Tamil Nadu Agricultural University

TAMIL NADU IRRIGATED AGRICULTURE MODERNIZATION PROJECT

(TNIAMP) PHASE – III

DETAILED PROJECT REPORT

ON

NAMBIYAR SUB BASIN

Nodal Office	Centre In-charge
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ICAR – KRISHI VIGYAN KENDRA

TAMIL NADU AGRICULTURAL UNIVERSITY

THIRUPATHISARAM – 629 901

DETAILED PROJECT REPORT OF THE NAMBIYAR SUB BASIN PROPOSED UNDER TNIAMP PHASE-III

1. Introduction

1.1. About the Centre

Krishi Vigyan Kendra Kanyakumari operating in Kanyakumari district aims at technology assessment, refinement and demonstration of technology/products to cater to the needs of farming community, extension personnel and other stakeholders in the district. The main activities are Conducting on-farm testing to identify the location specific agricultural technologies under various farming systems, organizing frontline demonstrations to establish production potential of various crops and enterprises on the farmers' fields, organizing need based training of farmers to update their knowledge and skills in modern agricultural technologies and training of extension personnel to orient them in the frontier areas of technology development. It creates awareness on improved agricultural technologies among various clienteles through appropriate extension programmes. It works as knowledge resource center of agricultural technology to support the initiatives of public, private and voluntary sector for improving the agricultural economy of the district.

1.2. The major areas of present focus are:

- Improved varieties
- Improved cultivation technologies
- Better water use efficiency
- Enhancement of productivity

1.3. Project Beneficiaries

- The main project beneficiaries are farmers. The project will actively promote gender inclusion and women participation in all key project intervention.

1.4 .Project Objectives

- To enhance productivity and improve water management and increase productivity in Nambiyar sub-basin area of Tamil Nadu.

2. GENERAL INFORMATION:

Agriculture is the dominant sector in the Indian economy. It provides livelihood to nearly 40 percent of the people. In spite of various efforts taken the performance of agriculture sector is

below its potential due to multiple factors including increasing water shortages, stagnant crop yields, low level of diversification, rigid mindset of the farmers in refusing to accept the improved technologies, weak market development, high rates of post- harvest losses, and increasing climate change threats. The Government of Tamil Nadu has taken a number of progressive actions under the World Bank funded project of Tamil Nadu Irrigated Agriculture Modernization Project (TNIAMP) at the Nambiyar sub basin. The third Phase of TN IAM Project in the sub basin is a multifaceted approach which focuses on enhancement in water use efficiency and improvement in agricultural productivity in a sub basin area. This will not only increase the agricultural productivity, but also is expected to yield holistic benefits to the farming community.

Scientists involved

Dr. P. Suthamathi	The Programme Co-coordinator
Dr. S.Nazreen Hassan,	Assistant Professor (Agrl.Extn.),

2.1. Description of the Nambiyar Basin

The Nambiyar river basin is one of the major river basins in Tamil Nadu. It is bounded by Tamirabarani basin in the Northern side, Western Ghats on the Western side and Indian Ocean on the Southern side.

This basin has been divided into three Sub-Basins namely:

1. Nambiyar (Project Area)
2. Karumeniyar
3. Hanumanadhi

2.2. Description of the Nambiyar Sub-Basin

Name of the sub basin	:	Nambiar
Districts	:	Tirunelveli
WRO Region	:	Madurai

Nambiyar river originates in the Eastern slopes of the Western Ghats near Nalikkal Mottai about 9.6 km West of Thirukkurungudi village at an altitude of about 1060m. It flows down to a length of 48 km before it falls in to the Bay of Bengal. This river is constituted by three branches of seasonal streams, namely, Tamaraiar, Kombaiar and Kodumudiar. Kombaiyar and Kodumudiyar originate at the eastern slope of Western Ghats at an altitude of about 1600 mm near Mahendragiri hills. The Kodumudiyar and Kombaiyar River originates in the eastern

slope of the Western Ghats at an elevation ranging from 1400m to 1650m respectively. Kombaiyar orginates in Nanguneri Taluk of Tirunelveli district and flows for 7kms in the Southeast direction before confluencing with Kodumudiyar river. After confluence the rivers takes the name of Thamaraiyar. The Thamaraiyar river confluence with the Nambiyar river just 2 km above Dhalavaipuram anicut. Nambiyar then takes an easterly course up to the Tirunelveli-Nagercoil trunk road and flows in a South-Easterly direction. The Nambiyar river has a total of 9 small anicuts

1. Mailannani anicut,
2. Dalavaipuram anicut,
3. Rajakkamangalam anicut,
4. Malapudur anicut
5. Kannanallur anicut,
6. Vijayananicut,
7. Kovankulam anicut,
8. Islapuramanicut,
9. Pulimangalam anicut.

The total extent of this sub basin area is 604.32 sq.km covering Kalakkadu, Nanguneri, Valliyoor and Radhapuram blocks in Tirunelveli district.

The registered Ayacut area of Nambiyar Sub Basin is **1503.230 ha.** Out of which, **791.091 ha** comes under fully irrigated, **527.461 ha** comes under partially irrigated and **184.678 ha** comes under gap area. The average rain fall of the sub basin is **682.4 mm.** The important crops grown in the sub-basin are Paddy, Pulses, Cotton, Coconut, banana and vegetables.

2.3. Location of sub-basin

The Nambiyar basin has a total area of 2084.00 sq.km. The Nambiyar sub basin area constitutes 1046.00 sq.km of Namiyar basin. The sub basin area covers 1046.00 sq.km in Tirunelveli district which is 50.19% of total basin area.

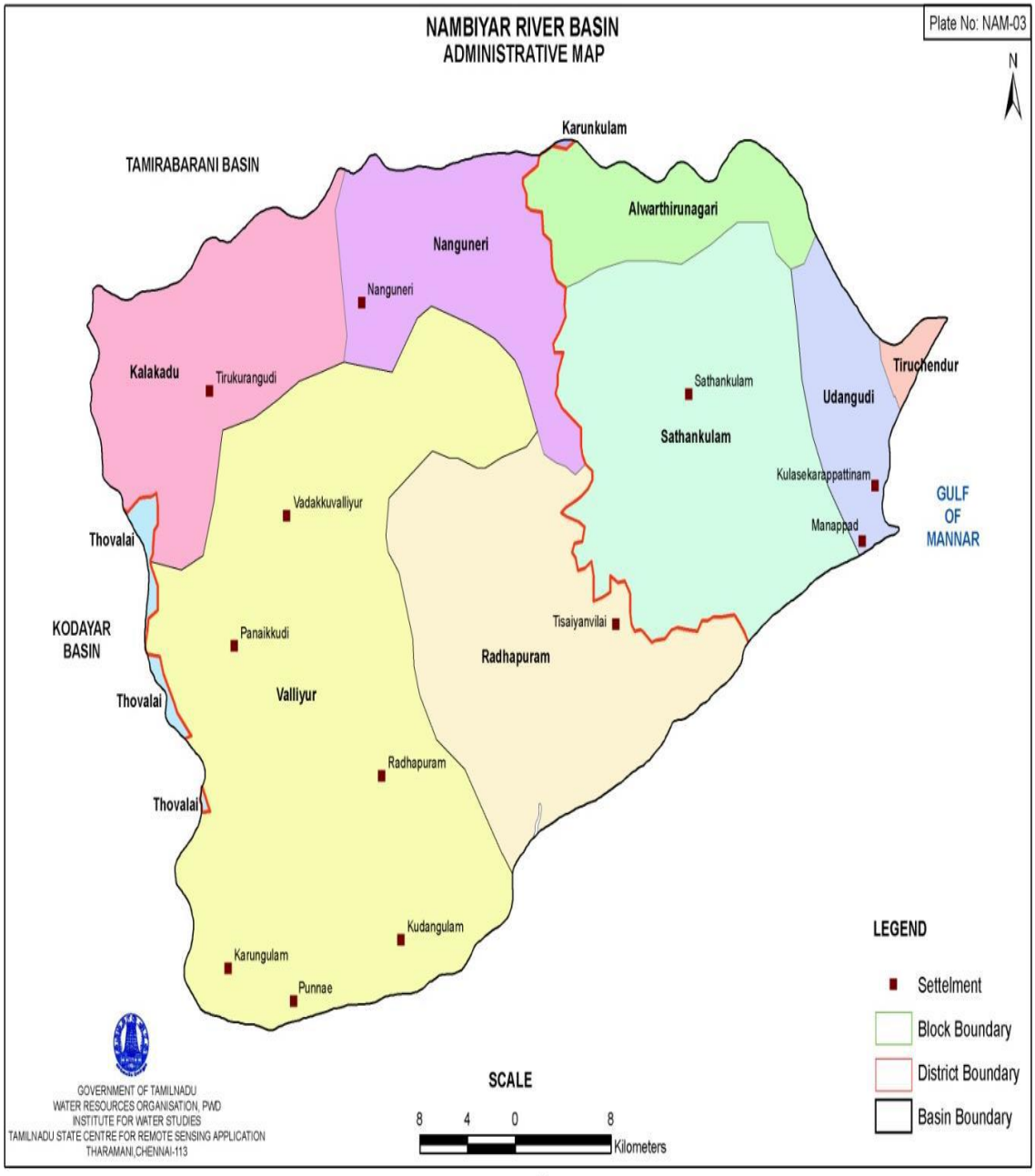
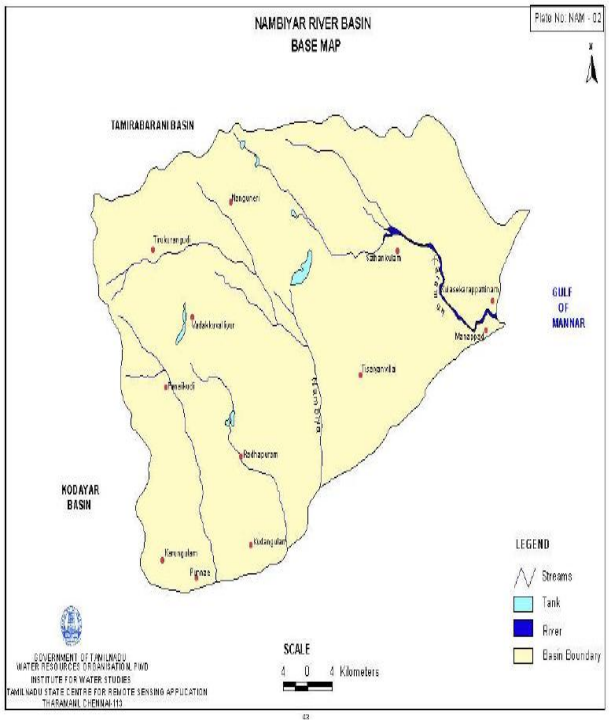
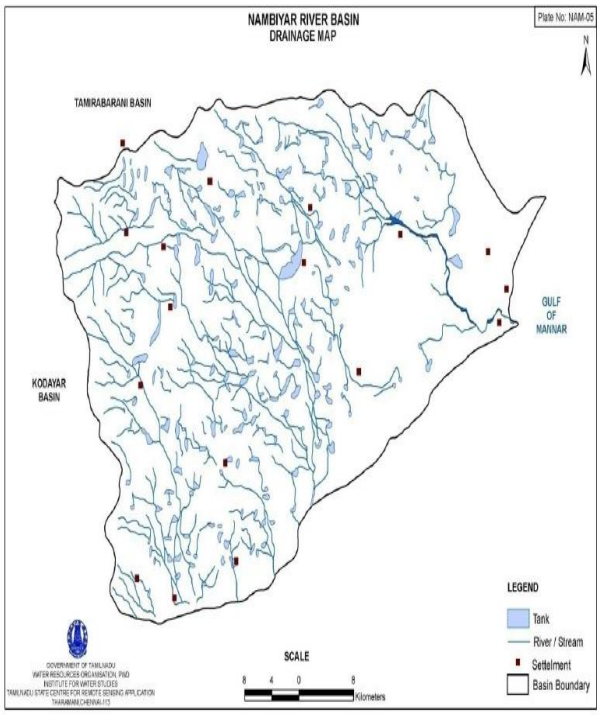


Fig. 1. Nambiyar sub basin Map

Parattaiyar tributary of Nambiyar originates in the Eastern slopes of the Western Ghats at an altitude of about 1200 m near Kakamunjikai Mottai and joins with another arm of Nambiyar at the foothills. After feeding a number of small tanks, it finally joins with Nambiyar near Ervadi at 18.5 km. Kalankalodai is another tributary which originates near Kananallur area in Radhapuram taluk of Tirunelveli district. It is fed by flows from the surplus of a few tanks which depend on other streams. After traversing a distance of 6.5 km it finally joins the Nambiyar near Kovankulam.





Another tributary originates near Vadakku Valliyur area in Radhapuram taluk of Tirunelveli district at an altitude of about 90 m. It gets its flow from the surplus of small tanks which is dependent on other streams. After traversing a distance of 10.5 km the tributary joins Nambiyar near Sankarapuram village. Finally the Nambiyar river flows into the Gulf of Mannar after traversing a total distance of 59 km from the origin of the Nambiyar river.

2.4. Blocks and Villages

Name of sub basin	Total No of Blocks	Total No. of Villages

Nambiyar sub basin	4	19

2.4.1. List of District, Blocks and Taluks, Tanks/Channels and Ayacut details proposed in this project:

Tank Ayacut - 40 Tanks	**:**	**1503.230 Ha**
Supply Channel - 4.00 km	:	84.67 Ha

2.5. 2. Block wise registered Ayacut area in Nambiyar sub-basin (Area in Ha)

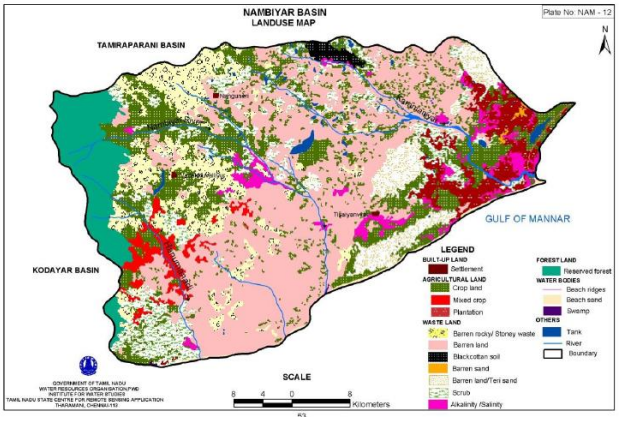
S. No.	DISTRICT	TALUK	BLOCK	No.	Ayacut area ha
I	**Tanks**				
1.	Tirunelveli	Nanguneri	Kalakkad	2	269.910
2.	Tirunelveli	Nanguneri	Nanguneri	5	202.570
3.	Tirunelveli	Nanguneri	Radhapuram	1	241.700
4.	Tirunelveli	Radhapuram	Radhapuram	19	213.730
5.	Tirunelveli	Thisaiyanvilai	Radhapuram	1	24.780
6.	Tirunelveli	Thisaiyanvilai	Vallioor	12	550.540
		Total		**40**	**1503.23**

2.6. Command area

The Sub-Basin's boundary spread over 19 villages of 3 taluks in Tirunelveli district. The Total command area under these infrastructures works out to 3232.595 Ha. The present project area is **1503.23**Ha.

3. LAND USE CLASSIFICATION:

Along the main Nambiyar River course crops like paddy, and banana are found in Kalakkad, Vallioor, Nanguneri, Radhapuram and nearby coastal area. The category of land is further classified in to wetland and dry lands. In wet land crops like paddy, coconut, banana, fruits & vegetables like brinjal chillies etc., are cultivated.



3.1. Total Registered Ayacut Area of the sub basin

Name of Sub Basin: NAMBIYAR SUB BASIN

S. No.	Particulars	Area (Ha)
1	Registered ayacut area	1503.230
2	Fully irrigated	791.091
3	Partially irrigated	527.461
4	Gap area	184.678
	Total	**1503.230**

3.2. Tank wise village and Ayacut area

S No.	Name of Tank	Unicode	Village	Block	Taluk	District	Ayacut in Ha.			
							Fully Irrigated	Partially Irrigated	Gap	Total
1	Nambikurichikulam	TNNM-02-T0104	Kottaikarunkulam	Radhapuram	Thisayanvilai	Tirunelveli	96.680	132.935	12.085	241.700
2	Sirukulam	TNNM-02-T0091	Rajakkalmangalam	Nanguneri	Nanguneri	Tirunelveli	1.664	2.288	0.208	4.160
3	Nadukkamparaikulam	TNNM-02-T0137	Mahiladi	Nanguneri	Nanguneri	Tirunelveli	6.453	6.453	1.434	14.340
4	KesavaneriKula	TNNM-02-T0148	Vadakkuvallioor	Vallioor	Radhapuram	Tirunelveli	14.370	50.309	7.191	71.870

S No.	Name of Tank	Unicode	Village	Block	Taluk	District	Ayacut in Ha.			
							Fully Irrigated	Partially Irrigated	Gap	Total
	m									
5	Devarkulam	TNNM-02-T0188	Therkku Valliyoor	Radhapuram	Radhapuram	Tirunelveli	4.514	4.513	1.003	10.030
6	Ganapathiyarkulam	TNNM-02-T0187	Therkku Valliyoor	Vallioor	Radhapuram	Tirunelveli	0.801	0.801	0.178	1.780
7	Kovanerikulam	TNNM-02-T0130	Vadakku vallioor	Vallioor	Radhapuram	Tirunelveli	15.918	7.959	2.653	26.530
8	Karuthanerikulam	TNNM-02-T0145	Dhalabathysamuthiram	Nangunneri	Nanguneri	Tirunelveli	10.656	5.328	1.776	17.760
9	Karisalkulam	TNNM-02-T0139	Thirukkurangudy	Kalakkad	Nanguneri	Tirunelveli	50.100	16.700	16.700	83.500
10	Kandiaperikulam	TNNM-02-T0161	Dhalabathysamuthiram	Vallioor	Nanguneri	Tirunelveli	25.476	12.738	4.246	42.460
11	Achampadukulam	TNNM-02-T0164	Achampadu	Vallioor	Radhapuram	Tirunelveli	13.344	6.672	2.224	22.240
12	Thanuvankulam	TNNM-02-T0174	Achampadu	Vallioor	Radhapuram	Tirunelveli	5.850	2.925	0.975	9.750
13	Poopillaikulam	TNNM-02-T0171	Achampadu	Vallioor	Radhapuram	Tirunelveli	5.850	2.925	0.975	9.750
14	Sinammalpuramandpudukulam	TNNM-02-T0134	Dhalapathisamudram	Nangunneri	Nanguneri	Tirunelveli	92.490	46.245	15.415	154.150
15	Kallikulam	TNNM-02-T0180	T.Kallikulam	Radhapuram	Radhapuram	Tirunelveli	6.516	3.258	1.086	10.860
16	Alankulam	TNNM-02-T0183	A.Thirumalapuram	Radhapuram	Radhapuram	Tirunelveli	7.212	3.606	1.202	12.020
17	Kattayanerikulam	TNNM-02-T0196	Samuharengapuram	Radhapuram	Radhapuram	Tirunelveli	8.076	4.038	1.346	13.460
18	Kurunchikulam	TNNM-02-T0214	Samuharengapur	Radhapuram	Radhapuram	Tirunelveli	5.256	2.628	0.876	8.760

S No.	Name of Tank	Unicode	Village	Block	Taluk	District	Ayacut in Ha.			
							Fully Irrigated	Partially Irrigated	Gap	Total
			am							
19	Valathar valavaithankulam	TNNM-02-T0213	Samuhar engapuram	Radhapuram	Radhapuram	Tirunelveli	18.048	9.024	3.008	30.080
20	Mannarkulam	TNNM-02-T0228	Samuhar engapuram	Radhapuram	Radhapuram	Tirunelveli	6.456	3.228	1.076	10.760
21	Eluvarkulam	TNNM-02-T0197	Kumbikulam	Radhapuram	Radhapuram	Tirunelveli	11.172	5.586	1.862	18.620
22	Vattakulam	TNNM-02-T0178	Vadakku Valliyoor	Vallioor	Radhapuram	Tirunelveli	23.520	11.760	3.920	39.200
23	Panisakulam	TNNM-01-T0250	Kannanallur	Vallioor	Thisayanvilai	Tirunelveli	16.525	9.915	6.610	33.050
24	Karuppukalkulam	TNNM-02-T0156	Anaikulam	Radhapuram	Radhapuram	Tirunelveli	1.796	2.470	0.384	4.650
25	Veetrithankulam	TNNM-02-T0160	Anaikulam	Radhapuram	Radhapuram	Tirunelveli	4.364	7.138	0.648	12.150
26	Thankaiyankulam	TNNM-02-T0162	Anaikulam	Radhapuram	Radhapuram	Tirunelveli	1.496	2.440	0.224	4.160
27	Vilvarayankulam	TNNM-02-T0169	Kannanallur	Radhapuram	Thisayanvilai	Tirunelveli	13.760	8.256	5.504	27.520
28	Thambakulam	TNNM-02-T0175	Kannanallur	Vallioor	Thisayanvilai	Tirunelveli	14.675	8.805	5.870	29.350
29	Kannankulam	TNNM-02-T0203	Kottaikarunkulam	Radhapuram	Thisayanvilai	Tirunelveli	3.652	5.022	0.456	9.130
30	Vilimankulam	TNNM-02-T0257	Urmankulam	Radhapuram	Thisayanvilai	Tirunelveli	5.512	7.579	0.689	13.780
31	Aimudikulam	TNNM-02-T0210	Kasthurirengapuram	Radhapuram	Thisayanvilai	Tirunelveli	2.915	4.010	0.365	7.290
32	Palathikulam	TNNM-02-T0248	Kasthurirengapuram	Radhapuram	Thisayanvilai	Tirunelveli	2.264	3.113	0.283	5.660
33	Pappankulam	TNNM-02-T0249	Kasthurirengapur	Radhapuram	Thisayanvilai	Tirunelveli	3.376	4.642	0.422	8.440

S No.	Name of Tank	Unicode	Village	Block	Taluk	District	Ayacut in Ha.			
							Fully Irrigated	Partially Irrigated	Gap	Total
			am							
34	Periyalankulam	TNNM-02-T0256	Kasthurirengapuram	Radhapuram	Thisayanvilai	Tirunelveli	0.748	1.029	0.093	1.870
35	Kailasaperikulam	TNNM-02-T0263	Kasthurirengapuram	Radhapuram	Thisayanvilai	Tirunelveli	1.796	2.470	0.224	4.490
36	Ponathikulam	TNNM-02-T0244	Kasthurirengapuram	Radhapuram	Thisayanvilai	Tirunelveli	9.912	13.629	1.239	24.780
37	Vallioor Puthukulam	TNNM-02-T0186	Therkku Vallioor	Vallioor	Radhapuram	Tirunelveli	144.70	52.23	44.23	241.170
38	SitturKeelkulam	TNNM-02-T0154	Kannanallur	Vallioor	Thisayanvilai	Tirunelveli	14.03	8.68	0.68	23.390
39	Padalayar Tank	TNNM-02-T0138	Thirukkurangudy	Kalakkad	Nanguneri	Tirunelveli	111.85	41.28	33.28	186.410
40	Nallapethankulam	TNNM-02-T0152	Dhalapathysamudram	Nangunneri	Nanguneri	Tirunelveli	7.30	2.83	2.03	12.160
			TOTAL				**791.091**	**527.461**	**184.678**	**1503.230**

3.3. Village wise Ayacut area

Sl No	Name of Tank	Village	Block	Taluk	District	Ayacut in Ha.			
						FI	PI	Gap	Total
	cluster I								
1	Nadukkamparaikulam	Mahiladi	Kalakkad	Nanguneri	Tirunelveli	6.453	6.453	1.434	14.340
2	Kesavaneri Kulam	Vadakku vallioor	Vallioor	Nanguneri	Tirunelveli	79.609	21.690	7.191	108.490
3	Padalayar Tank	Thirukkurangudy	Kalakkad	Nanguneri	Tirunelveli	101.92	40.77	61.15	203.840
4	Karisalkulam	Thirukkurangudy	Kalakkad	Nanguneri	Tirunelveli	50.100	16.700	16.700	83.500
	cluster II								

Sl No	Name of Tank	Village	Block	Taluk	District	Ayacut in Ha.			
						FI	PI	Gap	Total
5	Vallioor Puthukulam	Therkku Vallioor	Vallioor	Radhapuram	Tirunelveli	131.15	52.46	78.69	262.300
6	Devarkulam	Therkku Valliyoor	Vallioor	Radhapuram	Tirunelveli	4.514	4.513	1.003	10.030
7	Ganapathiyarkulam	Therkku Valliyoor	Vallioor	Radhapuram	Tirunelveli	2.230	0.890	1.330	4.450
8	Alankulam	A.Thirumalapuram	Radhapuram	Radhapuram	Tirunelveli	7.212	3.606	1.202	12.020
9	Vattakulam	Vadakku Valliyoor	Vallioor	Radhapuram	Tirunelveli	8.805	3.522	5.283	17.610
	Cluster III								
10	Kattayanerikulam	Samuharengapuram	Radhapuram	Radhapuram	Tirunelveli	13.510	5.404	8.106	27.020
11	Eluvarkulam	Kumbikulam	Radhapuram	Radhapuram	Tirunelveli	11.172	5.586	1.862	18.620
12	Valatharvalavaithankulam	Samuharengapuram	Radhapuram	Radhapuram	Tirunelveli	21.305	8.522	12.783	42.610
13	Mannarkulam	Samuharengapuram	Radhapuram	Radhapuram	Tirunelveli	6.365	2.546	3.819	12.730
14	Kurunchikulam	Samuharengapuram	Radhapuram	Radhapuram	Tirunelveli	5.256	2.628	0.876	8.760
	Cluster IV								
15	Nambikurichikulam	Kottaikarunkulam	Radhapuram	Thisayanvilai	Tirunelveli	8.570	3.420	5.130	17.120
16	Kannankulam	Kottaikarunkulam	Radhapuram	Thisayanvilai	Tirunelveli	3.652	5.022	0.456	9.130
17	Vilimankulam	Urmankulam	Radhapuram	Thisayanvilai	Tirunelveli	5.512	7.579	0.689	13.780
18	Aimudi kulam	Kasthurirengapuram	Radhapuram	Thisayanvilai	Tirunelveli	2.915	4.010	0.365	7.290
19	Palathikulam	Kasthurirengapuram	Radhapuram	Thisayanvilai	Tirunelveli	2.264	3.113	0.283	5.660
20	Pappankulam	Kasthurirengapuram	Radhapuram	Thisayanvilai	Tirunelveli	3.376	4.642	0.422	8.440
21	Periyalankulam	Kasthurirengapuram	Radhapuram	Thisayanvilai	Tirunelveli	0.748	1.029	0.093	1.870
22	Kailasaperikulam	Kasthurirengapuram	Radhapuram	Thisayanvilai	Tirunelveli	1.796	2.470	0.224	4.490
23	Ponathikulam	Kasthurirengapuram	Radhapuram	Thisayanvilai	Tirunelveli	9.912	13.629	1.239	24.780

Sl No	Name of Tank	Village	Block	Taluk	District	Ayacut in Ha.			
						FI	PI	Gap	Total
	Cluster V								
24	Karuthanerikulam	Dhalabathysamuthiram	Nanguneri	Nanguneri	Tirunelveli	10.656	5.328	1.776	17.760
25	Sinammalpuram Bigtank	Dhalapathisamudram	Nanguneri	Nanguneri	Tirunelveli	31.205	12.482	18.723	62.410
26	Nallapethankulam	Dhalapathysamudram	Nanguneri	Nanguneri	Tirunelveli	7.30	2.83	2.03	12.160
27	Kandiaperikulam	Dhalabathysamuthiram	Vallioor	Nanguneri	Tirunelveli	25.476	12.738	4.246	42.460
28	Kovanerikulam	Vadakku vallioor	Vallioor	Radhapuram	Tirunelveli	15.918	7.959	2.653	26.530
	Cluster VI								
29	Kallikulam	T.Kallikulam	Radhapuram	Radhapuram	Tirunelveli	6.516	3.258	1.086	10.860
30	Karuppukalkulam	Anaikulam	Radhapuram	Radhapuram	Tirunelveli	1.796	2.470	0.384	4.650
31	Veetrithankulam	Anaikulam	Radhapuram	Radhapuram	Tirunelveli	2.180	0.872	1.308	4.360
32	Thankaiyankulam	Anaikulam	Radhapuram	Radhapuram	Tirunelveli	1.496	2.440	0.224	4.160
33	Vilvarayankulam	Kannanallur	Radhapuram	Thisayanvilai	Tirunelveli	13.760	8.256	5.504	27.520
34	Achampadukulam	Achampadu	Vallioor	Radhapuram	Tirunelveli	13.344	6.672	2.224	22.240
35	Thanuvankulam	Achampadu	Vallioor	Radhapuram	Tirunelveli	1.630	0.652	0.978	3.260
36	Poopillaikulam	Achampadu	Vallioor	Radhapuram	Tirunelveli	1.970	0.788	1.182	3.940
37	Panisakulam	Kannanallur	Vallioor	Thisayanvilai	Tirunelveli	16.525	9.915	6.610	33.050
38	Thambakulam	Kannanallur	Vallioor	Thisayanvilai	Tirunelveli	3.185	1.274	1.911	6.370
39	Sittur Keelkulam	Kannanallur	Vallioor	Thisayanvilai	Tirunelveli	14.03	8.68	0.68	23.390
40	Iyyapanerikulam	Kannanallur	Vallioor	Thisayanvilai	Tirunelveli	2.080	0.832	1.248	4.160

4. ANNUAL RAINFALL

Annual average weighted rain fall for the sub basin is **682.4 mm**

4.1. Rainfall & Rain gauge stations in the sub basin:-

Name of Rain Gauge Station	Taluk	Latitude	Longitude	RG station area sq.km	NE Mon soon	SW Mon soon	Winter	Summer	Annual	Sub basin area sq.km	Annual average weighted rain fall for the sub basin in mm
Nangunneri	Nangunneri	08° 29' 46"	77° 38' 47"	363.32	443.0	63.0	48.0	115.0	669.0	604.32	682.4
Kalakkad	Nangunneri	08° 30' 54"	77° 33' 02"	185.68	443.0	63.0	48.0	115.0	669.0		
Radhapuram	Radhapuram	08° 15' 59"	77° 41' 07"	55.32	443.8	136.2	48.3	115.9	744.2		

5. SOIL CLASSIFICATION

In this sub basin, due to different stages of weathering and subsequent deposition of parent soil material, the soil types are met with a combination of Inceptisol, Alfisol and Vertisol. More prominent type is Inceptisol.

Inceptisol	Red or brown or grey soil with surface horizon more developed than sub surface. They are developing soils, moderately deep, coarse loamy to loam, moderately drained to well drained	Suited for commonly grown crops with exceptions
Alfisol	The red or brown soils having accumulation of alleviated clay in sub surface horizon, is well drained with poor water and nutrient holding capacity.	Annual crops with shallow roots systems cum up wells
Vertisols	Black soil	Suitable for cotton, Pulses etc

6. LAND HOLDINGS

The details of farm holdings, size and classes prevalent in Nambiyar Sub basin are given below:

Category	**Size of holdings**	**Numbers**	**Percentage**
Marginal	Below 1.00 Ha	19690	62.97
Small	1.00 – 2.00 Ha	5062	16.20
Medium	2.00 – 5.00 Ha	4787	15.31
Big	5.0 ha & above	1725	5.52
Total		**31264**	**100.00**

The farmers in the sub basin are mostly marginal farmers (62.97%) having land holdings below one ha. The small farmers accounted for 16.2 percent in the sub basin followed by medium farmers (15.31%). Only 5.52 percent of the farmers are big farmers with more than 5 ha of land holding.

7. CROPS AND CROPPING PATTERN

7.1. Important Agriculture seasons for annual crops

1. I crop (Jul- Oct)
2. II crop (Oct - Jan)

7.2. Major crops cultivated:

First season crop:

Paddy

Paddy is the principal crop extensively cultivated in both First season (June – September) and Second season (October - January). Locally the first season is called as *Kar* and second season is called as *Pishanam*. Normal productivity of Rice in the region is 4500 Kg per ha. Apart From paddy major importance is given to pulses, Ground nut, vegetables, banana and coconut.

Brinjal

Brinjal is a major vegetable crop grown in 12 ha in the sub basin during the first season. The productivity of the crop is 13 MT/ha which has a potential of 16.5 MT/ha.

Second season crops:

Cotton

Cotton is another major crop grown in Radhapuram block mainly during the summer reason after the end of *Pishanam* season.

Pulses:

Pulse crops are being cultivated during Third season (February – April) .The normal productivity of pulses is 600Kg/ ha. Black gram is the predominant pulse crop cultivated.

7.3. Season wise crop scenario in the sub basin

Major crops cultivated	Paddy	Paddy is the major crop extensively cultivated in both First season (June – September) and Second season (October - January). Locally the first season is called as *Kar* and second season is called as *Pishanam*. Normal productivity of Rice in the region is 4.5MT/ ha and has the potential yield of 8MT/Ha. Apart from paddy other crops are pulses, Ground nut, coconut, banana and vegetables
	Cotton	Cotton is another crop grown in Radhapuram block mainly during the summer season after the end of *Pishanam* season.
	Pulses	Pulse crops are being cultivated during third season (February – April) .The normal productivity of pulses is 250Kg/ ha. Black gram is the predominant pulse crop cultivated.
	Brinjal	Brinjal is a major vegetable crop grown in 12.86 ha in the sub basin during the first season. The major problem is the availability of quality seedlings and incidence of pest and diseases

7.4. Crop-wise important technologies to be adopted.

1. Paddy - Enhancement of productivity
   - Efficient water Management
2. Pulses - Improved pulse production
3. Brinjal - Use of Hybrids and Grafted seedlings

7.5. Existing cropping pattern in the in Nambiyar Sub Basin

S. No.	Crop	Without Project				With Project				Increasing
		FI	PI	RF/G	TOTAL	FI	PI	RF/G	TOTAL	
I	**Perennial crop**									
1	Coconut	256.00	38.00	0	294.00	94.00	0.00	0	94.00	-200.00
2	Mango	10	24.00	0	34.00	34.00	0.00	0	34.00	0.00
3	Sapota	0	12.00	0	12.00	12.00	0.00	0	12.00	0.00
4	Guava	0	10.00	0	10.00	10.00	0.00	0	10.00	0.00
5	Cashew	0	10.00	0	10.00	10.00	0.00	0	10.00	0.00
6	Casuarina	0	12.10	0	12.10	12.10	0.00	0	12.10	0.00
7	Teak	0	10.50	0	10.50	10.50	0.00	0	10.50	0.00
8	Tamarind	0	11.13	0	11.13	11.13	0.00	0	11.13	0.00
9	Acid Lime	0	10.00	0	10.00	10.00	0.00	0	10.00	0.00
10	Amla	0	11.05	0	11.05	11.05	0.00	0	11.05	0.00
11	Jack	0	0.00	0	0.00	0.00	0.00	0	0.00	0.00
12	Other tree crops	0	22.00	0	22.00	22.00	0.00	0	22.00	0.00
13	Flowers\ Tuberose	0	0.50	0	0.50	5.00	0.00	0	5.00	4.50
14	Fodder	0	0.00	0	0.00	0.00	0.00	0	0.00	0.00
	Total	**266**	**171.28**	**0**	**437.28**	**241.78**	**0.00**	**0**	**241.78**	**-195.50**
II	**Annual Crop**									
1	Sugarcane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Banana	182.00	0.00	0.00	182.00	42.00	0.00	0.00	42.00	-140.00
3	T.C. Banana	0.00	0.00	0.00	0.00	40.00	0.00	0.00	40.00	40.00
4	Tapioca	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**182.00**	**0.00**	**0.00**	**182.00**	**82.00**	**0.00**	**0.00**	**82.00**	**100.00**
III	**1st crop**									
1.	Paddy	424.00	0.00	0.00	424.00	224.00	0.00	0.00	224.00	200.0

S. No.	Crop	Without Project				With Project				Increasing
		FI	PI	RF/G	TOTAL	FI	PI	RF/G	TOTAL	
a										0
b	Paddy - SRI	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00	100.00
2	Maize	3.07	0.00	0.00	3.07	13.07	0.00	0.00	13.07	10.00
3	Pulses	14.03	35.00	0.00	49.03	49.03	0.00	0.00	49.03	0.00
4	Groundnut	0.00	5.32	0.00	5.32	15.32	0.00	0.00	15.32	10.00
5	Gingelly	0.00	52.60	0.00	52.60	62.60	0.00	0.00	62.60	10.00
6	Cumbu	0.00	2.50	0.00	2.50	12.50	0.00	0.00	12.50	10.00
7	Tomato	10.70	65.50	0.00	76.20	76.20	0.00	0.00	76.20	0.00
8	Bhendi	0.00	35.20	0.00	35.20	45.20	0.00	0.00	45.20	10.00
9	Brinjal	12.86	25.63	0.00	38.49	58.49	0.00	0.00	58.49	20.00
10	Onion	0.00	75.63	0.00	75.63	85.63	0.00	0.00	85.63	10.00
11	Cucumber	0.00	12.00	0.00	12.00	35.00	0.00	0.00	35.00	23.00
12	Gourds	0.17	2.50	0.00	2.67	25.00	0.00	0.00	25.00	22.33
13	Radish	0.00	1.20	0.00	1.20	1.20	0.00	0.00	1.20	0.00
14	Curry leaf	0.00	0.23	0.00	0.23	0.23	0.00	0.00	0.23	0.00
15	Cluster Beans	0.00	0.15	0.00	0.15	0.15	0.00	0.00	0.15	0.00
16	Greens	0.00	1.65	0.00	1.65	1.65	0.00	0.00	1.65	0.00
17	Watermelon	0.00	1.23	0.00	1.23	1.23	0.00	0.00	1.23	0.00
18	Chillies	10.87	32.65	0.00	43.52	75.00	0.00	0.00	75.00	31.48
19	Beans	0.00	0.25	0.00	0.25	0.25	0.00	0.00	0.25	0.00
20	Veg Cowpea	0.00	0.45	0.00	0.45	0.45	0.00	0.00	0.45	0.00
21	Coriander	0.00	0.85	0.00	0.85	0.85	0.00	0.00	0.85	0.00
22	Colacassia	0.00	1.00	0.00	1.00	13.30	0.00	0.00	13.30	12.30
23	Marigold	0.00	0.65	0.00	0.65	15.00	0.00	0.00	15.00	14.35
	Total	**475.70**	**352.19**	**0.00**	**827.89**	**911.35**	**0.00**	**0.00**	**911.35**	**83.46**
IV	**II crop**									
1.a	Paddy	272.00	0.00	357.01	629.01	429.45	0.00	0.00	429.45	-199.56
b	Paddy - SRI	0.00	0.00	0.00	0.00	50.00	0.00	0.00	50.00	50.00
2	Maize	0.00	0.00	0.00	0.00	85.00	0.00	0.00	85.00	85.00
3	Cholam	0.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00	0.00
4	Black	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00	100.0

S. No.	Crop	Without Project				With Project				Increasing
		FI	PI	RF/G	TOTAL	FI	PI	RF/G	TOTAL	
	gram									0
5	Red gram	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	2.00
6	Groundnut	35.55	0.00	0.00	35.55	185.55	0.00	0.00	185.55	150.00
7	Fodder cholam	0.00	12.05	0.00	12.05	77.05	0.00	0.00	77.05	65.00
8	Fallow	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**307.55**	**12.05**	**357.01**	**676.61**	**989.05**	**0.00**	**0.00**	**929.05**	**252.44**
	Grand total (I+II+IV)	**755.55**	**183.33**	**357.01**	**1295.89**	**1312.83**	**0.00**	**0.00**	**1252.83**	**-43.06**
	Great Grand Total	**1231.25**	**535.52**	**357.01**	**2123.78**	**2224.18**	**0.00**	**0.00**	**2164.18**	**40.40**
	Cropping Intensity				**204.01**				**159.47**	

7.6. Area, production and productivity of crops in the sub basin

S. No.	Crop	Without Project			With Project		
		Area (Ha.)	Production (L.MT.)	Productivity (MT./ha.)	Area (ha.)	Production (L.MT.)	Productivity (M.T/ha.)
1	Paddy	1053.01	0.0724	6.88	803.45	0.0634	7.889
2	Blackgram	0.00	0.0000	0.25	100.00	0.0001	0.450
3	Brinjal	38.49	0.0051	13.14	58.49	0.0097	16.500

7.7. Details of existing adoption/prevalence of technology in the sub basin (in ha)

1	Green Manure – Rice - Pulses	Nil
2	AWDI in Rice	Nil
3	INM/IPM in vegetables	INM-Nil; IPM - 15 Ha
4	Grafted Brinjal	Nil

8. CONSTRAINTS, CHALLENGES AND SUGGESTIVE MEASURES

Constraints and Challenges	Suggestive Measures

Constraints and Challenges	Suggestive Measures
Soil Constraints	1 % of the area is under problem soil viz., soil alkalinity and hence soil test based nutrient Management is essential.
Adverse climatic condition and erratic distribution of rainfall	The temperature is generally high and drought occurs once in five years. Suitable technology may be recommended to overcome drought. Water management practices maybe introduced to increase the productivity.
Inferior quality of seeds, Planting materials and high cost of hybrid seeds.	Farmers are using local and poor quality seeds. Many farmers use their seeds and also exchange seeds among themselves. Supply of seeds through National Seeds Corporation and other private organizations will be arranged as per procurement norms of the World Bank.
Improper irrigation practices (Flood irrigation).	Cultivation of paddy crop by following water management technique will be popularized among the farmers to save water and cost of cultivation and increase the productivity of crop.
Inadequate extension Service.	The services of TNAU will be utilized for disseminating innovative technologies for various crops in the sub basin in addition to the state extension services based on necessity.
Availability of labour.	Labour availability is a problem due to migration of labours to urban area to get more wages by doing nonagricultural works. Hence labour availability is a problem for farm work. To overcome the above mentioned problems suitable advice on farm mechanization will be given.
Low price for produce	Price fluctuation for fruits and vegetables due to market surplus of produce and inadequate storage facilities, Staggered planting will be recommended to overcome price fluctuation especially in vegetables during peak period of harvest. Improved varieties will be recommended to synchronize with market demand

9. FIELD INTERVENTIONS

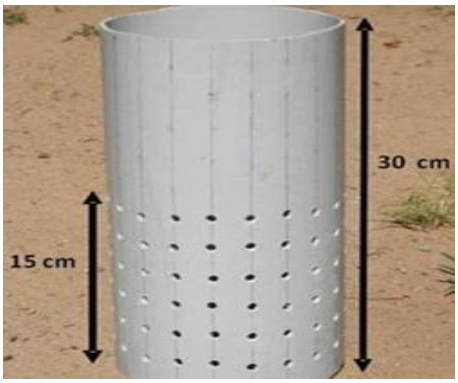
9.1 Productivity enhancement in Rice

9.1.1. Green Manure – Rice (AWDI) - Pulses

Productivity enhancement in Rice through changing cropping sequence is a promising method of growing rice both under irrigated and rain fed conditions. Under conventional system of rice cultivation the rice yield is low due to poor water and nutrient management. The efficiency of Nitrogen fertilizer applied to rice is low, seldom exceeding 30--35%. This low efficiency of N is due to the loss of N through various mechanisms, such as leaching, volatilization, de-nitrification and surface run-off. Another important component of soil for higher productivity is the organic matter. Available reports indicate that most soils have low organic matter content. Green manure crops have the ability to fix a considerable amount of atmospheric N and can add both N and organic matter to soil. Because of the high price and low efficiency of inorganic N fertilizer and also due to low organic content of soil, the inclusion of green manure crops in a rice-based cropping system, particularly rain fed lowland rice ecosystems, has received priority consideration in recent years.

How to implement AWDI

A practical way to implement AWDI safely is by using a field water tube (Pani Pipe) to monitor water depth on the field. The field water tube will be placed @ 3 per hectare since most of the paddy field in this Ayacut are fragmented. Field water tube made up of PVC. Note the holes on all sides up to 15 cm height.



Out come

- The alternate wetting drying irrigation (AWDI) will be an appropriate technology for water saving in rice. This technology saves up to 30 per cent of irrigation water without any yield penalty.
- 4-5 irrigation will be reduced under AWDI ten compared to conventional method.

The interventions proposed Green Manure – Rice (AWDI) - Pulses will improve crop productivity.

S. No.	Technology	Target area (ha)	Unit cost (Rs.)	Amount (Rs.in lakhs)
1.	Green Manure – Rice (AWDI)-Pulses	145	11000	15.95

Details of unit cost: Green Manure - Rice (AWDI) – Pulses

(i) Details of unit cost split up for Green Manure

S. No	Particulars	Unit Cost (Rs.)	Amount (Rs.)	TNAU Cost (Rs/ha)
1	Seed cost - 40 Kg / Ha	50	2,000	2,000
	Total		**2,000**	**2,000**

(ii) Details of unit cost split up for Rice

S. No.	Particulars	Unit Cost (Rs.)	Amount (Rs.)	TNAU Cost (Rs/ha)
1	Cost of Soil testing	20	20	20
2	Seed cost - 10 Kg / Ha	30	300	300
3	Cost of nursery raising		600	-
4	Cost of fertilizers (150:50:50 Kg NPK / Ha)			
	Urea - 300 Kg	6	1800	1800
	Muriate of Potash – 80 Kg	16	1280	1280
	$ZnSO_4$ 25 Kg	76	1300	1300
5	Bio fertilizer & Bio inoculants		1600	1600
	Total		**6900**	~~6300~~6000

(iii) Details of unit cost split up for AWDI

S. No	Particulars	Unit Cost (Rs.)	Amount (Rs.)	TNAU Cost (Rs/ha)
1	Field water tube ~~3~~ 4 Nos/ ha	250	~~700~~1000	~~700~~1000
	Total		**~~700~~1000**	**~~700~~1000**

(iv)Rice fallow pulses

S. No.	Particulars	Unit Cost (Rs.)	Amount (Rs.)	TNAU Cost (Rs./ha)
1	Pulses Seed cost- 20kg/ha	100	2000	2000
	Total		**2000**	**2000**

9.2. Grafted Brinjal to enhance the productivity of Brinjal

Tamil Nadu Agricultural University (TNAU) has evolved grafting technology to improve the yield of brinjal with appropriate rootstocks. Brinjal plant is highly vulnerable to pests & diseases. This method of propagation is a boost to plant growth by increasing the uptake of nutrients and developing resistance to soil borne diseases with suitable rootstocks. Susceptibility to pests and diseases of brinjal is addressed with the preparation of rootstock of non-bitter *Solanum torvum* with the seedling of any high yielding variety/hybrid. After beheading the top of rootstock, a small slit is made to accommodate the brinjal seedling and the two are tied using grafting clips or polythene strips. The grafted plant is placed in a mist chamber for three to five days before being transferred to shade net. It would take a month-and-a-half to produce brinjal grafts. The grafts are then transplanted in the field. The root of the grafts run deep into the soil and it does not require as much water. Also it is resistant to nematodes and dry root rot. Above all the plant duration can be extended to a year and there is a three-fold increase in yield over conventional seedling.





Total cost for the proposed demonstration on Cultivation of Grafted Brinjal

S. No.	Technology	Target area (ha)	Unit Cost (Rs.)	Total cost (Rs. In lakh)
1	Grafted Brinjal to enhance the productivity of Brinjal	5	50000	2.50

Details of unit cost split up for Grafted Brinjal

S. No.	Particulars	Unit Cost (Rs.)	Amount (Rs.)	TNAU Cost (Rs/ha)
1.	Cost of grafted Plants (6250 plants / ha)	Rs.7/Plant	43750	43750
2.	Cost of fertilizers (150:150:100 Kg NPK / ha)			
	Urea- 440 kg	6	2640	2640
	MoP-166 kg	16	2656	2656
3.	Bio Fertilizer		954	954
	Total		**50000**	**50000**

2.5.8. Special Features of the sub basin:

There are no special features in respect of Nambiyar sub basin

Gender Strategy:

Specific capacity building programs like exposure visits could be organized for WUA representatives, women in Farmer Producer Organizations (FPO), Farmer Producer Companies (FPC), Dairy Interest Groups (DIG), etc. Team involvement of women in organized groups such as Self Help Groups will be encouraged. In anticipation, the percentage of women expected to involve in WRD, agri related and livelihood related activities are 30%, 50% and 54% respectively.

~~In anticipation, the percentage of women expected to be involved in WRD, gri related and Livelihood related activities will be approximately 30%.~~

Grievance Redress Mechanism and Schedule for Establishment

Grievance Redress Mechanism (GRM) is an essential component of any project implementation, particularly if the project involves the local communities with diverse socio economic backgrounds as the major stakeholders. The grievance redress process will be a continuous, transparent and participatory process that would be an integral part of the project's accountability and governance agenda.

A project level GRM will be in place for addressing social, environmental and project related grievances. The GRM will have multi- level structures and processes. At the district level the committee is made up of respective JDs of line departments and EE, WRD of the sub-basin. This committee meets on weekly basis. This committee will look after the grievances related to irrigation and water management. At the next level the Collector heads the committee and convenes the meetings monthly once. The Collectors will take care of the other grievances related to the project activities. The next level is the HODs at the state level they contact remotely monthly once and organize meetings at every redress; he calls for a meeting once in six months and annually. For every six months report is prepared at all levels and send to the Secretary. Secretary occupies the next level in the structure and in charge of overall appeals and supervision of grievance at all levels.

A register for GRM and a box for receiving the Complaints and Grievances shall be maintained in the O/o the Executive Engineer for WRD and O/o of Joint Directors for line departments, who is implementing the TNIAMP intervention in that respective Sub Basin and a monthly report on the Grievances received and the action taken shall be sent to the respective Environmental Cell Division for review and submission to the MDPU. Periodical Monitoring of the Implementation of the GRM will be carried out by the Environmental Cell Division Engineers. In the project information boards provided at the working sites, along with the details of the project, the contact address along with official email and contact numbers of the officer to whom the Grievances has to be addressed shall be displayed.

Efforts will be made to create awareness about GRC mechanism to the beneficiaries through use of flyers and pamphlets at the village, Block and District level. The implementation of GRM will operate by the Grievance Redress Cell (GRC) at the Block and District level .The grievances received should be entered in the GRM Register comprising of (a) Serial Number; (b) Case Number; (c) Name of the Grieved/Complainant; (d) Name of Father/Husband; (e) Gender (f) Age; (g) Full Address; (h) Brief details of grievance/complaint; (i) List of documents, if any, attached; (j) Details of previous grievance/complaint, if any; (k) Date of receipt of grievance/complaint and (l) Date of acknowledgement of grievance/complaint.The GRC will acknowledge receipt of all grievances/complaints, by registered post, within 7 days of receipt and will communicate its decisions/redress in writing to the complainants within 4 weeks depending on the nature of complaints and When closing the complaint, agreement should be made with the complainant on remedy, and both parties sign to their approval of the case being closed and outcome accepted. Copies are kept in both hard copy and electronic (please see documentation of Grievance process) by both parties.

Contact Person:

Name and Address	Contact No.	E-mail ID
The Programme Co-ordinator **ICAR – KRISHI VIGYAN KENDRA** **Tamil Nadu Agricultural University** **Thirupathisaram – 629 901**	9942333276 Give office number	suthamathi_murugesan@ yahoo.co.in

ESMF, ESMP & Screening Check list

For the environmental and social impacts (both positive and negative), Environmental and Social Management Framework (ESMF) enumerates a set of measures to minimize the adverse impacts and enhance the positive impacts which are intended to be adopted during the project implementation with Half yearly report (Annexure-I). This will not only ensure that environmental and social safeguard activities are implemented in accordance with the framework and processes but also that there are adequate funds/resources for implementation and supervision of social and environmental management plans. Accounting the nature and scale of environmental and social impacts, specific and reliable departmental Standard Operating Procedures along with suggested mitigation measures will be adopted for environmental and

social safeguards. Environmental Social Management Plan (ESMP) not applicable for Agriculture activities.

S.No	Implementing Agencies	Constraints & Challenges	Suggested Mitigation Measures
1.	Agriculture, TNAU , Horticulture and allied departments ~~Agriculture, TNAU and Horticulture Related~~	Lack of quality planting materials	Supply of certified seeds of agricultural crops
2		Water shortages	Implementation of SRI in larger area in the sub-basin
3		Pest problems and Endemic outbreak in occasional cases	Use of biocontrol agents and integrated pest management
4		Lack of Community approach in farming and Awareness	Farmer's field school on seed to seed crop production technologies
5		Residues management and Lack of organized way of management	Supply of vermicompost mobile silpaulin units to on-farm composting
6		Soil health deterioration and Continued usage of inorganic fertilizers at considerable level	Soil test based fertilizer application to crops
7		Environmental pollution and Lack of ecofriendly inputs Pollution due to polymulch disposal	Supply of bio inputs like Pseudomonas, Biofertilizers like Azospirillum, Phosphobacteria, Rhizobium Collection and safe disposal

~~**Include Screening for TNAU**~~

- ~~Pesticides residues is identified as one of the problem – Random samples collected at the before implementation of interventions and gave the suitable recommendation to the farmers.~~
- ~~Environmental and social safeguards: Random samples collected at the harvest time from the vegetables crops from different sub basins and given for residue analysis in the toxicology lab of Dept. of Agricultural Entomology, TNAU, Coimbatore. All the sub basin scientist are instructed to study the methane emission from SRI and Non- SRI method of cultivation.~~

Plan of activities for Environmental Monitoring and Awareness

- ❖ Develop Information, Education and Communication (IEC) material in local language for generating awareness regarding safe use of pesticides

- ❖ Promote wide application of bio-inoculants and bio-pesticides, wherever possible
- ❖ Promote System of Rice Intensification (SRI) to reduce water demand
- ❖ Work with WUAs in encouraging market based non-water intensive crops cultivation wherever possible and for promoting conjunctive use of water resources
- ❖ Demonstrate and scale-up IPM strategy and monitor the adoption rate
- ❖ Promote wide use of organic inputs, such as, bio-manure, farm yard manure and bio-fertilizers and provide training on production and use of these alternatives
- ❖ Ensure that marginal farmers and poor households are also covered in demonstrations and training
- ❖ Shift to less water intensive crops
- ❖ Promotion of micro irrigation
- ❖ Sustainable Crop Intensification
- ❖ Climate resilient Package of Practices
- ❖ Moderate use of agrochemicals – soil test based fertilizer application
- ❖ Pest Management in concurrence with Pest Management Plan (PMP)
- ❖ Trainings and demonstrations on restricted and safe use of pesticides
- ❖ Trainings and demonstrations on Integrated Crop management Practices
- ❖ Support for Production of Bio-pesticides at village level bio village concept.

10. CAPACITY BUILDING & INFORMATION, EDUCATION & COMMUNICATION

10.1. Capacity building

10.1.1. Training to stakeholders

Under this activity, imparting training to all the beneficiaries as off-campus training is planned. The Capacity building programmes at sub-basin level is enlisted below.

S. No	Particulars	Duration (days)	No/ batch	Total batch	Budget / batch	Total budget (lakhs)
1	Productivity enhancement by Green Manure – Rice(AWDI) – Pulses	1	50	5	10000	50000
2	Improved farming practices For brinjal through Grafted	1	50	5	10000	50000

	seedlings					
	Total					**1.0**

10.1.2. Exposure visit

In-order to have practical knowledge on various improved farming practices prevailing across the District and State, it has been proposed to expose the stakeholders by organizing educational tours for having better cross learning.

10.2. IEC including Awareness creation, documentation and IEC equipment

10.2.1. Organize awareness campaign and Village Meetings

- Awareness will be created by Explaining about the scheme – organization objectives, activities, project contribution and farmers participation
- Farmers will be sensitized through Village meetings and Campaigns on "Improved cultivation techniques in rice and brinjal" along with the need for new methods and best alternatives for enhancing their farm income.
- Emphasis on efficient technologies in water management for crops will be made
- The role of stake holders in the project will be emphasized.
- IEC materials such as Posters, Pamphlets and leaflets may be used as training aids.

10.2.2. Documentation

- Maintenance of records and registers
- Field note for each activity
- Daily memorandum sheet
- Receipt and issue of inputs
- Technical observations on soil, water and crop
- Printing pamphlets, Booklets about the interventions
- Reporting and publications

10.2.3. Follow-up Visits:

- Follow-up visits will be made to ensure the sustainable application of new skills, methods and ideas.

10.2.4. Out sourcing charges on vehicles

- Expenditure on TA /DA for the purpose of TNIAMP Project
- Fuel bill of university vehicle utilized for the project
- Hire charges of university vehicle utilized for this purpose

11. MANAGEMENT COST

11.1. Outsourcing of technical staff

Outsourcing of technical staff is included in TNAU sub basin plan to carry out the field activities.

12. YEAR WISE CROP BASED ACTIVITIES

S. No.	Particular	Area (Ha)	
		I Year	Total (Ha)
1.	GM-AWDI-Pulses	145	15.95
3.	Grafted Brinjal to enhance the productivity of Brinjal	5	2.50
	Total	**150**	**18.45**

Nambiyar Sub-basin – Year Wise Spilit-up

P-Physical in ha, F-Financial in Rs.in lakhs

S. No.	Particulars	Unit Cost (Rs./ha)	I Year		Total	
I	**A. Field intervention**		**P**	**F**	**P**	**F**
1	GM-Rice AWDI-Pulses	11000	145	15.95	145	15.95
2	Grafted Brinjal to enhance the productivity of brinjal	50000	5	2.50	5	2.50
	Total (I)		**150**	**18.45**	**150**	**18.45**
II	**IEC & CB**					
1	**Capacity Building**					
	a) Training to stake holders			0.50		0.50
	b) Exposure Visit			0.50		0.50
2	**IEC**					
	a)Awareness Creation activities			0.42		0.42
	b) Documentation			0.40		0.40
	c) IEC Equipments			0.70		0.70
	d) Outsourcing of vehicle and TA			0.65		0.65

	Total (II)			**3.17**		**3.17**
III	**Management cost**					
	Outsourcing of Technical staff			1.92		**1.92**
	Overall Total				**150**	**23.54**

Abstract

P-Physical in ha, F-Financial in Rs.in lakhs

S. No.	Particulars	Unit Cost (Rs./ha)	Total	
I	**A. Field intervention**		**P**	**F**
1	GM-Rice AWDI-Pulses	11000	145	15.95
2	Grafted Brinjal to enhance the productivity of brinjal	50000	5	2.50
	Total (I)		**150**	**18.45**
II	**IEC & CB**			
1	**Capacity Building**			
	a) Training to stake holders			0.50
	b) Exposure Visit			0.50
2	**IEC**			
	a)Awareness Creation activities			0.42
	b) Documentation			0.40
	c) IEC Equipments			0.70
	d) Outsourcing of vehicle and TA			0.65
	Total (II)			**3.17**

III	**Management cost**			
	Outsourcing of Technical staff			**1.92**
	Overall Total		**150**	**23.54**

Annexture I

ESMF- Half Yearly Reporting (March/September)
TNAU

Sub-basin :									**Total Demonstration Area :**			
1	2	3	4	5	6	7	8	9	10	11	12	13
Activity/Sub component	**Soil Testing (Yes/No)**	**Adoption of soil test report recommendations(Yes/No with Remarks)**	**Use of Organic along with Inorganic Fertilizers (%)**	**Use of only Organic Fertilizers in nutrient management (Ha & %)**	**Use of only Bio-pesticides (Ha)**	**Area under Micro irrigation (Ha)**	**Target farmers***	**No of farmers* benefitted**	**List of recommended Bio-pesticides in use**	**Negative Impacts if any**	**Mitigation Measures / ESMF Arrangements**	**Remarks**