TN-IAMWARM PROJECT

THENIAR SUB BASIN

DETAILED PROJECT REPORT

1. WATER RESOURCES DEPARTMENT

1.1 INTRODUCTION

1.1 GENERAL

"Everything else can wait but not agriculture"- Jawaharlal Nehru. There are several concerns regarding the agricultural sector in India and the present condition in this sector makes us remember the above statement.

Agriculture is the dominant sector in the Indian economy. Yield growth rate has also declined. Farming is becoming a non-viable activity. Further scope for increase in net sown area is limited. TamilNadu depends largely on the surface water irrigation as well as ground water irrigation. The state has used the surface and ground water potentials to the maximum limit and hence the future development and expansion depends only on the efficient and economical use of water potential and resources.

To achieve higher water use efficiency, it is necessary to improve and upgrade the existing conveyance system and also to introduce modern irrigation method.

With the above objective, a comprehensive programme has been proposed with a Multi Disciplinary Approach.

1.2 DESCRIPTION OF THE VAIGAI BASIN

The River Vaigai originates in the eastern slope of the Westernghat mountainous offshoot in the Varushanad area and catchment area of Vaigai basin is 2253.30 Sq.Km. Vaigai river encompasses an area of about 779.70 Sq.Km. upto its confluence with Suruliar in which hill area accounts for about 525.60 Sq.Km. and plains occupy only 250.12Sq.Km. It flows northwards through Gandamanayakkanur. It traverses through many villages and several tributaries join the Vaigai River in the stretch of 43 Km and reaches the plain area. Suruliar and Theniar join the Vaigai which confluences with Mulla Periyar in U/S of Vaigai Dam in Theni District and there after it flows east and south east directions till it confluences with Palk Bay.

The Vaigai river basin lies between the geographic co-ordinates N.Lat.9º 15'- 10º - 20, and E Long. 77º 10' - 79º 15' and this Basin covers and area about 7031 Sq.Km. and is surrounded by Cauveri and Kottakaraiyar basins on the north, on the south by Gundar basin, on the west by Periyar basin and east by Bay of Bengal. This basin has been divided into 10 sub-basins as follows.

1 .Upper Vaigai Sub basin
2. Suruliyar
3. Theniar
4. Varattar-Nagalar
5. Varahanadhi
6. Manjalar-Marudhanadhi
7. Surumalaiyar
8. Sathiyar
9. Uppar
10. Lower Vaigai.

Description of the THENIAR Sub-Basin

Theniar originates from the Cardomam hills and Palani hill southern slopes and flows eastwards until it joins Suruliar river near Theni. Kottakudi river is the tributary and together form this sub basin. The total area of this sub basin is 624.70 Sq.Km. Out of which 326 Sq.Km is under plain area. Theniar is semi perennial and flow is restricted to monsoon periods. Numerous tanks are located in this area irrigating a limited portion of the sub basin.

IAMWARM PROJECT

CLUSTER - I

THENIAR SUB BASIN

Sl. No.	Name of Component	Tank wise Ayacut in Ha.				Total Area in Ha.		Agriculture			Horticulture		T N A U		Agri.Engg.		Fisheries		Agri.Marketing		Animal Husbandry		W R O	
		TOTAL	FI	PI	Gap	WOP	WP	Focus crop	Activities	No./Ha	Activities	No./Ha	Activities	No./Ha.	Activities	No./Ha.	Activities	No./Ha.	Activities	No./Ha.	Activities	No./Ha.	Activities	No./Ha.
1	Santhana solai anicut supply channel	108.82	51.00	37.82	20.00	108.82	108.82																D/S apron with cut off wall	
2	Akkarai privu anicut supply channel	126.60	64.00	52.60	10.00	126.60	126.60																D/S apron with cut off wall	
3	Velankadu anicut supply channel	151.86	44.73	64.13	43.00	151.86	151.86																D/S apron with cut off wall	
4	Ikkarai privu anicut supply channel	99.70	37.00	39.70	23.00	99.70	99.70																Resectioning of supply channel	
5	Raja vaikkal anicut supply channel	84.49	64.49	---	20.00	84.49	84.49																Resectioning of supply channel	
6	Samivaikkal anicut supply channel	12.34	7.00	---	5.34	12.34	12.34																Resectioning of supply channel	
7	Pudukulam anicut supply channel	21.64	11.00	---	10.64	21.64	21.64																D/S apron with cut off wall	
8	Marimoor anicut supply channel	31.42	25.40	---	6.02	31.42	31.42																Resectioning of supply channel	
9	Muthukombaiyan anicut supply channel	8.71	1.00	---	7.71	8.71	8.71																D/S apron with cut off wall	

10	Muthukombaiyan tank	9.77	1.60	---	8.17	9.77	9.77															Standardisation of tank bund including turfing	
11	Pudukulam tank	56.22	35.10	---	21.12	56.22	56.22								DRIP Rotavator -20 Nos.	3.50							
12	Chinnaottukulam	10.06	9.06	---	1.00	10.06	10.06																
13	Kalivuodai kulam	4.82	2.82	---	2.00	4.82	4.82																
14	Ammakulam	14.46	12.46	2.00	---	14.46	14.46															Standardisation of tank bund including turfing.	
15	Bangarusamy Naickenkulam	155.29	132.12	23.17	---	155.29	155.29								DRIP Powet Tiller-20Nos.	5.50	Fish culture	11.23					
16	Marimoor Tank	125.98	115.98	10.00	---	125.98	125.98								DRIP Power weeder -20 Nos.	5.50	Fish culture	7.00					

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CLUSTER - II

THENIAR SUB BASIN

Sl. No.	Name of Component	Tank wise Ayacut in Ha.				Total Area in Ha.		Agri.Engg.		Fisheries		Agri.Marketing		Animal Husbandry		W R O	
		TOTAL	FI	PI	Gap	WOP	WP	Activities	No./Ha.	Activities	No./Ha.	Activities	No./Ha.	Activities	No./Ha.	Activities	No./Ha.
1	Puduvaikkal anicut supply channel	386.86	386.86	---	---	386.86	386.86							FODDER - CHOLAM	1	Providing skin wall in U/S of the anicut	
2	Kanakkankulam Tank	36.26	36.26	---	---	36.26	36.26	DRIP Multi crop thresher-2 Nos.	4.50						3	----	
3	Sirukulam Tank	54.06	54.06	---	---	54.06	54.06	DRIP	3.75	Fish culture	10.24				3	----	
4	Kuruvankulam Tank	22.29	22.29	---	---	22.29	22.29	DRIP	4.50						5	----	
5	Periyakulam Tank	102.68	102.68	---	---	102.68	102.68	DRIP	4.50						5	----	
6	Sotharanai Tank	118.76	118.76	---	---	118.76	118.76	DRIP	4.75	Fish culture	7.75				3	----	
7	Dasan chetty kulam]	22.55	22.55	---	---	22.55	22.55								1	Standardisation of tank bund including turfing	
8	Chettikulam	41.98	41.98	---	---	41.98	41.98								1	----	
9	Sankarappa naicken kulam	241.62	241.62	---	---	241.62	241.62			Fish culture	8.50				6	----	
10	Meenakshipuram Tank	183.64	183.64	---	---	183.64	183.64			Fish culture	21.53				5	----	

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CLUSTER - III

THENIAR SUB BASIN

Sl. No.	Name of Component	Tank wise Ayacut in Ha.				Total Area in Ha.		Agri.Engg.		Fisheries		Agri.Marketing		Animal Husbandry		W R O	
		TOTAL	FI	PI	Gap	WOP	WP	Activities	No./ Ha.	Activities	No./ Ha.	Activities	No./Ha.	Activities	No./Ha.	Activities	No./Ha.
1	Kannimar kulam Tank	18.06						DRIP	3.50					FODDER CHOLAM	----	Standardisation of tank bund including turfing	
2	Theniar anicut supply channel	89.95	89.95	---	---	89.95	89.95								8	----	
3	Panasalar supply channel	27.64	27.64	---	---	27.64	27.64								3	----	
4	Manthaikulam	14.31	14.31	---	---	14.31	14.31			Fish culture	3.49				3	----	
5	Meerusamudram	51.31	51.31	---	---	51.31	51.31	DRIP	5.50	Fish culture	10.32				4	----	
6	Thamarai kulam	45.14	45.14	---	---	45.14	45.14								4	----	
7	Rajaboopalasamudram tank	70.44	70.44	---	---	70.44	70.44	DRIP	5.50	Fish culture	11.18				8	----	

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CLUSTER - IV

THENIAR SUB BASIN

Sl. No.	Name of Component	Tank wise Ayacut in Ha.				Total Area in Ha.		Agri.Engg.		Fisheries		Agri.Marketing		Animal Husbandry		W R O	
		TOTAL	FI	PI	Gap	WOP	WP	Activities	No./Ha.	Activities	No./Ha.	Activities	No./Ha.	Activities	No./Ha.	Activities	No./Ha.
1	Ammakulam (Silamalai)	8.63	8.63	---	---	8.63	8.63							FODDER - CHOLAM	2	Standardisation of tank bund including turfing.	
2	Vairavagoundan kulam	15.93	15.93	---	---	15.93	15.93								8	---	
3	Chennaiya goundan kulam	9.32	9.32	---	---	9.32	9.32	DRIP	3.75						2	Standardisation of tank bund including turfing.	
4	Goundankulam	13.86	13.86	---	---	13.86	13.86	DRIP	4.50						6	Standardisation of tank bund including turfing.	
5	Posigoundan kulam	5.35	5.35	---	---	5.35	5.35								2	---	
6	Dombucheri Tank	28.57	28.57	---	---	28.57	28.57	DRIP	4.50						6	Standardisation of tank bund including turfing and Sluice Reconstruction	
7	Thimminayakkankulam	8.33													2	Replacing Sluice shutters	
8	Ernankulam	45.50						DRIP	4.50						8	---	
9	Thambirankulam	16.03						DRIP	4.75						4	Replacing Sluice shutters	

IAMWARM PROJECT

CONVERGENT TABLE - ABSTRACT (FOR EACH CLUSTER)

THENIAR SUB BASIN

Sl. No.	Name of Component	Tank wise Ayacut in Ha.				Total Area in Ha.			Agriculture		Horticulture		TNAU		Agri.Engg.		Fisheries		Agri.Marketing		Animal Husbandry		WRO	
		TOTAL	FI	PI	Gap	WOP	WP		Activities	No./Ha.	Activities	No./Ha.	Activities	No./Ha.	Activities	No./Ha.	Activities	No./Ha.	Activities	No./Ha.	Activities	No./Ha.	Activities	No./Ha.
1	**CLUSTER - I** **7 tanks and 9supply channels**	**1022.18**	**606.36**	**237.82**	**178.00**	**1222.18**	**1325.18**	Paddy Maize S.cane cholam Coconut Pulses(RF) Pulses(G) Vermi	SRI-Demo -- Demo Demo Demo -- Demo	9 28 -- 10 4 9 - 3			SRI --- Demo -- Demo Demo ---	13 - - - 14 4 - - - 4 13 9 - - -			Fish culture	18.23			FODDER - CHOLAM	----	Standardisation of tank bund,D/S apron & Reconstruction of sluices.	
2	**CLUSTER - II** **9 tanks and 1 supply channel**	**1210.70**	**1210.70**	**--**	**--**	**1778.70**	**2017.70**	Paddy Maize S.cane cholam Coconut Pulses(RF) Pulses(G) Vermi Banana	SRI-Demo -- Demo Demo Demo Demo ---	16 94 --- 26 5 16 -- 3 ---			SRI-Demo -- Demo Demo Demo Demo Demo Demo Demo	20 - - 17 - - - 5 20 10			Fish culture	48.02				30	Standardisation of tank bund,providing skin wall.	

														--10										
3	**CLUSTER - III 5 tanks and 2 supply channels**	**316.85**	**306.40**	**--**	**10.45**	**442.85**	**508.40**	Paddy Maize S.cane cholam Coconut Pulses(RF) Pulses(G) Vermi	SRI-Demo --Demo Demo Demo --Demo	827----18---2			SRI--Demo----Demo Demo Demo----	7--8---7----			Fish culture	24.99			30	Standardisation of tank bund,D/S apron.	
4	**CLUSTER - IV 9 tanks**	**151.52**	**81.66**	**--**	**69.43**	**233.52**	**272.09**	Maize S.cane cholam Coconut Vermi	Demo Demo Demo Demo Demo	4--11--2			---Demo---Demo---	---1---1---							40	Standardisation of tank bund,D/S apron, Reconstruction of sluices & replacing shutters.	

1.2. HYDROLOGY

2.1 GENERAL

The major tributaries of the River Vaigai are Vaigai, Suruliar, Theniyar, Varattar-Nagalar, Varahanadhi, Manjalar-Marudhanadhi, Sirumalaiar, Sathiar etc. and which themselves form their own sub basins of Vaigai river basins. Vaigai is a major tributary of river Vaigai and this course finally enters the Vaigai Dam.

2.2 LOCATION

The Theniar Sub Basin area is 624.70 Sq km including a plain area of 326 Sq km. The taluks covered in this sub basin are Bodi, Uthamapalayam and Theni of Theni district.

2.3 CLIMATE

The Theniar Sub Basin has a varied condition resulting often in unreliable rainfall, drought prone, sudden floods etc. This gives rise to unpredictable water resources condition. This sub basin is influenced both by South west and North east monsoons and slightly in summer season. North east monsoon accounts for maximum amount of rainfall.

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. As per IMD, Madurai, the following details are furnished.

Maximum temperature	- 34.38 c
Minimum temperature	- 23.62 c
Average temperature	- 29.04 c
RH	- 57.55
Average wind speed	- 1.86 KM/ph
Sun shine	- 7.5 H/day

2.5. RAIN FALL

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

Sl No	Name of Rain gauge Station	North East Monsoon	Winter	Summer	South west monsoon	Annual	75% dependable annual rainfall
1.	Uthamapa-layam	349.20	----	163.80	167.60	167.60	514
2	Bodinayakkanur						
3	Veerapandi	293.00	30.00	48.00	291.00	662.00	463

The weighted annual mean rainfall of the sub basin is 728mm. The average weighted rainfall for SW, NE and Annual are 127.11mm, 302.48mm and 593mm.

2.6.SOIL CLASSIFICATION

The Theniar sub basin is covered with following type of soils.

Sl.No.	Description	Classification
1.	Deep well drained, loamy soils on gently sloping lands, severely eroded, associated with deep well drained gravelly loam soils.	Fine-loamy, mixed Typic Ustropepts. Loamy skeletal, mixed, Typic Rhodustalfs.
2.	Deep, moderately well drained, calcareous clay soils on gently sloping low lands, slightly eroded: associated with; deep well drained calcareous, loamy soils nearly level lands, slightly eroded.	Fine,mixed Typic Ustropepts. FineLoamy,mixed, Typic Ustropepts.
3	Rock out crops	Rock land
4	Rock outcrops associated with deep well drained loamy soils on moderately steeply sloping, high hills and escarpments, severely eroded.	Rock land Fine-foamy,mixed, Typic Ustropepts

2.7 LAND HOLDINGS

The details of farm holdings and size classes prevalent in Theniar sub basin are given below:

Category	Size of holdings	Numbers	Percentage
Marginal	Below 1.00 Ha	127	32.15
Small	1.00 – 2.00 Ha	105	26.58
Medium	2.00 – 5.00 Ha	89	22.53
Big	5.0 ha & above	74	18.74
Total		**395**	

Above table reveales that the marginal farmers alone accounted for32.15 percent in the sub basin followed by small farmers. Developmental initiatives will be establishment in marginal and small farmers.

2.8 DEMOGRAPHY

Name of Sub Basin	Total No. of Blocks	Total No. of Villages	Population in Million		
			2004	2010	2020
Theniar Sub Basin	3	27	0.223	0.248	0.295

In 2001, the population is: Urban=0.136 Million; Rural =0.076
Total 0.212 Million

THENIAR SUB BASIN LIVE STOCK - POPULATION

Name of Sub basin	Cattle	Buffalo	Sheep	Goats	Pigs	Dogs	Others	Poultry
Theniar Sub-Basin	36523	9912	20228	21327	4939	3787	1433	103971
Annual water demand	**5.970 Mcum**							

2.15 INDUSTRIES YEARLY WATER DEMAND in Mcum

Name of Sub basin	Water Requirement		
	2004	2010	2020
Theniar Sub basin	8.11	11.35	17.84

Theniyar Sub basin Cropping Pattern :

Department of Agriculture
Name of the sub basin : Theniyar
District : Theni
Registered Ayacut Area : 2701.25.0 Ha

Fully Irrigated : 2442.94.0 Ha.
PI / Gap : 258.31 Ha.
Total Ayacut Area : 2701.25.0 Ha.

Sl. No.	Crop	Without Project				With Project				Increasing
		FI	PI	RF/G	TOTAL	FI	PI	RF/G	Total	
I.	**Perrinial Crops**									
1.	Coconut	86.00	5.00	--	91.00	91.00	--	--	91.00	
2.	Betelvine	14.00	--	--	14.00	14.00	--	--	14.00	
3.	Mango	--	232.82	10.00	242.82	242.82	--	--	242.82	
4.	Sapota	6.43	--	--	6.43	6.43.0	--	--	6.43.0	
5.	Guava	2.30	--	--	2.30	2.30.0	--	--	2.30.0	
6.	Silk Cotton	--	--	168.00	168.00	168.00	--	--	168.00	
7.	Fodder Grass	100.00	--	--	100.00	100.00	--	--	100.00	
	Sub Total	**208.73**	**237.82**	**178.00**	**624.55**	**624.55**	**--**	**--**	**624.55**	
II	**Annual Crop**									
1.	Banana	53.53	--	--	53.53	103.53	--	--	103.53	50
2.	Sugarcane	340.38	--	--	340.38	212.00	--	--	212.00	
	Sub Total	**393.91**	**--**	**--**	**393.91**	**315.53**	**--**	**--**	**315.53**	**50**
III	**1st Crop**									
1.	Paddy	472.00	--	--	472.00	323.00	--	--	323.00	
2.	Cholam	187.80	--	--	187.80	197.80	--	--	197.80	10
3.	Maize	673.71	--	68.43	742.14	782.17	--	--	782.17	40.03
4.	Pulses	182.65	--	--	182.65	289.00	--	--	289.00	106.25
5.	Bhendi	28.22	--	--	28.22	48.22	--	--	48.22	20
6.	Tomato	42.00	--	--	42.00	82.00	--	--	82.00	40
7.	Brinjal	16.10	--	--	16.10	28.10	--	--	28.10	12
8.	Other / Buildings	--	--	11.88	11.88	--	--	10.88	10.88	
	Sub total	**1602.48**	**--**	**80.31**	**1682.79**	**1750.29**	**--**	**10.88**	**1761.17**	**228.38**
	Grand Total I+II+III	**2205.12**	**237.82**	**258.31**	**2701.25**	**2690.37**	**--**	**10.88**	**2701.25**	**278.38**

IV	**2nd Crop**							

1.	Paddy	46.00	--	--	46.00	40.00	--	--	40.00	
2.	Maize	537.00	--	--	537.00	762.00	--	--	762.00	225
3.	Cholam	182.00	--	--	182.00	220.00	--	--	220.00	38
4.	Pulses	95.00	--	--	95.00	173.00	--	--	173.00	78
5.	Cotton	24.00	--	--	24.00	20.00	--	--	20.00	
6.	Groundnut	36.00	--	--	36.00	30.00	--	--	30.00	
7.	Brinjal	28.00	--	--	28.00	50.00	--	--	50.00	22
8.	Bhendi	32.00	--	--	32.00	52.00	--	--	52.00	20
9.	Fodder Cholam	--	--	--	--	100.00	--	--	100.00	100
	Sub total	980.00	--	--	980.00	1447.00	--	--	1447.00	483
	Grand Total	3185.12	237.82	258.31	3681.25	4137.37	--	10.88	4148.25	761.38
	Cropping Intensity				135.9%				153%	

	WOP Area (Ha)	**WP Area (Ha)**
Fully Irrigated	2205.12	2690.37
Partially Irrigated	237.82	--
Rainfed / Gap area	258.31	10.88
Total	**2701.25**	**2701.25**

Crop water requirement without Project.						
Sl. No.	**Name of crop**	**Extent in Ha.**	**Crop water requirement**		**Irrigation water at n=0.53**	**Total water requirement in Mcm**
			Mm	**Mcum**		
I	**Perennial crops**					
1	Coconut	91.00	1320	1.201	2.27	2.27
2	Betel vine	14.00	402	0.056	0.11	0.11
3	Mango	232.82	402	0.936	1.77	1.77
4	Sapota	6.43	292	0.019	0.04	0.04
5	Guava	2.30	256	0.006	0.01	0.01
6	Silk cotton	0	643	0.000	0.00	0.00
7	Fodder grass	100.00	438	0.438	0.83	0.83
	Sub Total	**446.55**		**2.660**	**5.01**	**5.01**
II	**Annual crops**					
1	Banana	53.53	1084	0.580	1.09	1.09
2	sugar cane	340.38	1176	4.003	7.55	7.55
	Sub Total	**393.91**		**4.58**	**8.65**	**8.65**
III	I crop					
1	Paddy	472.00	1024	4.833	9.12	9.12
2	Chollam	187.80	97	0.182	0.34	0.34
3	Maize	673.71	550	3.705	6.99	6.99
4	Pulses	182.65	260	0.475	0.90	0.90
5	Bhendi	28.22	462	0.130	0.25	0.25
6	Tomato	42.00	464	0.195	0.37	0.37
7	Brinjal	16.10	464	0.075	0.14	0.14
8	other/Building	0.00	0	0.000	0.00	0.00
	Total	1602.48		9.600	18.11	18.11
	Grand Total	**2442.94**		16.83	31.76	**31.76**
IV	2nd crop					
1	Paddy	46.00	1040	0.478	0.90	0.90
2	Maize	537.00	550	2.954	5.57	5.57
3	Cholam	182.00	258	0.470	0.89	0.89
4	Pulses	95.00	260	0.247	0.47	0.47
5	Cotton	24.00	643	0.154	0.29	0.29
6	Ground nut	36.00	339	0.122	0.23	0.23
7	Brinjal	28.00	464	0.130	0.25	0.25
8	Bhendi	32.00	462	0.148	0.28	0.28
9	Fodder Cholam	0.00	50	0.000	0.00	0.00
	Total	980.00		4.700	8.87	8.87
	Great Grand Total	**3422.94**		**21.54**	**40.64**	**40.64**

Crop water requirement with Project.						
Sl. No.	Name of crop	Extent in Ha.	Crop water requirement		Irrigation water efficiency (μ)	Total water requirement in Mcm
			mm	Mcum		
I	**Perennial crop**					
1	Coconut	91.00	1320	1.201	2.00	2.00
2	Betel vine	14.00	402	0.056	0.15	0.15
3	Mango	242.82	402	0.976	4.00	4.00
4	Sapota	6.43	292	0.019	0.11	0.11
5	Guava	2.30	256	0.006	0.04	0.04
6	Silk cotton	168.00	643	1.080	0.61	0.61
7	Fodder grass	100.00	438	0.438	1.07	1.07
	Sub total	**624.55**		**3.780**	**6.29**	**6.29**
II	**Annual crops**					
1	Banana	103.53	1084	1.122	1.87	1.87
2	sugar cane	212.00	1176	2.493	4.16	4.16
	Sub total	**315.53**		**3.620**	**6.03**	**6.03**
III	1st crop					
1a	Paddy	0.00	1024	0.00	0.00	0.00
b.	Paddy SRI	323.	717	2.315	4.37	4.37
2	Chollam	197.80	97	0.192	0.32	0.32
3	Maize	782.17	550	4.302	7.17	7.17
4	Pulses	289.00	260	0.751	1.25	1.25
5	Bhendi	48.22	462	0.223	0.37	0.37
6	Tomato	82.00	464	0.380	0.63	0.63
7	Brinjal	28.10	464	0.130	0.22	0.22
8	other/Building	0.00			0.00	0.00
	Sub Total	1750.29		8.29	14.33	14.33
	Grand Total	2690.37		15.69	26.65	26.65
II	2nd crop					
1a	Paddy		1040			
b	Paddy SRI	40.00	728	0.291	0.55	0.69
2	Maize	762.00	550	4.191	6.99	8.17
3	Chollam	220.00	258	0.568	0.95	0.36
4	Pulses	173.00	260	0.450	0.75	0.64
5	Cotton	20.00	643	0.129	0.21	0.16
6	Ground nut	30.00	339	0.102	0.17	0.22
7	Brinjal	50.00	464	0.232	0.39	0.29
8	Bhendi	52.00	462	0.240	0.40	0.30
9	Fodder Chollam	100.00	50	0.050	0.08	1.07
	Total	1447.00		6.25	10.48	10.48
	Grand Total	4137.37		21.94	37.14	**37.14**
						Mcm.

2.9 WATER POTENTIALWITHOUT PROJECT.

Surface water potential : 43.42 Mcm.

Ground water potential : 62.49 Mcm

Total : 105.91 Mcm

2.10 WATER DEMAND WITHOUT PROJECT

Sl.No.	Sector	Demand in Mcm.
1	Domestic	11.29
2.	Live stock	5.97
3.	Industrial	10.61
4.	Irrigation i) WRO	40.64
	ii) PU & GW	5.53
	Total Water demand	**74.04**

Water Balance : 31.87 Mcm

WATER POTENTIALWITH PROJECT.

Surface water potential : 43.42 Mcm.

Ground water potential : 62.49 Mcm

Total : 105.91 Mcm

WATER DEMAND WITH PROJECT

Sl.No.	Sector	Demand in Mcum.
1	Domestic	11.29
2.	Live stock	5.97
3.	Industrial	10.61
4.	Irrigation i) WRO ii) PU & GW	37.14 5.53
	Total water demand	**70.54**

Water Balance : 35.37 Mcm

1.3. HYDRAULICS OF THE COMPONENTS

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	
1	Santhanasolai Anicut	Kottakudi	108.820	19.80	100		33.48	33.48	3718	Left side	0.60x0.45	99.25	12	1097	2.50	0.30	1 in 300	3	
2	Akkaraipirivu Anicut	Mundhal	126.600	24.40	100		52.55	52.55	5615	Left side	0.60x0.45	99.40	15	4800	3.00	0.60		---	
3	Velankadu Anicut	Mundhal	151.86	30.00	100		62.16	62.16	5800	Left side	0.60x0.45	99.40	13	2073	3.00	0.60	1 in 500	15	
4	Ikkaraipirivu Anicut	Mundhal	99.700	21.30	100		65.16	65.16	6200	Right side	0.90x0.60	99.40	10	1127	3.00	0.60	1 in 500	7	
5	Rajavaikkal Anicut	Bodinayakkanur	84.490	67.00	100		77.77	77.77	12000	Right side	1.80x1.50(2 Nos)	99.40	10	2511	3.00	0.60	1 in 500	4	
6	Samyvaikkal Anicut	Bodinayakkanur	12.340	60.00	100		95.50	95.50	5200	Right side	1.80x0.60	99.25	90	1800	4.50	0.90	1 in 1000	3	

7	Pudukulam Anicut	Bodinayakkanur	21.640	36.60	100		40.00	40.00	4600	Left side	1.50x1.50	99.6	5	1000	3.00	0.60	1 in 500	3	
8	MarimoorAnicut	Bodinayakkanur	31.420	20.00	100		62.00	62.00	4800	Right side	1.50x0.45	99.55	17	4620	3.00	0.60	1 in 500	6	
9	Muthukombaiyan Anicut	Anaikkaraipatti	8.710	19.10	100		70.00	70.00	4800	Left side	0.60x0.30	99.55	19	595	4.00	0.90	1 in 500	8	
10	Puduvaikkal Anicut	Anaikkaraipatti	386.860	167.00	100		42.00	42.00	12000	Left side	1.50x1.50(3 Nos)	99.55	3	3800	3.00	0.60	1 in 500	3	
11	Valayar Anicut	Boothipuram	---	41.00	100		104.66	104.66	5900	Right side	1.80x1.20	99.55	50	2140	4.50	0.90	1 in 1000	15	
12	Theniyar Anicut	Theni-Allinagaram	27.640	29.50	100		52.00	52.00	4500	Right side	1.50x1.20	99..25	20	2700	4.00	0.60	1 in 1000	----	
13	Iluppamarathu Anicut	Sillamarathupatti	---	100.00	100		152.55	152.55	6500	Left side	1.50x1.20	99.4	25	2700	3.00	0.90	1 in 1000	2	
14	Ammakulam Anicut	Silamalai	----	96.00	100				3200	Left side	1.50x1.20	99.5	12	975	3.00	0.60	1 in 1000	-----	
15	Vairavagoundan kulam Anicut	Dombucheri	----		100		101.00	101.00	3100	Right side	---	99.55	10	427	3.00	0.60	1 in 1000	------	
16	Chennaiya goundankulam Anicut	Dombucheri	----	112.00	100		105.60	105.60	2900	Right side	0.90x0.90	99.5	10	1311	3.00	0.60	1 in 1000	-----	
17	Goundankulam Anicut	Dombucheri	----		100		103.50	103.50	4200	Right side	0.90x0.90	99.55	16	600	3.00	0.60	1 in 1000	-----	

18	Posigoundan kulam Anicut	Dombucheri	----	55.00	100		102.00	102.00	2800	Right side	0.60x0.60	99.4	8	1524	3.00	0.60	1 in 1000	-----	
19	Dombucheri Anicut	Dombucheri	----	121.00	100		104.50	104.50	4300	Right side	1.50x1.20	99.7	15	1600	3.00	0.60	1 in 1000	------	
20	Thimminayakkankulam Anicut	Pottipuram	----	23.00	100		107.66	107.66	5800	Right side	1.50x1.20	99.5	20	3500	3.00	0.60	1 in 1000	------	
21	Ernankulam Anicut	Pottipuram	----	91.50	100		87.00	87.00	2400	Left side	1.20x0.90 M(2 Nos) 0.60x0.45 (1 No)	99.6	10	150	3.00	0.60	1 in 1000	-----	
22	Thambirankulam anicut	Pottipuram	----	42.00	100		91.00	91.00	2600	Left side	1.20x0.60	99.6	12	2700	3.00	0.60	1 in 1000	-----	
												TOTAL		**48550 M**					

b) TANKS (Separate statement for System & 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)	Upper Tank	Lower Tank
													Nos	Length in m				
1	THENI	Bodi	Muthukombaiyan tank	9.770	0.0098	3	0.008	0.386	0.015	351.105	351.405	1	1	6.07	1.97	264	---	---
2		Bodi	Pudukulam	56.220	0.085	3	1.204	2.103	0.0739	373.565	374.165	1	1	27.60	7.534	965	---	Ammakulam
3		Bodi	Chinnaottukulam	10.060	0.0137	3	0.128	0.128	0.034	362.790	363.090	3	1	6.75	2.184	503	---	---
4		Bodi	Kalivuodaikulam	4.820	0.05769	2	0.803	4.313	0.0479	355.345	355.785	2	1	11.05	14.97	400		Ammakulam&Pudukulam
5		Bodi	Ammakulam	14.460	0.0244	2	0.839	3.510	0.0356	363.785	364.335	2	1	15.35	12.33	550	Pudukulam	---
6		Bodi	Bangarusamy naickankulam	155.290	22.777	3	0.779	0.779	0.5110	339.405	339.605	3	1	3.10	2.74	1970	---	---

7		Bodi	Marimoor tank	125.980	7.416	3	0.635	0.635	0.222	351.885	352.185	3	1	26.55	3.480	1260	---	---
8		Bodi	Kanakkankulam	36.260	0.246	2	1.437	1.953	0.257	316.125	316.525	1	1	41.60	17.48	1260	Sotharanai	Kannimarkulam
9		Theni	Kannimarkulam	18.060	0.0354	2	0.65	0.65	0.0327	314.250	314.525	1	1	8.00	4.35	650	Klanakkankulam	---
10		Bodi	Sirukulam	54.060	0.0354	3	0.556	1.556	0.327	322.320	322.620	5	1	9.00	5.314	1664	---	---
11		Bodi	Kuruvankulam	22.290	0.0064	3	0.744	0.744	0.0241	312.265	312.565	1	1	8.25	2.85	308	Sirukulam	---
12		Bodi	Periyakulam	102.680	17.586	3	1.200	1.200	0.678	328.295	328.595	1	1	15.05	17.48	2863	---	---
13		Bodi	Sotharanai tank	118.760	1.130	3	0.441	1.906	0.0270	324.365	324.665	1	2	9.70 & 1.80	6.617	678	---	Kanakkankulam
14		Bodi	Thasanchettikulam	22.550	0.0841	3	1.405	2.126	0.1395	336.500	336.950	2	1	15.30	7.698	915	Bangarusamynaickan tank	---
15		Bodi	Chettikulam	41.980	0.03543	1	2.30	2.30	0.3400	331.935	332.435	2	1	30.70	23.085	1230	Meenakshipuram tank	---
16		Bodi	Sankarappanaickankulam	241.620	16.576	3	0.646	0.703	0.4790	340.635	341.435	4	1	2.50	2.971	2440	Bangarusamynaickan tank	Meenakshipuram tank
17		Bodi	Meenakshipuram tank	183.640	28.756	3	24.740	25.44	0.8301	335.060	335.810	2	1	7.00	35.990	2142	Sankarappanaickan tank	Chettikulam tank
18		Bodi	Rajaboopalasamudram	70.440	0.5560	2	3.552	3.552	0.433	299.270	299.570	1	1	29.00	22.13	2050	---	---
19		Bodi	Ammakulam(silamalai)	8.630	0.1222	2	3.237	3.237	0.1360	346.780	347.280	1	1	20.20	13.180	908	---	---

20		Bodi	Vairavagoundankulam	15.930	0.1345	1	1.040	1.040	0.1250	344.780	345.280	1	1	10.00	3.950	1200	Chennaiyagoundankulam	---
21		Bodi	Chennaiyagoundankulam	9.320	0.2780	1	1.070	1.070	0.1190	335.900	336.200	2	1	11.65 3.15	4.70 & 0.730	1140	---	Posigoundankulam
22		Bodi	Goundankulam	13.860	0.315	1	1.035	1.035	0.130	332.900	333.200	2	1	9.00	3.75	900	Ammakulam	---
23		Bodi	Posigoundankulam	5.350	0.01279	2	1.228	1.228	0.0287	329.270	329.620	1	1	19.80	6.810	600	Chennaiyagoundankulam&Goundankulam	---
24		Bodi	Dombucheri	28.570	0.3120	3	4.951	4.951	0.3046	323.640	324.240	2	1	22.40	29.945	1505	---	---
25		Theni	Manthaikulam	14.310	0.118	2	2.840	2.840	0.126	303.255	303.855	1	1	15.20	10.02	490	---	---
26		Theni	Meerusamudram	51.310	0.183	2	5.3465	8.1865	0.1476	298.815	299.715	3	1	28.65	40.62	900	Manthaikulam	---
27		Theni	Thamaraikulam	45.140	0.038	3	5.250	5.250	0.050	286.290	286.690	2	1	29.45	12.13	654	---	---
28		Uthamapalayam	Thimminjayakkankulam	8.330	0.0254	3	1.197	1.197	0.0406	376.900	377.200	1	1	24.50	7.93	720	---	---
29		Uthamapalayam	Ernankulam	45.500	0.1930	3	0.441	0.441	0.1800	376.050	376.650	4	1	7.50	14.01	1493	---	---
30		Uthamapalayam	Thambirankulam	16.030	0.0254	3	0.836	0.8360	0.1190	368.200	369.100	1	1	9.15	14.91	861	Thimminjayakkankulam	---
		Total		**1551.22**														

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	Ayacut
		Location	Sill level	Location	Sill level							
1	Santhanasolai Anicut supply channel	Kottakudi	99.250	Kottakudi	95.500	1097	2.50	1 in 300	1:1	12	0.30	108.82
2	Akkaraipirivu Anicut supply channel	Mundhal	99.400	Mundhal	89.800	4800	4.00	1 in 500	1:1	15	0.60	126.60
3	Velankadu Anicut supply channel	Mundhal	99.400	Mundhal	95.250	2073	3.00	1 in 500	1:1	12	0.60	151.81
4	Ikkaraipirivu Anicut supply channel	Mundha	99.100	Bodi	98.00	1127	3.00	1 in 1000	1.50:1.00	15	0.60	99,70
5	Rajavaikkal Anicut supply channel	Bodi	99.100	Bodi	96.600	2511	4.00	1 in 1000	1.50:1.00	20	0.90	84.49
6	Samyvaikkal Anicut supply channel	Bodi	99.100	Bodi	97.200	1800	3.00	1 in 1000	1.50:1.00	12	0.60	12.34
7	Pudukulam Anicut supply channel	Bodi	99.100	Bodi	98.100	1000	3.00	1 in 500	1.50:1.00	9	0.60	21.64

8	MarimoorAnicut supply channel	Bodi	99.100	Bodi	94.500	4620	4.00	1 in 1000	1.50:1.00	15	0.60	31.42
9	Muthukombaiyan Anicut supply channel	Anaikkaraipatti	99.25	Anaikkaraipatti	98.000	595	3.00	1 in 500	1:1	9	0.60	8.71
10	Puduvaikkal Anicut supply channel	Anaikkaraipatti	99.100	Kodangipatti	95.300	3800	6.00	1 in 1000	1.50:1.00	20	0.90	386.86
11	Theniaryar Anicut supply channel	Theni-Allinagaram	99.25	Theni-Allinagaram	96.550	2700	3.00	1 in 1000	1:1	12	0.60	89.95
12	Panasalar supply channel	Theni-Allinagaram	--	Theni-Allinagaram	--	4800	3.00	1 in 1000	1:1	12	0.60	27.64
										Total		**1150.03**

1.4 PARTICIPATORY IRRIGATION MANAGEMENT (PIM)

1.4. Salient Features of Implementation of PIM in Theniar Sub-basin

1) **The Theniar Sub-Basin:** This is one of the ten sub-basins in Vaigai River Basin. Totally 30 irrigation tanks 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 is furnished in the **Annexure – 1**. **The total Command area under these 30 tanks works out to 1551.220 ha. (Annexure 1)**

2) **Command area:**

   i. Under Non-system tanks (30 tanks-Indirect Ayacut) 1551.220 Ha.

   ii. Under Anaicut supply channels(Direct Ayacut) 1150.030 Ha

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

i) Associations **already formed** under Pudukulam tank,Bangarusamynaickankulam tank,Marimoor tank,Periyakulamtank,Sotharanai tank,sankarappanaickankulam tank,Chettikulam tank,Meenakshipuram tanks.	8 Nos.-(1026.170 ha)
ii) Associations **proposed to be formed** under IAMWARM Project covering 22 tanks and 12 anaicut supply channels.	4 Nos- (1675.080 ha)
iii) The **total command area** covered by the above (8 + 4 = 12) WUAs works out to	2701.250 Ha.
v) More details about formation of WUAs in the sub-basin are made available in the Annexure – 1	

4) **An account of "Awareness creation" among the farming community:**

Activities undertaken and "Walkthrough Surveys" carried out:

i) There are 30 tanks in the sub-basin spread over 13 villages, 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.

ii) 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 and Annexure – 03:**

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 March – 09)**
   - ii) Form – II: WUA document to be notified by District Collectors **(End of April – 09)**
   - iii) Completion of preparatory works for the conduct of Elections for WUAs **(End of May – 09)**

6) **Schedule for Conduct of Elections** in the sub-basin for forming Management Committees **(End of July 2009)**

7) **Support Organisations (SOs):**

   i) Initiating and completing the **process of publishing EOI** to hire Support Organisation at sub-basin level **(End of Feb, 2009)**

   ii) Short listing and **providing Request for Proposals (RFPs)** to all the short listed agencies, and obtaining Technical and Cost Proposals **(Middle of April, 2009)**

   iii) **Selection and deployment of Support Organisation** to the sub-basin **(End of May, 2009)**

8) **Appointment and the Role of Competent Authorities:**

   i) Section 26 of the Tamil Nadu Farmers' Management of Irrigation Systems (TNFMIS) Act provides for the appointment of "Competent Authorities" to assist the respective farmers organizations (WUA, Distributory Committee and Project Committee), in the **implementation and execution of all decisions** taken by such farmers organization. Similarly, every farmer's organization shall extend such co-operation or assistance, as may be required by the Competent Authority, for carrying out all the tasks related to implementation of TNFMIS Act.

ii) The **WUAs already formed, is functioning under the following Competent Authorities** as listed below:

Sl.	Details of	Details of Competent Authorities

No.	WUAs in code	
(Theni District - Manjalar Basin Sub-Division,Theni.		
1.	1-8	Assistant Engineer, WRD, Irrigation Section, Bodi.

iii) It is proposed to form 4 **WUAs only** under IAMWARM Project to cover a command area of 1675.080 **ha.**

v**) 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 Divisional Officers working in the Theniar Sub- basin:

a. Er.U.,Chidamparam,B.E._ WUAs 1 to 4

List of Competent Authorities:

a. Assistant Engineer, WRO, Irrigation Section, Andipatti.	WUAs-TSB 1,2&4
b. Section Officer, WRO Irrigation Section, Theni..	WUAs-TSB 3

9) 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 as given in annexure. The final list of tasks will be prepared and exhibited in the Notice Board of the Village Administrative Officers Office and Panchayat Office. These details were also discussed with the farmers.

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 of the Villages concerned 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 are all aware of the **problems in handing over the operation and maintenance responsibilities** to the farmers concerned, if the tasks as desired by the farmers in the command area are not included in the modernization of the system and also in case, some of the tasks already included and planned are not implemented due to some reasons or other.

iv) The **WRO officers** were also informed that they are **personally responsible** for handing over the irrigation systems after completing the tasks related to modernization of Irrigation systems, under IAMWARM Project.

10. **Current status of Recovery of water charges:**

i) An enquiry conducted with the "Village Administrative Officers" (VAOs) of randomly selected villages (13 numbers of villages) located with in the sub-basin the normal water charges recovery as informed by the VAO, works out to 50-60% only, against the expected percentage of 80-90%.

ii) With the proposal to form new WUAs under IAMWARM in "Theniar 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.

10) "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" programmes 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.

11) 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

Annexure 1. An Assessment of Command Area and WUAs under the control of WRO of PWD in "THENIAR Sub-basin".

Sl. No.	Name of Irrigation Systems and Tanks	Command area in (ha)	Location of the Command Area			Coverage of Command Area under different projects (ha)		Status of Formation of WUAs in the sub-basin	
			Village	Taluk	District	WRCP and Others	IAMWARM	Formed under WRCP (Code)	To be formed under IAMWARM (Code)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	1.Pudukulam tank WUA **2.Bangarusamynaickankulam tank WUA** **3.Marimoor tank WUA** **4.Periyakulam tank WUA** **5.Sotharanai tank WUA** **6.Chettikulam tank WUA** **7.Sankarappanaickankulam tank WUA** **8.Meeankshipuram tank WUA**	1026.170	Bodi Kodangipatti Kodangipatti B.Meenakshipuram Melachokkanathapuram	Bodi	Theni	1026.170		WUA-1-8	----------
I	**Santhanasolai anaicut supply channel,** **Akkaraipirivu anaicut supply channel,** **Velankadu anaicut supply**		Kottakudi, Mundhal, Bodi	Bodi	Theni	------		- - - -	TSB-I

	channel, Ikkaraipirivu anaicut supply channel, Rajavaikkal anaicut supply channel, Samyvaikkal anaicut supply channel, Pudukulam anaicut supply channel, Marimoor anaicut supply channel, Muthukombaiyan anaicut supply channel, Muthukombaiyan tank, Chinnaottukulam tank, Kalivuodaikulam tank, Ammakulam tank(Bodi)	684.690	Anaikkaraipatti				684.690		
II	**Puduvaikkal anaicut supply channel, Kanakkankulam tank, Sirukulam tank, Kuruvankulam tank, Thasanchettikulam tank.**	522.020	Anaikkaraipatti, Kodangipatti, B.Meenakshipuram	Bodi	Theni	- - - -	522.020	- - - -	TSB-2
III	**Kannimarkulam tank, Theniar anaicut supply channel, Panasalar supply channel, Manthai kulam tank,**	316.850	Veerapandi, Theni-Allinagaram, Boothipuram.	Theni,	Theni	-----	316.850	- - - -	TSB-3

	Meerusamudram tank, Thamaraikulam tank, Rajaboopalasamudram tank.			Bodi.					
IV	**Ammakulam tank(Silamalai), Vairavagoundankulam tank, Chennaiyagoundankulam tank, Goundankulam tank, Posigoundankulam tank, Dombucheri tank, Thimminayakkankulam tank, Ernankulam tank, Thambirankulam tank.**	151.520.	Silamalai, Sillamarathupatti, Dombucheri, Pottipuram.	Bodi, & Uthamapalayam.	Theni.	-----	151.520		TSB-4
	Total					**1026.170**	**1675.080**		

ABSTRACT

1. Command Area Proposed to be covered under IAMWARM project: 1675.080 Ha.
2. Total Command area controlled by WRO of PWD in the sub basin: 1026.170 Ha.
3. Total No.of WUAs already formed. 8Nos.
4. Total No.of WUAs proposed to be formed under IAMWARM. 4Nos.
5. Total No.of WUAs that will cover the entire sub-basin. 12Nos.

Annexure-2

Details of "Awarness Creation Activities and Walk Through Surveys"

Name of the Sub Basin:Theniar

SI.NO	Date of Visit	Names of the Villages Visited	Awareness Programme(No.of Farmers attended) (Prepare the list of farmers with ackonolwdgement seperately and attach)	Walk Through Survey(No.of Farmers Participated) (Prepare the list of farmers with ackonolwdgement seperately and attach)	Remarks
1	2	3	4	5	6
1	04.11.2008	Kottakudi,Mundhal& Bodi	70	70Nos	
2	13.11.2008	Silamalai,Sillamarathupatti& Thimminayaakkanpatti.	50	50Nos	
3	20.01.2009	Bodi&Anaikkaraipatti.	20	20Nos	
4	19.02.2009	Dombucheri&Sillamarathupatti	15	15Nos	
5	20.02.2009	Meenakshipuram,Melachokka nathapuram&Anaikkaraipatti	20	20Nos	
6	27.02.2009	Kodangipatti&Veerapandi	50	50Nos	
7	28.02.2009	Boothipuram&Theni-Allinagaram	20	20Nos	

Annexure-3

Details of Modernisation works as suggested by the Farmers and as finalised by the Officials of WRO

Name of the Sub Basin:Theniar

S.No	Date of Visit	Names of the Villages Visited	Outcome of wald through survey and discussions with farmers	
			Works suggested by Farmers	Works finalized by WRO Officials
1	2	3	4	5
1	04.11.2008	Santhanasolai anicut	Repairs to anicut, aprons etc. are proposed. Lining the Santhanasolai anicut supply channel, construction of drops, 3 nos. of Super passages, silt traps and replacement of SG shutters.	D/S apron with cut off wall , retaining wall , construction of super passage and shutter replacement.
2	04.11.2008	Akkaraiprivu anicut	To clear the anicut sand vent, providing apron, providing SG shutter, Repairing the Sembukuthu odai supply channel, providing supply channel for Karuthuvan odai channel, Karuthuvan voikkal, Construction of sluice with SG shutter in Muttai kose odai Voothu voikkal, resectioning the supply channel, Lining the Puduparavuvoikkal, providing the cover slabs.	D/S apron with cut off wall and retaining wall and SG shutter replacement.
3	04.11.2008	Velankadu anicut	Repairing the bodywall of anicut, Providing apron, replacement of shutter and reconstruction of head sluice.	Necessary provision for D/S apron with cut off wall and retaining wall is made in this Project.

4	04.11.2008	Ikkaraiprivu anicut	Replacement of shutters, widening the canal on rock area, repairs to head wall, resectioning of supply channel and repairing the outlet	) Provision for resectioning the channel is made in this proposal.
5	04.11.2008	Rajavaikkal anicut	Strengthening the anicut, resectioning the Rajavaikkal, clearing the sand vent,	Provisions for Skin Wall in U/S of anicut, D/S apron with cut off wall, resectioning the channel are made in this project.
6	04.11.2008	Bangarusamy kulam	Resectioninig of Rajavaikkal anicut supply channel	Provision for resectioning the channel is made in this project.
7	13.11.2008	Ammakulam	Provision for resectioning the supply channel, widening the odai, repairing the SG shutters in sand vent, rehabilitation of the tank will be made in the estimate.	Provisions for resectioning the channel and replacement of shutter with new one are made in the estimate
8	13.11.2008	Goundankulam anicut&Goundankulam tank	Construction of new sand vent, RCC skinwall in U/S of anicut, wing wall, resectioning the supply channel. Contruction of weir in the tank, resectioning the supply channel.	Provisiions for reconstruction of anicut sluice and standardization of tank bund are made in this proposal
9	13.11.2008	Thambirankulam anicut&Thambirankulam tank	Standardisation of tank bund.	Provision for standardisation of tank bund is made in this project.
10	13.11.2008	Thimmi- naicken kulam	Rehabilitation of tank, resectioning of supply channel, construction of retaining wall, providing revetment.	Provisions for retaining wall and D/S apron with cut off wall are made in this estimate.

11	13.11.2008	Ernankulam anicut&Ernankulam tank	Repairs to sand vent, resectioning the surplus course and for tank reconstruction of 2 sluices, rehabilitation of tank.	These components require no improvement work and only provision for standardisation of tank bund is made in this project
12	20.01.2009	Pudukulam anicut	Reconstruction of Body wall of the Anicut. Provision of skinwall Provision of S.G. shutter Resectioning of supply channel Construction of D/s apron Repairing to two shutters of supply channel	Provision for retaining wall, D/S apron, resectioning supply channel are made.
13	20.01.2009	Pudukulam tank&Kalivuodaikuloam	Resectioning of supply channel. Farmers requested to evict the encroachement.	Necessary provision for resectioning supply channel are made. Action will be taken to evict the encroachement.
14	20.01.2009	Marimoor anicut	Reconstruction of Body wall which was fully damaged.Construction of D/s apron and energy dissipation blocks.Reconstruction of head sluice of sand vent and supply channel left side wing wall.Construction of retaining wall to arrest the unauthorized drawal of water from supply channel.Lining the earthern supply channel to avoid seepage in the bed and save water	Necessary provisions for reconstruction of body wall,retaining wall, D/S apron are made.
15	20.11.2008	Marimoor Tank	Repair to drop .I in the surplus course.Apron for Drop I & II in the surplus course&resectionong of supply channel.	Provision for resectioning the channel is made. The other proposals will be considered later.
16	20.01.2009	Ammakulam Tank and anicut	Desilting of tanks, resectioning of supply channels &reconstruction of sluices 1&2. The Farmers stressed the need upon removing the encroachment and weeds, vegetables in the water bodies. Resection of supply channel tandardisation of bund. Reconstruction of sluice 2 Nos.Reconstruction of weir	Provision for standardization of tank bund& reconstruction of sluices 1&2 are made in this project proposal.

17	20.01.2009	Chinna ottu kulam	Standardisation of bund.Reconstruction of 3 sluices.Provision of 3 S.G. shutters to the sluices	Provision for standardization of tank bund &reconstruction of 3 sluices are made.
18	20.01.2009	Puduvaikkal anicut	Repairs to D/s retaining wall Provision of sand vent apron. Skinwall in front of anicut body wall. Resectioning of the supply channel. Construction of retaining wall in the both side of supply channel (near railway track bridge) Provision of SG shutter for Mudalakka voikkal Anicut. Provision of SG shutters for Arasat Voikkal anicut. Construction of retaining wall in LHS of the supply channel (near Kannimar Kovil) Vannanthurai madam retaining wall repair work. Construction of retaining wall for a length of 25m in LHS and RHS of supply channel near Pottakulam. Construction of retaining wall for a length of 25m.	Provisions for retaining wall,D/S apron with cut off wall, Skin wall , resectioning supply channel and replacement shutters are made in this project proposal.
19	20.01.2009	Sami vaikkal	Samivaikkal bridge. Sorivaikkal bridge repair work. Construction of retaining wall in the LHS of U/s and D/s of the bridge for a length of 100m. Construction of retaining wall in the RHS of D/s of bridge for a length of 30m. Provision of SG shutter for Moonumadai. Construction of Retaining wall on the both sides of Ettappan Kannar. Construction of retaining wall and resectioning of Puliodai Kannar. Syphon for 5 saikannar for conveying water.	For resectioning the channel necessary provision is made to ensure free flow of water.
20	19.02.2009	Dombucheri tank	Standardisation of tank bund.Reconstruction of sluice.	Provision for standardization of tank bund&reconstruction is made.

21	19.02.2009	Chennayagoundankulam tank	Standardisation of tank bund&Resectioning of supply channel.	These components require no improvement work and hence no provision is made.
22	19.02.2009	Posigoundankulam tank	Resectioning of supply channel.	These components require no improvement work and hence no provision is made.
23	19.02.2009	Vairavagoundankulam tank	Resectioning of supply channel.	These components require no improvement work and hence no provision is made.
24	20.02.2009	Meenakshipuram tank	Resectioning of Rajavaikkal anicut supply channel.	Provision for resectioning of supply channel is made in this project proposal.
25	20.02.2009	Chettikulam tank	Resectioning of Rajavaikkal anicut supply channel.	Provision for resectioning of supply channel is made in this project proposal.
26	20.02.2009	ThasanChettikulam tank	Standardisation of tank bund.	Provision for standardization of tank bund is made.
27	20.02.2009	Sankarappanayakkankulam tank	Resectioning of Rajavaikkal anicut supply channel.	Provision for resectioning of supply channel is made in this project proposal.
28	20.02.2009	Muthukombaiyan kulam tank.	Standardisation of tank bund.	Provision for standardization of tank bund is made.
29	27.02.2009	Kannimarkulam tank	Standardisation of tank bund.	Provision for standardization of tank bund is made.

30	27.02.2009	Kanakkankulam tank	Resectioning of Puduvaikkal anicut supply channel.	Provision for resectioning of Puduvaikkal supply channel is made in this project proposal.
31	27.02.2009	Sirukulam	Resectioning of Puduvaikkal anicut supply channel.	Provision for resectioning of Puduvaikkal supply channel is made in this project proposal.
32	27.02.2009	Periyakulam tank	Resectioning of Puduvaikkal anicut supply channel.	Provision for resectioning of Puduvaikkal supply channel is made in this project proposal.
33	27.02.2009	Sotharanaikulam	Resectioning of Puduvaikkal anicut supply channel.	Provision for resectioning of Puduvaikkal supply channel is made in this project proposal.
34	28.02.2009	Rajaboopalasamudram	Provision of causeway across Valayar on U/S of Valayar anicut and retainin wall.	Provision for retaining wall and causeway across Valayar is made in this project proposal.
35	28.02.2009	Thamaraikulam,Meerusamudram,Manthaiikulam	Farmers requested to evict encroachment in the tanks.	Necessary action will be initiated to evict encroachment in the tank area.

1.5. IRRIGATION INFRASTRUCTURE

THENIAR SUB BASIN

INFRASTRUCTURE

LIST OF NON SYSTEM TANKS

Sl. No.	Name of Tank	Location					Capacity	Remarks
		Village	Block	Taluk	District	Ayacut		
1	Muthukombaiyan tank	Anaikkaraipatti	Bodinayakkanur	Bodinayakkanur		9.770	0.0098	
2	Pudukulam	Bodinayakkanur	Bodinayakkanur	Bodinayakkanur		56.220	0.085	
3	Chinnaottukulam	Bodinayakkanur	Bodinayakkanur	Bodinayakkanur		10.060	0.0137	
4	Kalivuodaikulam	Bodinayakkanur	Bodinayakkanur	Bodinayakkanur		4.820	0.05769	
5	Ammakulam	Bodinayakkanur	Bodinayakkanur	Bodinayakkanur		14.460	0.0244	
6	Bangarusamynaickankulam	Bodinayakkanur	Bodinayakkanur	Bodinayakkanur		155.290	22.777	
7	Marimoor tank	Bodinayakkanur	Bodinayakkanur	Bodinayakkanur		125.980	7.416	
8	Kanakkankulam	Kodangipatti	Bodinayakkanur	Bodinayakkanur	THENI	36.260	0.246	
9	Kannimarkulam	Veerapandi	Theni	Theni		18.060	0.0354	
10	Sirukulam	Kodangipatti	Bodinayakkanur	Bodinayakkanur		54.060	0.0354	
11	Kuruvankulam	Kodangipatti	Bodinayakkanur	Bodinayakkanur		22.290	0.0064	
12	Periyakulam	Kodangipatti	Bodinayakkanur	Bodinayakkanur		102.680	17.586	
13	Sotharanai tank	Kodangipatti	Bodinayakkanur	Bodinayakkanur		118.760	1.130	
14	Thasanchettikulam	B.Meenakshipuarm	Bodinayakkanur	Bodinayakkanur		22.550	0.0841	
15	Chettikulam	B.Meenakshipuarm	Bodinayakkanur	Bodinayakkanur		41.980	0.03543	
16	Sankarappanaickankulam	Melachokkanatha puram	Bodinayakkanur	Bodinayakkanur		241.620	16.576	
17	Meenakshipuram tank	B.Meenakshipuarm	Bodinayakkanur	Bodinayakkanur		183.640	28.756	
18	Rajaboopalasamudram	Boothipuram	Bodinayakkanur	Bodinayakkanur	THENI	70.440	0.5560	
19	Ammakulam(silamalai)	Silamalai	Bodinayakkanur	Bodinayakkanur		14.310	0.1222	
20	Vairavagoundankulam	Sillamarathupatti	Bodinayakkanur	Bodinayakkanur		51.310	0.1345	
21	Chennaiyagoundankulam	Dombucheri	Bodinayakkanur	Bodinayakkanur		45.140	0.2780	
22	Goundankulam	Sillamarathupatti	Bodinayakkanur	Bodinayakkanur			0.315	
23	Posigoundankulam	Dombucheri	Bodinayakkanur	Bodinayakkanur			0.01279	
24	Dombucheri	Dombucheri	Bodinayakkanur	Bodinayakkanur			0.3120	
25	Manthaikulam	Theni-Allinagaram	Theni	Theni			0.118	
26	Meerusamudram	Theni-Allinagaram	Theni	Theni			0.183	
27	Thamaraikulam	Theni-Allinagaram	Theni	Theni			0.038	
28	Thimminjayakkankulam	Pottipuram	Chinnamanur	Uthamapalayam			0.0254	
29	Ernankulam	Pottipuram	Chinnamanur	Uthamapalayam			0.1930	
30	Thambirankulam	Pottipuram	Chinnamanur	Uthamapalayam			0.0254	
					Total Ayacut	1551.220		

LIST OF ANICUTS WITH DETAILS

Sl. No.	Name of Anicut	Location				Direct Ayacut	Capacity	Remarks
		Village	Block	Taluk	DISTRICT			
1	Santhanasolai Anicut	Kottakudi	Bodinayakkanur	Bodinayakkanur	THENI	108.820	----	
2	Akkaraipirivu Anicut	Mundhal	Bodinayakkanur	Bodinayakkanur		126.600	----	
3	Velankadu Anicut	Mundhal	Bodinayakkanur	Bodinayakkanur		151.860	----	
4	Ikkaraipirivu Anicut	Mundhal	Bodinayakkanur	Bodinayakkanur		99.700	----	
5	Rajavaikkal Anicut	Bodinayakkanur	Bodinayakkanur	Bodinayakkanur		84.490		
6	Samyvaikkal Anicut	Bodinayakkanur	Bodinayakkanur	Bodinayakkanur		12.340		
7	Pudukulam Anicut	Bodinayakkanur	Bodinayakkanur	Bodinayakkanur		21.640		
8	MarimoorAnicut	Bodinayakkanur	Bodinayakkanur	Bodinayakkanur		31.420		
9	Muthukombaiyan Anicut	Anaikkaraipatti	Bodinayakkanur	Bodinayakkanur		8.710		
10	Puduvaikkal Anicut	Anaikkaraipatti	Bodinayakkanur	Bodinayakkanur		386.860		
11	Valayar Anicut	Boothipuram	Bodinayakkanur	Bodinayakkanur		----		
12	Theniyar Anicut	Theni-Allinagaram	Theni	Theni		89.950		
13	Iluppamarathu Anicut	Sillamarathupatti	Bodinayakkanur	Bodinayakkanur		---		
14	Ammakulam Anicut	Silamalai	Bodinayakkanur	Bodinayakkanur		----		
15	Vairavagoundankulam Anicut	Dombucheri	Bodinayakkanur	Bodinayakkanur		----		
16	Chennaiyagoundankulam A19nicut	Dombucheri	Bodinayakkanur	Bodinayakkanur		---		
17	Goundankulam Anicut	Dombucheri	Bodinayakkanur	Bodinayakkanur		----		
18	Posigoundankulam Anicut	Dombucheri	Bodinayakkanur	Bodinayakkanur		----		
19	Dombucheri Anicut	Dombucheri	Bodinayakkanur	Bodinayakkanur		----		
20	Thimminayakkankulam Anicut	Pottipuram	Chinnamanur	Uthamapalayam		----		
21	Ernankulam Anicut	Pottipuram	Chinnamanur	Uthamapalayam		----		
22	Thambirankulam Anicut	Pottipuram	Chinnamanur	Uthamapalayam		----		

LIST OF SUPPLY CHANNELS WITH DETAILS

Sl. No.	Name of Anicut	Location					Capacity	Remarks
		Village	Block	Taluk	DISTRICT	Direct Ayacut		
1	Santhanasolai Anicut supply channel	Kottakudi	Bodinayakkanur	Bodinayakkanur	THENI	108.820	----	
2	Akkaraipirivu Anicut supply channel	Mundhal	Bodinayakkanur	Bodinayakkanur		126.600	----	
3	Velankadu Anicut supply channel	Mundhal	Bodinayakkanur	Bodinayakkanur		151.860	----	
4	Ikkaraipirivu Anicut supply channel	Mundhal	Bodinayakkanur	Bodinayakkanur		99.700	----	
5	Rajavaikkal Anicut supply channel	Bodinayakkanur	Bodinayakkanur	Bodinayakkanur		84.490	----	
6	Samyvaikkal Anicut supply channel	Bodinayakkanur	Bodinayakkanur	Bodinayakkanur		12.340	----	
7	Pudukulam Anicut supply channel	Bodinayakkanur	Bodinayakkanur	Bodinayakkanur		21.640	----	
8	MarimoorAnicut supply channel	Bodinayakkanur	Bodinayakkanur	Bodinayakkanur		31.420	----	
9	Muthukombaiyan Anicut supply channel	Anaikkaraipatti	Bodinayakkanur	Bodinayakkanur		8.710	----	
10	Puduvaikkal Anicut supply channel	Anaikkaraipatti	Bodinayakkanur	Bodinayakkanur		386.860	----	
11	Valayar Anicut supply channel	Boothipuram	Bodinayakkanur	Bodinayakkanur		----	----	
12	Theniyar Anicut supply channel	Theni-Allinagaram	Theni	Theni		89.950	----	
13	Panasalar supply channel(No anicut)	Theni-Allinagaram	Theni			27.640	----	
14	Iluppamarathu Anicut supply channel	Sillamarathupatti	Bodinayakkanur	Bodinayakkanur		----	----	
15	Ammakulam Anicut supply channel	Silamalai	Bodinayakkanur	Bodinayakkanur		----	----	

16	Vairavagoundankulam Anicut supply channel	Dombucheri	Bodinayakkanur	Bodinayakkanur		----	----	
17	Chennaiyagoundankulam Anicut supply channel	Dombucheri	Bodinayakkanur	Bodinayakkanur		----	----	
18	Goundankulam Anicut supply channel	Dombucheri	Bodinayakkanur	Bodinayakkanur		----	----	
19	Posigoundankulam Anicut supply channel	Dombucheri	Bodinayakkanur	Bodinayakkanur		----	----	
20	Dombucheri Anicut supply channel	Dombucheri	Bodinayakkanur	Bodinayakkanur		----	----	
21	Thimminayakkankulam Anicut supply channel	Pottipuram	Chinnamanur	Uthamapalayam		----	----	
22	Ernankulam Anicut supply channel	Pottipuram	Chinnamanur	Uthamapalayam		----	----	
23	Thambirankulam Anicut supply channel	Pottipuram	Chinnamanur	Uthamapalayam		----	----	
					Total	**1150.030**		

AYACUT DETAILS:
Direct Ayacut-1150.030 Ha

Total-2701.250 Ha

Indirect Ayacut-1551.220 Ha

ABSTRACT ON THE DETAILS OF IRRIGATION INFRASTRUCTURE AVAILABLE AND WORKS TAKEN UP UNDER IAMWARM PROJECT

Name of Sub Basin: Theniar

Sl.No.	DETAILS	ANICUT			SYSTEM TANK			NON SYSTEM			ANY OTHER SUPPLY CHANNEL			Remarks
		Nos	Supply channel in KM	Direct Ayacut	Nos.	Supply channel in KM	Ayacut	Nos.	Supply channel in KM	Ayacut in Ha.	Length	Ayacut	Direct Ayacut	
1	Available Infrastructure in sub Basin	22	48.55	1150.03	---	---	---	30	---	1551.22	---	---	---	
2	Infrastructure excluded in IAMWARM Project since works carried our under various schemes from 2000	---	---	---	---	---	---	9	---	1004.73	---	---	---	
3	Infrastructures that does not require any rehabilitation works	11	31.13	30.23	---	---	---	10	---	229.01	---	---	---	
4	Works taken up in IAMWARM Project	11	17.42	1119.80	---	---	---	11	---	317.48	---	---	---	

Certified that the Panchayat union tanks are not considered in this Project.

Certified that the tanks executed under various schemes (viz.WRCP -I, NABARD, PART II SCHEMES etc.) since 2000 were not proposed in ths project.

1.6. REHABILITATION OF IRRIGATION INFRASTRUCTURE

A. REHABILITATION OF IRRIGATION INFRASTRUCTURE OF THE SUB-BASIN

STRUCTURAL STATUS & DEFICIENCIES IN THE SYSTEM

The following are the present structural condition of the Theniyar sub basin system.

1. The irrigation system in the sub basin is very old and is in bad repairs.
2. Infrastructures like anaicuts, supply channel etc.for irrigating the irrigable lands need rehabilitation.
3. Lack of adequate shutter arrangements.
4. The tank bunds are below standard.

Salient features of the works to be carried out.

TANKS:

11 Nos. of tanks are proposed to be standardized to the original standards including turfing on the rear slope of the tank bund.

SUPPLY CHANNELS:

8 Nos. of supply channels are proposed to be resectioned with construction of bed bars in the supply channels.

ANICUTS

It is proposed to rehabilitate 11 Nos. of anaicuts.

1. In the case of Santhanasolai anicut, it is proposed to construct D/S apron with cut off wall. Apart from this, retaining wall is also is proposed in the supply channel.
2. In Akkaraipirivu anaicut , D/S apron with cut off wall is proposed. Construction of retaining wall is also proposed.
3. In Velankadu anaicut, D/S apron with cut off wall is proposed. Construction of retaining wall is also proposed.

4. In Rajavaikkal anaicut, Skin wall is proposed U/S of the anicut and D/S apron with cut off wall is proposed. Further a retaining wall near the head sluice is also proposed.
5. In Pudukulam anaicut, Skin wall and U/S and D/S apron with cut off wall is proposed.
6. In Marimoor anaicut, Reconstruction of body wall,D/S apron with cut off wall is proposed.
7. In Puduvaikkal anaicut, U/S skin wall and retainging wall are proposed..
8. In Goundankulam anaicut provision for U/S and D/S apron with cut off wall is proposed.
9. Thimminaickenkulam anicut, , D/S apron with cut off wall is proposed.
10. In valayar anicut, apron with cut off wall and retaining wall are proposed.
11. In Ikkaraiprivu anicut retaining wall and replacement of shutter are proposed.

PROPOSALS FOR IMPROVING THE CONVEYANCE AND OPERATIONAL EFFIENCY IN IRRIGATION SYSTEM.

1. Rehabilitation of dilapidated anaicuts.
2. Resectioning the supply channel.
3. Standardization of tank bunds
4. Providing S.G. Shutter/plug arrangements to sluices, Head sluices Scour vents etc.
5. Reconstruction of sluices
6. Equitable distribution of irrigation water by better water management.
7. Introducing micro irrigation like drip, sprinkler irrigation.
8. Conjunctive use of surface and ground water wherever possible.

9. Introducing modern techniques in crop cultivation by giving awareness among farmers.

1.6.3 Expected Outcome of the Project

1.Increase in conveyance efficiency from 53% To 60%

2.Except buildig area 10.88 ha. and gap area of 258.31ha. are bridged as a fully irrigated area

Proposals in each Infrastructure

The following irrigation infrastructure development works are proposed in the sub basin

1.Standardisation of tank bunds including turfing the rear slope of the bund. Six sluices need reconstruction to provide efficient water management.

2.Rehabilitation works for 11 anicuts

Santhana Solai Anicut: D/S apron with cut off wall and retaining wall.
Ikkaraiprivu anicut - Construction of retaining wall and providing shutters.
Akkaraipirivu Anicut - D/S apron with cut off wall and retaining wall.
Velankadu Anicut - D/S apron with cut off wall and retaining wall.

Rajavaikkal Anicut – Skin wall and D/S apron with cut off wall and wearing coat, and shutters
Pudukulam Anicut – Skin wall and D/S apron with cut off wall and wearing coat.
MarimoorAnicut – Reconstruction of anicut
Puduvaikkal Anicut -,Skin wall
Goundankulam Anicut – Apron with cut off wall and retaining wall are proposed.
Thimminaicken anicut - D/S apron with cut off wall and wearing coat.
Valayar anicut – Aprong with cut off wall and Retaining wall are proposed.

3. Resectioning supply channels.

Ikkaraipirivu Anicut supply channel - Resectioning of supply channel,Provision of bed bars,Replacement of sluice shutters
Rajavaikkal Anicut supply channel - Resectioning of supply channel,Provision of bed bars,Replacement of sluice shutters

Samyvaikkal Anicut supply channel - Resectioning of supply channel,Provision of bed bars,Replacement of sluice shutters

Pudukulam Anicut supply channel - Resectioning of supply channel,Provision of bed bars,Replacement of sluice shutters

MarimoorAnicut supply channel - Resectioning of supply channel,Provision of bed bars,Replacement of sluice shutters

Puduvaikkal Anicut supply channel - Resectioning of supply channel,Provision of bed bars,Replacement of sluice shutters**.**

Ammakulam Anicut supply channel - Resectioning of supply channel,Provision of bed bars.

Dombucheri Anicut supply channel - Resectioning of supply channel, Provision of bed bars.

ABSTRACT ESTIMATE

Sl. No.	Description	Amount (Rs. in Lakhs.)
1.	Water Resources Organization	663.00
2.	Environmental Component	5.00
3.	Ground Water Component	Nil
	Total	**668.00**

PROJECTION OF THIS PROJECT

By implementing this ambitious programme Irrigated Agriculture Modernization and Water Bodies Restoration and Management Project - the challenge faced by the State in farm sector in bridging the gap in cultivation can be overcome which will ultimately result in boosting production and productivity in food crops. This can be achieved by reducing the demand through effective and optimum water management and adoption of techniques such as Micro Irrigation etc., and thereby the socio-economic status of farming community would be uplifted.

Name of Sub Basin: THENIYAR Sub Basin Package No,.1

Sl.No.	Name of Anicut	Anicuts						River Training works				Supply channel		SG shutters		Total Amount in lakhs
		Repair			Reconstruction			Earth work		Retaining wall						
		Total No. of Weirs	No, of weirs proposed for repair	Amount in lakhs	Total No. anicut	No. of anicut to be reconstructed	Amount in lakhs	Qty in M3	Amont in laks	Length proposed	Amount	Length to be desilted in M	Amount in lakhs	Nos	Amount in lakhs	
1	Santhana solai Anicut	1	1	1.04	---			---		34.00	14.86			----	----	15.90
2	Ikkaraiprivu anicut									15.00	1.24	1127.00	1.47	2	2.00	4.71
3	Akkaraiprivu anicut	1	1	0.73						170.00	20.49			----	----	21.22
4	Velankadu anicut	1	1	0.81						168.00	15.27			----	----	16.08
5	Pudukulam anicut	1	1	8.90				14610	4.03	140.00	31.43	1000.00	0.95	----	----	45.31
6	Thimminayakkan kulam anicut	1	1	1.39				17300	4.78	40.00	16.59			----	----	22.76
7	Puduvaikkal anicut	1	1	35.78				41500	11.45	130.00	28.57	4100.00	6.50	1	0.50	82.80
8	Rajavaikkal anicut	1	1	119.40				36200	10.00	180.00	23.66	2511.00	4.49	1	0.51	158.06
9	Marimoor anicut				1	1	45.12	23000	6.36	130.00	28.67	4620.00	8.20	----	----	88.35
10	Goundankulam anicut	1	1	8.39	3	3	8.66	17000	4.70	108.00	16.80			----	----	29.89
11	Valayar Anicut	1	1	6.26				18000	4.98	140.00	25.55			----	----	36.79
12	Samyvaikkal anicut supply channel											1800.00	1.79			1.79
13	Pudukulam anicut supply channel															0.00

14	Ammakulam supply channel											975.00	0.86	1.00	0.51	1.37
15	Dombucheri supply channel											1600.00	1.62			1.62
16	Goundankulam supply channel															0.59
17	Thimminayakkan kulam t													1	0.50	0.50
18	Thambirankulam anicut													1	0.50	0.50
													TOTAL			**528.24**

STATEMENT OF INFRASTRUCTURES IN THENIYAR SUB BASIN

Name of Sub Basin: THENIYAR Sub Basin

Sl.No.	Name of Tank	Tank Bund			Sluices			Shutters		Weir		Supply channel		Measuring devices		Total Amount in lakhs
		Total length inM	Proposed Length	Amount in lakhs	Total No. sluices	No. of sluices to be reconstructed	Amount in lakhs	No.	Amont in laks	No. to be reconstructed	Amount	Length to be desilted	Amount in lakhs	No.	Amount in lakhs	
1	Dombucheri Tank	1505	1505	13.63	2	1	5.06	1.00	0.50	----	----	----	----	4	0.60	19.79
2	Eranan kulam	1493	1493	13.12						----	----	----	----	4	0.60	13.72
3	Thasan chetty kulam	915	915	8.30						----	----	----	----	3	0.45	8.75
4	Thimminayakkankulam	720	720	6.36						----	----	----	----	3	0.45	6.81
5	Ammakjulam(silamalai)	908	908	7.93	2	2	7.44	2.00	1.02	----	----	----	----	4	0.60	16.99
6	Thambirankulam	861	861	7.55						----	----	----	----	3	0.45	8.00
7	Ammakulam(Bodi)	550	550	4.47						----	----	----	----	3	0.45	4.92
8	Kannimar kulam	650	650	3.57						----	----	----	----	2	0.30	3.87
9	Goundankulam,	900	900	7.76						----	----	----	----	2	0.30	8.06
10	Chinnaottukulam	503	503	3.79	3	3	8.66	3.00	1.50	----	----	----	----	9	1.35	15.30
11	Muthukombaiyankulam	264	264	1.97						----	----	----	----	3	0.45	2.42
														TOTAL		108.66

B. WRO COST TABLE –(Theniyar)

COST TABLE				
Sl. No.	**Description of work**	**Quantity**	**Amount in Lakhs**	Remarks
I	**TANK-COMPONENT**			
	Standardizations of Tank bund (11 Nos.)	9269M	78.47	
	Sluice - Reconstruction,&Shutter replacement	6 Nos.	24.19	
	Measuring devices -40Nos. trapezoidal notches		6.00	
	Sub total		108.66	
II	**Non Tank Component**			
1	Santhana Solai Anicut:	1 No.	15.90	
2	Ikkaraiprivu anicut -	1 No.	3.24	
3	Akkaraipirivu Anicut -	1 No.	21.22	
4	Velankadu Anicut -	1 No.	16.08	
5	Rajavaikkal Anicut -	1 No.	153.06	
6	Pudukulam Anicut -	1 No.	44.56	
7	MarimoorAnicut -	1 No.	80.41	
8	Puduvaikkal Anicut -	1 No.	75.80	
9	Goundankulam Anicut -	1 No.	29.89	
10	Thimminaicken anicut -	1 No.	22.91	
11	Valayar anicut -	1 No.	36.79	
			499.86	
III	Supply channels			
1	Ikkaraipirivu Anicut supply channel -	1127M	1.47	
2	Rajavaikkal Anicut supply channel -	2511M	5.00	
3	Samyvaikkal Anicut supply channel -	1800M	1.79	
4	Pudukulam Anicut supply channel -	1000M	0.95	
5	MarimoorAnicut supply channel -	4620M	8.20	
6	Puduvaikkal Anicut supply channel -	4100M	7.01	
7	Ammakulam Anicut supply channel -.	975M	1.36	
8	Dombucheri Anicut supply channel -	1600M	1.62	
9.	Goundankulam bed bar		0.58	
10	Shutter for Thimminayakankulam channel		0.50	
11	Shutter for Thambirankulam channel		0.50	
			528.84	
	SUB TOTAL		**637.50**	
	ENVIRONMENTAL CELL		**5.00**	
	GROUND WATER		Nil	
	GRAND TOTAL		**642.50**	

1.) WRO Component = 637.50 lakhs.
2.) Environmental Cell = 5.00 lakhs.

642.50 lakhs

PACKAGE WISE COST TABLE:

No. of Packages: ONE only

Sl. No.	Description of work	Amount in Lakhs	Remarks
1	Tank Component	108.66	
2	Non Tank Component	528.84	
	Environmental Cell	637.50 5.00	
		642.50	

C. Physical and Financial Programme

Sl. No.	Description	I Year		II Year		TOTAL	
		Qty.	Amount in lakhs	Qty.	Amount in lakhs	Qty.	Amount in lakhs
1	Standardisation of Tank bund	6 Nos.	45.00	5 Nos.	33.47	11 Nos.	78.47
	Reconstruction of sluices.	3 Nos,	12.00	3 Nos,	12.19	6 Nos,	24.19
	Measuring devices				6.00		6.00
I	Rehabilitation of anicuts	5 Nos,	225.00	6 Nos,	274.86	11 Nos,	499.86
II	Resectioning the supply channel	5 Nos,	14.00	3 Nos,	14.98	8 Nos,	28.98
	ENVIRONMENTALCELL		2.50		2.50		5.00
	TOTAL		**298.50**		**344.00**		**642.50**

TANK DETAILS WITH FREE BOARD PROVIDED

			Free board			
Sl.No.	Name of the Tank	Maximum height of the bund	Existing	Now provided	Height of the bund after raising the free board	Length of the bund
1	Dombucheri Tank	4.00	1.25	1.50	4.25	1505
2	Thasan chetty kulam	3.50	1.25	1.50	3.75	915
3	Ammakulam (Silamalai)	4.00	1.25	1.50	4.25	908
4	Ernana kulam	3.50	1.25	1.50	3.75	1493
5	Thimmi nayakkan kulam	3.50	1.25	1.50	3.75	720
6	Thambiran kulam	3.50	1.25	1.50	3.75	861
7	Kannimar kulam	3.50	1.25	1.50	3.75	650
8	Goundan kulam	4.00	1.25	1.50	4.25	900
9	Chinna ottu kulam	3.50	1.25	1.50	3.75	503
10	Muthu kombaiyan kulam	3.50	1.25	1.50	3.75	264
11	Ammakulam (Bodi)	3.50	1.25	1.50	3.75	550

PACKAGE 1
Calculation of machineries Requirement
NAME OF THE SUB BASIN: THENIAR

Hydraulic excavator & 4 Tippers/Lorries		7 Hours / Day		
(4 No x 4 loads/ hour x 7 Hr x 4 m^3/ trip)			448 m^3 /Day	
For 1 month (20 Working days)		20 x 448 m^3	8960 m^3/ month	
Total quantity of earth work		119143 m^3		
Working period for earth work		15 months + 3 Months rainy season		
Machineries required for earth work:				
1. Hydraulic excavator - 8 nos				
2. Tippers / Lorries - 32nos				
3. Power roller - 8 nos				
4. Vibrated compactor - 8 nos				
5. Water lorries - 8 nos				
Mixer machine	2 m^3 / hour	For 8 hours / day		16 m^3 / day
Total quantity of concrete		9861m^3		
Mixer machine required		**3 Nos** for 17 days / month -- 14 months		
Material conveyence		**Tippers / Lorries**		
Cement	10 mt / Trip	1 trip / day		10 mt / day
Sand	5.66 m^3 / Trip	3 trips / day		11.32m^3 /day
Metal / stone	5.60 m^3 / Trip	3 trips / day		16.80 m^3 /day
Total quantity of cement		878 MT		
Lorry required for conveyence		878/10		88 Lorries
Total quantity of sand		4437 m^3		
Lorry required for conveyence		4437/11.20		396 Lorries
Total quantity of metal		8875 m^3		
Lorry required for conveyence		8875/16.80		528 Lorries
Total quantity of stone		2813		
Lorry required for conveyence		2813/16.80		167 lorries
Tipper / Lorries for conveyance of materials		**6 Nos** for 20 days for 10 months		

PACKAGE II
Construction Methodology

NAME OF THE SUB BASIN: THENIAR

Sl No	Description of Item	Total Quan-tity	Unit	Working Months																	Total
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
	EW excavation																		Rainy season			
1	Foundation	8820	M^3	1500	1500	1580	1550	1400	1290													8820
2	Open exvation	9029	M^3			1800	1800	1400	1400	1400	1229											9029
3	Bund	119143	M^3	7950	7950	7950	7950	7950	7950	7950	7950	7950	7950	7950	7950	7950	7950	7843				119143
4	Channel	82300	M^3		10250	10250	10250	10250	10250	10250	10250	10550										82300
5	M 7.5 Concrete	979	M^3		250	250	280	149														929
6	M 10 Concrete	7305	M^3			550	550	600	600	600	600	550	600	600	550	550	550	405				7305
7	Steel	2848	Qtl.			200	200	200	200	200	200	300	250	368	380	350						2848
8	Centering	9234	M^2					750	1000	1000	1000	1000	950	950	950	950	684					9234
9	M 15 concrete	100	M^3											20	20	20	20	20				100
10	M 20 concrete	1490	M^3						150	145	160	165	100	150	150	200	120	150				1490
11	Turfing	68050	M^2				6800	6800	6800	6800	6800	6800	6800	6800	6800	6850						68050
12	Rough stone dry packing	2813	M^3									450	500	500	500	500	250	113				2813
13	Random rubble masonry	50	M^3					50														50
14	Fixing of shutters	10	No.														5	5				10

PACKAGE I

REQUIREMENT OF EQUIPMENTS AND MATERIALS

NAME OF THE SUB BASIN: THENIAR

PACKAGE NUMBER	EQUIPMENTS REQUIRED IN NUMBERS							MATERIAL REQUIRED					
	HYDRAULIC EXCAVATOR	POWER ROLLER	VIBRATED COMPACTOR	TIPPER / LORRY	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
Package I	8	8	8	32	8	3	3	878	4437	285	880	7994	33

1.7. ENVIRONMENTAL COMPONENT

INDEX

Environmental Monitoring on water and soil quality and creating awareness & updating of “Environmental and Social Assessment report” for THENIAR SUB BASIN.

Sl No	DETAILS	SHEET NO
1	Environmental Details Proforma	
2	List Of Water User Association	
3	Tanks Severely Affected by Weeds	(Annexure-I)
4	Sewage discharged into water bodies(Domestic sewage)	(Annexure-II)
5	Solid Waste into Water bodies	(Annexure- III)
6	List of Industries in the Sub basin	(Annexure –IV)
7	List of Ground water sampling point	(Annexure –V)
8	Result of Ground water quality	(Annexure - VI)
9	Estimate Report	
10	Detailed Estimate	
11	Abstract Estimate	
12	Baseline data collection Proforma	
13	Sub Basin Map	

Existing Water User Association in Theniar Sub Basin

Sl. No	WUA.No	Village	Tank	WUA Name	Ayacut Ha
1	WUA.1	Bodi, Kodankipatti, B.Meenakshipuram, Melachokanathapuram,	Pudukulam tank	Pudukulam tankWUA	1026.17
2	WUA.2		Bankarusamy naickankulam	Bankarusamy naickankulam WUA	
3	WUA.3		Marimoor Tank	Marimoor Tank WUA	
4	WUA.4		Periakulam Tank	Periakulam Tank WUA	
5	WUA.5		Sotharanai Tank	Sotharanai Tank WUA	
6	WUA.6		Chettikulam Tank	Chettikulam Tank WUA	
7	WUA.7		Sankarapanikankulam tank	Sankarapanikankulam tank WUA	
8	WUA.8		Meenakshipuram Tank	Meenakshipuram Tank WUA	

Proposed Water User Association in Theniar Sub Basin

Sl. No	WUA.No	Village	Tank	WUA Name	Ayacut Ha
1	TSB.1	Kottakudi,Munthal, Bodi,Anaikaraipatti	Santhanasolai Anicut Supply Channel,Akkaraipirivu Anicut Supply Channel,Vilankadu Anicut Supplu Channel, Ikkaraiprivu Anicut Supply Channel, Rajavaikkal Anicut Supply Channel, Samy Vaikkal Supply Channel, Pudukulam Anicut Supply Channel, Marimoor Anicut Supply Channel, Muthukombaian Anicut Supply Channel, Muthukombaian Tank, Chinna OttuKulam Tank, KaliUthaikulam tank, Bodi Ammakulam tank.		684.69
2	TSB.2	Anaikaraipatti, Kodankipatti,B.meenakshipuram	Puduvaikkal Anicut Supply Channel, Kannakankulam Tank, Sirukulam Tank, Karuvankulam Tank, DasanChettikulam tank		522.02

Sl. No	WUA.No	Village	Tank	WUA Name	Ayacut Ha
3	TSB.3	Veerapandi,TheniAllinagaram, Boothipuram.	Kannimarkulam Tank, Theniar Anicut Supply Channel, Panasalar Supply channel, Manthaikulam Tank, MeruSamuthram Tank, Thamaraikulam tank		316.85
4	TSB.4	Silamalai ,Sillamarathupatti,Dom Pucheri, Pottipuram.	Silamalai Ammakulam Tank, VairavaGoundanKulam Tank, Chennaiagoundankulam Tank, Goundankulam Tank, Posigoundankulam tank, Dompucheri Tank, Thimminaickankulam Tank, Earnakulam Tank, Thambiran Kulam Tank		151.52

IAMWARM PROJECT

(ENVIRONMENT COMPONENT IN SUB BASINS)

Name of River Basin:	**VAIGAI RIVER BASIN**
Name of Sub Basin:	**Theniar**
Name of WUA:	Enclosed
Name of Division:	**Manjalar Basin Division, Periyakulam.**
Name of Sub Division:	**Manjalar project sub Division, Theni.**
District:	**Theni**
Taluk:	**Bodinayakanur, Theni, Uthamapalayam**
Block:	**Bodinayakanur, Theni, Chinnamanur**
I. Name of the Tank Severly affected by Aquatic weeds	Annexure- I
II. Domestic Sewage:	Annexure –II
III.Municipal Solid Waste:	Annexure –III
III. Industries:	Annexure –IV
IV. Water Quality Status:	
i. Surface water:	So for No water sampling points
II. Ground water:	Annexure –VI

ANNEXURE-1

THENIAR SUB BASIN

WEEDS DETAILS

Sl. no	Name of the Village	Name of the Tank	Ayacut In Ha	Water weeds		
				Prosopis	IpomeaCarnea	Water Hayacinth
1	Anaikkaraipatti	Muthukombaiyan	9.77		I	
2	Bodinayakkanur	Pudukulam	56.22	PJ	I	
3	Bodinayakkanur	Chinnaottukulam	10.06	PJ	I	
4	Bodinayakkanur	Kalivuodaikulam	4.82	PJ		
5	Bodinayakkanur	Ammakulam	14.46		I	
6	Bodinayakkanur	Bagarusamynaickankulam	155.29	PJ		
7	Bodinayakkanur	Marimoor tank	125.98		I	
8	Kodangipatti	Kanakkankulam	36.26		I	
9	Kodangipatti	Kannimarkulam	18.06		I	
10	Kodangipatti	Sirukulam	54.06		I	
11	Kodangipatti	Kuruvankulam	22.29	PJ	I	
12	Kodangipatti	Periyakulam	102.68		I	
13	Kodangipatti	Sotharanai tank	118.76		I	
14	B.Meenakshipuram	Thaasanchettikulam	22.55		I	
15	B.Meenakshipuram	Chettikulam	41.98		I	
16	Melachokkanathapuram	Sankarappanaickankulam	241.62		I	
17	B.Meenakshipuram	Meenakshipuram tank	183.64		I	
18	Boothipuram	Rajaboopalasamudram	70.44		I	
19	Silamalai	Ammakulam(Silamalai)	8.63	PJ	I	
20	Sillamarathupatti	Vairavagoundankulam	15.93	PJ		
21	Dombucheri	Chennaiyagoundankulam	9.32	PJ		
22	Sillamarathupatti	Goundankulam	13.86	PJ		
23	Dombucheri	Posigoundankulam	5.35	PJ		
24	Dombucheri	Dombucheri	28.57		I	
25	Theni-Allinagaram	Manthaikulam	14.31		I	
26	Theni-Allinagaram	Meerusamudram	51.31	PJ	I	
27	Theni-Allinagaram	Thamaraikulam	45.14		I	
28	Pottipuram	Thimminayakkankulam	8.33	PJ		
29	Pottipuram	Ernankulam	45.5	PJ		
30	Pottipuram	Thambirankulam	16.03	PJ		
Total			1551.22			

ANNEXURE-2

THENIAR SUB BASIN

DOMESTIC SEWAGE

Sl.no	Name of the town	Water body into which Sewage is discharged
1	**Theni**	**Theniar river**
2	**Bodinayakkanur**	**Open land and meenakshipuram tank**
3	**Chinnamanur**	**Let into chinna manur chinna vaikal tank that enter sengulam tank**

ANNEXURE-3

THENIAR SUB BASIN

SOLID WASTE

SL.No	Location of solid waste disposal	Disposal of solid waste in Land	Qty.in.M.T	Disposal of solid waste into water body		
				River	Tank	Odai
1	**Theni**	**Compost yard**	**20**			
2	**Bodinayakkanur**	**Compost yard**	**7.3**		**Lekshmipuram tank**	
3	**Uthamapalayam**	**Compost yard**	**0.125**			

ANNEXURE-4

List of industries in Theniar sub basin

Sl.no	Name of industry & address	District	Category	Type
1	**M/s Sri Renuga Spintex Fabrics Ltd , Bodi Road**	**Theni**	**Textile process**	**R/L**
2	**M/s Sri Renuga Soft X Towels Ltd(Unit II) , Mariamman Kovilpatti**	**Theni**	**Textile process**	**R/L**
3	**M/s Sri Renuga textiles ltd(power plant) , Mariamman Kovilpatti**	**Theni**	**Power plant**	**R/L**
4	**M/s Sri Renuga textiles ltd(Yarn dyeing division) , Mariamman Kovilpatti**	**Theni**	**Textile process**	**R/M**
6	**M/s Danalakshmi Colour , Periyakulam road**	**Theni**	**Chemical**	**R/S**
7	**M/s Fores Chemical industries , Periyakulam road**	**Theni**	**Chemical**	**R/S**
8	**M/s M.M.Synthetics , G-2 , SIDCO industries estate**	**Theni**	**Chemical**	**R/S**
9	**M/s Fores Oxide industries , Periyakulam road**	**Theni**	**Chemical**	**R/S**

10	M/s Mano Rasika Colours , Periyakulam road	Theni	Chemical	R/S
11	M/s Rajan Rasayam , Periyakulam road , Annanji	Theni	Chemical	R/S
12	M/s Rainbow Pigments , periyakulam road , Annanji	Theni	Chemical	R/S
13	M/s Mol Organics (P) Ltd , Sillamarathupatti	Theni	Chemical	R/S
14	M/s A.A.Shenbagam Colours , SIDICO industrial Estates , Bodi Taluk	Theni	Chemical	R/S
15	M/s Krishna Plastics	Theni	Chemical	R/S
16	M/s Sri Shenbagam Products , SIDICO industrial Estates	Theni	Chemical	R/S
17	M/s Fair Deal Rubber , Periyakulam road	Theni	Pesticide	R/S
18	M/s Sri Renuga refineries , Cumbam main road	Theni	Food & Bevarages	R/S
19	M/s Thirumagal Oil Refineries , Boothipuram road	Theni	Food & Bevarages	R/S
20	M/s P.J.V.Battery Industries, S.S.Puram, Andipatty TK	Theni	Misc Battery	R/S
21	M/s Holy Rodomer Hospital , Periyakulam road	Theni	Misc Hotel	R/S
22	M/s Radha Clinic, Cumbam main road, Uthampalayam TK	Theni	Misc Hotel	R/S
23	M/s Paragon Paper (P) Ltd , B.Ammanpatti	Theni	Paper & Pulp	O/L
24	M/s Sri Sarvesh Cotton Mills Ltd , Muthtthevanpatty	Theni	Spinning	O/L
25	M/s G.G.N,Spinning Mills Ltd , Unit I , Periyakulam road	Theni	Spinning	O/L
26	M/s G.G.N,Spinning Mills Ltd , Unit II , Periyakulam road	Theni	Spinning	O/L
27	M/s SRM Press Factory , Periyakulam road	Theni	Misc Ginning	O/M
28	M/s Sri Renuga Soft X Towels Ltd ,Unit I , Boothipuiram road	Theni	Misc Sizing	O/M
29	M/s Sundara Vinayaga Textiles	Theni	Misc Sizing	O/M
30	M/s Eastern road , Mariamman Kovilpatti	Theni	Food & Bevarages	O/M
31	M/s Sri Balaji Snuff Company , P.C.Patti	Theni	Misc Snuff	O/S
32	M/s Sri Hari,Maharalayam Oil Seeds Processing & co	Theni	Bleaching	O/S
33	M/s TNSTC Ltd , Theni Depot	Theni	Engineering	O/S
34	M/s TNSTC Ltd , Bodi Depot	Theni	Engineering	O/S
35	M/s TNSTC Ltd , (PRC Ltd)	Theni	Engineering	O/S

36	M/s A.V.Thomas & co , Kurankani road	Theni	Food & Bevarages	O/S
37	M/s Eastern Spices and Reports , Mariamman Kovilpatti	Theni	Food & Bevarages	O/S
38	M/s Penta Milk Chilling Centre , Uthapuram , Uthamapalayam TK	Theni	Misc Milk Chilling	O/S
39	M/s Aavin Ltd , SIDICO Industrial Estate	Theni	Misc Milk Chilling	O/S
40	M/s Imayam Dairy Milk	Theni	Misc Milk Chilling	O/S
41	M/s Sakthi Milk Chilling	Theni	Misc Milk Chilling	O/S
42	M/s Sree Surya Narayanan Ginning Factory , Pankajam House Road	Theni	Misc Ginning	O/S
43	M/s Sri Duraiappaba Chemicals , Kurankani road	Theni	Misc Lime stone	O/S
44	M/s Thangam Lime Products , Cumbam main road	Theni	Misc Lime stone	O/S
45	M/s Vaigai stone metal , ,vaigai dam road	Theni	Misc stone crusher	O/S
46	M/s Golden blue metal , Vaigai dam road , Varadhraj Nagar	Theni	Misc stone crusher	O/S
47	M/s Sri Vinayaga Blue Metals , K.K.Patti , Cumbam main road	Theni	Misc stone crusher	O/S
48	M/s Star Blue Metals , Varadhraj Nagar , Vaigai dam	Theni	Misc stone crusher	O/S
49	M/s Uthayam Bue Metals , K.K.Patti , Cumbam main road	Theni	Misc stone crusher	O/S
50	M/s Sakthi Blue metals , Boothipuram	Theni	Misc stone crusher	O/S
51	M/s Kwality Crusher , Lower Camp	Theni	Misc stone crusher	O/S
52	M/s Rajandra Blue Metals	Theni	Misc stone crusher	O/S
53	M/s Lakshmi Narayana Blue Metals	Theni	Misc stone crusher	O/S
54	M/s Velumani Blue Metals	Theni	Misc stone crusher	O/S
55	M/s K.N.P. Blue Metals	Theni	Misc stone crusher	O/S
56	M/s Krishna Spinning , SIDICO industrial Estate	Theni	Misc Waste Cotton	O/S
57	M/s Naga Phyto Chemicals	Theni	Misc Herbal	O/S
58	M/s Durga Mosaic	Theni	Misc Stone Polishing	O/S
59	M/s Karthik Traders	Theni	Misc Sizing	O/S
60	M/s Surya Tyres	Theni	Misc Tyre Retreating	O/S

61	M/s Lakshmi Krishna Textiles	Theni	Spinning	O/S
62	M/s Bharath Pipe Industries	Theni	Misc P.V.C pipes	O/S
63	M/s Theni Krishna Exports	Theni	Misc Bleaching	O/S
64	M/s Renga Blue Metals , Bodi	Theni	Misc stone crusher	O/S
65	M/s Suja Fiber Spinning	Theni	Misc coir	O/S
66	M/s St.Mary's Blue Metal	Theni	Misc Stone Crusher	O/S
67	M/s Gokila Flour Mill	Theni	Misc Flour mill	O/S
68	M/s Sea Tech Polymers (P) Ltd	Theni	Misc Agar Agar	O/S
69	M/s Rubo Reborn Polymers	Theni	Misc Reclo Rubber	O/S
70	M/s Silica Metallurgical Ltd , Lower Camp	Theni	Misc Hydal Projects	O/L
71	M/s TNEB Manjalar Project	Theni	Misc Hydal Projects	O/L
72	M/s Universal Virgines	Theni	Misc Kudam	R/S
73	M/s JPS Industries	Theni	Misc Chemicals	R/S
74	M/s Sakthi Blue Metals , Anumanthanpatti	Theni	Misc Stone crusher	O/S
75	M/s S.M.Ramar Quarry	Theni	Misc Quarry	O/S
76	M/s Alagendra Textiles Ltd	Theni	Misc spinning	O/S
77	M/s Aruna Industries , Kurankani	Theni	Food & Bevarages	O/S
78	M/s Pandiyan Coffee Curing Works , Cumbum road	Theni	Misc Coffee crushing	O/S
79	M/s Kavery Oil Seeds & co , Unit I	Theni	Misc coffee crushing	O/S
80	M/s Annam Mattress and Pillows , SIDCO industrial Estate	Theni	Misc Matresses	O/S
81	M/s Kalukumalai Tea Estate , Bodi	Theni	Misc Tea	O/S
82	M/s Vanivilas Snuff & co , SIDCO industrial Estates	Theni	Misc snuff	O/S
83	M/s Kani Pandiyan Oil Mills , Bodithasan Patti , Andipatti	Theni	Misc Oil Mill	O/S
84	M/s Valliammai Trading co	Theni	Misc Processing	O/S
85	M/s Renuga Textiles Ltd	Theni	Misc Spinning	O/S
86	M/s Annai Velankanni Textiles	Theni	Misc Spinning	O/S
87	M/s Sri Renuga Soft 'X' Towels Ltd , Spinning Mill Division	Theni	Misc Spinning	O/S
88	M/s Janakiraman Mills Ltd , B-Unit	Theni	Misc Spinning	O/S
89	M/s L.S.Mills Ltd , Unit-I	Theni	Misc Spinning	O/S
90	M/s Sundara Vinayagar Textiles	Theni	Misc Spinning	O/M
91	M/s Hindustan Lever Ltd , Vennar Tea Factory	Theni	Misc Tea	O/M

92	M/s Thiagarajar Memorial Makkal Mandram	Theni	Misc Kalyanamahal	O/S
93	M/s Mela Therusathi Maravar Mandram	Theni	Misc Kalyanamahal	O/S
94	M/s Cumbam Yathava Pathia Madalayam	Theni	Misc Kalyanamahal	O/S
95	M/s Viswakarma Makkal Mandram	Theni	Misc Kalyanamahal	O/S
96	M/s Alagu srinivasa Thilagavathi Mahal	Theni	Misc Kalyanamahal	O/S
97	M/s Chenai Thalaivar somuthaya Mahal	Theni	Misc Kalyanamahal	O/S
98	M/s N.P.Annapa Raja Memorial Kalyana Mahal	Theni	Misc Kalyanamahal	O/S
99	M/s KNS Extraction	Theni	Food & Beverages	O/S
100	M/s Malathevan Blue Metal , K.K.Patti	Theni	Misc Stone Crusher	O/S
101	M/s Senthil Silk Cotton , Uthamapalayam TK	Theni	Misc Matresses	O/S
102	M/s Aruna Rajam Rice Mill , Uthamapalayam TK	Theni	Misc Rice Mill	O/S
103	M/s Thiagaraja Rice Mill , Uthamapalayam TK	Theni	Misc Rice Mill	O/S
104	M/s Tamil Nadu Latex Product , Lower Camp	Theni	Misc Rubber	O/S
105	M/s Archana Textiles , TTK Textiles	Theni	Misc Weaving	O/S

ANNEXURE- VI

THENIAR SUB BASIN

GROUND WATER SAMPLING STATIONS LOCATIONS

Sl.No	Station code No.	Location
1	83010 A	Bodi
2	23001	Bodi
3	23012	Kodangipatti
4	83067 A	T.Meenakshipuram
5	23017	Kandamanur
6	23005	Periyakulam
7	23014	Pottipuram
8	23004	Uthamapalayam
9	23011	Veerapandi

ANNEXURE- V I

GROUND WATER TEST RESULTS IN THENIAR SUB BASIN

Station code	General			Nutrients	Alkalinity		Hardness		Major Ions								Other In-Organics			BIO
	PH	EC, Umho/cm	TDS ,MG/L	No3+No2 as N,mg/L	Phen, mg CaCo3	Total mg CaCo3	Total,mg CaCo3 mg/L	Ca++mg CaCo3	Ca++mg/L	Mg++ mg/L	Na++mg/L	K++ mg/L	Cl mg/L	SO4 mg/L	CO3 MG/I	HCO3mg/L	Sl.mg/L	F.mg/L	B.mg/L	SAR
83010 A	8	510	280	2	0	210	220	115	46	25	256	2	28	14	0	256		0.32		5.1
23001	8.2	1710	975	11	0	460	500	170	68	80	133	66	227	70	0	561		0.25		6.7
23012	7.9	1450	818	13	0	420	290	50	20	58	196	15	128	86	0	512		0.95		1.3
83067 A	8.2	3100	1764	40	0	225	1260	560	224	170	161	11	822	62	0	275		0.56		2.4
23017	7.6	2950	1745	61	0	255	1010	430	172	141	209	6	610	812	0	311		0.36		1.4
23005	7.7	100	58.4	0	0	30	40	15	6	6	6	1	7	12	0	37		0.17		0.7
23014	8	850	486	16	0	190	320	150	60	41	51	4	85	58	0	232		0.96		3.2
23004	7.5	4420	2502	82	0	195	1920	1120	448	194	156	3	1205	14	0	238		0.37		6.8
23011	8.1	930	510	6	0	225	380	140	56	58	48	3	138	43	0	275		0.65		3.7

Environmental Monitoring on water and soil quality and creating awareness & updating of "Environmental and Social Assessment report" for Theniar sub basin.

Estimate Cost Rs 5.00Lakhs

INTRODUCTION

Under TNWRCP, with World Bank assistance, special emphasis was given for the first time in WRO, to assess the environmental status and degradation caused for all River basins in Tamilnadu. The Environmental cell of WRO assessed Soil and Water samples in this River basin. The assessment includes Environmental impact on the quality of surface, ground water and soil by collecting water & soil samples and testing them. Moreover, "preparation of Micro Level Environmental Status Reports" all the River Basins has also prepared. These works have been carried out with the World Bank Assistance upto March 2002.

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 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 environment issues pertaining to that area and remedial action to overcome the problems is must.

DESCRIPTION OF SUB BASIN

The Theniar river orginates in Bodi hills of Western Ghats ranges above Kurankani village of Bodi Taluk in Theni district. It runs for a length of 40km and confluences with Suruliar river near theni. The main tributaries of Theniar river are Oothamparai river, Chinnar river, Kallar river, and Vallair river. There are 21anyacuts across the Theniar river. Theniar river irrigates 2701.250hectares. The theniar river

basin ries between the latitude of 10°10'N and longitude of 77°12'E and 77°25'E.Paddy, Sugarcane and Banana are the main crops cultivated in the basin. At some places, Coconut, Cotton and maize are also cuiltaved.

ENVIRONMENTAL PROBLEMS IN THIS SUB BASIN

INDUSTRIAL POLLUTION

There are no major industries situated in this sub basin. Only small-scale industries are there in this sub Basin. The effluent discharge is minimum and meager**.** The details of Industries and their effluent discharge are given in Annexure-III.

However, the effluents discharged from the industries are closely monitored by TNPCB. Any further activity to minimize the effect of pollution on water bodies will be dealt by the TNPCB.

CATCHMENT DEGRADATION

No reservoirs are there in this sub basin. Soil erosion is there in the riverbeds of this sub basin. In respect of prevention of soil erosion, effective measures were taken up by the Agricultural Engineering Department. However Agricultural Engineering Department will give proposals to prevent further soil erosion. Other major environmental issues polluting Water resources pertaining this sub basin are listed below.

SOLID WASTE DISPOSAL

There is no organized scientific method of disposal in all the Municipalities, town and Village Panchayats. The garbage is dumped in the basin area and hence the harmful chemical substances of the landfill seep through and reach the ground water reservoirs and contaminate these sources.

Scheme for Solid waste Management plan is under implementation by Rural Development Department. Under this scheme, collection tank for disposable and undisputable garbage have been constructed. But in most of the panchayats, recycling the waste and converting the solid waste into manure and production of

energy is yet to come up. Hence motivating the local bodies for proper implementation of solid waste management project is must.

SEWAGE DISPOSAL LET INTO WATER BODIES

Treatment of sewage and arrangements for safe disposal arrangements has not been provided in most of the Villages. Underground drainage arrangements have not been provided even in municipalities and town panchayats. This sewage is washed away and got pounded in the backwaters and unhealthy conditions exit.

The locations of disposal of sewage directly let into water bodies in this sub basin are furnished in Annexure II.

So, creating awareness among the presidents of the local bodies is must 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**.**

WATER WEEDS

Vaigai River, Ipomea carnea is the major bank and shore weed. Severe blockage of water by Ipomea carnea has to the formation of mini silt islands (Isles) in the rivers, which now grow several weedy bushes and cause floods. Water hyacinth also disseminates in larger places and causes severe disturbance in Vaigai

Prosopis Juliflora has invaded in the water bodies' ie.tanks, channels. The area of coverage in the water bodies is about 20% of cultivable area in Theniar river basin. Hence all these plants need to be eliminating totally for the conserving precious water resources.

GROUND WATER QUALITY

From the chemical composition data for the observation wells, the ground water in the lower reaches of sedimentary formation is of moderate quality.

ACTIVITIES PROPOSED

To monitor the quality of water and soil and create database regarding the Environmental Status for each sub basin, this proposal has now been included with the following activities at sub basin level.

I. Water Quality Monitoring and Project Works Monitoring

So far, No Water samples were collected and tested in this sub basin. Now it is proposed to collect and test water samples at four points for a period of three years to assess the Environmental impact on the quality of surface water of this sub basin. Water samples at the following location will be collected once in 3 months

TH-1 : Bodi-Valasathurai Road Bridge near Bodi.
TH-2 : Theni-Kampam Road Bridge at Theni.
TH-3 : Bodi - Sankanrapuram Road Bridge at Nagalapuram Village.

II. ENVIRONMENTAL AND SOCIAL KNOWLEDGE BASE

Micro Level Environmental Status Report has been prepared for the entire Theniar sub basin. To prepare an Environmental Action Plan of a River basin data regarding environmental issues in sub basin wise is necessary. Hence, provision for collecting the environmental and social issues in village wise and analysing them and preparing development report has also made in this proposal.

III. TRANSFER OF TECHNICAL KNOWS HOW FOR SOLID WASTE MANAGEMENT SYSTEM (INCLUDING SOURCE) SEGREGATION RECYCLES OF DRY WASTE AND LINKAGE WITH USER AGENCIES

Now, a new scheme for Solid Waste Management plan is under implementation in all Municipalities and major panchayats. Under this scheme, collection tank for disposable and non-disposable garbage have been constructed in most of the Panchayats. But, recycling the waste and converting the solid waste into manure and production of energy from them are yet to come up.

Hence Demonstration and action programs are planned with user agencies and necessary field visits exclusively for officials of local body and Panchayat presidents & members are programmed to transfer of Technical Know How for Solid Waste Management.

III. CONDUCTING AWARENESS PROGRAMS

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. So far No awareness Programs were conducted in this basin.

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 proposed to conduct Awareness Meeting in 1 No of awareness programs during the study period of three years covering the following subjects in addition to Placing Stickers, Tin sheets, Pamphlets and Placing banner containing messages about, the following Environmental problems.

- **Sanitation.**
- **Solid waste treatment.**
- **Sewage treatment and converting the same into gas**
- **Organic farming.**
- **Conversion of aquatic weeds into manure etc**

As per the instructions of the environmental specialist Mr. Anupham Joshi, the following alterations are made in the proposal,

In addition to the above, pesticides test for water quality is added and test will be carried out for one location for once in a year.

Moreover, it is proposed to conduct field visits for environmental monitoring of project activities with respect to environmental safe guards.

It is proposed to study the impact due to project investments and hence, provisions for data collection and development reports have now been added.

Provision for preparing environmental atlas is now inserted in the context of marking all environmental and social issues with consultations of stake holders, line departments and NGOS.

MODE OF EXECUTION

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

TOTAL COST

The total cost works out to Rs: 5.00 Lakhs (Rupees Five Lakhs only)

Environmental Monitoring on Water and Soil quality and Creating Awareness , updating of " Environmental & Social assessment report" for Theniar SUB BASIN

DETAILED ESTIMATE

Sl no	Description of work	No	Measurement			Contents
			L	B	D	
I.Water & Soil Quality Monitoring by fixing nodal Agency (any educational Institution)						
a)	Testing Charges for water samples 3X 3 X 3 = 27 Nos.	3X 3 X 3 = 27 Nos.				27 Nos
b)	Testing Charges for water samples(Pesticides) 1X 3 = 3 Nos	1X 3 = 3 Nos				3 Nos
c)	Hiring Jeep driver	1No	3 Months per year X 3 year			9Man months
d)	Conveyance, Purchases of Cans, Bottles, Chemicals hire Purchase of Still camera etc and Documentation of Water quality data	LS	-	-	-	LS
e)	**Provisions for field visit for environmental monitoring of project activities with respect to environmental safeguards**	1x3 years				3 years
II Environmetal, Social Knowledge base by fixing nodal agency(any educational Institution)						
a)	Village Level Data collection on Environmental And social state regarding other impacts	20months				20 Man months
b)	Expert analysis and development reporting on other impacts	LS				LS
c)	Impact studies due to project investments	15 Man Months				15 Man Months
d)	Expert Analysis and Development Reporting due to project investments	LS				LS
III. Transfer of technical know how for solid waste & weed management						
a)	Formation of Herbal Garden in Institutions	1no				1 No

IV. Environmental Social Awareness Creation			
a)	Propagation through Stickers, Tin Sheets, pamphlets,Banners	1x3 years	3 years
b)	Awareness Programs for Public	1 No.	1 No.
c)	Exposure Field Visit to Eco friendly practises	1 No	1 No
d)	Preparing and Publishing Environmental Atlas for the Sub Basin for the use of Line departments /Institutions for better Management of Sub basin	LS	LS
e)	Documentation of the entire activities, and HirePurchase of LCD , Up gradation of Computer and Accessories, Video films and Web site development	LS	LS
IV.	**Variation in Rates and unforeseen items**	**LS**	**LS**

Environmental Monitoring on Water and Soil quality and Creating awareness, updating of " Environmental and Social Assessment report" for Theniar SUB-BASIN.

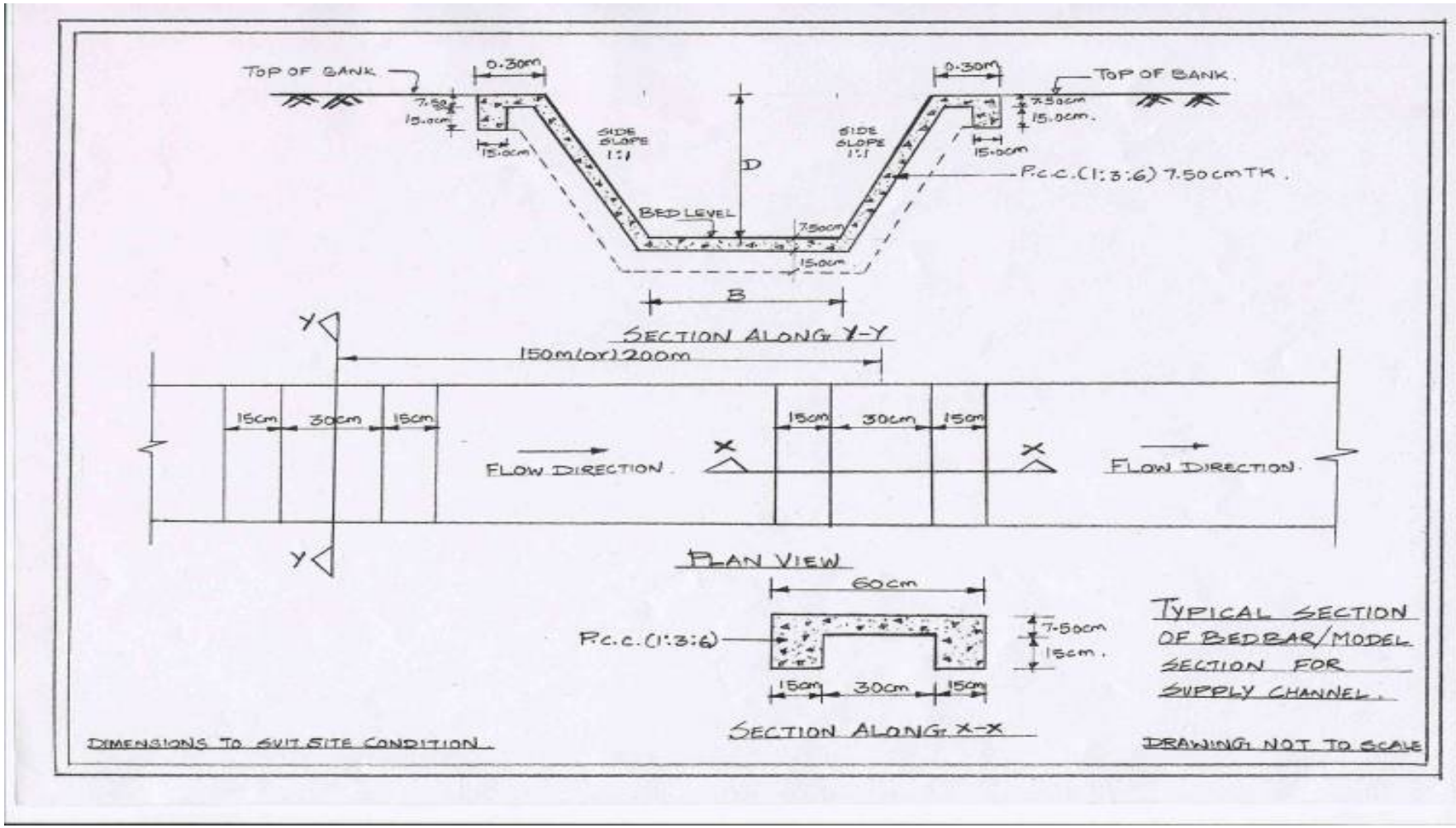
ABSTRACT ESTIMATE

Sl.No.	Qty.	Description of Work	Rate	Per	Amount
I.Water & Soil Quality Monitoring by fixing nodal Agency (any Educational institution)					
a)	27 Nos.	Testing charges for Water Samples	1400	each	37800
b)	3 Nos	Testing charges for Water Samples (Pesticides)	12000	each	36000
c)	9Man months	Hiring Jeep Driver	3500	1 Man month	31500
d)	L.S	Conveyance, Purchases like Cans, Bottles, Chemicals hire Purchase of camera etc and Documentation of Water and Soil quality data, including Labour charges.	L.S	L.S	15000
e)	3 years	Provisions for field visit for environmental monitoring of project activities with respect to environmental safeguards	5000	Per year	15000

II. Environmental, Social Knowledge Base, Analysis and Development base)					
a)	15Man months	Village Level Data collection on Environmental And social state regarding other impacts	6000	month	90000
b)	LS	Expert analysis and development reporting on other impacts	LS	LS	20000
c)	10 Man Months	Impact studies due to project investments	6000	month	60000
d)	LS	Expert Analysis and Development Reporting due to project investments	LS	LS	15000

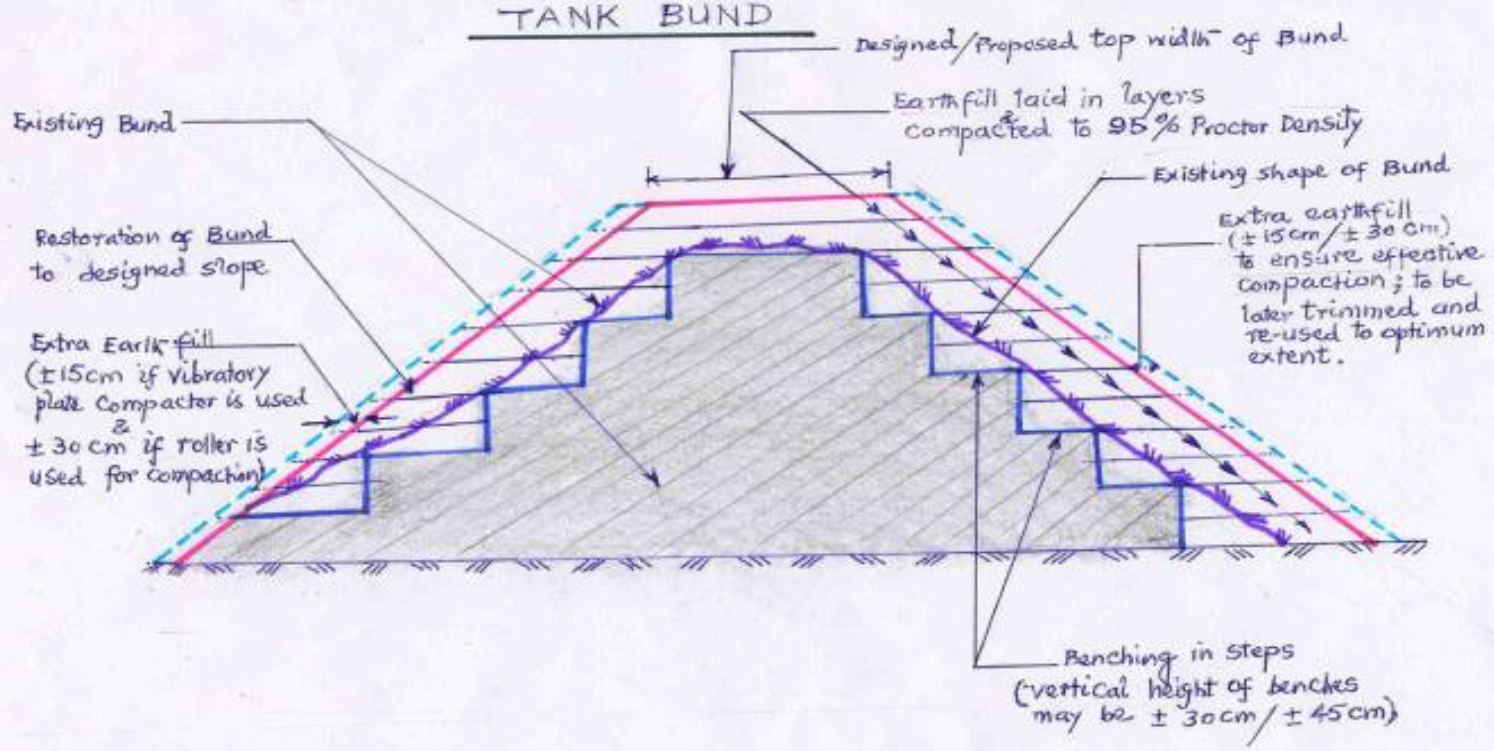
III. Transfer of technical know how for solid waste & weed management					
a)	1 Nos	Herbal Gardens in Institutions	25000	each	25000
IV. Environmental Social Awareness Creation					
a)	3 years	Propagation through stickers, Tin Sheets, pamphlets, banners.	15000	year	45000
b)	1No.	Awareness Program for Public	20000	each	20000
c)	1 Nos	Exposure Field Visit to Eco friendly practises	25000	each	25,000
d)	LS	Preparing and Publishing Environmental Atlas for the Sub Basin for the use of Line departments /Institutions for better Management of Sub basin	LS		50000
e)	LS	Documentation of the entire activities, hire purchase of LCD and Up gradation of Computer and Accessories, Video films and Web site development	L.S		14600
IV.Variation in rates and unforeseen items.					**100**
		Total			**500000**
Rupees five Lakhs only					

DESIGN AND DRAWING

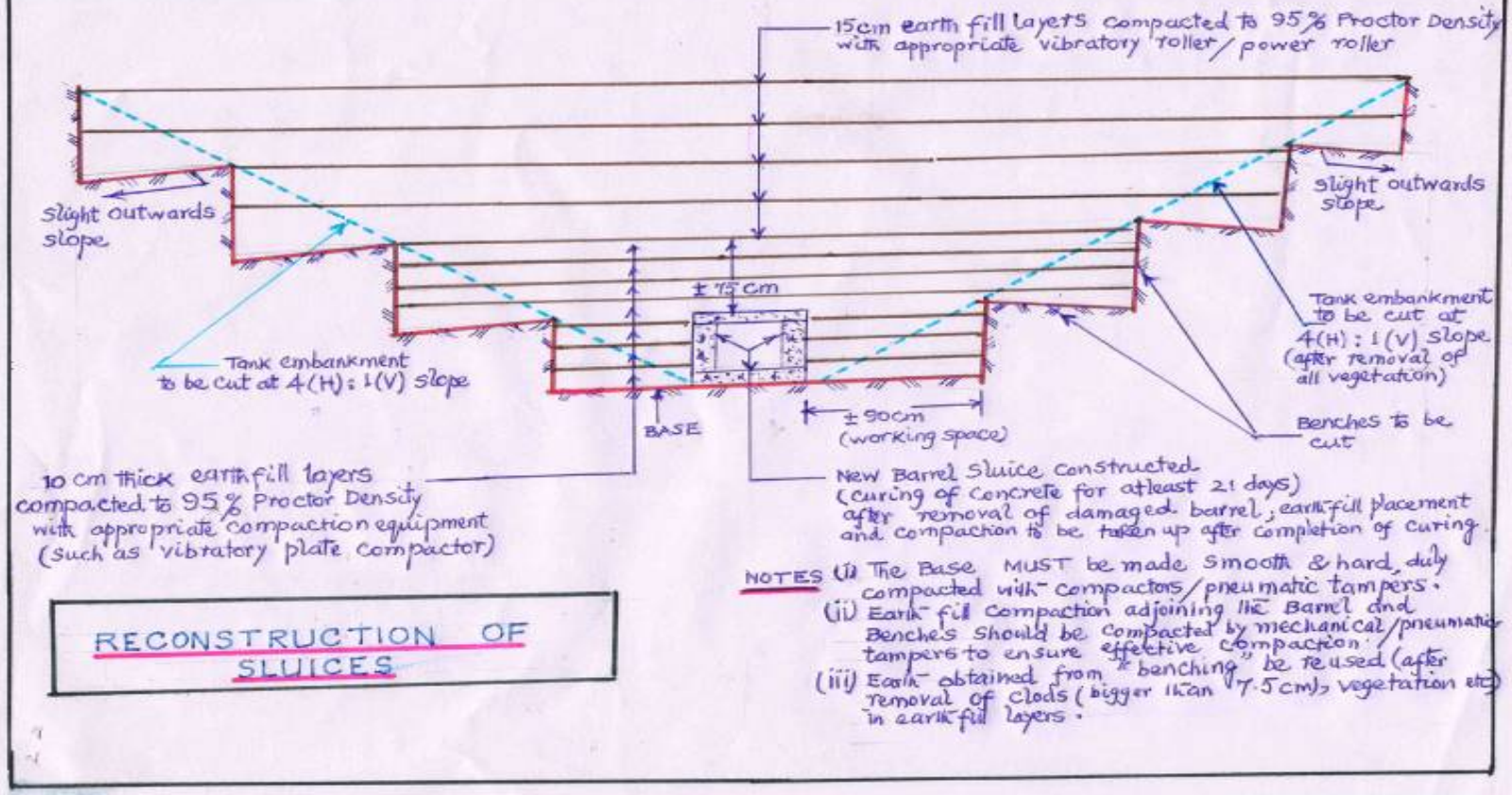

TOP OF BANK
0.30m
7.50cm
15.0cm
15.0cm
SIDE SLOPE 1:1
D
BED LEVEL
7.50cm
15.0cm
B
SIDE SLOPE 1:1
0.30m
TOP OF BANK
7.50cm
15.0cm
15.0cm
P.c.c.(1:3:6) 7.50cm TK.
SECTION ALONG Y-Y
150m(or)200m
Y
Y
15cm
30cm
15cm
FLOW DIRECTION.
X
X
15cm
30cm
15cm
FLOW DIRECTION.
PLAN VIEW
60cm
P.c.c.(1:3:6)
7.50cm
15cm.
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

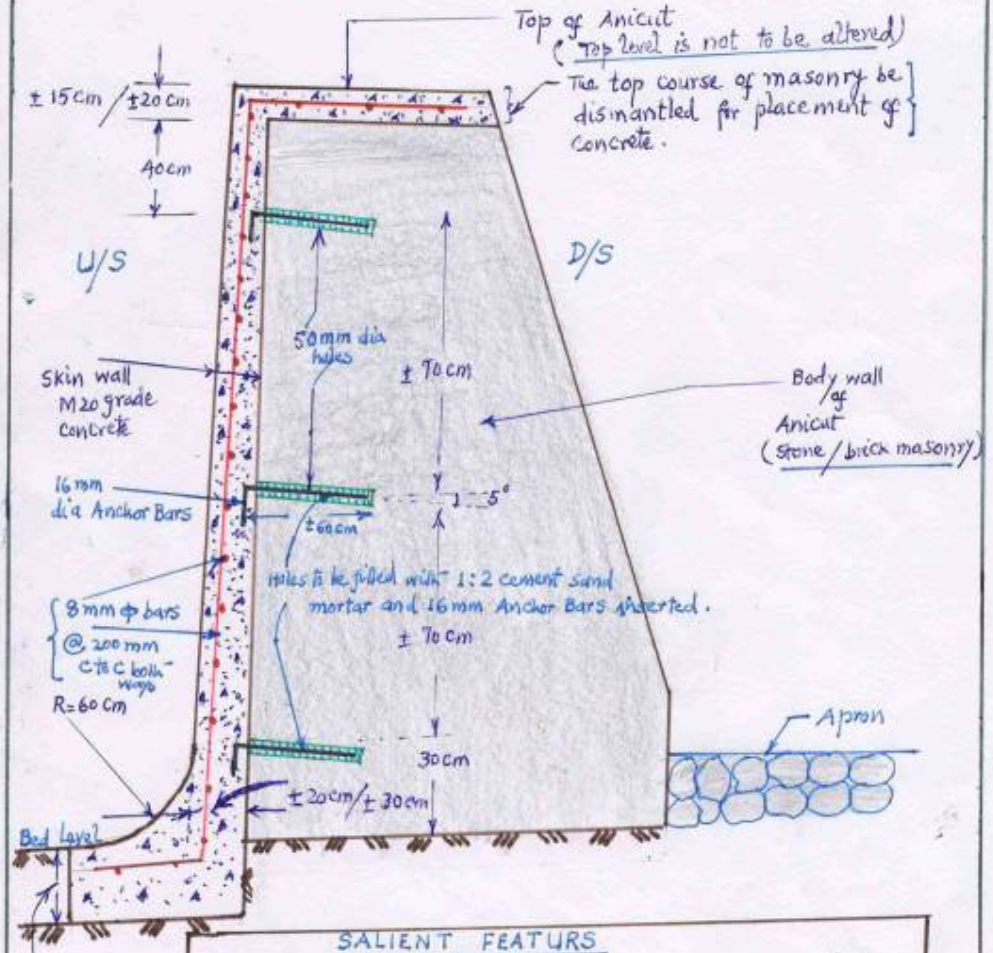
NOTES (i) The Base MUST be made smooth & hard, duly compacted with compactors / pneumatic tampers.

(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 reused (after removal of clods (bigger than 7.5 cm), vegetation etc) in earth fill layers.

TYPICAL SKETCH

Rehabilitation of Anicut through SKIN WALL Concrete



SALIENT FEATURS

- Joints on u/s surface to be raked to 25mm depth & Surface roughened by Chipping.
- Drill holes of 50mm 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 : 15cm at top & 20cm 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 ± 1·5m