AGRICULTURAL ENGINEERING DEPARTMENT (AED)

TN IAMP PHASE - III

NAMBIYAR SUB BASIN

DETAILED PROJECT REPORT

PROJECT COST FOR AED ACTIVITIES : Rs. 9.00 Lakhs.

Ayacut Area : 1312.83.0 Ha

EXECUTIVE ENGINEER(AE)
TIRUNELVELI

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

1.1 GENERAL :

Agriculture is the dominant sector in the Indian economy. Tamil Nadu depends largely on the surface water irrigation as well as ground water irrigation. The state has used the surface and ground water potentials to the maximum limit and hence the future development and expansion depends mainly on the efficient and economical use of water potential and resources.

To achieve higher water use efficiency, it is necessary to improve and upgrade the existing conveyance system and also to introduce modern irrigation methods. With the above objective, a comprehensive programme has been proposed with a Multi Disciplinary Approach.

The Government of Tamil Nadu have taken a number of progressive actions on water resources and irrigation management, for the modernization of the Traditional Irrigation systems in TamilNadu under the World Bank funded project of Tamil Nadu Irrigated Agriculture Modernization Project (TNIAMP).This multifaceted approach will not only increase the agricultural productivity, it will also expect to yield wholistic benefits to the farming community.

1.2 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 and Western Ghats on the western side, Indian ocean on the southern side. The basin area is covered in Tirunelveli district. The length of the Nambiyar river is 48km finally it debouches in to Bay of Bengal .

This basin has been divided into 3sub-Basins namely as follows:

1. Nambiyar
2. Karumeniyar
3. Hanumanadhi

1.3.Description of the Nambiyar Sub-Basin

Nambiyar river,originates from the eastern slope of the Western Ghats at an alititude of +1650 in the Kalakkad reserve forest area and flows down to a length of 48 km before it falls in to the Bay of Bengal. The Nambiyar has 2 tributaries numerous small streams contributing the flow.

The Kodumudiyar is located at latitude 8^0 26' 00" and longitude 77^0 32' 00" across the jungle streams, Kodumudiyar and Kombaiyar at the confluence point where it is called Thamaraiyar, the main tributary to Nambiyar river at Thirukkurungudi village of Nanguneri Taluk in Tirunelveli District. The Reservoir derives water from its catchment both from Southwest and Northeast monsoon.

The Kodumudiyar and Kombaiyar River orginates in the eastern slope of the Western Ghats at an elevation ranging from 1400m to 1650m respectively. River Kombaiyar orginates in Nanguneri Taluk of Tirunelveli District and flows for 7kms in the Southeast direction before confluencing with Koumudiyar river. After confluencing the rivers take the name of Thamaraiyar. The Thamaraiyar river confluence with the Nambiyar river just 2km above Dhalavaipuram Anicut.

Command area

There are 85 tanks and 9 anicuts and 100.90 km length of supply channels under the control of WRD of PWD in Nambiyar sub basin.

Among that 45 Tanks where already executed under other schemes and its break up details is furnished in chapter 5.

9 anicuts and 100.90 km length of supply channels does not require any rehabilitation works

40 tanks, and 4.00 km length of system canal with an ayacut of 1312.83 Ha. are proposed in this Phase III of TNIAMP.

These Infrastructures are located within the Sub-Basin's hydraulic boundary spread over 19 villages of 3 Taluks in Tirunelveli District. The Total Command area under these Infrastructures worksout to 3538.97 Ha.

<u>For Total sub basin area</u>		
Tank Ayacut– 85 Tanks	:	3159.66 Ha
Anicut Direct Ayacut – 9 Anicuts	:	-
Supply Channel – 100.90 km	:	379.31 Ha
Total	**:**	**3538.97 Ha**
<u>For Present Project area</u>	:	
Tank Ayacut - 40 Tanks	:	1228.16 Ha
System Canal – 4.00 km	:	84.67 Ha
Total	**:**	**1312.83 Ha**

,

1.4 List of Blocks, Taluks and District covered in NAMBIYAR Sub Basin:		
DISTRICT	TALUK	BLOCK
Tirunelveli	Nanguneri	Kalakkad
		Nanguneri
		Vallioor
	Radhapuram	Vallioor
		Radhapuram
	Thisaiyanvilai	Radhapuram
		Vallioor

1.4.1 a) List of Districts, Blocks and Taluks, Tanks and Ayacut details of the Tanks proposed in this project:

Sl.No	District	Block	Taluk	No.of Tanks	Ayacut ha
1	Tirunelveli	Kalakkad	Nanguneri	4	410.170
2	Tirunelveli	Nanguneri	Nanguneri	4	134.790
3	Tirunelveli	Vallioor	Radhapuram	11	363.530
4	Tirunelveli	Radhapuram	Radhapuram	7	132.620
5	Tirunelveli	Radhapuram	Thisaiyanvilai	9	92.560
6	Tirunelveli	Vallioor	Thisaiyanvilai	5	94.490
			Total	**40**	**1228.160**

1.4.1 b) List of Districts, Blocks and Taluks, Channels and Ayacut details of the System canal proposed in this project:

Sl.No	District	Block	Taluk	Length of canal	Ayacut (ha)
1	Tirunelveli	Kalakkad	Nanguneri	4.00	84.67

1.5 POPULATION DETAILS

1.5.1 Polpulation Size: Urban and Rural

Sl. No.	Sub Basin	Urban Population in million	Rural Population in million	Total Population in million
1	Nambiyar sub basin full area	0.185	0.345	0.530
2	Nambiyar sub basin project area	0.104	0.129	0.233

1.5.2 Population Density

Sl No	Sub Basin	Area Sq.km	Total Population	Density Person / Sq.km
1	Nambiyar	604.32	530234	877

1.5.3 Population Sex

Sl. No	Name of the Sub Basin	Population			Male %	Female %	Total %	Sex Ratio
		Male	Female	Total				
1	Nambiyar Sub basin Complete area	238606	291628	530234	45%	55%	100%	1222 females per 1000 males
2	Nambiyar Sub basin Project area	105063	128411	233474	45%	55%	100%	1222 females per 1000 males

Sex Ratio in this Basin,

In Tirunelveli District 1214 Female per 1000 male.

1.5.4 Literacy Level

Sl. No.	Name of the Sub Basin	Literacy Population in Million			Total Population in Million			% Literacy of Population		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
1	Nambiyar sub basin full area	0.174	0.175	0.349	0.239	0.292	0.531	73%	60%	65%
2	Nambiyar sub basin project area	0.0767	0.077	0.154	0.105	0.128	0.233	73%	60%	66%

Hydrology of Sub Basin

2.1 Location

The Nambiyar sub basin is the bounded by Tamirabarani basin in the north Pachiyar basin on the west Bay og Bengal on the east,and Indian Ocean on the south.

The Nambiyar sub basin area 1046.00 sq.km. out of the 2084.00 sq.km. of Nambiyar basin. Of this area, Tirunelveli district covers 1046.00 sq.km

2.2 Geomorphology

The Nambiyar Subbasin, basin area is 1046.00 Sq.Km which is 50.19% of total basin area.

2.3 Demography

Name of sub basin	Total No of Blocks	Total No. of Villages
Nambiyar sub basin	4	19

2.4 Geology

In Nambiyar sub basin, crystalline rocks of achean age,post-Mio Pliocene rock Quaternary rocks and alluvium dominate the geological structure of the Nambiyar Basin.

2.5 Land use Classification:

In the main Nambiyar river course crop land (paddy, and banana) is found from Kalakkad,Vallioor,Nanguneri (Nambiyar river), and Radhapuram and near by coastal area. This category is further classified in to wet and dry crop lands. In Wet crop lands paddy,coconut, banana, fruits &vegetables,chillies etc are cultivated.

2.6 Ground water potential;

In general ground water potiential is good .

Ground water potential (based on year 2009)

Sl. No.	Name of Block	Block Area falling in the project area of the sub basin Sq.Km	% block area falling in the project area of the sub basin	Total Potential in project area ofsub basin (MCM)	Net Potential in project area of sub basin (MCM)	Categorisation of Block (2009)
1	Kalakkad	185.68	16.24	38.88	6.31	Safe
2	Nanguneri	363.32	16.94	74.82	12.67	Safe
3	Vallioor	433.42	36.68	54.47	19.98	Semi Critical
4	Radhapuram	458.57	30.19	37.24	11.24	Critical
	Total				**50.21**	

2.7 Gauging stations in CWC & PWD

There is one number PWD gauging station at Thoppuvillai in Nambiyar subbasin. There are 40 System and Non system tanks proposed in this Nambiyar subbasin and the storage capacity of 40 tanks is around 10.233 Mcum. The basin as a whole is not in surplus. Puliman Anicut is the last anicut across Nambiyar River.

2.8 Surface water potential

The sub basin having 75% dependable surface water potential in Mcum

5.49	40.63	27.43	73.55
2.05	15.21	10.27	27.53

2.9 Level of ground water analysis through observation wells

The classification of blocks in Nambiyar sub basin based on the level of Ground Water Development from 2003 to 2009 is given below.

Sl. No.	Block	District	Categorisation of Block (2009)	Categorisation of Block (2019)
1	Kalakkad	Tirunelveli	Safe	Safe
2	Nanguneri		Safe	Safe
3	Vallioor		Semi Critical	Semi Critical
4	Radhapuram		Critical	Critical

2.10 Industrial water demand (past and future) of Nambiyar sub basin

The annual water demand for the industries during planning periods for sub basin is given below.

Year	Annual water demand in Mcum
2014	1.707
2020	2.055
2023	2.227
2030	2.661
2040	3.500

2.11.Domestic water demand (Past & future) details;

Nambiyar sub basin	2011	2020	2030	2040	2050
Population in million	0.792	0.901	1.039	1.201	1.388

Total water demand in mcum	13.22	15.13	17.59	20.47	23.85

2.12 Live stock population and annual water demand

Nambiyar sub basin

Live stock Name	Nos.	Annual water demand Mcum
Cattle	28247	1.130
Buffallo	4248	0.232
Sheep	43014	0.314
Goat	34329	0.250
Pigs	2908	0.042
Poultry	59860	0.006
	172606	**1.974**

2.13 SOIL CLASSIFICATION

`In this sub basin, due to different stages, Weathering& parent material, the soil types are met with in 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 it well drained, poor water and nutrient holding capacity.	Annual crops with shallow roots systems cum up wells
Vertisols	Black soil	Suitable for cotton, Pulses etc

2.14 LAND HOLDINGS

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

Category	Size of holdings	Numbers	Percentage
Marginal	Below 1.00 Ha	19690	62.98
Small	1.00 – 2.00 Ha	5062	16.19
Medium	2.00 – 5.00 Ha	4787	15.31
Big	5.0 ha & above	1725	5.52
	Total	31264	100.00

Above table revealed that the marginal farmers alone accounted for 62.98 percent in the sub basin followed by small farmers. Developmental

initiatives will need to take the fact into account.

3.1 Rainfall & Rain gauge stations in the sub basin:-

Name of Rain Gauge Station	Taluk	District	Latitude	Longitude	RG station area sq.km	Sub basin area sq.km	Annual average rainfall in mm	Annual average weighted rain fall for the sub basin in mm	NE Mon soon	SW mon soon	Winter	Summer	Annual
Nanguneri	Nanguneri	Tirunelveli	08° 29' 46''	77° 38' 47''	363.32	1046 sq.km	669.0	682.4	443.0	63.0	48.0	115.0	669.0
Kalakkad	Nanguneri	Tirunelveli	08° 30' 54''	77° 33' 02''	185.68		669.0		443.0	63.0	48.0	115.0	669.0
Radhapuram	Radhapuram	Tirunelveli	08° 15' 59''	77° 41' 07''	55.32		744.2		443.8	136.2	48.3	115.9	744.2

4. PROPOSAL & COST ESTIMATE OF FARM PONDS

4.1 Objectives

The project aims to improve water delivery through Modernisation of Irrigation system, *improved water management and enhanced productivity by adopting climate resilience of irrigated agriculture* with improved agricultural diversification and enhancing alternate livelihoods through Livestock and Inland Aquaculture in a sub basin frame work.

Agricultural Engineering Department's objective in this project is its contribution for climate resilience and water productivity by way of construction of Farm Ponds.

4.2 Approaches

Water application efficiency is improved by harvesting water through construction of Farm Ponds as a supplementary source of water. Proper site selection will be done, as per the willingness of the farmers, based on the technical feasibility of the site, such as, soil type (non porous), topography (sufficient catchment area), location (lowest portion of the farmer's land to receive maximum runoff water).

4.3 Purpose of Farm Pond

The size of the Farm Pond may be 21.5 m x 21.5 m x 3.0 m or 28.0 m x 28.0 m x 1.50 m with a capacity to hold approximately 1100 cubic meters. The size depends on the catchment area and quantity of runoff water and the depth depends on the available soil depth, in principle. But most important factor is the willingness of the farmer to part the portion of his land for the construction of Farm Pond. If soil conditions permit, the depth can be increased to accommodate more water storage. Constructing a farm pond depends on soil condition, topography, drainage capacity, infiltration, rainfall of the area in which the farm land is situated.

The drained water and surplus irrigation water shall be stored in the farm ponds during monsoon seasons. Unexpected heavy runoff received during summer seasons shall also be harvested in these farm ponds. During the critical stage of crops, before harvesting stage, when irrigation water could not be extended; the water stored in farm ponds shall be utilized as life saving irrigation during the terminal stress period. This will give assured yield of crops for the farmers.

Besides, aquaculture is proposed to be done in selected farm ponds with the technical and input assistance from fisheries department for additional income, wherever the impounded water is available for 4 months and above. The farm ponds are proposed at an estimated cost of about Rs. 1,00,000/- per farm pond. The farmers who opted for farm ponds would be motivated for adopting drip/sprinkler irrigation for raising their crops. The contribution at the rate of 25% of the total cost for all the farmers shall be collected.

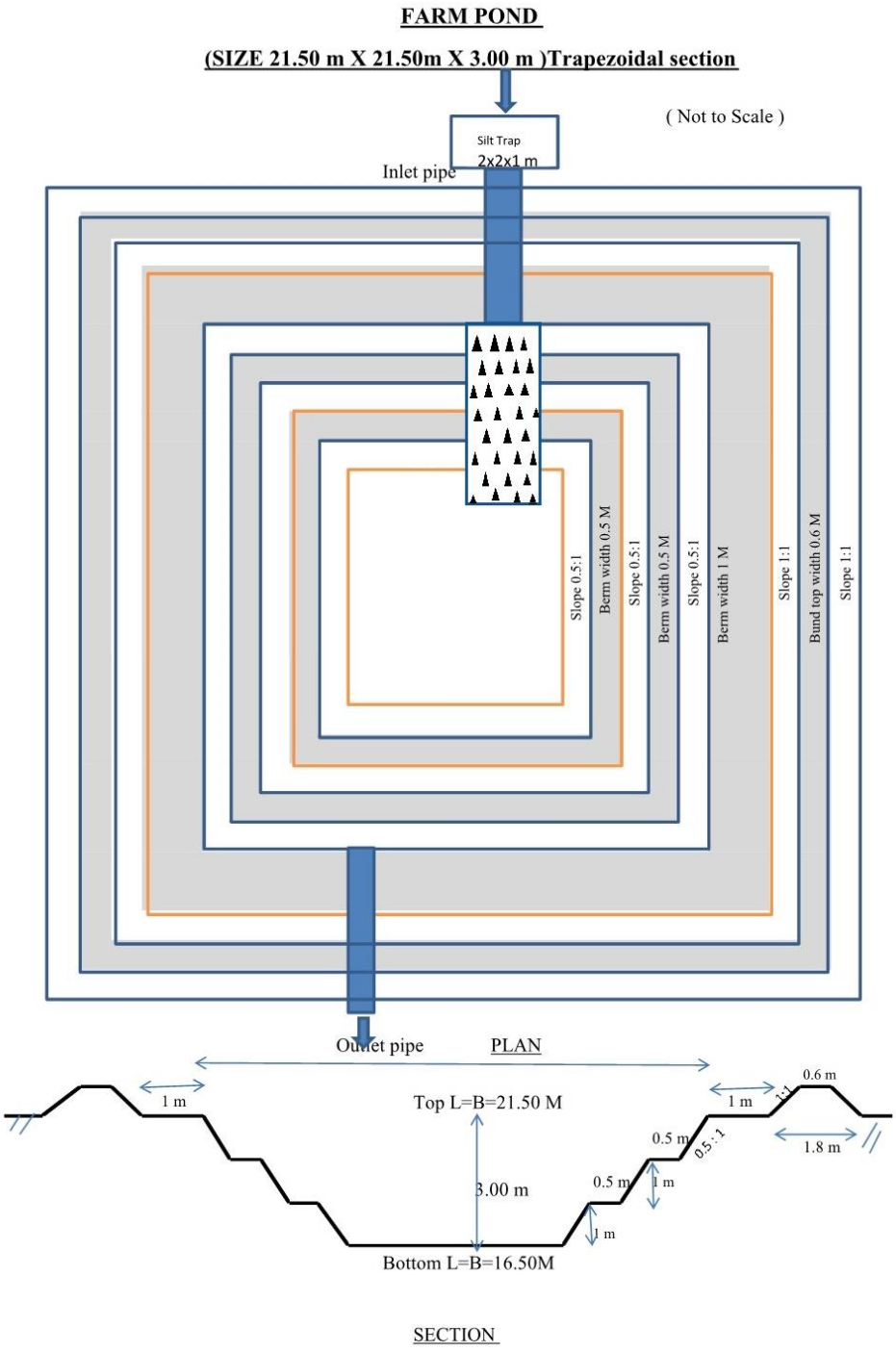
Design, Layout and Unit Cost:

The two model estimates of Farm Pond of sizes

(a) 21.50 m x 21.50 m with 3.00 m depth with 2 step berms at every 1m interval, for soils having sufficient depth and

(b) 28.00 m x 28.00 m with 1.50 m depth with single berm, for soils having limited depth, both for an unit cost of Rs.75,000/- per Farm Pond as Project cost, to be adopted from Phase II onwards, with a capacity to hold about 1100 cubic metres.

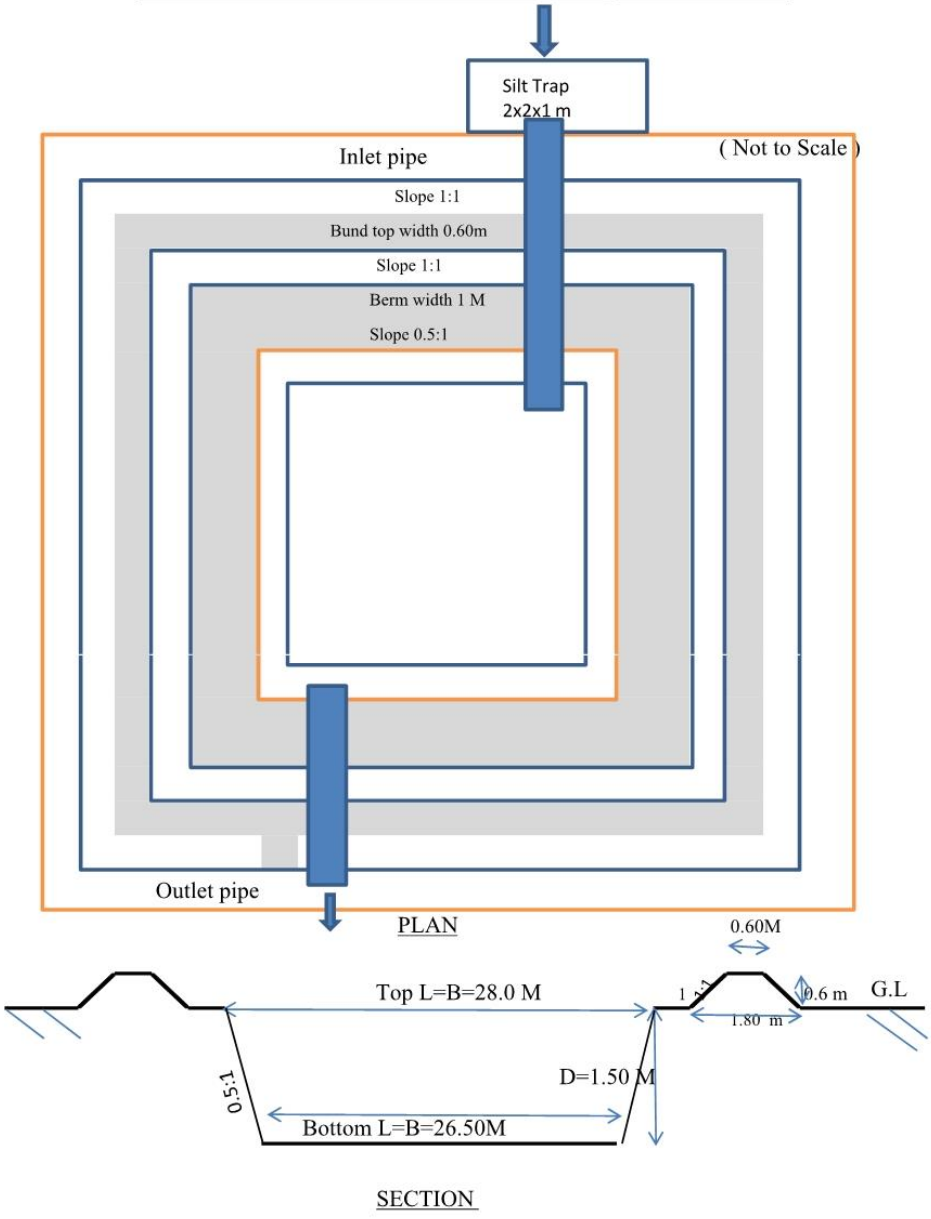
Layout of Farm Pond of size 21.50m x 21.50m x 3.00m



Layout of Farm Pond of size 28.00m x 28.00m x 1.50m

FARM POND

(SIZE 28.00 m X 28.00 m X 1.50 m)-Trapezoidal section



The total cost for the above mentioned two models of Farm Ponds, works out to Rs.1,00,000/- per Farm Pond, i.e., Rs.75,000/- per Farm Pond for works(project cost) and Rs. 25,000 per Farm Pond as Farmer's contribution for disposal/transportation of excess earth, for all category of farmers.

4.5 Proposals in Nambiyar Sub Basin

S. No.	Component	Physical in No.	Financial in Rs. Lakh
1	Farm Pond	12 Nos	9.00
	Total	12 Nos	9.00

Based on the joint walk through survey along with all line Departments, Awareness meetings in the village clusters in the sub basin area, Wide publicity given by issue of notices/pamphlets, Announcements in Farmer's grievance day meetings in District Collectorates, Communication in Grama Sabha meetings, Display of Notice in Pachayat's Notice Board, etc., the DPR has been finalized.

During implementation of the intervention, the environmental and social safeguards aspects including grievance redress mechanism will be adhered.

Component B1: Construction of Farm Ponds

<table>
<tr><td colspan="4">1. GENERAL</td></tr>
<tr><td colspan="4">1.1. Sub-Basin: NAMBIYAR SUB BASIN</td></tr>
<tr><td colspan="4">1.2. Package no.:</td></tr>
<tr><td colspan="4">1.3. No. of Canals/Channels:</td></tr>
<tr><td colspan="4">1.4. Canals/Channels Ayacut Area(Ha): 1312.83.0 Ha (9 Anicut Area)</td></tr>
<tr><td colspan="4">1.5. No. of Tanks: System Tank: 40Nos, System Canal:4.00Kms</td></tr>
<tr><td colspan="4">1.6. Tank Ayacut (Ha): 1228 .16.0 Ha Sys. Canal:84.67.0Ha</td></tr>
<tr><td>1.7. Average annual rainfall in command area (mm)</td><td colspan="3">669.00 mm (Kalakkad & Nanguneri)
744.20 mm (Radhapuram)</td></tr>
<tr><td>1.8. Soil type in command area</td><td colspan="3"></td></tr>
<tr><td>1.9. Command area (Ha)</td><td colspan="3"></td></tr>
<tr><td>1.10. Proposed Area(Ha)</td><td colspan="3"></td></tr>
<tr><td></td><td>Category 1</td><td>Category 2</td><td>Category 3</td></tr>
<tr><td>1.11. Proposed activities under the project</td><td>☐Procurement of pesticides
☐Other interventions (list)</td><td>☐Promotion of new crop and agronomic practices
☐Farm ponds
☐Promotion of modern technologies
☐Promotion of high value crop using micro-irrigation system
☐Rehabilitation of existing/ new field channels
☐Other interventions (list)</td><td>☐Training in safe use of pesticides
☐Training on organic farming
☐Creation of WUAs
☐Other interventions (list)</td></tr>
<tr><td>1.12. Command area of canal/tank (list name of villages)</td><td colspan="3"><table><tr><td>Sl No</td><td>Name of Tank</td><td>Name of village</td><td>Ayacut (ha)</td></tr><tr><td>1</td><td>Nambikurichikulam</td><td>Kottaikarungulam</td><td>241.70.0</td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td colspan="4">2. Rain-water harvesting structure</td></tr>
<tr><td>2.1. RWH proposed?</td><td colspan="3">☐ Yes ☐ No ☐ NA</td></tr>
</table>

2.2. Type of RWH structure proposed	**Farm Pond**
2.3. Area of proposed RWH (ha)	**12 Nos**
2.4. Expected average rainfall to be captured (mm)	**744.20 mm**
2.5. Is proposed RWH structure expected to recharge ground water?	☐ **Yes** ☐ No
3. Equipment/machinery to be deployed	
4. **Social Screening**	
4.1 Scope for involvement of Women, Vulnerable groups and Marginal farmers in project activities and benefits	☐ Yes ☐**No** ☐NA
4.2. Have the beneficiaries been identified?	☐ **Yes** ☐ No ☐ NA
4.3. Gender Action Plan required? 4.4 If Yes, is the Plan prepared?	☐ Yes ☐ **No** ☐ NA ☐ Yes ☐ No ☐ NA
4.5 Vulnerable group development plan required? 4.6 If Yes, is the Plan prepared?	☐ Yes ☐ **No** ☐ NA ☐ Yes ☐ No ☐ NA
4.7 Open to local labours and vulnerable households in intervention related labour activities	☐ Yes ☐**No** ☐NA

Prepared by:

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Assistant Engineer (AE), AED

Approved by:

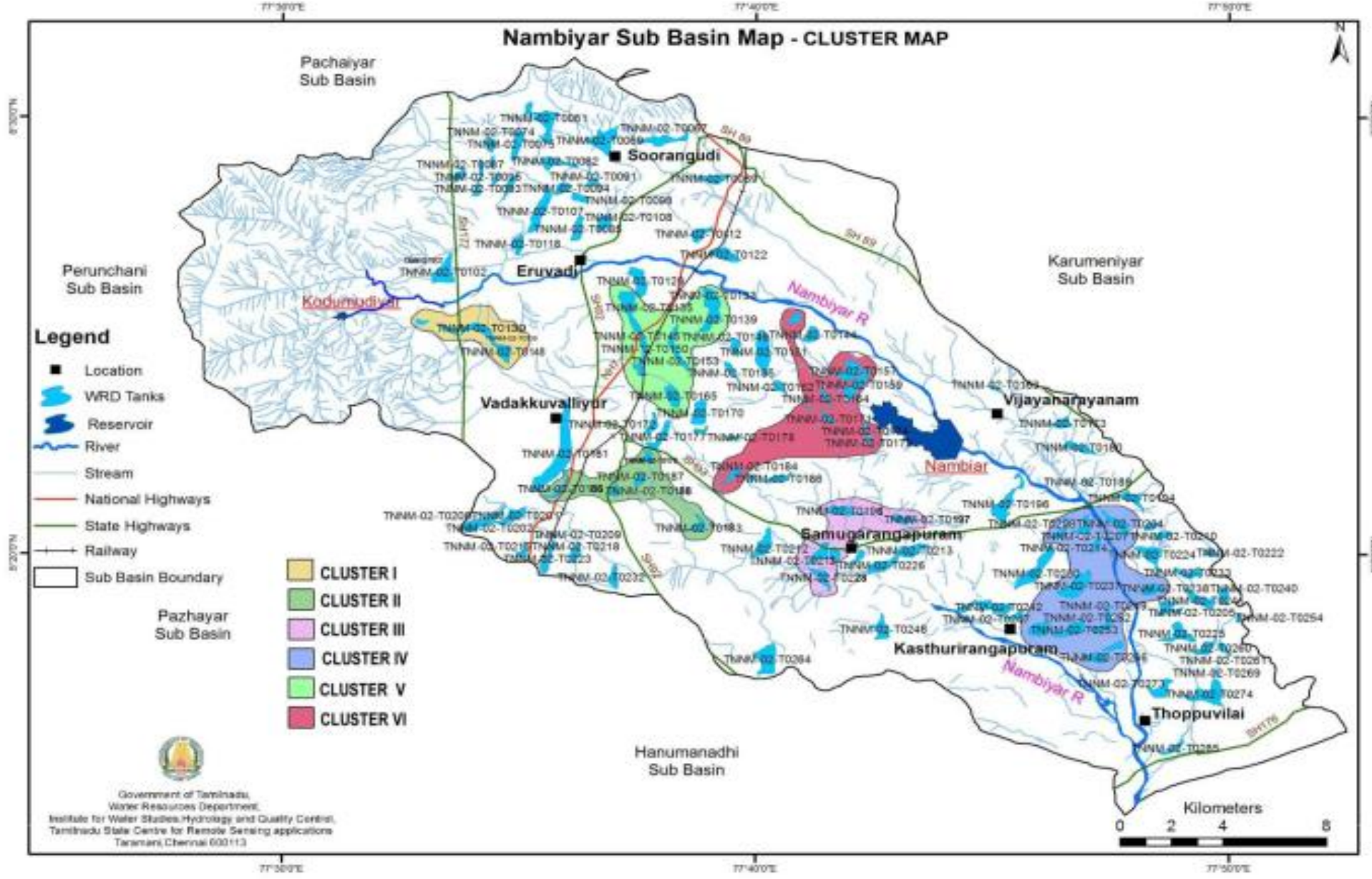
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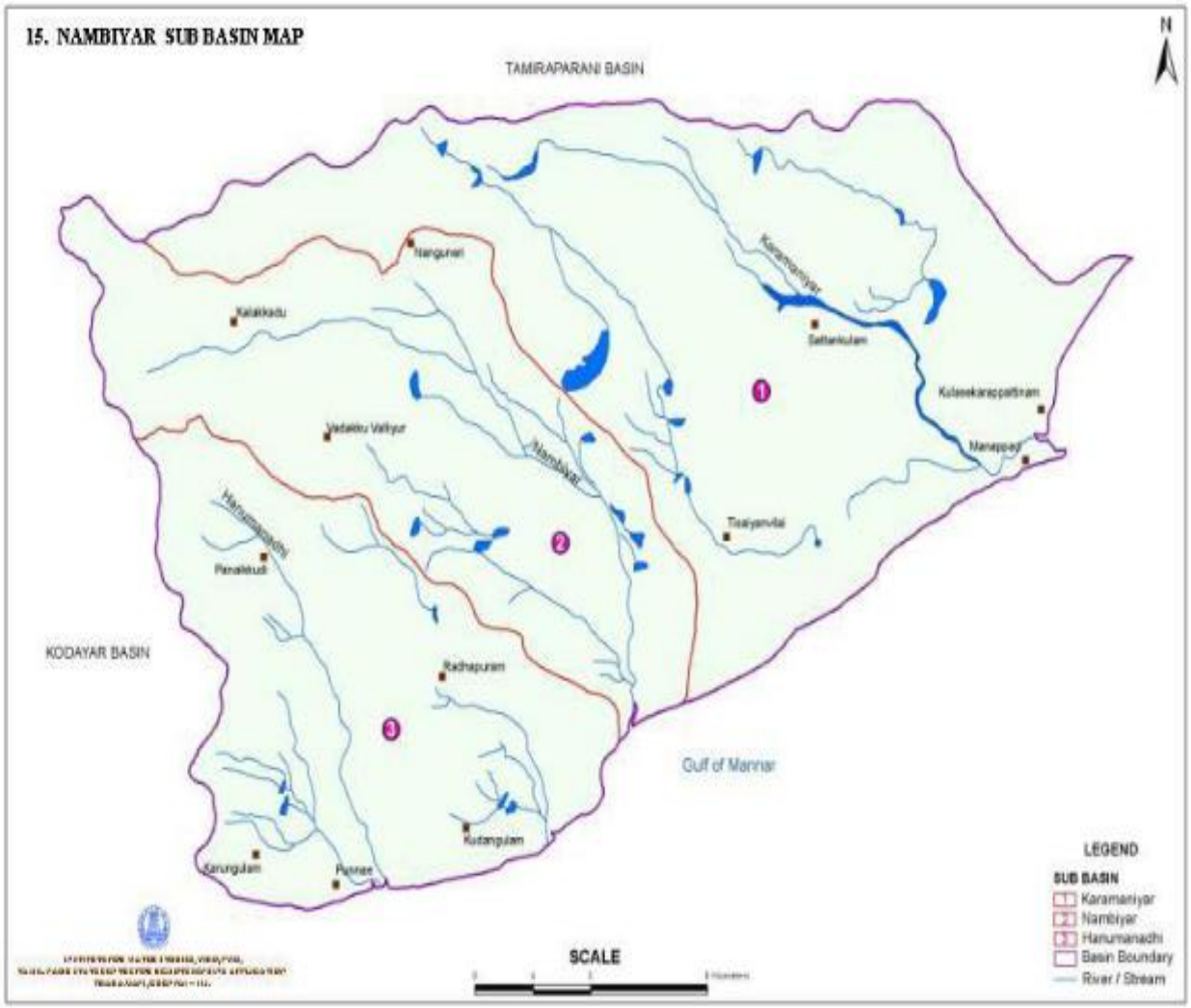
Executive Engineer (AE), AED

Reviewed by:

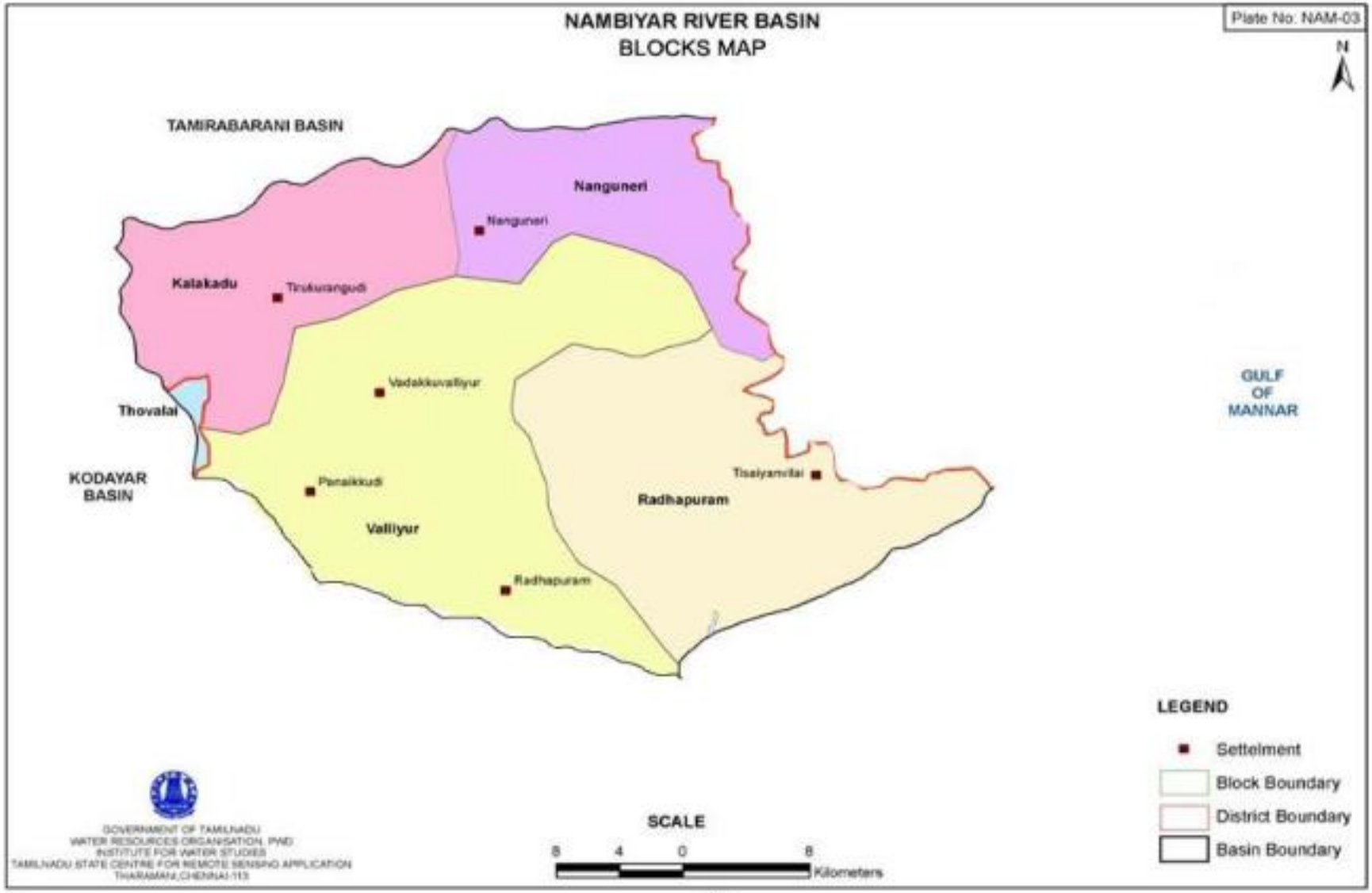
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Chief Engineer (RVP), AED


Nambiyar Sub Basin Map - CLUSTER MAP
Pachaiyar Sub Basin
Perunchani Sub Basin
Karumeniyar Sub Basin
Pazhayar Sub Basin
Hanumanadhi Sub Basin
Sooranguḍi
Eruvadi
Vadakkuvalliyur
Samugarangapuram
Kasthurirangapuram
Vijayaharayanam
Thoppuvilai
Nambiyar R
Nambiar
Kodumudiyar
Legend
Location
WRD Tanks
Reservoir
River
Stream
National Highways
State Highways
Railway
Sub Basin Boundary
CLUSTER I
CLUSTER II
CLUSTER III
CLUSTER IV
CLUSTER V
CLUSTER VI
Government of Tamilnadu,
Water Resources Department,
Institute for Water Studies,Hydrology and Quality Control,
Tamilnadu State Centre for Remote Sensing applications
Taramani,Chennai 600113
Kilometers
0 2 4 8
77°30'0"E
77°40'0"E
77°50'0"E
8°30'0"N
8°20'0"N
N


15. NAMBIYAR SUB BASIN MAP
TAMIRAPARANI BASIN
N
Nanguneri
Kalakkadu
Vadaiku Valliyur
Karamaniyar
Nambiyar
Hanumanadhi
Panaikudi
KODAYAR BASIN
Radhapuram
Kurungulam
Panivai
Kudangulam
Settankulam
Kulasekarapattinam
Manappad
Tisaiyanvilai
Gulf of Mannar
1
2
3
SCALE
LEGEND
SUB BASIN
Karamaniyar
Nambiyar
Hanumanadhi
Basin Boundary
River / Stream

15


NAMBIYAR RIVER BASIN
BLOCKS MAP
Plate No: NAM-03
N
TAMIRABARANI BASIN
Nanguneri
Nanguneri
Kalakadu
Tirukurungudi
Vadakkuvalliyur
Thovalai
KODAYAR BASIN
Panaikkudi
Valliyur
Radhapuram
Tisaiyanvilai
Radhapuram
GULF OF MANNAR
LEGEND
Settelment
Block Boundary
District Boundary
Basin Boundary
SCALE
8 4 0 8
Kilometers
GOVERNMENT OF TAMILNADU
WATER RESOURCES ORGANISATION, PWD
INSTITUTE FOR WATER STUDIES
TAMILNADU STATE CENTRE FOR REMOTE SENSING APPLICATION
THARAMANI,CHENNAI-113

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TNIAMP PHASE III

NAMBIYAR SUB BASIN

5.1 CLUSTER WISE / INFRASTRUCTURE WISE / VILLAGE WISE CONVERGENT TABLE

Sl. No	Name of the cluster/ Infrastructure/ Village	Total Ayacut (Ha)			Total Area (Ha)		WRD/ Activities	Agriculture		TNAU		Horticulture		Agri marketing		AED		Fisheries		Animal Husbandry	
		FI	PI	Gap	Wop	WP		Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	Cluster I						Bund Strengthening, Repair/ Reconstruction of sluice & Weir														
1	Nadukkamparaikulam	6.453	6.453	1.434	12.906	14.340															
2	Kesavaneri Kulam	79.609	21.690	7.191	101.299	108.490															
3	Padalayar Tank	101.92	40.77	61.15	142.688	203.840															
3 a	Padalayarkal (System Canal)	67.74	8.47	8.47	76.21	84.68															
4	Karisalkulam	50.100	16.700	16.700	66.800	83.500															
	Total	**305.822**	**94.083**	**94.945**	**399.903**	**494.85**															

Sl.No	Name of the cluster/ Infrastructure/ Village	Total Ayacut (Ha)			Total Area (Ha)		WRD/Activities	Agriculture		TNAU		Horticulture		Agri marketing		AED		Fisheries		Animal Husbandry	
		FI	PI	Gap	Wop	WP		Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	Cluster II																				
5	Vallioor Puthukulam	131.15	52.46	78.69	183.610	262.300	Bund Strengthening, Repair/ Reconstruction of sluice & Weir														
6	Devarkulam	4.514	4.513	1.003	9.027	10.030															
7	Ganapathiyarkulam	2.230	0.890	1.330	3.120	4.450															
8	Alankulam	7.212	3.606	1.202	10.818	12.020															
9	Vattakulam	8.805	3.522	5.283	12.327	17.610															
	Total	**153.911**	**64.991**	**87.508**	**218.902**	**306.410**															

Sl. No	Name of the cluster/ Infrastructure/ Village	Total Ayacut (Ha)			Total Area (Ha)		WRD/ Activities	Agriculture		TNAU		Horticulture		Agri marketing		AED		Fisheries		Animal Husbandry	
		FI	PI	Gap	Wop	WP		Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	Cluster III						Bund Strengthening, Repair/ Reconstruction of sluice & Weir														
10	Kattayanerikulam	13.510	5.404	8.106	18.914	27.020															
11	Eluvarkulam	11.172	5.586	1.862	16.758	18.620															
12	Valatharvalavaithankulam	21.305	8.522	12.783	29.827	42.610															
13	Mannarkulam	6.365	2.546	3.819	8.911	12.730															
14	Kurunchikulam	5.256	2.628	0.876	7.884	8.760															
	Total	**57.608**	**24.686**	**27.446**	**82.294**	**109.740**															

Sl.No	Name of the cluster/ Infrastructure/ Village	Total Ayacut (Ha)			Total Area (Ha)		WRD/Activities	Agriculture		TNAU		Horticulture		Agri marketing		AED		Fisheries		Animal Husbandry	
		FI	PI	Gap	Wop	WP		Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	Cluster IV						Bund Strengthening, Repair/ Reconstruction of sluice & Weir														
15	Nambikurichi kulam	8.570	3.420	5.130	11.990	17.120										F P	5 Nos				
16	Kannankulam	3.652	5.022	0.456	8.674	9.130															
17	Vilimankulam	5.512	7.579	0.689	13.091	13.780															
18	Aimudi kulam	2.915	4.010	0.365	6.925	7.290										F P	3 Nos				
19	Palathikulam	2.264	3.113	0.283	5.377	5.660															
20	Pappankulam	3.376	4.642	0.422	8.018	8.440															
21	Periyalankulam	0.748	1.029	0.093	1.777	1.870															
22	Kailasaperikulam	1.796	2.470	0.224	4.266	4.490															
23	Ponathikulam	9.912	13.629	1.239	23.541	24.780															
	Total	**38.745**	**44.914**	**8.901**	**83.659**	**92.560**										F P	8 Nos				

Sl.No	Name of the cluster/ Infrastructure/ Village	Total Ayacut (Ha)			Total Area (Ha)		WRD/Activities	Agriculture		TNAU		Horticulture		Agri marketing		AED		Fisheries		Animal Husbandry	
		FI	PI	Gap	Wop	WP		Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	Cluster V						Bund Strengthening, Repair/ Reconstruction of sluice & Weir														
24	Karuthanerikulam	10.656	5.328	1.776	15.984	17.760															
25	Sinammalpuram Bigtank	31.205	12.482	18.723	43.687	62.410															
26	Nallapethankulam	7.30	2.83	2.03	10.126	12.160															
27	Kandiaperikulam	25.476	12.738	4.246	38.214	42.460															
28	Kovanerikulam	15.918	7.959	2.653	23.877	26.530															
	Total	**90.551**	**41.337**	**29.432**	**131.888**	**161.320**															

Sl.No	Name of the cluster/ Infrastructure/ Village	Total Ayacut (Ha)			Total Area (Ha)		WRD/Activities	Agriculture		TNAU		Horticulture		Agri marketing		AED		Fisheries		Animal Husbandry	
		FI	PI	Gap	Wop	WP		Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	Cluster VI						Bund Strengthening, Repair/ Reconstruction of sluice & Weir														
29	Kallikulam	6.516	3.258	1.086	9.774	10.860															
30	Karuppukalkulam	1.796	2.470	0.384	4.266	4.650															
31	Veetrithankulam	2.180	0.872	1.308	3.052	4.360															
32	Thankaiyankulam	1.496	2.440	0.224	3.936	4.160															
33	Vilvarayankulam	13.760	8.256	5.504	22.016	27.520															
34	Achampadukulam	13.344	6.672	2.224	20.016	22.240										FP	4				
35	Thanuvankulam	1.630	0.652	0.978	2.282	3.260															
36	Poopillaikulam	1.970	0.788	1.182	2.758	3.940															
37	Panisakulam	16.525	9.915	6.610	26.440	33.050															
38	Thambakulam	3.185	1.274	1.911	4.459	6.370															
39	Sittur Keelkulam	14.03	8.68	0.68	22.712	23.390															
40	Iyyapanerikulam	2.080	0.832	1.248	2.912	4.160															
	Sub Total	**78.516**	**46.107**	**23.337**	**124.623**	**147.960**															
	Total	**725.153**	**316.116**	**271.567**	**1041.269**	**1312.83**										FP	4				

5.2 CLUSTER WISE / INFRASTRUCTURE WISE / VILLAGE WISE CONVERGENT TABLE

Sl.No	Name of the cluster/ Infrastructure/ Village	Total Ayacut (Ha)			Total Area (Ha)		WRD/ Activities	Agriculture		TNAU		Horticulture		Agri marketing		AED		Fisheries		Animal Husbandry	
		FI	PI	Gap	Wop	WP		Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha
1	**2**	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	9	20	21	22
1	CLUSTER I	305.822	94.083	94.945	399.903	494.85															
2	CLUSTER II	153.911	64.991	87.508	218.902	306.410															
3	CLUSTER III	57.608	24.686	27.446	82.294	109.740															
4	CLUSTER IV	38.745	44.914	8.901	83.659	92.560										Farm Pond	8 Nos				
5	CLUSTER V	90.551	41.337	29.432	131.888	161.320															
6	CLUSTER VI	78.516	46.107	23.337	124.623	147.960										Farm Pond	4 Nos				
	Total	**725.153**	**316.116**	**271.567**	**1041.269**	**1312.83**										Farm Pond	12 Nos				