

# VELLANGALLUR BLOCK PANCHAYATH

## INTEGRATED WATERSHED MANAGEMENT PROGRAMME

### IWMP III



## Detailed Project Report

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Submitted to:

Vellangallur Block Panchayath

April 2014

## Detailed Project Report

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## **I. INTRODUCTION**

Natural resources play an important role in the development of a country. The way they affect the economy is by either helping in the development or bringing it into a complete downfall. A country that tends to have more natural resources and has a way to refine it, have a better and stable economy. The most important natural resources are land, water, forest, sun, wildlife, air, mountain, minerals etc. People use these resources for their existence on earth. All living creatures depend on natural resources for their survival, growth, and development. Water supports the life system of human beings, vegetation, animals and birds, living creatures and wildlife. Similarly, forest resources, land resources and mineral resources are essential for our welfare, development, and prosperity. So soil, water and vegetation are the basic resources on which the human being as well as the living being primarily depends upon livelihood and survival. The conservation of natural resource is one of the major concerns. Thus Watershed based management has been considered as a strategy for protecting

## **MAIN OBJECTIVES**

- To impart scientific and systematic activities to maintain the normal ecological balance between soil, water and biodiversity.
- To implement activities for rainwater harvesting which results in the increase of groundwater level and to ensure the availability of water.
- To prevent the degradation of biodiversity and undertaking activities for environmental regeneration.
- To prevent soil erosion and increase the fertility and water storage capacity of the soil.
- To provide livelihood support for those who depend the natural resources in the watershed areas.
- To create awareness and educate the people on the far-reaching implications of ecological degradation and inspire their mindset for the preservation of biodiversity.

- To enrich bio diversity by renovating and protecting the existing water resources in the area.
- To harness locally available natural resources in an optimum manner to achieve the overall goal of sustainable development.
- To give specific importance to the productivity enhancement of agriculture/horticulture/ animal husbandry activities and livelihood development.
- To promote farming and allied activities while ensuring resource conservation and regeneration.

## II. GENERAL DESCRIPTION OF PROJECT AREA

**Table 1 General Description**

1	Name of the Block	Vellangallur Block Panchayath
2	Name of the District	Thrissur
3	Taluk	Mukundapuram
4	Block	Vellangallur
5	Assembly constituency	Chalakyudi
6	Parliament constituency	Kodungallur
7	Distance from District Head Quarters	30 km
8	Geographical Area of the Watershed	5998 ha
9	Treatable Area	5998 ha
10	Longitude / Latitude	76°9'16.876"E 10°13'8.118"N 76°15'31.992"E 10°20'35.604"N
11	SubWatershed and codes	Pookkottupuzha (14P10a), Amarippadam (14P11a), Karumathra(14P14a), Kakkathuruthy (14P8a), Mazhuvanchery (14P9a), Puthanchira (14P15a)
12	Main Drainages	Karupadanna river
13	Name of Catchment	Periyar
14	Livelihood Options	Agriculture, Animal Husbandry, Wage employees, Govt. Job

**Table 2 Details of Watersheds**

Sl No	Watershed code	Watershed Name	Geographical Coordinates	Treatable Area(in Ha)	Grama Panchayath	Wards
1	14P10a	Pookottupuzha	76°10'11.328"E 10°16'43.893"N 76°14'32.439"E 10°20'35.33"N	2895	Vellangallur, Pooman galam, Padiyur, Velookkara	Vellangallur- 1,2,3,4,5,19,20,21 (full) 6,7,15,18 (partial) Padiyur-5,6,7,8,10 (full) 4,9,11,12 (partial) Poomangalam-2,3 (full) Velookkara- 1,13,14,15,17,18 (partial)
2	14P11a	Amarippadam	76°10'39.842"E 10°15'29.008"N 76°12'31.101"E 10°17'26.957"N	632	Vellangallur	14,16 (full) 12,13,15,17,18 (partial)
3	14P14a	Karumathra	76°12'7.031"E 10°14'18.75"N 76°14'22.88"E 10°16'54.256"N	893	Vellangallur, Puthanchira	Vellangallur- 8,9,10,11(full) 6,7,12,13,17 (partial) Puthanchira-13,15 (full) 10,12,14 (partial)
4	14P8a	Kakkathuruthy	76°9'18.034"E 10°18'47.965"N 76°10'38.041"E 10°19'53.951"N	320	Padiyur	13 (full) 11,12,14 (partial)
5	14P9a	Mazhuvanchery	76°9'50.486"E 10°17'40.515"N 76°10'24.706"E 10°19'1.873"N	100	Padiyur	9,11 (partial)
6	14P15a	Puthanchira	76°13'21.558"E 10°13'6.907"N 76°15'32.091"E 10°16'57.383"N	1158	Puthanchira	1,13,14,15,17,18 (partial)
<b>Total</b>				<b>5998</b>		

## PHYSIOGRAPHY AND RELIEF

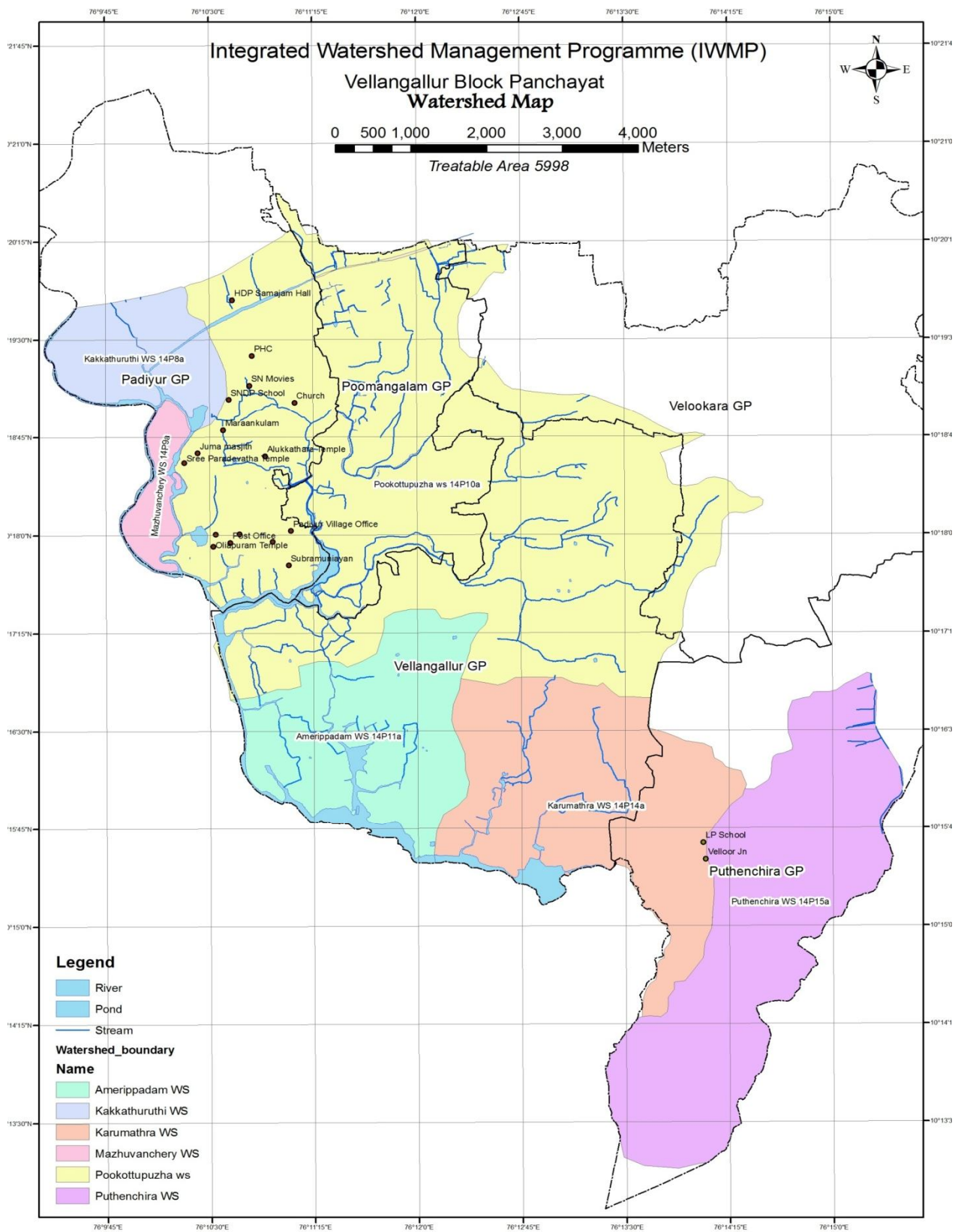
Physiographically the area falls under lowland region. Lowest elevation is 3 mMSL and is at Koottalachira and the highest elevation is 20m at Vilayanadu. The relief is flat to normal.

## DRAINAGE

Watershed is drained by two perennial and five seasonal streams. The details of main drainages in each micro watershed are given below:

**Table 3 Drainages in watershed**

Nos	Watershed	Main Drainage	Perennial/Seasonal	Total Length
1	Pookottupuzha	Annakkalthodu	Perennial	5350m
2	Amarippadam	Poopathumthodu	Perennial	3500m
3	Karumathra	Palakathpadamthodu	Perennial	2500m
4	Kakkathuruthy	Kanoli Cannal	Perennial	3350m
5	Mazhuvanchery	Nalkattuthodu	Perennial	2200m
6	Puthanchira	Mekkalithodu	Perennial	4200m



### III. CRITERIA FOR SELECTION

In the selection of watersheds in IWMP certain criteria are adopted. The indicators and scores achieved are given below:

**Table 4 Criteria for Selection as per SPSP**

No	CRITERIA	SCORE	RANGES & SCORES			
1	Poverty Index (% of poor population)	10	Above 80%(10)	80 to 50% (7.5)	50 to 20%(5)	Below20 % (2.5)
2	% of SC/ST population	10	More than 40%(10)	20 to 40%(5)	Less than 20% (3)	
3	Actual wages	5	Actual wages are significantly lower than minimum wages (5)	Actual wages are equal to or higher than minimum wages (0)		
4	% of small and marginal farmers.	10	More than 80%(10)	50 to 80%(5)	Less than 50% (3)	
5	Ground water status	5	Over exploited (5)	Critical (3)	Sub Critical (2)	Safe (0)
6	Moisture index	15	-66.7 & below(15)	-33.3 to-66.6(10)	0 to -33.2(0)	
7	DPAP/ DDP Block		DDP Block	DPAP Block	Non DPAP /DDP Block	Above &70 % (Reject)
8	Area under rain-fed agriculture	15	More than 90%(15)	80 to 90%(10)	70 to 80%(5)	Fully covered (0)
9	Drinking Water	10	No source (10)	Problematic village(7.5)	Partially covered(5)	
10	Degraded land	15	High- above 20%(15)	Medium- 10 to 20% (10)	Low less than 10% of TGA(5)	
11	Productivity potential of the land	15	Lands with low production & where productivity	Lands with moderate production & where productivity	Lands with high production& where productivity	



			can be significantly enhanced with reasonable efforts (15)	can be enhanced with reasonable efforts.(10)	can be marginally enhanced with reasonable efforts(5)	
12	Contiguity to another watershed that has already been developed/treated	10	Contiguous to previously treated watershed & contiguity within the micro watersheds in the project(10)	Contiguity within the micro watersheds in the project but non contiguous to previously treated watershed(5)	Neither contiguous to previously treated watershed nor contiguity within the micro watersheds in the project(0)	
13	Cluster approach in the plains (more than one contiguous micro watersheds in the project)	15	Above 6 micro-watersheds in cluster(15)	4 to 6 micro watersheds in cluster(10)	2 to 4 micro watersheds in cluster (5)	
	Cluster approach in the hills(more than one contiguous micro watersheds in the project)		Above 5 micro-watersheds in cluster(15)	3 to 5 micro watersheds in cluster(10)	2 to 3 micro watersheds in cluster (5)	

### Weightage criteria

1	2	3	4	5	6	7	8													
							Weightage under the criteria#													
No	Distric t	Name of Project	No of micro watershed to be covered	Proosed project area	Type of Project	Proposed cost (Rs. in lakh)	1	2	3	4	5	6	7	8	9	10	11	12	13	T ot al
1	Thriss ur	IWMP	6	5998	Hilly		899.70	45	35	0	80	0	0	120	60	45	0	100	0	120

#### IV. CLIMATE

The area is characterised by wet type of climate and four types of seasons are identified. The hot summer season ranges from March to May, the southwest monsoon season extends from June to September, the northeast monsoon season from October to December and a general cool and salubrious climate period during climate period during January and February. The maximum rainfall occurs during the period June to September (SW monsoon) and nearly 73.7% of the total rainfall is received during the season. 16.8% of the total rainfall is received during North East monsoon between October and December, 9.0% of the total rainfall is received during March to May and the balance 0.5% is accounted for during January and February months. In summer, scarcity of water is major problem.

**Table 5 Average Rainfall**

Rain fall data for the last 10 years (in mm)														
Year	Jan uary	Febr uary	Ma rch	April	May	Ju ne	July	August	Septe mber	Octo ber	Novem ber	Decem ber	Annual Total	Average
2003	0	63	7	131	165	483	482	326	132	453	186	0	2428	202
2004	19	61	0	126	254	584	496	243	126	296	251	19	2475	206
2005	0	58	74	58	82	471	359	168	199	259	46	0	1774	148
2006	17	0	0	44	185	596	496	129	148	356	35	52	2058	172
2007	0	0	11	0	272	351	152	356	162	116	162	16	1598	133
2008	0	59	9	62	225	451	478	225	105	105	215	0	1934	161
2009	0	0	70	56	260	449	444	116	193	68	205	60	1921	160
2010	16	0	3	62	168	436	360	118	192	447	291	10	2103	175
2011	0	56	6	0	132	558	468	408	216	165	111	6	2126	177
2012	0	0	8	123	69	322	140	252	124	113	20	0	1171	98
2013	0	0	0	0	106	567	461	164	110	245	33	0	1686	141

(Source: Meteorological Department)

## **Temperature**

The maximum temperature ranges from 29.5 to 36.7 C where as the minimum temperature ranges from 23.0 to 25.7C. The average annual maximum temperature is 33.1 C and the average annual minimum temperature is 24.305 C. Generally March and April months are the hottest and November, December, January and February months are the coldest.

## **Relative Humidity**

The humidity is higher during monsoon months from June to October and is around 93% during morning hours and 76% during evening hours.

## **Evapo-Transpiration**

The annual PET for Vellanikara is 1776.3 mm-based on Thornthwaite's method.

## **Wind**

The wind speed is more during December and January months and it is less during October.

## **Geology**

The aquifer system in the Watershed area can be broadly divided into hard rock aquifers, the laterite aquifers and sedimentary aquifers. The hard rock and laterite aquifers constitute major aquifer system of the Watershed area while the sedimentary aquifers are seen along the coast and river courses.

## **Geomorphology**

The geomorphology is naturally divided into five well defined physiographical units namely lowland, midland, mid up land, up land and high land. The lowland is the area with an elevation of less than 20 m amsl, midland area having an elevation of 20m to 100 m amsl, mid upland having an elevation of 100m-300m amsl, upland having an elevation of 300m-600m amsl and highland area with an elevation of more than 600m - 1600m amsl.

The elevation of the project area ranges from 0mmsl to 20m msl which means it lies along the lowland region. The major portion of the land is used for cultivating coconut, mixed crop etc.

## **V. GROUND WATER**

The depth to water level in pre-monsoon period ranges from 1.40 to 12.90 m bgl and in post-monsoon period 0.59 m to 10.86 m bgl. In general the water level is shallow during both monsoon particularly along valleys and topographically low areas. The ground water monitoring wells data shows that around 7 % of the wells fall within 10.00 to 20.00 mbgl categories while 56 % of the wells fall in the water level showing 5.00 to 10.0 m bgl category and 26 % of the wells falls in the 2.00 to 5.00 m bgl category during the pre monsoon. The post monsoon data reveals that the 40 % of the wells falls under 5.00 to 10.00 mbgl category and 34 % wells falls than 2.00 to 5.00 mbgl category and one well is falls in 10.0 to 20.00 m category.

## **VI. WATER SUPPLY AND IRRIGATION**

Most of the houses in watershed area have wells. So majority are using their own well for drinking water. But in the very starting of summer season itself most of the wells get dried up. Public taps and water connections are also rarely seen. Natural Springs are other sources to meet the water needs of people. Three watersheds do not have watersupply schemes. There are 17052 wells in the watershed area. There is no irrigation scheme in the watershed area.

**Table 6 Details of Wells**

Sl No.	Name of the watershed	Total No of wells	Duration of water scarcity				No Scarcity
			4 months and above	3 months	2 months	1 month	
1	Pookottupuzha	5726	1700	900	750	1300	1076
2	Amarippadam	4236	600	420	512	714	2040
3	Karumathra	3944	900	914	714	850	566
4	Kakkathuruthy	749	250	100	50	60	289
5	Mazhuvanchery	85	15	10	10	15	35
6	Puthanchira	2312	700	500	410	300	402
<b>7</b>	<b>Total</b>	<b>17052</b>	<b>4165</b>	<b>2844</b>	<b>2396</b>	<b>3239</b>	<b>4408</b>

**VII. SOCIO ECONOMIC DETAILS**

Institutions	Total
Nursery	29
School	33
PHC	10
Church	23
Mosque	9
Temple	46
Library	4
Bank	14
Veterinary Hospital	2
Homeo hospital	5
Govt. Hospital	1
Village Office	1
Ayurveda Hospital	5
Cultural Auditorium	6
ICDS office	1
Registrar Office	1
Ayurveda Dispensary	1
Family welfare sub centre	1

**Table 7 Holding Size**

Sl no	Watershed	0-50 cents	50-250 cents	250-500 cents	Above 500 cents
1	Pookottupuzha	5551	933	34	21
2	Amarippadam	5415	891	75	14
3	Karumathra	3997	678	25	16
4	Kakkathuruthy	835	105	3	1
5	Iazhuvanchery	197	34	0	0
6	Puthanchira	2248	776	15	6
	<b>Total</b>	<b>18243</b>	<b>3417</b>	<b>152</b>	<b>58</b>

**Table 8 Population Details**

Watershed	Male	Female	Boys	Girls	Total
Pookottupuzha	17350	21210	2774	3183	44517
Amarippadam	7808	9544	1249	1432	20033
Karumathra	6357	7771	1016	1167	16311
Kakkathuruthy	1294	1582	207	238	3321
Iazhuvanchery	243	297	38	45	623
Puthanchira	3985	4871	637	731	10224
<b>Total</b>	<b>37037</b>	<b>45275</b>	<b>5921</b>	<b>6796</b>	<b>95029</b>

SC/ST Population data					
Watershed	Male	Female	Boys	Girls	Total
Pookottupuzha	1877	2291	314	360	4842
Amarippadam	489	599	78	90	1256
Karumathra	246	302	39	46	633
Kakkathuruthy	97	115	28	31	271
Iazhuvanchery	61	75	9	12	157
Puthanchira	619	757	99	114	1589
<b>Total</b>	<b>3389</b>	<b>4139</b>	<b>567</b>	<b>653</b>	<b>8748</b>

(Source: Baseline survey)

## VIII. AGRICULTURE AND PRESENT LAND USE

**Table 9 Agriculture and Present Land use**

No	Item	Area ( ha)	Percentage
1	Coconut	497	8
2	Other crops	4007	67
3	Waddy converted to coconut	1	0
4	Waddy	1493	25
<b>Total</b>		<b>5998</b>	<b>100</b>

### **Animal Husbandry and Dairying**

Animal husbandry and dairy development play a significant role in rural development. The details of livestock in the watershed areas are shown in the table below. Livestock acquire special importance in watershed management from both socio-economic and ecological considerations. They are an integral part of the farming system. Adoption of suitable technical innovations for improving the livestock productivity is needed in the watershed areas. Proper recycling of organic manure in the area is of utmost importance for maintenance of soil fertility.

**Table 10 Animal Husbandry and Dairying**

Animal	Cow	Goat	Buffalo	Hen	Duck	Rabbit	Pig
<b>Total no</b>	369	393	320	4837	407	39	10

## IX. SOIL

The following soil series is encountered in Vellangallur Block:

### **Rocky elongated ridges and hillocks on the east**

#### *Koottala-Kozhukulli association*

Soils are found to occur on strongly sloping to very steep hill slopes with slope gradient ranging from 15-50%. These soils are found to be derived from dolerites and dark coloured basic rocks. Textural range noticed is from gravelly silty clay loam to gravelly clay loam. Soils are deep to very deep with moderate permeability and are moderately well drained. Weathered gneissic boulders are seen to occur throughout the profile.

Soils mapped under this association are distributed in the foothill regions and strongly to steeply sloping areas of the eastern hilly regions in Thrissur, Talapally and Mukundapuram taluks.

### **Mid-undulating region with valleys and elevated plains**

#### *Velappaya-Anjur-Koratty association*

Soils are developed over laterites of both quarriable and non-quarriable nature. Textural variation is from gravelly clay loam to gravelly clay. Soil depth ranges from moderately deep to deep and colour from dark reddish brown to dark red. They are seen on elevated plains and on gently to moderately sloping lands. They are put under crops like coconut, arecanut, banana, cashew etc. Soils grouped under this association are seen in the taluks of Mukundapuram, Kodungallur, Talapally, Chavakkad and Thrissur

#### *Ayyanthole-Kizhupallikara-Kolazhi association*

These soils are located in valleys and are dark grey to dark greyish brown in colour. Surface texture varies from sandy clay loam to gravelly clay loam. Clayey sub soils are highly mottled. Clay content increases with depth. Soils are developed from colluvial and alluvial sediments. In deep profiles, laterite are seen in deeper layers. These soils are put under paddy cultivation. They are found distributed in Thrissur, Talapally and Mukundapuram taluks.

### **Bottom lands with concave relief**

#### *A. Konchira-Anthikad-Perumpuzha*

Main characteristics of the soils grouped under this association is that clay is the predominant texture throughout the profile. The colour range is from dark brown to black. The soils are alluvial in origin and imperfectly drained. These soils are deep to very deep, fine textured and occur as deposits over organic debris. These soils have lime shells in the profile. The depth of the organic layer varies considerably. The soil is medium acid. Soils are subject to periodic water inundation because of the lay of the land below sea level. Soils mapped under this association are located towards the western part of Thrissur and Mukundapuram taluks.



## Sea board on the west consisting of the coastal alluvial plains

### *A. Manathala-Punnayurkulam association*

Soils mapped under this association are dominantly sandy in texture throughout the profile. They are very deep with dark brown to yellowish brown colour and are excessively drained with very rapid permeability. Eventhough the soils are low to medium in fertility status, they respond well to manuring owing to their favourable physical structure and as such, are succesfully cultivated with coconut, arecanut mango, jack, banana etc., on properly manuring and adopting scientific cultural practices. Manthala series described in the coastal area is mostly single grained loose sand. This association is seen distributed in the western coastal region of the district in Kodungallur and Chavakkad taluks.

### *B. Manalur-Chenthrapini-Edathuruthy association*

Soils in this association are developed from coastal and riverine alluvium. The texture of the soil ranges from sandy loam to clay loam. These soils show weak profile development. The last horizon is often embedded with fine shining mica flakes and is having prominent mottling of various shades, which impart a yellowish red colour to the soil mass. The soils are very deep and are acidic in reaction with a pH range of 5.7 to 6.2. These soils are put under paddy. This soil association is seen distributed in the western part of Thrissur district in Trichur, Mukundapuram, Kodungallur.

Table 11 Soil

SI No	Watershed Code	Watershed	Treatable Area (in Ha)	Soil Type
1	14P10a	Pookottupuzha	2895	Sandyloam
2	14P11a	Amarippadam	632	Sandy clay loam
3	14P14a	Karumathra	893	Sandy clay loam
4	14P8a	Kakkathuruthy	320	Sandy clay loam
5	14P9a	Mazhuvanchery	100	Sandy clay loam
6	14P15a	Puthanchira	1158	Sandy clay loam

## **X.METHODOLOGY**

The following methodology was adopted as part of preparation of Detailed Project Report of IWMP in Vellangallur Block Panchayat. Transect walks, Participatory Resource Mapping, Focus group discussion, Base line survey, drainage line survey, GIS mapping, Institutional and capacity building etc were the major events in the process.

### **Transect Walk**

Transect walks were conducted to identify the ridge lines to demarcate the watershed boundary. After delineation, the farmers and other stake holders of watershed walked along the streams. It helped the team members to understand the basic characteristics of watershed area, and to ascertain the mode of treatment according to the geographical specialties in each area.

### **Participatory Resource Mapping**

After conducting the transect walk, the groups made resource maps of the entire watershed showing boundaries of private lands and common lands, details of ownership, land use and other details like location of major gullies, location of water bodies and common lands, types of vegetation and soil types in different parts of the watershed etc.

### **Focused Group Discussion**

Focus Group Discussions were conducted in order to gather specific opinions and suggestions with regard to the activities to be included in the DPR.

### **Base Line survey**

A detailed household level socio-economic survey was conducted in the project area to gather relevant information to develop the baseline data for the formulation of DPR.

### **Drainage line Survey**

A team of members and the representatives of the TSO and of other stakeholders visited all prominent drains in the project area as part of surveying the status of the drains. The survey was useful in assessing the state of the drains and to ascertain the need and suitability of various interventions to protect and develop them. People's experience and knowledge attributed much to the process.

### **Remote Sensing Data and GIS**

A remote sensing technique provides easy access to data, on vegetation and topographical features of any geographical area. This data has been used for assessment of crop coverage, wasteland and hazard prone areas in watershed area. GIS has been widely used in characterization and assessment in this particular watershed area. Basic physical characteristics of a watershed such as the drainage network and flow paths could be derived from readily available Digital Elevation Models (DEM). This has been used for the interpretation of land use and hydro geo morphology of the watershed also.

### **Preparation of Action Plan and Approval from Gram Sabah**

Data gathered through the above process have been compiled, consolidated and analysed to develop a data base to evolve a realistic plan of actions to be implemented in the project area. The draft action plan thus prepared was placed before the concerned gram Sabha for approval. After detailed discussions, the action plan was modified by incorporating valid and feasible suggestions from the gram sabha into it and the same was approved by the Gram Sabha.

## **XI. INSTITUTION BUILDING AND PROJECT MANAGEMENT**

The stipulations with regard to the mobilization and organization of the watershed community as laid down in the Common Guidelines have been followed in the case of this project. The institutions at various higher levels have also been constituted. The details are given below:

## **State Level Nodal Agency-SLNA**

Chairman of SLNA is Agricultural Production Commissioner. SLNA has a fulltime Chief Executive Officer (CEO). SLNA consist representatives of NRAA, Central Nodal Ministries, NABARD, Rural Development, Agriculture, Animal Husbandry, Forest, Ground Water, NGOs, Professional from Research Institutes, Representatives of MGNREGS, BRGF. SLNA sanctions the IWMP Projects for the State and looks after the overall address performance of the programme in the state. It is supported by a Technical Unit consisted of Experts from related fields. SLNA maintains A State Data Cell too.

## **District Level Coordination Committee-DLCC**

A DLCC, as envisaged in the Guidelines, has been constitutes in the District. The DLCC, Thrissurconsists of all district level officers of the line departments. The District Panchayat President is the chairman and the District Collector is the Member Secretaryof the DLCC. The DLCC takes up overall responsibility for getting the Project Reports and Action Plans under IWMP properly formulated and presenting the samebefore the District Planning Committee for approval. A Watershed Cum Data Cell-WCDC- has been constituted under the leadership of the Project Director,PAUs, designated as District Project Manager.

## **Programme Implementing Agency-PIA**

The Project Iimplementing Agency of this Project is the Block Panchayath, Vellangallur.

## **Watershed Committee (WC)**

The Gram Sabha will constitute the Watershed Committee (WC) to implement the Watershed project with the technical support of the WDT.The Gramapanchayat President is chairman of each watershed committee and Convenor is Village Extention Officer of the concerened Gramapanchayat. The Watershed Committee will open a separate bank account to receive funds for watershed projects and will utilise the same for undertaking its activities.

## Self Help Groups

SHG's are being formed in project villages. SHG's would constitute members mostly from SC's, ST's, women, landless and members belonging to very poor families. These groups would be homogeneous in nature and will have common goal. They would save money monthly as decided by them and will hold meetings regularly at least once in every month. Basic orientation and skill training will be provided to them under IWMP. They will also be given Revolving fund assistance to enable them to meet their urgent needs for starting micro enterprises.

**Table 12 Self Help Groups**

Watersheds	Pookkottupuzha				Amari ppadam	Karumathra		Kakkat hrurhty	Mazhuv anchery	Putha nchira
	Vellan gallur	Pooma ngalam	Padiyur	Velookkara		Vellangallur	Vellan gallur			
<b>Grama Panchayath</b>										
<b>Nos</b>	169	113	58	38	93	88	34	24	3	137

## User Groups

User groups are formed in project area. The members of these will be those persons who are directly benefited by activities under watershed. Members of User Groups would take responsibility to manage the assets created under the project. They will further undertake responsibility for fixing user charges from their members. User Groups would be trained under IWMP so as to enable them to manage their assets created.

## XII. PROJECT MANAGEMENT

Phase I – Preparatory phase - duration is 1 year

Phase II – Watershed Work Phase –duration is 2 to 3 years

Phase III – Consolidation and Withdrawal phase-1 to 2 years is the duration of this phase.

Various activities envisaged under these Phases are the following:

## **PREPARATORY PHASE**

The preparatory phase of the project will be the first year of the project. The major objective of this phase is to build appropriate mechanisms for adoption of participatory approach and empowerment of local institutions (W.C, S.H.G and U.G). WDT will assume facilitating role during this phase. Major activities during this phase are inauguration, Entry Point Activities (EPA), Capacity Building to stake holders of watershed area, preparation of the DPR (Detailed Project Report) through PRA (Participatory Rural Appraisal) and FGDs (Focused Group discussion).

## **WATERSHED WORK PHASE**

Important part of the project is this phase as all the activities envisaged in the Detailed Project Report are executed here. Activities coming under action plans like watershed development works, livelihood activities, production system and microenterprises implemented in this phase.

## **CONSOLIDATION AND WITHDRAWAL PHASE**

The objective of this phase is to create new nature-based, sustainable livelihoods and raise productivity levels of the augmented resources and economic plans developed during the Watershed Works Phase. The following activities are proposed to be carried out during this stage.

1. **Documentation:** It is proposed to document the activities carried out during the watershed implementation period. It will help to maintain the records and identify and propagate the successful activities carried out under the project.
2. **Up-scaling of Successful Experiments:** It is proposed to identify the best practices carried out during the project period and up-scaling the same as per feasibility and propagate the same among others members of the watershed area.
3. **Evaluation:** Evaluation is a very important activity to assess the success of implementation of the project. It is proposed to carry out evaluation at the following levels.
  - a. **Social Audit:** It is proposed to conduct the social audit of the programme at the watershed level where the Gram Sabah will evaluate the programme where the beneficiaries should explain their benefits and current status of the activity. The Watershed Committee should place the books of accounts of watershed programme for approval.

**b. Evaluation by External Agency:** An external agency with evaluation of the programme.

With these works, all of the watershed starting from ridge to valley can be covered for water conservation / harvesting. Under MNREGA, the eligibility area is individual land of SC/ ST/BPL and common land. To cover left over area, under this work i.e., individual land of other than SC / ST/ BPL can be substituted under the ongoing programme of IWMP. Repair, restoration and renovation works of water resources and better utility of these activities can be done under IWMP in convergence with MNREGS.

### **XIII.CAPACITY BUILDING PLAN**

Capacity building is the key mechanism to introduce participatory approach for planning, implementation and management of watershed activities. It is proposed to carry out the following institutional based training and capacity building programmes in the first two years of the project period, in order to equip various stakeholders to participate and implement the project. It is the major means by which Panchayat Raj Institutions and project staff shall be enabled to successfully undertake their work, with the communities of the project areas including women and other vulnerable sections of the society. Capacity building of all the stakeholders is essential to build their conceptual, managerial, technical and operational capabilities. The plan proposed for the entire project period is given below:-

<b>S. No</b>	<b>Participants</b>	<b>Numbers</b>	<b>Days</b>	<b>Amount (Rs. 325/p)</b>
1	Training of Trainers	77	2	50050
1	Neighborhood group two each	849	1	275925
2	Committee Members from a micro watershed	131	5	212875
3	Block/Gramapanchayat Members	50	1	16250
4	User Groups	1250	1	406250
5	HG Training	560	2	364000
6	HG Skill training	560	5	910000
7	Orientation training to WCC members	231	2	150150
8	Gender development in Watershed	324	1	105300
9	Official of Watersheds AO, VEO's, and others	51	5	82875
	Field Visit (210 x Rs.600)	210	1	126000
	<b>Total</b>			<b>2699675</b>

#### **XIV. ENTRY POINT ACTIVITIES (EPA)**

Introduction of any new schemes and external interference of new groups, are not easily accepted by the community. So the EPA activities under IWMP help to build up a rapport with the village community. Well recharging, spring renovation, new well digging, drainage line treatment, community water tank are the proposed works as entry point activities in watershed areas. These particular activities are selected because water scarcity is the main problem in the areas. It is for speedy community organization and trust building among beneficiaries.

The proposed EPA activities are given below:

**Table 13 Proposed Entry Point Activities**

<b>Sl. No</b>	<b>Activities</b>	<b>Grama Panchayat</b>	<b>Watershed</b>	<b>Nos</b>	<b>Amount</b>
1	Well recharging at Karumathra School	Vellangallur	Karumathra	1	25394
2	Construction of well ring and well recharging at Mussafir kunnu	Vellangallur	Amarippadam	1	24341
3	Well recharging at Kakkathuruthy school	Padiyur	Kakkathuruthy	1	11158
4	Construction of bund at Thekkorth kole	Padiyur	Pookottupuzha	1	371000
5	Sluice construction at Anakka thode Pallikkapadam	Velookkara	Pookottupuzha	1	260000
6	Construction of earthen bund at oundara chal-1	Poomangalam	Pookottupuzha	1	26500
7	Construction of earthen bund at oundara chal-2	Poomangalam	Pookottupuzha	1	28000
<b>Total Amount</b>				<b>7</b>	<b>746393</b>



## **XV. MAJOR PROBLEMS IN WATERSHED**

### **Water scarcity**

One of the important problems that the population in all the micro watersheds faces is the acute shortage of drinking water. Major reason for this is the salinity content present in the water. To partially address the shortage of drinking water, rain water harvesting structures with a capacity of 10000 litres is suggested under the IWMP project. It was also noticed that people in the project area depend heavily on open wells for drinking water. But the availability of fresh water is declining due to the intrusion of saline water into the well. One possible method is to push the saline water downwards by backwashing. This is done by collecting the rain water and directly charging into the well which is otherwise known as well recharging. It helps to dilute the salinity/impurity in the water.

### **Agriculture**

Majority of the watershed area is cultivated with mixed crops. Due to heavy saline content present in the irrigated areas it prevents farmers from carrying on with paddy cultivation. Due to poor drainage, water logging is a major problem reported in all the micro watersheds. Improper drainage affects the environment and agriculture in the project area. It has also been affecting the living condition of the population. The micro watersheds in the project area are endowed with several canals and channels which have been partially blocked due to dumping of waste and silting caused due to inadequate protection of the sides of the water bodies. Earlier, people used to strengthen bunds by scooping out silt from the canals annually. But of late, the practice vanished and silting of these canals made it difficult to drain the water, which in turn, resulted in water logging and flood. While the removal of waste can be undertaken under MGNREGS, the activities for side protection such as constructing side walls, check dams, sluices, shutters etc. can be undertaken under the IWMP. Water flow can also be improved by making new channels and renovating the existing drainages which will ensure connectivity between channels and canals. In addition to this, wide practice of using chemical

fertilizers in paddy fields leads to reduced productivity. So the usage of bio fertilizers has to be encouraged within the project area.

### **Animal Husbandry**

The unavailability of fodder is a major problem faced by the households engaged in animal husbandry activities in the watershed area. It is important to the lack of fodder availability in order to promote and expand the livestock activities in the area. As per the statistics, the cattle population is on decline. Therefore it is very important to increase fodder production and ensure fodder availability throughout the year. So it is proposed to carry out fodder planting and fodder seed distribution to all the households engaged in animal husbandry activities in order to address the lack of fodder availability.

### **Marketing**

Marketing of agriculture products is a major problem in the watershed area. The farmers are forced to approach the local markets to sell their products. The farmers lack in privilege of price fixation for their products. And the exploitation from the intermediaries is high in the watershed area. It is necessary to build a market within the premises of the watershed area; so that farmers may bring their products and sell where they could receive reasonable rates and therefore making agriculture a lucrative form of business. If this comes into existence, it leads to a new era of agriculture farming and with the introduction of different food processing units; new by-products shall be developed and may be sold in and out of the watershed area.

### **Labour**

1) Most of the households lead a below average life mainly due to lower per capita income. Men are considered to be the bread winner in many families. So there should be programmes implemented which gives priority to women contribution, which ultimately leads to higher incomes in individual households.

2) Non availability Labour is the main problem in agriculture sector. Due to low wages in agriculture sector people are working in construction field and migrating to other

places. In the focused Group Discussion and Participatory Rural appraisal, farmers have suggested that Gramapanchayat should prepare a work calendar for MNREGS and labour force has to be ensured during appropriate time of agricultural activities.

### **Environmental problems**

Air and water pollution is present in the watershed area especially in Pookkottupuzha and Amarippadam watershed. It arises from improper waste disposal from nearby hotels, petrol pumps etc. into streams, canals present in the watershed. The bio degradable wastes that arise from the households can be used for generating cooking fuel with the help of biogas plants. This helps the families to get rid of bio wastes and also generate

### **Social problems**

1) Among 59 SHG groups formed in Amarippadam watershed only 18 is there in workable condition. They lack both in schemes and market in the watershed area due to which it becomes inactive. So under IWMP there are schemes introduced for the welfare of SHG groups.

## **XVI. ACTIVITIES PROPOSED**

### **Natural Resource Management**

Natural Resource Management under the IWMP can broadly be divided into three:

#### ***a) Soil Conservation Measures***

It aims at utilizing the land as per its capability and manages it for maximizing production on sustained basis, without deterioration of natural resources. The contour bunds, Tree plantations, Bio fencing and gully plugging etc are the proposed activities under the soil conservation measures, in the watershed areas.

### **Tree planting**

The Agro forestry system in cultivated land has to be taken up with active involvement and participation of farmers. Tree planting is the process of planting saplings for land reclamation or landscaping purposes.

## **Bunds along Streams**

Providing small bund banks (both side) will further stabilizes the stream bank against erosion. These bunds will stop the erosive surface runoff and protect the sliding of stream bank sides. The outer edges of the bunds will be stabilized with vegetative hedges, whereas grass stabilization will be provided on the top and inner sides.

## **Well Renovation**

The activity of well renovation can be divided into 3 parts such as repairing, cleaning and deepening.

*Repairing:* the renewal or reconstruction of the existing well or the repairing or replacing of pumping equipment.

*Cleaning:* removing of rust, algae, sand, gravel or any other obstruction from an existing well.

*Deepening:* digging the existing well, to an increased depth to secure normal supply of water.

### ***b) Water conservation measures***

Well recharging, spring protection, Check dams, Rainwater harvesting structure, Silpaulin pond are the proposed works for water conservation. Rain water conservation treatments in watershed catchment areas and social fencing, will improve the productivity and production of grasses. Irrigation with harvested rain water also increase biomass productivity and fodder availability for feeding of animals.

## **Well Recharging**

Open wells have a major role to play in the artificial recharge of ground water. Roof top rainwater and surface water can be filtered and allowed to recharge the open wells through pits taken near the wells.

## **Silpaulin Pond**

Rain water, roof water or runoff water can be collected in UV resistant plastic lined dug out ponds, in a cost effective way. Generally trapezoidal shaped storage tank are

constructed, by excavating soil and dumping the excavated soil at the four sides of the tank. For hindering the seepage and percolation losses, the tank can be lined using 200 GSM UV resistant polythene film, commonly known as Silpaulin. Nylon materials can also be used for the same purpose. For this the sheet is made into the shape of the pond, by the process of thermal welding. After the thermal welding process the plastic sheet is inserted into the pond, and the sides are buried into the soil for making it stable. The pond can be further stabilized with rubble pitching and vegetative fencing.

### **Check Dams**

“Check-dams” are small barriers built across the direction of water flow on shallow rivers and streams, for the purpose of water harvesting. The small dams retain excess water flow during monsoon in a small catchment area behind the structure. Pressure created in the catchment area helps force the impounded water into the ground. The major environmental benefit is the replenishment of nearby groundwater reserves and wells. The water entrapped by the dam, surface and subsurface, is primarily intended for domestic needs, livestock and irrigation.

### **Rain water harvesting structure**

The principle behind the rain water harvesting, is the collection and usage of precipitation from a catchment surface. An old technology is gaining popularity in a new way. Artificial recharge to ground water is a process, by which the ground water reservoir is augmented at a rate, exceeding that obtaining under natural conditions or replenishment.

Rain water harvesting is essential because

- Surface water is inadequate to meet our demand and we have to depend on ground water.
- Due to rapid urbanization, infiltration of rain water into the subsoil has decreased drastically, and recharging of ground water has diminished.

One of the primary requirements of a water harvesting system is that of containers to store the water in a hygienic condition. This need is more pronounced in high rainfall areas where it is more feasible to store water in containers for direct use, rather than for recharging the groundwater.

### **Ferro cement tank**

Ferro cement tank is the proposed work under the watershed area, for rain water harvesting under the IWMP project. Ferro cement consists of cement mortar which is reinforced with a cage made of wire mesh and steel bars.

### **Percolation pits**

Percolation pit is also a method for harvesting rain water. The pits of appropriate size collect water, and allow the rain water to percolate into the soil. The outcome of this activity is the increased ground water table level.

## **c) Agronomic measures**

### **Vegetable cultivation**

The State has been depending on its neighboring states to meet the increasing need for vegetable. The vegetable cultivation is a proposed activity in the project area, that will help to make the people self sufficient. The land type and climate here are also favorable for vegetable cultivation.

## **Production System and Microenterprises**

### **Animal Husbandry**

Animal husbandry has been an integral part of agriculture because of its interdependence for food on crops, animal production and manures. So the cow rearing is proposed in the watershed area to improve the quantity of animals.

### **Cow rearing**

Cattle rearing involve the breeding and general care of dairy cattle. The cow rearing is proposed in the areas as a production system, because the rural poor can raise the standard of living through the rearing of good breed of cattles. Dairy development of the area is another output of cow rearing practice in the area.

## **Biogas Plant**

Biogas typically refers to a gas, produced by break down of organic matter in the absence of oxygen. Organic waste such as dead plant and animal material, animal feces and kitchen waste can be converted into gaseous fuel called bio gas. Biogas originates from biogenic material and is a type of bio fuel.

## **PolyHouseNursery**

In India traditional farming is prevalent, but now new farming technology like Paulin house farming provides better income in a short period of time with less labour. Paulin house farming is an alternative new technique in agriculture, gaining foot hold in rural India. It reduces dependency in rain fall, and makes the optimum use of land and water resources. Paulin house farming can help the farmer to generate income around the year by growing multiple crops like vegetables and flowering plants suited to the Paulin house condition. It is now an established fact, that Paulin house intervention is capable of enhancing production and productivity of horticultural crops. There is a tremendous scope of adoption of Paulin house technology in the region. The harvested rain water can be used to irrigate winter season vegetables, through micro irrigation system to enhance productivity and profitability. More intensive efforts in the form of demonstration and sensitization are needed to popularize these technologies. Owing to the poor economic condition of the farmers of the region, more assistance and low cost technologies may find favourable.

## **Pisiculture**

There is an increasing demand for fish and fish protein. Fish farming in controlled or under artificial conditions, has become the easier way of increasing the fish production. Farmers can easily take up fish culture in village ponds, tanks or any other water body and can improve their financial position substantially. Even seasonal ponds can also be utilized for fish farming of short durations. It also creates gainful employment for skilled and unskilled youths.

## **LivelihoodActivities**

Studies on women's contribution to household income reveal that, women tend to contribute a higher proportion of their income for family sustenance, while men spend more for their personal comforts. Several programmes have been introduced by the central and state governments by recognizing that women empowerment, is the best strategy for poverty alleviation and for ensuring gender equality. To be empowered, it is imperative that women mobilize and organize themselves. When group of women do this process together, they reinforce each other, and the strength of the collectiveness has a great role to play. Through this they are able to identify their own problems and priorities.

Integrated Watershed Management Programme (IWMP) is also focused to deal with rural poverty. Developing Community Based Organizations (CBOs) will assist the rural poor not only soil and water conservation measures, but also to improve their livelihoods. Livelihood plans under IWMP in Vellangallur Block Panchayath also aims to improve peoples participation and facilitation of better livelihood opportunities for the marginalized.

## **OBJECTIVES**

- To improve the socio economic status of the people inhabited in the watershed areas.
- To create employment opportunities for the stakeholders, both men and women.
- To eliminate the migration of the inhabitants due to lack of employment opportunities.
- To empower women through generating income for their families and through offering a distinctive status for women either as entrepreneurs or as leaders.

Cow and Goat Rearing, Heifer, Poultry Farm, Horticulture, Food Processing Unit etc. are some of the proposed livelihood activities in the watershed areas under the IWMP project.

The proposed activities are given below:

### **Goat Rearing**

Goat farming is an important component in dry land farming system. It is one of the techniques to improve the economy of rural farming community. Hybrid goat rearing has



been found to be highly remunerative, compared to rearing other farm animals, and it is advocated as a better substitute of livelihood for the rural poor.

### **Poultry Farm**

Poultry farming is the raising of domesticated chickens, for the purpose of meat or eggs for food. The manure from poultry can be used to manure crops. Poultry rearing does not require much infrastructure facilities.

### **Rabbit farming**

Rabbit farming provides employment opportunities to rural farmers and also gives supplementary income. It has been proposed as a livelihood activity to the watershed.

### **Food processing unit**

The popular kinds of food processing units are pickle manufacturing, pappadam manufacturing, chips making etc. There are two food processing units proposed in the watershed area.

## **XVII. SCOPE FOR CONVERGENCE**

The project activities of Integrated Watershed Programme Management Project in Vellangallur are also converged with activities of various departments and other schemes in the areas. The watershed development activities can be classified into Natural Resource Management, Livelihood enhancement activities and Production system and Microenterprises. All these activities are converged with other ongoing schemes in the Block Panchayath like MNREGA and other line departments. The convergences with other schemes will help to reach the project activities to maximum stakeholders.

The main objectives and reasons for seeking convergence are:

- Avoid duplication of efforts and redundant actions.
- Enable sharing of resources for common objectives.
- Enhance effectiveness of programme delivery.
- Improve quality of service provided.
- Develop effective linkage with various development initiatives.
- Help to identify new opportunities and options.
- Ensure transparency and accountability in governance.
- Result in the effective monitoring of outcomes

## Merits of Convergence

**Increase in Social Capital:** Collective planning and implementation among different stakeholders will enhance social capital. This will also improve management and work output.

**Increase in Physical Capital:** The process will aid in creating durable assets and will also improve land productivity.

**Facilitation of Ecological Synergies:** Regeneration of natural resource base through different activities such as, afforestation, drought proofing, flood proofing etc will lead to the effective use of resources.

**Enhance economic opportunities:** Income opportunities, savings and investments may be generated through activities.

**Strengthen Democratic Processes:** Convergence awareness and planning at the grass root level will lead to greater ownership of projects.

**Facilitate Sustainable Development:** Convergence efforts through creation of durable assets, rural connectivity, productivity enhancement and capacity development lead to sustainable development.

## Convergence Agencies

The list of Convergence Agencies is given below:

Gramapanchayat
Forest Department
Animal Husbandry Department
Horticulture Department
Agriculture Department
Khadhi and village industries
Fisheries
Small scale industries
Sujitwa Mission
Rubber Board

**Table 14 Estimate of NRM Activities with Convergence**

Integrated Watershed Management Programme										
Vellangallur Block Panchayat										
Total NRM activities consolidation with convergence (2013-2016)										
Sr No	Activites	Rate	Unit	Total Nos	IWP Fund (in lakhs)	Convergence				
						Rate	Total units	Unit	Convergence Fund (in lakhs)	Convergence Agency
<b>Natural Resource Management (NRM)</b>										
1	Well recharging	10000	Nos	1159	115.90	10000	16461	Nos	1646.10	MGNREGS
2	Tree planting	5	Nos	11059	0.55	5	37039	Nos	1.85	MGNREGS
3	Horticulture (50 cents below)	195	Nos	1454	2.84	195	20371	Nos	39.72	Horticulture mission
4	Horticulture (50-100cents)	460	Nos	1069	4.92	460	3541	Nos	16.29	Horticulture mission
5	Horticulture (above 100 cents)	840	Nos	601	5.05	840	604	Nos	5.07	Horticulture mission
6	Poly house nursery (500 sq.ft)	470000	Nos	1	4.70	470000	1	Nos	4.70	VFPCCK
7	Banana cultivation	15	Nos	11139	1.67	15	12037	Nos	18.06	Krishibhavan
8	Silpaulin pond	10000	Nos	16	1.60	10000	4113	Nos	411.30	MGNREGS
9	Rain water harvesting tank (10000 litres)	50000	Nos	43	21.50	50000	15432	Nos	7716.00	MGNREGS
10	Fodder grass	22.6	m <sup>2</sup>	6783	1.53	22.6	68975	m <sup>2</sup>	15.59	MGNREGS
11	Sluice		Nos	19	93.76					MGNREGS
12	Shutter		Nos	14	4.20					MGNREGS
13	Bund maintenance		m	6400	82.25					MGNREGS
14	Stream and pond side wall protection		m	2161	135.53					MGNREGS
15	Stream and pond desilting		Nos	11	23.95					MGNREGS
16	Sluice maintenance		Nos	1	1.33					MGNREGS
17	Well renovation		Nos	2	2.55					MGNREGS
18	Bio fencing	16.4	m <sup>2</sup>		0.00	16.4	61734	m <sup>2</sup>	10.12	MGNREGS
19	Coconut trenching and mulching	45	Nos		0.00	45	31409	Nos	141.34	MGNREGS
20	Arecanut trenching and mulching	40	Nos		0.00	40	24279	Nos	97.12	MGNREGS
21	Bunds along paddy fields	21	m		0.00	21	81771	m	17.17	MGNREGS
22	Percolation pit	377	Nos		0.00	377	92109	Nos	347.25	MGNREGS
23	Compost pit	250	Nos		0.00	250	16461	Nos	41.15	MGNREGS
<b>Total NRM</b>					<b>503.83</b>				<b>10528.84</b>	

**Table 15 Production System and Micro Enterprises with Convergence.**

Integrated Watershed Management Programme								
Vellangallur Block Panchayat								
Total PSM activities consolidation with convergence (2013-2016)								
						Convergence		
Sr No	Activities	Rate	No of units/ Beneficiaries	IWMP Fund (in lakhs)	WDF (in lakhs)	Nos	Funds from other agencies (in lakhs)	Convergence agency
Production System and Micro enterprises (PSM)								
1	Vegetable cultivation	500	1703	8.52	1.7030	6171	30.86	Krishibhavan
2	Biogas	12500	375	46.88	9.3750	7200	900.00	Suchitwa mission
3	Dwarf coconut seedling	65	3491	2.27	0.4538	28807	18.72	Agriculture department
4	Cow rearing	35000	92	32.20	6.4400	6126	2144.10	Animal Husbandry department
5	Fish farming in ponds	5	2060	0.10	0.0206	2650	0.13	Fisheries department
6	Nutmeg	450		0.00	0.0000	55315	248.92	Horticulture mission
7	Poly house	10000		0.00	0.0000	2005	200.50	
	Amount foreseen			0.008				
Total PSM				89.97	17.9924		3543.23	

**Table 16 Livelihood Activities with Convergence**

Integrated Watershed Management Programme									
Vellangallur Block Panchayat									
Total Livelihood activities consolidation with convergence (2013-2016)									
						Convergence			
Sr No	Activities	Rate	No. of Units/ Benefi ciaries	Funds from IWMP (in lakhs)	Beneficiary contribution (Rs in lakhs)	Volume	Bank Loan (in lakhs)	Fund from other Agencies (in lakhs)	Convergence Agency Name
Livelihood Activities (LH)									
1	Goat rearing	6000	193	5.79	5.79	8239	247.17	247.17	Animal Husbandry department
2	Hen with cage	6500	299	9.72	9.72	12353	401.47	401.47	Animal Husbandry department
3	Heifer	10000	78	3.90	3.90	6172	308.60	308.60	Animal Husbandry department
4	Rabbit rearing	6000	6	0.18	0.18	1648	49.44	49.44	Animal Husbandry department
5	Food Processing Unit	50000	2	1.00	0.00	5	2.50	2.50	Small scale industries
	Revolving Fund	25000	241	60.25	0.00				
	Amount foreseen			0.14					
Total LH				80.973	19.59		1009.18	1009.18	

## Annual Action Plan

### Annual Action Plan for Natural Resource Management

Sl No.	Activity	Unit	Total Volume	Rate (Rs)	Year 1		Year 2		Year 3		Total Amount (Rs. In Lakh)
					Physical	Financial	Physical	Financial	Physical	Financial	
Work components											
I	Soil & Moisture conservation works (Area treated in Ha)										
1	Banana cultivation	Nos.	11139	15	1360	20400	7157	107355	2622	39330	1.6709
II	Water Harvesting Structures										
1	Well recharging	Nos.	1159	10000	443	4430000	282	2820000	434	4340000	115.9
2	Silpaulin pond	Nos.	16	10000		0		0	16	160000	1.6
3	Rain Water harvesting structure 10000l	Nos.	43	50000	5	250000	20	1000000	18	900000	21.5
4	Well renovation(Public)	Nos.	2		2	255000		0		0	2.55
5	Sluice	Nos.	19		9	5327500	3	957500	7	3091000	93.76
6	Shutter	Nos.	14		8	293700	3	40400	3	86000	4.201
7	Bund maintenance	m	6400		5600	5786000		0	800	2439500	82.255
8	Stream and pond side wall protection	m	2161		485	1952600	864	5865500	812	5734400	135.53
9	Stream and pond desilting	Nos.	11		2	1389000	4	325400	5	680800	23.952
10	Sluice maintenance	Nos.	1		1	133000		0		0	1.33
III	Afforestation Works		0			0		0		0	0
1	Tree Planting(Private land)	Nos.	11059	5	8019	40095		0	3040	15200	0.553
2	Fodder grass	m2	6783	22.6	3907	88298.2	1660	37516	1216	27481.6	1.533
IV	Horticulture Development		0			0		0		0	0
1	Horticulture (50 cents below)	Nos.	1454	195	1161	226395	42	8190	251	48945	2.8353
2	Horticulture (50 - 100cents)	Nos.	1069	460	1025	471500	44	20240		0	4.9174
3	Horticulture (above 100 cents)	Nos.	601	840	65	54600	500	420000	36	30240	5.0484
4	Poly house nursery (500 sq.ft)	Nos.	1	470000	1	470000		0		0	4.7
	Total					21167688.2		11494746		17553567	503.83

Annual Action Plan for Production System Management and Micro Enterprises											
Sl No.	Activity	Unit	Total Volume	Rate	Year 1		Year 2		Year 3		Total Amount (Rs in Lakhs)
					Physical	Financial	Physical	Financial	Physical	Financial	
	Work components										
I	Production System										
1	Vegetable cultivation	Nos.	1703	500	513	256500	518	259000	672	336000	8.52
2	Bio-gas plant @12500/0.75m <sup>3</sup>	m <sup>3</sup>	375	12500	119	1487500	119	1487500	137	1712500	46.88
3	Dwarf coconut seedling	Nos.	3491	65	1151	74815	1146	74490	1194	77610	2.27
4	Cow rearing @35000/1 no	Nos.	92	35000	25	875000	25	875000	42	1470000	32.20
5	Fish Farming in ponds	Nos.	2060	5	1010	5050	575	2875	475	2375	0.10
	Amount fore seen					235		235		305	0.01
	<b>Total</b>					<b>2699100</b>		<b>2699100</b>		<b>3598790</b>	<b>89.97</b>

Annual Action Plan for Livelihood Activities											
Sl No.	Activity	Unit	Rate	Total Volume	Year 1		Year 2		Year 3		Total Amount (Rs in Lakhs)
					Physical	Financial	Physical	Financial	Physical	Financial	
	Work components										
1	Revolving Fund	SHGs	25000	241	71	1775000	71	1775000	99	2475000	60.25
2	Goat Rearing		6000	193	46	138000	40	120000	107	321000	5.79
3	Hen with cage		6500	299	101	328250	101	328250	97	315250	9.72
4	Heifer		10000	78	27	135000	27	135000	24	120000	3.90
5	Rabbit farming with cage		6000	6		0	6	18000		0	0.18
6	Food Processing Unit		50000	2		0		0	2	100000	1.00
	Amount foreseen									13550	0.14
	<b>Total</b>					<b>2376250</b>		<b>2376250</b>		<b>3344800</b>	<b>80.97</b>

## MICRO WATERSHEDS

### POOKOTTUPUZHA WATERSHED (14P10a)

**Table 17 Location and Extend of Pookottupuzha(14P10a)Watershed**

1	Name of the Block	Vellangallur Block Panchayat
2	Name of the District	Thrissur
3	Name of Grama Panchayat	Vellanagallur, Poomangalam, Padiyur, Velookkara
4	<b>Geographical Location</b>	
	Latitudes	10°16'43.893"N 10°20'35.33"N
	Longitudes	76°10'11.328"E 76°14'32.439"E
5	Geographical Area of the Watershed	2895 ha
6	Watershed and Watershed codes	Pookottupuzha (14P10a)
7	Major Water Source	Karupadana River
8	River flowing nearby the watershed area	Karupadana River
9	Livelihood Options	Agriculture, Animal Husbandry, Wage employees, Govt. Job

**Table 18 Watershed Character Pookottupuzha Watershed**

Relief	Flat to Excessive
Drainage	Well Drained
Average Slope	Nearly Flat

## AMARIPPADAM WATERSHED(14P11a)

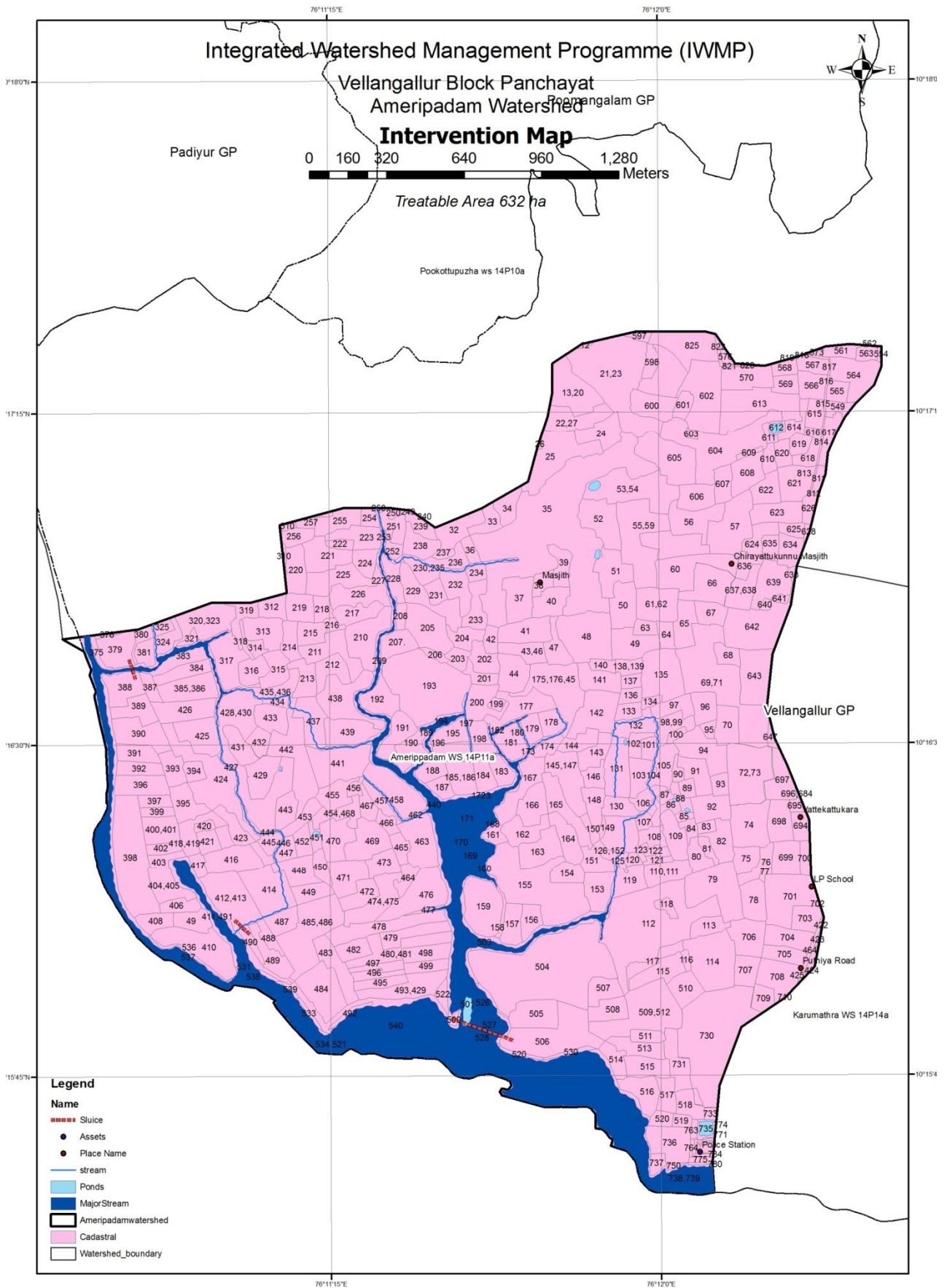
**Table 19 Location and Extend of Amarippadam Watershed**

Name of the Block	Vellangallur Block Panchayat
Name of the District	Thrissur
Name of Grama Panchayath	Vellangallur
<b>Geographical Location.</b>	
Latitudes	10°15'29.008"N 10°17'26.957"N
Longitudes:	76°10'39.842"E 76°12'31.101"E
Geographical Area of the Watershed	632 ha
Watershed and Watershed codes	Amarippadam (14P11a)
Major Water Source	KanoliCannal
River flowing nearby the watershed area	Karupadana
Livelihood Options	Agriculture, Animal Husbandry, Business, Wages, Govt. Job

**Table 20 Watershed Character Amarippadam Watershed**

<b>Amarippadam Watershed</b>	
Relief	Flat to Excessive
Drainage	KanoliCannal
Average Slope	Nearly Flat





## KARUMATHRA WATERSHED(14P14a)

**Table 21 Location and Extend of Karumathra Watershed**

Name of the Block	Vellangallur Block Panchayat
Name of the District	Thrissur
Name of Grama Panchayath	Vellangallur and Puthanchira
<b>Geographical Location.</b>	
Latitudes	10°14'18.75"N 10°16'54.256"N
Longitudes:	76°12'7.031"E 76°14'22.88"E
Geographical Area of the Watershed	893 ha
Watershed and Watershed codes	Karumathra (14P14a)
Major Water Source	Irinjakulam
River flowing nearby the watershed area	Karupadana
Livelihood Options	Agriculture, Animal Husbandry, Business, Wages, Govt. Job

**Table 22 Watershed CharacterKarumathra watershed**

<b>Karumathra watershed</b>	
Relief	at to Normal
verage Slope	Nearly Flat
Drainage	Well drained

# Integrated Watershed Management Programme (IWMP)

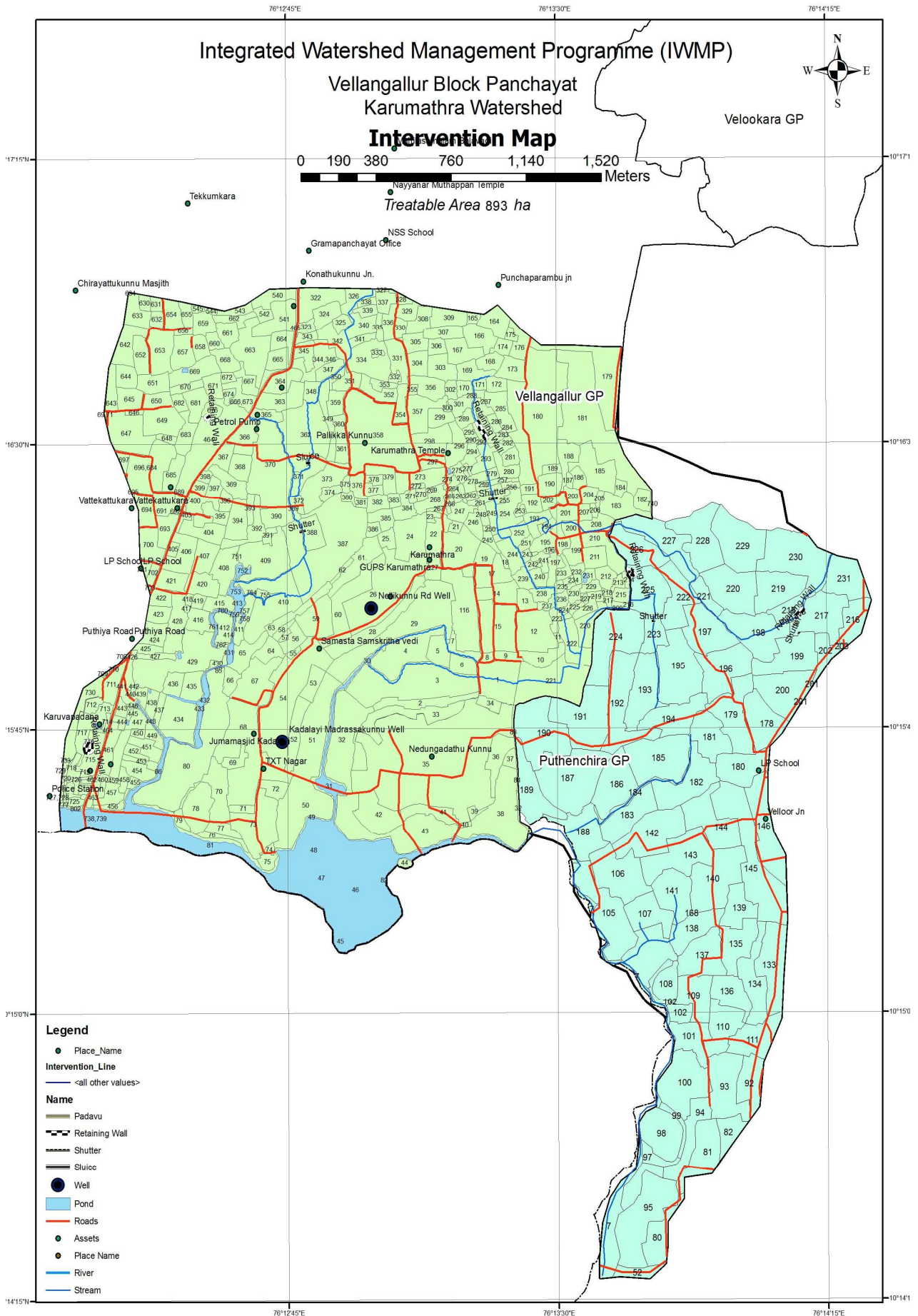
Vellangallur Block Panchayat  
Karumathra Watershed

## Intervention Map

Velookara GP

0 190 380 760 1,140 1,520 Meters

Treatable Area 893 ha



- Legend**
- Place Name
  - Intervention\_Line
  - <all other values>
  - Name**
  - Padavu
  - ▬ Retaining Wall
  - ▬ Shutter
  - ▬ Sluice
  - Well
  - Pond
  - Roads
  - Assets
  - Place Name
  - River
  - Stream

## KAKKATHURUTHY WATERSHED(14P8a)

**Table 23 Location and Extend of Kakkathuruthy Watershed**

Name of the Block	Vellangallur Block Panchayat
Name of the District	Thrissur
Name of Grama Panchayath	Padiyur
<b>Geographical Location.</b>	
Latitudes	10°18'47.965"N 10°19'53.951"N
Longitudes:	76°9'18.034"E 76°10'38.041"E
Geographical Area of the Watershed	320 ha
Watershed and Watershed codes	Kakkathuruthy (14P8a)
Major Water Source	Kakkathuruthy
River flowing nearby the watershed area	Karupadam River
Livelihood Options	Agriculture, Animal Husbandry, Business, Wages, Govt. Job

**Table 24 Watershed Character Kakkathuruthy watershed**

<b>Kakkathururthywatershed</b>	
Relief	Flat to Excessive
Average Slope	Nearly Flat
Drainage	Drained

# Integrated Watershed Management Programme (IWMP)

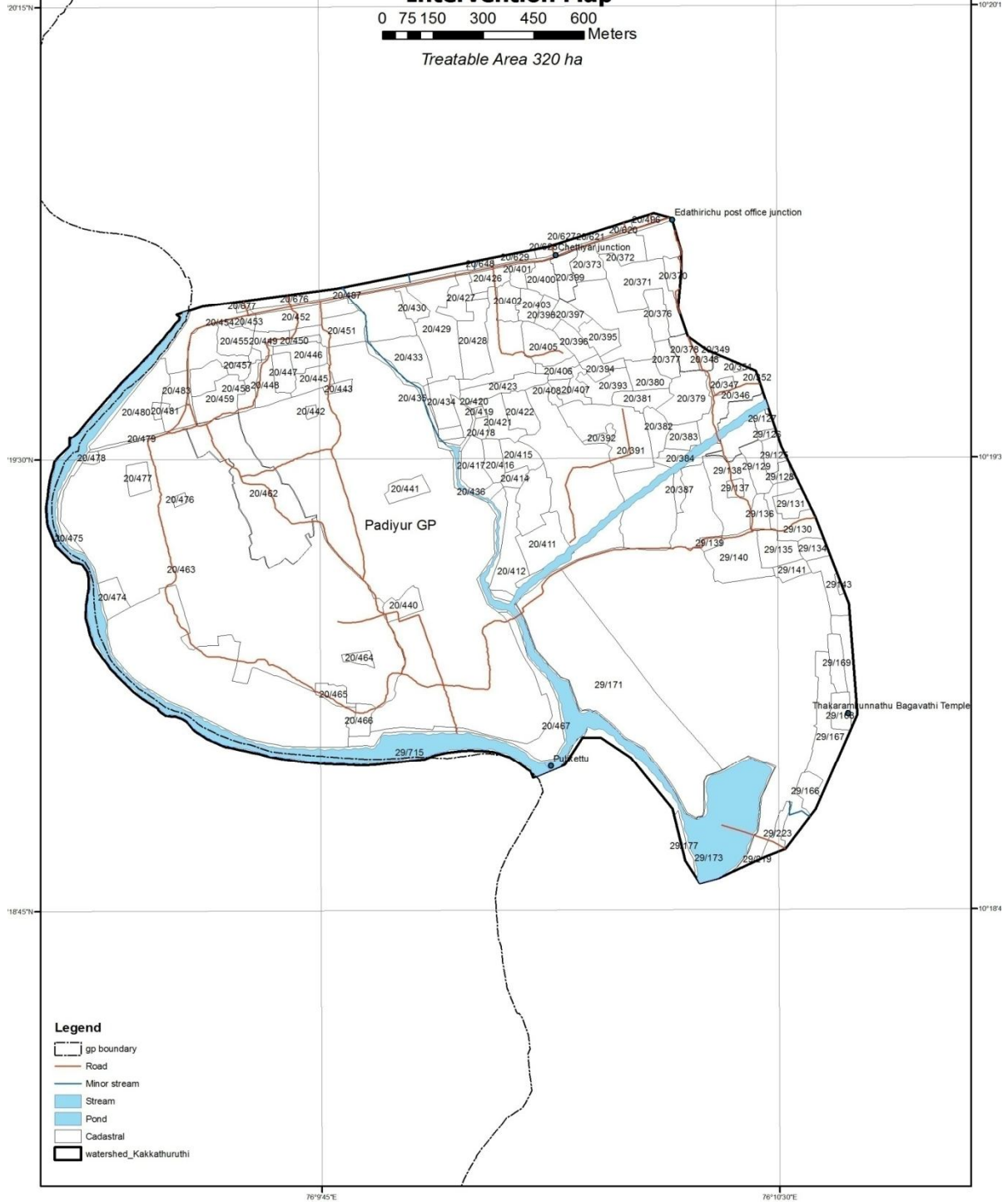
Vellangallur Block Panchayat

Kakkathuruthi Watershed

## Intervention Map

0 75 150 300 450 600  
Meters

Treatable Area 320 ha



**MAZHUVANCHERY WATERSHED(14P9a)**

**Table 25 Location and Extend of Mazhuvanchery watershed**

Name of the Block	Vellangallur Block Panchayat
Name of the District	Thrissur
Name of Grama Panchayath	Padiyur
<b>Geographical Location.</b>	
Latitudes	10°17'40.515"N 10°19'1.873"N
Longitudes:	76°9'50.486"E 76°10'24.706"E
Geographical Area of the Watershed	100 ha
Watershed and Watershed codes	Mazhuvanchery (14P9a)
Major Water Source	Nalukattuthodu
River flowing nearby the watershed area	Karupadanam
Livelihood Options	Agriculture, Animal Husbandry, Business, Wages, Govt. Job

**Table 26 Watershed CharacterMazhuvanchery watershed**

<b>Mazhuvanchery watershed</b>	
Relief	Flat to Excessive
Drainage	Drained
Average Slope	Nearly Flat

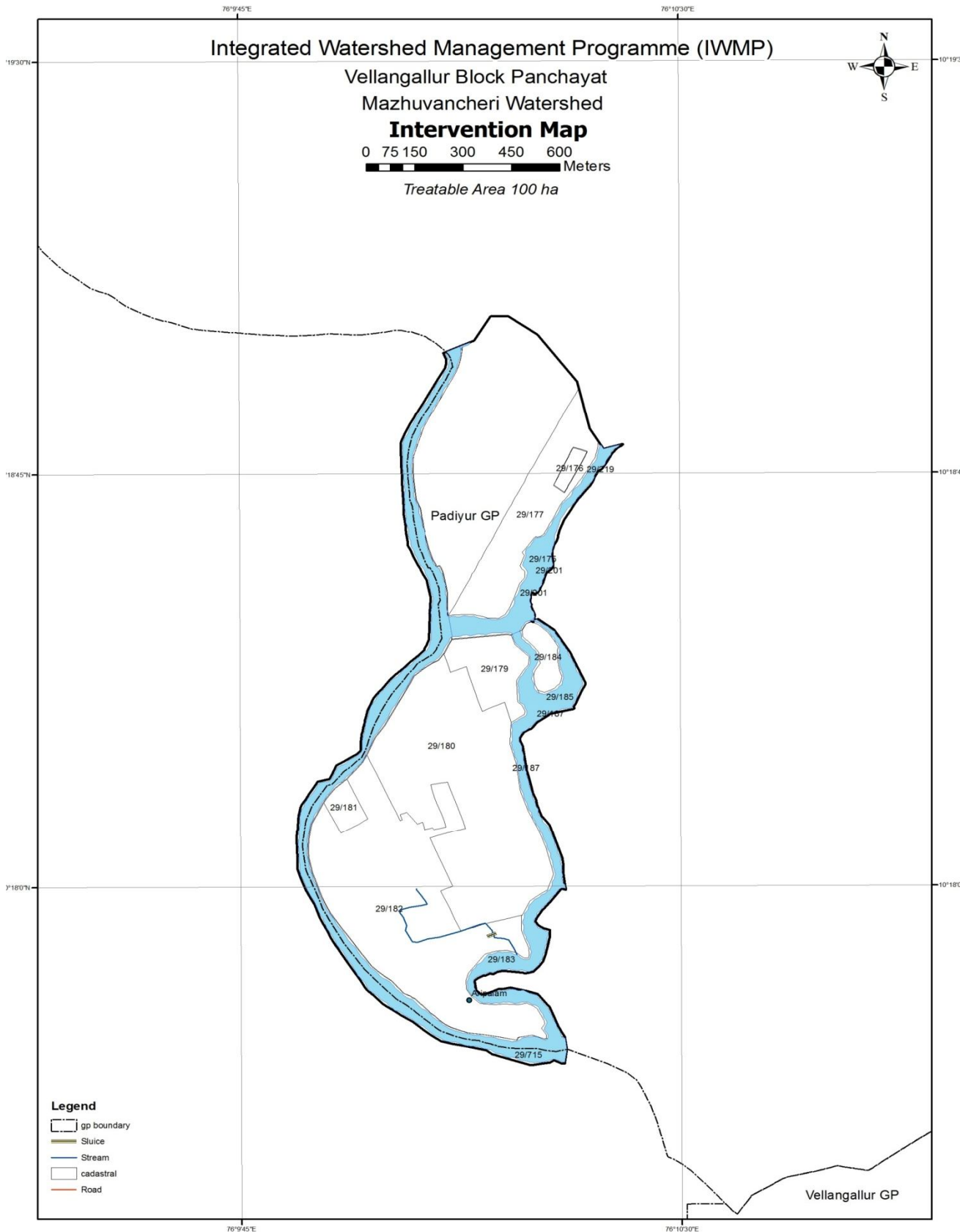
Integrated Watershed Management Programme (IWMP)

Vellangallur Block Panchayat  
Mazhuvancheri Watershed

**Intervention Map**

0 75 150 300 450 600  
Meters

Treatable Area 100 ha



## PUTHANCHIRA WATERSHED(14P15a)

**Table 27 Location and Extend of Puthanchira watershed**

Name of the Block	Vellangallur Block Panchayat
Name of the District	Thrissur
Name of Grama Panchayath	Puthanchira
<b>Geographical Location.</b>	
Latitudes	10°13'6.907"N 10°16'57.383"N
Longitudes:	76°13'21.558"E 76°15'32.091"E
Geographical Area of the Watershed	1158 ha
Watershed and Watershed codes	Puthanchira (14P15a)
Major Water Source	KaringachiraThodu
River flowing nearby the watershed area	Karupadanam
Livelihood Options	Agriculture, Animal Husbandry, Business, Wages, Govt. Job

**Table 28 Watershed CharacterPuthanchira watershed**

<b>Puthanchirawatershed</b>	
Relief	Nearly Flat
Average Slope	flat to Normal
Drainage	Well Drained



76°12'45"E 76°13'30"E 76°14'15"E 76°15'0"E

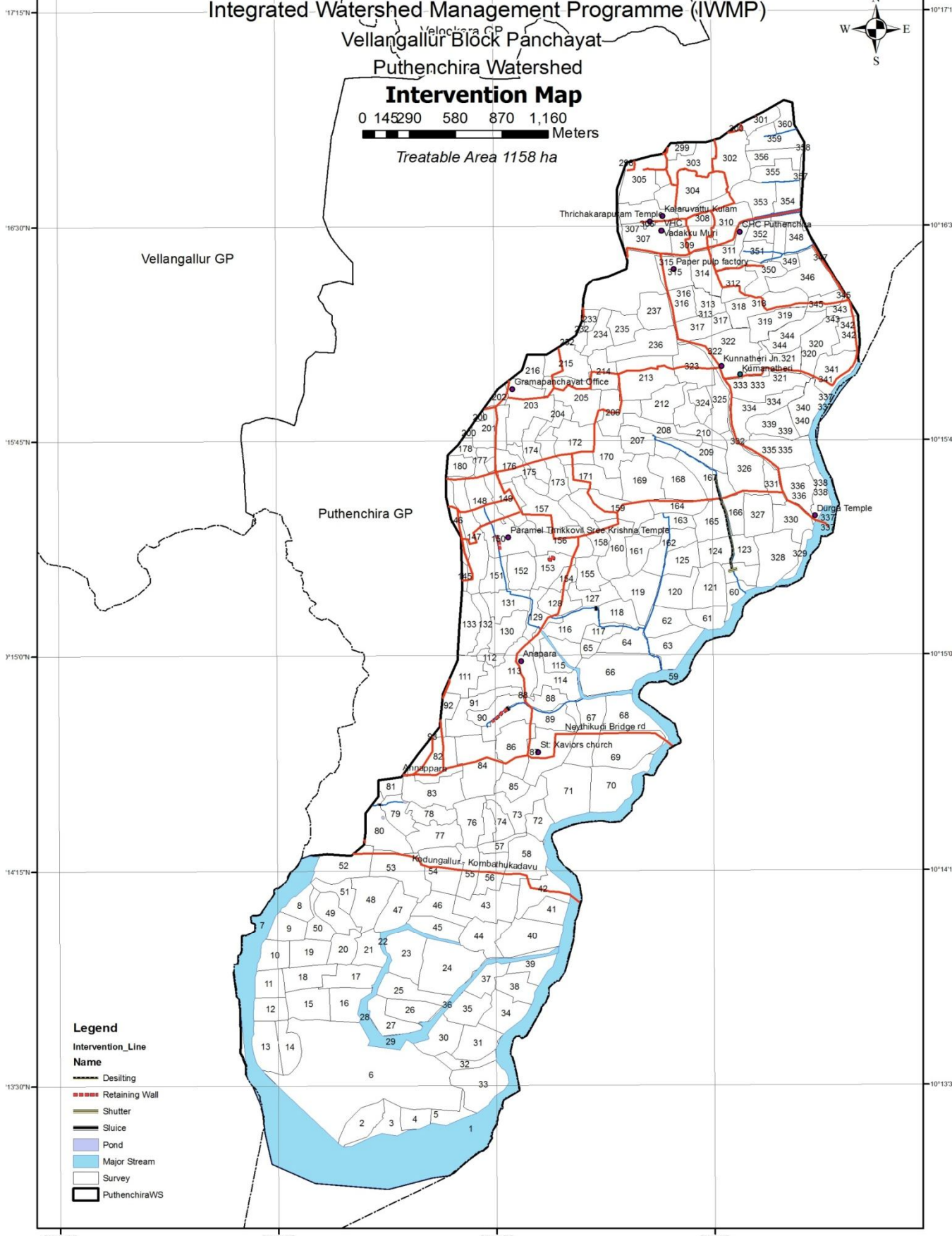
# Integrated Watershed Management Programme (IWMP)

Vellore Block Panchayat  
Puthenchira Watershed

## Intervention Map

0 145290 580 870 1,160  
Meters

Treatable Area 1158 ha



- Legend**
- Intervention\_Line  
Name
- Desilting
  - Retaining Wall
  - Shutter
  - Sluice
  - Pond
  - Major Stream
  - Survey
  - PuthenchiraWS

76°12'45"E 76°13'30"E 76°14'15"E 76°15'0"E

## **XVIII. WATERSHED DEVELOPMENT FUND**

One of the mandatory conditions for selection of villages in Watershed Development Programmes is people's contribution towards Watershed Development Fund (WDF). The contributions to WDF shall be a minimum 10% of the cost of works executed on individual lands. However, in case of SC/ST and persons identified below the poverty line, the minimum contribution shall be 5% of the cost of works executed on their lands. Contribution to the Fund in respect of community property may come from all the beneficiaries, which shall be a minimum of 5% of the development cost incurred.

It should be ensured that the contribution comes from the beneficiary farmers and is not deducted from the wages paid to the labourers who are engaged to treat the private lands. These contributions would be acceptable either in cash/ voluntary labour or material. A sum equivalent to the monetary value of the voluntary labour and materials would be taken from the watershed project account and deposited in this Fund. The Gram Panchayat shall maintain the Watershed Development Fund separately. The Chairman and Secretary, Grama Panchayath will operate the WDF account jointly. Individuals as well as community organizations should be encouraged to contribute generously to this Fund. The proceeds of this Fund shall be utilized in maintenance of assets created on community land or for common use after completion of project period. Works taken up for individual benefit shall not be eligible for repair/maintenance out of this Fund.

## **XIX. EXPECTED OUTCOME FROM EACH INTERVENTION**

<b>Expected Outcomes from the Project</b>			
<b>SI No</b>	<b>Particulars</b>	<b>Expected Result</b>	<b>Unit</b>
<b>I</b>	Biogas	375	Nos
<b>II</b>	Poly house nursery (500 sq.ft)	1	Nos
<b>III</b>	<b>Production of Different Crop</b>		
1	Coconut	12390	MT
2	Arecanut	17.9	MT
3	Pepper	113.85	MT
4	Grains	748	MT
5	Banana	4195	MT
6	Nutmeg	1.36	MT
7	Vegetables	1703	Nos
<b>IV</b>	<b>Livestock Population</b>		
1	Cow	170	Nos
2	Goat	193	Nos
3	Hen	1495	Nos
4	Rabbit	30	Nos
5	Fish	2060	Nos
<b>V</b>	<b>Micro Enterprises</b>		
1	Food Processing Unit	2	Nos

## **XX. EXIT PROTOCOL**

While preparing the detailed Action Plan/Treatment Plan, the Gram Sabha/Gram Panchayat, under the technical guidance of WDT, shall evolve proper Exit Protocol for the watershed development project. The Exit Protocol shall specify a mechanism for maintenance of assets created, augmentation including levy and collection of user charges, utilization of the Watershed Development Fund etc. Mechanism for equitable distribution and sustainability of benefits accrue under the watershed development project should also be clearly spelt out in the Exit Protocol. While approving the Action Plan for the watershed, the ZP/DRDA shall ensure that the detailed mechanism for such Exit Protocol forms part of the Action Plan/Treatment Plan.

The active intervention period of most of the projects is about five years after which the PIA is expected to withdraw and move to other watersheds/areas. Maintenance of the

infrastructure was a serious handicap prior to the concept of people's participation. All contributions mentioned previously were kept in a separate account called the Watershed Development Fund (WDF) in the name of the watershed associations to be operated after the exit of the PIA. Wherever participants could be convinced about the philosophy of cost-sharing, overall contribution per watershed went beyond 5-10 per cent of the stipulation since it was meant for the welfare of the community and the maintenance of the infrastructure created under the watershed programme. Despite several guidelines, this aspect is not dealt with adequately till date. Hence, in most of our sample watersheds the WDF has not been utilized fully. Due to changes/replacement of political/elected representatives in the local bodies and lack of proper guidance to Watershed Committees this account remains unutilized with the PIA. So the following must be kept after withdrawal – 1. Must have an office in each watershed to continue the process. 2 All NRM activities in the concerned area to be followed on accord of WC. 3 A paid secretary to be maintained in each watershed.