District

(Rs .in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total Costs
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	-	-	-	-	-	-	-	-	
Annavasal	-	-	-	-	-	-	-	-	
Gandarvakottai	-	-	-	-	-	-	-	-	
Karambakudi	-	-	-	-	-	-	-	-	
Kunnandarkoil	-	-	-	-	-	-	-	-	
Aranthangi	-	-	-	-	-	-	-	-	
Arimalam	-	-	-	-	-	-	-	-	
Thiruvarankulam	1	25.00	-	-	1	25.00	-	-	50.00
Ponnamaravathi	-	-	-	-	-	-	-	-	
Viralimalai	-	-	-	-	-	-	-	-	
Manamelkudi	-	-	-	-	-	-	-	-	
Thirumayam	-	-	-	-	-	-	-	-	
Total	**1**	**25.000**	**0**	**0.000**	**1**	**25.000**	**0**	**0.000**	**50.00**

Table 6.33. Project Costs for Enterprising Farmers Associations

(Rs. in lakhs)

Name of the Block	2008-2009		2009-2010		2010-2011		2011-2012		Total Costs
	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	
Pudukkottai	-	-	-	-	-	-	-	-	
Annavasal	-	-	-	-	-	-	-	-	
Gandarvakottai	-	-	-	-	-	-	-	-	
Karambakudi	-	-	-	-	-	-	-	-	
Kunnandarkoil	-	-	-	-	-	-	-	-	
Aranthangi	-	-	-	-	-	-	-	-	
Arimalam	-	-	-	-	-	-	-	-	
Thiruvarankulam	1	25.00	-	-	-	-	-	-	25.000
Ponnamaravathi	-	-	-	-	-	-	-	-	
Viralimalai	-	-	-	-	-	-	-	-	
Manamelkudi	-	-	-	-	-	-	-	-	
Thirumayam	-	-	-	-	-	-	-	-	
Total	**1**	**25.000**	**0**	**0.000**	**0**	**0.000**	**0**	**0.000**	**25.000**

6.3 Animal Husbandry

This Sector Included Animal Husbandry, Dairy And Fishery Units. In the case animal husbandry sector emphasis is being given for perennial fodder production infrastructural development, genetic upgradation and disaster, management.

In the case of dairy, programmed breeding, bulk milk cooler, supply of by pass protein feed, were given preference.

In the case fisheries, repairs to the existing rearing nurseries and deployment of artificial fish habitats were given importance.

The detailed project proposals for the recommended interventions of animal husbandry and fisheries sectors are given in below and the budget requirement of animal husbandry sector and the fisheries sector is given in Table 6.33 and Table 6.34 respectively.

6.3.1 Project Proposals of Animal Husbandry Sector

The proposed project involving five broad area viz. feed and fodder development, genetic up-gradation, Improvement of livestock health, processing facilities and extension facilities are included. Finance required, strengthening of existing unit and expansion of ongoing development schemes are also included. To achieve the proposed target based on the proposed project the following action plan is proposed under each broad area specified.

6.3.1.1. Feed & Fodder Development or Dairy, Sheep, Goat and Poultry Farming

(i) Abstract

To augment fertility, milk, meat and egg production, clean milk production feeding the livestock with required quantity of nutrient rich perennial fodder and tree fodder is essential. Current status of 91 Per cent deficit of green fodder should be given priority and hence perennial fodder and tree fodder production is proposed in 10 acres per block per year. It is proposed to produce green fodder for livestock in 620 acres

including 100 acres in District Livestock farm. Chaff cutter usage to enhance digestibility and to prevent wastage of feed is proposed. It is proposed to supply feed for desi chicken to improve their performance. It is proposed to establish a feed mill to mill, mix and supply quality feed to farmers.

(ii) Budget : Rs. 348.85 Lakhs

(iii) Background / Problem Focus

Deficit of green fodder is 91 per cent and hence it is essential to feed the crossbred milch animals with nutrient rich perennial fodder and tree fodder biomass to explore full genetic potential. 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. Immunization against endemic diseases is carried out by Department of Animal Husbandry, ASCAD program. Desi chickens are allowed for foraging and kitchen left over and available excess grains are fed to the extent possible. Keeping this background, the action plan is proposed to focus these problems namely perennial fodder cultivation, tree fodder production, chaff cutter usage. Supply of micro nutrients/mineral mixture will enhance the fertility, production and productivity. The proposed fodder bank at TANUVAS Regional Research Centre will enable the farmers to get required perennial, other fodder to grow in their land which will result in feeding the livestock with more green fodder which is now 91 Per cent deficit. Establishment of one feed mill at TANUVAS Regional Research Centre will enable the farmers to get quality livestock feed at competitive rate which will reduce the cost of production and increase the net returns it is anticipated.

(iv) Project Rationale

To augment fertility, productivity and production of livestock including poultry and to achieve 4 Per cent annual growth rate during XI plan period. The action plan is prepared to achieve this target.

(v) Project Strategy

Based on current background of livestock sector, project strategy is proposed involving Tamilnadu Veterinary and Animal Sciences University, Department of Animal Husbandry, Pudukkottai 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.

(vi) Project Goals

To improve milk yield, to improve fat and solids not fat in milk, to produce clean milk, to facilitate chilling of milk, to prepare value added milk products and immunization of livestock and poultry. Capacity building of farmers, veterinarians, NGOs for technological interventions through adoption for improving milk, meat and eggs. To empower farmers, rural women, officers on Ethno Veterinary Medicine and Practice for primary health care of livestock and Poultry extension programmes are proposed. All these proposed activities will lead to achievement of stipulated goals in stipulated time. Overall goal is to augment fertility, production, productivity through proposed perennial fodder production to bridge the huge gap in availability and demand, tree fodder cultivation to manage the milch animals effectively even during summer / draught period. All such activities will envisage revenue generation of stake holders.

(vii) Project Components

The following project components (action plan) under Feed and fodder development is proposed.

- Perennial fodder cultivation
- Tree fodder production

Perennial Fodder production in District Livestock Farm, Pudukottai in 100 acres-DAH.

Fodder Development in Pudukottai Farm	2008-09
Area under fodder cultivation (irrigated) (acres)	62
Area under fodder tree crops(acres)	38
Non-recurring	(in lakh)
Erection of bore well, pump sets and installation charges 8 Nos.	42.00
Sprinklers for 97 acres	14.55
Roads and Fencing for 15 km @ Rs.500 Per meter	75.00
Land development and establishment of fodder crops @ Rs.0.136 lakh for 100 acres	13.60
Total Non recurring cost	145.15
Recurring Cost	
Cost of maintanence of fodder plots @ Rs.6400/acre	6.40
Total Recurring cost	6.40
Total cost required	151.55

(viii) Project Costs

I. Fodder production

1. Perennial Fodder production @ 10 acre/ block/year (13 blocks) & for 4 years by the Department of Animal Husbandry and the Aavin, Pudukottai - Rs. 0.235 Lakhs/Acre:

I.	**Training Cost**	
S.No.	**Details**	**Amount (in Rs.)**
1.	Incentive @ Rs.100/person/day, for 2 days, for 15 members	3,000.00
2.	Refreshment expenses @ Rs.10/day/person, for 2 days, 15 persons	300.00
3.	Study materials including scribbling pad, pen etc.@ Rs.15/person, for 15 members	225.00
	Total training cost per SHG	**3,525.00**

II.	**Fodder Cultivation of Fodder (Co-3) per Acre**	
S.No.	**Name of Operation**	**Amount (in Rs.)**
1 a)	Bush clearance and land reclamation	2,600.00
1.b)	Cost of ploughing	1,600.00
2.	Formation of ridges and furrows/beds and irrigation channels	500.00
3.a)	Cost of fym 10 mt. @ Rs.300/mt.	3,000.00
3.b)	Labour cost for transportation and application, loading and unloading	1,000.00
4.a)	Cost of slips 16,000 numbers @ Rs.0.25 /slip	4,000.00
4.b)	Planting cost	840.00
5.a)	Cost of chemical fertilizers N 150 Kg @ Rs.5.48/kg – 822.00 P 50 Kg @ Rs.10.88/kg – 544.00 K 40 Kg @ Rs.3.85/Kg - 154.00	1,520.00
5. b)	Cost of labour for application	200.00
6.	After cultivation weeding	840.00
7.	Cleaning the channels	500.00
8.	Irrigation charges	800.00
9.	Harvesting charges and transportation	1,600.00
10.	Miscellaneous expenses	800.00
	Total Cost Required Per Acre	**20,000.00**

	Financial Requirement Per Self Help Group	**Rs. in Lakhs**
1.	Cost of training per SHG	0.035
2.	Cost of fodder cultivation	0.20
	Total Requirement per SHG	0.235
DAH	Total requirement for 14 blocks with 14 SHG @ 10 Acres /Block/year for 4 years, 520 acres totally by DAH	122.20
DDD	Fodder development activities (in IDF villages & in farmers field)Total requirement for 20 acres totally by DDD	4.70

(III) Establishment of Fodder bank at TANUVAS RRC, Pudukkottai

Land development charges	: Rs. 50,000
Bore well erection and pipe line connection charges	: Rs. 2,00,000
Fencing charges	: Rs. 2,00,000
Fodder cultivation charges for 4 years	: Rs. 1,00,000
Maintenance charges including labour charges for 4 years	: Rs. 2,00,000
Total	**: Rs. 7,50,000**

(IV) Establishment of Feed mill at TANUVAS RRC – Rs. 50,00,000

Sl.No.	Particulars	Amount (Rs.)
1.	**Building cost** (Including Godown, cement floor drying yard, Pipeline, overhead tank pump room, fencing, gates, factory road and land development charges, etc.)	10,80,000
2.	Machineries	12,35,000
	Hammer Mill	75,000
	Screw conveyer	20,000
	Bucket elevators	2,00,000
	Pre mix storage pin	15,000
	Horizontal batch mixer	1,00,000
	Hispeed molasses blender	50,000
	Molasses overhead service tank	75,000
	Pre pellet storage pin	20,000
	Junior pellet mill	3,50,000
	Steel structure inter connections inspection platform	1,00,000
	Installation and commissioning charges	50,000
	Electrical works	1,50,000
	Different type of weighing and pack closing machines	30,000
3.	Working capital	19,35,000
	Cost of feed ingredients (60 tonnes / month.@ of Rs.5,000-/tonne x 6mths.	18,00,000
	Gunny bags 1200 Nos./month x 6months @ Rs.15	1,08,000
	Maintenance charges	27,000
4.	Vehicle: Cost of delivery van	7,50,000
	Total cost of Establishment of Feed Mill	**50,00,000**

(v) Project Cost and Financing

(Rs. in Lakhs)

Action plan / Implementing agency	Unit Cost	2008-2009		2009-2010		2010-2011		2011-2012		Grand total	
		Units	Cost	Units	Cost	Units	Cost	Units	Cost	Total Units	Total Cost
DAH											
Perennial Fodder production In DLF in 100 acres- DAH	-	-	151.55	-	-	-	-	-	-	0	151.55
Perennial Fodder production @ 10 acre/ block/year (13 blocks) & for 4 years – DAH	0.235	130	30.55	130	30.55	130	30.55	130	30.55	520	122.20
Popularizing chaff cutter for efficient nutrient utilization with 50 Per cent subsidy – DAH	0.125	25	3.125	25	3.125	25	3.125	25	3.125	100	12.50
DDD											
Fodder development activities(20 acres in IDF villages each for 2 years & in farmers field) / DDD	0.235	5	1.18	5	1.18	5	1.18	5	1.18	20	4.70
Chaff cutters for elite farmers (small type) @ Rs.20000-with 100 Per cent grant /DDD	0.20	2	0.40	-	-	-	-	-	-	2	0.40
TANUVAS											
Fodder Bank at RRC – TANUVAS	7.50	1	7.50	-	-	-	-	-	-	1	7.50
Establishment of Feed mill (2 T / hr.) at RRC-TANUVAS	50.00	1	50.00	-	-	-	-	-	-	1	50.00
										Total	**348.85**

(vi) Implementation Chart of the Project

(year wise-2008-09; 2009-10; 2010-11; 2011-12)

Works proposed	I Quarter	II Quarter	III Quarter	IV Quarter
Perennial Fodder production in DLF in 100 acres- DAH	25	25	25	25
Perennial Fodder production @ 10 acre/ block/year (13 blocks) & for 4 years - DAH	25-25-25-25	30-30-30-30	35-35-35-35	40-40-40-40
Popularizing chaff cutter for efficient nutrient utilization with 50 Per cent subsidy – DAH	25	25	25	25
Fodder development activities for production of fodder seed / slips in dairy or chilling centre & land of DDD (acres)/DDD	2	2	2	3
Fodder development activities (in IDF villages & in farmers field) / DDD	25	25	25	25
Chaff cutters for elite farmers (small type)@ Rs.20000-with 100 Per cent grant /DDD	1-0-1-1	1-0-1-1	1-0-1-1	1-0-0-0
Chaff cutters (mechanized) for IDF villages on community basis /DDD	0-0-0-0	0-0-0-0	5-0-0-0	4-0-0-0
Fodder Bank at RRC – TANUVAS	-	-	-	-
Establishment of Feed mill (2 T / hr.) at RRC-TANUVAS	Tender Invitation	Tender processing	Establishing Feed mill	Functioning

(vii) Reporting

The implementing agencies viz. Department of Animal Husbandry, Pudukkottai District Co-operative Milk Producers Union and the TANUVAS, Veterinary University Regional Research Centre, Pudukkottai will submit periodical project report to their controlling officers.

6.3.1.2. Genetic up-gradation : For Dairy, Sheep and Goat Farming

(i) Abstract

To augment fertility strengthening A.I. service will be of much useful at field level. To augment fertility, meat production and to offset the effect of inbreeding distribution of elite bucks and rams is proposed. Programmed breeding of cattle and buffalo will offset the declining buffalo population apart from improving its fertility, productivity and production. Indigenous cattle, now at declining trend will have more such animals apart from its improved production and productivity. Proposed mobile input units will enhance fertility and improve the genetic performance of milch animals. Genetic upgradation of Livestock in District Livestock farm will lead to supply of genetically improved animals to more farmers to get more revenue. Buffalo calf development programme will result in preserving the local buffalo germ plasm apart from encouraging the farmers to rear more buffaloes.

(ii) Budget : Rs. 265.54 Lakhs

(iii) Background / Problem Focus

Animal health is most important in terms of milk, meat production which considerably contributes to Nation's GDP growth. The large number of cattle and their economic value makes imperative breeding cows and heifers with the least possible number of highest quality bulls. The present invention i.e. programmed breeding in cattle provides synchronization of estrus in a group of cows/heifers to enhance reproductive performance. Regular veterinary health care is provided only in certain parts of the state. In rural areas due to lack of knowledge on recent scientific practices, traditional uneconomical livestock rearing practices are followed which leads to delayed age at first

calving (up to 60 months) the intercalving period is more than 3 years in buffalo. The calf mortality is 255. Full productivity is not exploited.Sheep flocks are taken for grazing to a long distance and post harvested fields. Animals breed naturally and hence every likely hood that the effect of inbreeding will affect the flock performance. Keeping this problem it is focused to distribute elite bucks and rams to upgrade the genetic performance of goat and sheep during XI plan period. To improve the local cattle and crossbred milch animals fertility, milk yield, calving rate and calving interval, strengthening of A.I. services is important. Conservation and improvement of performance of indigenous cattle and buffalo is the need of the hour and hence proposal to address these problems is included.

(iv) Project Rationale

Per animal milk yield is 2.76 kg in indigenous cattle and 4.22 kg in buffaloes. To arrest the fall and to stabilize the buffalo population support need to be provided to the farmers to rear female buffalo calves up to first calving. Overall animal husbandry practices in the dairy industry including closed confinement, supplementary feeding of high energy concentrate feed stuffs ad high density in metropolitan areas have encouraged establishment of A.I. districts and regular Aavin routes therein. The buffaloes exhibit silent heat, which results in less conception rate and poor breeding efficiency. This makes farmers to opt for cross bred cattle leading to declining trend in buffalo population, even though buffaloes are good converter of crop residues/wastages in to milk with higher fat/total solids content. This will facilitate the farmers to maintain buffaloes rather than switching over. To augment fertility, productivity and production of sheep and goat. A.I will augment fertility and upgrade local cattle and establish desirable exotic blood in the cross bred cattle and buffalo. Increasing fertility in indigenous cattle and buffalo is very important to maintain their population. To eradicate infectious and contagious livestock diseases and “Animal identification” will enable to trace them whenever required for disease surveillance and monitoring. Therefore sufficient veterinary facilities should reach the farmers at their doorstep to give proper care to livestock at right time.

(v) Project Strategy

To employ A.I. techniques for economical buffalo breeding. To improve the conception rate from 40 to 45 Per cent to 65 to 70 Per cent.For animal health activities, veterinary health care is provided through Aavin regular input units and by conducting camps. Proposed strategies will improve the present livestock breeding activities, improve veterinary aid to the farmers, and will reduce the cost burden for farmers towards livestock health cover. Intensive system of calf rearing, rural farmers income generation will be more. Based on current background of livestock sector , project strategy is proposed to distribute elite bucks and rams to farmers to augment fertility and productivity. The proposal of mobile input units will augment fertility and thereby improve genetic improvement in crossbred, indigenous and buffalo population.

(vi) Project Goals

Reducing the cost of production of milk, meat, etc. through proper care. Enhancing the veterinary services to the farmers. 100 Per cent coverage to milk producer member of Aavin co-operatives. To reduce the intercalving period from 50 to 60 months of age to 30 to 35 months. This will save unnecessary feed cost and result in early milk production. Will reduce mortality rate by 50 Per cent by proper health care. To strengthen A.I. service to upgrade local cattle, buffalo and also crossbred milch animals. To improve fertility in crossbred cattle, indigenous cattle, buffalo. Overall goal is to augment fertility, production, productivity which will envisage revenue generation of stake holders. Will reduce the inter calving period, increase average number of lactation and improve economy of dairy business.

(vii) Project Components

- Genetic up-gradation of livestock at DLF, Pudukkottai – DAH

Particulars	Rs. in Lakhs
Non-Recurring Expenditure	**2008-09**
Animal purchase	
Purchase of 100 cows,100 does and 8 bucks, 35 sows and 15 boars	27.72
Construction of new sheds comprising of 2 farrowing stalls with 48 farrowing sheds @ Rs.15lakh/stall and 2 weaner stalls with 48 weaner sheds @ Rs.8 lakh per stall	46.00
Renovation of existing sheds including electrification (lump sum)	25.00
Total Non-Recurring expenditure	98.72
Recurring Expenditure	
Feed, medicine and animal maintenance	9.32
Contingencies	5.00
Total Recurring Expenditure	14.32

- Distribution of Bucks & Rams - DAH @ Rs.4000/- per buck or ram. A total of 500 bucks and 500 rams will be distributed.
- Programmed breeding of indigenous cattle & buffalo - DDD to increase conception rate @ Rs.700/animal, for 11200 animals.(DDD)- will result in 3150 additional adult female buffaloes are brought in and additional revenue of Rs.3.024 lakh per day is created to the farmer through additional milk expected to be produced.
- Buffalo calf development programme - DDD @ Rs. 14,800/- per calf, The cost includes feed cost, identification, insurance, deworming, vaccination, breeding and health cover, 50 calves/year, 200 calves for 4 years
- Mobile input units – DDD

Establishment of mobile input units @ Rs. 4.5 Lakhs/unit. The cost is inclusive of salary for the veterinarian, medicines, veterinary equipment and other expenses, 9 units totally.

(viii) Project Costs

Project Cost and Financing

(Rs. in Lakhs)

Action plan / Implementing agency	Unit Cost	2008-2009		2009-2010		2010-2011		2011-2012		Grand total	
		Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Total Units	Total Cost
DAH											
Genetic up-gradation of livestock In DLF, Pudukkottai – DAH	-	-	113.04	-	-	-	-	-	-	-	113.04
Distribution of Bucks / DAH	0.04	125	5.00	125	5.00	125	5.00	125	5.00	500	20.00
Distribution of Rams / DAH	0.04	125	5.00	125	5.00	125	5.00	125	5.00	500	20.00
DDD											
Programmed breeding of indigenous cattle & buffalo to increase conception rate / DDD	0.007	2800	19.60	2800	19.60	2800	19.60	2800	19.60	11200	78.40
Buffalo calf development programme-DDD	0.148	50	7.40	50	7.40	50	7.40	50	7.40	200	29.60
Mobile input units (One per 50 DCS) / DDD	4.50	1	4.50	-	-	-	-	-	-	1	4.50
									Total		**265.54**

(ix) Implementation Chart of The project

(Year wise-2008-09; 2009-10; 2010-11; 2011-12)

Works proposed	I Quarter	II Quarter	III Quarter	IV Quarter
Genetic upgradation of livestock in DLF, Pudukkottai – DAH	-	-	-	-
Distribution of Bucks (125 X 4) / DAH	30-30-30-30	30-30-30-30	30-30-30-30	35-35-35-35
Distribution of Rams (125 X 4) / DAH	30-30-30-30	30-30-30-30	30-30-30-30	35-35-35-35
Programmed breeding of indigenous cattle & buffalo to increase conception rate / DDD	700-700-700-700	700-700-700-700	700-700-700-700	700-700-700-700
Buffalo calf development programme-DDD	10-10-10-10	10-10-10-10	15-15-15-15	15-15-15-15
Mobile input units (One per 50 DCS) / DDD	-	-	1	-

Reporting

The implementing agencies viz. Department of Animal Husbandry, Pudukkottai District Co-operative Milk Producers Union and the TANUVAS, Veterinary University Regional Research Centre, Pudukkottai will submit periodical project report to their controlling officers.

6.3.1.3 Improvement of Livestock Health for Dairy, Sheep, Goat and Poultry Farming

(i) Abstract

To provide comprehensive livestock health cover including immunization against important viral, bacterial diseases and to cover almost all animals including poultry required programmes are proposed. This will protect livestock and poultry from diseases

and overall improvement in health is anticipated. To maintain livestock health micronutrients and mineral mixture to be supplied. The proposal " Identification and traceability of bovines" will enable creation and maintenance of breedable bovine population which is very important for policy decision. Control of parasitic diseases will enhance vaccine response which will ensure optimum immunity. Intensive system of model sheep/goat unit will motivate the farmers to adopt such technologies for sustainable and economically viable farming wherever possible. Mobile veterinary clinics will offer veterinary health cover services at farmers door. Animal disease intelligence unit will provide health cover by disease surveillance and forecasting system. Pudukkottai district being a coastal belt proposal for disaster management is included. Supply of mineral mixture/micro nutrients will ensure adequate health cover to animals and by pass protein will help the milch animals to utilize the nutrients effectively and economically. Milking machines will ensure quality and clean milk production.

(ii) Budget : Rs. 316.89 Lakhs

(iii) Background / Problem Focus

Artificial insemination service to livestock, immunization of animals and birds are carried out with the available manpower. Mobile veterinary clinics facility will help in health cover of animals at farmers doorstep. Animal disease intelligence unit will do disease surveillance and offer disease forecasting. Immunization and deworming of livestock and poultry. 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. Control of parasitic diseases will ensure health cover of livestock and the farmers will get additional returns. Usage of milking machines will provide clean, quality milk.

(iv) Project Rationale

To provide optimum health cover of livestock through quick, effective and timely disease diagnosis and monitoring and forecast. Mobile veterinary clinics will provide livestock health cover services at farmers doorstep. Supplementing livestock with micro nutrients would ensure their optimal health cover. Controlling parasitic diseases will ensure optimum immunity. Supply of by pass protein will enhance milch animlas production and productivity.

(v) Project Strategy

Mobile veterinary 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. Disaster management will help people to a comprehensive package to handle animals during natural calamity.

(vi) Project Goals

To provide optimum health cover to livestock and poultry including immunization for NCD. It is proposed to supplement the livestock with micro nutrients / by pass protein which will result in optimum performance of livestock which will ensure improved productivity and production. To increase milk production and also to produce clean, quality milk effectively and economically. To motivate farmers on intensive system of sheep/goat rearing wherever possible. Identification of breedable bovines will help in creating, updating database on breedable population which is crucial for policy making.

(vii) Project Components

Mobile Veterinary Clinics – DAH

Anticipated expenditure (recurring and non-recurring expenditure) for one year for Mobile Veterinary Clinic.

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**

List of equipments and instruments required for one mobile veterinary unit.

Sl.No	Name of the Item	Unit cost (in Rs.)
1.	Surgical Kit	5000
2.	Obstetrical Kit	5000
3.	Microscope	20000
	Total	**30,000**

Establishment of Animal Disease Intelligence Units - DAH

Diseases cause huge economic loss to the farming community by way of Livestock Mortality and decreased productivity which has a direct impact on food security and rural economy. Control and eradication of many diseases is a must not only for profitable Livestock production but also essential to make our Livestock & Livestock products globally acceptable. Systematic control of diseases will progressively lead to its containment first and eradication ultimately. Information about the prevalence rate and disease burden of the state's Livestock population is critical in the right against Livestock diseases and this forms the basis for planning and initiating disease prevention and control strategies. Moreover, early forecasting of diseases and surveillance is essential to provide early warning signature of outbreaks while epidemiology helps in systematic study of the distribution and determinants of health problems.

Role of Animal Disease Intelligence Units

- Assisting field staff in disease diagnosis.
- Monitoring of disease outbreaks and helping field staff in containment of outbreak.
- Monitoring of livestock health in the district.
- Seromonitoring in vaccination programmes.
- Surveillance for bird flu.

The increased crossbred population and more susceptibility to diseases compared to native animals. Moreover emerging diseases like blue tongue and PPR in sheep, bird flu in poultry have all created an additional close look on strengthening the disease surveillance and monitoring system in the state.

Hence it has been planned to establish ADIUs in such districts that do not have an ADIU under NADP programme. The above proposed A.D.I.U.'s will function as per the norms of the already established A.D.I.U.'s. Each unit will be provided with the necessary equipment worth Rs.9.00 lakhs and furniture worth Rs.0.50 lakhs. In addition they will be provided with necessary chemicals and glassware's at a cost of Rs.1.00 lakh. Apart from this they will be provided Rs.1.00 lakh for purchase of office equipments like computers and accessories, communication aides such as telephone, fax, etc.

For mobility and to provide diagnosis at the farmer's doorsteps, each unit will be provided with one vehicle with facilities to make on the spot diagnosis. The vehicle will be fitted with a refrigerator, a centrifuge, a microscope and equipments to conduct post mortem examinations. This will help in identification of the pathogens quickly and thus undertake disease control measures without wastage of time.

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

Thus Animal Disease Intelligence Unit will be established at a cost of Rs. 24.50 lakhs in which Rs.22.50 lakhs will be the non-recurring cost and Rs.2.00 lakhs will be the recurring cost.

The staff will be sourced by redeployment within the department.

Anticipated Benefits

- Timely diagnosis and control of diseases in all districts will be ensured.
- Better surveillance and prevention of outbreak of various diseases.
- Aid in developing an efficient system of disease monitoring and surveillance of economically important diseases at the district level, which will help in evolving suitable control measures at the district level.
- This will go a long way in preventing economic loss to farmers and help in their economic upliftment.
- Identification & traceability of bovines @ Rs. 20 /animal. –DA
- Disaster management, Animal shelter, etc.-DAH

(Rs. in Lakhs)

Particulars	Unit cost
Disaster Management	
1. Training for VAS	0.03
2. Mobile phone at veterinary institutions	0.02
3. Mobile phone connectivity charges	0.009
4. Cost of vaccine	7.0
5. Animal shelter	21.0

- **Popularizing Mineral Mixture by Supplying at Subsidized Cost-DAH**

  Popularizing Mineral mixture to improve livestock production to dairy cows @ Rs.600/cow/year, 1 kg / cow / month @ Rs.50/kg,12 kg/year, 1000 cows/year, 4000 cows/years- 4 Blocks (DAH). Total amount Rs.24 Lakhs.

- **Intensive System of Sheep/Goat Rearing-DAH**

  It is proposed to provide, sheep/Goats each unit comprising of 20 ewes/buck and one Ram/ Doe, by formation of Self Help Groups. The cost per unit (20 females and 1 male) will be Rs.42,000/-

- **Control of Parasitic Diseases-DAH**

  Control of parasitic diseases to enhance vaccine response @ Rs.1/- per sheep or goat and Rs.3/- per calf below one year, 4 times /year, Rs. 8.78 Lakhs/year, for 4 years (DAH) for 67,201 calves, 1, 51,078 Sheep and 1, 77,816 Goats

- **Supply of Mineral Mixture to Milch Animals at Subsidized Cost**

  (50 Per cent) @ 18 kg per year @ Rs.500/- per animal - DDD

- **Supply by-pass protein feed to the milch animals of the members of the society 360 kg/animal/year) for 1800 cows @ 50** Per cent **subsidy of Rs.9/- per kg - DDD**

- **Portable milking machines for farmers @ Rs.0.18 lakh per unit - DDD**

(vii) Project Costs

Project Cost and Financing

(Rs. in Lakhs)

Action plan / Implementing agency	Unit Cost	2008-2009		2009-2010		2010-2011		2011-2012		Grand total	
		Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Total Units	Total Cost
DAH											
Mobile Vety.Clinics-1/taluk-DAH	5.83	7	40.81	-	-	-	-	-	-	7	40.81
Animal Intelligence Unit for health cover – DAH	24.50	1	24.50	-	-	-	-	-	-	1	24.50
Identification & traceability of breedable bovines - DAH	0.0002	169000	33.80	-	-	-	-	-	-	169000	33.80
Disaster management, Animal shelter, etc.-DAH	-	-	112.98	-	-	-	-	-	-	-	112.98
Popularizing Min.mix to improve livestock production@1kg/ month/ Animal-1 block/year - DAH	0.006	1000	6.00	1000	6.00	1000	6.00	1000	6.00	4000	24.00
Intensive system of sheep/goat rearing (20+1=1unit)/block - DAH	0.42	14	5.88	-	-	-	-	-	-	14	5.88
Control of parasitic diseases through treatment to enhance vaccine response - DAH	-	-	8.78	-	8.78	-	8.78	-	8.78	-	35.12

(Rs. in Lakhs)

Action plan / Implementing agency	Unit Cost	2008-2009		2009-2010		2010-2011		2011-2012		Grand total	
		Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Total Units	Total Cost
DDD											
Supply of Min. mix. to milch animals at subsidized cost (50 Per cent) @18 kg per year - DDD	0.005	250	1.25	250	1.25	250	1.25	250	1.25	1000	5.00
Supply of by-pass protein feed to milch animals (360 kg / year / animal @ 50 Per cent subsidized cost of Rs.9-/kg - DDD	0.033	250	8.25	250	8.25	250	8.25	250	8.25	1000	33.00
Portable milking machines for farmers / DDD	0.18	4	0.72	2	0.36	2	0.36	2	0.36	10	1.80
										Total	**316.89**

(viii) Implementation Chart of the Project

(Year wise-2008-09; 2009-10; 2010-11; 2011-12)

Works proposed	I Quarter	II Quarter	III Quarter	IV Quarter
Mobile Vety.Clinics-1/taluk- DAH	0	0	4	3
Animal Intelligence Unit for health cover – DAH	Tender invitation	Tender processing	Purchase & establishment	Started functioning
Identification & traceability of Breedable bovines – DAH	40000	40000	40000	49000
Disaster management . Animal shelter, etc.-DAH	-	-	-	-
Popularizing Min. mix to improve livestock production @1kg/month/ Animal-1 block/year –DAH	250-250-250-250	250-250-250-250	250-250-250-250	250-250-250-250
Intensive system of sheep/goat rearing (20+1=1unit)/block - DAH	3	3	4	4
Control of parasitic diseases through treatment to enhance vaccine response – DAH	-	-	-	-
Supply of Min. mix. to milch animals at sub sidized cost (50 Per cent) @18 kg per year – DDD	250-250-250-250	250-250-250-250	250-250-250-250	250-250-250-250
Supply of by-pass protein feed to milch animals (360 kg / year / animal @ 50per cent subsidised cost of Rs.9-/kg – DDD	250-250-250-250	250-250-250-250	250-250-250-250	250-250-250-250
Portable milking machines for farmers / DDD	1-1-0-0	1-1-0-0	1-0-0-0	1-0-0-0

(ix) Reporting

The implementing agencies *viz.* Department of Animal Husbandry, Pudukkottai District Co-operative Milk Producers Union and the TANUVAS, Veterinary University Regional Research Centre, Pudukkottai will submit periodical project report to their controlling officers.

6.3.1.4 Processing Facilities: For TDCMPU (Aavin), Pudukkottai

(i) Abstract

Facilities to handle excess milk during flush season and also making available of value added milk products vix. Khoa are proposed. Bulk milk coolers and Walk in coolers will facilitate more milk production by farmers.

(ii) Budget : Rs. 91.54 Lakhs

(iii) Background / Problem Focus

The quality of milk need to be improved, limited chilling milk units threatens the quality maintenance and hence it needs to be strengthened and expanded to handle excess milk during flushing season, to encourage rural dairy farmers to produce more milk, to market quality milk, preparation of value added milk products suitable proposals are included.

(iv) Project Rationale

To encourage more milk production, to sustain rural family earnings, to handle the milk during flush season. To convert excess milk in to khoa facilities are proposed and thereby encouraging the farmers to produce more milk.

(v) Project Strategy

To strengthen the existing dairy plant of Aavin at Pudukkottai and to expand the development schemes to ensure quality milk for the consumers and to encourage rural dairy farmers to produce more clean milk and to increase their profit. To prepare value added milk products.

(vi) Project Goals

To strengthen the existing dairy plant of Aavin and to expand the development schemes to ensure quality milk for the consumers and to encourage rural dairy farmers to produce more clean milk and to increase their profit. To prepare value added milk products.

(vii) Project Components

- Bulk milk coolers
- Walk-in-coolers
- Manufacturing facilities for Milk khoa

(viii) Project Costs

Project Cost and Financing

(Rs. in Lakhs)

Action plan / Implementing agency	Unit Cost	2008-2009		2009-2010		2010-2011		2011-2012		Grand total	
		Units	Cost	Units	Cost	Units	Cost	Units	Cost	Total Units	Total Cost
Bulk milk coolers - DDD	30.00	1	30.00	1	30.00	-	-	-	-	2	60.00
Walk-in-coolers - DDD	30.00	1	30.00	-	-	-	-	-	-	1	30.00
Manufacturing facilities for Milk khoa - DDD	0.77	1	0.77	1	0.77	-	-	-	-	2	1.54
Total											**91.54**

(ix) Implementation Chart of the Project

(Year wise-2008-09; 2009-10; 2010-11; 2011-12)

Works proposed	I Quarter	II Quarter	III Quarter	IV Quarter
Bulk milk coolers / DDD (2008-2009 & 2009-2010 only)	Tender invitation	Tender processing	Purchase & establishment	Started functioning
Walk-in-coolers / DDD (2008-2009 only)	Tender invitation	Tender processing	Purchase & establishment	Started functioning
Manufacturing facilities for Milk khoa / DDD (2008-2009 only)	Tender invitation	Tender processing	Purchase & establishment	Started functioning

(x) Reporting

The implementing agencies *viz.* Department of Animal Husbandry, Pudukkottai District Co-operative Milk Producers Union and the TANUVAS, Veterinary University Regional Research Centre, Pudukkottai will submit periodical project report to their controlling officers.

6.3.1.5 Extension Facilities for stake holders, to enrich knowledge, infuse skill, empower them to earn Through self employment and to strengthen the infrastructure of implementing agencies.

(i) Abstract

To empower knowledge of stake holders, to impart skill, to transfer technologies for adoption proved extension programmes is highly essential. It is proposed to carryout the required extension facilities to farmers, rural women, entrepreneurs, veterinarians, officers, NGOs, etc mainly by the Tamilnadu Veterinary and Animal Sciences University Centre, Pudukkottai and also by Department of Animal Husbandry and Aavin. Revival of dormant Aavin societies will facilitate more milk production. Milk weighing machines will dispose the milk quickly so that the quality of milk is maintained. Emu research unit will give findings on feasibility of commercial emu farming in Tamilnadu. Technology transfer through touch screen will be more effective in infusing knowledge and skill to farmers. Farmers study tour, orientation training will empower farmers on newer technologies for sustainable, commercially viable livestock farming. Popularizing turkeys and Japanese quails will result in more farmers starting such micro enterprise with low investment and a satisfactory returns. Training farmers on Ethno Veterinary Medicine for primary health care of livestock.

(ii) Budget : Rs. 284.78 Lakhs

(iii) 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 farmers, rural women and officers. Many farmers are keen in rearing Emu birds. A research unit is proposed to assess their performance for commercial viable enterprise in Tamilnadu. EVM for primary health care of livestock.

(iv) Project Rationale

To empower stake holders, officers on recent advances in technology, user friendly technologies like touch screen facility for easy access, popularizing turkeys and Japanese quails among rural farmers will facilitate them to venture into alternate livestock micro enterprises for additional revenue generation.

(v) Project Strategy

For knowledge sharing, capacity building exercise for farmers, women, officers, etc. by Tamilnadu veterinary and Animal Sciences University, Department of Animal Husbandry and Aavin. 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. A similar proposal to popularize Japanese quails is included. Emu research will show light on the feasibility of commercially viable Emu farm in Tamilnadu.

(vi) Project Components

- Infra Structure Development of Veterinary Institutions - DAH

  Fencing, borewell with water troughs, minor repair of Veterinary Institutions for 20 units @ Rs. 5.00 lakhs per unit
- Revival of dormant Aavin milk societies @ Rs.1.00 lakh per unit for 25 units - DDD
- Milk weighing machines @ Rs.17,000 per unit - DDD
- Farmers study tour @ Rs.5000- per farmer 150 farmers totally - DDD
- Orientation training/workshop for milk producers' at society level Rs.20,000 per programme, 4 programmes / year, for 4 years - DDD
- Strengthening of the TANUVAS Centre at Pudukottai

S.No.	Scheme Component	Unit cost (Rs.)
1	**Strengthening of TANUVAS centre with facilities for transfer of technology - Training**	
	1. Van	7.50
	2. LCD projector with laptop computer	1.35
	3. P.A.system	0.25
	4. Digital video camera	0.25
	5. Generator	0.50
	6. Charts & displays	0.15
	Total	**10.00**

- **Establishment of R&D facilities for EMU unit – TANUVAS- Rs.20,00,000/-**

Sl.No.	Particulars	Amount (Rs.)
1	**Fixed Investment**	
	Cost of three pairs of birds @ Rs.30,000/pair	90,000
	Cost of building 148 Sq.ft. Brooder shed @Rs.200 / sq.ft 5550 sq.ft for Grower @ Rs.150/ sq.ft 3000 sq.ft for Breeder @ Rs.150/ sq.ft	 29,600 8,32,500 4,50,000
2	Cost of equipment Incubator (Setter 320 eggs capacity – 1 No. hatcher 15 eggs – 2 Nos.) Feeder : 18 Nos. Waterer : 18 Nos. Platform Weighing balance Brooder guard	 2,50,000 2,700 2,700 1,00,000 17,650
3	Variable cost	
	Feed – Cost for 1 year	1,32,850
	Medicine	10,000
	Diesel for Generator	30,000
	Electricity charges	28,000
	Maintenance cost	24,000
Total cost		**20,00,000**

- Capacity building training farmers and village level campaigns @ Rs.300 per farmer - TANUVAS
- Capacity building training officers and village level campaigns @ Rs.5000 per officer - TANUVAS
- Sensitizing Veterinarian on EVM and veterinarians on EVP @ Rs.3000/- per head - TANUVAS
- Touch screen facilities @ Rs.1.00 lakh inclusive of computer and accessories - TANUVAS
- Field tours of farmers – TANUVAS. MCP, Infertility camps, farmers workshop, conference, etc. @ Rs.25,000/- per unit for 25 to 50 farmers.
- Distribution of turkeys (3+1) and 10 kg feed + health cover @ Rs.10,000/- per unit - TANUVAS
- Popularizing Japanese quail among rural women SHGs along with feed and health cover @ Rs.40,000/- per unit - TANUVAS

(vii) Project Costs

Project Cost and Financing

(Rs. in Lakhs)

Action plan / Implementing agency	Unit Cost	2008-2009		2009-2010		2010-2011		2011-2012		Grand total	
		Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Total Units	Total Cost
Vety.Institutions-Infra.dev. Fencing, borewell with water troughs, minor repair – DAH	5	34	170.00	-	-	-	-	-	-	34	170.00
Revival of dormant MPCS – DDD	1.00	5	5.00	5	5.00	5	5.00	5	5.00	20	20.00
Milk weighing machine for milk producers co-op. societies – DDD	0.17	2	0.34	2	0.34	-	-	-	-	4	0.68
Farmers study tour @ Rs.5000- per farmer – DDD	0.05	40	2.00	40	2.00	40	2.00	30	1.20	150	7.50
Orientation training/ workshop for milk producers at society level / DDD	0.20	4	0.80	4	0.80	4	0.80	4	0.8	16	3.20
Strengthening of TANUVAS centre for training for ToT, extension programmes - TANUVAS	10.00	1	10.00	-	-	-	-	-	-	1	10.00
Establishment of R&D facilities for EMU unit – TANUVAS	20.00	1	20.00	-	-	-	-	-	-	1	20.00
Capacity building training FARMERS (ToT) – TANUVAS	0.003	1000	3.00	1000	3.00	1000	3.00	1000	3.00	4000	12.00

(Rs. in Lakhs)

Action plan / Implementing agency	Unit Cost	2008-2009		2009-2010		2010-2011		2011-2012		Grand total	
		Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Total Units	Total Cost
Capacity building training OFFICERS (ToT) – TANUVAS	0.05	50	2.50	50	2.50	50	2.50	50	2.50	200	10.00
Training on EVM for farmers – TANUVAS	0.003	100	0.30	100	0.30	100	0.30	100	0.30	400	1.20
Touch screen facilities-TANUVAS	1.00	5	5.00	5	5.00	5	5.00	5	5.00	20	20.00
Field tour for farmers / TANUVAS	0.25	2	0.50	2	0.50	2	0.50	2	0.50	8	2.00
Turkeys(3+1), feed and health cover (SHG)-TANUVAS	0.01	125	1.25	125	1.25	125	1.25	125	1.25	500	5.00
Popularizing Japanese quail as pilot programme – TANUVAS	0.40	2	0.80	2	0.80	2	0.80	2	0.8	8	3.20
										Total	**284.78**

Year wise-2008-09; 2009-10; 2010-11; 2011-12

Works proposed	I Quarter	II Quarter	III Quarter	IV Quarter
Vety.Institutions-Infra.dev. Fencing, borewell with water troughs, minor repair – DAH	8	8	9	9
Revival of dormant MPCS - DDD	5	5	5	5
Milk weighing machine for milk producers co-op. societies - DDD	1-1	-0	0-0	0-0
Farmers study tour @ Rs.5000- per farmer – DDD	400-0-0	0-40-0-0	0-0-40	0-0-0-30
Orientation training/workshop for milk producers at society level / DDD	1-1-1-1	1-1-1-1	1-1-1-1	1-1-1-1
Strengthening of TANUVAS centre for training for ToT, extension programmes - TANUVAS	-	-	-	-
Establishment of R&D facilities for EMU unit – TANUVAS	-	-	-	-
Capacity building training FARMERS (ToT) - TANUVAS	250-250-250-250	250-250-250-250	250-250-250-250	250-250-250-250
Capacity building training OFFICERS (ToT) - TANUVAS	0-0-0-0	25-25-25-25	0-0-0-0	25-25-25-25
Training on EVM for farmers – TANUVAS	25-25-25-25-	25-25-25-25	25-25-25-25	25-25-25-25
Touch screen facilities-TANUVAS	2-2-2-2	1-1-1-1	1-1-1-1	1-1-1-1
Field tour for farmers / TANUVAS	0-1-0-1	1-0-1-0	0-1-0-1	1-0-1-0
Turkeys(3+1), feed and health cover (SHG)-TANUVAS	30-30-30-30	30-30-30-30	30-30-30-30	35-35-35-35
Popularizing Japanese quail as pilot programme - TANUVAS	0-1-0-1	1-0-1-0	0-1-0-1	1-0-1-0

(ix) Reporting

The implementing agencies *viz.* Department of Animal Husbandry, Pudukkottai District Co-operative Milk Producers Union and the TANUVAS, Veterinary University Regional Research Centre, Pudukkottai will submit periodical project report to their controlling officers.

Table 6.34 Pudukkottai District – Animal Husbandry Sector

(Rs. in lakhs)

Sl. No	Name of the Progrmme	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
1	**Cattle & Buffalo**											
I	**Feed and Fodder Development**											
1	Perennial Fodder production In DLF in 100 acres- DAH	-	-	151.55	-	-	-	-	-	-	0	151.550
2	Perennial Fodder production @ 10 acre/ block/year (13 blocks) & for 4 years - DAH	0.235	130	30.55	130	30.55	130	30.55	130	30.55	520	122.200
3	Popularizing chaff cutter for efficient nutrient utilization with 50per cent subsidy - DAH	0.125	25	3.125	25	3.125	25	3.125	25	3.125	100	12.500
4	Fodder development activities(20 acres in IDF villages I each for 2 years & in Farmers field) / DDD	0.235	5	1.175	5	1.175	5	1.175	5	1.175	20	4.700
5	Chaff cutters for elite farmers (small type)@Rs.20000-with 100per cent grant /DDD	0.2	2	0.40	-	-	-	-	-	-	2	0.400
6	Fodder Bank at RRC –TANUVAS	7.5	1	7.50	-	-	-	-	-	-	1	7.500
7	Establishment of Feed mill (2 T / hr.) at RRC-TANUVAS	50	1	50.00	-	-	-	-	-	-	1	50.000
II	**Genetic Upgradation**											
1	Genetic upgradation of livestock In DLF, Pudukkottai–DAH	-	-	113.04	-	-	-	-	-	-	-	113.040
2	Distribution of Bucks (125 X 4) / DAH	0.04	125	5.00	125	5.00	125	5.00	125	5.00	500	20.000
3	Distribution of Rams (125 X 4) / DAH	0.04	125	5.00	125	5.00	125	5.00	125	5.00	500	20.000
4	Programmed breeding of indigenous cattle & buffalo to increase conception rate / DDD	0.007	2800	19.60	2800	19.60	2800	19.60	2800	19.60	11200	78.400
5	Buffalo calf development programme-DDD	0.148	50	7.40	50	7.40	50	7.40	50	7.40	200	29.600
6	Mobile input units (One per 50 DCS) / DDD	4.5	1	4.50	-	-	-	-	-	-	1	4.500

Table 6.34. Contd….. **(Rs. in lakhs)**

Sl. No.	Name of the Progrmme	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
II	**Improvement of Livestock Health**											
1	Mobile Vety.Clinics-1/taluk- DAH	5.83	7	40.81	-	-	-	-	-	-	7	40.810
2	Animal Intelligence Unit for health cover – DAH	24.5	1	24.50	-	-	-	-	-	-	1	24.500
3	Identification & traceability of breedable bovines - DAH	0.0002	169000	33.80	-	-	-	-	-	-	169000	33.800
4	Disaster management, Animal shelter, etc.-DAH	-	-	112.98	-	-	-	-	-	-	-	112.980
5	Popularizing Min.mix to improve livestock production@1kg/ month/ Animal-1 block/year - DAH	0.006	1000	6.00	1000	6.00	1000	6.00	1000	6.00	4000	24.000
6	Intensive system of sheep/goat rearing(20+1=1unit)/block - DAH	0.42	14	5.88	-	-	-	-	-	-	14	5.880
7	Control of parasitic diseases through treatment to enhance vaccine response - DAH	-	-	8.78	-	8.78	-	8.78	-	8.78	-	35.120
8	Supply of Mineral mixture to milch animals at subsidized cost (50per cent) @18 kg per year - DDD	0.005	250	1.25	250	1.25	250	1.25	250	1.25	1000	5.000
9	Supply of by-pass protein feed to milch animals (360 kg / year / animal @ 50per cent subsidized cost of Rs.9-/kg - DDD	0.033	250	8.25	250	8.25	250	8.25	250	8.25	1000	33.000
10	Portable milking machines for farmers / DDD	0.18	4	0.72	2	0.36	2	0.36	2	0.36	10	1.800
III	**Processing Facilities**											
1	Bulk milk coolers - DDD	30	1	30.00	1	30.00	-	-	-	-	2	60.000
2	Walk-in-coolers - DDD	30	1	30.00	-	-	-	-	-	-	1	30.000
3	Manufacturing facilities for Milk khoa - DDD	0.77	1	0.77	1	0.77	-	-	-	-	2	1.540

Table 6.34. Contd….. **(Rs. in lakhs)**

Sl. No.	Name of the Progrmme	Unit cost	2008-09		2009-10		2010-11		2011-12		Total	
			Units	Cost	Units	Cost	Units	Cost	Units	Cost	Units	Cost
II	**Improvement of Livestock Health**											
IV	**Extension Facilities**											
1	Veterinary Institutions-Infrastructure development like Fencing, borewell with water troughs, minor repair - DAH	5	34	170	-	-	-	-	-	-	34	170.000
2	Revival of dormant MPCS - DDD	1	5	5.00	5	5.00	5	5.00	5	5.00	20	20.000
3	Milk weighing machine for milk producers co-op. societies - DDD	0.17	2	0.34	2	0.34	-	-	-	-	4	0.680
4	Farmers study tour @ Rs.5000- per farmer - DDD	0.05	40	2.00	40	2.00	40	2.00	30	1.50	150	7.500
5	Orientation training/workshop for milk producers at society level / DDD	0.2	4	0.80	4	0.80	4	0.80	4	0.80	16	3.200
6	Strengthening of TANUVAS centre for training for ToT, extension programmes - TANUVAS	10	1	10.00	-	-	-	-	-	-	1	10.000
7	Establishment of R&D facilities for EMU unit – TANUVAS	20	1	20.00	-	-	-	-	-	-	1	20.000
8	Capacity building training FARMERS (ToT) - TANUVAS	0.003	1000	3.00	1000	3.00	1000	3.00	1000	3.00	4000	12.000
9	Capacity building training OFFICERS (ToT) - TANUVAS	0.05	50	2.50	50	2.50	50	2.50	50	2.50	200	10.000
10	Training on EVM for farmers - TANUVAS	0.003	100	0.30	100	0.30	100	0.30	100	0.30	400	1.200
11	Touch screen facilities-TANUVAS	1	5	5.00	5	5.00	5	5.00	5	5.00	20	20.000
12	Field tour for farmers / TANUVAS	0.25	2	0.50	2	0.50	2	0.50	2	0.50	8	2.000
13	Turkeys (3+1), feed and health cover (SHG)-TANUVAS	0.01	125	1.25	125	1.25	125	1.25	125	1.25	500	5.000
14	Popularizing Japanese quail as pilot programme - TANUVAS	0.4	2	0.80	2	0.80	2	0.80	2	0.80	8	3.200
	Total			**924.08**		**148.76**		**117.65**		**116.85**		**1307.600**

6.3.2.6. Repairs to Existing Rearing Nurseries in Thattam Annaaipatti Govt. Fish Seed Farm

(i) Abstract

Pudukottai district has inland fishermen with interest in fresh water fish cultural activities. The departmental fish farm at Thattamanaipatti has nurses of 1000 m^2 and has a capacity of 3 lakh seeds. As the nursery area of about 8000 m2 are in dilapidated condition they are to be renovated.

(ii) Background / Problem Focus

Existing seed farm has to be prepared for increased seed production to meet the requirement of the farmers.

(iii) Project Components

Seed nursery / renovation.

(iv) Project Costs

(v) Project Cost and Financing

1. Repair of nursery area @ 0.0275 Rs/unit (Total unit 800) : Rs.220 Lakhs

(v) Implementation Chart of the Project

Sl. No.	Particulars	2008-12			
		I Qtr	II Qtr	III Qtr	IV Qtr
1.	Identification of fishermen	√			
2.	Procurement of gear materials supply / distribution	√	√	√	
3.	Efficiency evaluation			√	√

6.3.2.7 Private Fish Seed Farmer Participation by Extending – 50 per cent Subsidy

The fish farmers in Pudukottai district are progressive and adopt modern technologies in fish seed production / fish production. The 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 Per cent of the capital cost with a production capacity of 10 million early fry / one million fingerlings. The total cost of one unit will be Rs. 10 lakh (50per cent subsidy component).

(i) Project Cost and Financing

1.	Cost of pond construction and seed supply per Unit	Rs.5.00 lakhs
	Total number units	5
	Total cost	5 x 5 = 25 lakhs

6..3.2.8 Supply of Fishing Implements (Gear) 50 per cent Subsidy

(i) Abstract

Fishermen will be provided with gill nets for effective fishing.

(ii)Budget : Rs 10.00 lakh

(iii)Background / Problem Focus

To provide gillnets to the fishermen at 50per cent subsidy.

(iv) Project Rationale

To enhance fish production through capture fisheries.

(v) Project Strategy

To provide 200 nos. of gillnets to the inland fishermen.

(vi) Project Goals

To intervene fishing in natural water bodies.

(vii) Project Components

Supply of gill nets at 50 per cent subsidy.

(viii) Project Cost and Financing : Rs. 10.00 lakh

1.	Supply of fishing gear implements per unit	Rs.0.10 lakhs
	Total number units	100
	Total cost 100 x 0.10	10

(ix) Implementation Chart of the Project

Sl. No.	Particulars	2008-09	2009-10	2010-11	2011-12
1.	Identification of fishermen	√	√	√	√
2.	Procurement of gear materials supply / distribution	√	√	√	√
3.	Efficiency evaluation	√	√	√	√

The project will be implemented by the Department of Fisheries.

(x) Reporting

The progress of the project will be reported periodically.

6.3.2.9 To provide subsidy for the provision of Moped with Ice Box.

(i) Abstract

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

(ii) Budget : Rs. 7.50 lakh

(iii) Background / Problem Focus

For transporting and progressing fish hygienically.

(iv) 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.

(v) Project Strategy

Making available mopeds and ice box at affordable price to meet the fishermen needs.

(vi) Project Goals

To promote and sale of fish of high quality with hygiene.

(vii) Project Components

Supply of 30 units of mopeds with ice box at 50per cent subsidy.

(viii) Project Cost and Financing

Rs.4.50 lakh for 30 units.

1.	Unit cost	0.15 Lakhs
2.	Cost of the moped	0.25
3.	Ice box	0.05
4.	Total cost	0.3
5.	Subsidy	0.15 (@ 50 per cent)
6.	No of units	50 units
7.	Total cost 50 x 0.15	7.5 lakhs

(ix) Implementation Chart of the Project

S.No	Particulars	2008-09	2009-10	2010-11	2011-12
1.	Supply of moped with ice box	√	√	√	

(x) Implementation Chart of the Project

TAFCOFED will be implemented this project.

(xi) Reporting

Progress of the project will be reported periodically.

6.3.2.10 Development of Artificial Fish Habitats

(i) Abstract

Fish aggregating device facilitates concentration of various fish species and invertebrate organisms to harbour in a particular locality like coral reef base, heaped boulders, sea grass bed, and will serve as a feeding and spawning ground. In the event of removal of such bases from the natural ecosystem, the fish species scatter themselves for want of protection and threat from predatory fishes and aquatic animals. Dredging of sea bottom constantly would drive away the fish population from one territory to another territory. Blasting of the sea and dynamite fishing has caused enormous threat to the fish aggregating locality in the past and they have to be rehabilitated by artificial means to sustain the fishery and conserving from destruction. Fish aggregation devices would help fish to find their feeding and breeding grounds for prolifying themselves easily. So FADs are novel ways to make the distant fish species to be attracted towards an artificial device. This would also help the fisher folk to involve themselves collectively to rejuvenate the coastal fauna and flora to meet out their fishing needs and livelihood.

(ii) Budget : Rs. 150.00 lakh

(iii) Background / Problem Focus

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

(iv) Project Rationale

- To enrich the inshore waters with diversified fish species
- To help the fishermen for good catch of fish
- To provide a protected ground for various fauna and flora
- To retain the semi natural ecosystem

(v) Project Strategy

To implement the programme of community FADs in all the coastal districts to support marine fishery and stock retention.

(vi) Project Goals

1. To identify suitable ground along the coast to install FADs like concrete structures, boulders, and other fibre reinforced structures without polluting the coastal ecosystem.

2. To give awareness to the fishermen and coastal fisher folk about the value of FADs to implement the programme with fishermen participation for community development.

(vii) Project Components

Installation of FADs of various shapes and with different components like stone pitchments, barrels, tyres, hollow material and dead corals.

(viii) Project Cost and Financing

Sl.No.	Components	Rs in lakhs
1.	An FAD of 10 metre diameter and 5 mt.height made up of concrete or FRP materials	6.00
2.	Anchorage	5.00
3.	Floor mast	1.50
4.	Training fisher folk	1.00
5.	Management cost (coolie wages, fuel, miscellaneous cost)	1.50
	Total	**15.00**
	Grand Total (15 X 10 units)	**150.00**

(ix) Project Implementation Chart

Sl.No.	Particulars	I Qtr	II Qtr	III Qtr	IV Qtr
1.	Identification of suitable coastal site for installation	√			
2.	Design and fabrication of FADs		√		
3.	Installation			√	
4.	Training			√	√
5.	Sampling and fish catch		√	√	√

(x) Reporting

The efficiency of FADs kept installed in the coast will be periodically monitored and aggregation of fish species will be observed and reported the same to the authorities through fisher folk with community involvement.

6.3.2.11 Sea Farming (50 per cent subsidy) Seaweed Culture

(i) Abstract

Seaweed is the raw material for the production of agar, algin and carangenan which are in turn used as raw materials for pharmaceuticals and confectionaries. In the case of seaweed culture, the unit cost will be Rs. 32,000 for 45 rafts per unit. Budget: Rs.6.4 lakhs. Subsidy will be extended to the tune of 50 per cent i.e., Rs. 16,000.

(ii) Budget : Rs.6.4 lakhs

Expected output : 410 tonnes (Dry weight)

(iii) Background/Problem Focus

Sea weed is a raw material for many food and confectionary items of commercial value and easily grows in the shore waters in rafts. Coastal fisher folk do not find difficulty in knowing the techniques. Already womenfolk are culturing sea weed in a small scale as part time work and is remunerative. The source is to be further exploited for sea weed production and resource addition.

(iv) Project Rationale

Encouraging the coastal folk for sea weed cultivation for livelihood.

(v) Project Strategy

Subsidy and motivation of coastal folk to involve in this lucrative mariculture of sea weeds for employment generation

Project Goals

- To make use of shore waters for native seaweed culture
- To help in the rejuvenation of the endangered sea weed from
- Destruction
- Mass production of seaweeds for commercial utilization

(vi) Project Cost and Financing

Subsidy @ 50 per cent cost

1. Cost of 1 raft (1X1m)	Rs. 150
2. Cost of 1 unit of rafts (45 nos)	Rs. 6750
3. Cost of poles and installation	Rs. 5000
4. Cost of seeds and planting (including nutrients)	Rs. 2500
5. Cost of management per crop	Rs. 1750
Total subsidy per unit of 45 rafts	**Rs. 16,000**

(watch and ward, harvesting expenses)

Unit cost	:	Rs. 32000 (45 rafts)
Subsidy - 50 per cent	:	Rs. 16000/ unit of 45 rafts
Total no. of units	:	40

Total cost	:	Rs. 6.4 lakhs
Duration	:	4 Years
Bench mark	:	I year – 10 units; II year – 10 uni1ts; III year – 10 units; IV year – 10 units

(vii) Implementation Chart of the Project

Sl.No.	Activities	I Qtrs	II Qtrs	III Qtrs	IV Qtrs
1.	Selection of farmers/fisherfolk	√	√	√	
2.	Raft culture technique / empowerment	√	√	√	√
3.	Production	√	√	√	√

(viii) Reporting

To the State Fisheries Department for monitoring and evaluation Expected outcome of the project: Production of sea weeds at a rate of 15 kgs. per raft (1met.sq) totaling 675 kgs of wet sea weed per 30 days.

6.3.2.12 Providing Equipment for Proper Fishing Global Positioning System (50 per cent subsidy)

(i) Abstract

At present the satellite data of productive fishing zone is marked through rich primary food availability in the specific area and depth/zone of the seas. The data received from the satellite (INCOIS) picture showing the potential fishing zone of the coast are transferred to the Fisheries Depart/Fisheries Institution either by FAX or telemessage. When the communication is transferred to the fishermen of the village it takes nearly 5 or 6 days, at which time the marked zone will not be valid as the shoals will move or drive away far from the original zone to other productive zone .

(ii) Budget : Rs.15.0 lakhs

(iii) Background /Problem Focus

In view of the problem highlighted, GPS is a right choice for independently knowing the potential fishing zone by the fishermen himself or the Mechanized fishing vessel owner for cruising towards the productive fishing zone in the seas instantly with out any delay.

- The fishermen venturing into the seas have to be informed of the productive fishing zone
- Equipping the fishermen with FPS saves time, energy, fuel cost and instead it provides self sufficiency in knowing the fish rich water body
- Bulk catch is guaranteed so much

(iv) Project Rationale/Project Strategy

- Marking the productive fishing zones in the seas with minimized effort
- Efficient fish catch per effort of fish
- Fishermen make advantage of maximum yield
- National income through fish goes up
- Fishermen are equipped with modern tools for efficient fishing practice

(v) Project Components

Selection of fishermen/boat owners, GPS, Training

(vi) Project Cost and Financing

Subsidy assistance for GPS @ 50 per cent

1.	One unit of GPS	Rs.15.00 lakhs
2.	Training in operation	
3.	No. of units - 200 nos	
4.	Total: Rs.7500 X 200	

Every Year 50 units ; Project duration is four years

(vii) Implementation Chart

Sl.No.	Activities	2008-09	09-10	10-11	11-12
1.	Selection of fishermen/boat owners Purchase of GPS Training	√	√	√	√

(viii) Reporting

The project will be implemented by Fisheries Department and evaluated by the authorities of State Fisheries Department.

6.3.2.13 To Sustain / Retain the Existing Infrastructure Facility for Aquaculture (50 per cent subsidy)

(i) Project Cost and Financing

1	Renovation of repair of existing ponds	Rs.0.25 Lakhs
2.	Purchase of seed	Rs.0.05 Lakhs
3.	Subsidy for purchase of nets and gear	Rs.0.10 Lakhs
4.	Subsidy for purchase of feed	Rs.0.10 Lakhs
5.	Management expenses	Rs.0.10 Lakhs
	Total	**Rs.6.00 Lakhs**

(ii) Implementation Chart

Sl. No.	Activities	2008-09	09-10	10-11	11-12
1.	Selection of farmer and supply inputs	√	√	√	√

6.3.2.14 Capacity Building Farmers / Fishermen Training

(i) Abstract

To conduct training programmes on freshwater fish culture technologies for adoption. The training programmes will also include various demonstrations on fish culture activities.

(ii) Budget : Rs. 20.00 lakhs

(iii) 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 per cent culturable area has been brought under culture practices.

(iv) Project Rationale

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

(v) Project Strategy

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

(vi) Project Goals

- To conduct 200 training programmes on freshwater fish culture
- To conduct follow up studies.

(vii) Project Components

Composite fish culture, Ornamental fish culture, Integrated fish farming, Cat fish culture, Economics and Marketing.

(viii) Project Cost and Financing

S.No.	Particulars	App. Budget
1.	Stipend@ Rs. 100/ participant for 25 participants / 3 days	Rs. 7500
2.	Extension materials	Rs. 2000
3.	Miscellaneous	Rs. 500
Total		**Rs. 10000**

(ix) Implementation of Client of the Project

Sl. No.	Particulars	2008-09			
		I Qtr	II Qtr	III Qtr	IV Qtr
1.	Identification of villages	√	√	√	√
2.	Selection of participants	√	√	√	√
3.	Conducting training programmes	√	√	√	√
4.	Evaluation of training programmes	√	√	√	√

(ix) Reporting

The progress of the project will be reported to the concerned authorities quarterly.

6.3.2.15 Strengthening of Ornamental Fish Unit at Regional Research Centre

(i) Abstract

The extension unit/centre is to impart training programmes in different trades of fisheries. This unit/centre will also conduct regular follow up studies to know the problems of farmers in the adoption of technologies.

(ii) Budget: Rs. 20 lakhs

(iii) Back ground / Problem Focus

Tamilnadu has 1076 km of coastline which is about 13per cent of country's coastline. It spreads over 0.19 million sq. km., i.e., 9.4per cent of Indian EEZ and the state has a continental shelf of about 41,412 sq. km. Tamilnadu is a leading State both in

culture and capture fisheries. It has emerged as a major exporter of marine products. The marine fisheries potential of the State is estimated at 0.719 million tonnes (0.369 million tonnes from less than 50 m depth and 0.35 million tonnes beyond 50 m depth) as against the all India potential of 3.934 million tonnes.

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. Regular follow-up studies will also be carried out to know the problems in the adoption of technologies by this Fisheries Extension Centre.

(iv) Project Rationale

The proposed Extension centre will take up developmental activities in the Tamilnadu which will play a major role in the upliftment of the standard of fisherfolk and ruralfolk. The unemployment problem of the people in Tamilnadu will be solved to some extend by imparting them with proper training programmes. The people who received the training will be encouraged to take up self-employment ventures in fisheries related activities. The proposed Fisheries Extension Centre will extend all types of assistance needed by the participants to establish their own self-employment units.

(v) Project Strategy

To impart training for conducting follow up studies.

(vi) Project Goals

1. To conduct training programmes on fisheries
2. To organise demonstration on fisheries
3. To conduct extension activities

(vii) Project Components

To organize and conduct the following

a. Training
b. Demonstration
c. On the spot guidance
d. Consultancy
e. Follow up studies
f. Exhibition

(viii) Project Cost and Financing : Rs. 18.00 lakhs

S.No.	Particulars	Rs. in Lakhs
1	Construction of hatchery shed 200 m2 x 1200	5.0
2	Construction of cement tanks 60000 lts	3.5
3	Air blower	0.20
4	generator	1.00
5	filter	1.00
6	breeders	0.5
7	Bore well, pump, pipe lines	2.00
8	Lab instruments(glass wares and chemical)	1.00
9	Feed, fertilizer, manure	0.5
10	Miscellaneous	0.80
	Total	**16.00**

(ix) Implementation of the Project

S.No.	Particulars	2008-09	2009-10	2010-11	2011-12
1.	Construction of hatchery shed and construction of tanks	√			
2.	Installation of accessories	√			
3.	Breeding and production of fishes	√			

(x) Reporting

The progress reports / annual report of the project will be reported to the concerned authorities.

Table 6.35 Pudukkottai District – Fisheries Sector

(Rs.in lakh)

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	**Inland Fish Production**												
a	Repairs to existing rearing nurseries in Thattamannaipatti Govt. Fish seed farm	Fisheries Department	0.0275	8000	2000	55	2000	55	2000	55	2000	55	220.00
b.	Private fish seed farmer participation by extending - 50per cent subsidy	Fisheries Department	5.00	5.00	1	5.00	2	10.00	1	5.00	1	5.00	25.00
c	Supply of fishing implements (gear) 50per cent subsidy	Fisheries Department	0.10	100	25	2.50	25	2.50	25	2.50	25	2.50	10.00
d	Supply of moped with ice box at subsidized price	TAFCOFED	0.15	50.00	10	1.50	20	3.00	10	1.50	10	1.50	7.50
2	Deployment of artificial fish habitats	TAFCOFED	15.00	10.00	3	45.00	3	45.00	4	60.00			150.00
3	Sea farming (50per cent subsidy) seaweed culture	Fisheries Department	0.16	40.00	10	1.60	10	1.60	10	1.60	10	1.60	6.40
4	Providing equipments for proper fishing Global positioning system (50per cent subsidy)	Fisheries Department	0.08	200	50	3.75	50	3.75	50	3.75	50	3.75	15.00
5	To sustain / retain the existing infrastructure facility for aquaculture (50per cent subsidy)	Fisheries Department	0.60	50.00	15	9.00	15	9.00	10	6.00	10	6.00	30.00
	Fisheries - Total					**123.35**		**129.85**		**135.35**		**75.35**	**463.90**
6	Capacity building - Training to Farmers	TANUVAS	0.10	200	50	5.00	50	5.00	50	5.00	50	5.00	20.00
7	Strengthening of Ornamental fish unit at regional research centre	TANUVAS	16.00	1.00	1	16.00							16.00
	TANUVAS -Total					**21.00**		**5.00**		**5.00**		**5.00**	**36.00**
	Grand - Total					**144.35**		**134.85**		**140.35**		**80.35**	**499.90**

6.4. Agricultural Marketing and Agribusiness

1. Current Status of Agribusiness

Agriculture, as a primary sector provides livelihood to 56 per cent of the population and contributes around 13 per cent of the State GDP. In value terms between 65 and 75 per 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 75 per cent of industry output. The Government is taking efforts to achieve targeted growth rate of 4 per 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 are 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 manifold, value addition, processing and utilization of marketing opportunities. To improve the marketing opportunities for agricultural produce, the Uzhavar Shandies, post harvest management, cold storage facilities for perishables, food processing, establishment of export zones, terminal markets have been taken up. To reduce the loss of the food products which are upto 30 per 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 1 per cent to 10 per cent, out of the total production, increasing value addition from 7 per cent to 30 per 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 four per cent which was seen as achievable if growth of six to eight per cent could be achieved in horticulture. These growth rates have not achieved 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 to 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 to be 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 activities and they are unable 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.

Most of service providers 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 proved 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 on the existing 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
2. Facilitation of Contract Farming between farmers and bulk buyers in the State
3. Dissemination of Market intelligence
4. Arrangement of Buyers - Sellers Meet
5. Organizing the exposure visits to important markets with in 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
8. Capacity building of farmer's skill
9. Price surveillance
10. Regulated Market Uzhavar Shandies Publicity
11. Market Infrastructure

10. Project Components Description

6.4.1 Establishment/Organization of Commodity Groups for Marketing in the State

i) Project Rationale

According to Government sources, the inefficient marketing system leads to an avoidable waste of around Rs 50,127 crore. A major part of this can be saved by introducing scale and technology in agricultural marketing. Milk and eggs marketing are two success areas of role of scale and technology in marketing. The extent to which the farmer-producers will benefit (out of saving of avoidable waste) depends on the group-marketing practices adopted by the farmers. In this sense, Farmers' Groups/ Commodity Groups need to be promoted for undertaking marketing activities on behalf of the individual members of the group.

Based on the international experience, in view of expanding retail trade, organizing the farmers and equipping the commodity groups can facilitate the aggregation of produce and also enhance the bargaining power of the farmers. The experience in Malaysia, Thailand and Philippines indicated that the retail chains will depend on some intermediary agency for sourcing the produce. If this role can be taken by the farmers' commodity groups, the commodities can move directly to the market without any intermediary. Further, adoption of technology both in production and post-harvest management which is expected to flow from the organized retailers and other research institutions can be efficient through the farmers' commodity groups. There is no single model for organizing the farmers for the whole country. Depending on the strength of the existing farmers' institutions, various models could be adopted. The model of farmers' marketing commodity groups cannot be the same throughout the country. It can be cooperatives, SHGs or any other form. Therefore it is proposed to organize the commodity groups for marketing of agricultural commodities in Tamil Nadu over the period of four years.

ii) Project Strategy

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

iii) Project Goals

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

iv) Project Components

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

v) Project Cost and Financing

Arranging / organising Commodity Groups involves several rounds of meeting with large number of farmers to begin with and finally arriving at about required number of farmers for group cultivation of marketing. To organize these an amount of Rs.20000/- is provided per group. The details are provided in Table 6.36 A.

In this project it is proposed to organize 180 commodity groups in pulses, vegetables, groundnut, cashew, banana, Fruits, Flowers, Maize and biomass tree crops commodities for marketing of agricultural commodities in Pudukkottai district over the period of four years. This will require resources of Rs. 39.10 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 to be undertaken by the Deputy Director (Agricultural Marketing and Agri Business).

6.4.2. Facilitation of Contract Farming between Farmers and Bulk Buyers in the State

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 in 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 Pudukkottai district for marketing of agricultural commodities in Tamil Nadu over the period of four years. This will require resources of Rs 6.90 lakhs for the period of four years. The details are presented in Table 6.36 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).

6.4.3. 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 Thiruvannamalai district over the period of four years. This will require resources of Rs.12.99 Lakhs for the period of four years. The details are presented in Table 6.36 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).

6.4.4. 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 goods and services produced by the farmers in the vicinity. In contrast, quite often, they buy goods and services in lean period when prices are generally higher. Therefore, the nature, degree and the complexity of the problems 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 seven buyers sellers meet in Pudukkottai district over the period of four years. This will require resources of Rs.9.20 Lakhs for the period of four years. The details are presented in Table 6.36 A.

6.4.5. 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 four per 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 4 per 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 to other areas, where new technologies are implementing successfully i.e., exposure visits is an important thing to enlighten the farmers for implementing those technologies in their areas also. It is easy to know the new technology through demonstration. Farmers will be selected to visit different places within the State where the technologies are well adopted. Therefore it is proposed to organize the exposure visit to important markets with in the state and out side the state by commodity groups / farmers and extension functionaries in the state for marketing of agricultural commodities in Tamil Nadu over the period of four years.

ii) Project Strategy

Organizing the exposure visits to important markets within the State and outside the State by commodity groups / farmers and extension functionaries.

iii) Project Goals

Organizing the exposure visit to important markets within the State and outside 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 within the State by commodity groups / farmers

2. Organizing the exposure visit to important markets outside the State by commodity groups / farmers

3. Organizing the exposure visit to important markets within the State and outside the State by extension functionaries

v) Project Cost and Financing

Visit of important markets, where new opportunity for marketing of the commodity and consumer preference i.e., exposure visits SAFAL market Bangalore is an important thing to enlighten the farmers for marketing their produce as well as consumer preference. It is easy to know the marketing of the commodity through observation and participation in the well developed markets. Farmers will be selected to visit different market places within the State where the new opportunities for marketing of commodities exist. This will require resources of Rs.40.438 Lakhs for the period of four years. The details are presented in Table 6.36 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).

6.4.6. 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 an 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 Pudukkottai district over the period of four years. This will require resources of Rs.5,00,000 Lakhs for the period of four years. The details are presented in Table 6.36 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).

6.4.7. Capacity Building of Farmers' Skill

i) Project Rationale

Apart from pursuing policies and creating formal organizations to intervene in agricultural marketing, governments have adopted several programmes of providing market support services. It appears that the types of programmes initiated cover a very wide spectrum of possible solutions to help small and marginal farmers. However, the benefits have not adequately reached the intended target groups. The main reason is that agricultural marketing and business related aspects of training, education and research have remained neglected in our country. The role of the market as knowledge and information exchange amongst the converging farmers needs to be appreciated and harnessed. Farmers get benefit from deregulation of markets, minimum guaranteed price scheme, contract farming, and crop/income insurance, only to the extent they organize in marketing groups, self-help groups, cooperatives or companies and learn skills suited to the new marketing environment. Understanding quality standards (including FAQ), learning the terms of contract and insurance, and choosing and preparing the produce for the market are going to be essential skills for farmers. There is a need for greater synergy between extension services and market. State Marketing Departments and Boards, APMCs, Krishi Vigyan Kendras (KVKs), Marketing Cooperatives, NGOs and PRIs should pay increasing attention to train the farmers in marketing related skills. All stakeholders in the Supply Chain (i.e. from farmers to consumers) should be exposed to the following characteristics and complexities of the marketing system to make it more

efficient. Hence in this project the following training programmes are proposed with budget requirement of Rs. 13,80,000 Lakhs.

- Training on Warehousing and storage
- Training on Grading
- Training on Market intelligence
- Training on Post Harvest Management of selected commodities
- Massive awareness programme is to be undertaken to demystify the commodity futures markets and enable the farmers to enter into futures contract so as to insure their price risk.
- Training to farmers on selected commodities for Export Promotion.

ii) Project Strategy

Training will be organized for farmers / commodity groups on Warehousing and storage, Grading, Market intelligence, Post Harvest Management of selected commodities and awareness programme is to be undertaken to demystify the commodity futures markets and enable the farmers to enter into futures contract so as to insure their price risk in the state with financial assistance from NADP.

iii) Project Components

Organising training to farmers / commodity groups on Warehousing and storage, Grading, Market intelligence, Post Harvest Management of selected commodities and awareness programme is to be undertaken to demystify the commodity futures markets and enable the farmers to enter into futures contract so as to insure their price risk.

iv) Project Cost and Financing

In this project it is proposed to organize about fourty trainings under Capacity Building of Farmers Skill titles for marketing of agricultural commodities in Pudukkottai district over the period of four years. This will require resources of Rs.23.00 Lakhs for the period of four years. The Details are presented in Table 6.36 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).

6.4.8. Establishment of Price Surveillance Mechanism through NADP Funding

i) Rationale

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

ii) Project Components

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

iii) Project Cost and Financing

In this project it is proposed to collect data at a minimum interval of one month from major assembly markets on a continuous basis in Pudukkottai district over the period of four years. This will require resources of Rs 6.60 lakhs for the period of four years. The details are presented in Table 6.36 A.

iv) Reporting

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

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

6.4.9. Strengthening of Regulated Market and Uzhavar Shandies Publicity

i) 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. The details are presented in Table 6.36 A.

iv) Reporting

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

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

11. Project Cost

The total cost for development of agricultural marketing so as to increase the profitability of farmers would be Rs. 852.88 Lakhs for his district for the eleventh plan period.

12. Implementation

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

13. Project Performance Monitoring System

Outcomes of the project will be measured against initial baseline data which will provide a benchmark for future interventions. The details of each monitoring and evaluation activity will be refined and finalized during the first six months of the project, as a joint effort of the management of the project, the stakeholders and technical assistance by the Performance Monitoring Evaluation unit.

14. Sustainability

Project sustainability refers to the continuation of benefits generated by the project even after project completion. Through the project activities, stakeholders will improve their capacity in identifying market opportunities and taking sound business decisions regarding investment, production and marketing. The improved capacity will result in the emergence of profitable enterprises able to adapt better 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 6.36 A. Original Project Proposals for Agricultural Marketing and Agri-Business

(Rs. in Lakhs)

S.No	Components	2009			2010			2011			2012			Total
		Unit cost	Physical	Financial	Unit cost	Physical	Financial	Unit cost	Physical	Financial	Unit cost	Physical	Financial	
1	**Commodity Group Formation**													
	Pulses	0.2	15	3	0.22	10	2.2	0.24	10	2.4	0.26	0	0	7.6
	Vegetables	0.2	10	2	0.22	10	2.2	0.24	5	1.2	0.26	0	0	5.4
	Groundnut	0.2	15	3	0.22	15	3.3	0.24	10	2.4	0.26	0	0	8.7
	Cashew	0.2	5	1	0.22	5	1.1	0.24	0	0	0.26	0	0	2.1
	Banana	0.2	5	1	0.22	0	0	0.24	5	1.2	0.26	0	0	2.2
	Fruits	0.2	5	1	0.22	5	1.1	0.24	0	0	0.26	0	0	2.1
	Flowers	0.2	0	0	0.22	5	1.1	0.24	5	1.2	0.26	0	0	2.3
	Biomass tree crops	0.2	5	1	0.22	5	1.1	0.24	0	0	0.26	0	0	2.1
	Maize	0.2	10	2	0.22	10	2.2	0.24	10	2.4	0.26	0	0	6.6
2	**Market Intelligence Dissemination**													
	Block Information Centre	0.1	7	0.7	0.11	7	0.77	0.12	0	0	0.13	0	0	1.47
	Village meetings	0.1	20	2	0.11	20	2.2	0.12	20	2.4	0.13	20	2.6	9.2
	Forecast circular	0.1	1	0.1	0.11	1	0.11	0.12	1	0.12	0.13	1	0.13	0.46
	MI Dis Others	0.1	0	0	0.11	0	0	0	0	0	0	0	0	0
	Purchase of marketing materials	0.1	1	0.1	0.11	1	0.11	0.12	1	0.12	0.13	1	0.13	0.46

Table 6.36 A. Contd….. **(Rs. in Lakhs)**

S.No	Components	2009			2010			2011			2012			Total
		Unit cost	Physical	Financial	Unit cost	Physical	Financial	Unit cost	Physical	Financial	Unit cost	Physical	Financial	
	Export promotion Printing of Leaflets	0.00002	10000	0.2	0.00003	10000	0.3	0.00004	10000	0.4	0.00005	10000	0.5	1.4
3	**Facilitation of Contract Farming**													
	Farmers meeting	0.15	10	1.5	0.165	10	1.65	0.18	10	1.8	0.195	10	1.95	6.9
4	**Exposure Visit to Markets**													
	Within state	0.2	5	1	0.22	5	1.1	0.24	3	0.72	0.26	2	0.52	3.34
	Outside state	0.75	10	7.5	0.825	10	8.25	0.9	5	4.5	0.975	3	2.925	23.175
	Visit to national market	1.5	2	3	1.65	2	3.3	1.815	2	3.63	1.9965	2	3.993	13.923
5	Arrangement of buyer seller meetings	0.2	10	2	0.22	10	2.2	0.24	10	2.4	0.26	10	2.6	9.2
6	Streng. Of market extension centre	2.5	2	5	2.75		0	3		0	3.25		0	5
7	Streng. Of village shandies	0.1	20	2	0	20	0	0.0001	10000	1	0		0	3
8	Market price surveillance	0.1	12	1.2	0.11	15	1.65	0.12	15	1.8	0.13	15	1.95	6.6
9	Publicity - regulated market	5	1	5	5.5	1	5.5	6	1	6	6.5	1	6.5	23

Table 6.36 A. Contd….. **(Rs. in Lakhs)**

S.No	Components	2009			2010			2011			2012			Total
		Unit cost	Physical	Financial	Unit cost	Physical	Financial	Unit cost	Physical	Financial	Unit cost	Physical	Financial	
10	**Trainings on**													
	Warehousing and Storage	0.1	5	0.5	0.11	5	0.55	0.12	5	0.6	0.13	5	0.65	2.3
	Grading	0.1	5	0.5	0.11	5	0.55	0.12	5	0.6	0.13	5	0.65	2.3
	Market Intelligence	0.1	10	1	0.11	10	1.1	0.12	10	1.2	0.13	10	1.3	4.6
	Post Harvest	0.1	10	1	0.11	10	1.1	0.12	10	1.2	0.13	10	1.3	4.6
	Commodity Markets	0.1	0	0	0.11		0	0.12		0	0.13		0	0
	export -Farmers Training	0.1	5	0.5	0.11	5	0.55	0.12	5	0.6	0.13	5	0.65	2.3
	Value addition - Training	0.1	10	1	0.11	10	1.1	0.12	10	1.2	0.13	10	1.3	4.6
	Demonstration	0.1	5	0.5	0.11	5	0.55	0.12	5	0.6	0.13	5	0.65	2.3
11	**Market Infrastructure Activities**													
	Min PH loss Storage bins	0.1	40	4	0.11	20	2.2	0.12	20	2.4	0.13	20	2.6	11.2
	Min PH Loss Trans Incen	0.1	25	2.5	0.11	25	2.75	0.12	25	3	0.13	25	3.25	11.5
	Mini PH Loss Plastic Crates	0.005	100	0.5	0.0055	100	0.55	0.006	100	0.6	0.0065	100	0.65	2.3
	Total		**57.3**			**52.44**			**47.69**			**36.798**	**194.228**	

Table 6.36 B. Additional Project Proposals for Agricultural Marketing and Agri-Business (DDA(AB) and Market Committee)

Rs.in lakhs

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
I.	**Infrastructure**								
1	Construction of rural godowns in the premises of the regulated markets	0	0.00	1	28.00	1	30.00	2	58.00
2	Storage godowns for storing produce under lock and key for few days	0	0.00	1	7.00	1	7.50	2	14.50
3	Construction of new drying yards/renovation of dilapidated ones	0	0.00	1	2.75	1	3.00	2	5.75
4	Construction of new auction halls/modernizing the existing ones	0	0.00	0	28.00	1	30.00	1	58.00
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	1	18.00	1	20.00	2	38.00
7	Installation of processing units/purchase of new instruments in the premises of the regulated markets								
	(i) Mechanical drier	0	0.00	0	0.00	0	0.00	0	0.00
	(ii) Mechanical winnower	0	0.00	0	0.00	0	0.00	0	0.00
	(iii) Groundnut decorticator	0	0.00	0	0.00	0	0.00	0	0.00
	(iv) Sieving machine	0	0.00	0	0.00	0	0.00	0	0.00
	(v) Cotton Ginning Unit / Pressing Unit	0	0.00	0	0.00	0	0.00	0	0.00
	(vi) Coconut Kernel drying and oil processing units	0	0.00	0	0.00	0	0.00	0	0.00
	(vii) Packaging Units	0	0.00	0	0.00	0	0.00	0	0.00
	(viii) Mini Dhall Mill for ABC	1	7.00	0	0.00	0	0.00	1	7.00
	(ix) Multicrop thresher for ABC	1	3.00	1	3.00	1	3.00	3	9.00

Table 6.36 B. Contd.,

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
8	Strengthening the State Ghee and Oil Grading Laboratories	0	0.00	0	0.00	0	0.00	0	0.00
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								
	i) Construction of Four Wheeler Stand for Office Jeep in front of Uzhavar shandhai gate	1	5.00	0	0.00	0	0.00	1	5.00
	ii) In front of Uzhavar Shandhai construction of cycle stand to the length of 100 feet	1	1.50	0	0.00	0	0.00	1	1.50
	iii) Construction of permanent direct milk sales centre for commodity group	1	1.00	0	0.00	0	0.00	1	1.00
	iv) Repair and maintenance Uzhavar Shandhai inner road	0	0.00	0	5.00	0	0.00	0	5.00
	v) Construction 20 more new shops	0	0.00	20	5.40	0	0.00	20	5.40
	vi) Provision of public address system I 5 Uzhavar shandhai	5	2.50	0	0.00	0	0.00	5	2.50
11	Construction of cold storage facilities in Uzhavar Shandies and in rural godowns								
	i) Construction of cold storage facilities in Uzhavar shandhai premises	1	22.00	0	0.00	0	0.00	1	22.00
	ii) Construction RCC godown 1000 sq.ft. in the Uzhavar Shandhai premises for storage of vegetables	1	10.00	0	0.00	0	0.00	1	10.00

Table 6.36 B. Contd.,

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
12	Provision of computer with internet facilities to Deputy Director Office to submit the daily reports head office, Chennai	1	0.50	0	0.00	0	0.00	1	0.50
13	Lawying and relawying of village link roads	0	0.00	0	0.00	0	0.00	0	0.00
14	Provision of Oil moisture meters	0	0.00	0	0.00	0	0.00	0	0.00
15	Provision of Oil testing machines	0	0.00	0	0.00	0	0.00	0	0.00
16	Provision of Electronic weighing machines to the Uzhavar Shandhai of Alangudi, Aranthangi, Pudukkottai	170	8.50	0	0.00	0	0.00	170	8.50
17	Others if any (Specify)							0	0.00
II.	**Publicity and Propaganda**							0	0.00
1	i) Market committee-wise strengthening of the Publicity and Propaganda units	0	0.00	1	5.00	0	0.00	1	5.00
	ii) Publicity materials for popularize Uzhavar Shandhai (5 Nos)	0	0.50	0	0.00	0	0.00	0	0.50
	iii) Digital camera for documentation of Uzhavar Shandhai activities	1	0.50	0	0.00	0	0.00	1	0.50
2	Market committee-wise purchase of extension education aids	0	0.00	0	0.00	0	0.00	0	0.00
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	10	1.50	0	1.50	0	1.50	10	4.50
5	Others if any (Specify)	0	0.00	0	0.00	0	0.00	0	0.00

Table 6.36 B. Contd.,

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
III.	**Public relations**								
1	i) Construction of bus-stop shed un front of the regulated markets and in selected villages	0	0.00	1	3.00	1	3.00	2	6.00
	ii) Construction of Bus stop in front of ABC, Thiruvarankulam	1	5.00	1	5.00	0	0.00	2	10.00
2	i) Taking up public relations activities in the villages	0	0.00	0	0.00	0	0.00	0	0.00
	ii) Village meeting regrding Uzhavar Shandhai and post harvest technologies	20	1.00	20	1.00	20	1.00	60	3.00
3	Construction of common village threshing floors	20	40.00	20	40.00	20	40.00	60	120.00
4	i) Construction of village common discussion (Chavadi) hall	0	0.00	0	0.00	0	0.00	0	0.00
	ii) Construction of storage godowns with 1000MT capacity	1	35.00	1	35.00	1	35.00	3	105.00
5	Distribution of tarpaulins to small and marginal farmers	50	2.50	50	2.50	50	2.50	150	7.50
6	a) Installation of electric light facilities including solar lights in the community threshing floors (joint to construct)	20	2.00	20	2.00	20	2.00	60	6.00
	b) Installation of solar lamp in the already constructed threshing floors	15	1.50	15	1.50	15	1.50	45	4.50
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 (vegetable auction centres)	10	30.00	0	0.00	0	0.00	10	30.00

Table 6.36 B. Contd.,

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
8	Provision of Education loan to the children of a few regular customers/Commodity group members	25	2.50	25	2.50	25	2.50	75	7.50
9	a) Celebrating the regulated market fortnight in each district (just like co-operative weeks/fortnight)	0	0.00	0	0.00	0	0.00	0	0.00
	b) Celebrating the ABC fort night in the district	24	2.50	24	2.50	24	2.50	72	7.50
10	Others if any (Specify)	0	0.00	0	0.00	0	0.00	0	0.00
IV.	**Facilities to farmers / Stakeholders**	0	0.00	0	0.00	0	0.00	0	0.00
1	a) Construction of rest/stay rooms for farmers I regulated markets	1	10.00	1	12.00	0	0.00	2	22.00
	b) Construction of rest/stay rooms in ABC	1	10.00	1	10.00	0	0.00	2	20.00
2	a) Construction/modernization of the common toiletry facilities in the regulated markets	0	0.00	1	1.00	1	1.00	2	2.00
	b) Construction of the common toiletry facilities in the ABC	1	1.00	1	1.00	0	0.00	2	2.00
3	a) Provision of parking lot facilities in the needy centers	0	0.00	0	0.00	0	0.00	0	0.00
	b) Provision of parking lot facilities in the ABC	1	1.00	1	1.00	0	0.00	2	2.00
4	Providing drinking water facilities to animals	0	0.00	0	0.00	0	0.00	0	0.00
5	a) 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
	b) provision of transport facilities to the ABC								
	i) Mini Lorry	1	8.00	1	8.00	0	0.00	2	16.00
	ii) Mini Auto	2	4.00	2	4.00	0	0.00	4	8.00

Table 6.36 B. Contd.,

Sl. No.	Possible Development Interventions	2009-10		2010-2011		2011-2012		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
6	Creating farm inputs retailing facilities (Fertilizer and pesticide shops)	1	5.00	1	5.00	0	0.00	2	10.00
7	Others if any (Specify)	0	0.00	0	0.00	0	0.00	0	0.00
V.	**Any other innovative interventions (specify)**								
1	Vegetable are beig marketed through auction centres may be provided with minimum assistant to construct auction shops, Toilet and approach road	0	0.00	5	5.00	0	0.00	5	5.00
2	Best performed commodity group can be awarded by giving Rs.2,50,000/- per group as revolving fund	0	0.00	20	2.50	0	0.00	20	2.50
	Grand Total	**388**	**224.50**	**237**	**248.15**	**183**	**186.00**	**808**	**658.65**

Budget Abstract

(Rs.in lakhs)

Sl.No.	Particulars	2008-09	2009-10	2010-11	2011-12	Total
A.	Original Project	57.300	52.440	47.69	36.80	194.23
B.	Additional Project DDA(AB) and Market committee	-	224.50	248.15	186.00	658.65
	Grand Total	**57.300**	**276.94**	**295.84**	**222.80**	**852.88**

6.5 Agricultural Engineering

(i) Problem Focus

Agriculture is the predominant economic activity being pursued in the district. There are no perrenial water flowing rivers. There are no major industries in the district. Dairy, goat and sheep rearing are the major allied activities pursued in the villages.

Conventional irrigation practices and cultivation practices are followed. Farmers are not afford to procure and apply the modern agricultural machineries and modern irrigation technologies in the farm, since farmers of the district are financially not sound. Small and marginal farmers were found in large numbers (362810) among the total cultivators available (370179) in the district.

In the upland rainfed areas, soil and moisture conservation measures and practices have to be followed to reduce soil erosion, moisture depletion, loss of fertilizer and the micro nutrients in the soil.

Further in the five river catchment areas, plenty of gullies exist accelerating the soil erosion thereby affecting the soil productivity. Without gully control measures, rain water run off erode the existing gullies which in turn gets wider and carries away the field productive soil by means of field land slide and erosion.

The district in general is a drought prone Area. Part of the area is hard rock and part of area is sedimentary area and a small part of area is Coastal alluvial and river alluvial soil.

(ii) Project Rationale

The stake holders are very poor in economic status. Majority of the holdings were with marginal farmers (93per cent) and small farmers (5per cent). The agricultural operations and practices are still carried out following the conventional procedures even though several State and Central assistance schemes are implemented.

The Pudukkottai farmers are aware of modern agricultural techniques to some extent through IEC and CB conducted through various Government departments every now and then when a new scheme is launched. Farmers are not afford to invest in the new agriculture machineries to increase their income by way of increase in production and reduction in a agricultural labour employment.

The rain water run-off through gullies should be checked (or) controlled and stored by way of Percolation Ponds, Irrigation Tanks, Irrigation Check dams, Ooranies, Farm Ponds, Collection pits, Contour bunds, Compartment bunds, Contour trenches, Staggered trenches or any useful means which would directly (or) indirectly help the farmers to save their lands from run-off erosion and leaching away the fertilizers applied and soil fertility built.

Farmer's interest and hard work should be protected and supported by Government functionaries in doing sustained agricultural operations. This NADP will be a redressal for the farming community to some extent.

(iii) Project Strategy

The NADP Project will be executed through the available Agricultural Engineering Department Staff. From 2008-09 to 2011-12 the entire programme will be spread out and completed. On completion of the programmes evaluation will be conducted on the out come of the project.

(iv) Project Goals

- Rainwater in the name of run-off (or) flood should be arrested then and there and stored for direct irrigation and also to recharge the underground.
- Through Borewells / Tubewells, the under ground water for irrigation could be tapped and utilized judiciously through efficient conveyance systems like PVC pipe lines and micro irrigation systems.

- Employing modern agriculture machineries to take up field operations like ploughing, puddling, weeding, harvesting, drying, processing and marketing in right time without loosing the agricultural crop seasons.

- Increase in yield and production will fetch good income to the farmer.
- Crop diversification and intensification will promote growth of

(v) Project Components

The project is divided into two sectors. One sector is called as Stream I Category and another sector as Stream II Category.

(a) Stream I

- New innovative machinery and implements, gender friendly equipments and tools are proposed under 50 per cent subsidy assistance to the individual farmers directly.

- Irrigation facilities through borewells and energizing for horticulture development in 4 to 5 Ha cluster or individual beneficiaries. (50 per cent subsidy assistance)

- Soil and Water Conservation works – Direct and indirect benefits to the beneficiaries. (Individual land 90 per cent, Poromboke land 100 per cent subsidy assistance).

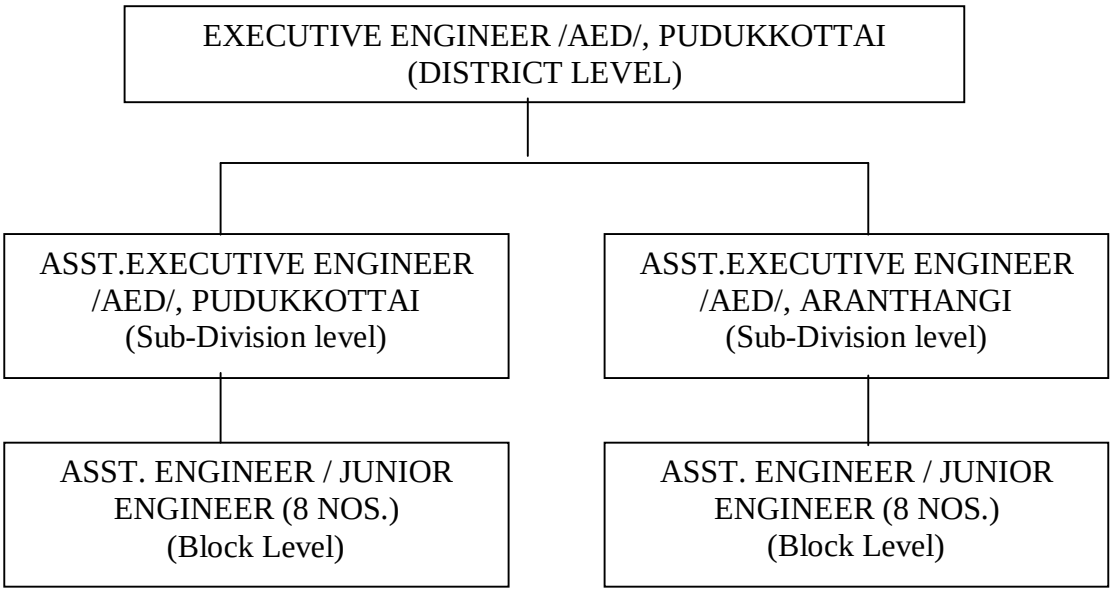
- Improvement to the Water Conveyance efficiency through PVC pipe lines, surface collection pits or tanks and micro irrigation systems. (90 per cent subsidy assistance).

- Infrastructure facilities to the farmers by linking the farm roads for easy access to the farm inputs and outputs. Direct benefit to a cluster of farmers who are in remote villages and further settlement of quarrels among the neighbouring field owners in the transport issues which affects badly. (90 per cent subsidy assistance).

(b) Stream II

- Agricultural Mechanization
- Replacement of old pumpsets
- Reclamation of Alkali Soil
- Rain Water Harvesting and Run off Management

(vi) Implementation Chart of the Project



(Note: Block level includes Panchayat, Revenue Village, Individual Survey Field level and individual farmer level)

(vii) Reporting

Monitoring will be done during the execution of work by the Chief Engineer / Superintending Engineer / Executive Engineer and Works execution on field through the Assistant Executive Engineer / Asst. Engineer or Junior Engineer. Evaluation of works will be after completing the project and as instructed by the higher officials of the Agricultural Engineering Department.

The details of project costs involved for the proposed projects under stream I and stream II category are furnished in Table 6.37 and 6.38.

Table 6.37. Head wise Cost for the Proposed Project under NADP for the Year 2008-2009 to 2011-2012 (Stream I)

(Rs.in lakhs)

Sl. No.	Details	Proposed subsidy pattern	Average unit cost	Max eligible subsidy per unit	2008-2009		2009-2010		2010-2011		2011-2012		Total	
					No.of units in No.	Total cost	No.of units in No.	Total cost	No.of units in No.	Total cost	No.of units in No.	Total cost	No.of units in No.	Total Cost
A.	**PROPOSAL UNDER STREAM-I CATEGORY**													
1	**INTRODUCTION OF INNOVATIVE AGRICULTURAL MACHINERY IMPLEMENTS**													
I	**MACHINERY**													
1	Mini combine Harvestor TNAU model	50 %	2.50	1.25	2	2.50	2	2.5	2	2.5	2	2.5	8	10.00
2	Multi Crop	50 %	2.00	1.00	1	1.00	2	2.00	1	1.00	1	1.00	5	5.00
3	Paddy threaster Transplanter	50 %	1.40	0.70	1	0.70	2	1.40	1	0.70	1	0.70	5	3.50
II	**IMPLEMENT**													
1	Rotary paddler for tractor	50 %	0.60	0.30	5	1.50	5	1.50	5	1.50	5	1.50	20	6.00
2	Ridger Tractor open fed	50 %	0.15	0.08	5	0.38	5	0.38	5	0.38	5	0.38	20	1.50
3	Raised fed seed drill	50 %	0.40	0.20	3	0.60	3	0.60	2	0.40	2	0.40	10	2.00
4	Husker Shelder	50 %	1.25	0.63	15	9.38	15	9.38	15	9.38	20	12.50	65	40.625
5	Groundnut digger	50 %	0.50	0.25	15	3.75	15	3.75	15	3.75	20	5.00	65	16.25
6	Sugarcane culter planter	50 %	1.00	0.50	3	1.50	3	1.50	2	1.00	2	1.00	10	5.00
7	Sugarcane Ratoon manager	50 %	1.00	0.50	3	1.50	3	1.50	2	1.00	2	1.00	10	5.00
8	Sugarcane Trash shredder	50 %	1.25	0.63	3	1.88	3	1.88	2	1.25	2	1.25	10	6.25

Table 6.37 Contd….. **(Rs.in lakhs)**

Sl. No.	Details	Proposed subsidy pattern	Average unit cost	Max eligible subsidy per unit	2008-2009		2009-2010		2010-2011		2011-2012		Total	
					No.of units in No.	Total cost	No.of units in No.	Total cost	No.of units in No.	Total cost	No.of units in No.	Total cost	No.of units in No.	Total Cost
9	Chisel plough	50 %	0.09	0.05	30	1.35	35	1.58	35	1.58	30	1.35	130	5.85
10	Power operated chaff cutter	50 %	0.30	0.15	15	2.25	20	3.00	15	2.25	15	2.25	65	9.75
11	Gender friendly equipments and tools cono weeder	75 %	0.01	0.03	25	0.225	25	0.225	25	0.225	25	0.225	100	0.900
	TOTAL					**28.500**		**31.175**		**26.900**		**31.050**		**117.625**
2	**IRRIGATION FACILITEIS THROUGH BORE WELL FOR HORTICULTURE DEVELOPMENT**													
	Borewell and Energification for Horticulture Development 4 to 5 Ha cluster individual	50 %	5.00	2.50	5	12.50	6	15.00	6	15.00	8	20.00	25	62.50
3	**SOIL AND WATER CONSERVATION WORKS**													
a.	Compartment Bunding	90 %	0.03	0.03	500	13.50	500	13.50	500	13.50	500	13.50	2000	54.00
b.	Land Shapping	90 %	0.10	0.09	250	22.50	250	22.50	250	22.50	250	22.50	1000	90.00
c.	Farm Pond for fish culture	90 %	0.50	0.48	1000	475.00	1500	712.50	1250	593.75	1250	593.75	5000	2375.00
d.	New storage structure and Recharge shaft	100 %	4.00	4.00	3	12.00	3	12.00	4	16.00	3	12.00	13	52.00
4	**IMPROVEMENT OF CONVEYANCE EFFICIENCY**													
a.	Surface level collective tank	90 %	1.00	0.90	3	2.70	3	2.70	4	3.60	3	2.70	13	11.70
b.	PVC pipeline for water conveyance	90 %	0.10	0.09	25	2.25	25	2.25	25	2.25	25	2.25	100	9.00
5	**INFRASTRUCTURE FACILITIES (FARM LINK ROAD)**													
a.	Farm Roads	90 %	0.09	0.08	6500	2.63	6500	2.63	6500	2.63	6500	2.63	26000	10.53
	Total					**543.08**		**783.08**		**669.23**		**669.33**		**2664.73**

Table 6.38. Head wise Cost for the Proposed Project under NADP for the Year 2008-2009 to 2011-2012 (Stream II)

(Rs.in lakhs)

Sl. No.	Details	Proposed subsidy pattern	Average unit cost	Max eligible subsidy per unit	2008-2009		2009-2010		2010-2011		2011-2012		Total	
					No.of units in No.	Total cost	No.of units in No.	Total cost	No.of units in No.	Total cost	No.of units in No.	Total cost	No.of units in No.	Total Cost
B	**PROPOSAL UNDER STREAM-II CATEGORY**													
I	**AGRICULTURAL MECHANISATION PROGRAMME**													
I	**MACHINERY**													
1	Power Tiller	25 %	1.16	0.30	30	9.00	35	10.50	35	10.50	30	9.00	130	39.00
2	Rotavator	25 %	1.00	0.20	30	6.00	35	7.00	35	7.00	30	6.00	130	26.00
3	Cultivator	25 %	0.16	0.04	60	2.40	70	2.80	70	2.80	60	2.40	260	10.40
4	Cage Wheel	25 %	0.20	0.02	10	0.20	15	0.30	15	0.30	10	0.20	50	1.00
5	Cage Wheel quickfit	25 %	0.15	0.02	3	0.06	4	0.08	2	0.04	1	0.02	10	0.20
6	Disc plough	25 %	0.35	0.06	60	3.60	70	4.20	70	4.20	60	3.60	260	15.60
7	Zero Till seed drill	25 %	0.50	0.05	3	0.15	3	0.15	4	0.20	3	0.15	13	0.65
	Total					**21.41**		**25.03**		**25.04**		**21.37**		**92.85**

ABSTRACT

(Amount in lakhs)

S.No	Department	2008-09	2009-10	2010-11	2009-12	Total
1	Agriculture	95.300	79.300	89.400	79.100	**343.100**
2	Innovative Schemes	112.250	104.750	205.250	104.750	**527.000**
3	Horticulture	322.319	313.245	346.198	326.193	**1307.955**
4	Animal Husbandry	924.070	148.750	117.640	117.140	**1307.600**
5	Fisheries	144.350	134.850	140.350	80.350	**499.900**
6	Agricultural Engineering	564.490	808.110	694.270	690.700	**2757.570**
7	Agricultural Marketing	57.300	276.94	295.840	222.80	**852.88**
Total		**2220.08**	**1865.95**	**1888.95**	**1621.03**	**7596.01**

TABLE OF CONTENTS

List of Tables

List of Tables Contd…

List of Tables Contd…

List of Tables Contd…

List of Figures

NADP Sensitization Workshop and Discussion on District Agriculture Plan - Pudukkottai District on 17.05.08

Progress of Presentation about Various Dimensions of NADP Plan

Discussion is Unveil among Participants

TNAU Research Station Scientist interacting with the Participants

Agricultural Engineering Department Official explains the Interventions to the Participants