



COMPOSITE WATER RESOURCE MANAGEMENT PLAN

A. BASIC INFORMATION

1. SUMMARY OF VILLAGE AREA

1	Name of Village	Karuppur		
2	Name of Gram Panchayat	Karuppur		
3	Block, District & State	Thurvaiyaru, Thanjavur, Tamilnadu		
4	Geographical area of GP	297 Ha		
5	Latitude* (From To)	10° 85' 44.84"	To	10° 86' 5337"
6	Longitude* (From To)	79° 01' 14403"	To	79° 02' 1355"
7	Numbers of Habitations in the village	1		
8	Name of catchment** (as per river basin)			
9	Agro-climatic Region*** (Planning Commission)	Deltaic region of Cauvery River		
10	Agro-climatic Zone*** (NARP)	North Eastern zone		
11	Agro Ecological Sub-Region*** (ICAR)	East Coast Plains		
12	Annual Average Soil Moisture Content upto 15cm depth (in%) (Souce: WRIS/Water Data Online)	33%		
13	Annual Evapo-Transpiration (Souce: WRIS/Water Data Online)	734 mm		

2. RAINFALL

SL	Rainfall	Normal Rainfall (mm)	Normal Rainy days (No.)	Normal Onset (Specify week and month)	Normal Cessation (Specify week and month)	Key Observations
1	SW monsoon (June-Sept)	288	89	First week of June	Fourth week of September	88 % of the annual rainfall is received during N-E monsoon season with 84 rainy days in three months; The onset of the rain was in the first week of October and cessation is at fourth week of December. Of total rainy days are during 42% fall in N-E Monsoon season only, 6% in Summer, 52% during S-W monsoon
2	NE Monsoon (Oct-Dec)	663	72	First week of October	Fourth week of December	
3	Winter (Jan-Mar)	29	0	First week of January	Fourth week of March	
4	Summer (Apr-May)	65	11	First week of April	Fourth week of May	
5	Annual	757	171	First week of June	Fourth week of May	

3. SOIL PROFILE (SOURCE: AGRICULTURE CONTINGENCY PLAN FOR DISTRICT

SL	Type of Soil	Presence	Key Observations
1	FINE	197	66.33% soils are fine and 31.99% are in fine loamy in texture, it has low water permeability and water infiltration rate
2	FINE LOAMY	95	
3	None	5	
4			
5			
TOTAL		297	

4. SOIL MOISTURE (%)

SL	Month	Volumetric Soil Moisture (%)	Key Observations
1	Oct-19	44.9	Soil moisture is lowest during Jan to Apr and Oct (<29%) and highest during October and November (more than 37%)
2	Nov-19	45.1	
3	Jan-20	21.1	
4	Feb-20	19.1	
5	Mar-20	18.3	
6	Apr-20	28.8	
7	May-20	31.4	
8	Jul-20	41.8	
9	Aug-20	31.5	
10	Sep-20	43.8	
11	Oct-20	27.0	
12	Nov-20	37.4	
Average		33	



5. WATER QUALITY PROFILE (SOURCE: EJALSHAKTI.GOV.IN)

Chemical Contaminants (Nos. of Sources with Single Chemical Contaminants)

Iron	Fluoride	Salinity	Nitrate	Arsenic	Key Observations
0	0	0	0	0	No chemical contamination

Bacterial and Other Contaminants (Nos. of Sources with Bacteriological Contaminants)

Faecal Coliform	TDS	Hardness	Chloride	Sulphates	Key Observations
0	402mg/l	0	58mg/l	42mg/l	Bacterial contamination is found

B. WATER HARVESTING AND CONSERVATION

1. INFORMATION OF LAND USE (HA.) (SOURCE: CENSUS 2011)

SL	Classification	Area in Ha	Key Observations
1	Forest Area	0.00	0% forest area
2	Area under Non-Agricultural Uses	63.80	21.47% of non-agricultural uses
3	Barren & Un-cultivable Land Area	0.00	0% barren land
4	Permanent Pastures and Other Grazing Land Area	0.00	0% grazing land
5	Land Under Miscellaneous Tree Crops etc. Area	2.00	0.67% Miscellaneous land
6	Culturable Waste Land Area	0.00	0% culturable waste land
7	Fallows Land other than Current Fallows Area	6.90	2.32% fallows land
8	Current Fallows Area	8.20	2.76% of current fallow land
9	Total Unirrigated Land Area	35.20	11.85% of unirrigated land
10	Area Irrigated by Source	181.00	60.92% of irrigated by source area
TOTAL		297.1	

2. LAND USE DETAIL OF MICRO WATER SHEDS (SOURCE: WATERSHED ATLAS)

S. N	Macro W/s Name	Macro No.	Area (Ha.)	Micro W/s No.	Area (Ha)	Key Observations
1	Karuppur 1	4B1A	812	3h08c	812	Two micro watershed boundaries passes through this village one watershed has 46.99% and other watershed occupies 53.01% of the total watershed area.
2	Karuppur 2	4B1A	916	3g07a	916	
3						
4	TOTAL				1728	

3. WATER RESOURCES (RUNOFF)

Rainfall: 1072 mm				
TYPES OF RUN-OFF	Area (Hect.)	% of Runoff	run-off (Cum)	run-off (Ha.M)
GOOD CATCHMENT AREA	63.8	37.5	3750	23.9
AVERAGE CATCHMENT AREA	2	28.1	2810	0.6
BAD CATCHMENT AREA	231.3	18.7	1870	43.3
TOTAL	297.1			67.7

4. CANAL NETWORK (SOURCE: GP/IRRIGATION DEPARTMENT)

S. N.	Type	Length in Village (m)	Type of Use	Key Issues
1	Main Canal	1500	-	under 1,2,3 in this section works will be identified with PWD, 2300m length field channels are in the village. Field channels if are de-silted will be useful during good monsoon
2	Minor	800	-	
3	Distributaries	0	-	
4	Water Courses (Field Channels)	0	-	
TOTAL		2300		

5. EXISTING WATER HARVESTING STRUCTURES

Existing Structures						
S. N.	Name of Struc-ture	No.	Area in Ha	Storage Capacity (Ha.M)	Type of Uses	Key Issues
1	Pond (Talab/ Naadi)	2	1.2	0	irriga-tion/ domes-tic	desiltation and strengthening of bunds; reduce the silting through inlet silt traps and sluice and surplus weir repairs:
2	Oorani	0	0	0	-	-
3	MPT	0	0	0	-	-
4	Anicut	0	0	0	-	-
5	Checkdam	0	0	0	-	-
6	Gabion	0	0	0	-	-
7	Gully Plug	0	0	0	-	-
8	Farm Pond	0	0	0	-	-
9	RTRWHS	0	0	0	-	-
10	Tanka	0	0	0	-	-
11	Other (please specify name)	0	0	0	-	-
TOTAL		2.00	1.20	0.00		

C. WATER REQUIREMENT

1. STATUS OF IRRIGATION FACILITIES-SURFACE WATER (SOURCE: CENSUS 2011)

SL	Type	Area Irrigated (Ha)	Available (Months)	Key Issues
1	Canals Area (in Hectares)	181	NA	83.11% of the water requirement for irrigation is through surface water; hence surface water harvesting has to be given priority and 16.89% of the water requirement for irrigation through groundwater.
2	Wells/Tube Wells Area (in Hectares)	36.78	NA	
3	Tanks/Lakes Area (in Hectares)	0	NA	
4	Waterfall Area (in Hectares)	0	NA	
5	Other Source (specify) Area (in Hectares)	0	NA	
Total		217.78		

2. DETAILS OF DOMESTIC GREY WATER DRAINS

S. N.	Details of existing Drain	Total Length of drain in village (m)	Termination point (water body / Natural Drainage / Open space)	Key Issues
1	Main Street	200	Open Space	200 m length of the grey water drains from main street
2	-	0	-	
3	-	0	-	
4	-	0	-	
5	-	0	-	
6	-	0	-	
Total		200		

3. AGRICULTURE AND WATER RESOURCES

SI No.	Crop	Irrigated Area (HA)	Rainfed area (HA)	WR (m) - irrigated	WR (m) - Rainfed)	Volume in HaM (Irrigated)	volume in HaM (Rainfed)	Total volume in HaM
1	Paddy	153.25	0	1.5	1	229.875	0	229.875
2	Jowar	0.1	0	0.55	0.5	0.055	0	0.055
3	Bajra	0	0	0.4	0.35	0	0	0
4	Maize	0	0	0.6	0.55	0	0	0
5	Ragi	0	0	0.45	0.4	0	0	0
6	Wheat	0	0	0.55	0.45	0	0	0
7	Minor Millets	0	0	0.35	0.3	0	0	0
8	Bengal gram	0	0	0.45	0.4	0	0	0
9	Red gram	0.91	0	0.7	0.65	0.637	0	0.637
11	Groundnut	0	0	0.6	0.5	0	0	0
12	Castor	0	0	0.7	0.65	0	0	0
13	Sunflower	0	0	0.6	0.5	0	0	0
14	Soybean	0	0	0.55	0.45	0	0	0
15	Sesamum	0	0	0.45	0.35	0	0	0
16	Mustard	2.03	0	0.45	0.35	0.9135	0	0.9135
17	Safflower	0	0	0.45	0.35	0	0	0
18	Linseed	0	0	0.5	0.4	0	0	0
19	Niger	0	0	0.4	0.3	0	0	0
20	Sugar cane	0	0	2	1.7	0	0	0
21	Cotton	0	0	0.85	0.75	0	0	0

SI No.	Crop	Irrigated Area (HA)	Rainfed area (HA)	WR (m) - irrigated	WR (m) - Rainfed)	Volume in HaM (Irrigated)	volume in HaM (Rainfed)	Total volume in HaM
22	Tobacco	0	0	0.5	0.45	0	0	0
23	Mulberry	0	0	1.2	0.8	0	0	0
24	Mango	0.17	0	0.6	0.6	0.102	0	0.102
25	Banana	9.74	0	2.2	2.2	21.428	0	21.428
26	Lemon	0	0	0.9	0.9	0	0	0
27	Guava	0.02	0	0.6	0.6	0.012	0	0.012
28	Sapota	0	0	0.5	0.5	0	0	0
29	Pomegrate	0	0	0.6	0.9	0	0	0
30	Papaya	0	0	0.9	0.6	0	0	0
31	Grapes	0	0	0.9	0.9	0	0	0
32	Other fruits	0.09	0	0.6	0.6	0.054	0	0.054
33	Potato	0	0	0.6	0.5	0	0	0
34	Tomato	0	0	0.7	0.7	0	0	0
35	Brinjal	0.48	0	0.7	0.7	0.336	0	0.336
36	Beans	0	0	0.5	0.5	0	0	0
37	Onion	5.3	0	0.6	0.5	3.18	0	3.18
38	Green chillies	0	0	0.6	0.6	0	0	0
39	Cole crops	0	0	0.6	0.6	0	0	0
40	Ladies finger	0	0	0.5	0.5	0	0	0
41	Radish	0	0	0.3	0.3	0	0	0

SI No.	Crop	Irrigated Area (HA)	Rainfed area (HA)	WR (m) - irrigated	WR (m) - Rainfed)	Volume in HaM (Irrigated)	volume in HaM (Rainfed)	Total volume in HaM
42	Carrot	0	0	0.4	0.4	0	0	0
43	Water melon	0	0	0.3	0.3	0	0	0
44	Total leafy vegetables	0	0	0.3	0.3	0	0	0
45	Total gaurds	0	0	0.4	0.4	0	0	0
46	Other vegetables	2	0	0.45	0.45	0.9	0	0.9
47	Pepper	0	0	1	1	0	0	0
48	Cardamom	0	0	1	1	0	0	0
49	Tamarind	0	0	0.6	0.6	0	0	0
50	Dry Ginger	0	0	0.9	0.9	0	0	0
51	Turmeric	0	0	0.9	0.9	0	0	0
52	Garlic	0	0	0.6	0.6	0	0	0
53	Dry chilli	0	0	0.5	0.65	0	0	0
54	Coriander	0	0	0.6	0.6	0	0	0
55	Other spices	0	0	0.7	0.7	0	0	0
56	Coconut	16.94	0	0.5	0.5	8.47	0	8.47
57	Areca nut	0	0	0.7	0.7	0	0	0
58	Coffee	0	0	1	1	0	0	0
59	Oil palm	0	0	0.5	0.7	0	0	0
60	Cashew	0	0	0.5	0.5	0	0	0

SI No.	Crop	Irrigated Area (HA)	Rainfed area (HA)	WR (m) - irrigated	WR (m) - Rainfed)	Volume in HaM (Irrigated)	volume in HaM (Rainfed)	Total volume in HaM
61	Other plantation crops (palmyrah)	1.52	0	0.5	0.5	0.76	0	0.76
62	Total flower crops	0	0	0.7	0.7	0	0	0
63	Medicinal plants	8.89	0	0.7	0.7	6.223	0	6.223
64	Aromatic crops	0	0	0.7	0.7	0	0	0
65	Forest	0	0	0.45	0.45	0	0	0
Total		201.44	0			272.9455	0	272.9455

4. ASSESSMENT OF GREY WATER GENERATION

SL	Waste water generation Source	Per day/unit waste water generation in L	Daily volume of Grey water in L	Annual Grey water in CuM	Key Observations
1	Bathing	15	30000	10950.00	3.65Ha M of grey water is generated in the GP, need community soak pits and individual soak pits are essential to safely dispose and backyard gardens with nutritious trees to reuse the water
2	Washing	10	20000	7300.00	
3	Toilet	10	20000	7300.00	
4	Cleaning	5	10000	3650.00	
5	Cooking and cleaning Utensils	5	10000	3650.00	
6	Others	5	10000	3650.00	
Total		50	100000	36500.00	
Annual Grey water generated in HaM				3.65	

5. LIVESTOCK AND WATER RESOURCES (SOURCE: DEPT OF ANIMAL HUSBANDRY)

SL	Type of Animal	Numbers	Water Req. (HaM)
1	Cattle (Indigenous)	100	0.37
2	Cattle (Cross breed)	0	0.00
3	Buffaloes	4	0.02
4	Sheep	0	0.00
5	Goat	213	0.08
6	Horses and Camels	0	0.00
7	Pigs	0	0.00
8	Poultry	83	0.00
9	Dogs	0	0.00
10	Rabbits	0	0.00
TOTAL		400	0.47



D. WATER DEMAND AND WATER BUDGETING

1. WATER DEMAND ESTIMATION (PRIMARY INFORMATION)

SL	Water Users	Total Annual Requirement (HaM)	Requirement met by Gr. Water	Requirement met by S. Water	Key Observations
1	Human	5.48	0.00	4.50	82.98 % dependency on all water requirement in the GP is on surface water and 16.66 % of the water requirement depends on ground source
2	Animals	0.47	0.37	0.08	
3	Agriculture	272.95	46.10	226.85	
4	Industry	0.00	0.00	0.00	
5	Other (specify)	0.00	0.00	0.00	
Total		278.89	46.46	231.43	

2. VILLAGE WISE WATER BUDGETING (HA. M)

SL	Water Users	Total Annual Requirement (HaM)	Key Observations
1	Water for Human	5.48	GP is water deficient by 277.9 HaM and available runoff for storage is 67.7 HaM, the village has to harvest the additional runoff of 1.2Ha m. Agriculture is the main consumer of water- specifically for paddy cultivation both in rainfed and wetlands, need to improve the water use efficiency by suitable technologies
2	Water for Agriculture	272.9	
3	Water for Animal	0.47	
4	Water for Industry	0.00	
5	Water for Other Purposes	0.00	
6	Village wise water required (1 to 5)	278.9	
7	Available run-off from rain water	67.7	
8	Harvested Runoff from Water Harvesting Activities	0.0	
9	Potential Harvesting from proposed Interventions	1.2	
10	Total Water harvested	1.2	
11	Water deficiency/Surplus (10-6)	-277.7	

E. CONSOLIDATED PROPOSED ACTIVITIES FOR WATER SECURITY

SL No	Activity	Numbers	Area In Ha
Treatment measures of upper slopes			
1	Afforestation	640	0.80
2	Continuous contour trenches (CCT)	0	0
3	Water point	0	0
4	Gabion	0	0
5	Contour Continuous Bunds (CCB)	160	0.80
6	Drainage Line Treatment (DLT)	519	2075
7	Gully Plugs	0	0
Treatment measures of middle slopes			
8	Loose Stone Check Dam (LSCD)	0	0
9	Mini Percolation Tank (MPT)	0	0
10	Staggered Contour Trenches (SgCT)	0	0
11	Water Absorption Trench (WAT)	0	0
12	Water Harvesting Structure (WHS)	0	0
13	Silvi-pasture Development	0	0
14	Linear Plantation	0	0
15	Avenue plantation	1011	4042
16	Block Plantation	1360	1.70
17	Fencing	1	2.50
18	Grass seeding	0	0

SL No	Activity	Numbers	Area In Ha
	Treatment measures of gentle slopes		
19	Deepening of water bodies	3	0.79
20	Desiltation of water bodies	3	0.79
21	Water body Bund strengthening	3	0.395
22	Inlet development with silt trap of Water bodies	3	0.79
23	Surplus/waste weir	0	0
24	Sub surface barriers	0	0
25	Artificial recharge structure	0	0
	Treatment measures for canal network		
26	Repairing outlets, gates & regulators of Canal	0	0
27	Minor repair of cracks in canals	0	0
28	Canal Bed levelling	1	2300
29	Canal Bund Plantation	575	2300
30	Irrigation channels	0	0
31	Canal side plantation	0	0
	Treatment measures for farm lands		
32	Composting	2	20.89
33	Farm Bunding	8	20.89
34	Micro Irrigation	7	16.35
35	Construction of farm ponds	1	20.89
36	Construction/renovation open well	0	0
37	Nursery development	0	0
38	Silt application	1	2.27

SL No	Activity	Numbers	Area In Ha
39	Mulching (Community)	16	3272.60
40	Mulching (Individual)	1254	3134
41	Land development	1	2.27
42	Field terracing	0	0
	Drinking water measures		
43	Rooftop Rainwater Harvesting	2	25000
44	Drinking Water Scheme Panghat	0	0
	Grey water management		
45	Drain for Regulating Domestic waste water flow	0	0
46	Wastewater drains	0	0
47	soak pits (Community)	5	529
48	Soak pits (Individual)	53	529
	Livelihoods /NRM activites		
49	Kitchen - Nutri Garden 5 plants per HH	2645	529
50	Cattle Shelters	3	25
51	Goat Sheep Shelters	2	21
52	Fodder development for cattle	3	25
53	Azolla units	3	25
54	Cattle Trough	3	25
55	Poultry shed	0	4
56	Dry land Horticulture/Agro-forestry	4	10
57	Vermi compost	3	25
58	Nutri Garden	1	529