TN IAMWARM PROJECT

KORAMPALLAM ARU SUB BASIN

DETAILED PROJECT REPORT

WATER RESOURCES DEPARTMENT

1.1 INTRODUCTION

INTRODUCTION.

General:

Tamil Nadu being an agrarian State, its economy is based on agriculture. Agriculture production is depending upon availability of water resources. Tamil Nadu is supposed to be the next state to Rajastan in receiving average rain fall and depends largely on the surface water irrigation and as well as ground water irrigation .

Since the available surface water resources are fully harnessed, ground water is the only alternative resource for agricultural development. The area irrigated by wells constitute about 48% of the total area irrigated by different sources. It is estimated that about 78% of the available ground water resources is being utilized leaving a balance of only 22% which is mainly concentrated in command area of reservoirs and tanks and in coastal sedimentary belts. By and large, there is not much scope for the strategy for development of ground water in Tamil Nadu in future, especially for agriculture.

Therefore the future development and expansion depends only on the efficient and economical use of water potential and resources available.

The deficiencies in the infrastructures and functions of irrigation net work causes inefficient function of the sub basins and create much hardship to the farming community. In this contest, to achieve the water use efficiency, it is absolutely necessary to improve and upgrade the existing storage and conveyance system and also to introduce modern irrigation techniques.

With the above objectives, a comprehensive programme has been evolved with Multi Disciplinary Approach.

Description of the Korampallam Aru Sub Basin:

The Korampallam Aru sub basin is one among the Kallar River Basin. The Kallar river basin is one of the major river basins in Tamil Nadu with a drainage area of 612.00Sqkm Korampallam Aru originates from the Muramban area in western parts of Ottapidaram Taluk. This Aru starts only from the plain terrain and there is no hilly catchment.

There are 4 Anicuts namely 1) Perurani Anicut (to feed Perurani Tank) , 2)Alanda Anicut (to feed mainly Ulakkudi and other panchayat union Tank) 3)Araikulam Anicut I (To feed Ottapidaram big tank) and 4)Araikulam Anicut II (to feed Gunavankulam panchayat union tank) in this sub basin. There are 2 System tanks and 5 Non- system tanks under this sub basin

and the total command area of this sub- basin is 1550.41 Ha. The Korampallam Aru stream ends its journey at Korampallam Tank and consequently to Bay of Bengal.

The Korampallam Aru sub basin is located in between latitudes 8^0 41 ' 00 " N and 9^0 10 ' 30 " N and the longitude 77^0 48 ' 00" E and 78^0 15' 00 "E. The command area of this sub basin comes under the Ottapidaaram , Srivaikundam and Thoothukudy Taluks in Thoothukudy District

The drainage area of the Korampallam Aru sub basin is 612.00 Sq.km and covered in the following 5 blocks under Thoothukudi district.

Sl.No.	Name of Block	Name of District	Area (Sqkm)
1	Ottapidaram	Thoothukudi	189.72
2	Karunkulam	Thoothukudi	79.56
3	Thoothukudi	Thoothukudi	312.12
4	Kayathar	Thoothukudi	9.18
5	Srivaikundam	Thoothukudi	21.42
	Total		**612.00**

Ayacut details

There are 7 PWD tanks and 75 Panchayat Union tanks under the Korampallam Aru sub basin. The total ayacut under the PWD System Tanks is 1292.71Ha, PWD Non system tanks is 257.70ha and that under 75 Panchayat Union tanks is 2062.98Ha. This list of tanks under the control of WRD /PWD and Panchayat Union are separately attached. In this Multi Disciplinary Programme the tanks under the control WRD having more than 40 ha ayacut are only considered.

Taluk wise ayacut details under the Korampallam Aru Sub Basin in respect of PWD tanks are as follows.

Sl.No.	Name of Taluk	Name of District	Ayacut in Ha
1	Thoothukudi	Thoothukudi	1292.71
2	Ottapidaram	Thoothukudi	153.20
3	Srivaikundam	Thoothukudi	104.50
	Total		**1550.41**

List of System tanks under WRD/PWD in Korampallam Aru Sub Basin are as follows

Sl.No	District	Taluk	Name of Tank	Ayacut in Ha	Capacity in MCft
1	Thoothukudi	Thoothukudi	Pottaikulam Tank	376.92	33.24
2	Thoothukudi	Thoothukudi	Korampallam Tank	915.79	228.56
			Total	**1292.71**	**261.80**

List of Non -System tanks under WRD/PWD in Korampallam Aru Sub Basin are as follows

Sl.No	District	Taluk	Name of Tank	Ayacut in Ha	Capacity in MCft
1	Thoothukudi	Ottapidaram	Ottanatham Tank	65.66	11.612
2	Thoothukudi	Ottapidaram	Thalavaipuram Tank	43.77	7.82
3	Thoothukudi	Ottapidaram	Kandasamypuram Tank	43.77	23.48
4	Thoothukudi	Srivaikundam	Ulakudi Tank	48.63	20.9559
5	Thoothukudi	Srivaikundam	Chokalingapuram Tank	55.87	5.77
			Total	**257.70**	**69.6379**

LIST OF TANKS MAINTAINED BY PANCHAYAT UNION IN KORAMPALLAM ARU SUB BASIN

Sl. No	**District**	**Taluk**	**Block**	**Name of Village**	**Name of Tank**	**Ayacut in Ha**
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
1	Thoothukudi	Ottapidaram	Ottapidaram	Accanaickenpatti	Puthukulam	17.00
2	Thoothukudi	Ottapidaram	Ottapidaram	Accanaickenpatti	Vettutankulam	33.61
3	Thoothukudi	Ottapidaram	Ottapidaram	Accanaickenpatti	Sadayankulam	13.04
4	Thoothukudi	Ottapidaram	Ottapidaram	Accanaickenpatti	Silitheavankulam	10.19
5	Thoothukudi	Ottapidaram	Ottapidaram	Maruthanvalvu Mullur	Maruthanvalvu Mullur	22.83

6	Thoothukudi	Ottapidaram	Ottapidaram	Vellaram	Karisalkulam	29.51
7	Thoothukudi	Ottapidaram	Ottapidaram	Katcheri Thalavaipuram	Sevalkulam	20.14
8	Thoothukudi	Ottapidaram	Ottapidaram	Keelamangalam	Thambikulam	32.58
9	Thoothukudi	Ottapidaram	Ottapidaram	Pasuvanthanai	seenivasagakulam	39.55
10	Thoothukudi	Ottapidaram	Ottapidaram	Keelamangalam	Kurukkankulam	5.86
11	Thoothukudi	Ottapidaram	Ottapidaram	Araikulam	Marchikulam	11.50
12	Thoothukudi	Ottapidaram	Ottapidaram	Araikulam	Kilathiammankoil kulam	12.47
13	Thoothukudi	Ottapidaram	Ottapidaram	Araikulam	Chinnamalaipaden kulam	28.82
14	Thoothukudi	Ottapidaram	Ottapidaram	Ilavelangal	Karisalkulam	7.12
15	Thoothukudi	Ottapidaram	Ottapidaram	Alagappapuram	Ilanchikulam	8.81
16	Thoothukudi	Ottapidaram	Ottapidaram	Araikulam	Manthaikulam	16.82

Sl.No	District	Taluk	Block	Name of Village	Name of Tank	Ayacut in Ha
17	Thoothukudi	Ottapidaram	Ottapidaram	Keelamangalam	Cheetikulam	15.21
18	Thoothukudi	Ottapidaram	Ottapidaram	Keelamangalam	Kopikulam	4.43
19	Thoothukudi	Ottapidaram	Ottapidaram	Onamakulam	Cheetikulam	7.17
20	Thoothukudi	Ottapidaram	Ottapidaram	Pasuvanthanai	Sakkiliankulam	11.97
21	Thoothukudi	Ottapidaram	Ottapidaram	Kodusankulam	Kodusankulam	15.11
22	Thoothukudi	Ottapidaram	Ottapidaram	Thulukkanpatti	Rajankulam	8.67
23	Thoothukudi	Ottapidaram	Ottapidaram	Araikulam	Thatchiyakulam	7.27
24	Thoothukudi	Ottapidaram	Ottapidaram	Pasuvanthanai	Kuttulangampillai kulam	10.00
25	Thoothukudi	Ottapidaram	Ottapidaram	Ilavelangal	Rajasingapani kulam	7.43
26	Thoothukudi	Ottapidaram	Ottapidaram	Kuthiraikulam	Kuthiraikulam	21.00
27	Thoothukudi	Ottapidaram	Ottapidaram	Muramban	Sevalkulam	25.44
28	Thoothukudi	Ottapidaram	Ottapidaram	Thenampatti	Peraikulam	9.95
29	Thoothukudi	Ottapidaram	Ottapidaram	Onankulam	Karisalkulam	19.82
30	Thoothukudi	Ottapidaram	Ottapidaram	Parivallikottai	Sevalkulam	29.72
31	Thoothukudi	Ottapidaram	Ottapidaram	Sangampatti	Manthiaikulam	20.19
32	Thoothukudi	Ottapidaram	Ottapidaram	Maniachi	Vallakulam	101.11
33	Thoothukudi	Srivaikundam	Karunkulam	Kaliyavoor	Erukankulam	12.71
34	Thoothukudi	Srivaikundam	Karunkulam	Ualkudi	Sampathkulam	72.04
35	Thoothukudi	Srivaikundam	Karunkulam	Alanda	Keelakulam, peraikulam	23.84
36	Thoothukudi	Srivaikundam	Karunkulam	Poovani	Nimavarayankulam	6.86
37	Thoothukudi	Srivaikundam	Karunkulam	Poovani	Sasthaniyankulam	18.60
38	Thoothukudi	Srivaikundam	Karunkulam	Poovani	Chekkankulam	6.85
39	Thoothukudi	Srivaikundam	Karunkulam	Poovani	Peraikulam	55.97
40	Thoothukudi	Srivaikundam	Karunkulam	Sikanthakurichi	Alankulam	18.78
41	Thoothukudi	Srivaikundam	Karunkulam	Sikanthakurichi	Sampakulam	12.49

Sl. No	District	Taluk	Block	Name of Village	Name of Tank	Ayacut in Ha
42	Thoothukudi	Srivaikundam	Karunkulam	Sikanthakurichi	Puliankulam	20.56
43	Thoothukudi	Srivaikundam	Karunkulam	Chekkarakudi	Peraikulam	30.00
44	Thoothukudi	Srivaikundam	Karunkulam	Vadakkukara seri	Kilavakulam	3.75
45	Thoothukudi	Srivaikundam	Karunkulam	Vadakkukara seri	Krishna Iyer kulam	4.13
46	Thoothukudi	Srivaikundam	Karunkulam	Vadakkukara seri	Peraikulam	70.86
47	Thoothukudi	Srivaikundam	Karunkulam	Vadakkukara seri	Illandaikulam	9.24
48	Thoothukudi	Srivaikundam	Karunkulam	Theivaseyal puram	Arasadiyar kulam	18.66
49	Thoothukudi	Srivaikundam	Karunkulam	Ellainayakkan patti	Notchikulam	34.48
50	Thoothukudi	Srivaikundam	Karunkulam	Ellainayakkan patti	Pottikulam	6.60
51	Thoothukudi	Srivaikundam	Karunkulam	Chettimalanpatti	Alankulam	28.73
52	Thoothukudi	Srivaikundam	Karunkulam	Keelavallanadu	Karadikulam	22.01
53	Thoothukudi	Srivaikundam	Karunkulam	Keelavallanadu	Urani	3.35
54	Thoothukudi	Srivaikundam	Karunkulam	Keelavallanadu	Vallakulam	17.07
55	Thoothukudi	Srivaikundam	Karunkulam	Keelavallanadu	Ilandaikulam	27.97
56	Thoothukudi	Srivaikundam	Karunkulam	Keelavallanadu	Keelapuliyan kulam	9.87
57	Thoothukudi	Srivaikundam	Karunkulam	Keelavallanadu	Seethakulam	49.21
58	Thoothukudi	Srivaikundam	Karunkulam	Keelavallanadu	Pramanankulam	63.10
59	Thoothukudi	Srivaikundam	Karunkulam	Keelavallanadu	Iyyanarpudukulam	12.80
60	Thoothukudi	Srivaikundam	Karunkulam	Keelavallanadu	Kalayarkulam	10.33

Sl. No	District	Taluk	Block	Name of Village	Name of Tank	Ayacut in Ha
61	Thoothukudi	Srivaikundam	Karunkulam	Keelavallanadu	Pandriothukulam	5.94
62	Thoothukudi	Srivaikundam	Karunkulam	Keelavallanadu	Grammakulam	22.75
63	Thoothukudi	Srivaikundam	Karunkulam	Keelavallanadu	Vadakuerukalankulam	7.00
64	Thoothukudi	Srivaikundam	Karunkulam	Cherakulam	Semparaperiperiakulam	43.19
65	Thoothukudi	Srivaikundam	Karunkulam	Cherakulam	Puliyankulam	12.14
66	Thoothukudi	Srivaikundam	Karunkulam	Cherakulam	Keelakiriyandur	89.84
67	Thoothukudi	Srivaikundam	Karunkulam	Cherakulam	Melaperumaneri	5.43
88	Thoothukudi	Srivaikundam	Karunkulam	Cherakulam	Sathanerikulam	33.42
69	Thoothukudi	Srivaikundam	Karunkulam	Cherakulam	Chiinarkulam	63.95
70	Thoothukudi	Srivaikundam	Karunkulam	Cherakulam	Theerathikulam	55.92
71	Thoothukudi	Srivaikundam	Karunkulam	Cherakulam	Eluphikulam	61.91
72	Thoothukudi	Srivaikundam	Karunkulam	Cherakulam	Cherakulam	104.59
73	Thoothukudi	Srivaikundam	Karunkulam	Cherakulam	Vettikulam	29.10
74	Thoothukudi	Srivaikundam	Karunkulam	Cherakulam	Karcherikulam	170.84
75	Thoothukudi	Srivaikundam	Karunkulam	Cherakulam	Kilakulam	61.76
					TOTAL	**2062.98**

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Cluster wise Tank details for Korampallam Aru Sub Basin

Cluster No	District	Taluk	Block	Name of Tank	Ayacut Ha	Cluster Village
NON – SYSTEM TANKS						
I	Thoothukudi	Ottapidaram	Ottapidaram	1.Ottanatham Tank	65.66	Thalavaipuram
				2.Kandasamypuram Tank	43.77	
				3.Thalavaipuram Tank	43.77	
				TOTAL	**153.20**	
II	Thoothukudi	Srivaikundam	Karunkulam	1.Ulakudi Tank	48.63	Ulakudi
				2.Chokalingapuram Tank	55.87	
				TOTAL	**104.50**	
SYSTEM TANKS						
III	Thoothukudi	Thoothukudi	Thoothukudi	Korampallam Tank	915.79	Korampallam
				Pottaikulam Tank	376.92	
				TOTAL	**1292.71**	
				GRAND TOTAL	**1550.41**	

CLUSTER WISE / INFRASTRUCTURE WISE / VILLAGE WISE CONVERGENT TABLE

Sl No.	Name of the cluster/ Infrastructure/ Village	Total Ayacut (Ha)			Total Area (Ha)			WRO		Agriculture		TNAU		Horticulture		Agri marketing		AED		Fisheries		Animal Husbandry	
		FI	PI	Gap	Wop	WP	Focus Crop	Activities	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha
	Cluster – I																						
1	Ottanatham tank	26.26	23.64	15.76	49.90	65.66		Bund Stdn & Strg Weir rep Sluice rep	715m 1No 1No														
2	Thalavai puram Tank	16.63	17.51	9.63	34.14	43.77		Bund Stdn & strg Slu rec Slu rep	1200m 1No 1No														
3	Kandasamy puram Tank	11.82	16.19	15.76	28.01	43.77		Bund Stdn Weir rep Slu rec Slu rep	1160m 1No 1No 1 No														
4	Araikulam Anicut-I							Shutter repair Ret wall in supply channel Anicut weir repair Surplus course desilting	1 No 50M 1 No 5000M														
	Total	**54.71**	**57.34**	**41.15**	**112.06**	**153.20**		Bund Stdn & strg Weir rep Slu rec Slu rep Anicut Shutter repair Ret wall in supply channel Anicut weir repair	3075M 2Nos 2Nos 3Nos 1 No 50M 1 No 5000M														

								Surplus course desilting																
	Cluster – II																							
5	Ulakudi Tank	14.10	19.45	15.08	33.55	48.630		Bund Stdn & strg Weir rep Sluice rec	500m 1No 1No															
6	Chockalingapuram tank	11.17	19.55	25.14	30.73	55.81		Nil																
	Total	**25.28**	**39.01**	**40.22**	**64.28**	**104.50**		Bund Stdn & strg Weir rep Sluice rec	500m 1No 1No															
	Cluster – III																							
6	Korampallam Tank	430.42	338.84	146.53	769.23	915.790		Surplus course desilting Constn of Syphon Retaining wall	4000m 5Nos 1500m															
	Pottaikulam Tank	184.69	143.23	49.00	327.92	376.920																		
	Total	**615.11**	**482.07**	**195.53**	**1097.18**	**1292.71**		Surplus course desilting Constn of Syphon Retaining wall	4000m 5Nos 1500m															

CONVERGENT TABLE- ABSTRACT (FOR EACH CLUSTER)

Sl No.	Name of the cluster/ Infrastructure/ Village	Total Ayacut (Ha)			Total Area (Ha)			WRO		Agriculture		TNAU		Horticulture		Agri marketing		AED		Fisheries		Animal Husbandry	
		FI	PI	Gap	Wop	WP	Focus Crop	Activities	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha	Act	No./ Ha
	Cluster – I	**54.71**	**57.34**	**41.15**	**112.06**	**153.20**		Bund Stdn & strg Weir rep Slu rec Slu rep Anicut Shutter repair Ret wall in supply channel Anicut weir repair Surplus course desilting	3075M 2Nos 2Nos 3Nos 1 No 50M 1 No 5000M															
	Cluster – II	**25.28**	**39.01**	**40.22**	**64.28**	**104.50**		Bund Stdn & strg Weir rep Sluice rec	500m 1No 1No														
	Cluster – III	**615.11**	**482.07**	**195.53**	**1097.18**	**1292.71**		Surplus course desilting Constn of Syphon Retaining wall	4000m 5Nos 1500m														
		695.10	**578.42**	**276.90**	**1273.52**	**1550.41**																	

1.2 HYDROLOGY

2.1 CATCHMENT AREA:

The catchment area of this Sub Basin is 612.00 SqKm. This Sub Basin receives rainfall predominantly from North – East monsoon. During summer, the rain fall is very meagre. No significant rainfall is received during South – West monsoon. There are 2 system tanks with a total registered ayacut of 1292.71ha and 5 Non-System tanks with a total registered ayacut of 257.70Ha under the control of WRO, PWD.

2.2. HYDROMETROLOGY:

The weather data observed and, maintained by the Chief Engineer, PWD, WRO, State Ground Water and Surface Water Resources Data Centre, Chennai is used for analysis, since long term data is available.

2.3. RAIN FALL:

There are three-rain fall station situated in this Sub Basin namely Ottapidaram, Vaagaikulam and Srivaikundam. The mean Annual rainfall of this sub basin is 761.00 mm. The South -West monsoon rainfall is 269.50 mm and that of North- East monsoon rainfall is 443.00 mm. Remaining 48.50 mm of rainfall is in winter and summer seasons.

2.4. CLIMATE:

The annual temperature varies from 24.07^{0}C to 33.83^{0}C. The average mean temperature is 28.95^{0}C.

RELATIVE HUMIDITY:

The average relative humidity is 77.73%.

WIND SPEED:

The average wind speed is 14.19Km / hour. Increase in wind speed occurs during the cyclone, which occurs mostly in November.

SUN SHINE:

The average sun shine hours is 7.44 hours per day.

2.5. SOIL CLASSIFICATION;

Soils classification maps have been prepared in 1996 by the National Bureau of Soil Survey and Land Use Planning, Bangalore(NBSS) in co operation with the Department of Agriculture of Tamilnadu . Based on this, the predominant soil order found in this Sub Basin are Inceptisols, Alfisol, Entisol and Vertisol.

2.6 LAND HOLDINGS:

More than 96 % of the land holdings are below 1 Ha followed by 2.40 % of land holding with 1 to 2 Ha size medium farmers having 2 to 5 ha are 0.85% and big farmers contributes to 0% only. The total Nos of land holdings is 2955.

Category	Size of Holdings	Numbers	% to total
Marginal	Below 1.00 ha	2859	96.75
Small	1.00 – 2.00 ha	71	2.40
Medium	2.00 – 5.00 ha	25	0.85
Big	5.00 ha & above	---	---
	TOTAL	**2955**	**100.00**

2.7.DEMOGRAPHY:

There are three blocks lying partially in this Sub Basin. They are Ottapidaram, Thoothukudy and Karungulam blocks in Thoothkudy District, The population details were obtained from the Director of Statistics, Chennai are used for calculation of domestic water requirement.

Name of sub basin	Total number of blocks	Total number of villages	Population in Million		
			2004	2010	2025
Korampallam Aru Sub Basin	3	12	0.541	0.677	0.879

2.8. WATER POTENTIAL:

a.Surface Water Potential:

75% Dependable surface water potential in Korampallam Aru Sub basin is 44.73 MCum

b. Ground Water Potential:

Due to increased use of ground water in Tamil Nadu the following problems are identified.

1. Depletion of ground water table below the economic programme level and excess increasing of the available ground water resource above the optimum level.

2. Increasing trends in critical and over exploited block
3. Sea water intrusion in the coastal region.

Since ground water has become a major source for irrigation the ground water scenario of the basin should be watched and timely action has to be taken for ground water regulation management , conservation and augmentation of this natural resource.

The Ground Water Potential of Korampallam Aru Sub basin is 28.68 Mcum

Surface Water Potential	-	44.73 Mcum
Ground Water Potential	-	28.68 Mcum
Total Potential	**-**	**73.41Mcum**

2.9. WATER DEMAND:

A. Domestic Water Demand: 18.31Mcum

B. Livestock Water Demand: 5.03Mcum

C. Industries Water Demand: 46.20Mcum

CROPPING PATTERN

Name of the sub Basin	**: Korrampallam Aru**	Fully Irrigated	1130.24	Ha
District	: Tuticorin	Partially Irrigated	325.07	Ha
Registered Ayacut Area	1550.41 Ha.	Gap	95.10	Ha
		Total Ayacut Area	**1550.41**	Ha

S.No.	Crop	Without Project				With Project				Increas-ing
		FI	PI	RF/G	TOTAL	FI	PI	RF/G	TOTAL	
I	**Perennial crop**									
		-	-	-	0.00	-	-	-	0.00	0.00
	Sub Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	0.00
II	**Annual crop**									
	Banana	530.50	-	-	530.50	540.00	-	-	540.00	9.50
	Sub Total	**530.50**	**0.00**	**0.00**	**530.50**	**540.00**	**0.00**	**0.00**	**540.00**	9.50
III	**1st crop**									
1. a	Paddy	599.74	-	-	599.74	-	-	-	0.00	-599.74
b	Paddy - SRI	-	-	-	0.00	600.00	-	-	600.00	600.00
2	Cotton	-	15.00	-	15.00	15.00	-	-	15.00	0.00
3	Maize	-	45.00	-	45.00	70.00	-	-	70.00	25.00
4	Cumbu	-	60.00	-	60.00	30.00	-	-	30.00	-30.00
5	Minor Millets	-	15.00	-	15.00	-	-	-	0.00	-15.00
6	Pulses	-	184.07	-	184.07	259.00	-	-	259.00	74.93
7	Sunflower	-	-	-	0.00	-	-	-	0.00	0.00
8	Chillie	-	6.00	-	6.00	10.00	-	-	10.00	4.00
9	Fodder Cholam	-	-	-	0.00	15.00	-	-	15.00	15.00
9	Prosophis	-	-	11.41	11.41	-	-	11.41	11.41	0.00
10	Fallows	-	-	83.69	83.69	-	-	-	0.00	-83.69
	Sub Total	**599.74**	**325.07**	**95.10**	**1019.91**	**999.00**	**0.00**	**11.41**	**1010.41**	-9.50
	Grand Total (I+II+III)	**1130.24**	**325.07**	**95.10**	**1550.41**	**1539.00**	**0.00**	**11.41**	**1550.41**	0.00
IV	**2 nd Crop**									0.00
1	Gingelly	-	-	-	0.00	20.00	-	-	20.00	20.00
2	Maize	-	-	-	0.00	70.00	-	-	70.00	70.00
3	Pulses	-	-	-	0.00	75.00	-	-	75.00	75.00
4	Sunflower	-	-	-	0.00	20.00	-	-	20.00	20.00
	Sub Total	**0.00**	**0.00**	**0.00**	**0.00**	**185.00**	**0.00**	**0.00**	**185.00**	185.00
V	**3 rd Crop**									
	Total									
	Great Grand Total	**1130.24**	**325.07**	**95.10**	**1550.41**	**1724.00**	**0.00**	**11.41**	**1735.41**	
	Cropping Intensity				**93.87%**				**111.20%**	

KORAMPALLAM SUB BASIN -KALLAR BASIN
CROP WATER REQUIREMENT WITHOUT PROJECT

Sl.No	Name of Crop	Area in Ha	Crop water requirement in mm	Total Crop water requirement in Mcm	Irrigation water requirement at source Eff=43%	Total Irrigation requirement in Mcm
I	**Annual Crop**					
1	Banana	530.50	1181	6.265	14.57	14.57
	Sub Total	**530.50**		**6.265**	**14.57**	**14.57**
II	**1st Crop**					
1.a	Paddy	599.74	1236	7.413	17.24	17.24
b	Paddy - SRI	0	865	0.000	0.00	0.00
2	Cotton	15.00	441	0.066	0.15	0.15
3	Maize	45.00	550	0.248	0.58	0.58
4	Cumbu	60.00	301	0.181	0.42	0.42
5	Minor Millets	15.00	189	0.028	0.07	0.07
6	Pulses	184.07	300	0.552	1.28	1.28
7	Sunflower	0.00	440	0.000	0.00	0.00
8	Chillies	6.00	710	0.043	0.10	0.10
9	Fodder Cholam	0.00	0	0.000	0.00	0.00
10	Prosophis	0.00	0	0.000	0.00	0.00
11	Fallows	0.00	0	0.000	0.00	0.00
	Sub Total	**924.81**		**8.530**	**19.84**	**19.84**
	Grand Total (I+II)	**1455.31**		**14.80**	**34.41**	**34.41**
III	**2nd Crop**					
1	Gingelly	0.00	208	0.000	0.00	0.00
2	Maize	0.00	486	0.000	0.00	0.00
3	Pulses	0.00	296	0.000	0.00	0.00
4	Sunflower	0.00	420	0.000	0.00	0.00
	Total	**0.00**		**0.000**	**0.00**	**0.00**
	Great Grand Total	**1455.31**		**14.80**	**34.41**	**34.41**

KORAMPALLAM SUB BASIN -KALLAR BASIN

CROP WATER REQUIREMENT WITH PROJECT

Sl.No	Name of Crop	Area in Ha	Crop water requirement in mm	Total Crop water requirement in Mcm	Irrigation water requirement at source Eff=53%	Total Irrigation requirement in Mcm
I	**Annual Crop**					
1	Banana	540.00	1181	6.377	12.03	12.03
	Sub Total	**540.00**		**6.377**	**12.03**	**12.03**
II	**1st Crop**					
1.a	Paddy	0	1236	0.000	0.00	0.00
b	Paddy - SRI	600	865	5.190	9.79	9.79
2	Cotton	15.00	441	0.066	0.12	0.12
3	Maize	70.00	550	0.385	0.73	0.73
4	Cumbu	30.00	301	0.090	0.17	0.17
5	Minor Millets	0.00	189	0.000	0.00	0.00
6	Pulses	259.00	300	0.777	1.47	1.47
7	Sunflower	0.00	440	0.000	0.00	0.00
8	Chillies	10.00	710	0.071	0.13	0.13
9	Fodder Cholam	15.00	0	0.000	0.00	0.00
10	Prosophis	0.00	0	0.000	0.00	0.00
11	Fallows	0.00	0	0.000	0.00	0.00
	Sub Total	**999.00**		**6.579**	**12.41**	**12.41**
	Grand Total (I+II)	**1539.00**		**12.96**	**24.45**	**24.45**
III	**2nd Crop**					
1	Gingelly	20.00	208	0.042	0.08	0.08
2	Maize	70.00	486	0.340	0.64	0.64

3	Pulses	75.00	296	0.222	0.42	0.42
4	Sunflower	20.00	420	0.084	0.16	0.16
	Total	**185.00**		**0.69**	**1.30**	**1.30**
	Great Grand Total	**1724.00**		**13.64**	**25.74**	**25.74**

Irrigation Water Demand:

KORAMPALLAM SUB BASIN - KALLAR BASIN

Water Potential without project

Surface Water Potential		=	44.73	Mcm
Ground Water Potential		=	28.68	Mcm
Total Potential		=	**73.41**	**Mcm**

Water Demand without project

Domestic		=	18.31	Mcm
Livestock		=	5.03	Mcm
Industrial		=	46.20	Mcm
Irrigation	WRO	=	34.41	Mcm
	PU & GW	=	63.75	Mcm
Total Water Demand		**=**	**167.70**	**Mcm**
Water Balance		**=**	**-94.29**	**Mcm**

KORAMPALLAM SUB BASIN - KALLAR BASIN

Water Potential with project

Surface Water Potential		=	44.73	Mcm
Ground Water Potential		=	28.68	Mcm
Total Potential		=	**73.41**	**Mcm**

Water Demand without project

Domestic		=	18.31	Mcm
Livestock		=	5.03	Mcm
Industrial		=	46.20	Mcm
Irrigation	WRO	=	25.74	Mcm
	PU & GW	=	63.75	Mcm

Total Water Demand	**=**	**159.03**	**Mcm**
Water Balance	**=**	**-85.62**	**Mcm**

1.3 HYDRAULICS OF THE COMPONENTS

HYDRAULIC PARTICULARS

a) ANICUT

Sl.No	Name of Anicut	Village	Ayacut(Ha)	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	Alanda Anicut	Alanda	82.91	19.00	15.40	-	1.92	1.92	733 Cusecs	-	0.75X 0.90- 2Nos	14.00	20.756	4400	1.80	-	1 in 2000	-	
2	Perurani Anicut	Perurani	107.96	21.00	29.40	-	10.96	10.96	2221 Cusec	L/S 28.60	0.90X 0.90 – 2Nos	-	-	1350	2.10	-	1 in 5280	-	
3	Araikulam Anicut-I	Araikulam	100.40	-	66.25	-	6.31	14.06	254Cusec	L/S	2.10X 0.85	64.25	17940	6000	9.10	0.90	1 in 2000	-	
4	Araikulam Anicut-II	Araikulam	-	-	66.00	-	6.50	14.25	254 Cusec	L/S			17940	-	-	-	-	-	

b) TANKS (Statement for Non-System Tanks)

Sl. No	District	Taluk	Name of Work	Ayacut in Ha	Capacity in Mcft	Number of Fillings	Free catchment in SqKm	Combined Catchment in Sq.Km	Water spread area(Sq.Km)	FTL in M	MWL in M	No.of Sluices	Nos and Length of weir (m)		Discharge in Cusecs	Length of bund (M)	Length of Supply Channel (M)	Upper Tank	Lower Tank
													Nos	ngth in					
1	Thoothukudi	Ottapidaram	Ottanatham tank	65.66	11.612	2	23.35	35.99	0.272	+20.60	+21.20	1	1	64	2565.28	1400	2500	-	Muramban
2			Thalavaipuram Tank	43.77	7.82	2.125	12.6255	14.9133	0.245	+43.00	+43.60	2	1	30.10	3180.47	1200	2000	Muramban	Koramapallam
3			Kandasamy puram Tank	43.77	23.48	2.762	4.9955	4.9955	0.110	+41.095	+41.495	2	1	30.00	643.09	1160	6000	-	Korampallam
4	Thoothukudi	Srivaikundam	Ulakudi Tank	48.63	20.59	0.599	-	4.330	0.116	+35.40	+35.90	2	1	55.00		550	-	Samba-kulam	Kaliya-voor
5			Chokalingapuram Tank	55.86	5.77	2.00	4.41	4.41	0.011	11.500	11.900	2	1	36.00	-	1100	-	-	-

b) TANKS (Statement for System Tanks)

Sl. No	District	Taluk	Name of Work	Ayacut in Ha	Capacity in Mcft	Number of Fillings	Free catchment in SqKm	Combined Catchment in Sq.Km	Water spread area(Sq.Km)	FTL in M	MWL in M	No.of Sluices	Nos and Length of weir (m)		Discharge in Cusecs	Length of bund (M)	Length of Supply Channel (M)	Upper Tank	Lower Tank
													Nos	Length in m					
1	Thoothuku	Thoothukudi	Pottaikulam Tank	377.00	33.24	6.00	-	-	1.09	6.22	6.52	3	1	30.50		3235	8.70	Peikulam	Koram-pallam
2			Korampallam Tank	916.00	228.56	2.00	-	-	4.94	6.68	6.68	11	1	146.30	50000	7474	28.70	Pottaikulam	-

C) SUPPLY CHANNELS HAVING DIRECT AYACUT

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

1.4 PARTICIPATORY IRRIGATION MANAGEMENT (PIM)

1.4 PARTICIPATORY IRRIGATION MANAGEMENT (PIM) IN KORAMPALLAM ARU SUB BASIN

1. **The Sub-Basin:** This is one of the sub-basins of the Kallar River Basin. Totally 7 irrigation tanks are under the control of Water Resources Organisation (WRO) of Public Works Department (PWD) in this sub-basin. The lists of Tanks covered with more details are fursnished in the Annexure-1. These 7 tanks are located within the sub-basin's hydraulic boundary spread over 12 villages of Srivaikundam, Ottapidaram and Thoothukudi Taluks of Thoothukudy District. The total Command area under these 7 tanks works out to 1550.41 Ha. (Annexure 1)

2. **Command Area :**

   i) Under system tanks (2tanks) : 1292.71Ha

   ii) Under Non-system tanks (5 tanks) : 257.70 Ha

   Total (7 Tanks) 1550.41 Ha

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

i)	Associations already formed under WRCP	5Nos
ii)	Associations proposed to be formed under IAMWARM Project covering 7 tanks	4 Nos. (209.07 Ha)
iii)	The total command area covered	1550.41 Ha

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

   Activities undertaken and "Walkthrough Surveys" carried out:

i) There are 8 tanks in the sub-basin spread over 12 village, 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, and 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 June – 09)

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

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

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

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

i) Initiating and completing the process of publishing EOI to hire Support Organisation at Sub-basin level (End of October 2009)

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

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

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

i) Section 26 of the TamilNadu Farmer's 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) 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 KORAMPALLAM ARU Sub Basin

Thoothukudy District.

Er.UMATHANU.M.E.
Assistant Executive Engineer, WRO, PWD,
Tank Restoration Sub-Division, Srivaikundam.

List of Competent Authorities:

a.	Section Officer, WRO, Irrigation Section, Ottapidaram.	WUAs KASB 1 to 3
b.	Section Officer, WRO, Irrigation Section, Srivaikundam	WUAs 6566 and KASB4
C.	Section Officer, WRO, Thamiraparani Basin Section, Srivaikundam.	WUA – TTK58, TTK60, TTK61 and TTK62

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 "Modernisation" under IAMWARM project was discussed with 204 Nos of farmers from 12 villages. The final list of tasks was also prepared and exhibited in the Notice Board of the Village Administrative Officers Office and Panchayat Office. These details were also discussed with the farmers and the tasks to be taken up under scheme modernisation finalized on 12.12.2008

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 (4 numbers out of 12 villages) located with in the sub-basin the normal water charges recovery as informed by the VAO, works out to 50-60% only, about the expected percentage of 80-90%.

ii) With the proposal to form new WUAs under IAMWARM in 'Korampallam Aru 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.

11. "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.

12. 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 - 01

AN ASSESSMENT OF COMMAND AREA AND WUAs UNDER THE CONTROL OF WRO OF PWD IN KORAMPALLAM ARU SUB BASIN

WUA No.	Name of Irrigation System 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	To be formed under IAMWARM
KASB-1	Ottanatham Tank	65.66	Ottanatham	Ottapidaram	Thoothukudy	-	65.66	-	Yes
KASB-2	Thalavaipuram Tank	43.77	Thalavaipuram	Ottapidaram	Thoothukudy	-	43.77	-	Yes
KASB-3	Kandasamypuram Tank	43.77	Kandasamypuram	Ottapidaram	Thoothukudy	-	43.77	-	Yes
WUA-6566	Ulakudi Tank	48.63	Ulakudi	Srivaikundam	Thoothukudy	48.63	-	Yes	-
KASB-4	Chokalingapuram Tank	55.87	Chokalingapuram	Srivaikundam	Thoothukudy	-	55.87	-	Yes
WUA-TTK58	Pottaikulam Tank	376.92	Pottaikulam	Thoothukudy	Thoothukudy	376.92	-	Yes	-
WUAs-TTK60, TTK61, TTK62	Korampallam Tank	915.79	Korampallam	Thoothukudy	Thoothukudy	915.79	-	Yes	-
	Total	**1550.41**				**1341.34**	**209.07**		

ABSTRACT

1.	Command Area already covered under WRCP and other Project / Schemes.	1341.34Ha.
2.	Command Area proposed to be covered under IAMWARM Project	209.07 Ha
3.	Total Command Area controlled by WRO of PWD in the Sub Basin.	1576.73Ha.
4.	Total No.of WUAs already formed under WRCP	5 No.
5.	Total No.of WUAs proposed to be formed under IAMWARM	4 Nos.
6.	Total No.of WUAs that will cover the entire Sub Basin	9 Nos.

ANNEXURE – 02

DETAILS OF "Awareness Creation Activities and Walk –Through Surveys"

Sl.No	Date of visit	Names if the villages visited	Awareness Programme (No.of farmers attended) (Prepared the list of farmers with acknowledgement separately and attach)	Walk – Through survey (No.of farmers participated) (Prepared the list of farmers with acknowledgement separately and attach)	Remarks
1	05.12.08	Ottanatham, Thalavaipuram, Kandasamypuram.	-	41	-
2	13.12.08	Ulakudi	-	11	-
3	26.01.07	Ulakudi(Kaliyavoor)	45	-	Grama Sabha Meeting
4	29.10.08	Chokalingapuram	-	12	-
5	17.12.08	Kalankarai, Athimarapatti, Kulayankarisal	-	130	-
		Total	**45**	**194**	

ANNEXURE – 03

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

Sl.No.	Date of Visit	Names of the Villages visited	Outcome of walk through survey and discussions with farmers	
			Works suggested by Farmers	Works finalised by WRO Officials
1	05.12.08	Ottanatham Tank	Standardisation of Bund, Additional Sluice, Improvement to weir, Supply channel improvement, Desilting, Road for Agriculture purpose, Causeway,	Standardisation & Strengthening of Bund, Improvement to weir, Surplus course improvement, Desilting, Sluice repair
2	05.12.08	Thalavaipuram Tank	Field Channel Standardisation, Standardisation of Bund, Improvement to Retaining wall, Supply channel improvement, Desilting.	Standardisation & Strengthening of Bund, Sluice repair and reconstruction, Surplus course desilting.
3	05.12.08	Kandasamypuram Tank	Field Channel Standardisation, Standardisation of Bund, Apron repair, Supply channel improvement, Desilting, Sluice reconstruction.	Standardisation & Strengthening of Bund, Sluice repair and reconstruction, Weir repair,Surplus course desilting.

4	13.12.08	Ulakudi Tank	Field Channel, Improvement to Tank Bund,Skin wall to Weir,Weir Improvements,Sluice Improvement	Improvement to Tank Bund, Sluice repair, Weir repairs.
5	29.10.08	Chokalingapuram Tank	Field Channel, Strengthening of Tank bund, Skin wall to weir	Not included since New tank formed.
6	17.12.08	Pottaikulam Tank & Korampallam Tank	Surplus Course desilting, Construction of Well shyphon, Retaining wall.	Surplus Course desilting, Construction of Well shyphon, Retaining wall.

DETAILS OF WUAS PROPOSED IN KORAMPALLAM ARU SUB BASIN.

Sl. No	WUA No.	Name of Tank	Name of Villages	Name of WUA	Ayacut in Ha
THOOTHUKUDI DISTRICT					
1.	**KASB1**	Ottanatham Tank	Ottanatham	Ottanatham Tank Water User Association	65.66
2.	**KASB2**	Thalavaipuram Tank	Thalavaipuram	Thalavaipuram Tank Water User Association	43.77
3.	**KASB3**	Kandasamypuram Tank	Kandasamypuram	Kandasamypuram Tank Water User Association	43.77
4	**KASB4**	Chokalingapuram Tank	Chokalingapuram	Chokalingapuram Tank Water User Association	55.87
				TOTAL	**209.07**

PARTICULARS OF WALK THROUGH SURVEY

Sl No	Date of walk through survey	Location	Farmers Request	Technical Solution – WRO	Proposal made – WRO
1	05.12.08	Ottanatham Tank	Standardisation of Bund, Additional Sluice, Improvement to weir, Supply channel improvement, Desilting, Road for Agriculture purpose, Causeway,	Standardisation of Bund, Improvement to weir, Supply channel improvement, Desilting are to be done.	Standardisation of Bund, Improvement to weir, Surplus course desilting, Sluice repair are proposed.
2	05.12.08	Thalavaipuram tank	Field Channel Standardisation, Standardisation of Bund, Improvement to Retaining wall, Supply channel improvement, Desilting.	Standardisation of Bund, Sluice repair and reconstruction, Supply Channel desilting are to be done.	Standardisation of Bund, Sluice repair and reconstruction, Surplus course desilting are proposed.
3	05.12.08	Kandasamypuram Tank	Field Channel Standardisation, Standardisation of Bund, Apron repair, Supply channel improvement, Desilting, Sluice reconstruction.	Standardisation of Bund, Sluice repair and reconstruction, Weir repair,Supply Channel desilting are to be done.	Standardisation of Bund, Sluice repair and reconstruction, Weir repair,Supply Channel desilting are proposed.

Sl No	Date of walk through survey	Location	Farmers Request	Technical Solution – WRO	Proposal made – WRO
4	13.12.08	Ulakudi Tank	Field Channel Improvement to Tank Bund Skin wall to Weir Weir Improvements Sluice Improvements	Improvement to Tank Bund Sluice repair, Weir repairs are to be done.	Improvement to Tank Bund Sluice repair, Weir repairs are proposed.
5.	29.10.08	Chokkalingapuram Tank	Field Channel Strengthening of Tank bund Skin wall to weir	Not included since New tank formed.	Not included since New tank formed.
6	17.12.08	Korampallam & Pottaikulam Tank	Surplus course desilting, Construction of Well shyphon, Retaining wall	Surplus course desilting, Construction of Well shyphon, Retaining wall are proposed	Surplus course desilting, Construction of Well shyphon, Retaining wall are to be done.

1.5 IRRIGATION INFRASTRUCTURE

LIST OF ANICUTS – KORAMPALLAM ARU SUB BASIN

Sl. No	Anicuts	Village	Block	Taluk	District	Direct Ayacut Area in Ha	Capacity
1	Alanda Anicut	Alanda	Karunkulam	Srivaikundam	Thoothukudi	-	20.9559 MCft
2	Perurani Anicut	Perurani	Karunkulam	Srivaikundam	Thoothukudi	-	5.77 MCft
3	Araikulam anicut I	Araikulam	Ottapidaram	Ottapidaram	Ottapidaram	-	36.71 Mcft
4	Araikulam anicut II	Araikulam	Ottapidaram	Ottapidaram	Ottapidaram	-	-

LIST OF TANKS (STATEMENT FOR NON-SYSTEM TANKS)

NON-SYSTEM TANKS

Sl. No	Tank	Village	Block	Taluk	District	Direct Ayacut Area in Ha	Capacity (MCft)
1	Ottanatham Tank	Ottanatham	Ottapidaram	Ottapidaram	Thoothukudi	65.66	11.612
2	Thalavaipuram Tank	Thalavaipuram	Ottapidaram	Ottapidaram	Thoothukudi	43.77	7.82
3	Kandasamypuram Tank	Kandasamypuram	Ottapidaram	Ottapidaram	Thoothukudi	43.77	23.48
4	Ulakudi Tank	Ulakudi	Karunkulam	Srivaikundam	Thoothukudi	48.63	20.9559
5	Chokalingapuram Tank	Chokalingapuram	Karunkulam	Srivaikundam	Thoothukudi	55.87	5.77
					Total	**257.70**	**69.6379**

LIST OF TANKS (STATEMENT FOR SYSTEM TANKS)

Sl. No	Tank	Village	Block	Taluk	District	Direct Ayacut Area in Ha	Capacity (MCft)
1	Pottaikulam Tank	Kulayankarisal	Thoothukudi	Thoothukudi	Thoothukudi	376.92	33.24
2	Korampallam Tank	Korampallam	Thoothukudi	Thoothukudi	Thoothukudi	915.79	228.56
					Total	**1292.71**	**261.80**

LIST OF SUPPLY CHANNEL

Sl. No.	Name of Supply Channel	Off take point	Length in Km	Village	Block	Taluk	District	Direct Ayacut in Ha
1	Alanda Supply Channel	Alanda Anicut	4.40	Alanda	Karunkulam	Srivaikundam	Thoothukudi	-
2	Perurani Supply Channel	Perurani Anicut	1.35	Perurani	Karunkulam	Srivaikundam	Thoothukudi	-
3	Ottapidaram Supply Channel	Araikulam Anicut	6.00	Araikulam	Ottapidaram	Ottapidaram	Thoothukudi	-
		TOTAL	**11.75**					

List of tanks/Anicuts executed under various schemes (Viz, Part II Scheme, NABARD, WRCP I etc.,) since 2003.

SI. No	Name of Anicut / Tank	Ayacut (Ha)	Scheme in which executed	Amount (Lakhs)	Details of components executed	Remarks
1	Chokalingapuram Tank	55.87	New tank formation under NABARD 2005	40.75	New tank Formation	Since new tank formed not included in IAMWARM Project

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

Name of Sub Basin: Korampallam Aru

SL.NO.	DETAILS	ANICUT			SYSTEM TANK			NON- SYSTEM TANK			ANY OTHER SUPPLY CHANNEL		REMARKS
		NOS	SUPPLY CHANNEL IN KM	DIRECT AYACUT	NOS	SUPPLY CHANNEL IN KM	AYACUT	NOS	SUPPLY CHANNEL IN KM	AYACUT (HA)	LENGTH	DIRECT AYACUT	
1	Available Infrastructure in sub basin	4	11.75	-	2	11.00	1292.71	5	-	257.70	-	-	
2	Infrastructure excluded in iamwarm project since works carried out under various schemes from 2000	-	-	-		-	-L	1	-	55.87	-	-	EXECUTED UNDER RIDF IV SCHEME
3	Infrastructures that does not require any rehabilitation works	3	6.75	-	2	7.00	-	-	-	-	-	-	-
4	Works taken up in iamwarm project	1	5.00	-	-	4	1292.71	4	-	0	-	-	

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

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

1.6 REHABILITATION OF IRRIGATION INFRASTRUCTURE

1.6 Rehabilitation of IRRIGATION Infrastructure

1.6.1. Structural Status & Deficiencies in the System

1.6. Rehabilitation of Irrigation Infrastructure

1.6.1. Structural Status & Deficiencies in the System

The following are the present structural condition of the Korampallam Aru sub-basin

system.

1. This system is a old system existing for more than 100 years as such requires Rehabilitation.
2. Heavy accumulation of silt due to hilly region and contour nature of canal system.
3. Lack of adequate control of regulating structures like Anicuts, Head Sluices, Sand/Scour vents etc.,
4. The System, Non system tanks and Anicut are to be rehabilitated

Salient Features of Proposals:-

In order to improve the conveyance and Operational Efficiency in Irrigation, it is now proposed to improve and modernize the irrigation infrastructures in Korampallam Aru Sub Basin.

1. Repairs to damaged Anicuts ie) Anicut Repair, Surplus course desilting, Retaining wall in Supply channel, Shutter repair.
2. Trimming the supply channels by earthwork excavation.
3 Repairing, Restoring the traditional water bodies (i.e. tanks)
   a. Desilting the supply channels to tank.
   b. Strengthening the bunds of the tanks wherever necessary for effectively storing the water and conveying it to the entire command area and also for conveying agriculture inputs to the field.
   c. Repairs to the damaged weirs and sluices.
   d. Reconstruction of the damaged Sluices.
   e. Providing revetments in selective area of the tanks.
   f. Providing S.G. Shutter /Plug arrangements to Sluices, Head sluices, Scour vents etc.,
   g. Removing, Repairing and refixing in position of the existing S.G. shuttering arrangements and providing locking arrangements etc.,

1.6.2. Expected Outcome

1. Increase in conveyance efficiency by from 43% to 53%.
2. The present Gap area of 276.90 ha, is to be converted as a fully irrigated area.
3. The following irrigation infrastructure development works are proposed in the sub basin.

Rehabilitation works for 4 tanks.

Rehabilitation works for 1Anicut.

Rehabilitation of Supply channel for a length of 9.00 KM.

PACKAGE DETAILS

Sl.No.	Package No	Name of Work	Amount in Lakhs
1	01/IAMWARM / WRD KPM/WORKS/III (2009 - 2010)	Rehabilitation and Modernisation of Non System tanks, Anicuts and Supply channel in Korampallam Aru Sub Basin in Ottapidaram Taluk and Srivaikundam Taluk of Thoothukudi District.	110.850
2	02/IAMWARM / WRD KPM/WORKS/III (2009 - 2010)	Rehabilitation of Korampallam Tank surplus course under Korampallam Aru Sub Basin in Kalangarai Village of Thoothukudy District.	245.986
		Total Amount	**356.836**

Details of proposals in each Infrastructure of the sub basin – Korampallam Aru Sub Basin

Sl. No	Name of tank/ Anicut/ Reservoir	Bund				Sluice				Weir				Anicut				Supply Channel			
		Length (m)	Std	R.W	Amt	No of Sluice	Repair	Reconstruction	Amt	No of Weir	Repair	Reconstruction	Amt	No of Anicut	Repair	Reconstruction	Amt	Length (m)	Std	R.W	Amt
PACKAGE -I																					
ANICUT																					
1	AralikulamAnicut	-				-			-	-			-	1	1	-	16.793	5000	5000	110	25.394
NON-SYSTEM TANKS																					
1	Ottanatham Tank	1400	1400	-	13.059	1	1		0.175	1	1		12.754	-							
2	Thalavaipuram Tank	1200	1200	-	12.279	2	1	1	2.691	1				-							
3	Kandasamypuram Tank	1160	1160	-	11.858	2	1	1	2.692	1	1		2.800	-							
4	Ulakudi Tank	500	500		2.618	2		1	2.488	1	1		4.348								
	Total	**4260**	**4260**	**0**	**39.814**	**7**	**3**	**3**	**8.046**	**4**	**3**	**0**	**19.9**	**1**	**1**	**0**	**16.793**	**5000**	**5000**	**110**	**25.394**
PACKAGE -II																					
SYSTEM TANKS																					
1	Korampallam Tank / Pottaikulam Tank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11000	4000	960	244.49
	Total																	**11000**	**4000**	**960**	**244.49**
	Grand Total	**4260**	**4260**	**-**	**39.814**	**7**	**3**	**3**	**8.046**	**4**	**3**	**-**	**19.902**	**1**	**1**	**-**	**16.793**	**16000**	**9000**	**1070**	**269.88**
	Environmental Activities																				
	Total																				

TANK DETAILS WITH FREE BOARD PROVIDED

Sl. No.	Name of the Tank	Maximum Height of Bund (m)	Free Board		Length of Bund
			Provided previously	Provided now	
1	Ottanatham Tank	3.700	1.00	1.50	1400
2	Thalavaipuram Tank	3.550	1.00	1.50	1200
3	Kandasamypuram Tank	2.945	1.00	1.50	1160
4	Ulakudi Tank	5.07	1.00	1.50	550

Note:-

1) For height of bund up to 3.00 m – Free board is 1.25m

2) For height of bund more than 3.00m – Free board is 1.50 m

ABSTRACT FOR PACKAGE - I

B. WRO COST TABLE

Sl. No.	Description of work	Quantity	Unit	Amount in Lakhs	Remarks
	ABSTRACT				
I.Tank Component					
a. Anicut					
	Anicut Repair	1	Nos	16.793	
	Retaining wall in Supply channel	156.50	M	18.795	
	Surplus Course : Desilting the channel	5000	M	6.599	
b. Tanks					
	Tank Bund : Strengthening the tank bund	4260	M	39.814	
	Sluice : Repairs	3	Nos	0.525	
	Reconstruction	3	Nos	7.521	
	Weir : Repairs	3	Nos	19.902	
	Reconstruction	--		--	
	Measuring Device			0.900	
	SUB TOTAL	--		**110.85**	
	TOTAL	--		**110.85**	
II. Non Tank Component					
NIL					
	Total	**--**		**110.85**	

1). Tank component = 110.85 Lakhs
2). Non-Tank component = Nil
Total = 110.85 Lakhs

ABSTRACT FOR PACKAGE II

B. WRO COST TABLE

Sl. No.	Description of work	Quantity	Unit	Amount in Lakhs	Remarks
	ABSTRACT				
I.Tank Component					
	Bund Standardisation	4000	M	30.70	
	Flood Bank Protection Wall,	960	M	197.00	
	Improvements to Surpluse Reguloter	1	Nos	7.80	
	Well syphon	4	Nos	8.98	
	Measuring Device			1.50	
	SUB TOTAL	--		**245.98**	
	TOTAL	--		**245.98**	
II. Non Tank Component					
NIL					
	SubTotal	**--**		**---**	
	Total	**--**		**245.98**	

ABSTRACT FOR PACKAGE KORAMPALLAM ARU SUB BASIN

B. WRO COST TABLE

Sl. No.	Description of work	Quantity	Unit	Amount in Lakhs	Remarks
	ABSTRACT				
I.Tank Component					
a. Anicut					
	Anicut Repair	1	Nos	16.79	
	Retaining wall in Supply channel	156.50	M	18.79	
	Surplus Course : Desilting the channel	5000	M	6.59	
b. Tanks					
	Tank Bund : Strengthening the tank bund	4260	M	39.81	
	Sluice : Repairs	3	Nos	0.52	
	Reconstruction	3	Nos	7.52	
	Weir : Repairs	3	Nos	19.90	
	Reconstruction	--		--	
c.Supply Channel (Surplus Course)					
	Bund Standardisation	4000	M	30.70	
	Flood Bank Protection Wall,	960	M	197.00	
	Improvements to Surpluse Reguloter	1	Nos	7.80	
	Well syphon	4	Nos	8.98	
	Measuring Device			2.40	
	SUB TOTAL	--		**356.83**	
d. Environmental cell		--		**3.50**	
	TOTAL	--		**360.33**	
II. Non Tank Component					
NIL					
	Total	**--**		**360.33**	

1). Tank component = 360.33 lakhs

2). Non-Tank component = Nil

Total = 360.33 lakhs

PACKAGE DETAILS
PACKAGE I

Sl.No	Name of work	Amount in Lakhs
1	Rehabilitation and Modernisation of Non System tanks, Anicuts and Supply Channel in Korampallam Aru Sub Basin in Ottapidaram Taluk and Srivaikundam Taluk of Thoothukudi District.	110.85
	TOTAL AMOUNT	**110.85**

PACKAGE DETAILS
PACKAGE II

Sl.No	Name of work	Amount in Lakhs
1	Rehabilitation of Korampallam Tank Surplus Course under Korampallam Aru Sub Basin in Kalankarai Village of Thoothukudi District.	245.98
	TOTAL AMOUNT	**245.98**

KORAMPALLAM ARU SUB BASIN
PACKAGE-1
GENERAL ABSTRACT

Sl.No	Name of Tank	Estimate Amount
1	Araikulam Anicut	42.18
2	Ottanatham Tank	26.13
3	Kandasamypuram Tank	17.65
4	Thalavaipraum Tank	15.27
5	Ulakudi Tank	9.60
	TOTAL	**110.85**

KORAMPALLAM ARU SUB BASIN
PACKAGE – II

Name of Work : REHABILITATION OF KORAMPALLAM TANK SURPLUS COURSE UNDER KORAMPALLAM ARU SUB BASIN IN KALANKARAI VILLAGE OF THOOTHUKUDI DISTRICT.

Sl.No	Name Of Tank	Estimate Amount
1	Bund Standardisation	3070000
2	Flood Bank Protection Wall,	19700000
3	Improvements to Surpluse Reguloter	780000
4	Well syphon	898570
5	Measuring Device	150000
	TOTAL =	**24598570**

KORAMPALLAM ARU SUB BASIN
ABSTRACT FOR PACKAGE

Sl.No	Name of Tank/ Anicut	Amount in Lakhs
	Package- I	
1	Ottanatham Tank	26.13
2	Thalavaipuram Tank	15.27
3	Kandasamypuram Tank	17.65
4	Araikulam anicut - I	42.18
5	Ulakudi Tank	9.60
	Total	**110.85**
	Package- II	
1	Korampallam and Pottaikulam Tank	**245.98**
	GRAND TOTAL	**356.83**

C. (PHYSICAL AND FINANCIAL PROGRAM

Sl. No	Description	I Year		II Year		Total	
		Quantity	Amount in Lakhs	Quantity	Amount in Lakhs	Quantity	Amount in Lakhs
I	ANICUT						
	Anicut Repair	1No	16.793	---	----	1No	16.793
	Retaining wall in Supply Channel	156.60M	18.795	---	----	156.60M	18.795
	Surplus Course desilting	---	----	5000M	6.599	5000M	6.599
II	PWD TANKS						
a.	Bund Standardisation	4260m	39.814	---	---	4260m	39.814
b.	Sluice reconstruction	3 Nos	7.521			3Nos	7.521
c.	Weir repair	---	---	3 Nos	19.902	3 Nos	19.902
d.	Strengthening of Flood Banks			4000M	30.700	4000M	30.700
e.	Flood Bank Protection wall	960M	197.000	---	---	960M	197.000
f.	Well shyphon construction	4Nos	8.985	---	---	4Nos	8.985
g.	Improvements to Surplus regulator	1Nos	7.800	---	---	1Nos	7.800
h	Renewal of shutter for sluice			3 Nos	0.525	3 Nos	0.525
i	Measuring device						2.400
	Total	---	296.708	---	57.726		356.836
IV	Envirionmental Cell Activities	---	---	----	---		3.500
	Total Amount	---	296.708	---	57.726		360.336

CONSTRUCTION METHODOLOGY - PACKAGE I

Sl No	Description of Item	Rainy season			Working Months									Total
		1	2	3	4	5	6	7	8	9	10	11	12	
		9-Oct	9-Nov	9-Dec	10-Jan	10-Feb	10-Mar	10-Apr	10-May	10-Jun	10-Jul	10-Aug	10-Sep	
1	Earth work excavation	Rainy Season	Rainy Season	Rainy Season			1932	3863	5795	9659	7727	7727	1932	38635
2	Channel	Rainy Season	Rainy Season	Rainy Season		5060	6325	6325	5060	2530				25300
3	Foundation	Rainy Season	Rainy Season	Rainy Season	900	900								1799
	Concrete													
4	M 7.5 grade	Rainy Season	Rainy Season	Rainy Season	92	92								185
5	M 10 grade	Rainy Season	Rainy Season	Rainy Season	122	244	122							488
6	M 15 grade	Rainy Season	Rainy Season	Rainy Season	141	330	377	94						943
7	M 20 grade	Rainy Season	Rainy Season	Rainy Season		56	75	56						187
8	Random rubble masonry	Rainy Season	Rainy Season	Rainy Season		35								35
9	Plastering	Rainy Season	Rainy Season	Rainy Season		15								15
10	Revetment	Rainy Season	Rainy Season	Rainy Season				167	333	416	416	167	167	1666

PACKAGE I

REQUIREMENT OF EQUIPMENTS AND MATERIALS

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	FUEL
I	2	2	4	290	4	6	2	509	1505	15	974	649		

CONSTRUCTION METHODOLOGY
PACKAGE II

Sl No	Description of Item	Rainy season			Working Months									Total
		1	2	3	4	5	6	7	8	9	10	11	12	
		9-Oct	9-Nov	9-Dec	10-Jan	10-Feb	10-Mar	10-Apr	10-May	10-Jun	10-Jul	10-Aug	10-Sep	
1	Earth work excavation	Rainy Season	Rainy Season	Rainy Season			0	0	0	0	0	0	0	0
2	Channel	Rainy Season	Rainy Season	Rainy Season		11400	14250	14250	11400	5700				57000
3	Foundation	Rainy Season	Rainy Season	Rainy Season	3898	3898								7797
	Concrete													
4	M 7.5 grade	Rainy Season	Rainy Season	Rainy Season	393	393								786
5	M 10 grade	Rainy Season	Rainy Season	Rainy Season	0	0	0							0
6	M 15 grade	Rainy Season	Rainy Season	Rainy Season	896	2091	2390	597						5975
7	M 20 grade	Rainy Season	Rainy Season	Rainy Season		0	1	0						1
8	Random rubble masonry	Rainy Season	Rainy Season	Rainy Season		0								0
9	Plastering	Rainy Season	Rainy Season	Rainy Season		0								0
10	Revetment	Rainy Season	Rainy Season	Rainy Season			1080	810	540	270				2700

PACKAGE - II

REQUIREMENT OF EQUIPMENTS AND MATERIALS

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	FUEL
II	2	2	4	846	4	23	2	2064	3043	9	3652	2435		

1.7. ENVIRONMENTAL COMPONENT

INDEX

IAMWARM Project

(Environmental Component in Korampallamaru Subbasin)

Name of the River Basin	Kallar River Basin
Name of Sub basin	Korampallamaru Sub basin
Name of WUA	**To be formed**
Name of Division	The Executive Engineer, PWD-WRO., Korampallamaru Basin division, Thoothukudi.
Name of Sub division	1.The Assistant Executive Engineer, PWD-WRO, Korampallamaru Basin Sub division, Thoothukudi. 2. The Assistant Executive Engineer, PWD-WRO., Korampallamaru Basin Sub division, Kovilpatti.
District	Thoothukudi
Taluk	1.Thoothukudi 2.Ottapidaram 3.Srivaikundam
Block	1.Thoothukudi 2. Ottapidaram 3.Karunkulam
I) Name of tank severely affected by Aquatic weeds	Enclosed Annexure - I
II) Domestic Sewage	Most of the villages dumped the waste in the outer of the village in barren lands **.**
lII)Municipal Solid Waste	Bukkal odai of Thirespuram is used as a dumping site for solid waste of the encroachers.
IV) Industries	Enclosed Annexure - Il

V) Water quality status	i)Surface water **The surface water samples were collected and tested periodically by the Environmental Cell Division, Madurai.The surface water is drawn for usage from tanks are classified as system tank and Non system tank. All the steams and tanks are complied with drinking and irrigation quality standards.**
	ii) Ground water **Five observation wells are located in this sub basin.Moderate quality of groundwater is noticed in all the villages located in this subbasin except Melathattaparai village of Thoothukudi taluk.The chloride content lies within the permissible limit indicating the suitability for domestic and irrigation purposes.** **In Melathattaparai village of Thoothukudi taluk,the TDS value observed is 2763mg/l during 2004 premonsoon period.The chloride content is within the permissible limit . But the total hardness value and the nitrate value exceed the permissible limit .This shows the non-suitability for drinking purposes.** **As for the groundwater,the quality is found to be satisfactory within the microbial standard limits.**

ANNEXURE – I

Tanks affected by Aquatic weeds

Sl. No	Name of tank	Name of village	Ayacut in Ha	Type of weed
1	**Pottaikulam tank**	**Pottaikulam**	**376.92**	**-**
2	**Korampallam tank**	**Korampallam**	**915.79**	**-**
3	**Thalavaipuram tank**	**Thalavaipuram**	**43.77**	**-**
4	**Kandasamypuram tank**	**Kandasamypuram**	**43.77**	**-**
5	**Ottanatham tank**	**Ottanatham**	**65.66**	**-**
6	**Chockalingapuram tank**	**Chockalingapuram**	**55.87**	**-**
7	**Ulakudi tank**	**Ulakudi**	**48.63**	**-**
		Total ayacut	1550.41	

ANNEXURE – II

Industries

Sl. No	Name of industry	Category	Type	Quantity of effluent(KLD)	
				Sewage	Trade
1	**Agro Coir Tech,Servaikaranmadam**	**Coir units**	**O/S**		
2	**Arasan Fertilizers Private Ltd,Kadambur**	**Fertilizer**	**R/M**		
3	**Archana Spinners,Elainayakkanpatti**	**Textile Spinning**	**O/M**		
4	**Edhayam Frozen Foods Pvt Ltd, Maravanmadam.**	**Sea Food Processing**	**O/M**		
5	**Golden Salt Refinery,Ottapidaram**	**Salt Refinery**	**O/S**		
6	**Liberty Match Company(P) Ltd,Kadambur**	**Match**	**R/S**		
7	**Mountain Spinning Mills Ltd, Kootudankadu.**	**Textile spinning**	**O/L**		
8	**Muthu Inorganic Chemicals,Mudivaithanenthal**	**Chemical**	**R/S**		
9	**Paval Ind,Maravanmadam.**	**Chemical**	**R/S**		
10	**Premier Enterprises,Keelavallanadu**	**Textile Bleaching**	**O/M**		
11	**Raya Salt Corporation,Mullakadu**	**Salt Refinery**	**O/S**		
12	**Royal Chlorates,Pasuvanthanai**	**Chemical**	**R/S**		
13	**Siggir India Ltd,Mullakadu**	**Industrial Gaseous**	**R/S**		
14	**Sivanthi Coir Products,Servaikaranmadam**	**Coir units**	**O/S**		
15	**Sona chem.,Nagampatti**	**Chemical**	**R/S**		
16	**Sri Lakshmi Match Industries,Kadambur**	**Matches**	**R/S**		

17	**Sri Palaniandavar Match Works,Kadambur**	**Matches**	**R/S**		
18	**Sri Venkateshwara Carbides,Pasuvanthanai**	**Chemicals**	**R/S**		
19	**TCM Ltd,Mullakadu**	**Chemical**	**R/S**		
20	**Theva & Co,Sendilampannai**	**Sea Food Processing**	**O/M**		
21	**Tuticorin Spinning Mills,Allikulam**	**Textile and Dying unit**	**R/S**		
22	**V.K.S.Exports, Servaikaranmadam**	**Sea Food Processing**	**O/M**		

Note: **The total number of industries located in the Korampalamaru sub basin is around 22, in which all the category industries are given in the table.**

Name of work :- Environmental Monitoring on Water and Soil quality and creating awareness & Updating of "Environmental and Social Assessment Report" for Korampallamaru Sub Basin

Estimate Cost Rs 3.50 Lakhs

ENVIRONMANTAL MANAGEMENT FRAME WORK

INRODUCTION

Under IAMWARM, 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. An Environmental assessment study has been conducted by Environment Protection Training and Research Institute, Hyderabad and identifies the Environmental issues, social issues and remedial measures for Kallar river basin as follows.

Environmental issues	-Drought prone sub basin
Social issues	-Dry land agriculture
	-Reduction in livestock
	-Women empowerment-SHGs
Remedial measures	-Livestock services delivered and managed.
	-Aquatic weed management
	-Solid Waste management

The Environmental Cell of WRO assessed Environmental impact on the quality of Surface water, Ground water and Soil by collecting water & soil samples and testing them. Micro level Environmental Status Report for Kallar River basin was prepared with the assistance of World Bank.

Also awareness programs and Workshops were conducted to create awareness on the Environmental issues and remedies among the Public, Farmers, Government Officials and NGO's. 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

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

DESCRIPTION OF SUB BASIN

The river Korampallam or Uppar odai originates from the plains southwest of Kadambur village at an altitude of about +104m.It traverses through Malaipatti, Ottanatham,Muramban,Varadarajapuram,Melathattaparai and Keelathattaparai villages before it empties into Korampallam tank.The surplus water from Korampallam tank confluence with Gulf of Mannar at Mullaikadu village.This tank also receives water from Tamiraparani river from 'north' main canal of Srivaikundam anicut.

The Korampallam aru has three tributaries and they are (a)left arm of Uppar odai (b)Chekkarakudi river and (c)Perurani river.The total length of this river is 44Km from its origin to the confluence point,the Gulf of Mannar.

Ottapidaram,Srivaikundam,Thoothukudi and Kayathar are the four raingauge stations in this subbasin.The subbasin has an area extent of 612sq.km. There are two anicuts in this sub basin and the command area under this sub basin comes under system ayacut.1292.71 ha&Non system ayacut.402.02 ha feed by 9 PWD tanks.

ENVIRONMENTAL PROBLEMS:

The following environmental issues were identified in the Korampallamaru sub basin.

WATER WEEDS

There is no waterweeds problem in this basin because the flow in the river is only very few days in a year.

INDUSTRIAL POLLUTION

The total number of industries located in the Korampallamaru sub basin is around 22, which includes the industries like Textile spinning,Industrial Gaseous,Textile and Dying unit,Textile bleaching, Sea Food Processing,

Chemicals, Coir unit, Salt Refinery etc, There is no highly polluting Red category Industries. .All category industries are listed out in the annexure – IV

The notable industries which are found along the coastal region of Tuticorin are given below

- Tuticorin port.
- Tuticorin thermal power plant.
- Tuticorin alkali chemicals and fertilizers Ltd.
- Heavy water plant.
- Southern Petrochemicals Industries Corporation.
- SIPCOT.
- Tuticorin salt marine chemicals.
- Sterlite copper smelting unit.

The effluent of Tuticorin alkali chemicals and fertilizers Ltd is discharged into sea after treatment.The sewage from Heavy water plant is discharged into a nearby lagoon in the coastal area.The treated effluents in the SPIC Ltd are disposed into underground strata of its own land which could affect the groundwater. The effluents of Tuticorin thermal power plant suchas fly ash and bottom ash are routinely disposed off through pipes in the ash dyke is known to contaminate the adjoining coastal ecosystem by lateral mitigation of leachates and surface runoff of pollutants originating from the fly ash.Seafood industries are located in this river basin which has an effluent let into the sea would kill marine life,while air pollution is expected to affect plants,crops,human beings and livestocks.

The Tamil Nadu Pollution Control Board (TNPCB) is the authority for monitoring the quality of effluents from the industries,individual treatment plants installed by the industries and the Common Effluent Treatment Plants (CETP)

SOLID WASTE DIPOSAL

The problem of Garbage collection and its disposal has assumed importance, in the context of rapid growth of population, Urbanization, industrial growth and development.

Most of the villages dumped the waste in the outer of the village in barren lands.Eventhough this river is a seasonal river,dumping of solid wastes

of domestic and Industrial origin in the river path would affect the ecosystem when there is a flow of water in the river.

Domestic and commodity solid waste may be centrally collected in a place from where the local body should take the responsibility for disposing the solid waste in a suitable place where there is no habitation and where there is no chance of contaminating water bodies with measures as per BIS for solid waste management.The local bodies have to impose the solid waste management and Handling rule-2000 to prevent environment degradation and health hazards.

SEWAGE DISPOSAL LET INTO WATER BODIES

During the field survey, it is found that in many locations, there is no public sanitary complex have been constructed near riverbanks and banks of tanks.

Small towns are discharging the sewage directly into the drains and streams nearby.Majority of the villages are not having any proper drainage system.The sewage from the houses are not having any proper drainage system.The sewage from the houses is opened out into the roads through small channels.Foul smelling drainage water,which harbored plenty of bacteria and disease causing microbes,flow through the road,thus creating a suitable environment for the multiplication of insect vectors like housefly and mosquitoes.The agricultural drains and the raw sewage contain more Nitrogen,Potassium and Phosphate load that causes eutrophication,which in turn reduces the efficiency of the irrigation structures.The aquatic life in the water bodies are also affected.

Creating awareness among the Presidents of the local bodies and to motivate them to adopt solid waste management and sewage management wherever required.

ACTIVITIES PROPOSED

To monitor the quality of water and soil and create database regarding the Environmental Status for this sub basin, this proposal has now been proposed with the following activities at sub basin level. The provisions and necessity are explained below.

I. MONITORING WATER AND SOIL QUALITY, PROJECT WORKS MONITORING

Collection and testing of surface water samples is essential to understand the problem on water quality more precisely. Hence, it is proposed to collect and test the surface water sample in Korampallamaru river at five selected locations, for a period of three years. Water samples at the following locations will be collected and tested once in 4 months for a period of three years so as to assess the environmental impact on the quality of surface water of this sub basin more precisely.

1. Korampallam - D/S of of Korampallam big tank.
2. Ottanatham - D/S of Ottanatham big tank.
3. Chockaligapuram - D/S of Chockaligapuram tank

In addition to the above identified locations, water samples will also be collected once in a year from tanks and nearby wells in three selected locations, where sewage is directly let into water bodies. These samples will be tested to asses the impact on the quality of surface and ground water.

Soil samples are also to be collected from one selected location to asses the impact on the quality of soil due various Environmental problems like use of chemical fertilizer and using the polluted water. Even from the same locations more number of samples at regular one-year interval has been collected and tested to determine precisely the impact on the degradation of the quality of the soil. Therefore testing of soil samples is essential. Soil samples thus collected will be tested in the Agricultural College.

Under this item following provisions have been made.

1. Testing charges for the water and soil samples.
2. Provision for Conveyance, Purchase of Cans, bottles, chemicals, Documentation of water quality data, Driver salary and Computer operator

II.ENVIRONMENTAL AND SOCIAL KNOWLEDGE BASE

Micro level Environmental Status Reports for Kallar river basin have been prepared. In these reports Environmental problems and remedial measures have been documented at the basin level. Moreover Environmental and social assessment on river basins of Tamilnadu have been done by Environmental protection Training & Research Institute, Hydrabad. Based on these report and the data now proposed to be collected, Environmental and social assessment for each sub basins are to be updated and documented in order to program further activities.

Under this item following provisions have been made.

1. Salary for supporting staff i.e.Technical assistant.
2. Expert analysis and development reporting.

III.ENVIRONMENTAL AND SOCIAL AWARENESS CREATION

Awareness programs are necessary to create awareness among the public about environmental problems and the action to be taken by them to remove or reduce the impacts due to the environmental problems.

Hence, to create and motivate the people, awareness programs are to conducted in the villages where sewage is directly let in to the water bodies. It is also proposed to conduct awareness meeting in schools /institutions to cover the following subjects in addition to placing stickers, tin sheets, and pamphlets containing message related to the following.

- **Sanitation.**
- **Solid waste treatment.**
- **Sewage treatment and converting the same in to gas.**
- **Natural farming.**
- **Conversion of aquatic weeds in to 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 locations 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 institution / NGO's.

TOTAL COST

The total proposal cost works out to Rs. **3.50 Lakhs (Rupees Three Lakhs and Fifty Thousand only)**

Name of Work : - Environmental Monitoring on Water and Soil Quality and Creating Awareness & Updating of "Environmental and Social Assessment Report" for Korampallamaru SUBBASIN

Detailed Estimate

Sl no	Description of work	No	Measurements			Contents
			L	B	D	
I	Monitoring Water and Soil Quality , Project Works Monitoring					
1	**Testing charges for Water samples 3x3 x3 =27 Nos**	**27 Nos**				**27 Nos**
2	**Testing Charges for water samples (Pesticides) 1x3 =3 Nos**	**3 Nos**				**3 Nos**
3	**Hiring Jeep driver on service contract basis for the Department vehicle(1manmonths/yrx3yrs=3 Nos)**	**3 Man months**				**3 Man months**
4	**Purchase of Cans, bottles, chemicals and Documentation of water quality data, engaging labour etc.,**	**3 year**				**3 year**
5	**Provisions for field visits for environmental monitoring of project activities with respect to environmental safeguards**	**3 year**				**3 year**
II	Environmental and Social knowledge base					
1	**Village level data collection on Environmental and Social state regarding other impacts**	**15 Man months**				**15 Man Months**
2	**Expert analysis and Development reporting on other impacts**	**LS**				**LS**
3	**Impact studies due to project investemnts**	**10 Man Months**				**10 Man Months**
4	**Expert analysis and Development reporting due to project investments**	**LS**				**LS**
III	Environmental and Social Awareness creation					
1	**Awareness propagation through Stickers, Tin sheets, Phamlets and Banners**	**3 year**				**3 year**
2	**Awarensss programe for public (1 Nos/ year x 3 years = 3 Nos)**	**1 Nos**				**1 Nos**
3	**Preparing and publishing Environmental Atlas at subbasin level for the use of the line departments / Institutions**	**LS**				**LS**
4	**Documentation of the entire activities, Upgradation of computer and accessoties and purchase of Video films and stationaries, computer operator etc.,**	**LS**				**LS**
IV	Variation in Rates and unforseen items	**LS**				**LS**

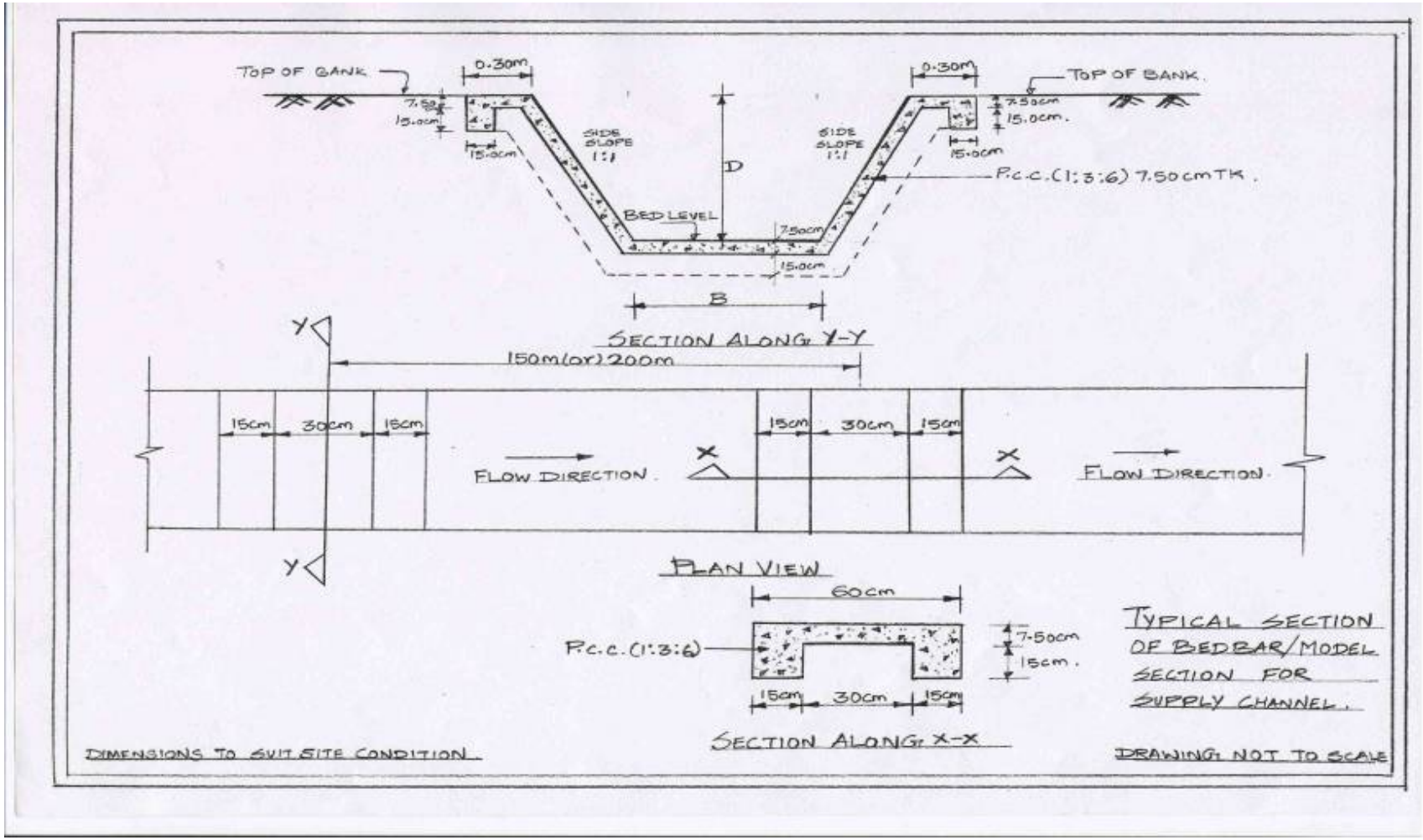
Name of Work : - Environmental Monitoring on Water and Soil Quality and Creating Awareness & Updating of "Environmental and Social Assessment Report" for Korampallamaru SUBBASIN

Abtract Estimate

Sl no	Qty.		Description of work	Rate (Rs)	Per	Amount
I	Monitoring Water and Soil Quality, Project Work Monitoring					
1	**27**	**Nos**	**Testing charges for Water samples**	**1400**	**Each**	**37800**
2	**3**	**Nos**	**Testing charges for Water samples (Pesticides)**	**12000**	**Each**	**36000**
3	**3**	**Man months**	**Hiring Jeep driver on service contract basis**	**3500**	**1Man month**	**10500**
4	**3**	**year**	**Conveyance, Purchase of Cans, bottles, chemicals and Documentation of water quality data, engaging labour etc.,**	**5000**	**per year**	**15000**
5	**3**	**year**	**Provisions for field visits for environmental monitoring of project activities with respect to environmental safeguards**	**5000**	**per year**	**15000**
II	Environmental and Social knowledge base					
1	**15**	**Man months**	**Village level data collection on Environmental and Social state regarding other impacts**	**5000**	**1Man month**	**75000**
2		**LS**	**Expert analysis and Development reporting on other impacts**	**LS**	**LS**	**15000**
3	**10**	**Man months**	**Impact studies due to project investemnts**	**5000**	**1Man month**	**50000**
4	**LS**	**LS**	**Expert analysis and Development reporting due to project investments**	**LS**	**LS**	**10000**
III	Environmental and Social Awareness creation					
1	**3**	**year**	**Awareness propagation through Stickers, Tin sheets, Phamlets and Banners**	**600**	**per year**	**1800**
2	**1**	**Nos**	**Awarensss programe for public**	**15000**	**Each**	**15000**
3		**LS**	**Preparing and publishing Environmental Atlas at subbasin level for the use of the line departments / Institutions**			**50000**
4		**LS**	**Documentation of the entire activities, Upgradation of computer and accessoties and purchase of Video films and stationaries, computer operator etc.,**	**LS**		**15000**
IV	Variation in Rates and unforseen items					**3900**
				Total		350000

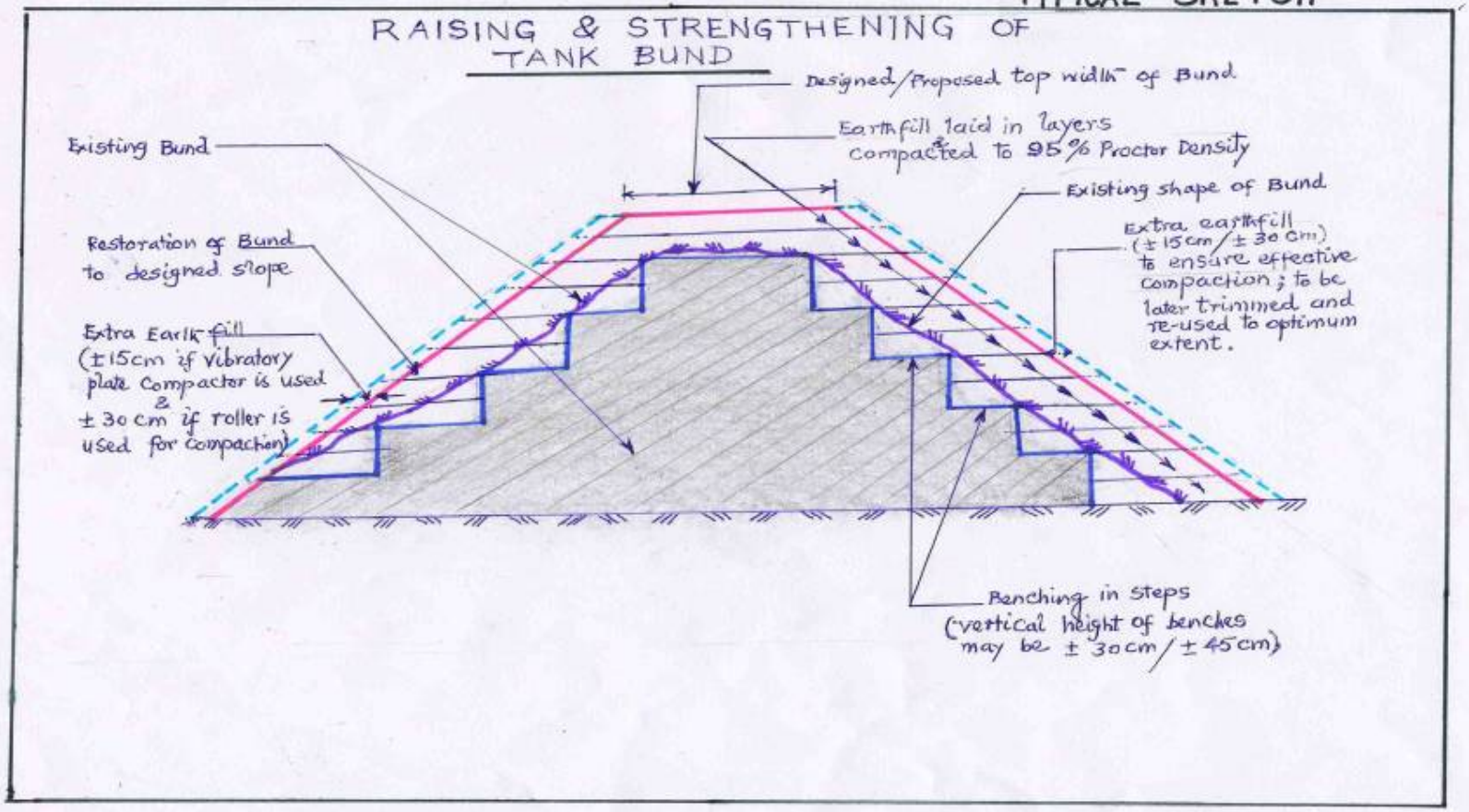
(Rupees Three Lakhs and Fifty Thousand only)

DESIGN DRAWING

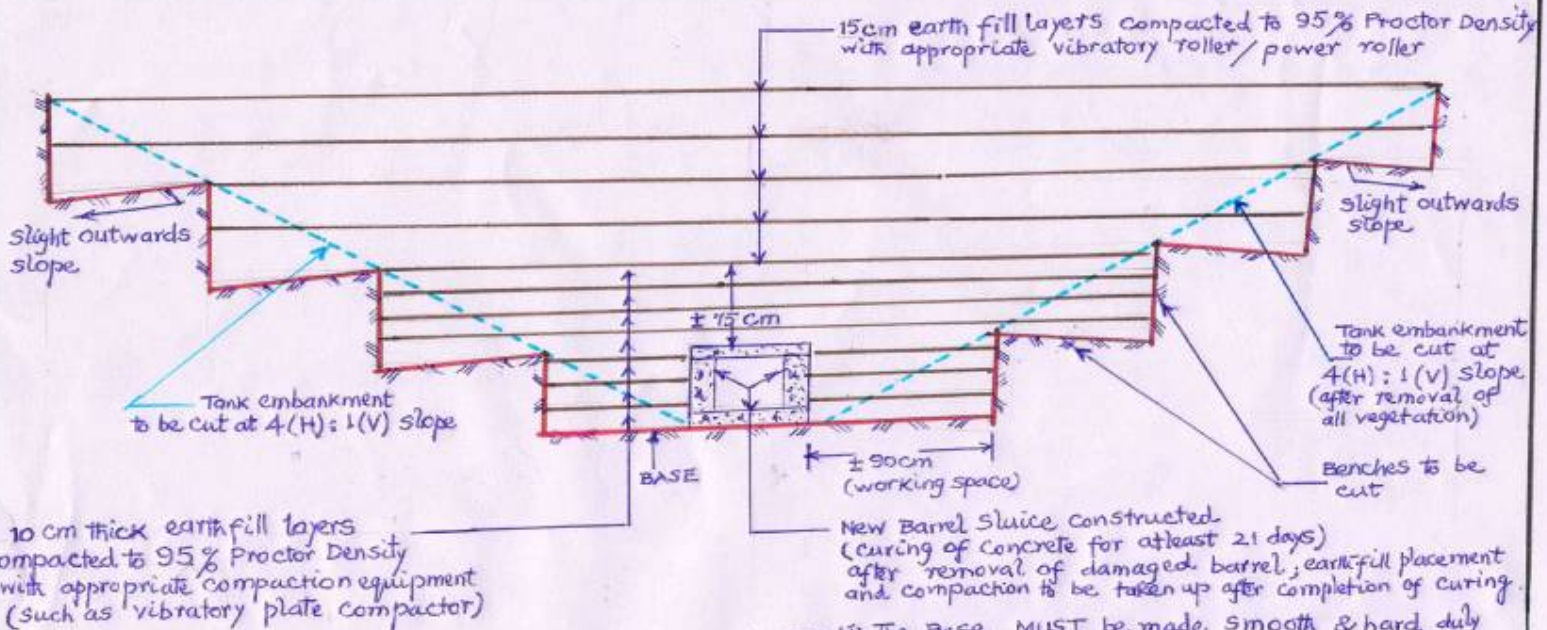

TOP OF BANK
0.30m
7.50cm
15.0cm
15.0cm
SIDE SLOPE 1:1
D
BED LEVEL
7.50cm
15.0cm
B
0.30m
TOP OF BANK.
7.50cm
15.0cm.
15.0cm
SIDE SLOPE 1:1
P.C.C.(1:3:6) 7.50cm TK.
SECTION ALONG Y-Y
150m(or)200m
15cm
30cm
15cm
FLOW DIRECTION.
FLOW DIRECTION.
PLAN VIEW
60cm
P.C.C.(1:3:6)
7.50cm
15cm.
15cm
30cm
15cm
SECTION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

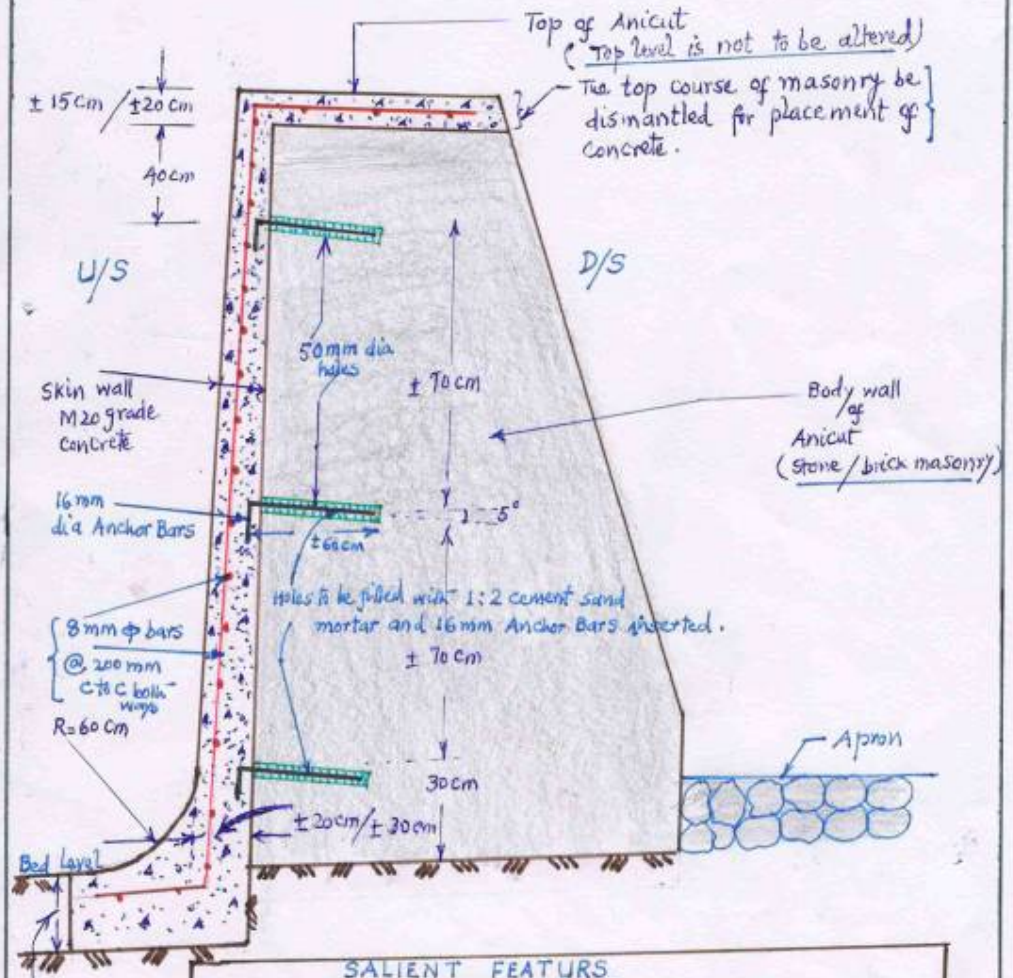
NOTES (i) The Base MUST be made smooth & hard, duly compacted with compactors / pneumatic tampers.

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