TN-IAMWARM PROJECT

PAMBAR TO THIRUKOILUR SUB BASIN

DETAILED PROJECT REPORT

WATER RESOURCES DEPARTMENT

1.1 INTRODUCTION

PAMBAR TO THIRUKOILUR SAB BASIN

INTRODUCTION

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 Tamilnadu state is deficit in Water Resources where the per capita water availability is only 600 Cum, against the national average of 4000 Cum. The future development and expansion depends only on the **efficient and economical use of water** potential and resources.

WATER USE EFFICIENCY

Water Use Efficiency is an index of percentage gainful performance of irrigation water releases and also ecological impact on the environment. Primarily the emission of green house gases can be minimized by water use efficiency. At between 50 and 100 million tonnes of methane a year, paddy agriculture is a big source of atmospheric methane, possibly the biggest of man-made methane sources. The warm, waterlogged soil of paddies provides ideal conditions for methanogenesis, and though some of the methane produced is usually oxidized by methanotrophs in the shallow overlying water, the vast majority is released into the atmosphere. Paddy is grown very widely and rates of methane emission may vary greatly between different areas. Differences in average temperature, water depth and the length of time that the paddy soil is waterlogged can all result in big regional variations. However, methane emission from worldwide rice agriculture has been well studied in recent years and fairly reliable estimates of global emissions now exist. Emissions from rice paddies can vary hugely during the course of a year.

On average, the paddy soil is only fully waterlogged for about 4 months each year. For the rest of the time methanogenesis is generally much reduced and, where the soil dries out sufficiently, paddy soil can become a temporary sink for atmospheric methane. Clearly, humans are directly responsible for the world's paddy fields and so also for their methane emissions. The expansion of the human population has necessitated

increased rice production and so methane emission from this source. There are, though, strategies which may lessen our impact via this greenhouse gas. Currently, about 8 percent of global methane emissions come from the world's rice paddies.

With an increasing world population, reductions in rice agriculture remain largely untenable as on methane emission reduction strategy. However, through a more integrated approach to rice paddy irrigation and fertilizer application substantial reductions remain possible. Many rice varieties can be grown under much drier conditions than those traditionally employed, with big reductions on methane emission without any loss in yield. Additionally, there is the great potential for improved methods of rice planting, able to produce a much larger crop per area of rice paddy without a cut in rice production. The conjunctive use of water in paddy fields amounts the high yield of paddy and low emission of green house gases.

Secondly the water use efficiency indicates how efficiently the available water is being used based on various methods of evaluation. Design of Irrigation system, degree of land preparation and skill and care of irrigation practices are principal factors influencing irrigation efficiency or water use efficiency and losses occur in the conveyance system in non-uniform distribution on field; and percolation below root zone. Water use efficiency can also be reflected directly by produce per unit volume or ratio of crop yield to amount of water depleted by crop in process of evaporation. Where as economical irrigation efficiency is the ratio of total production attained with operational system and the expected indicated target. All these various criteria can be applied in evaluation of an irrigation. Actual irrigation achieved in acreage of farm land and the water delivery made in cusec days; have also been collected for a number of channels to depict relative delta on various system. To achieve higher water use efficiency, and to reduce methane gas emission in the atmosphere it is necessary to improve and upgrade the existing conveyance system and also to introduce modern irrigation methods.

The process of conveying water from source and use in field will be an integrated work of multi activities of various departments.

With the above objective, a comprehensive program has been proposed with a Multi Disciplinary Approach of WRD , Agriculture, Horticulture , TNAU, Fisheries, Agriculture Engineering , Animal husbandry, Agriculture Business and Marketing .

1.2 DESCRIPTION OF THE PAMBAR TO THIRUKOILUR SUB BASIN

The Pambar to Thirukoilur Sub basin is located between latitude 12^0 00'N to12 50' 00 '' longitude 78^0 51'E to 79^0 00'E having an area of 1823.56 sq. km and is surrounded by Ponnaiyar, Vellar river basins. The basin covers the Dharmapuri District ,Thiruvannamalai District, Villupuram District.

1.3 Multi Department Convergence

This is important to ensure Convergence around water and its productive use by various Service Delivery organisations which are the participating Departments in the Project. Therefore a strategy of creating clusters in each tank area has been devised and common activities in the villages falls under the clusters have been adopted. 9 clusters have been identified in this sub-basin.

Nine Clusters of villages are identified and listed below

1) Rayandapuram cluster Thandarampattu Tk Thiruvannamalai Dt
2) Athippadi cluster in Thandarampattu tk Thiruvannamalai Dt
3) Manalurpettai cluster in Thirukoilur tk Villupuram Dt
4) Moongilthuaripattu cluster in SankarapuarmTk Villupuram Dt
5) Kaduvanur cluster in Sankarapuram Tk Villupuram Dt
6) Thiruvarangam Cluster in Sankarapuram Tk Villupuram Dt
7) Athiyur cluster in Sankarapuram Tk in Villupuram Dt
8) Koovanur cluster in Thirukoilur Tk in Villupuram Dt
9) Mudiyanur cluster in Thirukoilur Tk in Villupuram Dt

ACTIVIES OF DEPARTMENTS
VILLAGEWISE CONVERGENCETABLE

Cluster 1.Rayandapuram

Sl.no	Cluster / Village / Tank	Total Aycut in Ha				Total Area in Ha		Focus	WRO		Agri		Hort		TNAU		Agri Marketing		Agri Eng		Fisheries		Animal Husbandry	
		FI	PI	GAP	Total	WOP	WP	Crop	Act	Nos	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha
1	Allappanur Tank	8.60	6.07	4.07	18.74	14.67	18.74		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	10.00	Hybrid Tomato	2.00			IEC		Fish pond	1	Farm pond	1		
													Hybrid Brinjal	2.00					Rotovator	1				
													Hybrid Bhendi	3.00										
													Total	**7.00**										
2	Rayandapuram Tank	49.50	1.82	4.90	56.22	51.32	56.22		St-bund, Re-sluice, Re-weir, Re-SC				Hybrid Tomato	1.00			IEC		Fish pond	1	Farm pond	1		
													Hybrid Brinjal						Rotovator	1				
													Hybrid Bhendi	1.00										
													Total	**2.00**										
3	Motttan Tank	12.07	5.50	8.48	26.05	17.57	26.05		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	10.00	Hybrid Tomato				IEC							
													Hybrid Brinjal	1.00										
													Hybrid Bhendi											
													Total	**1.00**										
4	Vettuthangal tank	14.30	14.32	3.90	32.52	28.62	32.52		St-bund, Re-sluice, Re-weir, Re-SC				Hybrid Tomato				IEC		Rotovator	1				
													Hybrid Brinjal											
													Chillies	1.00										
													Total	**1.00**										

5	Perungalathur tank	26.28	17.42	29.13	72.83	43.70	72.83		St-bund, Re-sluice, Re-weir, Re-SC		Pulses	10.00	Hybrid Tomato				IEC		Rotovator	1	Farm pond	1		
													Hybrid bhendi											
													Hybrid Brinjal	2.00										
													Total	**2.00**										
		NOTE																						
		St-bund:Standardisation of tank bund																						
		Re-sluice:Repairs to sluice																						
		Re-weir: Repairs to weir											Chillies	1.00							Farm pond	3		
		Re-SC : Reapirs to supply channel											Hybrid Tomato	3.00										
											Paddy-SRI	20.00	Hybrid Bhendai	4.00					Fish pond	2				
											Pulses	10.00	Hybrid Brinjal	5.00					Rotovator	4				
	Total	**110.75**	**45.13**	**50.48**	**206.36**	**155.88**	**206.36**					**30.00**	**Total**	**13.00**										

ACTIVIES OF DEPARTMENTS

VILLAGEWISE CONVERGENCETABLE

Cluster 2.Athipadi

Sl.no	Cluster / Village / Tank	Total Aycut in Ha				Total Area in Ha			WRO		Agri		Hort		TNAU		Agri Marketing		Agri Eng		Fisheries		Animal Husbandry	
		FI	PI	GAP	Total	WOP	WP	Focus Crop	Act	Nos	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha
1	Athipadi Tank	4.80	3.17	2.81	10.78	7.97	10.78		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	14.00	Chillies				IEC		Fish pond	1				
													Hybrid Tomato	2.00										
													Hybrid Bhendai	2.00										
													Hybrid Brinjal	1.00										
													Total	**5.00**										
2	Palayanur Tank	13.30	8.65	6.25	28.20	21.95	28.20		St-bund, Re-				Chillies	1.00			IEC		Rotovator	1	Farm pond	1		
													Hybrid Tomato	2.00										

									sluice, Re-weir, Re-SC				Hybrid Bhendai	2.00											
													Hybrid Brinjal	1.00											
													Total	**6.00**											
3	Kallottu Tank	4.70	3.40	2.21	10.31	8.10	10.31		St-bund, Re-sluice, Re-weir, Re-SC				Chillies				IEC								
													Hybrid Tomato	1.00											
													Hybrid Bhendai	2.00											
													Hybrid Brinjal	1.00											
													Total	**4.00**											
4	Kandiyankuppam Tank	11.40	7.34	9.76	28.50	18.74	28.50		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	4.00	Chillies	1.00			IEC		Rotovator	1	Farm pond	1		
													Hybrid Tomato	1.00											
													Hybrid Bhendai	2.00											
													Hybrid Brinjal											
													Total	**4.00**											
5	Velayampakkam Tank	12.10	8.76	7.64	28.50	20.86	28.50		St-bund, Re-sluice, Re-weir, Re-SC		Pulses	11.00	Chillies				IEC		Fish pond	2				
													Hybrid Tomato	1.00					Rotovator	1				
													Hybrid Bhendai	3.00										
													Hybrid Brinjal	2.00										
													Total	**6.00**										

6	Navampattu Tank	8.30	5.57	3.36	17.23	13.87	17.23		St-bund, Re-sluice, Re-weir, Re-SC				Chillies	2.00			IEC				Farm pond	1		
													Hybrid Tomato											
		NOTE											Hybrid Bhendai											
		St-bund:Standardisation of tank bund											Hybrid Brinjal											
		Re-sluice:Repairs to sluice											**Total**	**2.00**										
		Re-weir: Repairs to weir																						
		Re-SC : Reapirs to supply channel																						
													Chillies	4.00							Farm pond	3		
											Paddy-SRI	18.00	Hybrid Tomato	7.00					Fish pond	3				
											Pulses	11.00	Hybrid Bhendai	11.00					Rotovator	3				
													Hybrid Brinjal	5.00										
	Total	**54.60**	**36.89**	**32.03**	**123.52**	**91.49**	**123.52**					**29.00**	**Total**	**27.00**							**3**		

ACTIVIES OF DEPARTMENTS

VILLAGEWISE CONVERGENCETABLE

Cluster 3.Manalurpettai

Sl.no	Cluster	Total Aycut in Ha				Total Area in Ha			WRO		Agri		Hort		TNAU		Agri Marketing		Agri Eng		Fisheries		Animal Husbandry	
	Village / Tank	FI	PI	GAP	Total	WOP	WP	Focus Crop	Act	Nos	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha
1	Konganamur Tank	6.60	4.75	3.61	14.96	11.35	14.96		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	10.00							Power Weeder	1	Farm pond	1	Fodder	1.00
											Pulses	10.00	Banana TC	1.00			IEC Commodity Group Drying yard-1							
													Hybrid Tomato											
													Hybrid Brinjal											
													Hybrid Bhendi											
													Tapioca											
													Turmeric											
													Total	**1.00**										
2	Murukkambadi tank	13.62	8.72	6.73	29.07	22.34	29.07		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	4.00	Banana TC	1.00	Paddy-SRI	4.00							Fodder	1.00
													Hybrid Tomato						Power Tiller	1				
													Hybrid Brinjal											
													Hybrid Bhendi											
													Tapioca											
													Guvua											
													Total	**1.00**										
3	Atiyandal Tank	3.30	2.20	2.82	8.32	5.50	8.32		St-bund, Re-		Paddy-SRI	10.00	Banana TC						Power Weeder	1				
											G.Nut	10.00	Hybrid Guava											

									sluice, Re-weir, Re-SC				Hybrid Mango									
													Hybrid Bhendi				Power Tiller	1				
													Casuina	1.00								
													Turmeric									
													Total	**1.00**								
4	Devaradiyarkuppam tank	10.50	6.90	4.32	21.72	17.40	21.72		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	3.00	Banana TC		Paddy-SRI	3.00	Sprinkler	1	Farm pond	1	Fodder	1.00
													Hybrid Guava									
													Hybrid Mango				Power Tiller					
													Hybrid Bhendi									
													Tapioca	1.00								
													Turmeric	1.00								
													Total	**2.00**								
5	Pallichandal tank	6.90	4.91	15.16	26.97	11.81	26.97		St-bund, Re-sluice, Re-weir, Re-SC				Banana TC		Paddy-SRI	2.00	Farm pond	1			Fodder	1.00
													Hybrid Tomato				Power Weeder					
													Hybrid Mango					1				
													Hybrid Bhendi									
													Tapioca	4.00								
													Causunia	1.00								
													Total	**5.00**								
6	Jambai tank	20.72	14.13	24.19	59.04	34.85	59.04		St-bund, Re-sluice, Re-weir, Re-SC				Banana TC		Paddy-SRI	5.00	Farm pond	1	Farm pond	1	Fodder	1.00
													Hybrid Tomato	1.00	Sugar cane	2.00			Aquaculture in irrrigation tanks			
													Hybrid Brinjal	1.00			Power Tiller	1				
													Hybrid Bhendi	3.00			Sprinkler	1		1		
													Tapioca	5.00								
													Turmeric	1.00								
													Total	**11.00**								
7	Sellankuppam tank	8.45	5.94	2.87	17.26	14.39	17.26		St-bund,		Paddy-SRI	10.00	Banana TC				Farm pond	1	Farm pond	1	Fodder	1.00

									Re-sluice, Re-weir, Re-SC		G.Nut	10.00	Hybrid Tomato				Power Weeder	1					
													Hybrid Brinjal										
													Hybrid Bhendi										
													Casunia	1.00									
													Turmeric										
													Total	**1.00**									
8	Sithapattinam tank	52.78	34.47	21.91	109.16	87.25	109.16		St-bund, Re-sluice, Re-weir, Re-SC				Banana TC		Paddy-SRI	6.00	Farm pond	1	Farm pond	1	Fodder	1.00
													Hybrid Tomato		Pulses IPT	3.00			Aquaculture in irrrigation tanks			
													Hybrid Mango				Power Tiller	1		1		
													Hybrid Bhendi				Drip	1				
													Mango	1.00									
													Turmeric										
													Total	**1.00**									
9	Manalurpettai tank	27.90	18.22	11.60	57.72	46.12	57.72		St-bund, Re-sluice, Re-weir, Re-SC				Banana TC				Power Weeder		Aquaculture in irrrigation tanks		Fodder	1.00
													Hybrid Tomato					1		1		
													Hybrid Mango				Drip	1				
													Hybrid Bhendi									
													Mango	1.00					Kiosk	1		
													Turmeric						Fishing implements	10		
													Total	**1.00**								
		NOTE									Paddy-SRI	30.00	Banana TC	2.00	Paddy-SRI	20.00	Farm pond	4	Farm pond	5	Fodder	8.00
		St-bund:Standardisation of tank bund									G.Nut	20.00	Hybrid Tomato	1.00	Pulses IPT	3.00			Aquaculture in irrrigation tanks			
		Re-sluice:Repairs to sluice									Pulses	10.00	Hybrid Mango	2.00	Sugar cane	3.00	Power Weeder	5		3		
		Re-weir: Repairs to weir											Hybrid Bhendi	3.00								
		Re-SC : Reapirs to supply channel											Turmeric	2.00			Power Tiller	4				
													Hybrid guava				Sprinkler	2				
													Hybrid Brinjal	1.00			Drip	2	Fishing implements	10		
													Casunia	3.00								
													Tapioca	10.00					Kiosk	1		

	Total	**150.77**	**100.24**	**93.21**	**344.22**	**251.01**	**344.22**					**60.00**		**24.00**		**26.00**								**8.00**

ACTIVIES OF DEPARTMENTS
VILLAGEWISE CONVERGENCETABLE

Cluster 4.Moongilthuraipattu

Sl.no	Cluster / Village / Tank	Total Aycut in Ha				Total Area in Ha			WRO		Agri		Hort		TNAU		Agri Marketing		Agri Eng		Fisheries		Animal Husbandry	
		FI	PI	GAP	Total	WOP	WP	Focus Crop	Act	Nos	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha
1	Moongilthuraipattu	24.40	6.18	5.85	36.43	30.58	36.43		St-bund, Re-sluice, Re-weir, Re-SC						Paddy-SRI	5.00					Farm pond	1	Fodder	1.00
													Banana TC		Pulses IPT	2.00	IEC-1 Commodity group-1							
													Hybrid Brinjal	1.00					Multi crop thrasher	1				
													Hybrid Bhendi											
													Tapioca	1.00					Drip	1				
													Turmeric											
													Total	**2.00**										
2	Poruvalur	10.10	3.03	0.26	13.39	13.13	13.39		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	10.00	Banana TC										Fodder	1.00
											Pulses IPT	10.00	Hybrid Brinjal						Power Weeder	1				
													Hybrid Bhendi	1.00					Drip	1				
													Casurina	1.00										
													Tapioca	1.00										
													Total	**3.00**										
3	Devaparai	9.26	3.16	3.32	15.74	12.42	15.74		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	10.00	Banana TC											
													HybridTomato	1.00					Sprinkler	1				
													Hybrid Brinjal							1				
													Hybrid Bhendi						Power Tiller					
													Tapioca	1.00										
													Turmeric	1.00										
													Total	**3.00**										
4	Mookkanur	119.58	2.53	7.18	129.29	122.11	129.29		St-bund, Re-sluice, Re-weir, Re-SC				Banana TC	1.00	Paddy-SRI	8.00			Sprinkler	1			Fodder	1.00
													Hybrid Brinjal		Pulses IPT	3.00				1				
													Hybrid Bhendi						Power Tiller					
		NOTE											Tapioca	2.00										
		St-bund:Standardisation of tank bund											Turmeric	1.00										
		Re-sluice:Repairs to sluice											**Total**	**4.00**					Power Tiller	2				
		Re-weir: Repairs to weir									Paddy-SRI	30.00	Banana TC	1.00					Multi crop thrasher		Farm pond	1	Fodder	3.00

		Re-SC : Reapirs to supply channel									Pulses IPT	10.00	HybridTomato	1.00						1				
													Hybrid Brinjal	1.00										
													Hybrid Bhendi	1.00					Sprinkler	2				
													Casurina	1.00					Drip	2				
													Tapioca	5.00	Paddy-SRI	13.00								
													Turmeric	2.00	Pulses IPT	5.00			Power Weeder	1				
	Total	**163.34**	**14.90**	**16.61**	**194.85**	**178.24**	**194.85**				**Total**	**40.00**	**Total**	**12.00**	**Total**	**18.00**								**3.00**

ACTIVIES OF DEPARTMENTS
VILLAGEWISE CONVERGENCETABLE

Cluster 5.Kaduvanur

Sl.no	Cluster	Total Aycut in Ha				Total Area in Ha			WRO		Agri		Hort		TNAU		Agri Marketing		Agri Eng		Fisheries		Animal Husbandry	
	Village / Tank	FI	PI	GAP	Total	WOP	WP	Focus Crop	Act	Nos	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha
1	Pakkam Pudur	35.75	5.78	3.69	45.22	41.53	45.22		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	10.00	Banana TC	-										
											Pulses IPT	10.00	Casuarina	1.00			IEC-1 Commodity Group-1 Drying yard-1		Power Weeder	1			Fodder	1.00
													Hybrid Brinjal	1.00					Drip	1				
													Hybrid Bhendi	1.00										
													Tapioca	8.00										
													Turmeric	2.00										
													Total	**13.00**										
2	Kaduvanur	115.17	21.62	4.96	141.75	136.79	141.75		St-bund, Re-sluice, Re-weir, Re-SC				Banana TC	2.00	Paddy-SRI	6.00					Farm pond	2	Fodder	1.00
													Casuarina	1.00	Pulses IPT	4.00			Power Tiller	1				
													Mango	1.00	Sugar cane	2.00			Drip	1				
													Hybrid Bhendi	-										
													Tapioca	8.00										
													Turmeric	2.00										
													Total	**14.00**										
3	Thozuvanthangal	14.46		1.85	16.31	14.46	16.31		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	10.00	Casuarina	2.00							Farm pond	2		
													Hybrid Mango	1.00					Power Tiller	1				
													Hybrid Bhendi	-										
													Tapioca	-										
													Turmeric	-										
													Total	**3.00**										

4	Pakkam	148.71	34.45	9.78	192.94	183.16	192.94		St-bund, Re-sluice, Re-weir, Re-SC				Banana TC	1.00	Paddy-SRI	9.00					Fodder	1.00
													Casuarina	1.00	Pulses IPT	2.00		1				
													Hybrid Bhendi	-	Sugar cane	3.00	Multi crop thrasher					
													Tapioca	8.00			Drip	1				
													Turmeric	-								
													Total	**10.00**								
5	Periakolliyur	67.27	1.20	10.45	78.92	68.47	78.92		St-bund, Re-sluice, Re-weir, Re-SC				Banana TC	1.00					Farm pond	2	Fodder	1.00
													Casuarina	1.00			Power Tiller	1				
													Hybrid Brinjal	-								
													Hybrid Bhendi	1.00								
													Tapioca	4.00								
													Turmeric	-								
													Total	**7.00**								
6	Chinnakolliyur	23.68	1.40	5.24	30.32	25.08	30.32		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	10.00	Banana TC	-							Fodder	1.00
													Hybrid Tomato	1.00			Power Weeder	1				
													Casurina	2.00								
													Hybrid Bhendi	1.00								
													Tapioca	-								
													Turmeric	1.00								
													Total	**5.00**								
7	Marur	80.34	42.82	4.40	127.56	123.16	127.56		St-bund, Re-sluice, Re-weir, Re-SC				Banana TC	3.00	Paddy-SRI	8.00					Fodder	1.00
													Mango	1.00	Pulses IPT	2.00		1				
													Casurina	1.00	Sugar cane	2.00	Multi crop thrasher					
													Hybrid Bhendi	-								
													Turmeric	4.00								
													Tapioca	-								
													Total	**9.00**								
8	Eandal	29.50	15.78	2.50	47.78	45.28	47.78		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	10.00	Banana TC						Farm pond	2	Fodder	1.00
													Hybrid Casurina	1.00			Power Tiller	1				
													Hybrid Brinjal	-			Sprinkler	1				
													Hybrid Bhendi	-								
													Tapioca	6.00								
													Turmeric	1.00								

													Total	**8.00**									
		NOTE									Paddy-SRI	40.00	Banana TC	7.00	Paddy-SRI	28.00					Farm pond	7	Fodder	7.00
		St-bund:Standardisation of tank bund									Pulses IPT	10.00	Casuarina	10.00	Pulses IPT	8.00			Power Tiller	4				
		Re-sluice:Repairs to sluice											Hybrid Brinjal	1.00	Sugar cane	8.00								
		Re-weir: Repairs to weir											Hybrid Bhendi	3.00					Multi crop thrasher	2				
		Re-SC : Reapirs to supply channel											Tapioca	34.00										
													Turmeric	10.00					Sprinkler	2				
													Mango	3.00					Drip	3				
													Hybrid Tomato	1.00						2				
	Total	**514.88**	**123.05**	**42.87**	**680.80**	**637.93**	**680.80**				**Total**	**40.00**	**Total**	**69.00**	**Total**	**44.00**			Power Weeder			**7**		**7.00**

ACTIVIES OF DEPARTMENTS
VILLAGEWISE CONVERGENCETABLE

Cluster 6.Thiruvarangam

Sl.no	Cluster / Village / Tank	Total Aycut in Ha				Total Area in Ha		Focus	WRO		Agri		Hort		TNAU		Agri Marketing		Agri Eng		Fisheries		Animal Husbandry	
		FI	PI	GAP	Total	WOP	WP	Crop	Act	Nos	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha
1	Ilayanarkuppam	18.30	13.40	3.54	35.24	31.70	35.24		St-bund, Re-sluice, Re-weir, Re-SC				Banana TC	-	Paddy-SRI	3.00	IEC-1 Commodity Group-1						Fodder	0.50
													Hybrid Tomato	-					Power Tiller	1				
													Hybrid Brinjal	1.00										
													Hybrid Bhendi	1.00										
													Tapioca	-										
													Turmeric	1.00										
													Total	**3.00**										
2	Seerpanandal	140.65	22.24	5.55	168.44	162.89	168.44		St-bund, Re-sluice, Re-weir, Re-SC				Banana TC	-	Paddy-SRI	10.00					Farm pond	2	Fodder	0.50
													Mango	1.00	Pulses IPT	3.00				1	Aquaculture in irrrigation tanks			
													Hybrid Brinjal	-	Sugar cane	4.00			Multi crop thrasher			1		
													Hybrid Bhendi	2.00						6				
													Casurina	-					Farm pond					
													Turmeric	-					Sprinkler	2				
													Total	**3.00**										
3	Maniyanthal	14.93	1.90	1.13	17.96	16.83	17.96		St-bund, Re-sluice, Re-weir,		Paddy-SRI	10.00	Banana TC	-									Fodder	0.50
											Pulses IPT	10.00	Hybrid Tomato	-					Power Weeder	1				
													Hybrid Brinjal	1.00										
													Hybrid Bhendi	1.00										

									Re-SC				Tapioca	-									
													Turmeric	-									
													Total	**2.00**									
4	Seerpadanallur	6.52	4.50	0.74	11.76	11.02	11.76		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	10.00	Banana TC	-						Fodder	0.50
													Hubird Tomato	-			Power Tiller	1				
													Hybrid Brinjal	1.00								
													Hybrid Bhendi	2.00								
													Tapioca	-								
													Turmeric	-								
													Total	**3.00**								
5	Thiruvarangam	4.04	34.72	8.54	47.3	38.76	47.3		St-bund, Re-sluice, Re-weir, Re-SC				Banana TC	-	Paddy-SRI	5.00				Fodder	0.50
													Casarvas	-	Pulses IPT	3.00	Power Tiller	1				
													Hybrid Brinjal	-	Sugar cane	3.00						
													Hybrid Bhendi	-								
													Casurina	-								
													Turmeric	1.00								
													Total	**1.00**								
									St-		Paddy-		Banana TC	-				Farm				
													Total	**1.00**								
6	Jambadai	56.89	5.10	0.20	62.19	61.99	62.19		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	10.00	Banana TC	-				pond	2	Fodder	0.50
													Hybrid Tomato	-			Multi crop thrasher	1				
													Hybrid Brinjal	-								
													Hybrid Bhendi	1.00								
													Tapioca	-								
													Turmeric	-								
													Total	**1.00**								
7	Kallipadi	19.65		0.48	20.13	19.65	20.13		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	10.00	Banana TC	-			Power Weeder	1				
													Casarvas	-								
													Hybrid Brinjal	-								
													Hybrid Bhendi	1.00								
													Casurina	-			Power Tiller	3				
													Turmeric	1.00								
													Total	**2.00**				2				
		NOTE									Paddy-SRI	40.00	Banana TC	-	Paddy-SRI	18.00			Multi crop thrasher		Farm pond	4	Fodder	3.00
											Pulses IPT	10.00	Hybrid Tomato	-	Pulses IPT	6.00			Sprinkler	2	Aquaculture in irrrigati			
		St-bund:Standardisation of tank bund											Hybrid Brinjal	3.00	Sugar	7.00						1		
		Re-sluice:Repairs to sluice																						

														cane										
		Re-weir: Repairs to weir											Hybrid Bhendi	8.00					Power		on tanks			
		Re-SC : Reapirs to supply channel											Tapioca						Weeder	2				
													Turmeric	3.00										
													Mango	1.00					Farm pond	8				
	Total	**260.98**	**81.86**	**20.18**	**363.02**	**342.84**	**363.02**				**Total**	**50.00**	**Total**	**15.00**	**Total**	**31.00**					**4**		**3.00**

ACTIVIES OF DEPARTMENTS
VILLAGEWISE CONVERGENCETABLE

Cluster 7.Athiyur

Sl.no	Cluster / Village / Tank	Total Aycut in Ha				Total Area in Ha		Focus	WRO		Agri		Hort		TNAU		Agri Marketing		Agri Eng		Fisheries		Animal Husbandry	
		FI	PI	GAP	Total	WOP	WP	Crop	Act	Nos	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha
1	Athiyur	81.25		7.12	88.37	81.25	88.37		St-bund, Re-sluice, Re-weir, Re-SC				Banana TC	-	Paddy-SRI	8.00	IEC-1 Commodity Group-1 Drying yard-1						Fodder	0.50
													Hybrid Tomato	-	Pulses IPT	4.00				1				
													Hybrid Brinjal	1.00	Sugar cane	2.00			Multi crop thrasher					
													Hybrid Bhendi	-										
													Tapioca	1.00					Farm pond	2				
													Turmeric	-										
													Total	**2.00**										
2	Athiyur thangal	7.95		0.50	8.45	7.95	8.45		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	10.00	Banana TC	-											
													Hybrid Tomato	-					Power Weeder	1				
													Hybrid Brinjal	-										
													Hybrid Bhendi	-					Farm pond	1				
													Tapioca	1.00										
													Turmeric	-										
													Total	**1.00**										
3	Ariyalur	25.71		2.67	28.38	25.71	28.38				Paddy-SRI	10.00	Banana TC	-								Cages	1	Fodder	0.50
													Guava	1.00					Power Tiller	1				
													Mango	1.00										
													Hybrid Bhendi	-					Farm pond	1				
													Tapioca	-										
													Turmeric	-										
													Total	**2.00**										
4	Vanapuram	47.41	23.40	2.50	73.31	70.81	73.31		St-bund, Re-sluice,				Banana TC	-	Paddy-SRI	5.00						Cages	2	Fodder	0.50
													Casuarina	1.00					Power Tiller	1	Farm pond	2		

									Re-weir, Re-SC				Hybrid Brinjal	-										
													Hybrid Bhendi	-			Farm pond	1	Aquaculture in irrrigation tanks	1		
													Tapioca	-			Sprinkler	1				
													Mango	1.00								
													Total	**2.00**								
5	Nagalkudi	20.73	2.30	3.13	26.16	23.03	26.16		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	10.00	Banana TC	-								
											Pulses IPT	10.00	Hybrid Tomato	1.00			Power Weeder	1	Fishing Implee mnts	13		
													Hybrid Brinjal	-								
													Hybrid Bhendi	-								
													Tapioca	1.00								
													Turmeric	-								
													Total	**2.00**								
6	Odiyanthal	26.91	1.25	1.52	29.68	28.16	29.68		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	10.00	Banana TC	-								
													Hybrid Brinjal	-			Power Weeder	1	Aquaculture in irrrigation tanks			
													Hybrid Bhendi	-						1		
													Tapioca	1.00								
													Turmeric	-								
													Total	**1.00**			Drip	1	Cages	2		
			16.3						St-				Banana TC	-	Paddy-				Farm			
7	Kadampur	78.32	5	11.50	106.17	94.67	106.17		bund, Re-sluice, Re-weir, Re-SC						SRI	9.00			pond	2	Fodder	0.50
													Hybrid Brinjal	-	Pulses IPT	3.00			Aquaculture in irrrigation tanks			
													Hybrid Bhendi	-	Sugar cane	3.00	Multi crop thrasher			1		
													Tapioca	1.00								
													Total	**1.00**			Farm pond	3	Fishing Implee mnts	10		
8	Sirupanaiyur	61.50	9.60	28.65	99.75	71.10	99.75		St-bund, Re-sluice, Re-weir, Re-SC				Banana TC	-	Paddy-SRI	3.00						
													Hybrid Tomato	-			Power Tiller		Seed bank	1		
													Hybrid Brinjal	-								
													Hybrid Bhendi	-								
													Tapioca	1.00								
													Mango	1.00								
													Total	**2.00**								
		NOTE									Paddy-SRI	40.00	Banana TC	-	Paddy-SRI	25.00					Power Tiller	3	Cages	5	Fodder	2.00
											Pulses IPT	10.00	Hybrid Tomato	1.00	Pulses IPT	7.00			Farm pond	4		
		St-bund:Standardisation of tank bund											Hybrid Brinjal	1.00	Sugar cane	5.00						
		Re-sluice:Repairs to sluice															Multi crop thrasher	2	Aquaculture in			

		Re-weir: Repairs to weir											Hybrid Bhendi	-							irrrigati	2		
		Re-SC : Reapirs to supply channel											Tapioca	6.00					Sprinkler	2	on tanks			
													Turmeric	-					Drip	2	Fishing	23		
													Mango	3.00							Implee mnts			
													Casuarina	1.00					Power Weeder	3	Seed bank	1		
													Guava	1.00										
	Total	**349.78**	**52.90**	**57.59**	**460.27**	**402.68**	**460.27**				**Total**	**50.00**	**Total**	**13.00**	**Total**	**37.00**			Farm pond	8				**2.00**

ACTIVIES OF DEPARTMENTS
VILLAGEWISE CONVERGENCETABLE

Cluster 8.Koovnaur

Sl.no	Cluster / Village / Tank	Total Aycut in Ha				Total Area in Ha		Focus Crop	WRO Act	WRO Nos	Agri Act	Agri Nos/ Ha	Hort Act	Hort Nos/ Ha	TNAU Act	TNAU Nos/ Ha	Agri Marketing Act	Agri Marketing Nos/ Ha	Agri Eng Act	Agri Eng Nos/ Ha	Fisheries Act	Fisheries Nos/ Ha	Animal Husbandry Act	Animal Husbandry Nos/ Ha
		FI	PI	GAP	Total	WOP	WP																	
1	Sitthamur	38.96	12.31	15.88	67.15	51.27	67.15		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	20.00	Banana TC	1.00			IEC-1 Commodity Group-1				Farm pond	1	Fodder	1.00
													Casuarina	1.00					Power Tiller	1				
													Hybrid Brinjal	-										
													Hybrid Bhendi	1.00					Farm pond	1				
													Tapioca	2.00					Drip	1				
													Turmeric	1.00					Sprinkler	1				
													Mango	1.00										
													Total	**7.00**										
2	Koovanur	93.24		5.31	98.55	93.24	98.55		St-bund, Re-sluice, Re-weir, Re-SC				Guava	1.00	Paddy-SRI	5.00					Farm pond	1	Fodder	1.00
													Casuarina	-	Pulses IPT	3.00			Power Tiller	1				
													Hybrid Brinjal	1.00	Sugar cane	2.00								
													Hybrid Bhendi	-										
													Turmeric	-										
													Tapioca	3.00										
													Mango	-										
													Total	**5.00**										
3	Edaiyur	50.57	11.95	14.62	77.14	62.52	77.14						Banana TC	-	Paddy-SRI	4.00					Farm pond	1	Fodder	1.00
													Casuarina	1.00	Pulses IPT	3.00			Power Tiller	1				
													Hybrid Brinjal	-										
													Hybrid Bhendi	1.00					Farm pond	1				
													Tapioca	-					Drip	1				

													Turmeric	-									
													Mango	1.00									
													Total	**3.00**									
4	Madampoondi	31.06	10.16	10.97	52.19	41.22	52.19		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	20.00	Banana TC	-					Farm pond	1	Fodder	0.50
											Pulses IPT	10.00	Casuarina	1.00			Power Weeder	1				
													Hybrid Brinjal	-			Sprinkler	1				
													Hybrid Bhendi	1.00			Drip	1				
													Tapioca	3.00									
													Turmeric	2.00									
													Mango	1.00									
													Total	**8.00**									
5	Thagadi	110.96	6.62	3.49	121.07	117.58	121.07		St-bund, Re-sluice, Re-weir, Re-SC				Banana TC	-	Paddy-SRI	7.00			Farm pond	1	Fodder	0.50
													Hybrid Tomato	1.00	Sugar cane	3.00	Multi crop thrasher					
													Hybrid Brinjal	1.00									
													Hybrid Bhendi	-									
													Tapioca	-									
													Turmeric	-									
													Mango	-									
													Total	**2.00**									
		NOTE									Paddy-SRI	40.00	Banana TC	1.00			Power Tiller	3	Farm pond	5	Fodder	4.00
		St-bund:Standardisation of tank bund									Pulses IPT	10.00	Casuarina	3.00									
		Re-sluice:Repairs to sluice											Hybrid Brinjal	2.00			Multi crop thrasher	1					
		Re-weir: Repairs to weir											Hybrid Bhendi	3.00									
		Re-SC : Reapirs to supply channel											Tapioca	8.00			Sprinkler	2					
													Turmeric	3.00			Drip	3					
													Mango	3.00	Paddy-SRI	16.00							
													Guava	1.00	Pulses IPT	6.00	Power Weeder	1					
													Hybrid Tomato	1.00	Sugar cane	5.00							
	Total	**324.79**	**41.04**	**50.27**	**416.10**	**365.83**	**416.10**				**Total**	**50.00**	**Total**	**25.00**	**Total**	**27.00**	Farm pond	2				**4.00**	

ACTIVIES OF DEPARTMENTS

VILLAGEWISE CONVERGENCETABLE

Cluster 9.Mudiyanur

Sl.no	Cluster	Total Aycut in Ha				Total Area in Ha			WRO		Agri		Hort		TNAU		Agri Marketing		Agri Eng		Fisheries		Animal Husbandry	
	Village	FI	PI	GAP	Total	WOP	WP	Focus	Act	Nos	Act	Nos/	Act	Nos/	Act	Nos/	Act	Nos/ Ha	Act	Nos/	Act	Nos/	Act	Nos/

	Tank							Crop				Ha		Ha				Ha		Ha		Ha
1	Mudiyanur	44.34	38.86	2.96	86.16	83.20	86.16		St-bund, Re-sluice, Re-weir, Re-SC				Banana TC	-	Paddy-SRI	8.00	IEC-1 Commodity Group-1			Farm pond	1	Fodder	0.50
													Hybrid Tomato	-	Pulses IPT	3.00			1				
													Hybrid Brinjal	-	Sugar cane	2.00		Multi crop thrasher					
													Hybrid Bhendi	1.00									
													Tapioca	-				Farm pond	1				
													Turmeric	-				Drip	1				
													Mango	1.00									
													Total	**2.00**									
2	Kachikuvasan	48.15		4.14	52.29	48.15	52.29		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	20.00	Guava	1.00						Farm pond	1	Fodder	0.50
											Pulses IPT	10.00	Casarvas	-				Power Tiller	1				
													Hybrid Brinjal	-									
													Hybrid Bhendi	-				Farm pond	1				
													Casurina	-				Drip	1				
													Turmeric	1.00				Sprinkler	1				
													Tapioca	7.00									
													Mango	1.00									
													Total	**10.00**									
3	Aaviyur	104.20	6.10	7.20	117.50	110.30	117.5						Banana TC	-	Paddy-SRI	10.00				Farm pond	1	Fodder	0.50
													Hybrid Tomato	-	Pulses IPT	4.00		Power Weeder	1				
													Hybrid Brinjal	-	Sugar cane	3.00							
													Hybrid Bhendi	1.00									
													Tapioca	5.00									
													Turmeric										
													Total	6.00									
4	Thirukoilur Hissa	273.36		76.34	349.70	273.36	349.7		St-bund, Re-sluice, Re-weir, Re-SC				Banana TC	3.00	Paddy-SRI	12.00				Farm pond	1	Fodder	0.50
													Casuarina	3.00	Pulses IPT	8.00			1				
													Hybrid Brinjal		Sugar cane	7.00		Multi crop thrasher					
													Hybrid Bhendi	-									
													Tapioca	10.00				Farm pond	1				
													Total	**16.00**				Sprinkler	1				
5	Thirupalapandal	53.60	46.48	20.06	120.14	100.08	120.14		St-bund,		Paddy-SRI	27.00	Banana TC	1.00				Multi crop thrasher		Farm pond	2	Fodder	1.00

									Re-sluice, Re-weir, Re-SC		Pulses IPT	5.00	Casarvas								1				
													Hybrid Brinjal	1.00										
													Hybrid Bhendi						Drip	1				
													Tapioca	5.00										
													Turmeric											
													Mango	1.00										
													Total	**8.00**										
		NOTE									Paddy-SRI	47.00	Banana TC	4.00	Paddy-SRI	30.00			Power Tiller	1				
		St-bund:Standardisation of tank bund									Pulses IPT	15.00	Hybrid Tomato	-	Pulses IPT	15.00								
		Re-sluice:Repairs to sluice											Hybrid Brinjal	1.00	Sugar cane	12.00			Multi crop thrasher	3	Farm pond	6	Fodder	3.00
		Re-weir: Repairs to weir											Hybrid Bhendi	2.00										
		Re-SC : Reapirs to supply channel											Tapioca	27.00					Sprinkler	2				
													Turmeric	1.00					Drip	3				
													Mango	3.00					Power Weeder					
													Casuarina	3.00						1				
													Guava	1.00										
	Total	**523.65**	**91.44**	**110.70**	**725.79**	**615.09**	**725.79**				**Total**	**62.00**	**Total**	**42.00**	**Total**	**57.00**			Farm pond	**3**				**3.00**

ACTIVIES OF DEPARTMENTS

CLUSTERWISE CONVERGENCETABLE

Sl.no	Cluster	Total Aycut in Ha				Total Area in Ha		Focus	WRO		Agri		Hort		TNAU		Agri Marketing		Agri Eng		Fisheries		Animal Husbandry	
	Village / Tank	FI	PI	GAP	Total	WOP	WP	Crop	Act	Nos	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha	Act	Nos/ Ha
1	Rayandapuram cluster	110.75	45.13	50.48	206.36	155.88	206.36		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	20.00	Chillies	1.00	*	*	IEC		Fish pond	2	Farm pond	3		
											Pulses	10.00	Hybrid Tomato	3.00	*	*			Roto-vator	4				
													Hybrid Bhendai	4.00	*	*								
													Hybrid Brinjal	5.00	*	*								
											Total	**30.00**	**Total**	**13.00**	*	*								
															*	*								
2	Aathipadi cluster	54.60	36.89	32.03	123.52	91.49	123.52		St-bund, Re-sluice, Re-weir, Re-SC				Chillies	4.00	*	*	IEC				Farm pond	1		
											Paddy-SRI	18.00	Hybrid Tomato	7.00	*	*			Fish pond	3				
											Pulses	11.00	Hybrid Bhendai	11.00	*	*			Rotova tor	3				
													Hybrid Brinjal	5.00	*	*								
											Total	**29.00**	**Total**	**27.00**	*	*								
3	Manlurpettai cluster	150.77	100.24	93.21	344.22	251.01	344.22		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	30.00	Banana TC	2.00	Paddy-SRI	20.00	IEC				Farm pond	5	Fodder	8.00
											G.Nut	20.00	Hybrid Tomato	1.00	Pulses IPT	3.00			Farm pond	4	Aquaculture in irrrigation tanks			
											Pulses	10.00	Hybrid Mango	2.00	Sugar cane	3.00			Power Weeder	5		3		
													Hybrid Bhendi	3.00										
													Turmeric	2.00										
													Hybrid guava						Power Tiller	4				
													Hybrid Brinjal	1.00					Sprinkler	2	Fishing implements	10		
													Casunia	3.00					Drip	2				
													Tapioca	10.00							Kiosk	1		
											Total	**60.00**	**Total**	**24.00**	**Total**	**26.00**								**8.00**

4	Moongilthuraipattu cluster	163.34	14.90	16.61	194.85	178.24	194.85		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	30.00	Banana TC	1.00	Paddy-SRI	13.00	IEC Commodity Group Drying yard-1	Power Tiller	2	Farm pond	1	Fodder	3.00
											Pulses IPT	10.00	HybridTomato	1.00	Pulses IPT	5.00							
													Hybrid Brinjal	1.00				Multi crop thrasher					
													Hybrid Bhendi	1.00					1				
													Casurina	1.00				Sprinkler	2				
													Tapioca	5.00				Drip	2				
													Turmeric	2.00				Power Weeder	1				
											Total	**40.00**	**Total**	**12.00**	**Total**	**18.00**							**3.00**
5	Kaduvanur cluster	514.88	123.05	42.87	680.80	637.93	680.80		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	40.00	Banana TC	7.00	Paddy-SRI	28.00	IEC Commodity Group Drying yard-1	Power Tiller	4	Farm pond	7	Fodder	7.00
											Pulses IPT	10.00	Casuarina	10.00	Pulses IPT	8.00							
													Hybrid Brinjal	1.00	Sugar cane	8.00		Multi crop thrasher					
													Hybrid Bhendi	3.00					2				
													Tapioca	34.00									
													Turmeric	10.00				Sprinkler	2				
													Mango	3.00				Drip	3				
													Hybrid Tomato	1.00				Power Weeder	2				
											Total	**40.00**	**Total**	**69.00**	**Total**	**44.00**							
6	Thiruvarangam cluster	260.98	81.86	20.18	363.02	342.84	363.02		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	40.00	Banana TC	-	Paddy-SRI	18.00	IEC Commodity Group Drying yard-1	Power Tiller	3	Farm pond	4	Fodder	3.00
											Pulses IPT	10.00	Hybrid Tomato	-	Pulses IPT	6.00				Aquaculture in irrrigation tanks			
													Hybrid Brinjal	3.00	Sugar cane	7.00		Multi crop thrasher			1		
													Hybrid Bhendi	8.00					2				
													Tapioca					Sprinkl	2				

																			er					
														Turmeric	3.00				Power Weeder					
														Mango	1.00					2				
											Total	**50.00**	**Total**	**15.00**	**Total**	**31.00**			Farm pond			**4**		**3.00**
																				8				
7	Athiyur cluster	349.78	52.9	57.59	460.27	402.68	460.27		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	40.00	Banana TC	-	Paddy-SRI	25.00	IEC Commodity Group Drying yard-1				Cages	5	Fodder	2.00
											Pulses IPT	10.00	Hybrid Tomato	1.00	Pulses IPT	7.00		Power Tiller	3	Farm pond	4		
													Hybrid Brinjal	1.00	Sugar cane	5.00				Aquaculture in irrrigation tanks			
													Hybrid Bhendi	-				Multi crop thrasher	2		2		
													Tapioca	6.00									
													Turmeric	-				Sprinkler	2	Fishing Implee mnts	23		
													Mango	3.00				Drip	2				
													Casuarina	1.00				Power Weeder		Seed bank	1		
													Guava	1.00					3				
											Total	**50.00**	**Total**	**13.00**	**Total**	**37.00**		Farm pond					**2.00**
																			8					
8	Koovanur cluster	324.79	41.04	50.27	416.10	365.83	416.10		St-bund, Re-sluice, Re-weir, Re-SC		Paddy-SRI	40.00	Banana TC	1.00	Paddy-SRI	16.00	IEC Commodity Group Drying yard-1				Farm pond	5	Fodder	4.00
											Pulses IPT	10.00	Casuarina	3.00	Pulses IPT	6.00		Power Tiller	3				
													Hybrid Brinjal	2.00	Sugar cane	5.00							
													Hybrid Bhendi	3.00				Multi crop thrasher	1				
													Tapioca	8.00									
													Turmeric	3.00				Sprinkler	2				
													Mango	3.00				Drip	3				
													Guava	1.00				Power Weeder					
													Hybrid Tomato	1.00					1				
											Total	**50.00**	**Total**	**25.00**	**Total**	**27.00**		Farm pond					
																			2					
9	Mudiyanur cluster	523.65	91.44	110.7	725.79	615.09	725.79		St-bund,		Paddy-SRI	47.00	Banana TC	4.00	Paddy-SRI	30.00	IEC Commodity	Power Tiller		Farm pond	6	Fodder	3.00

									Re-sluice, Re-weir, Re-SC		Pulses IPT	15.00	Hybrid Tomato	-	Pulses IPT	15.00	Group Drying yard-1		1								
													Hybrid Brinjal	1.00	Sugar cane	12.00		Multi crop thrasher									
													Hybrid Bhendi	2.00					3								
		NOTE											Tapioca	27.00													
		St-bund:Standardisation of tank bund											Turmeric	1.00				Sprinkler	2								
		Re-sluice:Repairs to sluice											Mango	3.00				Drip	3								
		Re-weir: Repairs to weir											Casuarina	3.00				Power Weeder									**3.00**
		Re-SC : Reapirs to supply channel											Guava	1.00					1								
											Total	**62.00**	**Total**	**42.00**	**Total**	**57.00**		Farm pond	**3**								

1.2 HYDROLOGY

1.2.1. 1GENERAL

Pambar To Thirukoilur Sub Basin is a Minor sub basin in Ponnaiyar basin.

1.2.2 LOCATION

The Pambar To Thirukoilur Sub Basin area is 1823.56 Sq km . The Taluks covered is Harur Taluk of Dharmapuri District, Thandarampattu Tk , Thiruvannamalai Tk in Thiruvannamalai Dt and Sankarapuram Tk,Thirukoilur Tk in Villupuram Dt.

1.2.3 CATCHMENT AREA OF SUB-BASIN

The Pambar to Thirukoilur Sub Basin originates from Kalrayan hills,Servarayan hills,Yelagiri hills. The area is occupied by Archean metamorphic varities like cala, gneisses, charnkite, quartzite, pinkgranites ,and garnetiferous gneisses.

1.2.4 HYDRO METEOROLOGY

The Hydro Meteorology parameters include rainfall, temperature, humidity, wind velocity, evaporation and Duration of sun shine which determine the climate of the basin.

1.2.5 RAINFALL

Average annual rainfall of gauging station influencing this sub basin is as follows

Sl. No	Name of Rain gauge station	North East Monsoon	Summer	South west monsoon	Winter	Annual Mm
1. 2.	Vanpuram Sathanur Dam	900	100	300	160	**1460**

a. CLIMATE

The Pambar to Thirukoilur basin lies in a normal rainfall belt having a average rain fall of annual rainfall 1025 mm. Southwest monsoon contribute 300 mm , while NE monsoon contributes 900 mm . This basin receives a major share of its rainfall during NE monsoon. This monsoon helps to build up storage system and in non system tanks.

LAND HOLDING

Details of farm holdings and size classes prevalent in Pambar to Thirukoilur sub basin are given below

Sl.No.	Category	Size of Holding	Numbers	Percentage
1	Marginal	<1.00 Ha	40000	91
2	Small	1.00-2.00 Ha	3000	7
3	Medium	2.00 — 5.00 Ha	1000	2
Total			**44000**	**100**

CROPPING PATTERN

Name of the sub Basin	**: Pambar to Tirukoilur**	Fully Irrigated	2453.44	Ha
		Partially		
Nodal District	: Villupuram & Tiruvannamalai	Irrigated	587.45	Ha
Registered Ayacut Area	3514.93 Ha.	Gap	474.04	Ha
		Total Ayacut Area	**3514.93**	Ha

S.No.	Crop	Without Project				With Project				Increase
		FI	PI	RF/G	TOTAL	FI	PI	RF/G	TOTAL	
I	**Perennial crop**									
1	Coconut	0	29.00	0	**29.00**	50.00	0	0	**50.00**	21.00
2	Casurina	0	55.00	35.00	**90.00**	120.00	0	0	**120.00**	30.00
3	Fodder	30.00	0	0	**30.00**	65.00	0	0	**65.00**	35.00
4	Oilpalm	25.00	0	0	**25.00**	60.00	0	0	**60.00**	35.00
5	Mango	0	25.00	10.00	**35.00**	55.00	0	0	**55.00**	20.00
6	Guava	0	5.00	5.00	**10.00**	20.00	0	0	**20.00**	10.00
	Sub Total	**55.00**	**114.00**	**50.00**	**219.00**	**370.00**	**0**	**0**	**370.00**	151.00
II	**Annual crop**									
1	Sugarcane	571.51	192.49	0	**764.00**	700.00	0	0	**700.00**	-64.00
2	Banana	45.00	0	0	**45.00**	65.00	0	0	**65.00**	20.00
3	Tapioca	0	100.00	250.00	**350.00**	435.00	0	0	**435.00**	85.00
4	Turmeric	50.00	0	0	**50.00**	75.00	0	0	**75.00**	25.00
	Sub Total	**666.51**	**292.49**	**250.00**	**1209.00**	**1275.00**	**0**	**0**	**1275.00**	66.00
III	**1st crop**									
1. a	Paddy	1250.88	0	0	**1250.88**	0.00	0	0	**0.00**	-1250.88
b	Paddy - SRI	0	0	0	**0.00**	1050.88	0	0	**1050.88**	1050.88
2	Pulses	0	163.65	141.35	**305.00**	329.00	0	0	**329.00**	24.00
3	Maize	200.00	17.31	32.69	**250.00**	275.05	0	0	**275.05**	25.05
4	Groundnut	216.00	0	0	**216.00**	100.00	0	0	**100.00**	-116.00
5	Bhendi	35.00	0	0	**35.00**	65.00	0	0	**65.00**	30.00
6	Brinjal	25.00	0	0	**25.00**	40.00	0	0	**40.00**	15.00
7	Tomato	5.05	0	0	**5.05**	10.00	0	0	**10.00**	4.95
8	Fallows	0	0	0	**0.00**	0.00	0	0	**0.00**	0.00
	Sub Total	**1731.93**	**180.96**	**174.04**	**2086.93**	**1869.93**	**0**	**0**	**1869.93**	-217.00
	Grand Total (I+II+III)	**2453.44**	**587.45**	**474.04**	**3514.93**	**3514.93**	**0**	**0**	**3514.93**	0.00
IV	**2 nd Crop**									
1. a	Paddy	250.00	0	0	**250.00**	0	0	0	**0.00**	-250.00
b	Paddy - SRI	0	0	0	**0.00**	300.00	0	0	**300.00**	300.00
2	Pulses	0	70.00	60.00	**130.00**	400.00	0	0	**400.00**	270.00
3	Maize	0	85.00	25.00	**110.00**	320.00	0	0	**320.00**	210.00
4	Turmeric	0	0	20.00	**20.00**	20.00	0	0	**20.00**	0.00
	Sub Total	**250.00**	**155.00**	**105.00**	**510.00**	**1040.00**	**0.00**	**0.00**	**1040.00**	530.00
V	**3 rd Crop**									
	Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	0.00
	Great Grand Total	**2703.44**	**742.45**	**579.04**	**4024.93**	**4554.93**	**0.00**	**0.00**	**4554.93**	530.00
	Cropping Intensity				**114.51%**				**129.59%**	

PAMBAR TO THIRUKOILUR SUB BASIN - PENNAIYAR BASIN
Crop water requirement without Project

Sl.No.	Name of Crop	Area in Ha	Crop water requirement in mm	Total Crop water requirement in Mcm	Irrigation water requirement at source Eff=53%	Total Irrigation requirement in Mcm
I	**Perennial Crops**					
1	Coconut	29.00	1073	0.311	0.59	0.59
2	Casuarina	55.00	402	0.221	0.42	0.42
3	Oilpalm	25.00	290	0.073	0.14	0.14
4	Fodder	30.00	138	0.041	0.08	0.08
5	Mango	25.00	592	0.148	0.28	0.28
6	Guava	5.00	256	0.013	0.02	0.02
	Sub Total	**169.00**		**0.81**	**1.52**	**1.52**
II	**Annual Crops**					
1	Sugarcane	764.00	1006	7.686	14.50	14.50
2	Banana	45.00	971	0.437	0.82	0.82
3	Tapioca	100.00	538	0.538	1.02	1.02
4	Turmeric	50.00	286	0.143	0.27	0.27
	Sub Total	**959.00**		**8.80**	**16.61**	**16.61**
III	**1st Crop**					
1.a	Paddy	1250.88	766	9.582	18.08	18.08
b	Paddy -SRI	0.00	536	0.000	0.00	0.00
2	Pulses	163.65	382	0.625	1.18	1.18
3	Maize	217.31	329	0.715	1.35	1.35
4	Groundnut	216.00	619	1.337	2.52	2.52
5	Bhendi	35.00	315	0.110	0.21	0.21
6	Brinjal	25.00	464	0.116	0.22	0.22
7	Tomato	5.05	382	0.019	0.04	0.04
8	Flowers	0.00	186	0.000	0.00	0.00
	Sub Total	**1912.89**		**12.50**	**23.59**	**23.59**
	Grand Total (I+II+III)	**3040.89**		**22.12**	**41.73**	**41.73**
IV	**2nd Crop**					
1.a	Paddy	250.00	428	1.070	2.02	2.02
b	Paddy - SRI	0.00	300	0.000	0.00	0.00
2	Pulses	70.00	300	0.210	0.40	0.40
3	Maize	85.00	329	0.280	0.53	0.53
4	Groundnut	0.00	246	0.000	0.00	0.00
5	Turmeric	0.00	286	0.000	0.00	0.00
6	Tapioca	0.00	538	0.000	0.00	0.00
	Total	**405.00**		**1.56**	**2.94**	**2.94**
	Great Grand Total	**3445.89**		**23.67**	**44.67**	**44.67**

PAMBAR TO THIRUKOILUR SUB BASIN - PENNAIYAR BASIN

Water Potential without Project

Surface Water Potential	=	98.32	Mcm
Ground Water Potential	=	145.83	Mcm
Total Potential	**=**	**244.15**	Mcm

Water Demand without Project

Domestic	=	2.38	Mcm
Livestock	=	14.00	Mcm
Industrial	=	0.09	Mcm
Irrigation			
WRO	=	44.67	Mcm
PU & GW	=	9.96	Mcm
Total Water Demand	=	**71.10**	Mcm
Water Balance	=	**173.05**	Mcm

PAMBAR TO THIRUKOILUR SUB BASIN - PENNAIYAR BASIN

Crop water requirement with Project

Sl.No.	Name of Crop	Area in Ha	Crop water requirement in mm	Total Crop water requirement in Mcm	Irrigation water requirement at source Eff=56%	Total Irrigation requirement in Mcm
I	**Perennial Crops**					
1	Coconut	50.00	1073	0.537	0.96	0.96
2	Casuarina	120.00	402	0.482	0.86	0.86
3	Oilpalm	60.00	290	0.174	0.31	0.31
4	Fodder	65.00	138	0.090	0.16	0.16
5	Mango	55.00	592	0.326	0.58	0.58
6	Guava	20.00	256	0.051	0.09	0.09
	Sub Total	**370.00**		**1.66**	**2.96**	**2.96**
II	**Annual Crops**					
1	Sugarcane	700.00	1006	7.042	12.58	12.58
2	Banana	65.00	971	0.631	1.13	1.13
3	Tapioca	435.00	538	2.340	4.18	4.18
4	Turmeric	75.00	286	0.215	0.38	0.38
	Sub Total	**1275.00**		**10.23**	**18.26**	**18.26**
III	**1st Crop**					
1.a	Paddy	0.00	766	0.000	0.00	0.00
b	Paddy -SRI	1050.88	536	5.635	10.06	10.06
2	Pulses	329.00	382	1.257	2.24	2.24
3	Maize	275.05	329	0.905	1.62	1.62
4	Groundnut	100.00	619	0.619	1.11	1.11
5	Bhendi	65.00	315	0.205	0.37	0.37
6	Brinjal	40.00	464	0.186	0.33	0.33
7	Tomato	10.00	382	0.038	0.07	0.07

8	Flowers	0.00	186	0.000	0.00	0.00
	Sub Total	**1869.93**		**8.84**	**15.79**	**15.79**
	Grand Total (I+II+III)	**3514.93**		**20.73**	**37.02**	**37.02**
IV	**2nd Crop**					
1	Paddy	0.00	428	0.000	0.00	0.00
b	Paddy - SRI	300.00	300	0.899	1.61	1.61
2	Pulses	400.00	300	1.200	2.14	2.14
3	Maize	320.00	329	1.053	1.88	1.88
4	Groundnut	0.00	246	0.000	0.00	0.00
5	Turmeric	20.00	286	0.057	0.10	0.10
6	Tapioca	0.00	538	0.000	0.00	0.00
	Total	**1040.00**		**3.21**	**5.73**	**5.73**
	Great Grand Total	**4554.93**		**23.94**	**42.75**	**42.75**

PAMBAR TO THIRUKOILUR SUB BASIN - PENNAIYAR BASIN

Water Potential with Project

Surface Water Potential	=	98.32	Mcm
Ground Water Potential	=	145.83	Mcm
Total Potential	**=**	**244.15**	Mcm

Water Demand with Project

Domestic	=	2.38	Mcm
Livestock	=	14.00	Mcm
Industrial	=	0.09	Mcm
Irrigation			
WRO	=	42.75	Mcm
PU & GW	=	9.96	Mcm
Total Water Demand	**=**	**69.18**	Mcm
Water Balance	**=**	**174.97**	Mcm

1.3. HYDRAULICS OF THE COMPONENT

HYDRAULIC PARTICULARS

a) ANICUT

Sl.No	Name of Anicut	Village	Ayacut	Length of Anicut(M)	Crest level of Anicut (M)	Front (M)	Free Sq.km	Combined Sq.km	Maximum flood discharge Cumecs/ Cusecs	Head sluice Location	Vent(M)	Sill Level sluice (M)	Discharge cumecs	Supply Channel					Remarks
														Length (m)	Bed width (M)	FSD (M)	Bed slope	Sluice	
No Anicuts in this sub basin																			

b) SYSTEM TANKS

Sl. No	District	Taluk	Name of Tank	Ayacut in Ha	Capacity in Mcft	Number of Fillings	Free catchment in SqKm	Combined Catchment in Sq.Km	Water spread area(Sq.Km)	FTL in M	MWL in M	No.of Sluices	Nos and Length of weir (m)		Discharge in Cusecs	Length of bund (M)	Length of Supply Channel (M)	Upper Tank	Lower Tank
													Nos	Length in m					
1	Thiruvannamalai	Thandarmpattu	Allappanur Tank	18.74	4.167	2	2.140	2.140	0.132	159.500	159.950	1	1	15.15	403.79	520	1000	SLBC Direct sluice	Pennaiyar river
2			Rayandapuram Tank	56.22	24.650	1	4.860	16.550	0.497	159.700	160.150	3	2	100.00	1765.70	1240	2400	SRBC Direct sluice	Pennaiyar river
3			Motttan Tank	26.05	5.680	2	1.840	6.590	0.019	100.000	100.450	*	1	5.00	88.29	700	200	SLBC Direct sluice	Pennaiyar river
4			Vettuthangal tank	32.52	7.650	2	2.670	12.440	0.028	100.000	100.450	1	1	6.00	105.94	800	900	SLBC Direct sluice	Pennaiyar river
5		Thiruvannamalai	Athipadi Tank	10.78	4.308	2	1.830	1.830	0.141	156.870	157.320	1	1	4.35	128.19	470	2500	Perayampattu	kungiliyanatham
6			Palayanur Tank	28.20	7.310	3	4.297	4.297	0.231	150.240	150.690	1	1	25.75	516.66	765	400	SLBC Direct sluice	Moonjirampattu
7			Kallottu Tank	10.31	2.825	3	1.135	1.135	0.117	142.585	143.035	1	1	11.20	224.71	210	1320	SLBC Direct sluice	Velayampakkam
8			Kandiyankuppam Tank	28.50	0.095	2	2.410	2.410	0.114	133.660	134.110	1	1	9.50	62.15	490	1520	SLBC Direct sluice	Pennaiyar river
9			Velayampakkam Tank	28.50	1.250	3	0.867	2.002	0.064	137.620	138.070	1	1	21.60	433.77	365	400	Kallottu tank	Athiyandal
10			Navampattu Tank	17.23	2.754	3	2.187	2.187	0.168	142.340	142.790	1	2	18.60	373.28	670	1200	SLBC Direct sluice	Konganamur
11	Villupuram	Thirukoilur	Konganamur Tank	14.96	8.228	3	2.291	6.376	0.223	137.685	138.285	2	2	38.45	1189.76	1040	700	Putiyantahl	Murukkambadi
12			Murukkambadi tank	29.07	7.628	3	1.681	8.057	0.295	133.610	134.210	1	2	15.00	463.79	950	550	Konganamur	Parayantahngal
13			Atiyandal Tank	8.32	3.355	3	1.031	3.033	0.119	133.650	134.100	1	1	32.40	585.38	540	300	Vealayampakkam	Kdamparampattu
14			Devaradiyarkuppam tank	21.72	4.238	3	2.147	14.574	0.159	128.930	129.530	1	1	20.00	1065.91	450	200	Nariayappattu	Sithapattinam
15			Pallichandal tank	26.97	8.052	2	3.375	3.375	0.210	126.535	127.135	1	2	18.50	750.40	480	2300	SLBC Direct sluice	Pennaiyar river
16			Jambai tank	59.04	1.907	2	0.474	0.474	0.080	123.140	123.440	2	1	25.50	278.60	660	750	SLBC Direct sluice	Manalurpettai
17			Sellankuppam tank	17.26	17.657	2	5.538	5.538	0.416	129.910	130.360	1	1	28.15	565.04	908	500	SLBC Direct sluice	Appuppattu
18			Sithapattinam tank	109.16	35.633	2	6.890	42.302	0.930	119.780	120.380	2	2	52.00	3040.62	1425	1800	Devaradiyarkuppam	Pennaiyar river
19			Manalurpettai tank	57.72	15.080	2	2.757	3.805	0.427	118.445	118.895	1	1	32.00	578.10	860	1400	Jambai	Pennaiyar river
20		Sankarapuram	Moongilthuraipattu	36.43	11.998	2	4.765	4.765	0.389	123.450	123.900	2	1	45.00	367.00	1290	1370	SRBC Direct sluice	Pennaiyar river
21			Poruvalur	13.39	4.410	2	1.789	15.843	0.286	121.650	122.100	1	1	20.00	453.23	780	1400	SRBC Direct sluice	Porasappattu
22			Devaparai	15.74	5.184	2	2.430	2.430	0.145	122.350	122.800	1	1	6.00	179.00	980	1145	SRBC Direct sluice	Pitchgoundan
23			Pakkam Pudur	45.22	14.892	2	15.100	67.610	1.360	149.940	150.540	2	1	25.00	4087.00	1700	1200	SRBC Direct sluice	Pakkam
24			Kaduvanur	141.75	46.683	2	10.269	50.309	1.377	155.525	156.275	3	1	109.20	4246.60	2200	2750	SRBC Direct sluice	Pakkam
25			Thozuvanthangal	16.31	5.371	2	1.577	1.577	0.520	147.980	148.430	1	1	21.40	445.32	750	960	SRBC Direct sluice	Pakkam
26			Periakolliyur	78.92	25.991	2	11.530	82.155	0.629	141.110	141.710	2	1	189.30	5847.04	2980	3480	SRBC Direct sluice	Chinnakolliiyur
27			Chinnakolliyur	30.32	9.985	2	2.440	2.440	0.375	134.260	134.860	3	2	16.80	458.38	1320	2865	Periakolliyur	Ilayanarkuppam
28			Ilayanarkuppam	35.24	11.606	2	2.785	2.785	0.237	134.720	135.170	1	2	25.70	366.64	900	1100	SRBC Direct sluice	Seerpanadal

29			Seerpanandal	168.44	55.473	2	7.805	104.695	2.097	128.940	129.690	4	1	117.25	5063.42	3063	2250	Periakolliyur	Eadaiyur
30			Maniyanthal	17.96	5.915	2	2.890	12.870	0.560	120.000	120.450	1	1	12.00	215.9	880	2200	SRBC Direct sluice	Eadaiyur
Sl. No	District	Taluk	Name of Tank	Ayacut in Ha	Capacity in Mcft	Number of Fillings	Free catchment in SqKm	Combined Catchment in Sq.Km	Water spread area(Sq.Km)	FTL in M	MWL in M	No.of Sluices	Nos and Length of weir (m)		Discharge in Cusecs	Length of bund (M)	Length of Supply Channel (M)	Upper Tank	Lower Tank
													Nos	Length in m					
31	Villupuram	Sankarapuram	Seerpadanallur	11.76	3.873	2	4.860	24.560	0.470	124.650	125.100	1	1	45.00	1245.23	1200	1400	SRBC Direct sluice	Thiruvaranagm
32			Thiruvarangam	47.30	15.550	2	2.673	4.470	0.316	122.530	123.130	4	2	45.00	1364.21	2250	2470	SRBC Direct sluice	Pennaiyar river
33			Jambadai	62.19	20.481	2	6.870	16.340	0.560	126.300	123.900	2	1	60.00	1698.56	1600	1100	SRBC Direct sluice	Eadaiyur
34			Kallipadi	20.13	6.629	2	0.819	0.819	0.133	119.475	119.925	2	1	7.10	152.92	800	1200	SRBC Direct sluice	Pennaiyar river
35			Athiyur	88.37	29.103	2	5.851	5.851	0.497	149.510	149.960	2	3	44.60	740.34	1353	1590	SRBC Direct sluice	Atiyurthangal
36			Athiyur thangal	8.45	2.783	2	7.230	14.900	0.370	121.450	121.900	2	1	16.00	365.98	670	1200	SRBC Direct sluice	Vanapuram
37			Ariyalur	28.38	9.346	2	5.076	5.076	0.404	147.010	147.460	2	2	45.40	820.25	930	2700	SRBC Direct sluice	Vanapuram
38			Vanapuram	73.31	24.143	2	3.463	18.974	1.493	136.400	137.000	2	2	54.35	1678.78	830	1840	SRBC Direct sluice	Kadambur
39			Nagalkudi	26.16	8.615	2	1.501	1.501	0.214	142.340	142.790	1	1	23.00	415.55	650	1450	SRBC Direct sluice	Kadambur
40			Odiyanthal	29.68	9.775	2	0.967	0.967	0.157	132.135	132.585	1	1	20.00	280.68	740	1260	SRBC Direct sluice	Vanapuram
41			Kadampur	106.17	34.965	2	8.840	29.999	1.286	126.955	127.855	2	1	34.20	2554.73	1520	2780	Vanapuram	Sirupanaiyur
42			Sirupanaiyur	99.75	32.851	2	9.230	29.960	0.489	120.250	120.710	2	2	61.20	2820.58	1556	1480	Kadambur	Madampoondi

1802.64

b)NON SYSTEM TANKS

Sl. No	District	Taluk	Name of Tank	Ayacut in Ha	Capacity in Mcft	Number of Fillings	Free catchment in SqKm	Combined Catchment in Sq.Km	Water spread area(Sq.Km)	FTL in M	MWL in M	No.of Sluices	Nos and Length of weir (m)		Discharge in Cusecs	Length of bund (M)	Length of Supply Channel (M)	Upper Tank	Lower Tank
													Nos	Length in m					
1	Thiruvannamalai	Thandarampattu	Perungalathur tank	72.83	24.98	2	3.89	24.36	2.56	100.000	100.600	2	2	45	1132	2040	1000	Rainfed	Perungalathur chitteri
2	Villupuram	Sankarapuram	Mookkanur	129.29	43.730	2	3.75	28.78	0.46	100.000	100.600	2	1	71.00	1350	1000	2100	Puthirampattu	Kaduvanur
3			Pakkam	192.94	63.540	2	2.80	24.3	1.40	149.940	150.540	3	5	147.00	4087.53	1280	3600	Kaduvanur	Periakolliyur
4			Marur	127.56	42.010	2	3.45	6.89	1.12	100.000	100.600	3	1	124	3457.54	1450	1700	Rainfed	Pagandai
5			Eandal	47.78	15.736	2	2.12	4.58	0.34	100.000	100.600	2	1	30	692.01	1250	775	Rainfed	Pagandai
6		Thirukoilur	Sitthamur	67.15	9.800	1	1.33	9.61	0.207	100.000	100.600	4	1	22.00	620	1800	5800	Pennaiyar River	Koovanur
7			Koovanur	98.55	14.700	1	1.08	4.12	0.285	100.000	100.600	6	1	15.00	570	1428	3500	Pennaiyar River	Pennaiyar River
8			Edaiyur	77.14	12.020	1	1.28	3.85	0.233	100.000	100.600	2	1	21.70	845	1850	2500	Madampoondi	Thirukoilur tank supply channel
9			Madampoondi	52.19	34.020	1	1.50	9.12	0.648	100.000	100.600	2	3	67.90	970	850	2000	Forest area	Deviyandal
10			Thagadi	121.07	20.400	1	3.50	19.20	0.390	100.000	100.600	9	1	25.00	720	2025	3800	Pennaiyar River	Thirukoilur tank supply channel
11			Mudiyanur	86.16	6.700	1	1.40	9.55	0.130	100.000	100.600	3	1	20.10	510	1207	4200	Pennaiyar River	Thirukoilur tank supply channel
12			Kachikuvasan	52.29	10.650	1	0.96	3.37	0.260	100.000	100.600	1	1	15.00	570	850	1800	Thirukoilur hisssa tank	Kaaupaiyur tank supply channel
13			Aaviyur	117.50	13.450	1	1.35	4.60	0.320	100.000	100.600	1	1	11.00	530	1320	3800	Pennaiyar River	Vadakkunemili
14			Thirukoilur Hissa	349.7	44.740	2	4.95	18.50	0.910	100.000	100.600	9	3	78.00	1200	3500	5500	Pennaiyar River	Kachikuvan tank
15			Thirupalapandal	120.14	40.320	1	3.24	18.45	0.210	100.000	100.600	2	3	121.50	930	1250	3000	Madampoondi	Thirukoilur tank supply channel
				1712.29															

C) SUPPLY CHANNELS HAVING DIRECT AYACUT

Sl. No.	Name of supply channel	Start Point		End Point		Length in metres	Bed width	Bed slope	Side slope	MFD	Depth of flow	Remarks
		Location	Sill level	Location	Sill level							
No Supply channel ayacut in this sub basin												

1.4 PARTICIPATORY IRRIGATION MANAGEMENT (PIM)

Salient Features of Implementation of PIM in Pambar to Thirukoilur Sub-basin

1) **The Sub-basin:** This is one of the sub-basins of the Ponnaiyar River Basin. Totally 57 irrigation tanks and are under the control of Water Resources Organisation (WRO) of Public Works Department (PWD) in this sub-basin. The list of Tanks covered with more details are furnished in the **Annexure – 1**. These 57 tanks are located within the sub-basin's hydraulic boundary spread over 55 villages of Thandarampattu Tk ,Thiruvannamalai Tk in Thiruvannamalai Dt and Sankarapuram Taluk, Thirukoilur Tk in Villupuarm District. **The total Command area under these 57 tanks works out to 3514.93 ha. (Annexure 1)**

2) **Command area:**

i. Under system tanks: 42 a)SLBC – 16 – 486.48 Ha b)SRBC- 26-1316.16 Ha	1802.64 ha.
ii. Under Non-system tanks (15 tanks)	1712.29 ha.
Total 57 Tanks command area	3514.93 ha

3) **An assessment of number of WUAs.**

i) Associations **already formed** under WRCP	23 (1802.64ha)
ii) Associations **proposed to be formed** under IAMWARM Project covering 15 tanks in 15 villages	13 Nos (1712.29 ha)
iii) The **total command area** covered by the above (23 + 13 = 36) WUAs works out to	36 nos (3514.93 ha.)

4) **An account of "Awareness creation".**

Activities undertaken and "Walkthrough Surveys" carried out:

i) There are 57 tanks are in the sub-basin spread over 55 villages.

ii) As detailed out in Annexure – 01. All these villages were visited by the WRO officials and awareness about various activities, contemplated under IAMWARM project has been created.

iii) Details of villages covered, walkthrough surveys conducted, farmers attended, list of works suggested by the farmers, list of works analysed and finalized by WRO officials, are all furnished in the Annexure – 02.

5) Schedule for completion of delineation and preparation for WUA documents, comprising of:

i) Form – I : Details to be notified by District Collectors (End of Jun – 09)

ii) Form – II: WUA document to be notified by District Collectors
(End of August – 09)

iii) Completion of preparatory works for the conduct of Elections for WUAs (End of September – 09)

6) Schedule for Conduct of Elections in the sub-basin for farming Management committees will be completed by end of September 2009.

i) For the WUAs formed under WRCP, there are four Competent Authorities already functioning, as listed below:

Sl.No.	Details of WUAs in code	Details of Competent Authorities
(Villupuram District)		
1.	VPM 64 – 70	Assistant Engineer PWD WRD LPB Section –I Sankarapuram
2.	VPM 58 -- 63	Assistant Engineer PWD WRD LPB Section –I Sankarapuram
3.	VPM 52 – 57	Junior Engineer, PWD WRD Irrigation Section, Moongilthuraipattu
4	TVM 02 -19	Junior Engineer WRD Thenmudiyanur section
5	VPM 06-10	Junior Engineer WRD Vanapuram Sectiion

ii) It is proposed to form 13 WUAs only under IAMWARM Project to cover a command area of 1712.29ha.

iii) Appointment of Competent Authorities for the WUAs proposed to be formed under IAMWARM project is based on the “WRO Section officer wise” distribution as indicated below.

Name of the WRO Sub Division Officers working in the Pambar to Thirukoilur Sub-basin:.

a) Assistant Executive Engineer WRD

   Sathanur Dam Sub Division

b) Assistant Executive Engineer WRD

   Middle Pennaiayar Basin Sub Division Thiruvannamalai

c) Assistant Executive Engineer WRD

   Lower Pennaiyar Basin Sub Division Sankarapuram

d) Assistant Executive Engineer WRD

   Lower Pennaiyar Basin Sub Division Thirukoilur

7) Involvement of farmers in the preparation “Scheme Modernisation Plans”.

i) Based on the outcome of the “Awareness Creation Programme” and Walkthrough survey carried out with the involvement of farmers, a list of tasks proposed to be taken up for “Modernization” under IAMWARM project was discussed with farmers from 55 villages and the tasks was also prepared and exhibited in the Notice Board of the Village Administrative Officers Office and Panchayat Office.

ii) During the meeting, the farmers present were also informed that soon after finalization of contract for carrying out “Modernization of Irrigation Systems” a “Notice Board” with the details about the nature of works, its cost, period of contract and Name of the contractor will all be fixed at the site of the work, as well as in the Panchayat Office, for information of the farmers. They have also been informed that they are free to supervise the work by the contractor and any lapse in the quality of work may be reported to the field officers of WRO, as well as the Executive Engineer of WRO, who has been designated as the Nodal Officer for the sub-basin concerned.

iii) The field officers of WRO have all been informed about the problems in handing over the operation and maintenance responsibilities to the farmers concerned, if the tasks as desired by them are not included in the modernization of the system and also in case some of the tasks already planned are not implanted due to some reasons or other.

iv) The WRO officers were also informed that hey are personally responsible for handing over the irrigation systems after completing the tasks related to modernization of Irrigation systems.

8) Current status of Recovery of water charges:

i) An enquiry conducted with the "Village Administrative Officers" (VAOs) of randomly selected villages, the normal water charges recovery as informed by the VAO, works out to 50-60% only, about the expected percentage of 80-90%.

ii) With the proposal to form new WUAs under IAMWARM in "Pambar to Thirukoilur Sub-basin", the Managing Committee **will be trained** to take up the responsibility of improving the **Water charges recovery percentage.** These will be followed up, after completing the modernization tasks and handing over of the O & M responsibilities to WUAs.

9) "Capacity Building" of the WUA farmers:

i) The "Support Organisation Group" will prepare "Training Modules" required for **building the capacity** of the WUA farmers, based on a "Training Needs" Analysis. They will also organize various "Capacity building" programmed at **suitable locations** within the sub-basin command area, to benefit the farmers of the WUAs in the sub-basin.

ii) The "Support Organisation" will also arrange for organizing the **"Study Tours" both within and outside the state** to enhance their knowledge and experiences which will help them **to improve the crop productivity** and there by the farmer's income.

iii) The Support Organisation will also conduct necessary "awareness programme" and impart training to educate the farmers of the WUAs in all aspects of the TNFMIS Act, TNFMS Rules and Election procedures for constituting the "Managing Committees" of the WUAs.

10) The "Competent Authorities" appointed for the **sub-basin** will also be trained to effectively to interact with WUA farmers and maintain good rapport and relationship with the farming community in the sub-basin.

DETAILS OF WUA PROPOSED IN PAMBAR TO THIRUKOILUR SUB-BASIN				
Sl. No	**WUA No.**	**Tanks it covers**	**Name of the WUA**	**Command area Area in Ha**
1	**01/PTR/TVM**	Perungalathur tank	Perungulathur eri neerinai payanapduthuvor sangam	72.83
2	**01/PTR/PM**	Mookkanur tank	Mookkanur eri neerinai payanapduthuvor sangam	129.29
3	**02/PTR/VPM**	Pakkam tank	Pakkam eri neerinai payanapduthuvor sangam	192.94
4	**03/PTR/VPM**	Marur tank,Eandal tank	Marur eri neerinai payanapduthuvor sangam	175.34
5	**04/PTR/VPM**	Sittamur tank	Sittamur eri neerinai payanapduthuvor sangam	67.15
6	**05/PTR/VPM**	Koovanur tank	Koovanur eri neerinai payanapduthuvor sangam	98.55
7	**06/PTR/VPM**	Eadaiyur Tank	Eadaiyur eri neerinai payanapduthuvor sangam	77.14
8	**07/PTR/VPM**	Madampoondi tank	Madampoodi eri neerinai payanapduthuvor sangam	52.19
9	**08/PTR/VPM**	Thagadi tank	Thagadi eri neerinai payanapduthuvor sangam	121.07
10	**09/PTR/VPM**	Mudiyanur tank	Mudiyanur eri neerinai payanapduthuvor sangam	86.16
11	**10/PTR/VPM**	Thirukoilur hissa tank and Kachikuvasan tank	Thirukoilur eri neerinai payanapduthuvor sangam	401.99
12	**11/PTR/VPM**	Aaviyur tank	Aaviyur eri neerinai payanapduthuvor sangam	117.50
13	**12/PTR/VPM**	Thiruppalapandal tank	Thiruppalapandal eri neerinai payanapduthuvor sangam	120.14

Annexure - I

AN ASSESSMENT OF COMMAND AREA AND WUAs UNDER THE CONTROL OF WRO of PWD in PAMBAR TO THIRUKOILUR SUBBASIN

Sl no	NAME OF IRRIGATION SYSTEM AND TANKS	COMMAND AREA (Ha)	LOCATION OF THE COMMAND AREA			COVERAGE OF AREA UNDER DIFFERENT PROJECT(Ha)		STATUS OF FORMATION OF WUAs IN THE SUB BASIN	
			VILLAGE	TALUK	DISTRICT	WRCP AND OTHERS	IAMWARMM	FORMED UNDER OTHER SCHEME(WRCP Code No)	TO BE FORMED Under IAMWARM (Code No)
1	2	3	4	5	6	7	8	9	10
SLBC System									
1	Allappanur Tank	18.74	Allappanur	Thandarampattu	Thiruvannamalai	18.74		TVM 02	
2	Athipadi Tank	10.78	Athipadi	Thiruvannamalai		10.78		TVM 10	
3	Palayanur Tank	28.20	Palayanur			28.20		TVM 19	
4	Kallottu Tank	10.31	Kallottu			10.31		TVM 21	
5	Kandiyankuppam Tank	28.50	Kandiyankuppam			28.50		TVM 13	
6	Velayampakkam Tank	28.50	Velayampakkam			28.50		TVM 14	
7	Navampattu Tank	17.23	Navampattu			17.23		TVM	

								19	
8	Konganamur Tank	14.96	Konganamur	Thirukoilur	Villupuram	14.96		VPM 09	
9	Murukkambadi tank	29.07	Murukkambadi			29.07		VPM 09	
10	Atiyandal Tank	8.32	Atiyandal			8.32		VPM 09	
11	Devaradiyarkuppam tank	21.72	Devaradiyarkuppam			21.72		VPM10	
12	Pallichandal tank	26.97	Pallichandal			26.97		VPM 06	
13	Jambai tank	59.04	Jambai			59.04		VPM 07	
14	Sellankuppam tank	17.26	Sellankuppam			17.26		VPM 08	
15	Sithapattinam tank	109.16	Sithapattinam			109.16		VPM 10	
16	Manalurpettai tank	57.72	Manalurpettai			57.72		VPM 08	

SRBC System

1	Rayandapuram Tank	56.22	Rayandapuram	Thandarampattu	Thiruvannamalai	56.22		TVM 82	
2	Motttan Tank	26.05	Ilayankanni			26.05		TVM 83	
3	Vettuthangal tank	32.52	Ilayankanni			32.52		TVM 83	
4	Moongilthuraipattu	36.43	Moongilthuraipattu	Sankarapuram	Villupuram	36.43		VPM 53	
5	Poruvalur	13.39	Porasappattu			13.39		VPM 54	
6	Devaparai	15.74	Saveriarpalayam			15.74		VPM 54	

7	Pakkam Pudur	45.22	Pakkam			45.22		VPM 57	
8	Kaduvanur	141.75	Kaduvanur			141.75		VPM 65	
9	Thozuvanthangal	16.31	Thozuvanthangal			16.31		VPM 65	
10	Periakolliyur	78.92	Periakolliyur			78.92		VPM 67	
11	Chinnakolliyur	30.32	Chinnakolliyur			30.32		VPM 67	
12	Ilayanarkuppam	35.24	Ilayanarkuppam			35.24		VPM 61	
13	Seerpanandal	168.44	Seerpanandal			168.44		VPM 61	
14	Maniyanthal	17.96	Maniyanthal			17.96		VPM 61	
15	Seerpadanallur	11.76	Seerpadanallur			11.76		VPM 62	
16	Thiruvarangam	47.30	Thiruvarangam			47.30		VPM 63	
17	Jambadai	62.19	Jambadai			62.19		VPM 63	
18	Kallipadi	20.13	Kallipadi	Sankarapuram	Villupuram	20.13		VPM 63	
19	Athiyur	88.37	Athiyur			88.37		VPM 66	
20	Athiyur thangal	8.45	Athiyur			8.45		VPM 66	
21	Ariyalur	28.38	Ariyalur			28.38		VPM 68	
22	Vanapuram	73.31	Vanapuram			73.31		VPM 68	

23	Nagalkudi	26.16	Nagalkudi			26.16		VPM 68	
24	Odiyanthal	29.68	Odiyanthal			29.68		VPM 68	
25	Kadampur	106.17	Kadampur			106.17		VPM 68	
26	Sirupanaiyur	99.75	Sirupanaiyur			99.75		VPM 68	

NON SYSTEM TANKS

1	Perungalathur tank	72.83	Perungalathur	Thandarampattu	TVM	72.83		1/PTR/TVM
2	Mookkanur	129.29	Mookkanur	Sankarapuram	Villupuram	129.29		1/PTR/VPM
3	Pakkam	192.94	Pakkam			192.94		2/PTR/VPM
4	Marur	127.56	Marur			127.56		3/PTR/VPM
5	Eandal	47.78	Eandal			47.78		
6	Sitthamur	67.15	Sitthamur	Thirukoilur		67.15		4/PTR/VPM
7	Koovanur	98.55	Koovanur			98.55		5/PTR/VPM
8	Edaiyur	77.14	Edaiyur			77.14		6/PTR/VPM
9	Madampoondi	52.19	Madampoondi			52.19		7/PTR/VPM
10	Thagadi	121.07	Thagadi			121.07		8/PTR/VPM
11	Mudiyanur	86.16	Mudiyanur			86.16		9/PTR/VPM
12	Kachikuvasan	52.29	Kachikuvasan			52.29		10/PTR/VPM
13	Thirukoilur Hissa	349.70	Thirukoilur			349.70		
14	Aaviyur	117.50	Aaviyur			117.50		11/PTR/ VPM
15	Thirupalapandal	120.14	Thirupalapandal			120.14		12/PTR/VPM
					Total	1712.29		

ABSTRACT:-

1. Command area already covered under WRCP and other Projects / schemes - 1802.24ha
2. Command area proposed to be covered under IAMWARM Project (Total of column 8) - 1712.29 ha
3. Total Command area controlled by WRO of PWD in the sub basin -3514.93 Ha
4. Total No of WUAs already formed under WRCP -23
5. Total No of WUAs proposed to be formed under IAMWARM – 13

6 Total No of WUAs that will the entire sub-basin - 36

Annexure - II

DETAILS OF "AWARNESS CREATION ACTIVITIES AND WALK-THROUGH SURVEY"

Sl. No	Date of Visit	Name of the Village Visited	IAMWARM DAY (No of Village presidents and other lead farmers participated)	Water walk and Walk-through survey (No .of farmer's participated)	Remarks
1	12.11.2008	Kaduvanur	34		
2	14.11.2008	Vanapuram	21		
3	12.12.2008	Pakkampudur		21	
4	12.12.2008	Kaduvanur		19	
5	12.12.2008	Thozuvantahngal		12	
6	12.12.008	Periakolliyur		18	
7	12.12.2008	Chinnakolliyur		14	
8	12.12.2008	Ilayanarkuppam		18	
9	15.12.2008	Seerpanandal		25	
10	15.12.2008	Maniyanthal		12	
11	15.12.2008	Thiruvarangam		15	
12	15.12.2008	Seerpathanallur		25	
13	16.12.2008	Mookanur		20	
14	16.12.2008	Pakkam		12	
15	12.02.2009	Kaduvanur Pakkampudur		77 60	Walkthrough survey conducted by the Nodal officer with all line department officers
16	16.12.2008	Mookanur		20	
17	16.12.2008	Pakkam		12	

PAMBAR TO THIRUKOILUR SUB BASIN WRD

Sl No	WALK THORUGH SURVEY		Farmers Request	Technical solution	Proposals in the plan
	Date	Location			
1	12.12.2008	Pakkampudur	Strengthen the supply channel of the tank from the river	Retaining walls in supply channel in embankment portions are required	Retaining walls in supply channel in embankment portions are proposed.
			Construct a dividing dam near the point where the water is diverted from the main supply channel to the other tank	A regulated gate with vents is required to monitor the discharge	A regulater with suitable vents for Pakkam and Pakkampudur tank is proposed near the Pakkampudur village limit.
			Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.
			The sluices of the tank shall be rehabilitated and necessary SG Shutter with plug rod may be fixed	It is required as per site condition	Rehabilitation of sluice work is proposed.
			The weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of weir work is proposed.
			The encroachments in the tank shall be removed and demarked.	It is required as per site condition	Proposed to form a fore shore channel to a size of 3.00m x 1.50 m is proposed.
			A trench of a size 100 m x 100 m x 1.00 m may be excavted in the deepest portion of the tank to store dead storage.	Increasing the dead storage will be considered	Proposed to excavate the trench as per the request of the farmers
			Clear the hyphopia plants grown in the tank bed	It is required as per site condition	proposed to clear the grown jungle.

			The surpluse course and the supply channel may be desilted	It is required as per site condition	Proposed to desilt the supply channel
2	12.12.2008	Kaduvanur	Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.
			The sluices of the tank shall be rehabilitated and necessary SG Shutter with plug rod may be fixed	It is required as per site condition	Rehabilitation of sluice work is proposed.
			Strengthen the supply channel of the tank from the SRBC Canal	Retaining walls in supply channel in embankment portions are required	Retaining walls in supply channel in embankment portions are proposed
			A trench of a size 200 m x 200 m x 1.00 m may be excavted in the deepest portion of the tank to store dead storage.	Increasing the dead storage will be considered	Proposed to excavate the trench as per the request of the farmers
			The weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of weir work is proposed.
			The encroachments in the tank shall be removed and demarked.	It is required as per site condition	Proposed to form a fore shore channel to a size of 3.00m x 1.50 m is proposed.
3	12.12.2008	Thozuvantahngal	The encroachments in the tank removed and demarked. The demarkation may be permanently differentiated by excavating trenches and fixing boundary stones.	It is required as per site condition	Proposed to form a fore shore channel to a size of 3.00m x 1.50 m is proposed.
			The weir cum sluice of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of weir cum sluice work is proposed.

			Strengthen the supply channel of the tank from the SRBC Canal	Retaining walls in supply channel in embankment portions are required	Retaining walls in supply channel in embankment portions are proposed
4	12.12.2008	Periakolliyur	The encroachments in the tank shall be removed and demarked.	It is required as per site condition	Proposed to form a fore shore channel to a size of 3.00m x 1.50 m is proposed.
			The weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of weir work is proposed.
			Strengthen the supply channel of the tank from the SRBC Canal	Retaining walls in supply channel in embankment portions are required	Retaining walls in supply channel in embankment portions are proposed
			The sluices of the tank shall be rehabilitated and necessary SG Shutter with plug rod may be fixed	It is required as per site condition	Rehabilitation of sluice work is proposed.
			A trench of a size 200 m x 200 m x 1.00 m may be excavted in the deepest portion of the tank to store dead storage.	Increasing the dead storage will be considered	Proposed to excavate the trench as per the request of the farmers
			Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.
5	12.12.2008	Chinnakolliyur	The supply channel from Palodai and the diversion weir across the Palodai shall be rehabilitated	A head regulator with shutters and necessary rehabilitation work to diversion weir is required	Construction of the head sluice and rehabilitation to diversion weir is proposed.
			The sluices of the tank shall be rehabilitated and necessary SG Shutter with plug rod may be fixed	It is required as per site condition	Rehabilitation of sluice work is proposed.

			The weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of weir work is proposed.
			Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.
			A retaining wall in the flood breached portion in the tank shall be constructed	It is required as per site condition	Proposed to strengthen the bund and the slopes near the flood breached area shall be constructed in RSDP with pointing in cement mortar
			The encroachments in the tank shall be removed and demarked.	It is required as per site condition	Proposed to form a fore shore channel to a size of 3.00m x 1.50 m is proposed.
6	12.12.2008	Ilayanarkuppam	A retaining wall in the flood breached portion in the tank shall be constructed	It is required as per site condition	Proposed to strengthen the bund and the slopes near the flood breached area shall be constructed in RSDP with pointing in cement mortar
			Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.
			The sluices of the tank shall be rehabilitated and necessary SG Shutter with plug rod may be fixed	It is required as per site condition	Rehabilitation of sluice work is proposed.
			The encroachments in the tank shall be removed and demarked.	It is required as per site condition	Proposed to form a fore shore channel to a size of 3.00m x 1.50 m is proposed.
			The weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of weir work is proposed.

			Strengthen the supply channel of the tank from the SRBC Canal	Retaining walls in supply channel in embankment portions are required	Retaining walls in supply channel in embankment portions are proposed
			A culvert in the village to cross the surpluse course is required	It is required as per site condition	Proposed to construct a low level pipe culvert.
7	15.12.2008	Seerpanadal	The 18th Distributory of SRBC canal shall be desilted and necessary lining may be constructed.	It is required as per site condition	Retaining walls in supply channel in embankment portions are proposed
			The sluices of the tank shall be rehabilitated and necessary SG Shutter with plug rod may be fixed	It is required as per site condition	Rehabilitation of sluice work is proposed.
			The weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of weir work is proposed.
			The encroachments in the tank removed and demarked. The demarkation may be permanently differentiated by excavating trenches and fixing boundary stones.	It is required as per site condition	Proposed to form a fore shore channel to a size of 3.00m x 1.50 m is proposed.
8	15.12.2008	Maniyanthal	Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.
			The sluices of the tank shall be rehabilitated and necessary SG Shutter with plug rod may be fixed	It is required as per site condition	Rehabilitation of sluice work is proposed.
			The weir of the tank shall be reconstructed to discharge the flood quickly	It is required as per site condition	Reconstruction of weir work is proposed.

			The encroachments in the tank shall be removed and demarked.	It is required as per site condition	Proposed to form a fore shore channel to a size of 3.00m x 1.50 m is proposed.
9	15.12.2008	Thiruvarangam	The diversion weir across the river shall be rehabilitated, the outlet shall be constructed, a culvert across the supply channel shall be construted.	It is required as per site condition	Apron to the diversion weir,culvert to cross the channel is proposed.
			The weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of weir work is proposed.
			The sluices of the tank shall be rehabilitated and necessary SG Shutter with plug rod may be fixed	It is required as per site condition	Rehabilitation of sluice work is proposed.
			The encroachments in the tank shall be removed and demarked.	It is required as per site condition	Proposed to form a fore shore channel to a size of 3.00m x 1.50 m is proposed.
			Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.
10	15.12.2008	Seerpathanallur	Rehabilitate the diversion weir and provide shutters and desilt the supply channel to feed the direct command area	It is required as per site condition	Skinwall to the diversion weir and apron to the diversion weir, construction leading channel to head sluice is proposed.
			Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.

			The encroachments in the tank shall be removed and demarked.	It is required as per site condition	Proposed to form a fore shore channel to a size of 3.00m x 1.50 m is proposed.
11	29.04.2009	Moongilthuraipattu	The encroachments in the tank removed and demarked. The demarkation may be permanently differentiated by excavating trenches and fixing boundary stones.	It is required as per site condition	Proposed to form a fore shore channel to a size of 3.00m x 1.50 m is proposed.
			Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.
			The sluices of the tank shall be rehabilitated and necessary SG Shutter with plug rod may be fixed	It is required as per site condition	Rehabilitation of sluice work is proposed.
			The weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of weir work is proposed.
12	24.04.2009	Rayandapuram	The encroachments in the tank shall be removed and demarked.	It is required as per site condition	Proposed to form a fore shore channel to a size of 3.00m x 1.50 m is proposed.
			The weir of the tank shall be rehabilitated and a leading channel to discharge the flood quickly without submerging the village is required	It is required as per site condition	Rehabilitation of weir work is proposed.Aleading channel to pass the flood from the village to outer boundary of the village is proposed.
			The sluices shall be rehabilitated	It is required as per site condition	Rehabilitation of sluice work is proposed.
			Clear the hyphopia plants grown in the tank bed	It is required as per site condition	proposed to clear the grown jungle.

13	28.04.2009	Athiyur	The weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of weir work is proposed.
			The sluices of the tank shall be rehabilitated and necessary SG Shutter with plug rod may be fixed	It is required as per site condition	Rehabilitation of sluice work is proposed.
			Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.
14	28.04.2009	Vanapuram	A trench of a size 200 m x 200 m x 1.00 m may be excavted in the deepest portion of the tank to store dead storage.	Increasing the dead storage will be considered	Proposed to excavate the trench as per the request of the farmers
			The encroachments in the tank removed and demarked. The demarkation may be permanently differentiated by excavating trenches and fixing boundary stones.	It is required as per site condition	Proposed to form a fore shore channel to a size of 3.00m x 1.50 m is proposed.
			The weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of weir work is proposed.
			The sluices of the tank shall be rehabilitated and necessary SG Shutter with plug rod may be fixed	It is required as per site condition	Rehabilitation of sluice work is proposed.
15	16.12.2008	Mookkanur	The supplychannel from Ravathanallur tank shall be stregthened to get supply.	It is required as per site condition	Retaining walls in supply channel in embankment portions are proposed

			The encroachments in the tank shall be removed and demarked.	It is required as per site condition	Proposed to form a fore shore channel to a size of 3.00m x 1.50 m is proposed.
			The sluices of the tank shall be rehabilitated and necessary SG Shutter with plug rod may be fixed	It is required as per site condition	Rehabilitation of sluice work is proposed.
16	16.12.2008	Pakkam	The diversioin weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of diversion weir work is proposed.
			A trench of a size 100 m x 100 m x 1.00 m may be excavted in the deepest portion of the tank to store dead storage.	Increasing the dead storage will be considered	Proposed to excavate the trench as per the request of the farmers
			Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.
			The sluices and weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of sluices and weir work is proposed.
17	29.04.2009	Kadambur	A trench of a size 100 m x 100 m x 1.00 m may be excavted in the deepest portion of the tank to store dead storage.	Increasing the dead storage will be considered	Proposed to excavate the trench as per the request of the farmers
			Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.

			The sluices and weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of sluices and weir work is proposed.
18	29.04.2009	Sirupanaiyur	The weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of weir work is proposed.
			The encroachments in the tank shall be removed and demarked.	It is required as per site condition	Proposed to form a fore shore channel to a size of 3.00m x 1.50 m is proposed.
			Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.
			The sluices and weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of sluices and weir work is proposed.
19	24.04.2009	Aallappanur	The sluices of the tank shall be rehabilitated and necessary SG Shutter with plug rod may be fixed	It is required as per site condition	Rehabilitation of sluice work is proposed.
			The supplychannel from SLBC Canal shall be stregthened to get supply.	It is required as per site condition	Retaining walls in supply channel in embankment portions are proposed
			The weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of weir work is proposed.
20	24.04.2009	Devaparai	The encroachments in the tank shall be removed and demarked.	It is required as per site condition	Proposed to form a fore shore channel to a size of 3.00m x 1.50 m is proposed.

			The weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of weir work is proposed.
			Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.
21	24.04.2009	Sittamur	The weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of weir work is proposed.
			Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.
			A trench of a size 100 m x 100 m x 1.00 m may be excavted in the deepest portion of the tank to store dead storage.	Increasing the dead storage will be considered	Proposed to excavate the trench as per the request of the farmers
			The sluices of the tank shall be rehabilitated and necessary SG Shutter with plug rod may be fixed	It is required as per site condition	Rehabilitation of sluice work is proposed.
			Re Construct the diversion weir across the river to feed the tank	It is required as per site condition	Proposed to Construct the diversion weir,shutters to sand vent , Retaining walls in supply channel, oulet in the diversion weir
22	24.04.2009	Mudiyanur	The sluices of the tank shall be rehabilitated and necessary SG Shutter with plug rod may be fixed	It is required as per site condition	Rehabilitation of sluice work is proposed.

			A trench of a size 100 m x 100 m x 1.00 m may be excavted in the deepest portion of the tank to store dead storage.	Increasing the dead storage will be considered	Proposed to excavate the trench as per the request of the farmers
			Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.
			The encroachments in the tank removed and demarked. The demarkation may be permanently differentiated by excavating trenches and fixing boundary stones.	It is required as per site condition	Proposed to form a fore shore channel to a size of 3.00m x 1.50 m is proposed.
			The weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of weir work is proposed.
23	24.04.2009	Kachikuvasan	The sluices of the tank shall be rehabilitated and necessary SG Shutter with plug rod may be fixed	It is required as per site condition	Rehabilitation of sluice work is proposed.
			The weir of the tank shall be rehabilitated to discharge the flood quickly	It is required as per site condition	Rehabilitation of weir work is proposed.
			Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.
			A trench of a size 100 m x 100 m x 1.00 m may be excavted in the deepest portion of the tank to store dead storage.	Increasing the dead storage will be considered	Proposed to excavate the trench as per the request of the farmers

24	25.04.2009	Koovanur	Sterngthen the bund of the tank and the top of the bund may be made good for transporting farm products by cart or tractors	Laying gravel on the top of the bund is essential for cattle movement and for light vehicle movements.	Strengthening of bund and spreadingof Well gravel on top of bund to a thickness of 30cm is proposed.
			The sluices of the tank shall be rehabilitated and necessary SG Shutter with plug rod may be fixed	It is required as per site condition	Rehabilitation of sluice work is proposed.

1.5 IRRIGATION INFRASTRUCTURE

List of Tanks (SYSTEM TANKS)

Sl. No	Tank	Village	Block	Taluk	District	Ayacut Area in Ha	Capacity IN Mcft
1	Allappanur Tank	Allappanur	Thanadrampattu	Thanadrampattu	Thiruvannamalai	18.74	4.167
2	Rayandapuram Tank	Rayandapuram	Thanadrampattu	Thanadrampattu	Thiruvannamalai	56.22	24.650
3	Motttan Tank	Ilayankanni	Thanadrampattu	Thanadrampattu	Thiruvannamalai	26.05	5.680
4	Vettuthangal tank	Ilayankanni	Thanadrampattu	Thanadrampattu	Thiruvannamalai	32.52	7.650
5	Athipadi Tank	Athipadi	Thiruvannamalai	Thiruvannamalai	Thiruvannamalai	10.78	4.308
6	Palayanur Tank	Palayanur	Thiruvannamalai	Thiruvannamalai	Thiruvannamalai	28.20	7.310
7	Kallottu Tank	Kallottu	Thiruvannamalai	Thiruvannamalai	Thiruvannamalai	10.31	2.825
8	Kandiyankuppam Tank	Kandiyankuppam	Thiruvannamalai	Thiruvannamalai	Thiruvannamalai	28.50	0.095
9	Velayampakkam Tank	Velayampakkam	Thiruvannamalai	Thiruvannamalai	Thiruvannamalai	28.50	1.250
10	Navampattu Tank	Navampattu	Thiruvannamalai	Thiruvannamalai	Thiruvannamalai	17.23	2.754
11	Konganamur Tank	Konganamur	Mugaiyur	Thirukoilur	Villupuram	14.96	8.228
12	Murukkambadi tank	Murukkambadi	Mugaiyur	Thirukoilur	Villupuram	29.07	7.628
13	Atiyandal Tank	Atiyandal	Mugaiyur	Thirukoilur	Villupuram	8.32	3.355
14	Devaradiyarkuppam tank	Devaradiyarkuppam	Mugaiyur	Thirukoilur	Villupuram	21.72	4.238
15	Pallichandal tank	Pallichandal	Mugaiyur	Thirukoilur	Villupuram	26.97	8.052
16	Jambai tank	Jambai	Mugaiyur	Thirukoilur	Villupuram	59.04	1.907
17	Sellankuppam tank	Sellankuppam	Mugaiyur	Thirukoilur	Villupuram	17.26	17.657
18	Sithapattinam tank	Sithapattinam	Mugaiyur	Thirukoilur	Villupuram	109.16	35.633
19	Manalurpettai tank	Manalurpettai	Mugaiyur	Thirukoilur	Villupuram	57.72	15.080
20	Moongilthuraipattu	Moongilthuraipattu	Sankarapuram	Sankarapuram	Villupuram	36.43	11.998
21	Poruvalur	Porasappattu	Sankarapuram	Sankarapuram	Villupuram	13.39	4.410
22	Devaparai	Saveriarpalayam	Sankarapuram	Sankarapuram	Villupuram	15.74	5.184
23	Pakkam Pudur	Pakkam	Rishivandiyam	Sankarapuram	Villupuram	45.22	14.892
24	Kaduvanur	Kaduvanur	Rishivandiyam	Sankarapuram	Villupuram	141.75	46.683

25	Thozuvanthangal	Thozuvanthangal	Rishivandiyam	Sankarapuram	Villupuram	16.31	5.371
26	Periakolliyur	Periakolliyur	Rishivandiyam	Sankarapuram	Villupuram	78.92	25.991
27	Chinnakolliyur	Chinnakolliyur	Rishivandiyam	Sankarapuram	Villupuram	30.32	9.985
28	Ilayanarkuppam	Ilayanarkuppam	Rishivandiyam	Sankarapuram	Villupuram	35.24	11.606
29	Seerpanandal	Seerpanandal	Rishivandiyam	Sankarapuram	Villupuram	168.44	55.473
30	Maniyanthal	Maniyanthal	Rishivandiyam	Sankarapuram	Villupuram	17.96	5.915

Sl. No	Tank	Village	Block	Taluk	District	Ayacut Area in Ha	Capacity IN Mcft
31	Seerpadanallur	Seerpadanallur	Rishivandiyam	Sankarapuram	Villupuram	11.76	3.873
32	Thiruvarangam	Thiruvarangam	Rishivandiyam	Sankarapuram	Villupuram	47.30	15.550
33	Jambadai	Jambadai	Rishivandiyam	Sankarapuram	Villupuram	62.19	20.481
34	Kallipadi	Kallipadi	Rishivandiyam	Sankarapuram	Villupuram	20.13	6.629
35	Athiyur	Athiyur	Rishivandiyam	Sankarapuram	Villupuram	88.37	29.103
36	Athiyur thangal	Athiyur	Rishivandiyam	Sankarapuram	Villupuram	8.45	2.783
37	Ariyalur	Ariyalur	Rishivandiyam	Sankarapuram	Villupuram	28.38	9.346
38	Vanapuram	Vanapuram	Rishivandiyam	Sankarapuram	Villupuram	73.31	24.143
39	Nagalkudi	Nagalkudi	Rishivandiyam	Sankarapuram	Villupuram	26.16	8.615
40	Odiyanthal	Odiyanthal	Rishivandiyam	Sankarapuram	Villupuram	29.68	9.775
41	Kadampur	Kadampur	Rishivandiyam	Sankarapuram	Villupuram	106.17	34.965
42	Sirupanaiyur	Sirupanaiyur	Rishivandiyam	Sankarapuram	Villupuram	99.75	32.851

List of Tanks (NON SYSTEM TANKS)

Sl. No	Tank	Village	Block	Taluk	District	Ayacut Area in Ha	Capacity IN Mcft
1	Perungalathur tank	Perungalathur	Thandarampattu	Thandarampattu	Thiruvannamalai	72.83	24.98
2	Mookkanur	Mookkanur	Sankarapuram	Sankarapuram	Villupuram	129.29	43.730
3	Pakkam	Pakkam	Rishivandiyam	Sankarapuram	Villupuram	192.94	63.540
4	Marur	Marur	Rishivandiyam	Sankarapuram	Villupuram	127.56	42.010
5	Eandal	Eandal	Rishivandiyam	Sankarapuram	Villupuram	47.78	15.736
6	Sitthamur	Sitthamur	Thirukoilur	Thirukoilur	Villupuram	67.15	9.800
7	Koovanur	Koovanur	Thirukoilur	Thirukoilur	Villupuram	98.55	14.700
8	Edaiyur	Edaiyur	Thirukoilur	Thirukoilur	Villupuram	77.14	12.020
9	Madampoondi	Madampoondi	Thirukoilur	Thirukoilur	Villupuram	52.19	34.020
10	Thagadi	Thagadi	Thirukoilur	Thirukoilur	Villupuram	121.07	20.400
11	Mudiyanur	Mudiyanur	Thirukoilur	Thirukoilur	Villupuram	86.16	6.700
12	Kachikuvasan	Kachikuvasan	Thirukoilur	Thirukoilur	Villupuram	52.29	10.650
13	Aaviyur	Aaviyur	Thirukoilur	Thirukoilur	Villupuram	117.5	13.450
14	Thirukoilur Hissa	Thirukoilur	Thirukoilur	Thirukoilur	Villupuram	349.7	44.740
15	Thirupalapandal	Thirupalapandal	Thirukoilur	Thirukoilur	Villupuram	120.14	40.320

List of tanks/Anicuts executed under various schemes (Viz, Part II Scheme, NABARD, WRCP I etc.,) since 2000.

Sl.No	Name of Anicut / Tank	Ayacut in Ha	Scheme in which executed	Amount Rs in lakhs	Details of components executed	Remarks
1	Ariyalur Tank	28.38	NABARD RIDF- XII	10.00	strengthening Tank bund,Repairs to weir.	Repairs to sluices and desilting of supply channels,construction of retaining walls in the weaker section of supply channel.
2	Eadaiyur Tank	77.14	Part -II scheme	17.00	strengthening Tank bund,Repairs to weir,repairs to sluice,desilting of supply channel,lining of field channel of sluice no 1 & 2	No proposals made in IAMWARM Project
3	Mudiyanur tank	86.16	Part -II scheme	29.00	strengthening Tank bund,Repairs to weir and desilting of supply channel	Reapirs to sluice and raising the bund and model section,constructin retaining walls in weaker section of supply channels are propsed
4	Aaviyur tank	47.50	Part -II scheme	13.80	strengthening the bund,repairs to weir,reconstruction of sluice no1,desilting of supply channel,construction of head sluice with SG arrangements in the off take portion of supply channel.	No proposals made in IAMWARM Project
5	Thirukoilur Hissa tank	349.70	NABADRD scheme	86.29	strengthening the bund,repairs to sluice no5,desilting of supply channel,construction of retaining walls in supply channel, and lining of field channels in sluice no 1,2,5,6,8,9 and repairs to weir.	Reapirs to sluice and retaining walls in weaker section of supply channel is proposed

Abstract on the details of irrigation infrastructure available and works takeup under IAMWARM project

Name of Sub Basin: Pambar to Thirukoilur

Sl No	Details	ANICUT			SYSTEM TANK			NON SYSTEM TANKS			ANY OTHER SUPPLY CHANNEL		REMARKS
		Nos	supply channel in KM	DIRECT AYACUT	Nos	supply channel in KM	AYACUT	Nos	supply channel in KM	AYACUT	Length	Direct ayacut	
1	Available Infrastructure in sub basin	Nil	Nil	Nil	42	51.23	1802.64	15	45.07	1712.29	Nil	Nil	
2	Infrastructure excluded in IAMWARM project since works carried out under various schemes from 2000	Nil	Nil	Nil	1*	2.70	28.38 *	4#	16.00	194.64	Nil	Nil	*Ariyalur system tank Modernised under NABARD RIDF- XII and the sluice repairs, strengthening of bund and weir works were carried out. The supply channel improvement work was not carried out since the funds were restricted in the NABARD Scheme. #Aaviyur,Eadaiyur,Mudiyanur,thirukoilur Hissa non tanks were modernised under PART-II scheme.
3	Infrastructures that does not require any rehabilitation works	Nil	Nil	Nil	1*	0.20	26.05	Nil	Nil	Nil	Nil	Nil	*Supply channels of Mottan,Vettuthangal,Poruvalur(System tanks)and Perungalathur (Non system Tank)are not required any repairs.

4.a)	Works executed in other schemes but also propsed in IAMWARM Project	Nil	Nil	Nil	1*	2.70	28.38	2#	9.70	435.86	Nil	Nil	*Ariyalur system tank Modernised under NABARD RIDF- XII and the sluice repairs, strengthening of bund and weir works were carried out. The supply channel improvement work was not carried out since the funds were restricted in the NABARD Scheme.Now it is proposed to repair the supply channel alone through IAMWARM Project. #Mudiyanur,Thirukoilu hissa tanks were rehabilitated under Part-II/NABARD schemes.The infrastructures which are not rehabilitated in the scheme is now proposed for repairs.
b)	Works taken up in IAMWARM Project	Nil	Nil	Nil	40	48.33	1745.88	11	25.30	1081.79	Nil	Nil	

1. Certified that the Panchayat Union Tanks are not considered in this project.

2. Certified that the tanks executed under various schemes (Viz, WRCP I, NABARD, PART II schemes etc.,) since 2000 were not proposed in this project.

1.6 IRRIGATION INFRASTRUCTURE OF THE SUB BASIN

INFRASTRUCTURE OF THE SUB-BASIN

1.6.1 STRUCTURAL STATUS & DEFICIENCIES IN THE SYSTEM

The following are the present structural condition of the Pambar to Thirukoilur sub basin system.

1. This non system is an old system existing for more than 100 Years as such requires Repairs. The system tanks are also old for more than 100 years and requires repairs.
2. Insufficient carrying capacity of the supply channels.
3. The System and Non system tanks are to be rehabilitated.

In order to improve the conveyance and Operational Efficiency in irrigation, it is now proposed to improve and modernize the Irrigation Infrastructures in Pambar to Thirukoilur Sub basin.

1. Desilting the supply channels by earthwork excavation using machineries
2. Providing Retaining walls in selective area of the supply channels
3. Providing model sections to maintain the bed level of the supply channel (bed bar)
4. Providing culverts across the supply channels for easy approach to the fields by the farmers and cattle's wherever necessary
5. Repairing, Restoring the traditional water bodies (i.e. tanks)
    a. Strengthening the bunds of the tanks and channels wherever necessary for effectively storing the water and conveying it to the entire command area and also for conveying agriculture inputs to the field.
    b. Repairs to the damaged weirs
    c. Repairs to the damaged Sluices
    d. Providing revetments and Retaining walls in selective area of the tanks
    e. Providing S.G. Shutter/Plug arrangements to Sluices, Head sluices, etc.,

1.6.2 Outcome of the Project

1. Increase in conveyance efficiency from 53% to 56%
2. The present Gap area of 474.04 Ha. is to be converted as a fully irrigated area and the command area stabalised
3. The following irrigation infrastructure development works are proposed in the Pambar to Thirukoilur sub basin

   Repair works for 54 tanks
   Repairs of supply channel for 86.035 KMs

Details of proposals in each Infrastructure of the sub basin

PAMBAR TO THIRUKOILUR SUB BASIN

Sl.No		Name of tank/ Anicut/ Reservoir	Bund		Repairs to sluice		Flow Measuring Device		Repairs to weir		Desilting of Supply Channel		Amount in Lakhs
			Length	Amt	No	Amt	No	Amt	No	Amt	Length	Amt	
1		2	3	4	5	6	7	8	9	10	11	12	13
1	Package No.01	Allappanur Tank	520	1.11	1	1.24	1	0.15	1	0.39	1000	2.21	5.10
2		Rayandapuram Tank	1240	10.04	2	3.50	2	0.26	2	4.31	2400	4.32	22.43
3		Vettuthangal tank	450	2.29	1	2.01	1	0.13					4.43
4		Athipadi Tank	470	2.01	1	1.15	1	0.15	1	0.19	2500	2.45	5.95
5		Palayanur Tank	765	3.06			1	0.15			400	0.42	3.63
6		Kallottu Tank	210	1.11	1	3.84	1	0.15	1	0.23	1320	0.95	6.28
7		Kandiyankuppam Tank	490	2.31	1	3.84	1	0.15			1520	0.74	7.04
8		Velayampakkam Tank	365	1.49	1	3.83	1	0.15	1	3.32	400	0.43	9.22
9		Navampattu Tank	670	2.68	1	3.84	1	0.15	2	0.34	1200	0.74	7.75
10		Perungalathur tank	2040	7.78	2	7.23	2	0.30	2	5.86			21.17
		Package total	**7220**	**33.88**	**11**	**30.48**	**12**	**1.74**	**10**	**14.64**	**10740**	**12.26**	**93.00**
11	Package No.02	Konganamur Tank	1040	4.76	2	3.84	2	0.30	2	0.62	700	0.46	9.98
12		Murukkambadi tank	950	3.68	1	3.83	1	0.15	2	0.30	550	0.34	8.30
13		Atiyandal Tank	540	2.38	1	3.86	1	0.15	1	0.54	300	0.20	7.13
14		Devaradiyarkuppam tank	450	2.01	1	1.16	1	0.15	1	0.40	200	0.13	3.85
15		Pallichandal tank	480	0.67	1	1.18	1	0.15	2	0.29	2300	1.16	3.45
16		Jambai tank	660	2.64	2	3.86	2	0.30	1	0.45	750	0.53	7.78
17		Sellankuppam tank	908	4.24	1	3.83	1	0.15	1	0.48	500	0.27	8.97
18		Sithapattinam tank	1425	5.86	2	7.12	2	0.30	2	3.48	1800	1.08	17.84
19		Manalurpettai tank	860	2.52	1	3.84	1	0.15	1	0.52	1400	0.71	7.74
20		Sitthamur	1800	12.98	4	6.06	4	0.52			5800	23.49	43.05
21		Koovanur	1428	10.60	6	12.89	6	0.78			3500	5.63	29.90
22		Thagadi	2025	14.68	9	9.99	9	1.17			3800	5.17	31.01
		Package total	**12566**	**67.02**	**31**	**61.46**	**31**	**4.27**	**13**	**7.08**	**21600**	**39.17**	**179.00**
23	Package No.03	Madampoondi	850	6.25	2	6.59	2	0.26	3	15.95	2000	3.18	32.23
24		Mudiyanur									4200	9.05	9.05
25		Kachikuvasan	850	5.61	1	1.71	1	0.13	1	5.30	1800	1.41	14.16
26		Thirukoilur Hissa	3500	20.12	9	3.81	9	1.17	3	6.85	5500	49.19	81.14
27		Thirupalapandal	1250	8.89			2	0.21	3	8.07	3000	2.75	19.92

		Package total	**6450**	**40.87**	**12**	**12.11**	**14**	**1.77**	**10**	**36.17**	**16500**	**65.58**	**156.50**
28	**Package No.04**	Mookkanur	1000	6.70	2	3.76	2	0.26	1	1.56	2100	3.40	15.68
29		Pakkam	1280	9.10	3	7.13	3	0.39	5	2.09	3300	4.97	23.68
30		Moongilthuraipattu	810	6.29	2	0.94	2	0.26	1	3.14	1240	7.77	18.40
31		Poruvalur	513	3.14	1	2.14	1	0.13	1	0.94	1240	3.38	9.73
32		Devaparai	900	5.79	1	0.78	1	0.13	1	1.42	1145	4.30	12.42
33		Pakkam Pudur	1200	7.83	2	4.26	2	0.26	2	1.87	2750	4.75	18.97
34		Kaduvanur	2025	10.08	3	6.23	3	0.39	1	2.92	2750	4.36	23.98
35		Thozuvanthangal	770	1.60	1	1.58	1	0.13	1		1000	2.42	5.73
36		Periakolliyur	2605	17.03	2	4.31	2	0.26	1	4.06	2800	3.06	28.72
37		Chinnakolliyur	1000	7.59	3	4.19	3	0.39	2	1.30	2800	3.85	17.32
38		Ilayanarkuppam	718	4.80	1	3.28	1	0.13	2	1.16	1100	1.46	10.83
39		Seerpanandal	2750	6.56	3	6.23	3	0.39	1	1.54	2200	5.82	20.54
		Package total	**15571**	**86.51**	**24**	**44.83**	**24**	**3.12**	**19**	**22**	**24425**	**49.54**	**206.00**
40	**Package No.05**	Maniyanthal	940	7.74	1	1.09	1	0.13	1	2.09	1200	3.33	14.38
41		Seerpadanallur	830	5.82	2	1.12	2	0.26	1	2.08			9.28
42		Thiruvarangam	2280	16.49	4	13.26	4	0.52	1	1.40	2470	4.62	36.29
43		Jambadai	1375	3.76		0.00			1	2.85			6.61
44		Kallipadi	900	7.35	2	6.66	2	0.26	1	1.40	1200	3.55	19.22
45		Athiyur	1350	9.85	2	3.95	2	0.26	1	1.76	2200	4.40	20.22
46		Athiyur thangal	670	5.79	2	5.36	2	0.26	1	0.38	1000	2.45	14.24
47		Ariyalur					2	0.26			2700	6.62	6.88
48		Vanapuram	1135	8.55	2	1.97	2	0.26	1	3.60	1000	1.44	15.82
49		Nagalkudi	635	5.68	1	1.78	1	0.13	1	0.07	1000	2.27	9.93
50		Odiyanthal	725	5.20	1	1.73	1	0.13	1	0.96			8.02
51		Kadampur	1450	4.42	2	1.96	2	0.26					6.64
52		Sirupanaiyur	1440	9.79	2	4.39	2	0.26					14.44
53		Marur	1280	9.24	1	1.96	1	0.13	1	1.65			12.98
54		Eandal			1	0.42	1	0.13					0.55
		Package total	**15010**	**99.68**	**23**	**45.65**	**25**	**3.25**	**11**	**18.24**	**12770**	**28.681**	**195.50**
		Total for basin	**56817**	**327.96**	**101**	**194.53**	**106**	**14.15**	**63**	**98.13**	**86035**	**195.231**	**830.00**
												Total value of Package	**830.00**

TANK DETAILS WITH FREE BOARD PROVIDED

Sl.No	Name of the Tank	Maximum Height of Bund	Free Board		Length of Bund
			Provided previously	Provided now	
1	Allappanur Tank	3.40	1.00	1.50	520
2	Rayandapuram Tank	4.50	1.00	1.50	1240
3	Motttan Tank	3.00	1.00	1.25	700
4	Vettuthangal tank	3.00	1.00	1.25	800
5	Athipadi Tank	3.50	1.00	1.50	470
6	Palayanur Tank	3.50	1.00	1.50	765
7	Kallottu Tank	3.50	1.00	1.50	210
8	Kandiyankuppam Tank	3.50	1.00	1.50	490
9	Velayampakkam Tank	3.50	1.00	1.50	365
10	Navampattu Tank	3.50	1.00	1.50	670
11	Konganamur Tank	3.50	1.25	1.50	1040
12	Murukkambadi tank	3.50	1.00	1.50	950
13	Atiyandal Tank	3.50	1.00	1.50	540
14	Devaradiyarkuppam tank	3.50	1.00	1.50	450
15	Pallichandal tank	3.50	1.10	1.50	480
16	Jambai tank	3.50	1.25	1.50	660
17	Sellankuppam tank	3.50	1.00	1.50	908
18	Sithapattinam tank	3.50	1.00	1.50	1425
19	Manalurpettai tank	3.50	1.00	1.50	860
20	Moongilthuraipattu	3.50	1.25	1.50	1290
21	Poruvalur	3.00	1.00	1.25	780
22	Devaparai	3.00	1.00	1.25	980
23	Pakkam Pudur	3.50	1.20	1.50	1700
24	Kaduvanur	3.50	1.20	1.50	2200
25	Thozuvanthangal	3.00	1.20	1.25	750
26	Periakolliyur	3.50	1.00	1.50	2980
27	Chinnakolliyur	3.00	1.00	1.25	1320
28	Ilayanarkuppam	3.00	1.00	1.50	900
29	Seerpanandal	4.00	1.25	1.50	3063
30	Maniyanthal	3.00	1.00	1.25	780
31	Seerpadanallur	3.50	1.00	1.50	1260
32	Thiruvarangam	4.00	1.25	1.50	2250
33	Jambadai	4.00	1.00	1.50	1200
34	Kallipadi	3.50	1.00	1.50	800
35	Athiyur	4.00	1.00	1.50	1353
36	Athiyur thangal	3.50	1.00	1.50	800
37	Vanapuram	4.00	1.00	1.50	830
38	Nagalkudi	4.00	1.00	1.50	650
39	Odiyanthal	3.00	1.00	1.25	740
40	Kadampur	4.00	1.00	1.50	1520
41	Sirupanaiyur	4.00	1.00	1.50	1556

42	Perungalathur tank	4.00	1.30	1.50	2040
43	Mookkanur	4.00	1.25	1.50	1000
44	Pakkam	4.00	1.25	1.50	1280
45	Marur	4.00	1.25	1.50	1700
46	Sitthamur	4.00	1.25	1.50	1800
47	Koovanur	4.00	1.25	1.50	1428
48	Madampoondi	4.00	1.25	1.50	850
49	Thagadi	4.00	1.25	1.50	2025
50	Mudiyanur	4.00	1.25	1.50	1207
51	Kachikuvasan	4.00	1.25	1.50	850
52	Thirupalapandal	4.00	1.25	1.50	1250
53	Ariyalur	No Proposals for raising of tank bund to these tanks.Since these tanks are rehabilitated under Part-II,NABARD Scheme.			
54	Eadaiyur				
55	Aaviyur				
56	Thirukoilur Hissa	The top of the tank bunds are black topped hence no raising of bund proposals were made.			
57	Eandal				

B. WRO COST TABLE

Sl. No	Description of work	Quantity	Amount in Lakhs	Remarks
I. Tank Component				
1	Improvements to Tank Bund	56.82km	330.40	
2	Repairs to sluices	101 nos	206.22	
3	Repairs to weirs	63 nos	98.14	
4	Repairs to supply channel	86.04 km	195.24	
	Sub Total		**830.00**	
	Total		**830.00**	
	Environmental component		7.00	
	Ground water component		Nil	
2	**Non Tank component**		**Nil**	
	Total		**837.00**	

C. (PHYSICAL AND FINANCIAL PROGRAM)

Sl. No	Description	I Year		II Year		Total	
		Quantity	Amount in Lakhs	Quantity	Amount in Lakhs	Quantity	Amount in Lakhs
1	Improvements to Tank Bund	40.00	232.40	16.82	98.00	56.82km	330.40
2	Rehabilitation of sluices	80	158.72	21	47.50	101nos	206.22
3	Rehabilitation of weirs	30	46.64	33	51.50	63 nos	98.14
4	Rehabilitation of supply channels	36.04	81.24	50.00	114.00	86.04km	195.24
5	Environmental component		2.00		5.00		7.00
	Total		**521.00**		**316.00**		**837.00**

Package Details

Sl. No.	Package No	Name of Tank / Anicut	Amount Rs in Lakhs
1	01/IAMWARM/PTR/WRD/Woks/III/2009-2010	Reahabilitation and modernisation of supply channels and all tanks covered under Pambar to Thirukoilur sub basin in Thiruvannamalai, Thandarampattu Blocks in Thiruvannamalai ,Thandarampattu taluk in Thiruvannamalai District	97.00
2	02/IAMWARM/PTR/WRD/Woks/III/2009-2010	Reahabilitation and modernisation of supply channels and all tanks covered under Pambar to Thirukoilur sub basin in Mugaiyur block and Thirukoilur Block in Thirukoilur taluk in Villupuram District	186.00
3	03/IAMWARM/PTR/WRD/Woks/III/2009-2010	Reahabilitation and modernisation of supply channels and all tanks covered under Pambar to Thirukoilur sub basin in Thirukoliur block in Thirukoilur taluk in Villupuram District	163.00
4	04/IAMWARM/PTR/WRD/Woks/III/2009-2010	Reahabilitation and modernisation of supply channels and all tanks covered under Pambar to Thirukoilur sub basin in Sankarapuram block and Rishivanadiyam block in Sankarapuram taluk in Villupuram District	214.00
5	05/IAMWARM/PTR/WRD/Woks/III/2009-2010	Reahabilitation and modernisation of supply channels and all tanks covered under Pambar to Thirukoilur sub basin in Rishivandiyam block in Sankarapuram taluk in Villupuram District	203.00
		Total value of packages	**863.00**
		Environmental component	**7.00**

PACKAGE- I

Calculation of machineries Requirement

Poclains proposed to be operated					1			
Tippers - 10	(10x 2 loads/hrx6hr/dayx 4m3/trip)					480	m3/day	Days per month - 20
For 1 month quantity of earth work can be executed				9600	m3/month			
Total quantity of earth work to be excuted				52750	m3			
working period for earth work				6	Months			
Machineries required for earth work								
1 Power Roller		1	No					
2 Poclain		2	No					
3 Tippers		10	No					
4 Vibrated compactors		1	No					
5 Water lorrries		1	No					
Mixer machine	2m3/hr	6hr/day	12m3/day	10days/month			120	m3/month
Total quantity of concrete to be executed				600			5	months
Mixer machine required	1	Time required to complete the concrete - 5months						
Materials conveyance					Tippers/Lorries			
Cement	10	mt /trip		1 trip/day			10.00	mt /day
sand	5.66	mt /trip		2 trip /day			11.32	m3 /day
Meatl/ stone	5.60	mt /trip		2 trip /day			11.20	m3/ day
Total quantity of cement	600	MT						
Lorry required	60						60	
Total quantity of sand	1200							
Lorry required	1200		11.32	106			106	
Total quantity of stone	2800							
Lorry required	2800		11.20	250			250	
Total Tippers/ Lorrries required for conveyance							416	
No of days required to transport the materials				416		5	83	days
Tippers required for conveyance				15	nos		83	days

PACKAGE- II

Calculation of machineries Requirement

Poclains proposed to be operated					2					
Tippers - 10	(10x 2 loads/hrx6hr/dayx 4m3/trip)						480	m3/day	Days per month - 20	
For 1 month quantity of earth work can be executed				9600	m3/month					
Total quantity of earth work to be excuted				112000	m3					
working period for earth work				12	Months					
Machineries required for earth work										
1 Power Roller		1	No							
2 Poclain		2	No							
3 Tippers		10	No							
4 Vibrated compactors		1	No							
5 Water lorrries		1	No							
Mixer machine	2	2m3/hr	6hr/day	12m3/day	10days/month		240	m3/month		
Total quantity of concrete to be executed				2016			8	months		
Mixer machine required	2	Time required to complete the concrete - 5months							8	months
Materials conveyance	Tippers/Lorries									
Cement		10	mt /trip	1 trip/day			10.00	Mt/day		
sand		5.66	mt /trip	2 trip /day			11.32	M3/day		
Meatl/ stone		5.60	mt /trip	2 trip /day			11.20	M3/day		
Total quantity of cement		1000	MT							
Lorry required		100					100			
Total quantity of sand		2400								
Lorry required		2400	11.32	212			212			
Total quantity of stone		5270								
Lorry required		5270	11.20	470.5357			471			
Total Tippers/ Lorrries required for conveyance							783			
No of days required to transport the materials				783		7	112	days		
Tippers required for conveyance				17	nos		112	days		

PACKAGE- III

Calculation of machineries Requirement

Poclains proposed to be operated					4					
Tippers - 20	(20x 2 loads/hrx6hr/dayx 4m3/trip)						960	m3/day	Days per month - 20	
For 1 month quantity of earth work can be executed					19200	m3/month				
Total quantity of earth work to be excuted					182000	m3				
working period for earth work					10	Months				
Machineries required for earth work										
1 Power Roller		2	No							
2 Poclain		4	No							
3 Tippers		20	No							
4 Vibrated compactors		2	No							
5 Water lorrries		2	No							
Mixer machine	2	2m3/hr	6hr/day		12m3/day	10days/month		240	m3/month	
Total quantity of concrete to be executed					1620			7	months	
Mixer machine required	2	Time required to complete the concrete - 5months							7	months
Materials conveyance	Tippers/Lorries									
Cement		10	mt /trip		1 trip/day			10.00	Mt/day	
sand		5.66	mt /trip		2 trip /day			11.32	M3/day	
Meatl/ stone		5.60	mt /trip		2 trip /day			11.20	M3/day	
Total quantity of cement		1400	MT							
Lorry required		140						140		
Total quantity of sand		2975								
Lorry required		2975		11.32	263			263		
Total quantity of stone		5790								
Lorry required		5790		11.20	516.9643			517		
Total Tippers/ Lorrries required for conveyance								920		
No of days required to transport the materials					920		10	92	days	
Tippers required for conveyance					30	nos		92	days	

PACKAGE- IV

Calculation of machineries Requirement

Poclains proposed to be operated						4				
Tippers - 20	(20x 2 loads/hrx6hr/dayx 4m3/trip)							960	m3/day	Days per month - 20
For 1 month quantity of earth work can be executed						19200	m3/month			
Total quantity of earth work to be excuted						167500	m3			
working period for earth work						9	Months			
Machineries required for earth work										
1 Power Roller			2	No						
2 Poclain			4	No						
3 Tippers			20	No						
4 Vibrated compactors			2	No						
5 Water lorrries			2	No						
Mixer machine	2	2m3/hr	6hr/day		12m3/day		10days/month		240	m3/month
Total quantity of concrete to be executed						2178			9	months
Mixer machine required			2	Time required to complete the concrete - 5months						9 months
Materials conveyance		Tippers/Lorries								
Cement			10	mt /trip	1 trip/day				10.00	Mt/day
sand			5.66	mt /trip	2 trip /day				11.32	M3/day
Meatl/ stone			5.60	mt /trip	2 trip /day				11.20	M3/day
Total quantity of cement			1400	MT						
Lorry required			140						140	
Total quantity of sand			2900							
Lorry required			2900		11.32	256			256	
Total quantity of stone			6084							
Lorry required			6084		11.20	543.2143			543	
Total Tippers/ Lorrries required for conveyance									939	
No of days required to transport the materials						939		10	94	days
Tippers required for conveyance						30	nos		94	days

PACKAGE- V

Calculation of machineries Requirement

Poclains proposed to be operated						4					
Tippers - 20	(20x 2 loads/hrx6hr/dayx 4m3/trip)							960	m3/day	Days per month - 20	
For 1 month quantity of earth work can be executed						19200	m3/month				
Total quantity of earth work to be excuted						193500	m3				
working period for earth work						10	Months				
Machineries required for earth work											
1 Power Roller			2	No							
2 Poclain			4	No							
3 Tippers			20	No							
4 Vibrated compactors			2	No							
5 Water lorrries			2	No							
Mixer machine	2	2m3/hr	6hr/day		12m3/day		10days/month		240	m3/month	
Total quantity of concrete to be executed					1900				8	months	
Mixer machine required		2	Time required to complete the concrete - 5months								8 months
Materials conveyance	Tippers/Lorries										
Cement		10	mt /trip		1 trip/day				10.00	Mt/day	
sand		5.66	mt /trip		2 trip /day				11.32	M3/day	
Meatl/ stone		5.60	mt /trip		2 trip /day				11.20	M3/day	
Total quantity of cement		1300	MT								
Lorry required		130							130		
Total quantity of sand		2400									
Lorry required		2400		11.32	212				212		
Total quantity of stone		5250									
Lorry required		5250		11.20	469				469		
Total Tippers/ Lorrries required for conveyance									811		
No of days required to transport the materials					811			10	81	days	
Tippers required for conveyance					30	nos			81	days	

REQUIREMENT OF EQUIPMENTS AND MATERIALS

PACKAGE NUMBER	Machineires required							Material required						
	Vibrated Compactor	POCLAIN	POWER ROLLER	TIPPER	WATER LORRY	CONCRETE MIXER MACHINE	CONCRETE VIBRATOR	CEMENT IN M.T.	SAND IN m^3	STEEL IN M.T.	METAL 40MM IN m^3	METAL 20MM IN m^3	RR IN m^3	FUEL IN KILO LITRE
Package No.01/PTR/VPM	1	1	1	15	2	1	1	600	1200	10	750	800	1250	60
Package No.02/PTR/VPM	1	2	2	17	2	2	2	1000	2400	15	800	1870	2600	125
Package No.03/PTR/VPM	1	4	4	30	4	2	2	1400	2975	20	1140	1830	2820	180
Package No.04/PTR/VPM	1	4	4	30	4	2	2	1400	2900	20	1234	2200	2650	200
Package No.05/PTR/VPM	1	4	4	30	4	2	2	1300	2400	15	800	1900	2550	180

Package No.01

Construction Methodolohy - 12 Months

Sl No	Description of Item	Working Months						Rainy Season			Working months									Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
	Earth work excavation																			
1	Tank Bund	2000	6000	6000	6000	6000	6000				6000									38000
2	Channel	1400	1400	1400	1400	1400	1400				1400	1400	1200							12400
3	Foundation		400	400	400	400	400				460									2460
	Concrete																			
5	M 7.5 grade	20	30	30	40	40	40				50	50								300
6	M 15 grade	5	5	5	5	5	5				5	5								40
7	M 20 grade		20	30	30	30	30				25	25	30							220
8	Random rubble masonry	50	100	150	150	150	150				150	50	150							1100
9	Plastering			100	100	100	100				100	100	100							700
10	RSDP	50	50	50	50	50	50				100	100	50							550

Package No.02

Construction Methodolohy - 18 Months

Sl No	Description of Item	Working Months						Rainy Season			Working months									Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
	Earth work excavation																			
1	Tank Bund	2000	4000	4000	4000	4000	4000				4000	4000	4000	4000	4000	4000	4000	2500		52500
2	Channel	1700	1700	1700	1700	1700	1700				1700	1700	1700	1700	1700	1700	1700	875		22975
3	Foundation		400	400	400	400	400				400	400	400	400	400	400	150			4550
	Concrete																			
5	M 7.5 grade		50	50	50	50	50				50	50	50	50	50	50	50	50		650
6	M 15 grade	5	5	5	5	5	5				5	5	5	5	5	5	5	5	5	75
7	M 20 grade		50	50	50	50	50				100	100	100	100	90	50	50	50	50	940
8	Random rubble masonry	50	150	150	150	150	150				150	150	150	150	150	150	200	200	150	2250
9	Plastering			100	100	100	100				100	100	100	100	200	200	200	200	124	1724
10	RSDP	50	50	50	50	50	50				100	100	100	100	100	100	100	100	100	1200

Package No.03

Construction Methodolohy - 18 Months

Sl No	Description of Item	Working Months						Rainy Season		Working months									Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
	Earth work excavation																			
1	Tank Bund	2800	2800	2800	2800	2800	2800				2800	2800	2800	2800	2800	2800	2800	2800	1800	41000
2	Channel	3000	6000	6000	6000	6000	6000				6000	6000	6000	6000	6000	6000	6000	6000	6000	87000
3	Foundation	250	250	250	500	500	500						500	500	500	500	500			4750
	Concrete																			
5	M 7.5 grade	50	50	50	50	50	50						50	50	50	50	50			550
6	M 15 grade				6	6	6						12	12	12	12	6			72
7	M 20 grade		25	25	75	75	75						75	75	75	100	100	100	67	867
8	Random rubble masonry	100	100	100	150	150	150				50	125	150	100	100	100	100	100	100	1675
9	Plastering	50	50	50	50	50	100				100	100	100	100	100	100	100	100	100	1250
10	RSDP		50	50	50	50	50				50	50	50	55	100	100	100	100	100	955

Package No.04
Construction Methodolohy - 18 Months

Sl No	Description of Item	Working Months						Rainy Season			Working months									Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
	Earth work excavation																			
1	Tank Bund	2000	5000	5000	5000	5000	5000				6000	6000	6000	6000	6000	5000	5000	5000		72000
2	Channel	4000	5000	5000	5000	5000	5000				6000	6000	5000	6000	6000	6000	6000	6000		76000
3	Foundation	225	400	400	400	400	400					600	600	600	600	600	600	400		6225
	Concrete																			
5	M 7.5 grade	50	75	75	75	75	75					75	75	75	75	75	40			840
6	M 15 grade				10	10	10					10	10	10	10	10	10	5		95
7	M 20 grade	25	25	50	50	50	50						100	100	100	125	125	125	175	1100
8	Random rubble masonry	150	200	200	200	200	200					200	200	200	200	200	200	200	200	2750
9	Plastering		100	100	100	100	100					100	200	200	200	200	200	200	200	2000
10	RSDP				50	50	75					100	100	100	100	100	100	100	100	975

Package No.05
Construction Methodolohy - 18 Months

Sl No	Description of Item	Working Months						Rainy Season			Working months									Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
	Earth work excavation																			
1	Tank Bund	2000	5000	5000	5000	5000	5000				5000	5000	5000	5000	5000	7500	7500	5000	5000	77000
2	Channel	4000	5000	6000	6000	6000	6000				6000	6000	6000	6000	6000	6000	6000	6000	6000	87000
3	Foundation	250	250	250	250	250	250				250	500	500	500	500	250	250	250		4500
	Concrete																			
5	M 7.5 grade	50	50	50	50	50	50				50	50	50	50	50	50	75	75		750
6	M 15 grade		5	5	5	5	5				5	5	5	10	10	10	10	10		90
7	M 20 grade	25	75	75	75	75	75				100	100	100	100	100	100	100	100	50	1250
8	Random rubble masonry	200	200	200	200	200	200				100	200	200	200	200	200	200	200	200	2900
9	Plastering		100	100	100	100	100				100	200	200	200	200	200	200	200	200	2200
10	RSDP		100	100	100	100	100				50	75	75	75	75	75	75	50	50	1100

FLOW DIAGRAM OF PAMBAR TO THIRUKOILUR SUB BASIN

PICK UP ANICUT

SRBC CANAL

- Perungalathur tank
- Mookkanur tank
- Rayandapuram Tank
- Mottan Tank
- Vettuthangal Tank
- Moongilthuraipattu tank
- Devaparai Tank
- Poruvalur Tank

PENNAIYAR RIVER

SLBC CANAL

- Allappanur tank
- Athipadi tank
- Palayanur Tank
- Kallottu Tank
- Velayampakkam Tank
- KandiayankuppamTank
- Navampattu tank
- Konganamur tank
- Murukkambadi tank
- Athiyandal Tank
- Devaradiyarkuppam Tank
- Pallichandal tank

MUSHUKUNDHA RIVER

SRBC CANAL

- Pakkam pudur Tank
- Pakkam Tank
- Kaduvanur Tank
- Thozuvandangal tank
- Ilayanarkuppam tank
- Seerpadanallur tank
- Thiruvarangam tank
- Jambadai Tank

Periakolliyur Tank

Chinnakolliyur tank

Athiyur tank

Athiyurthangal tank

Marur Tank

Ariyalur tank

Eandal tank

Nagalkudi tank

Vanapuram tank

Odiyanthal Tank

Kadampur Tank

Sirupanaiyur Tank

Kallipadi Tank

Seerpanandal Tank

Maniyandal tank

Sittamur tank

Madampoondi tank

Thiruppalapandal Tank

Eadaiyur tank

Thagadi tank

Mudiyanur tank

Thirukoilur Tank

Kachikuvasan Tank

Aaviyur Tank

Jambai tank

Sellankuppam Tank

Sithappattinam tank

Manalurpettai Tank

1.7. ENVIRONMENTAL COMPONENT

Report to accompany the estimate for the work of Environmental Component in Detailed Project Report for PAMBAR TO THIRUKOILUR SUB BASIN of Pennaiyar River Basin" under TN – IAMWARM PROJECT

Estimate Amount: Rs 7.00 Lakhs

Under TNWRCP, with World Bank assistance, special emphasis was given for the first time to assess the Environmental Status and degradation caused for all River basins in Tamil Nadu. Soil Assessment study has been conducted by **Environment Protection Training and Research Institute (EPTRI), Hyderabad**. This institute has identified the Environmental issues, mitigatory measures and given their recommendations on the following issues.

Environmental Issues :		- Soil Erosion, Sand Mining - Water Pollution due to Industries - Encroachment of river and tank beds - Poor solid waste management
ii)	Social Issues:	- Dry Land Agriculture - Reduction in Livestock - Women empowerment-SHG's - No storing facilities. - Health problems due to industrial water pollution
iii)	Mitigatory Measures:	- Non-judicial and excessive sand mining have to be controlled and regulated. - Livestock services delivery and management -Common storage facilities may be established
iv)	Agency:	- The above measures can be improved By the combined working of Environmental Cell wing and Animal Husbandry Department.

The Environmental Cell of WRO assessed the Environmental impact on the quality of Surface and Ground water and Soil by collecting water & soil samples and testing them, preparation of Micro level Environmental Status Reports for all the River basins with the World Bank assistance for these works up to March 2004.

Also few Awareness programs & workshops were conducted to create Awareness on the Environmental issues & remedies among the public, farmers, Govt. officials and NGOs. Seminars were conducted to find out new techniques and methods developed recently to solve the Environmental problems.

Now under IAMWARM Project, focus is at each Sub Basin level to identify and prioritize the requirements for improvements to storage structures, rehabilitation, new schemes for water harvest, and diversification of crops. Any new schemes or rehabilitation of existing one, consideration of the Environmental issues pertaining to that area and remedial action to overcome the problems is must. Accordingly, Environmental issues prevailing in the Pambar to Thirukoilur Sub basin is taken up under IAMWARM Project.

PENNAIYAR RIVER

Pennaiyar River originates on the South Eastern slope of Chinnakesava Hills in Karnataka State. The river is called Dakshina Pinakini in Karnataka. The river enters into Tamil Nadu at Sakkarasam palli near Bagalur village of Hosur taluk. The total length of river is 432 Km and out of which 112 Km length of river is in Karnataka State and 320 Km is in Tamil Nadu, it confluences in Bay of Bengal at Cuddalore.

PAMBAR TO THIRUKOILUR SUB-BASIN

Pambar to Thirukoilur Sub basin is located between latitude 12^0 00'N to12 50' 00 "N longitude 78^0 51'E to 79^0 00'E having an area of 1823.56 sq. km and is surrounded by Ponnaiyar, Vellar river basins. The basin covers the Dharmapuri District, Thiruvannamalai District, Villupuram District. The Taluks covered is Harur Taluk of Dharmapuri District, Thandarampattu Tk ,Thiruvannamalai Tk in Thiruvannamalai Dt and Sankarapuram Tk,Thirukoilur Tk in Villupuram Dt.

The Pambar to Thirukoilur Sub Basin originates from Kalrayan hills,Servarayan hills,Yelagiri hills.The area is occupied by Archean metamorphic varities like cala, gneisses, charnkite, quartzite, pinkgranites ,and garnetiferous

gneisses. Totally 57 irrigation tanks are under the control of Water Resources Organisation (WRO) of Public Works Department (PWD) in this sub-basin.

ENVIRONMENTAL PROBLEMS:

SOIL EROSION:

Soil erosion causes depletion of fertility through removal of valuable surface soil and lead to reduction in the effective arable soil depth and hence it is one of limiting factors for crop production.

SAND MINING:

One of the major problem in river basin related to Sand Mining as it poses major threat to River Bed. Sand quarrying for construction and other purposes is growing at an alarming rate which causes failure of Tanks and Diversion structures, stagnation of water in the deep mined river bed causing consequent health hazards. This needs to be prevented by all means. Now the sand mining has come under the control of WRO. Sand is being collected only at the approved site and the Regular Territorial Division is closely monitoring.

AQUATIC WEEDS :

It is observed that the Aquatic weeds growth Ipomoea locally known as Kadal Palai is found to be in almost 80% of the tanks. The plant growth varies from 40% to 80% in various tanks. In general weeds growth restricts the water storage and loss in capacity of the tanks.

INDUTRIAL POLLUTION:

The effluent from industries located in this sub basin are let into ditches and water drains which ultimately reach the River or supply channels of tanks or lands. Special attention is needed for treating the effluent to avoid water pollution in the sub basin.

SOLID WASTE DISPOSAL:

The problem of Garbage collection and its disposal has assumed importance, in the context of rapid growth of population, urbanization, industrial growth and development. There is no organized scientific method of disposal in all the Municipalities and Panchayats in this sub basin.

SEWAGE DISPOSAL LET INTO WATER BODIES:

Almost all the village has no safe disposal of sewage or proper treatment method is adopted. This affect the near by water source directly or affecting the ground water potential indirectly.

So, creating awareness among the Presidents of the local bodies is essential and to motivate them to adapt Solid waste management and Sewage management, wherever required, Workshop including field visits, exclusively for them is to be conducted under the IAMWARM project.

ACTIVTIES PROPOSED:

River Basin Monitoring:-

To monitor the quality of water and soil and create database regarding the environmental status for the sub basin, the following activities are proposed at the sub basin level.

Collection and testing of water and soil samples:

Water samples will be collected and tested in the sub basin at identified sampling points regularly. Continuance of collection and testing of water samples is essential, as good and long range data will enable to understand the problems more precisely.

Hence, now it is proposed to collect and test water samples for a period of **Three years** to assess the environmental impact on the quality of surface water of this sub basin more accurately.

In addition to the above identified locations, water samples will also be collected from tanks to estimate the level of pollution in selected locations, where untreated sewage is directly let into tanks and Channels. These samples will be tested, to assess the impact on the quality of surface and ground water.

Soil samples are to be collected from selected locations to assess the impact on the quality of soil due to various Environmental problems like use of chemical fertilizer and using the polluted water. From these locations numbers of samples at regular interval have to be collected and tested to determine precisely the impact on the degradation of the quality of the soil. Therefore testing soil samples are essential.

Under this item following provisions have been made.

1 Testing charges for the water& soil samples.

2 Provision of Labour charges, purchase of materials, conveyance, driver salary and computer operator.

Transfer of technical know-how for solid waste management system including source segregation, recycle of dry waste and linkage with user agencies.

Now a new scheme for solid waste management plan is under implementation in all municipalities and Panchayats. Under this scheme, collection tank for disposal and non-disposable garbage have been constructed in most of the local bodies. But recycling the waste and converting the solid waste into manure and production of energy from them are yet to be come up.

Hence demonstration and action programs are planned with user agencies and necessary field visits are programmed to transfer of technical know how for solid waste management system.

Awareness Program

Awareness Programs are necessary to create awareness among the public about environmental aspects and the action to be taken by them to remove or reduce the impacts due to the environmental problems.Hence, to create and motivate the people, Awareness programmes are to be conducted in the villages where sewage is directly let into water bodies. It is also proposed to conduct awareness meetings in School/ Institutions during the study period of three years covering the following subjects in addition to placing Stickers, tin sheets and Pamphlets containing messages about Environmental Awareness.

- Sanitation. Solid waste treatment.
- Sewage treatment and converting the same into Gas.
- Natural farming.
- Conversion of aquatic weeds into manure etc.

Mode of Execution:

All the works proposed are to be carried out by outsourcing through an Educational Institute.

Total Cost.

The total Proposal cost works out to **Rs.7.00 Lakhs.**
(Rupees Seven Lakhs Only).

(ENVIRONMENTAL COMPONENT)

Name of River Basin	**Pennaiyar River Basin**	
Name of Sub Basin	**Pambar to Thirukoilur Sub-Basin**	
Number of WUA	Already formed:23 Nos / yet to be formed: 13 Nos.	
Name of Division	Lower Pennaiyar Basin Division,Villupuram	
Name of Sub-Division	Sathanur Dam Sub Division,Sathanur	
	Middle Pennaiyar basin Sub Division,Thiruvannamalai.	
	Lower Pennaiyar basin Sub Division,Sankarapuram.	
	Lower Pennaiyar basin Sub Division,Tirukoilur.	
District	**Thiruvannamalai**	**Villupuram**
Taluk	Thanadrampattu	Thirukoilur
	Thiruvannamalai	Sankarapuram
Block	Thanadrampattu	Mugaiyur
	Thiruvannamalai	Sankarapuram
		Rishivandiyam
		Thirukoilur
Name of Tanks & Anicuts under this sub-basin:	List enclosed	
Domestic Sewage (Name of River/ Tank with specific location polluted by Domestic sewage)	Sewage generated are disposed in land & tanks	
Municipal Solid Waste (Name of River/ Tank with specific location where Municipal solid waste is dumped)	Solid waste generated are disposed in land & tanks which may cause ground water pollution.	
Water Quality Status:		
i) Ground Water	Ground water is Moderate to good.	
ii)Surface Water	Water can be utilized for irrugation purpose,however it need treatment before using drinking purpose.	

Environmental Activities in Pambar to Thirukoilur Sub-Basin of Pennaiyar River Basin under **IAMWARM PROJECT**

DETAILED ESTIMATE

Sl No	Description of work	No	Measurement			Contents
			L	B	D	
I. Environmental Social Monitoring of river basin including peroidical water and soil quality testing and documentation. (By fixing nodel agency or any educational instituition)						
1	Collection and testing of water samples and Soil samples					
i)	Water samples collected from river & tanks for a period of **Three years**					9 Nos
ii)	Soil samples collected from irrigation fields for a period of **Three years**					3 Nos
iii)	Hiring jeep driver on service contract basis for the department vehicle	1 No	3 x 1= 3months			3
iv)	Collection and conveyance charges including all purchases like cans, chemicals,Documentation of test results including labour charges.					LS
II	**Environmental Social knowledge base analysis and development (By fixing nodel agency or any educational instituition)**					
	Preparation of Impact Assessment report with expert analysis for 3 yrs @ every 6 months and documentation for					LS
a)	impacts due to project investment.					LS
b)	other impacts obsered in the river basin.					LS
III.	**Transfer of technical know how for solid waste management system including source segregation, recycle of dry waste and linkage with user agencies. (By fixing nodel agency or any educational instituition)**					

a)	Motivating the local bodies for Soild waste management project and Sewage treatment plants to prevent pollution of water sources and using for irrigation by transfering technical know how through demonstration Documentary film and Technical visit.	L.S.				L.S.
b)	Promoting Entrepreneurship Policy for Eradication for weeds by setting up Bio gas Plant / Vermi compost By WUA through Awareness creation, Demonstration and consultative meeting and pilot study.	L.S.				L.S.
c)	Herbal garden in institutions	1 x 1				1 No.
IV.	**Conducting Environmental and social Awareness meeting, programme, demonstration and Exhibitions on various environmental and social related issues including capacity building.(By fixing nodel agency or any educational instituition)**					
a)	Printing Stickers, Pamphlets, Tin sheets, Providing Banners for Propagating Environmental Awareness among public	LS				LS
b)	Conducting meetings in school/Institutions	1 x 2				2 No
c)	Preparing and publishing Environmental Atlas for the Sub Basin for the use of Line departments / Institutions for better Management of Sub basin					LS
d)	Documentation of the entire activities, Videofilms,hire purchase of LCD,Preparation of sub-basin maps of all size & Upgradation of computer and accessories.	LS				LS
e)	Engaging Computer Operator grade-II for the preparation of reports,Documents etc..	1 x 3				3 Nos
f)	Exposure to field visit and Eco-friendly practices and environmental monitoring.	LS				LS

Environmental Activities in Pambar to Thirukovilur Sub-Basin of Pennaiyar River Basin under **IAMWARM PROJECT**

Working Sheet

Water Samples

1	Testing Charges rate as per ground water division (Dept) (Partly)		650.00	/Sample
2	Testing Charges rate as per SGS Laboratory (private) (Total Coliform,Faecal Coliform, Pesticides Residual) (Partly)		5250.00	/Sample
3	Service Charges @ 10.30 %		540.75	
		TOTAL	6440.75	(or)
			6441	

Soil Samples

1	Testing Charges rate as per SM & R Division (Dept) (Partly)		6000	/Sample
2	Testing Charges rate as per SGS Laboratory (private) (Pesticides Residual) (Partly)		4500	/Sample
	Service Charges @ 10.3 %		463.50	
		TOTAL	10963.5	(or)
			10964	

Environmental Activities in Pambar to Thirukoilur Sub-Basin of Pennaiyar River Basin under **IAMWARM PROJECT**

ABSTRACT ESTIMATE

S.No	Qty		Description of Work	Rate	Per	Amount
I. Environmental Social Monitoring of river basin including peroidical water and soil quality testing and documentation. (By fixing nodel agency any educational instituition)						
a)	9	Nos	Testing charges for Water samples	6441	Each	57969
b)	3	Nos	Testing charges for soil samples from polluted site	10964	Each	32892
c)	3	months	Hiring Jeep driver for the Dept Vehicle @ Rs 151.80/day	4554	month	13662
d)	LS		Collection and conveyance charges including all purchases like cans, bottles,chemicals,Documentation of test results including labour charges.	LS		8000
II	**Environmental Social knowledge base analysis and development (By fixing nodel agency any any educational instituition)**					
			Preparation of Impact Assessment report with expert analysis for 3 yrs @ every 6 months and documentation for			
a)	LS		Impacts due to project investment.	LS		220000
b)	LS		Other impacts observed in the river basin.	LS		50000
III.	**Transfer of technical know how for solid waste management system including source segregation, recycle of dry waste and linkage with user agencies. (By fixing nodel agency any educational instituition)**					
a)	L.S.		Motivating the local bodies for Soild waste management project and Sewage treatment plants to prevent pollution of water sources and using for irrigation by transfering technical know how through demonstration Documentary film and Technical visit.	LS		40000

b)	L.S.	Promoting Entrepreneurship Policy for Eradication for weeds by setting up Bio gas Plant / Vermi compost By WUA through Awareness creation, Demonstration and consultative meeting and pilot study.	LS		40000
c)	1 No	Herbal garden in institutions	30000		30000
IV.	**Conducting Environmental and social Awareness meeting, programme, demonstration and Exhibitions on various environmental and social related issues including capacity building. (By fixing nodel agency)**				
a)	LS	Printing Stickers, Pamphlets, Tin sheets, Providing Banners for Propagating Environmental Awareness among public	LS		10000
b)	1 No	Conducting meetings in school/Institutions	20000		20000
c)	LS	Preparing and publishing Environmental Atlas for the Sub Basin for the use of Line departments / Institutions for better Management of Sub basin	LS		80000
d)	LS	Documentation of the entire activities, Videofilms,hire purchase of LCD,Preparation of sub-basin maps of all size & Upgradation of computer and accessories.	LS		16261
e)	3 Nos.	Engaging Computer Operator grade-II for the preparation of reports,Documents etc..	204	/day	21216
f)	LS	Exposure to field visit and Eco-friendly practices and environmental monitoring.	LS		60000
		Total			**700000**

(Rupees Seven Lakhs Only)

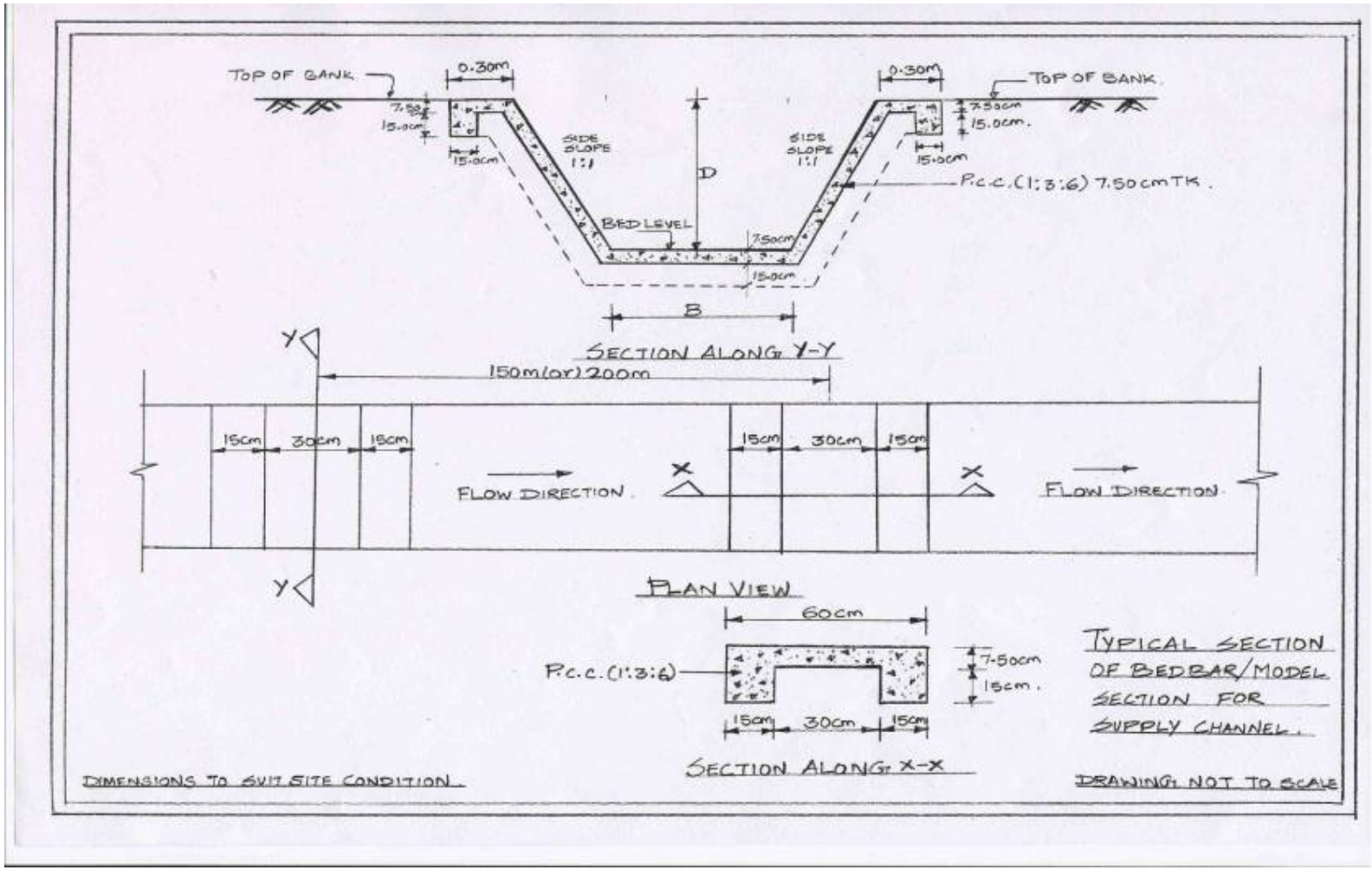
Water Supply, Sewage and Solid Waste Generation

Local Body	Population 2001	Designed Capacity of Protected Water Supply (Lakh Litre)	Total Estimated water Consumption (Lakh Litre)	Estimated Sewage generation (Lakh Litre)	Solid Waste Management (Tonnes)	
					Generation	Collection
A.Town Panchayat						
Thirukoilur	27197	9.0	9.0	6.30	3.6	3.00
Sankarapuram	12263	2.20	2.20	1.54	1.2	1.0
Grand Total	**39460**	**11.20**	**11.20**	**7.8**	**4.8**	**4.0**

Status of Sewerage condition

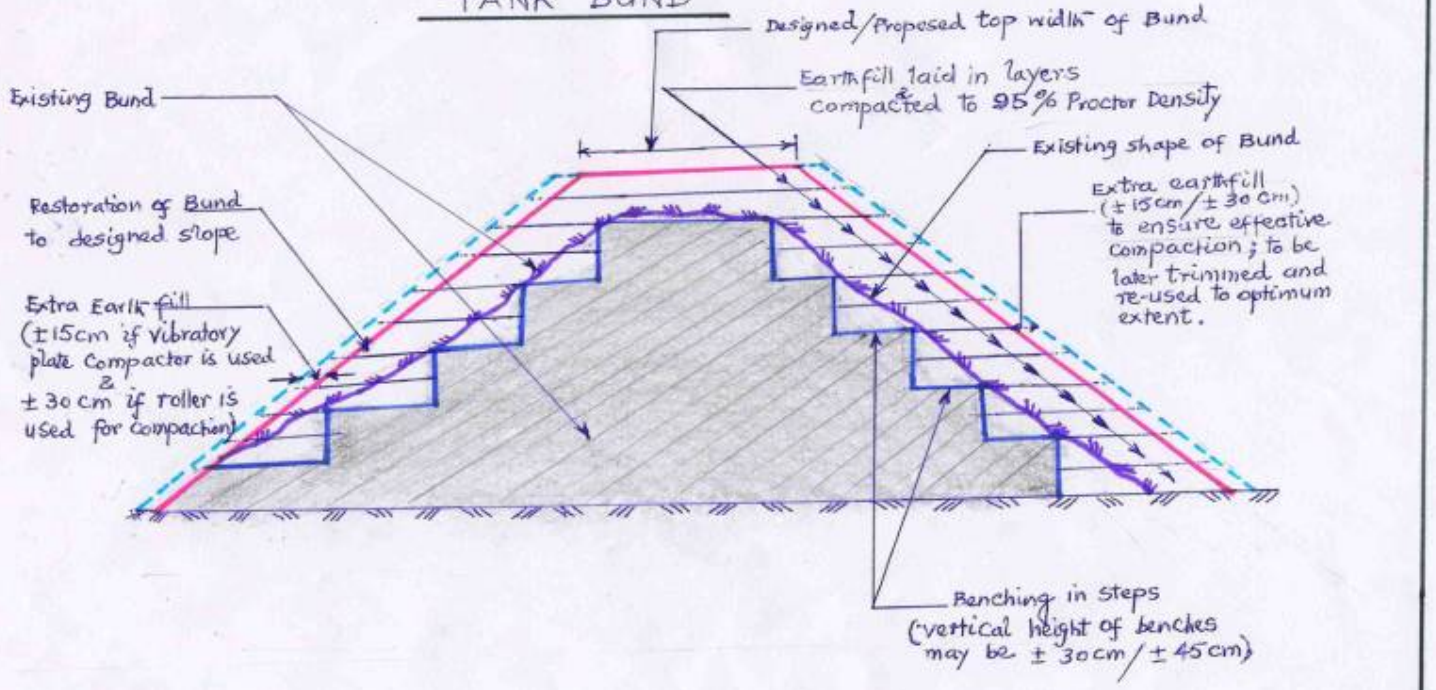
Town	Population 2001	Estimated Sewarage generation in Lakh litre	No Treatment	Nature of Disposal & Quantity in Lakh litre		
				River	Reservoir	Land
A.Town Panchayat						
Thirukoilur	27197	6.3	Nil		6.3	
Sankarapuram	12263	1.54	Nil			1.54

DESIGN AND DRAWINGS

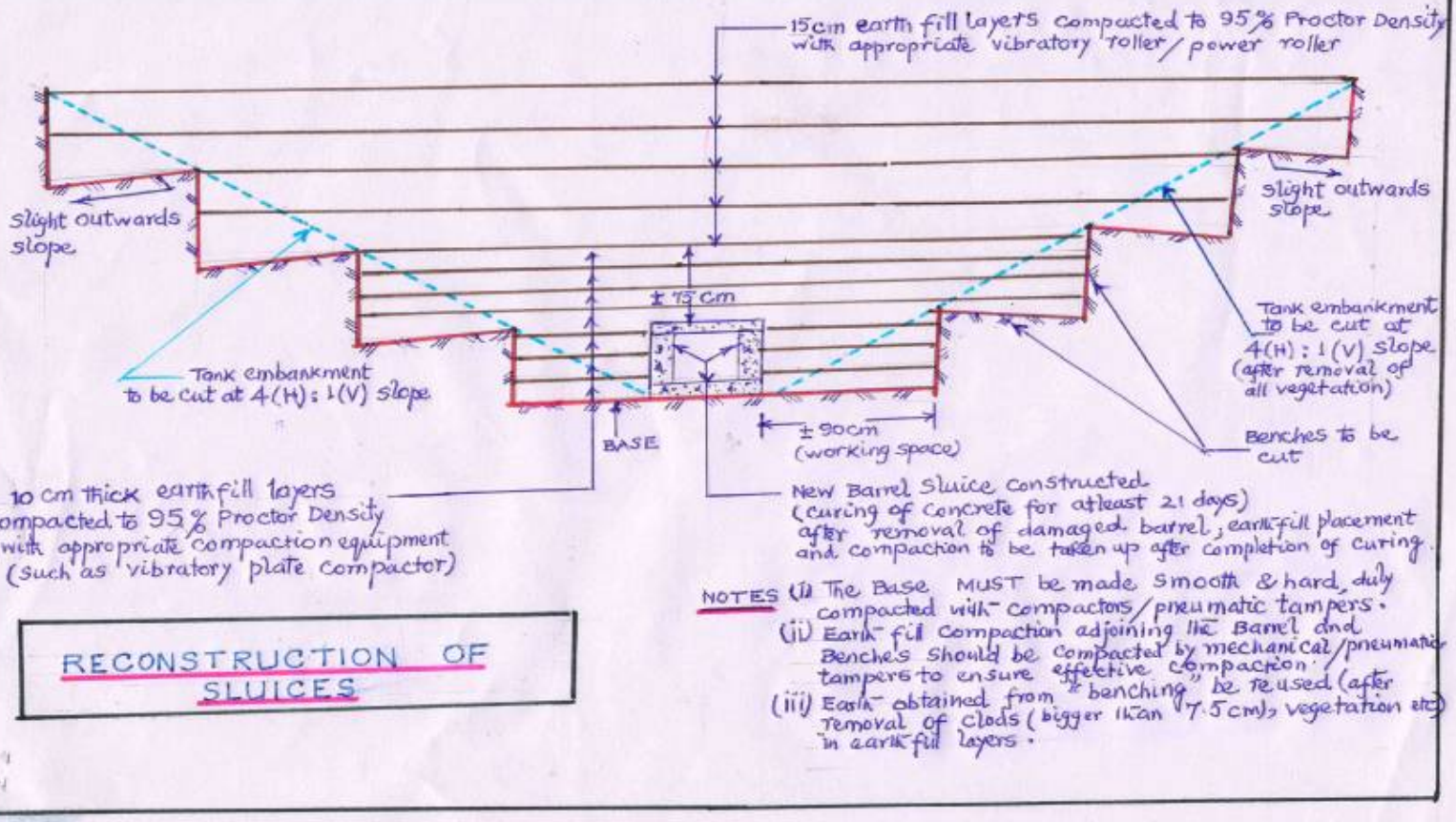

TOP OF BANK
0.30m
7.50cm
15.0cm
15.0cm
SIDE SLOPE 1:1
D
BED LEVEL
7.50cm
15.0cm
B
SIDE SLOPE 1:1
0.30m
TOP OF BANK
7.50cm
15.0cm.
15.0cm
P.c.c.(1:3:6) 7.50cm TK.
SECTION ALONG Y-Y
Y
150m(or)200m
15cm
30cm
15cm
FLOW DIRECTION.
X
X
15cm
30cm
15cm
FLOW DIRECTION.
Y
PLAN VIEW
60cm
P.c.c.(1:3:6)
7.50cm
15cm.
15cm
30cm
15cm
SECTION ALONG X-X
TYPICAL SECTION OF BEDBAR/MODEL SECTION FOR SUPPLY CHANNEL.
DIMENSIONS TO SUIT SITE CONDITION.
DRAWING NOT TO SCALE

TYPICAL SKETCH

RAISING & STRENGTHENING OF TANK BUND



TYPICAL SKETCH



RECONSTRUCTION OF SLUICES

NOTES

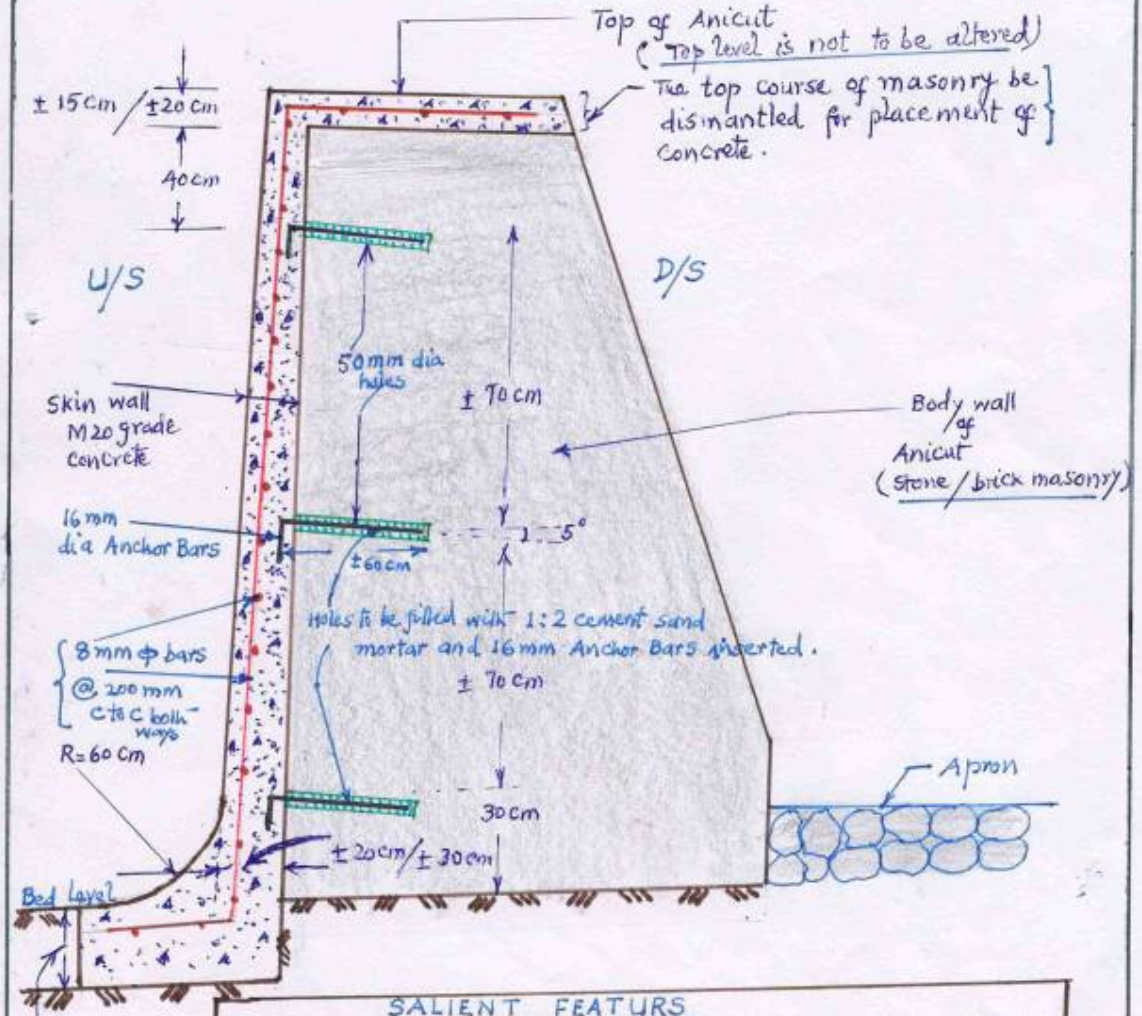
(i) The Base MUST be made smooth & hard, duly compacted with compactors / pneumatic tampers.

(ii) Earth fill compaction adjoining the Barrel and Benches should be compacted by mechanical / pneumatic tampers to ensure effective compaction.

(iii) Earth obtained from "benching" be re-used (after removal of clods (bigger than 7.5 cm), vegetation etc) in earthfill layers.

TYPICAL SKETCH

Rehabilitation of Anicut through SKIN WALL Concrete



SALIENT FEATURS

- Joints on u/s surface to be raked to 25 mm depth & Surface roughened by Chipping;
- Drill holes of 50 mm to be filled with 1:2 mortar and 16 mm Anchor Bars to be pushed in
- The roughened surface to be kept wet for 72 hours and cement slurry (1:2·5) of 0·70 water-cement ratio be applied over the surface prior to placement of Skin Concrete.
- Concrete of M20 Grade is to be used with 20 mm maximum aggregate size.
- Curing is to be done for 21 days.
- Thickness of skin Concrete : 15 cm at top & 20 cm at bottom for Anicuts of height upto ± 1·50 m and 20 cm at top & 30 cm at bottom for Anicuts of height more than ± 1·5 m.