

**MICRO WATERSHED BASED ACTION PLAN**  
**ARUVIPPURAM MICRO WATERSHED (4V10a)**

Aruvippuram micro watershed is the third largest micro watershed in the IWMP cluster (IWMP-I) with an area of 1722.77 ha (21.57% of total geographical area). This micro watershed is located mainly in Kallara Grama Panchayath. Very small portions of Vamanapuram and Nanniyode Grama Panchayats neighbouring Kallara Grama Panchayat also come under this micro watershed. The Vamanapuram River flows through the south east & southern boundary of the watershed.

**General Description**

Table No. 13.1 General Description of Aruvippuram micro watershed

Name of micro watershed	: Aruvippuram
Micro watershed code	: 4V10a
River basin	: Vamanapuram
District	: Thiruvananthapuram
Block Panchayath	: Vamanapuram
Grama Panchayath	: Kallara, Vamanapuram & Nanniyode
Villages	: Kallara, Pullampara
Latitude	: 8 <sup>0</sup> 41'44" to 8 <sup>0</sup> 45'06" North
Longitude	: 76 <sup>0</sup> 55'53" to 76 <sup>0</sup> 59'15 East
Wards	: Kallara Panchayath- 4, 5, 9, 10, 11, 12, 13, 17 (full) Kallara Panchayath- 1, 3, 8, 14, 15, 16 (part) Vamanapuram – 9 (part) Nanniyode – 1 (part)
Total Area	: 1722.77 ha
% area in the IWMP cluster	: 21.57 %

**Socio economic profile**

The general socio economic situation of the micro watershed is average. As per the information provided in the baseline survey conducted, Aruvippuram micro

watershed has a total number of 4480 households with a total population of 11234. The micro watershed has a total male population of 5370 and a total female population of 5864. 1619 numbers of BPL families reside in the micro watershed area. A total number of 2816 persons have registered under MGNREGS. 420 households belong to Schedule Caste and 48 families belong to Schedule Tribe. Majority of the farmers are marginal farmers having only less than 1 ha of land. Agriculture is the major source of livelihood in the micro watershed area. Apart from agriculture/horticultural practices, animal husbandry is also a source of livelihood for some families in the watershed area. The socio economic details of the Aruvippuram micro watershed are given below:

Table No. 13.2 Socio economic details of Aruvippuram micro watershed

1.	Total number of households		4480
2.	Population	Male	5370
		Female	5864
		Total	11234
	Child population	Male	2196
		Female	2179
		Total	4375
3.	No. of BPL families		1619
4.	No. of persons enrolled under MGNREGS		2816
5.	Households	Scheduled Caste	420
		Scheduled Tribe	48
		General	4012
6.	Land holdings	Landless	49
		Less than 5 cents	636
		Marginal (5 to 250 cents)	3986
		Small (250 to 500 cents)	63

### Biophysical Resources

#### Physiography

The relief of the watershed ranges from 20 m above MSL to 220 m above MSL. The majority of the area falls in the relief category of 60 to 90 m above MSL which occurs in an area of 692.95 ha (40.22 %). An area of 60.29 ha is located above 150m above MSL.

### Slope

The watershed area is divided into six categories of slope classes. The majority of area is under the strongly sloping area having 10 – 15 % slope. The category spreads over an area of 849.66 ha (49.32 %), 389.59 ha of the watershed area is having very steeply sloping lands which requires urgent soil and water conservation measures.

### Drains

The Vamanapuram River flowing through the south-east and southern boundary of the watershed is the major drain of this watershed. A number of drains are originating from different parts of this watershed which drains to the Vamanapuram River near Kurinchilakkad. The watershed also has 17 number of ponds distributed throughout the watershed area. The details of the drains and ponds in the watershed area are given in tables given below.

Table No. 13.3 Details of Drains in Aruvippuram micro watershed

Grama Panchayat	Drains	Length (m)	Breadth (m)	Depth (m)
Kallara	Alamcode Karikkakam Thodu	650	1	1
	Aruvippuram Cheru Thodu	700	1	1
	Chanthayil Kadu Ela Thodu	400	1	1
	Cheruthodu (1)	300	1	1
	Eettimukku Thodu	350	1	1
	Iruppu Thodu	1000	2	2
	Kaithodu	300	0.5	0.5
	Kaithodu (1)	140	0.5	0.5
	Kaithodu (2)	450	1	1
	Kaithodu (3)	150	0.5	0.5
	Kazhukanpacha Thodu	1750	2	2
	Kottayil Iruppu Thodu	1050	2	2
	Kottur Thodu	950	2	2
	Kurinjilakad Kaithodu	300	1	1
	Kurinjilakadu Thodu	4050	3	3
	Kurumbayam Cheru Thodu (1)	110	0.5	0.5

	Kurumbayam Cheru Thodu (2)	150	0.5	0.5
	Kurumbayam Cheru Thodu (3)	350	1	1
	Kurumbayam LPS Thodu	1500	2	2
	Kurumbayam Thodu	1400	2	2
	LPS Kaithodu	500	0.5	0.5
	Mulayilkonam Kaithodu(1)	650	2	2
	Mulayilkonam Kaithodu(2)	150	1	1
	Mulayilkonam Kaithodu(3)	220	1	1
	Mulayilkonam Thodu	2200	2	2
	Nanamkodu Thodu	750	2	2
	Ozhukupara Thodu	3150	2	2
	Parappil Cheru Thodu	1050	2	2
	Parappil Kaithodu	175	1	1
	Poochedi Karikkakom Cheru Thodu	650	1	1
	Poochedi Karikkakom Thodu	2900	2	0.5
	Poovanathmmoodu Thumbodu Thodu	1150	2	2
	Poovanathummoodu Thodu	1250	2	2
	Tharatta Thodu	1400	2	2
	Tharatta-Thapasagiri Thodu	1850	2	2
	Thumbodu Kaithodu (1)	200	0.5	0.5
	Thumbodu Kaithodu (2)	150	0.5	0.5
	Thumbodu Thodu			
	Unnavila Thodu	800	2	2
	Vattakarikkakom Ela Cheru Thodu	700	2	2
Nanniyod	Vattakarikkakom Ela Cheru Thodu	50	2	2

Table No. 13.4 Table showing the details of Ponds in Aruvippuram micro watershed

Sl. No	Grama Panchayat	Pond	Survey No.	Length (m)	Breadth (m)	Depth (m)
1	Kallara	Mahadeva Kshethra Kulam	1433	38	36	3
2		Chanda Kulam	1502	15	12	2

3	Pazhayachanda Quarry Kulam	1502	20	15	3
4	KurumbayamCheru Kulam	1530	8	6	1
5	Ozhukupara Kulam	1591	18	15	2
6	Kazhukanpacha Kulam	3056	8	7	3
7	ThazheParappil 1	3532	5	4	2
8	Kakkampacha 1	3685	2	1.5	1.5
9	Kakkampacha 2	3685	1.5	1	1
10	Poochedi Edavila	3743	3	2	2
11	Thathengumcodu	3751	2	2	1
12	Kodamplachi	3770	4	2	2
13	Kuzhiyil Veedu,Parappil	3776	3	2	1.5
14	Thazhe Parappil	3828	5	4	2
15	Parappil Grandasala1	3851	3	2	1.5
16	Parappil Grandasala 2	3839	1	1	1
17	Kodamplachi 2	4164	1	1	1

### Land use

Agriculture is one of the prime activity in the watershed area. The major land use category mapped in the watershed area is rubber plantation with an area of 1081.91 ha (62.80 %). The second major category is the mixed crops which are the typical homestead cultivation of Kerala wherein the different crop species are grown together that cannot be spatially mapped separately. This extents in an area of 405.23 ha. An area of 4.47 ha of paddy lands has been left as cultivable wasteland which can be brought to paddy cultivation by providing necessary labour and irrigation facilities. An area of 4.46 ha is mapped as cultivable wastelands which can be brought under horticulture. An area of 83.89 ha (4.87 %) is under the built up land and an area of 2.80 ha is under the rocky area. The details of land use categories with spatial extent are given in table.

Table No. 13.5 Land use categories in Aruvippuram micro watershed

Sl. No.	Land use category	Area in ha	Percentage
1	Built up land	83.89	4.87
2	Paddy	1.65	0.10
3	Paddy converted Built up land	0.95	0.06
4	Paddy converted Coconut	3.14	0.18
5	Paddy converted Banana	15.90	0.92
6	Paddy converted Arecanut	1.83	0.11
7	Paddy converted Tapioca	7.79	0.45
8	Paddy converted Banana + Tapioca	14.48	0.84
9	Paddy converted Rubber	5.81	0.34
10	Paddy converted Vegetables	1.01	0.06
11	Paddy converted Mixed Crops	48.64	2.82
12	Paddy land left as cultivable waste land	4.47	0.26
13	Coconut	0.72	0.04
14	Mixed Crops	405.23	23.52
15	Plantation Rubber	1012.86	58.79
16	Plantation Rubber (Young)	69.05	4.01
17	Cultivable waste land	4.46	0.26
18	Rock	2.80	0.16
19	Road land	9.48	0.55
20	River Bank	13.56	0.79
21	River (Rocky area)	0.79	0.05
22	River/ Water body	14.26	0.83
	<b>Total</b>	<b>1722.77</b>	<b>100.00</b>

### Geology

The major geological units in the watershed is Garnetiferous Biotite occurring in an area of 1301.8 ha (75.56 %).The remaining area as a geological formation Garnet-Biotite gneiss with Migmatite. There are four geomorphological units of which more than

87 % (1508.81 ha) of the area falls under the category viz. lower plateau (laterite). An area of 145.54 ha is mapped under the category viz. valley fill.

### **Soils**

The major soil series mapped in the watershed area is Nedumangad series having a column thickness of 150 cm with very dark brown to pale brown colour. The soil is very strongly acid and has a surface texture of gravelly sandy clay loam to gravelly sandy clay. This is distributed in an area of 1331.94 ha (77.31 %). The river bank area is mapped under Mudakkal series which is alluvial in origin. Soils in more than half of the watershed area is moderately shallow with a depth of 50- 75 cm and 27.54 % of the area (747.4 ha) is having moderately deep soils with a depth of 75-100 cm. The major surface soil textures in the watershed area constitutes that of gravelly clay loam (790.66 ha) and gravelly loam (702.55 ha). Nearly 50 % of the watershed area is prone to severe soil erosion which calls for proper soil and water conservation measures in the area.